ih

Hydrological data UK

1994 YEARBOOK

INSTITUTE OF HYDROLOGY • BRITISH GEOLOGICAL SURVEY

HYDROLOGICAL DATA
UNITED KINGDOM

1994
YEARBOOK

Published by the Institute of Hydrology,
Wallingford, Oxon OX10 8BB

ISBN 0 948 540 71 0

Editor Hydrological data UK series : T J Marsh

Assistant Editor: S Green

The acquisition, archiving and validation of the bulk of the hydrological data featured in this Yearbook is undertaken as part of the National Water Archive (NWA) project at the Institute of Hydrology. Liaison with the measuring authorities is coordinated by M L Lees (NWA Manager), J M Dixon acts as the regional representative for Northern Ireland. J Carr and F J Sanderson were responsible for the acquisition and checking of much of the data featured in this Yearbook.

The style and contents of the Yearbook, and the scope of the data retrieval service which complements it, reflect a decade of archive system development supervised by D G Morris. Recent enhancements to the retrieval and data presentation facilities have largely been undertaken by O Swain and R W Flavin.

The British Geological Survey is responsible for the acquisition and archiving of the featured groundwater level data. The Groundwater Level Archive is managed by A A McKenzie; data acquisition and measuring authority liaison duties are undertaken by P Doorgakant.

Mrs S Black was responsible for the preparation of the text and supervises the sale and distribution of the Hydrological data UK publications through the National Water Archive Office at the Institute of Hydrology.

Design: P A Benoist

Graphics: J J Carr

Typeset and printed in the United Kingdom by Wace Burgess.

The materials used in the production of this volume are made from the pulp of softwood trees in managed Scandinavian forests, in which every tree cut down is replaced by at least one more, thus replenishing the Earth's resources.

Cover: Flood gauging on the A27 at Westhampnett, Sussex in January 1994. The A27 was closed for a week when the River Lavant burst its banks east of Chichester.

Photograph: National Rivers Authority, Southern Region

HYDROLOGICAL DATA UNITED KINGDOM

1994 YEARBOOK

An account of
rainfall, river flows, groundwater
levels and river water quality
January to December 1994

Institute of Hydrology **British Geological Survey**

FOREWORD

The recent volatile climatic conditions experienced in the United Kingdom have stimulated considerable media and public interest in hydrological issues. Concern has focused on the resilience of water management strategies, and operational procedures designed to mitigate the impact of flooding or drought. Water management is largely predicated on the lack of any long term trends exhibited by lengthy rainfall, river flow and groundwater level records for the UK. The remarkable variability in hydrological conditions over the last decade together with the increasing evidence of global warming, suggest that this stability may not extend into the future. Whilst the inherent variability of our climate dictates that any departures from the normal range need to be treated with caution, there is a need to monitor the impact of hitherto unusual weather patterns with particular care because of their economic and social consequences. Meticulously high hydrometric standards will need to be maintained in order to help distinguish between the effect of man on river flow regimes and on groundwater levels and those resulting from climatic variability. An important incentive is that such attentive hydrological surveillance should provide valuable insights into conditions likely to be experienced with greater frequency in the future.

A principal function of the Hydrological data UK series is to document and disseminate information relating to contemporary hydrological conditions. The individual Yearbooks constitute a series of benchmarks which, when viewed in the context of historical variablity, can expose to public and scientific examination any significant changes in river flow regimes and aquifer recharge patterns. The Yearbooks also provide a gateway to the extensive data holdings which together constitute the National Water Archive; these now appear within the metadata catalogue of the Natural Environment Research Council (NERC).

It is intended that the complete flow records from the core gauging stations of the National River Flow Archive will be published in computer-readable form on a CD-ROM. This will further enhance the service we are able to give to an ever widening community of data users.

The Hydrological data UK series of Yearbooks and reports was launched in 1985 as a joint venture by the Institute of Hydrology (IH) and the British Geological Survey (BGS); both organisations are component bodies of the NERC. Such a collaborative enterprise arose naturally from the close liaison maintained between those responsible for the management of the National River Flow Archive at IH, and their counterparts at BGS concerned with the National Groundwater Level Archive.

The work of the national River Flow and Groundwater Level Archives is overseen by the Surface and Groundwater Level Archive (SAGA) a steering committee which includes representatives of Government departments, the National Rivers Authority and the water industry from England, Wales, Scotland and Northern Ireland. I commend this Yearbook to the Environment Agency for England and Wales and the Scottish Environment Protection Agency as they begin their work; their hydrometric teams in the predecessor organisations (the National Rivers Authority and the Scottish River Purification Boards) are thanked for essential work which underpins all publications in the Hydrological data UK series.

A.G.P. Debney
Acting Director, Institute of Hydrology

HIGHLAND R.P.B.
NORTH EAST R.P.B.
TAY R.P.B.
FORTH R.P.B.
CLYDE R.P.B.
TWEED R.P.B.
SOLWAY R.P.B.
NORTHERN IRELAND
NORTHUMBRIA/ YORKSHIRE
NORTH WEST
SEVERN-TRENT
WELSH
ANGLIAN
THAMES
SOUTH WESTERN
SOUTHERN
pt 201
pt 203
pt 235
pt 236
pt 226
pt 206
National Rivers Authority region or River Purification Board boundary
Hydrometric area number and boundary

CONTENTS

INTRODUCTION

The 1994 Yearbook is the sixth edition since responsibility for the publication of data, upon which assessments of water resources in England and Wales may be made, was transferred (under the Water Act 1989) from the Department of the Environment to the National Rivers Authority. It is the fourteenth Yearbook in the Hydrological data UK series and the fourth volume in the third five-year publication cycle (1991-95).

The 1994 Yearbook represents the thirty-fifth edition in the series of surface water publications which began with the 1935-36 Surface Water Yearbook. As a result of the incorporation of groundwater data in the Yearbook, this volume is also the nineteenth edition in the series of groundwater data publications which began with the 1964-66 Groundwater Yearbook.

Apart from summary information, river flow and groundwater data were published separately on a national basis, prior to the introduction of the Hydrological data UK series. In common with the earlier editions, the 1994 Yearbook brings together the principal data sets relating to river flow, groundwater levels and areal rainfall throughout the United Kingdom. Also tabulated are water quality data for a selection of monitoring sites throughout the UK; such data first appeared in the 1986 Yearbook. A comprehensive hydrological review of the year is included together with feature articles documenting the remarkable floods which occurred on the River Lavant in early January and in the Strathclyde region in December. An outline description is given of the National River Flow and Groundwater Level Archives and the data retrieval facilities which complement them. Introductory details are also provided of the range of facilities and datasets available through the National Water Archive – one of the Natural Environment Research Council's (NERC) Designated Data Centres.

Publication of river flow data for Great Britain started with the series of Surface Water Yearbooks. The first edition, which was published in 1938 for the water-year (October-September) 1935-36, also included selected data for the previous fifteen years; the edition for 1936-37 followed in 1939. Both these publications were prepared under the direction of the Inland Water Survey Committee. Assisted by the Scottish Office, the Committee continued to publish hydrological data after the Second World War; the Yearbook for the period 1937-45 was published as a single volume in 1952. Due to economic stringency, the Survey was suspended in 1952 for a period of two years but was then re-formed as the Surface Water Survey Centre of Great Britain. A Yearbook covering the years 1945-53 was published in 1955.

In 1964 the Survey was transferred to the Water Resources Board where it remained until the Board was disbanded in 1974. The work of collecting and publishing surface water information in England and Wales then passed to the newly created Water Data Unit of the Department of the Environment (DoE). Yearbooks were published jointly each year by these organisations and the Scottish Office for the water-years 1953-54 to 1965-66; thereafter information for the five calendar years 1966 to 1970 was published in one volume in 1974. Following editions were renamed 'Surface Water: United Kingdom' to mark the inclusion of the first records from Northern Ireland and in recognition of the move away from single year volumes. Two volumes of Surface Water: United Kingdom, covering the years 1971-73 and 1974-76 were published jointly by the Water Data Unit, the Scottish Development Department and the Department of the Environment for Northern Ireland.

Following the transfer of the Surface Water Archive to the Natural Environment Research Council in 1982, the final edition of Surface Water: United Kingdom, for the years 1977-80, was prepared by the Institute of Hydrology at the request of the Water Directorate of the Department of the Environment, and published in 1983.

The 1981 and 1982 Yearbooks were prepared concurrently and were, in 1985, the first Yearbooks published by the Natural Environment Research Council. Further Yearbooks – the editions for 1983 to 1993 – were published over the following nine years.

A compilation of 'Groundwater levels in England during 1963', which was produced by the Geological Survey of Great Britain (prior to its incorporation into the Institute of Geological Sciences), was the precursor to the publication of groundwater level data on a national basis. The more formal Groundwater Yearbook series was instigated by the Water Resources Board which published the inaugural edition and a further volume for 1967, both covering England and Wales. In 1975 a third Yearbook, for 1968-70, was published by the Water Data Unit. The Groundwater: United Kingdom series was introduced in 1978 with the production of the 1971-73 volume, also published by the Water Data Unit.

Following the transfer of the Groundwater Archive to the Institute of Geological Sciences (now the British Geological Survey), the second edition of Groundwater: United Kingdom, covering the period 1974-80, was prepared by the Institute of Hydrology at the request of the Water Directorate of the Department of the Environment. Subsequently, groundwater level data have been included in the Hydrological data UK publications.

SCOPE AND SOURCES OF INFORMATION

The format of the 1994 Yearbook follows that of the recent editions in the Hydrological data UK series. The Hydrological Review examines rainfall, evaporation, soil moisture, river flow and groundwater conditions throughout the year. The following data sections provide detailed coverage for the featured year, and for comparison purposes, period of record reference statistics are also given.

Emphasis is placed upon ready access to basic data both within the Yearbook and through the complementary data retrieval facilities.

A companion publication to the individual Yearbooks – the '*Hydrometric Register and Statistics*' volume – provides a comprehensive reference source for hydrometric information which does not change materially from year to year; the second edition (for 1986–90) (see page 174) was published in 1992 and the 1991–95 edition will be compiled in 1996.

The Yearbook contents have been abstracted primarily from the National River Flow and Groundwater Level Archives. Water quality data have been provided from the Harmonised Monitoring Archive which is currently maintained by the Environmental Protection Statistics Division of the Department of the Environment (DoE). Similar data from Northern Ireland have been provided by the Environmental Service of the Department of the Environment (NI).

The National Rivers Authority (NRA) is responsible for the initial collection and processing of most river flow and groundwater level data in England and Wales. Following the 1989 Water Act, the new Water Service PLCs assumed responsibility for a small number of important monitoring sites for which historical – and a few contemporary – data sets are held on the River Flow and Groundwater Level Archives. The seven River Purification Boards (RPBs) are responsible for most hydrometric data acquisition in Scotland. In Northern Ireland responsibility is shared between the Departments of Environment and Agriculture. These organisations also supplied valuable material relating to significant hydrological events during 1994. Additional hydrometric material has been supplied by water supply companies, various research bodies and public undertakings.

The majority of the rainfall data, and some of the material incorporated in the Hydrological Review, has been provided by the Meteorological Office. For historical comparisons of the rainfall over England and Wales, a data set based upon the homogeneous series derived by the Climatic Research Unit of the University of East Anglia has been used.

Most of the rainfall data published in the Hydrological data UK series are in the form of monthly rainfall totals for catchment areas (see page 38). The Met. Office (address below) can provide details of the availability of daily and monthly rainfall data associated with individual raingauges. Brief details of rainfall and climatological data sets published by The Met. Office, are given below.

The Natural Environment Research Council acknowledges and extends its appreciation to all who have assisted in the collection of information for this publication.

Rainfall and Climatological Data

The Meteorological Office maintains the national archives of rainfall and climatological data at its headquarters at Bracknell. Specific items, such as daily and hourly rainfalls from gauges and radar (from the PARAGON system) may be obtained by application to Met. Office Commercial Services Rainfall Section (address opposite, Tel: 01344 856849). Summaries of the data are also published regularly and a list of current titles is given below:

1. *Monthly Weather Report*
   This is published monthly and contains climatological means for more than 550 UK observing stations; in addition an introduction and annual summary are produced yearly. The publication should be available about a year after the month concerned, costs around £3 and is available only from Her Majesty's Stationery Office (HMSO) or their stockists.
2. *MORECS (Meteorological Office Rainfall and Evaporation Calculation System).*
   This is a weekly issue of maps and tables of rainfall, evapotranspiration, soil moisture deficit, effective rainfall, and the hydrometeorological variables used to calculate them. The data are used to provide values for 40 km squares and various sets of maps and tables are available according to customer requirements. Enquiries to (01344) 856858.

Further information about these and other publications may be obtained from:

Meteorological Office, Commercial Manager,
Commercial Services, Johnson House,
London Road, Bracknell,
Berks RG12 2SY

Tel: (01344) 854455
Fax: (01344) 854906

HYDROLOGICAL REVIEW OF 1994

Summary

With a westerly airstream predominating, 1994 was a very mild and relatively wet year in most regions. Some limited water distribution difficulties occurred during the late summer but no significant water resources problems were encountered. The transformation in hydrological conditions at the end of the 1988-92 drought heralded a lengthy period with notably high accumulated rainfall totals and, generally, runoff and recharge rates remained healthy, relative to the seasonal average, throughout 1994. There were relatively few episodes of widespread flooding although two major events - of contrasting character - provided clear reminders of our continuing vulnerability to flood damage and the need to refine existing alleviation and warning procedures.

On a nationwide basis January, March and December were easily the wettest months in 1994 and the May-August period was notably dry, in the east particularly. Notable convectional storms were relatively uncommon in 1994 and most rainfall derived from Atlantic frontal systems. One consequence was an exaggeration in the west-to-east rainfall gradient across Britain with rain-shadow effects being especially noticeable in eastern Scotland. The United Kingdom rainfall total for 1994 is about 13% above average and the fourth highest year this century. However, 1982, 1986, 1990 and 1992 were almost as wet. The recent wet phase mainly reflects persistently high precipitation totals for Scotland: 1994 was the ninth wettest year, in a 126-year series, but ranks only fifth in the last 13 years; precipitation over the post-1978 period has been almost 20% greater than the preceding average* - winter rainfall being especially abundant in the west.

Although February was cold, most months in 1994 registered mean temperatures appreciably above average - exceptionally so in July, and November which was the warmest in the full 337-year Central England Temperature series (CET)[1]. These notably warm interludes helped to place 1994 amongst the eight warmest years this century. More significantly, the post-1987 period represents the warmest seven-year sequence in the entire CET.

In common with each of the last six years, potential evaporation (PE) losses for 1994 were well above average, typically ranking in the top five since 1960 - but generally considerably below the totals for 1989 and 1990. Actual evaporation (AE) losses for 1994 present a rather more complex pattern. In parts of eastern Britain sustained soil moisture deficits restricted evaporation through the growing season and AE losses were exceptionally low relative to the long term average in parts of north-east England and eastern Scotland. Throughout most of southern England however, soils remained relatively moist except in July and August; as a result AE totals were substantially above average. This was true of the west also where AE losses closely approached their potential value and were commonly amongst the highest on record.

Monthly river flows remained above, or near, average in most catchments throughout much of 1994 and record annual runoff totals were established for a substantial number of rivers - most draining permeable catchments but unprecedented runoff totals were also recorded for catchments in North Wales and western Scotland. Very high runoff totals early and late in 1994, together with the relatively dry summer (triggering record irrigation demands in some areas) helped emphasise seasonal contrasts in flow rates, particularly in rivers with only modest baseflows; autumn flows were especially depressed in Scotland. However, healthy spring flows - a consequence of heavy and sustained recharge over the previous winter - maintained lowland summer flows well within the normal range. Although extensive floodplain inundations were uncommon in 1994 the December flooding in Scotland was the latest in a notable cluster which have substantially reduced estimated return periods for high magnitude floods, in rivers draining the Highlands especially.

Groundwater levels were mostly well above average in 1994 and, in January, overall aquifer storage was remarkably high - a dramatic contrast to 18 months previously when groundwater levels were as depressed as at any time this century. Generally, the 1994 spring peaks were easily the highest since 1988 and many approached or exceeded the highest groundwater levels on record. In parts of the Chalk levels remained near to seasonal maxima well into the autumn and, typically, the 1994/95 recovery began with healthy groundwater stocks. The contrast with 1989-92, and the volatility of the last six years, is without modern parallel. The recovery of runoff rates and extension of the stream network was especially noticeable in those catchments where low flow alleviation programmes (mostly involving reduced groundwater pumping) have been instigated.

The very mild conditions, the exaggeration in both the west-to-east rainfall gradient and enhanced seasonality in runoff and recharge rates (and very limited snowfall in southern Britain) which characterised 1994 are also typical of most of the last decade. These features are broadly consistent with a number of favoured climate change scenarios.

Rainfall

1994 rainfall as a percentage of the 1961-90 average for the UK is mapped on Figure 1. The actual rainfall totals for the UK are depicted in Figure 2.

* Note: inhomogeneities in the rainfall series for Scotland imply that rainfall since 1957 has been overestimated by >5% relative to the earlier rainfall data[2].

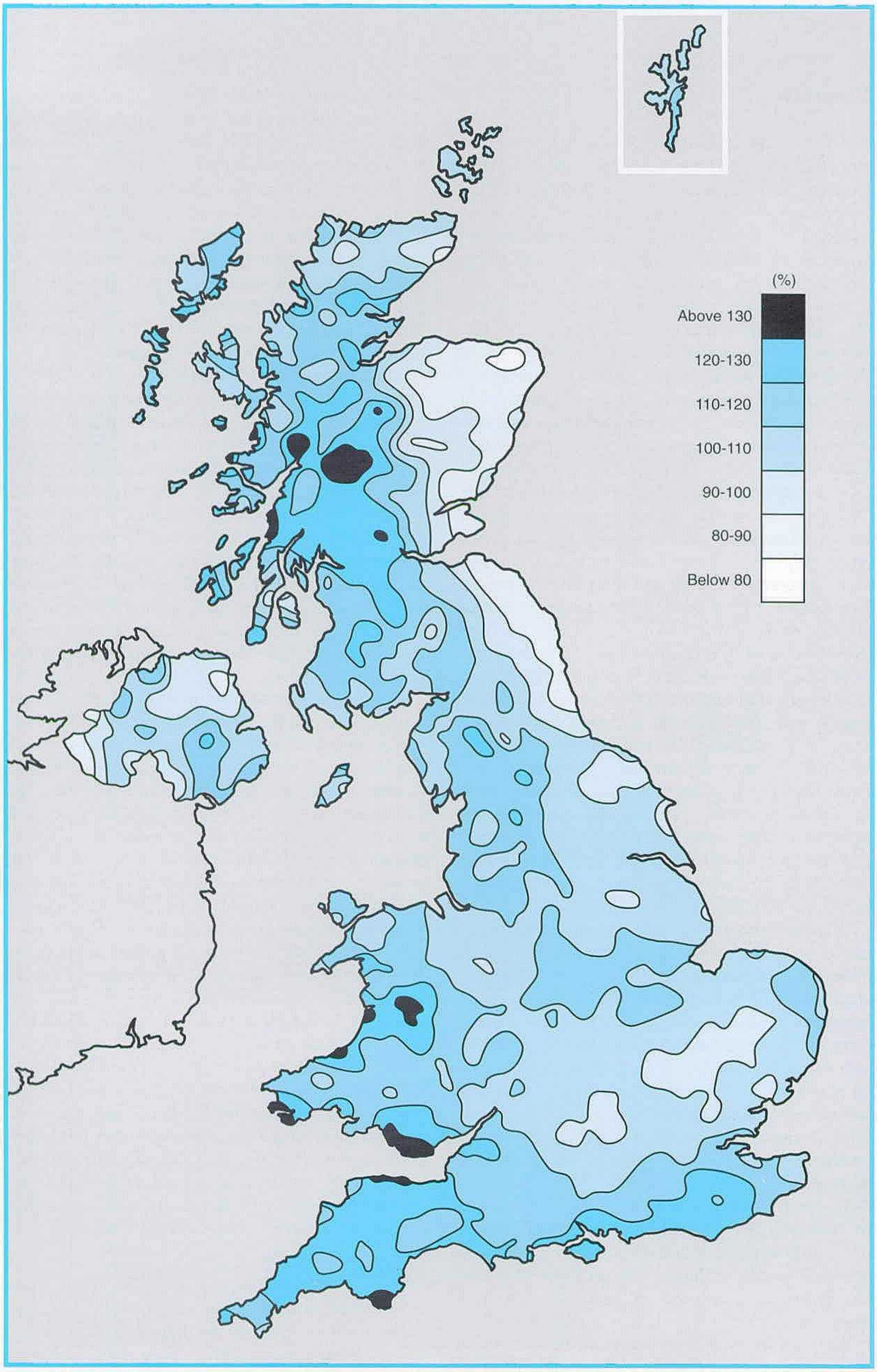


Figure 1 Annual rainfall in 1994 as a percentage of the 1961–90 average Source: The Meteorological Office

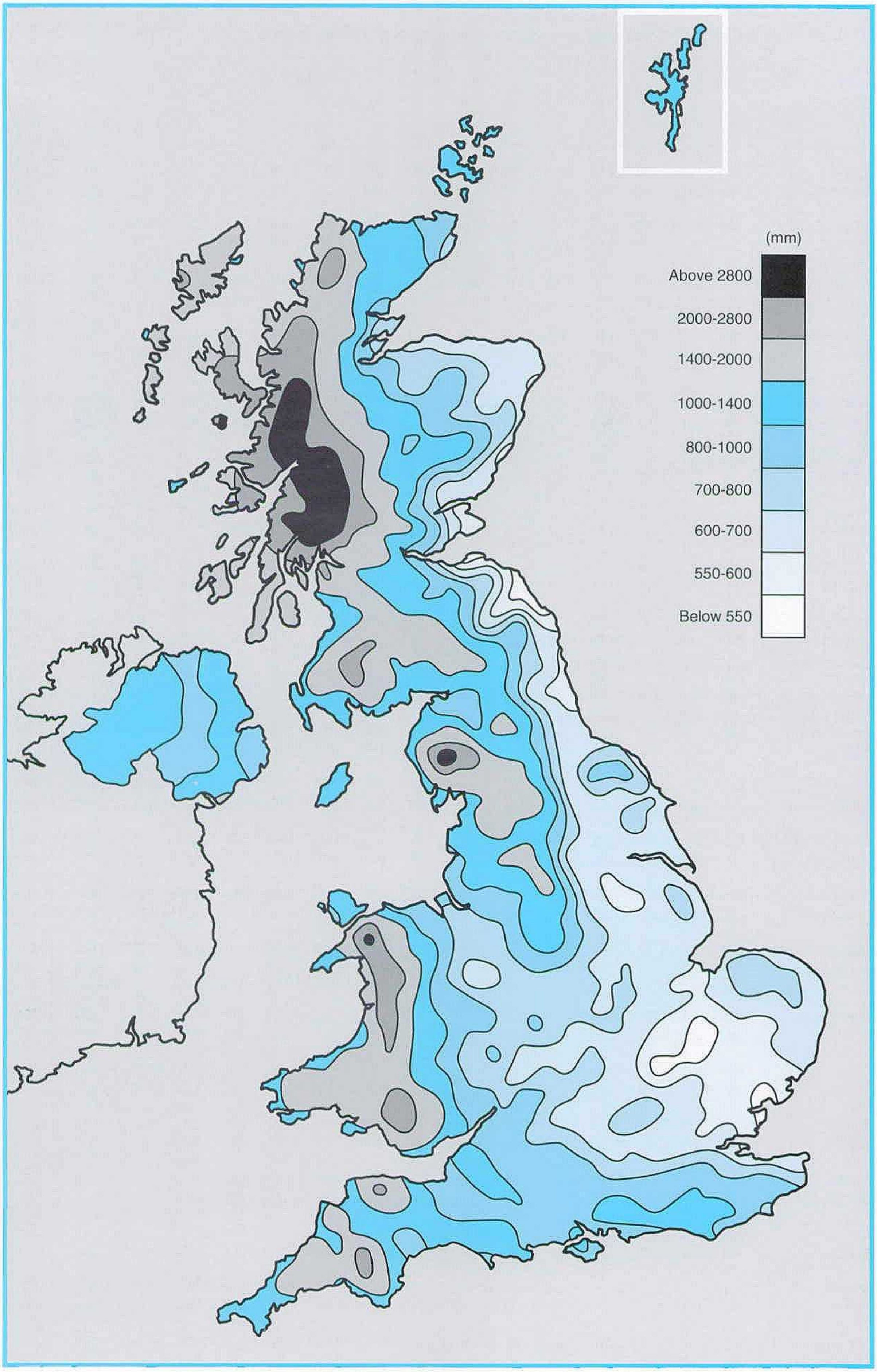


Figure 2 Annual rainfall in 1994

Source: The Meteorological Office

TABLE 1 1994 RAINFALL IN MM AND AS A PERCENTAGE OF THE 1961-90 AVERAGE

1994													D	Year	Oct-Mar 1993/94	Apr-Sep 1994
United	mm	155	90	148	94	50	62	55	83	103	99	109	176	1224	753	447
Kingdom	%	141	118	164	145	69	86	75	92	104	90	99	156	113	124	95
England and	mm	123	82	96	74	62	36	47	72	106	97	86	142	1023	631	397
Wales	%	140	130	133	123	97	55	76	95	138	114	96	151	114	128	98
Scotland	mm	215	96	250	133	29	110	67	101	103	110	156	245	1615	989	543
	%	142	94	200	175	34	128	71	86	73	71	103	162	112	118	90
Northern	mm	159	135	131	91	39	67	69	92	74	64	94	151	1166	721	432
Ireland	%	143	173	149	142	55	94	103	101	76	57	91	145	110	121	94
North West	mm	159	71	165	107	35	70	70	103	113	123	136	207	1359	758	498
(NRA)	%	131	91	174	151	47	86	82	96	98	96	111	167	113	113	93
Northumbria	mm	107	71	84	63	26	39	41	81	77	71	97	124	881	552	327
(NRA)	%	127	120	120	113	42	65	63	100	105	93	113	153	103	121	82
Severn-Trent	mm	95	71	75	57	54	24	44	56	127	68	73	115	859	521	362
(NRA)	%	136	131	123	104	92	41	83	84	198	106	103	149	114	131	101
Yorkshire	mm	116	68	71	61	46	28	53	58	101	73	89	123	887	516	347
(NRA)	%	147	117	104	103	77	47	90	78	149	100	111	148	108	117	91
Anglian	mm	73	45	53	51	51	25	41	57	89	70	32	59	646	416	314
(NRA)	%	146	122	113	111	106	49	84	104	182	137	55	107	108	140	105
Thames	mm	97	59	51	57	79	25	21	50	74	85	53	93	744	470	306
(NRA)	%	152	131	91	114	141	45	43	86	125	137	82	133	108	130	94
Southern	mm	124	64	57	77	91	39	29	68	90	118	66	123	946	596	394
(NRA)	%	155	119	90	145	169	72	60	119	130	148	78	150	121	134	118
Wessex	mm	126	100	80	62	92	24	34	68	99	115	96	139	1035	658	379
(NRA)	%	145	154	114	117	151	42	65	103	138	146	116	149	124	138	105
South West	mm	186	174	125	94	99	32	49	103	131	140	127	214	1474	974	508
(NRA)	%	135	172	126	136	138	46	71	123	141	121	102	154	126	136	111
Welsh	mm	182	131	184	116	69	57	68	94	134	139	134	255	1563	966	538
(NRA)	%	127	135	172	145	84	72	88	93	117	101	94	167	119	124	101
Highland	mm	248	74	341	185	36	148	62	112	153	116	169	304	1948	1143	696
R.P.B.	%	132	58	210	203	39	151	58	88	89	59	83	154	111	106	102
North East	mm	131	110	106	77	16	55	40	47	89	87	89	93	940	676	324
R.P.B.	%	132	169	136	128	23	83	55	54	102	90	90	100	97	127	73
Tay	mm	206	117	219	96	22	89	47	81	56	115	154	196	1398	920	391
R.P.B	%	143	123	201	155	27	122	61	86	49	88	127	154	114	127	78
Forth	mm	161	88	210	84	21	75	59	80	56	90	134	210	1268	828	375
R.P.B.	%	136	111	223	142	28	109	79	85	51	78	120	191	114	132	78
Clyde	mm	268	110	301	149	38	143	97	142	98	128	189	322	1985	1165	667
R.P.B	%	142	93	205	177	42	154	89	106	55	66	105	180	117	116	97
Tweed	mm	141	86	124	72	19	52	46	71	57	75	123	173	1039	717	317
R.P.B	%	141	128	157	126	27	80	63	81	64	79	132	186	107	136	72
Solway	mm	204	116	195	124	29	79	106	121	76	117	184	246	1597	935	535
R.P.B	%	131	115	167	161	34	94	118	102	53	75	128	166	112	114	89
Western Isles,	mm	208	71	201	114	36	116	57	91	158	89	168	203	1512	870	572
Orkney and Shetland	%	165	85	199	184	61	190	81	106	132	66	127	159	130	123	125

Western and southern regions registered well above average rainfall for 1994 with parts of the southern seaboard recording up to 130% of the 1961-90 mean. Notably high annual precipitation totals also typified much of Wales and the Scottish Highlands, western areas especially, a few districts exceeding 150% of the standard annual average. Rainfall totals for 1994 were close to the mean throughout much of Northern Ireland and most of eastern England. Annual precipitation totals exceeded 4000 mm in parts of the Scottish Highlands, while north-eastern Scotland was drier in percentage terms than the rest of the UK. In absolute terms however, the driest places in the UK were enveloped by the 550 mm isohyet: along the eastern Scottish coastline around Berwick-upon-Tweed and in parts of Essex and Cambridgeshire.

Table 1 gives the annual, half-yearly, monthly actual and percentage rainfall totals for the major administrative divisions in the water industry; the original 10 regions of the National Rivers Authority (NRA) have been retained to maintain consistency with earlier Yearbooks and allow better spatial differentiation. The annual rainfall totals for the UK and England and Wales were the highest since 1960 and 1979 respectively. England, Wales, Scotland and Northern Ireland all registered annual rainfall at least 10% above the long term mean. In Scotland, a protracted wet phase continues. Twelve of the last 15 years have registered rainfall totals more than 10% above the preceding mean. In contrast, post-1987 rainfall for England is close to the long term average and, for the Thames Valley, a little below the preceding mean. These persistent regional rainfall differences reflect the strengthening of the north-west/south-east rainfall gradient that has been a feature of recent years.

Recent rainfall patterns are also indicative of a departure from the normal seasonal distribution in much of the UK. For the UK as a whole the 1993/94 winter half-year (October-March) was the third wettest this century whereas rainfall over the following summer half-year was around 5% below the 1961-90 average but substantially wetter than 1989, 1990 and 1991. In contrast to these dry summers, the mean rainfall total for the last seven winter half-years for the UK is approximately 15% above the preceding average (1900-1987). The recent tendency for a more distinct partitioning between winter and summer rainfall was again especially evident in Scotland. The six wettest winters in Scotland have each occurred since 1982, with five since 1988. Taken together, rainfall over the last six winters has been around 20% above the 1961-90 average. By contrast the summer six-month period for 1994 was the second driest in Scotland since 1984 and the average for the recent past is appreciably below the long term mean. The clustering in recent years of wet winters and dry summers, if continued, would have important implications for future water resources management.

The wet weather at the end of 1993 continued into 1994: southern England and Wales recorded between 120-170% of long term average rainfall for the first two months. Taken together February and March provided the wettest end to the winter for at least 20 years in the South-West. Most Scottish River Purification Board (RPB) areas also saw a wet start to the year culminating in Scotland's highest March rainfall total on record. Weather patterns over the January-March period were especially unsettled in Northern Ireland, concluding the third wettest winter half-year this century.

The frequency of rain-bearing frontal systems declined through the spring. For May, the North East RPB area registered less than a quarter of the 1961-90 mean rainfall. This heralded a sustained rainfall deficiency; the period May-August was the driest for 50 years in parts of the region. A zone of very low rainfall extended down into north-eastern England. The three-month period ending in July was the driest, or second driest, on record for some parts of Northumberland. The modest rainfall, coupled with high temperatures and parched soil conditions, caused mild drought stress in some districts. In southern and central parts of England the summer was also dry and for several NRA regions the rainfall total for June was below 50%. By contrast, August rainfall totals for the South-West were significantly above the 1961-90 average.

As usual, most exceptional daily rainfall totals in 1994 were recorded during the summer half-year and resulted from thunderstorms; some events produced significant local flooding (see Hydrological Diary, pages 20 to 22). Table 2 shows daily rainfall totals in 1994 with estimated return periods exceeding 200 years. Three major events may be identified: in August on the 3rd, and 31st and on September 14th.

The re-establishment of a predominantly south-westerly airflow over southern Britain resulted in a moderately wet autumn in England and Wales but much of Scotland and Northern Ireland remained relatively dry. Northern Ireland recorded its second successive dry autumn, the 1994 September-November rainfall total was the lowest, 1993 excepted, for 22 years. November was dry throughout much of the English lowlands – in the latter half of the month precipitation was largely restricted to fog drip and light drizzle – but exceptionally warm. Scotland's sequence of dry months ended in November, and December was remarkably unsettled. Glasgow established a new December monthly rainfall maximum and a warm front, lingering across the Strathclyde Region on the 10th and 11th, produced particularly heavy and sustained rainfall which resulted in exceptionally severe flooding (see page 29).

TABLE 2 DAILY RAINFALLS IN 1994 WITH RETURN PERIODS EXCEEDING 200 YEARS

Date (Rain-day)	Station Number	Name	County	Grid Reference	Amount (mm)	Return Period
03.08.94	007036	Capheaton	Northumberland	NZ038805	99.7	320
03.08.94	012716	Hallington Resr.	Northumberland	NY973762	87.5	260
03.08.94	012996	High Warden	Northumberland	NY910671	85.5	230
31.08.94	208737	Framingham Earl	Norfolk	TG272030	105.8	400
31.08.94	211668	Ditchingham	Norfolk	TM340906	144.2	2350
31.08.94	211831	Woodton	Norfolk	TM293953	121.0	970
31.08.94	211896	Ditchingham	Norfolk	TM330917	146.8	2500
31.08.94	212059	Barsham W. Wks.	Suffolk	TM406896	114.0	670
31.08.94	293375	Falconhurst	Kent	TQ470426	93.2	210
31.08.94	294415	Penshurst Place	Kent	TQ528440	99.3	290
31.08.94	297361	Sutton Valence, Herriard Farm	Kent	TQ826508	96.4	270
14.09.94	152426	Caldecott	Leicestershire	SP865932	81.8	230
14.09.94	162865	Pilton, Lodge Cottage	Northamptonshire	TL013849	91.3	320
14.09.94	163095	Oundle S. Wks Auto. Sta.	Northamptonshire	TL038897	83.5	220
14.09.94	163465	Corby, Stanion Lane	Northamptonshire	SP901885	93.6	360
14.09.94	164117	Lutton	Northamptonshire	TL112878	91.3	350
14.09.94	196254	Stilton, Church Street	Cambridgeshire	TL162893	83.0	250
14.09.94	196776	Yaxley	Cambridgeshire	TL196934	82.2	260
14.09.94	438304	Enville	Staffordshire	SO825866	92.4	300
10.12.94	646827	Amlaird Filters No.2	Strathclyde	NS484443	97.5	210
10.12.94	647277	Corsehouse	Strathclyde	NS474502	107.1	260
10.12.94	648358	Uplawmoor S. Wks.	Strathclyde	NS432552	107.9	300
10.12.94	658758	Mugdock Park	Central	NS546780	126.0	730
10.12.94	659231	Kaim Dam	Strathclyde	NS346622	141.0	530
10.12.94	659347	Muirhead	Strathclyde	NS390576	128.2	780
10.12.94	659409	Castle Semple Loch	Strathclyde	NS364594	129.8	590
10.12.94	660469	Picketlaw Res. No. 1 Logger Sta.	Strathclyde	NS567516	100.8	200
10.12.94	660928	Neilston Filters	Strathclyde	NS475564	128.6E	600
10.12.94	661218	Paisley	Strathclyde	NS478642	88.5	230
10.12.94	896458	Cumbernauld, Dunns Wood	Strathclyde	NS782772	99.6E	270

Evaporation and Soil Moisture Deficits

Boosted by a July heatwave and the warmest November on record, mean temperatures for the UK in 1994 were again above the long term average but were well within the recent range. Positive anomalies dominate the recent run of annual mean temperatures at the national and regional scales. 1994 continued an exceptional sequence of warm years beginning in 1988. Over this period the average CET temperature exceeds the previous mean by almost 1° Celsius.

The relatively warm summer ensured evaporative demands were high in 1994 over most parts of the UK. Potential evaporation (PE) totals for 1994 were 5–20% above the 1961-90 average for all areas except for a few localities in the far South-West. Figure 3 illustrates PE totals for 1994 derived by the Meteorological Office's Rainfall and Evaporation Calculation System (MORECS – see page 2). The modelled assessments assume a grass cover and a soil of medium water retention capability. PE totals ranged from above 650 mm in many south-eastern coastal areas to below 500 mm in the Scottish Highlands and in the Solway and Clyde RPB areas. Actual evaporation (AE) losses followed a similar pattern to those of PE but 1994 totals were less than the 1961-90 average in parts of north-eastern Scotland and the eastern seaboard where transpiration rates were inhibited for lengthy periods by the dry soils. AE totals for 1994 in the south and east of

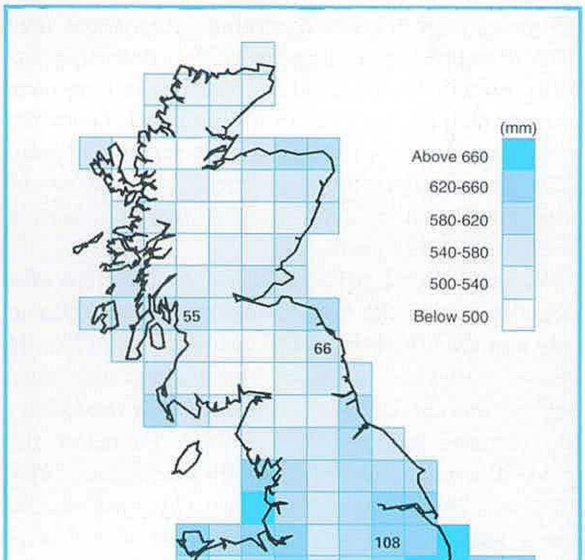


Figure 3 Potential evaporation (for a grass cover) in 1994
Data source: MORECS

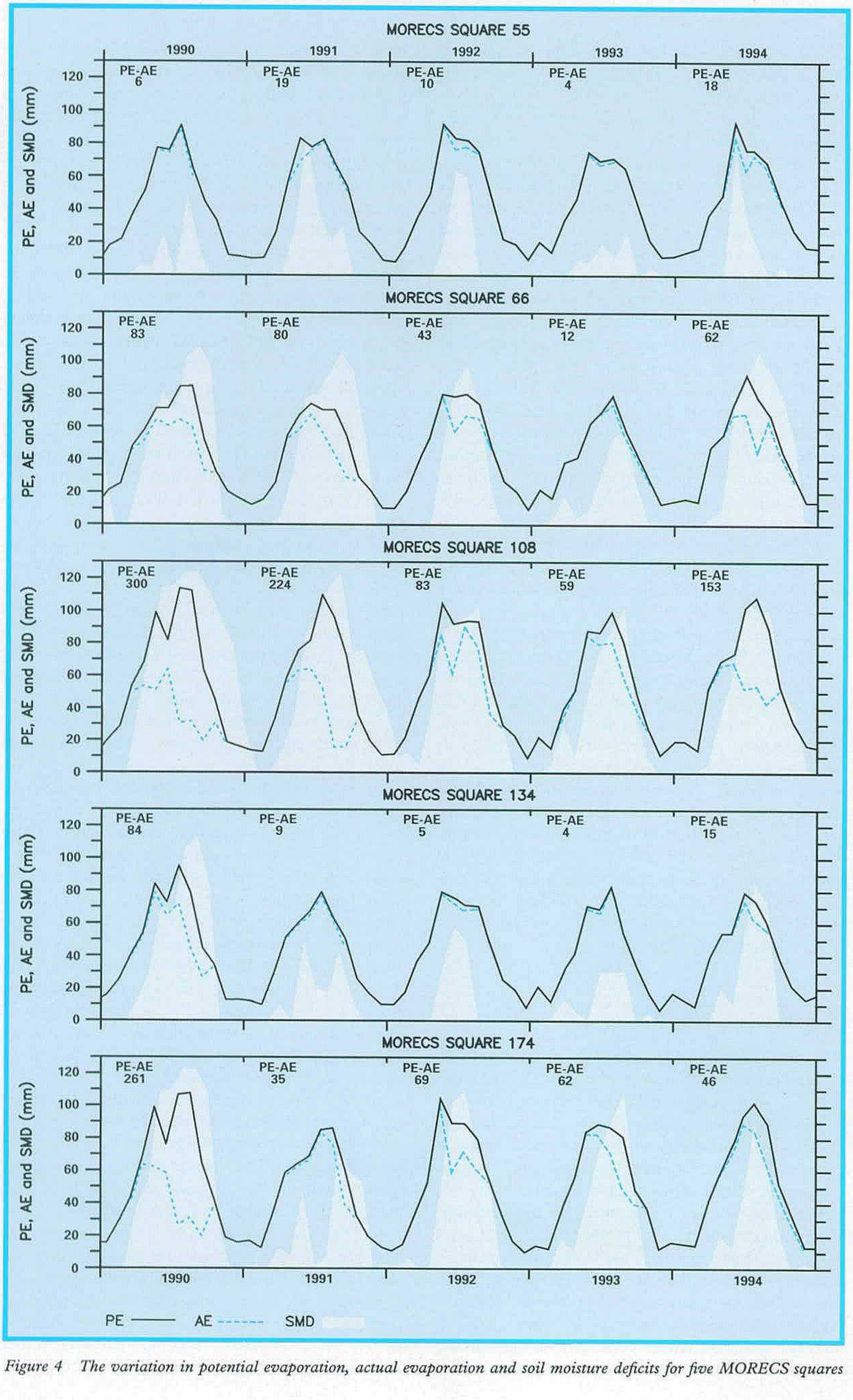


Figure 4 The variation in potential evaporation, actual evaporation and soil moisture deficits for five MORECS squares

England generally ranked in the upper quartile for the period of record and, in a few localities, AE losses were the highest on record.

Variations in PE, AE and Soil Moisture Deficits (SMDs) during 1994 for five representative MORECS squares are shown on Figure 4 (page 9). The location of these squares can be found on Figure 3. The normally strong seasonality in evaporative losses was accentuated by PE values for June and July in western Scotland and south-eastern England which approached the highest on record. The same was true for AE values around London and in parts of Scotland. Soils in the north and in central and southern England were not as parched as in 1990 and 1991 but were significantly drier than in the following two years. This was less true of the South-East where maximum SMDs in 1994 were lower than in 1992 and 1993; this probably reflects the wet August-October period for Southern and Anglian NRA regions. Soil moisture deficits began to build in April/May but for Scotland and parts of Wales, AE values remained very close to PE throughout the year. Many eastern and central areas had differences between annual AE and PE totals of at least 100 mm in 1994 and, generally, the annual shortfall was the largest since 1990.

Soil moisture deficits increased rapidly through June and July and generally peaked rather later than usual. During the summer half-year, high temperatures led to crop stress in some eastern areas; irrigation demand increased accordingly. Maximum soil moisture deficits generally occurred in late summer and declined briskly through the autumn in southern Britain. In much of eastern Scotland SMDs declined very sluggishly and, at the end of November were close to the highest on record for the month, though modest in absolute terms. November SMD values were similar to those experienced between 1988-91 in much of southern England, and soils were not fully saturated until the following January in some districts.

Runoff

For the UK as a whole the 1994 runoff total was approximately 20% above the 1961-90 average. Since 1978 there have only been three or four years where runoff was less than the long term mean. As in 1993, spatial variability was muted by comparison to most of the recent past - in southern Britain especially - but hydrogeological controls on runoff distribution through the year were much in evidence. As a consequence of heavy winter rainfall, spring-fed rivers - those draining the Chalk especially - maintained above average monthly flows well into the autumn. In contrast, the more responsive catchments in Scotland recorded a sequence of below average monthly runoffs beginning in the summer and ending in early winter; accumulated deficiencies over this period were, however, modest in relation to those of 1989 or 1990. Regional geological contrasts and the 1994 rainfall distribution served to moderate the normally strong UK runoff gradient from the north-west to the south-east.

A guide to 1994 runoff totals - mapped as percentages of the 1961–90 average - for the UK is given in Figure 5. Despite significant growth in the gauging station network over the last decade data remain sparse in a few, mostly upland, areas. Thus Figure 5 is least precise in north-western Scotland, the Welsh mountains and the coastal lowlands of parts of eastern England. In such areas assessments of residual rainfall (rainfall minus evaporation) totals were used to help delineate isopleths. A similar approach was used for Northern Ireland where only limited flow data were available for 1994. Although river flow data are now submitted to the National River Flow Archive (NRFA) from a gauging station on Lewis, no runoff information is available to map runoff variability across the Western Isles or the Orkney and Shetland Isles.

For rivers with high baseflow components the lagged response to the wetness of the September-December period in 1993 helped ensure that 1994 runoff totals were markedly above average - and greater than the annual rainfall total might imply. To a degree, this contrasts with 1993 when exceptionally low groundwater levels, following the drought of 1998–92, served to reduce runoff totals in a wet year. In a substantial proportion of eastern England the 1994 runoff pattern appears as a reverse of that in 1993.

In southern and eastern England winter (December-February) runoff totals for 1993/94 were commonly the highest on record; runoff totals are also notable for the winter half-year. During the following summer half-year, in contrast, sustained recessions typified most rivers, beginning in April and continuing - interrupted by a notable runoff event in May - into September. Despite the lengthy recessions, annual minimum flows were generally well within the normal range; exceptions included a few responsive catchments in Scotland where notably low flows were recorded in the late summer. A steep increase in flow rates in December helped to accentuate 1994 seasonal runoff contrasts especially in impermeable catchments - a common feature in recent years. Figure 6 shows monthly mean flows (blue trace) over the 1991-94 period for 16 representative rivers; the period of record monthly maxima and minima are also shown and the long term monthly average flow is defined by the black trace. The flows for the River Thames at Kingston have been adjusted to account for the major upstream abstractions for London's public water supply.

Flooding was experienced in southern England at the start of the year; in some areas this resulted largely from extremely high groundwater levels. New maximum monthly runoff totals for many

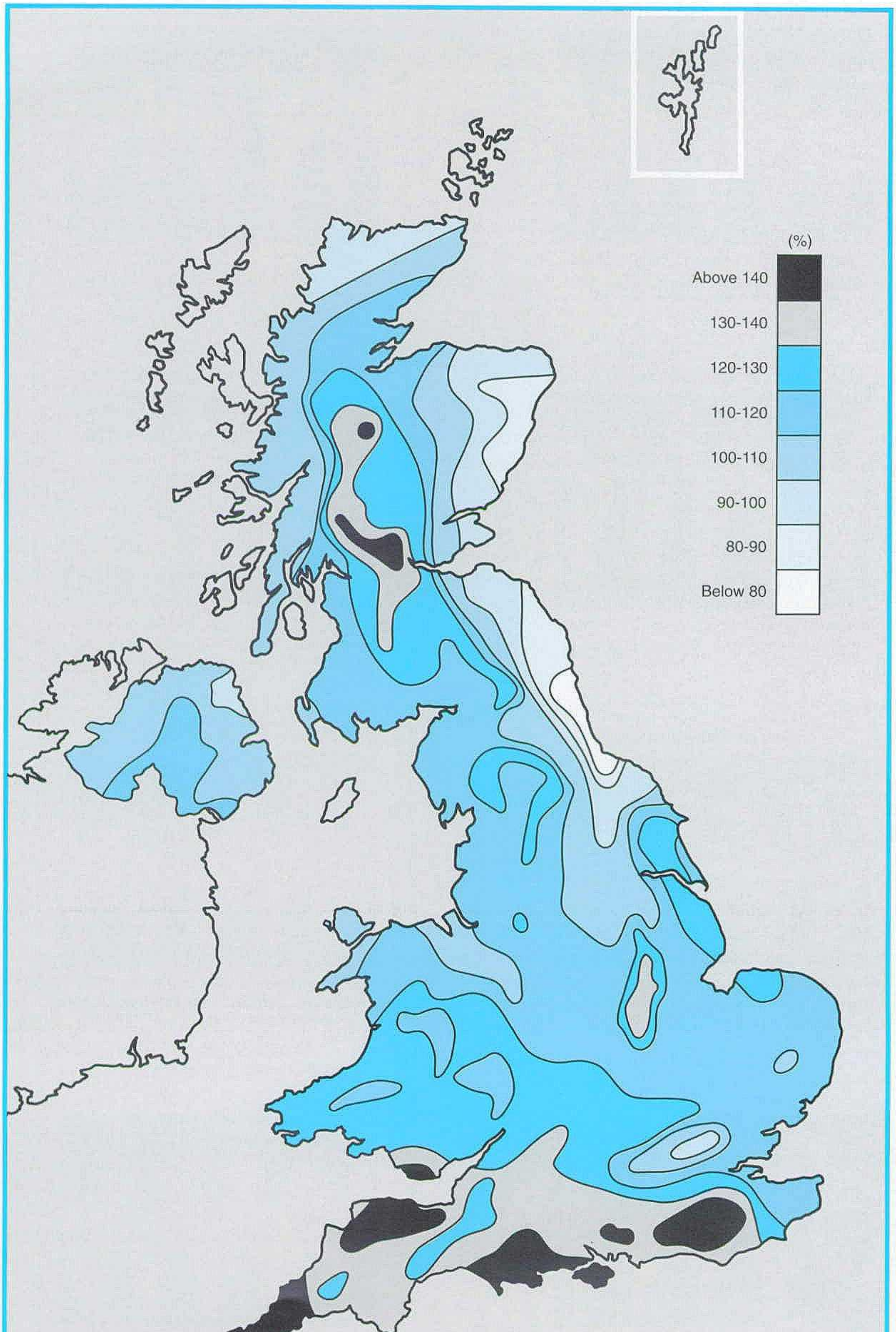
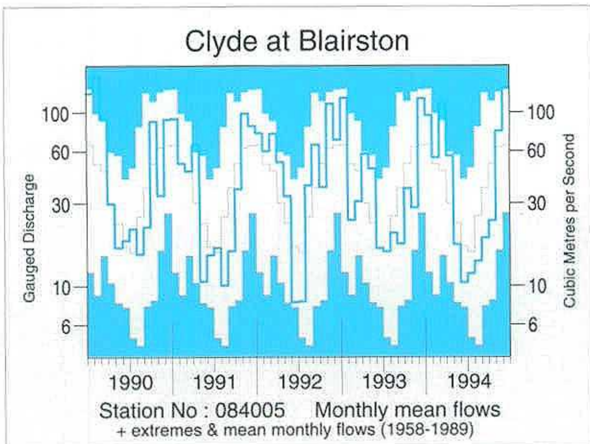
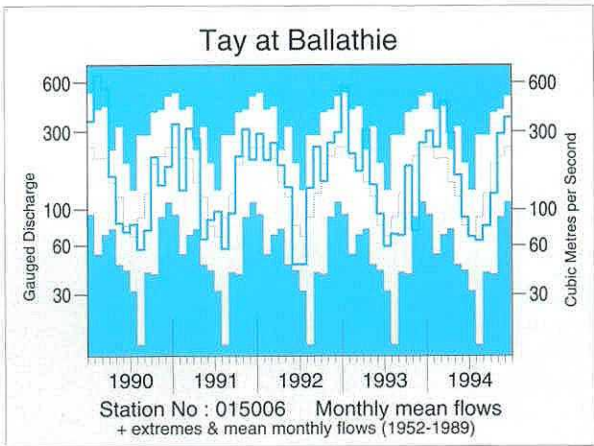
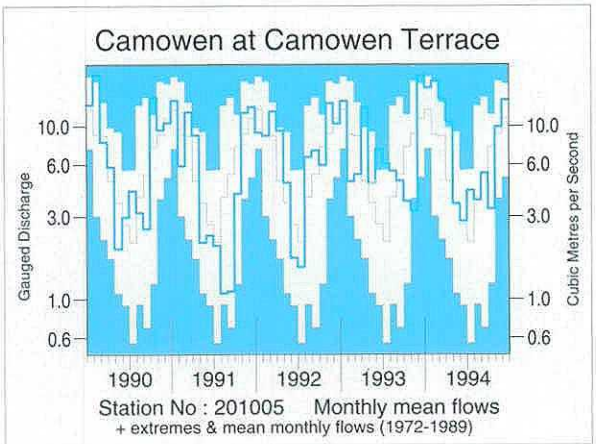
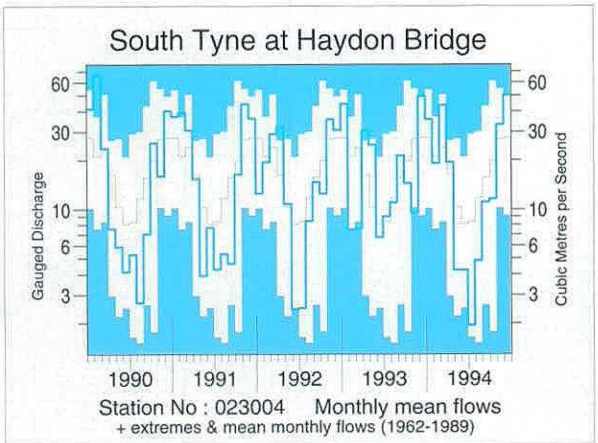


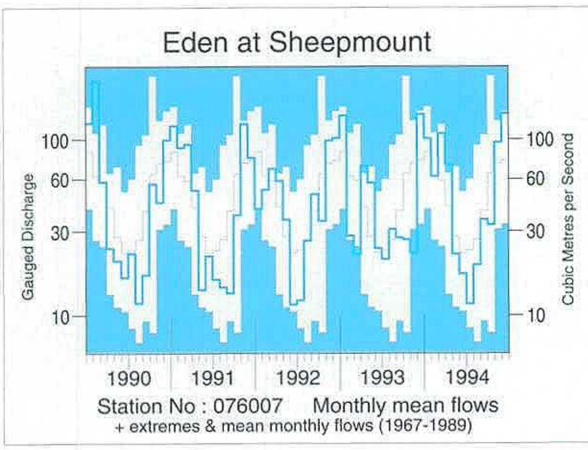
Figure 5 A guide to 1994 runoff expressed as a percentage of the 1961–90 average

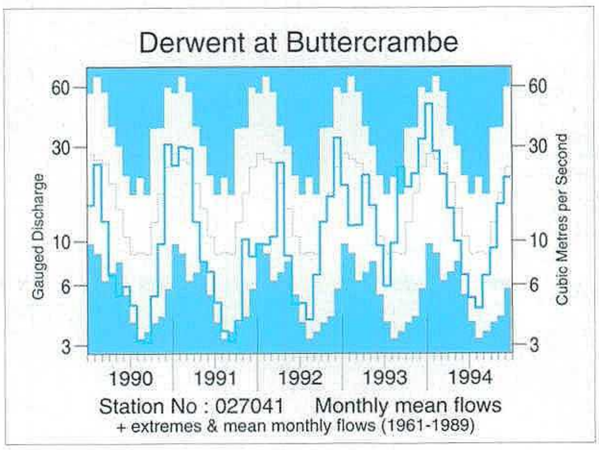


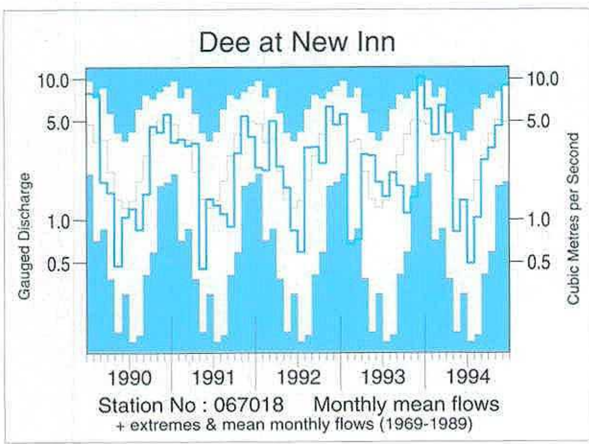












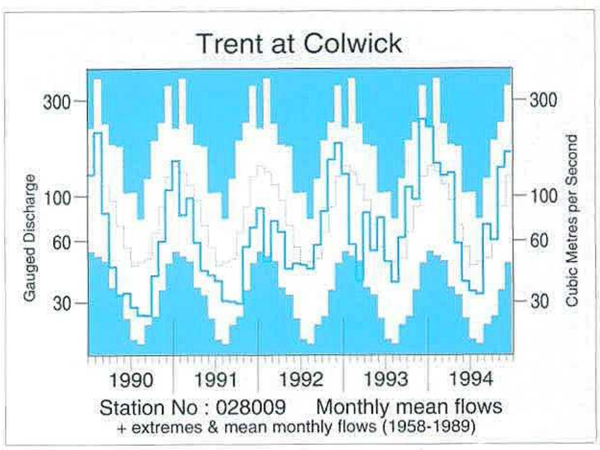
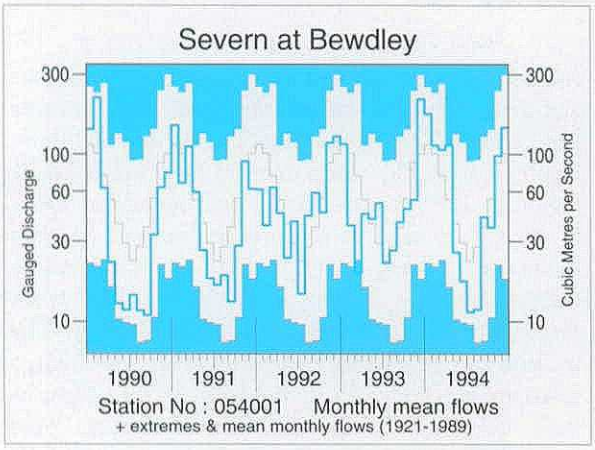
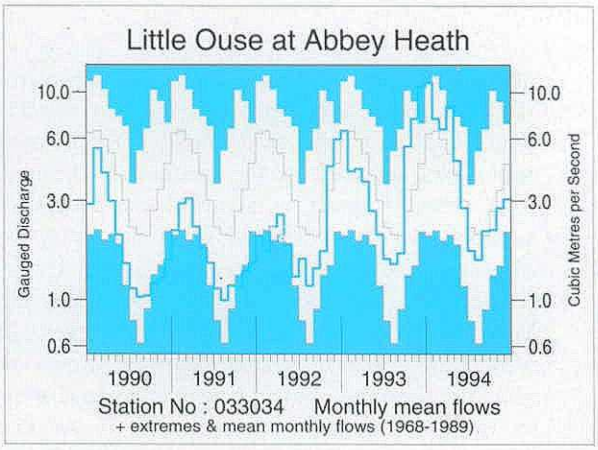
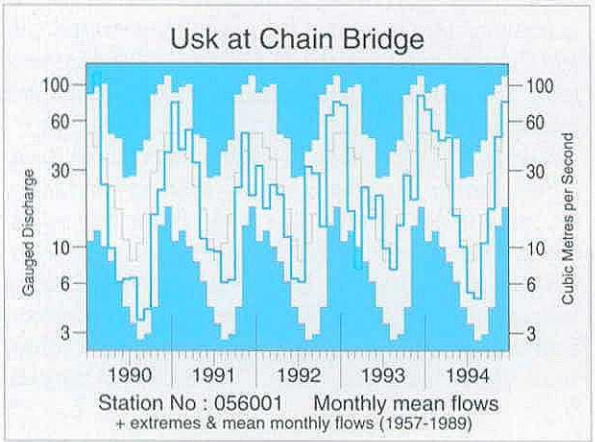
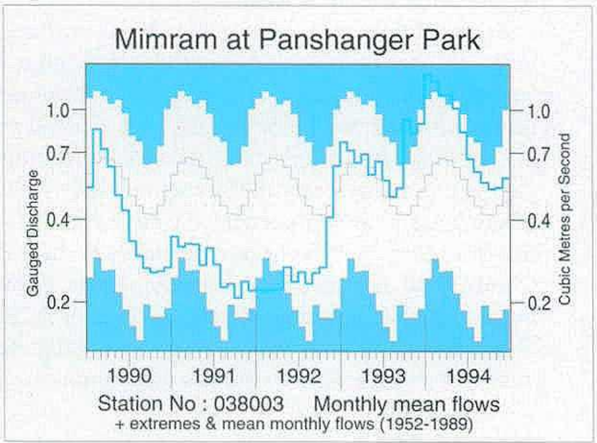


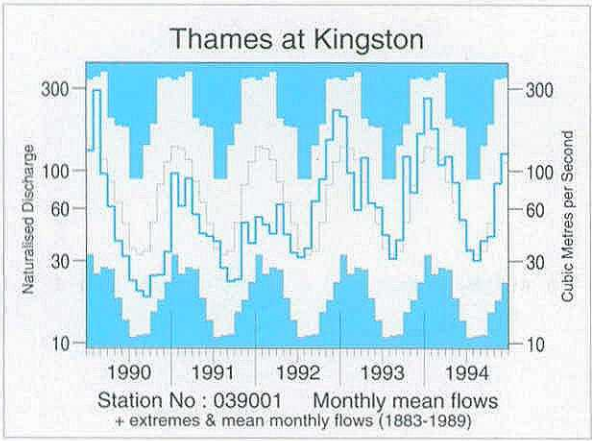
Figure 6 1990–94 monthly flow hydrographs

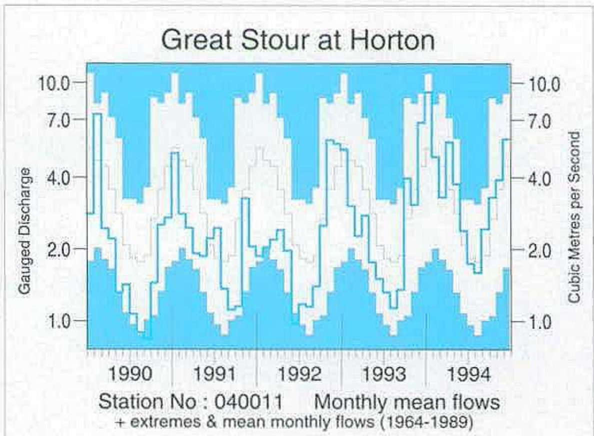


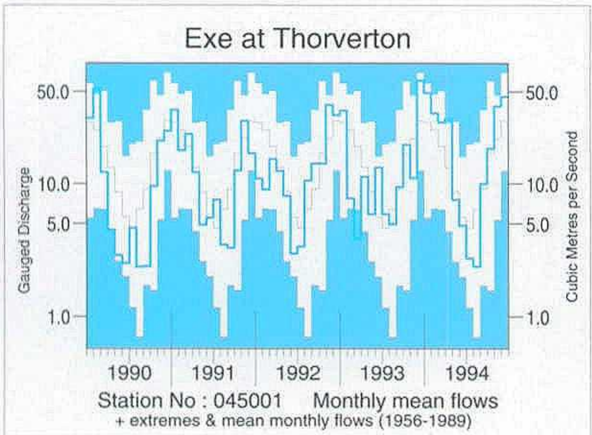












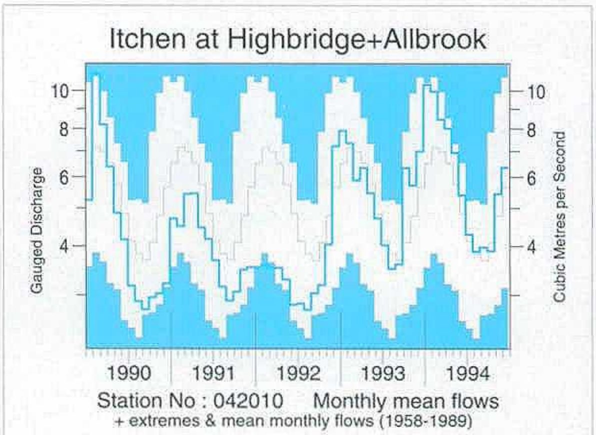


Figure 6—(continued)

spring-fed rivers were recorded during the early part of 1994. For catchments in the north-west of England a very brisk recession in February ended with flows approaching the minima for the month. March runoff totals in Scotland represented new monthly maxima in several areas. In April, rivers registering new monthly maxima showed a wide distribution, examples included the Little Ouse, Mimram, Piddle, Taw, Clyde and the Severn (in a record from 1921). Early summer flows were generally above average in western Scotland, notably so in June; inflows to Lochaber Hydro-Power Scheme, close to Fort William, being the highest - for the month - in 50 years.

Seasonal flow recoveries mostly began with runoff rates already healthy and monthly flows increased substantially over the autumn. The September runoff total for the Trent was the highest in 30 years at Colwick and there was localised flooding in October in many parts of Devon and South Wales. Many areas recorded particularly large runoff totals for the two weeks beginning around the 28th October and flooding was prevalent during November in North Wales and northern England. By early December most western and northern catchments were very vulnerable to further precipitation. The risk of flooding remained high throughout December and many monthly runoff and peak flow records were eclipsed over wide areas. The exceptional flows resulting from the storm centred over the Glasgow region on the 10/11th feature prominently in Table 3. This lists new river flow and runoff records established during 1994; entries are confined to gauging stations commissioned before 1967 with reasonably continuous datasets on the NRFA. The records may be subject to revision as stage-discharge relations are reviewed in the light of very high, or very low, flows. Some new annual maxima were established for lengthy flow series, e.g. the Wye at Ddol Farm with data from 1937. A few annual maximum were exceeded by very wide margins: the 1994 runoff total for the River Yeo at Veraby was more than 300 mm greater than the previous annual maximum.

Figure 7 shows flow duration curves for four representative gauging stations; such curves allow the proportion of time that river flows fall below any given threshold to be identified. Flows exceeded 95% of the time were below the period-of-record average in many catchments in northern and eastern Scotland but close to or above average for most rivers in England and Wales. The Mimram typifies

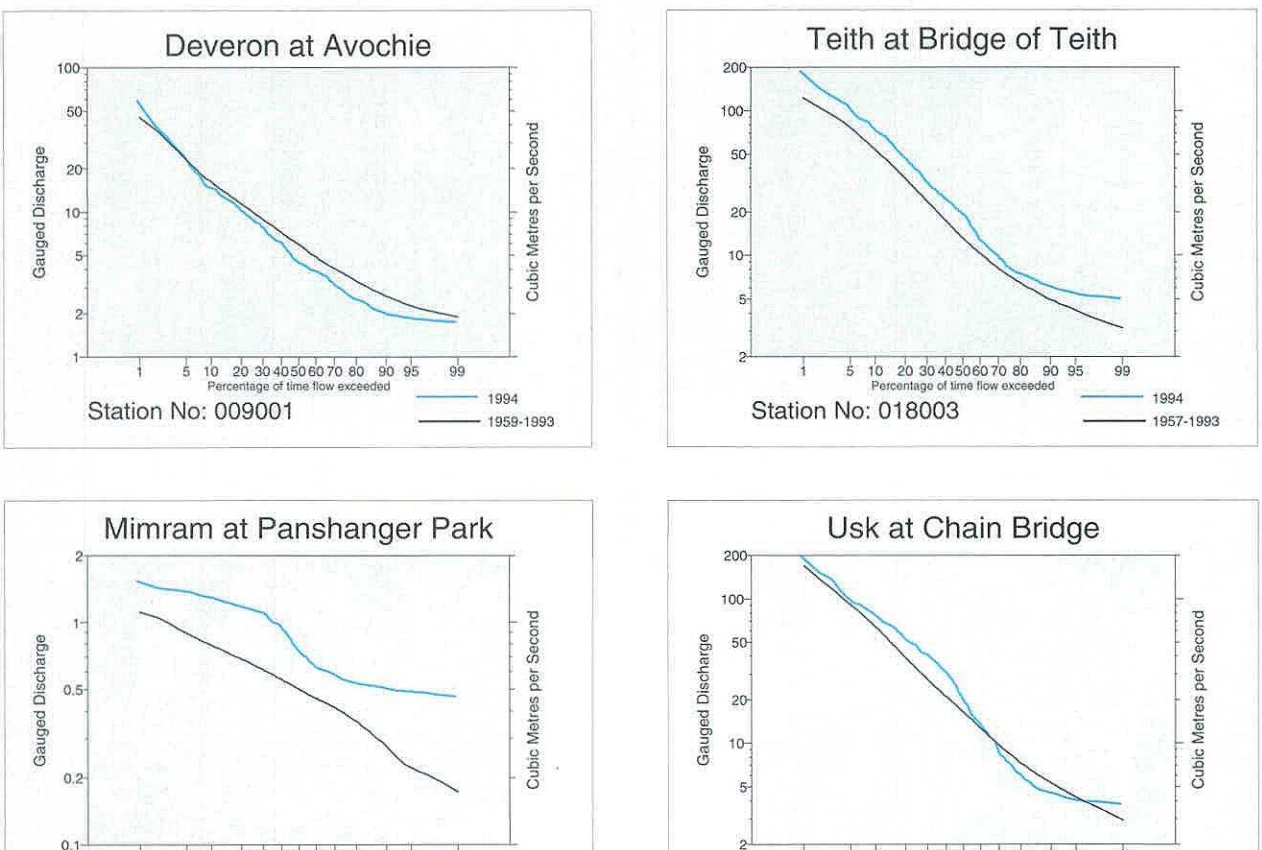


Figure 7 Flow duration curves for 1994 and the preceding record

TABLE 3 RIVER FLOW AND RUNOFF RECORDS ESTABLISHED IN 1994

Station Number	River	Station Name	First Year of Record	New Record (mm)	Month	Pre-1994 Record (mm)	Month/ Year
Highest Annual Runoff							
18001	Allan Water	Kinbuck	1957	1295		1246	1990
19005	Almond	Almondell	1962	762		738	1986
38003	Mimram	Panshanger Park	1952	199		180	1961
39007	Blackwater	Swallowfield	1952	345		335	1982
39010	Colne	Denham	1952	248		247	1988
39012	Hogsmill	Kingston upon Thames	1956	540		535	1979
39014	Ver	Hansteads	1956	195		179	1961
39019	Lambourn	Shaw	1962	306		289	1967
39022	Loddon	Sheepbridge	1965	500		498	1967
39052	The Cut	Binfield	1957	347		319	1958
39053	Mole	Horley	1961	652		613	1974
41011	Rother	Iping Mill	1966	601		584	1968
41016	Cuckmere	Cowbeech	1939	523		476	1987
43004	Bourne	Laverstock Mill	1965	217		214	1966
43005	Avon	Amesbury	1965	449		436	1977
43006	Nadder	Wilton Park	1966	550		546	1977
44002	Piddle	Baggs Mill	1963	577		556	1966
45002	Exe	Stoodleigh	1960	1308		1148	1974
45004	Axe	Whitford	1964	751		700	1974
45009	Exe	Pixton	1966	1388		1175	1967
47005	Ottery	Werrington Park	1963	1226		1043	1993
47007	Yealm	Puslinch	1963	1359		1269	1974
49001	Camel	Denby	1964	1269		1233	1974
50002	Torridge	Torrington	1960	1043		1000	1974
50006	Mole	Woodleigh	1965	1255		1045	1986
51003	Washford	Beggearn Huish	1966	1120		877	1986
52003	Halse Water	Bishops Hull	1961	577		509	1974
52005	Tone	Bishops Hull	1961	689		637	1974
52007	Parrett	Chiselborough	1966	650		646	1982
52009	Sheppey	Fenny Castle	1964	777		763	1979
53004	Chew	Compton Dando	1958	480		431	1960
53005	Midford Brook	Midford	1961	641		625	1986
53007	Frome (Somerset)	Tellisford	1961	599		587	1966
54014	Severn	Abermule	1962	1091		942	1965
55014	Lugg	Byton	1966	819		768	1977
55026	Wye	Ddol Farm	1937	1740		1545	1954
56005	Lwyd	Ponthir	1966	1358		1269	1982
57004	Cynon	Abercynon	1957	1693		1667	1982
58001	Ogmore	Bridgend	1963	1813		1643	1967
64001	Dyfi	Dyfi Bridge	1962	2000		1774	1986
64006	Leri	Dolybont	1960	1332		1268	1979
66011	Conwy	Cwm Llanerch	1964	2221		2056	1986
67001	Dee	Bala	1957	1946		1923	1974
84015	Kelvin	Dryfield	1960	1242		1115	1978
84016	Luggie Water	Condorrat	1966	1088		1042	1985
84022	Duneaton	Maidencots	1966	1208		1152	1990
85002	Endrick Water	Gaidrew	1963	1381		1323	1986
101002	Medina	Upper Shide	1965	451		355	1981
Highest Monthly Runoff							
8009	Dulnain	Balnaan Bridge	1952	205	MAR	202	FEB 1990
19002	Almond	Almond Weir	1962	209	MAR	203	NOV 1963
19004	North Esk	Dalmore Weir	1960	141	MAR	139	NOV 1963
19005	Almond	Almondell	1962	177	MAR	163	NOV 1963
29002	Great Eau	Claythorpe Mill	1962	79	JAN	76	NOV 1968
33019	Thet	Melford Bridge	1962	52	JAN	49	DEC 1993
33028	Flit	Shefford	1966	53	JAN	50	JAN 1988
33032	Heacham	Heacham	1965	40	JAN	34	APR 1979
37015	Cripsey Brook	Chipping Ongar	1961	79	JAN	76	OCT 1982
38003	Mimram	Panshanger Park	1952	27	JAN	22	MAR 1961

TABLE 3—(continued)

39010	Colne	Denham	1952	37	JAN	31	APR	1979
39016	Kennet	Theale	1961	73	JAN	65	FEB	1990
39020	Coln	Bibury	1963	102	JAN	100	FEB	1990
41011	Rother	Iping Mill	1966	147	JAN	146	FEB	1990
52009	Sheppey	Fenny Castle	1964	170	JAN	149	DEC	1965
84008	Rotten Calder Water	Redlees	1966	327	DEC	315	JAN	1975
84012	White Cart Water	Hawkhead	1963	277	DEC	255	OCT	1967
84013	Clyde	Daldowie	1963	233	DEC	224	FEB	1990
84014	Avon Water	Fairholm	1964	300	DEC	256	SEP	1985
84015	Kelvin	Dryfield	1960	233	DEC	223	JAN	1975
84016	Luggie Water	Condorrat	1966	308	DEC	259	SEP	1985
84022	Duneaton	Maidencots	1966	271	DEC	243	FEB	1990
101002	Medina	Upper Shide	1965	106	JAN	83	JAN	1988

Lowest Monthly Runoff

12009	Water of Dye	Charr	1957	8.15	AUG	8.65	AUG	1984
36004	Chad Brook	Long Melford	1965	1.09	AUG	1.39	SEP	1976

Station Number	River	Station Name	First Year of Record	New Record (m^3s^{-1})	Day Month	Pre-1994 Record (m^3s^{-1})	Day/Month/ Year
Highest Daily Mean Flows							
19002	Almond	Almond Weir	1962	20.43	11 DEC	15.94	22 NOV 1969
19005	Almond	Almondell	1962	116.1	11 DEC	100.9	6 OCT 1990
21003	Tweed	Peebles	1959	234.4	11 DEC	221.7	21 SEP 1985
33032	Heacham	Heacham	1965	1.09	10 JAN	1.07	1 APR 1979
39019	Lambourn	Shaw	1962	4.530	3 FEB	4.270	22 JAN 1993
40006	Bourne	Hadlow	1959	8.825	8 DEC	8.430	15 SEP 1968
45009	Exe	Pixton	1966	55.27	28 DEC	45.79	26 DEC 1985
53004	Chew	Compton Dando	1958	32.97	27 DEC	27.63	30 MAY 1979
55012	Irfon	Cilmery	1966	227.0	27 DEC	209.3	2 DEC 1992
79003	Nith	Hall Bridge	1959	138.2	11 DEC	124.7	30 JAN 1974
84004	Clyde	Sills	1957	286.6	11 DEC	285.9	31 OCT 1977
84008	Rotten Calder Wtr	Redlees	1966	36.03	11 DEC	29.85	6 OCT 1990
84009	Nethan	Kirkmuirhill	1966	44.39	11 DEC	28.50	22 DEC 1991
84012	White Cart Water	Hawkhead	1963	171.4	11 DEC	118.4	18 JAN 1974
84014	Avon Water	Fairholm	1964	213.8	11 DEC	182.9	13 AUG 1966
85002	Endrick Water	Gaidrew	1963	107.7	11 DEC	100.9	22 DEC 1991
Lowest Daily Mean Flows							
12009	Water of Dye	Charr	1957	0.094	20 AUG	0.100	31 AUG 1983
30004	Partney Lymn	Partney Mill	1962	0.046	30 AUG	0.064	7 JUL 1976
36004	Chad Brook	Long Melford	1965	0.008	24 AUG	0.017	9 SEP 1967
63001	Ystwyth	Pont Llolwyn	1963	0.106	17 AUG	0.114	22 AUG 1976
84016	Luggie Water	Condorrat	1966	0.014	11 JUN	0.075	31 AUG 1976
Highest Instantaneous Flows							
21018	Lyne Water	Lyne Station	1962	83.46	11 DEC	73.75	6 OCT 1990
41011	Rother	Iping Mill	1966	68.62	8 DEC	65.54	27 DEC 1979
58001	Ogmore	Bridgend	1963	175.5	30 OCT	168.0	11 MAR 1981
60003	Taf	Clog-y-Fran	1965	7695	1 JUL	101.0	12 DEC 1964
66011	Conwy	Cwm Llanerch	1964	530.7	13 NOV	509.7	12 DEC 1964
84001	Kelvin	Killermont	1948	265.7	12 DEC	175.2	18 OCT 1954
84003	Clyde	Hazelbank	1956	606.5	12 DEC	530.3	31 OCT 1977
84005	Clyde	Blairston	1958	830.9	12 DEC	666.4	22 SEP 1985
84011	Gryfe	Craigend	1963	129.5	11 DEC	112.8	15 JAN 1993
84013	Clyde	Daldowie	1963	1107	12 DEC	802.5	22 SEP 1985
84015	Kelvin	Dryfield	1960	91.47	12 DEC	84.94	19 SEP 1985
84016	Luggie Water	Condorrat	1966	51.31	12 DEC	44.46	11 SEP 1967
84019	North Calder Wtr	Calderpark	1963	134.3	12 DEC	91.21	7 OCT 1990
84022	Duneaton	Maidencots	1966	120.4	12 DEC	116.2	2 FEB 1988

many eastern Chalk catchments; 1994 flows were well above average throughout the flow range and the 95% exceedance flow was more than twice the preceding average. Even healthier low flows characterised a number of rivers where reduced groundwater abstractions - often associated with the NRAs Alleviation of Low Flow programme-enhanced the post-drought runoff recovery; examples include the River Ver (Buckinghamshire) and River Darent (Kent). The 1994 flow regime for the Mimram and similar chalk rivers highlights the contrast between high baseflow rivers where the seasonality of the rainfall over the catchment is muted in runoff terms, and impervious catchments in northern and western Britain where seasonal runoff contrasts were enhanced in 1994.

Relative to the monthly average, reservoir levels remained generally high throughout 1994, although in July and August demand increased rapidly and supply was at times under stress (e.g. in communities served from reservoirs in the southern Pennines). In most of England and Wales a brisk recovery in runoff rates through the autumn quickly replenished stocks and the outlook for water resources remained healthy at year-end.

Groundwater

Water-tables exhibited their normal seasonal variation in 1994 as the strong recovery following the 1988-92 drought continued. The improvement in groundwater resources was best demonstrated by the maximum and minimum levels recorded in 1994 - over many outcrop areas both were significantly higher than in the preceding five years. Recharge over the winter of 1993/94, like that of 1992/93, was abundant and the 1994 water-table recovery was generated from a much higher base than in the recent past. Groundwater levels in many wells remained well above average for much of 1994 and the increase in average levels since 1992 has few recent precedents. Such notable recoveries are well illustrated in Figure 11 (pages 152 to 155) which show groundwater level hydrographs for 32 representative wells and boreholes. Some boreholes - including the Holt (Hertfordshire) and Washpit Farm (Norfolk), have recorded both new minima and new maxima levels within the last four years. Most wells and boreholes featured in Figure 11 were selected to illustrate natural variations in groundwater levels. However, the volume of groundwater abstraction has a significant impact on water-tables in many parts of the UK and for a few monitoring sites man's influence can completely mask the effect of natural variation. Under the influence of pumping levels in the Trafalgar Square borehole (see page 153), which penetrates the confined Chalk below central London declined by around 70 metres from the early eighteenth century to the 1950s. Thereafter, decreasing abstraction rates produced a stabilisation and subsequent recovery, groundwater levels are now rising at over a metre a year and currently stand nearly 40 metres above the mid-1960s minima.

The late summer of 1993 was dry and warm, but heavy rainfall in October saw the seasonal onset of infiltration and a brisk water-table rise in many western aquifers. Dry conditions in October and November saw localised reversals of the recovery in some boreholes, and many November water-tables in a few areas were below the seasonal minimum, for example at Llanfair (North Wales) and Redbank (Dumfries and Galloway) where pumping may have been influential. In the less responsive Chalk aquifers the recovery was slower. By the end of October most levels were close to, or above, average but recoveries in the eastern Chalk were, as usual, patchy until December.

December produced heavy and sustained recharge which continued into 1994. Rapidly rising groundwater levels resulted in high level springs, and winterbournes, flowing at exceptional rates. In parts of the Chalk, the South Downs especially, artesian conditions were reported over substantial areas in January. The Chilgrove House borehole (West Sussex) provides a notable example, overflowing for the first time in 35 years on the 7th January. The very unusual nature of such conditions is confirmed by levels in the nearby Compton House borehole which recorded a new maxima in a 100-year record, standing nearly 40 metres above the 1992 minima. In the Chilterns during January and February, The Holt borehole recorded its highest levels in a record from 1964. Very brisk recoveries also characterised boreholes in the Lincolnshire Limestone and Carboniferous Limestone (see the hydrographs for New Red Lion and Alstonfield on pages 154 and 155).

Towards the end of the 1993/94 recharge season water-tables stood well above the normal range. Recessions had begun by February in some parts of the more responsive sandstone and limestone aquifers but levels continued to rise in the less responsive Chalk. Above average rainfall in the late spring extended the recharge season and resulted in temporary increases in groundwater levels in some western and central areas. As a result, recessions began with groundwater levels generally well above the seasonal mean and close to the seasonal maxima for many Chalk wells.

A comprehensive tabulation of estimated recharge over the 1993/94 winter, expressed as a percentage of the long term average is given in the Register of Selected Groundwater Observation Wells (see pages 156 to 158); details of the method of assessing recharge are also given. In most aquifers winter recharge was well above average for the third successive winter and contrasts

TABLE 4 ANNUAL REPLENISHMENT TO THE MORE IMPORTANT AQUIFERS IN ENGLAND AND WALES FOR THE YEAR 1993/94

NRA Region	Mean annual replenishment ($m^3 \times 10^6$)	1993–94 replenishment ($m^3 \times 10^6$)
Chalk and Upper Greensand aquifers		
Anglian	955	1765 (185)
Southern	1230	1850 (150)
South West	200	495 (245)
Thames	975	1435 (145)
Wessex	950	1240 (130)
Yorkshire	320	425 (130)
Total	4630	7210 (155)
Lincolnshire Limestone aquifer		
Anglian	85	80 (90)
Permo-Triassic sandstone aquifers		
Northumbria	10	10 (110)
North West	330	270 (80)
Severn-Trent	530	775 (145)
South West	205	254 (125)
Welsh	30	25 (95)
Wessex	40	50 (125)
Yorkshire	300	480 (160)
Total	1440	1865 (130)
Magnesian Limestone aquifers		
Northumbria	80	100 (120)
Severn-Trent	40	60 (150)
Yorkshire	125	230 (180)
Total	250	385 (155)

Values have been rounded to reflect uncertainty in source data and recharge calculation.
Percentages of the annual mean are shown in parentheses.
For the sake of conformity with previous publications, the values for the Northumbria and Yorkshire and the South West and Wessex NRA Regions are shown separately.

markedly in the east, with the very modest overall recharge over the 1988-92 period. Using the data presented in the Register, Table 4 presents estimates of overall recharge to the principal aquifers in England and Wales for each of the major administrative units in the water industry. Generally the areal estimates of recharge exceed 150% for the eastern aquifers but significant spatial variation is evident. Figure 8 provides a guide to the variation in 1993/94 groundwater replenishment to the Chalk and Upper Greensand aquifer. Recharge exceeded twice the long term average in an appreciable proportion of the Chalk outcrop – this is especially notable away from the most easterly aquifer units where annual variability is characteristically large. The recharge volumes implied by Figure 8, together with notable recharge in the two preceding winters, helps to explain the historical high groundwater levels featured on pages 152 and 153.

Limited rainfall and accelerating evaporation rates curtailed most infiltration in May and rapidly developing SMDs thereafter ensured a brisk groundwater recession. In the more slowly responding confined aquifers, steady increases in levels continued and, in parts of the Permo-Triassic sandstones aquifer long term average levels were exceeded for the first time in over five years (e.g. at Weeford Flats, Staffordshire). Parched soil conitions in July and early August threatened to delay the onset of the 1994/95 recharge season but the wet autumn in the English lowlands allowed levels to begin their recovery within the normal timeframe. As usual soils reached saturation initially in western and northern Britain where seasonal upturns could be recognised by late September. In East Anglia a relatively dry November permitted only a sluggish start to recharge but, as elsewhere, the 1994 minimum levels were mostly well above average and substantially greater than those in the recent past. Table 5 lists annual minimum levels for 1991-94 for the great majority of index boreholes in the national monitoring programme; in a few cases the minima quoted does not correspond to the end of the summer recession (which in 1991 for example, continued into the following year in a number of eastern boreholes). The exceptional range relative to the minimum recorded towards the end of the 1988-92 drought is of particular note. In many cases the subsequent recovery is the equivalent of twice the normal annual range, emphasising the large departure from typical annual and seasonal behaviour in many aquifers over the last eight years. By December 1994 levels were high and continuing to

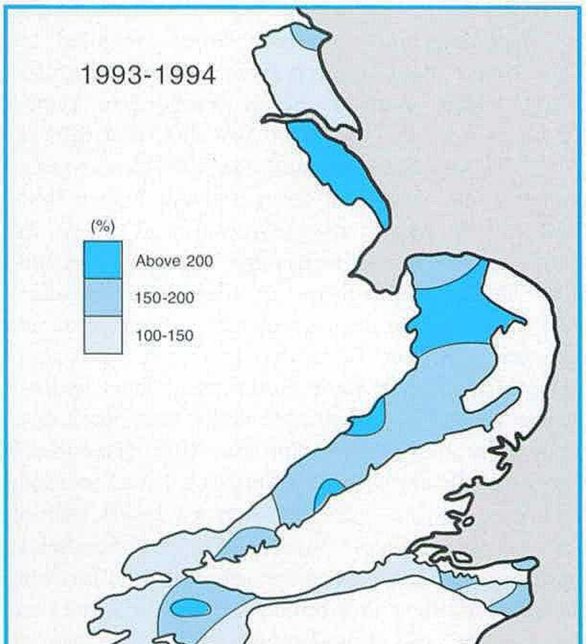


Figure 8 Generalised percentage of the mean annual replenishment to the main outcrops of the Chalk and Upper Greensand aquifer for 1993–94

TABLE 5 GROUNDWATER LEVELS IN SELECTED OBSERVATION WELLS

Site	Aquifer	Records Commence	Lowest pre-1989 level	Year	Minimum levels 1991	1992	1993	1994	Maximum level 1994	Rise 92/94
Dalton Holme	C & UGS	1889	11.58	1905	11.08	9.64	13.82	11.88	22.68	13.04
Wetwang	C & UGS	1971	18.16	1976	17.12	16.66	19.41	18.44	30.84	14.18
Keelby Grange	C & UGS	1980	9.02	1988	5.12	4.92	6.82	10.22	18.30	13.38
Washpit Farm	C & UGS	1950	41.24	1978	40.61	40.30	41.66	44.23	48.97	8.67
The Holt	C & UGS	1964	83.90	1973	84.77	84.26	86.84	87.98	92.41	8.15
Redlands Hall	C & UGS	1964	34.53	1965	32.46	32.29	36.01	37.40	49.24	16.95
Rockley	C & UGS	1933	128.94*	1976	128.94*	130.00	130.64	130.13	143.71	13.71
Little Bucket Farm	C & UGS	1971	56.57	1976	58.62	59.56	60.81	65.71	85.12	25.56
Compton House	C & UGS	1984	27.64	1976	27.88	29.96	31.45	31.65	68.75	38.79
Westdean No. 3	C & UGS	1940	1.01	1949	1.38	1.33	1.38	1.47	4.29	2.96
Lime Kiln Way	C & UGS	1969	124.09	1976	124.24	123.70	124.08	125.22	125.91	2.21
Ashton Farm	C & UGS	1974	63.32	1976	63.80	64.66	65.36	64.77	71.18	6.52
West Woodyates Manor	C & UGS	1942	67.62	1976	70.30	72.59	72.90	70.60	98.04	25.45
Killyglen (NI)	C & UGS	1985	113.53	1985	113.26	113.66	113.42	113.11	118.23	4.57
New Red Lion	LLst	1964	3.29	1976	5.68	6.06	12.39	12.17	21.79	15.73
Ampney Crucis	Mid Jur	1958	97.87	1976	99.81	100.04	100.02	99.75	102.97	2.93
Redbank	PTS	1981	7.49	1984	7.45	7.55	7.68	7.53	8.74	1.19
Skirwith	PTS	1978	129.45	1978	129.81	129.66	129.90	130.09	130.93	1.27
Yewtree Farm	PTS	1972	8.43	1972	12.85	13.11	13.43	13.32	13.87	0.76
Llanfair D.C.	PTS	1972	78.85	1976	79.05	78.92	79.10	79.39	80.07	1.15
Stone	PTS	1974	89.34	1976	89.50	89.73	89.94	90.00	91.19	1.46
Bussels No. 7A	PTS	1972	22.90	1976	23.39	23.15	23.44	23.57	24.96	1.86
Peggy Ellerton	MgLst	1968	31.10	1976	32.71	31.23	31.37	33.02	33.84	2.61
Alstonfield	CLst	1974	174.22	1975	175.00	175.95	178.34	175.54	214.39	38.44

C&UGS	Chalk and Upper Greensand	Mid Jur	Middle Jurassic Limestones
LLst	Lincolnshire Limestone	MgLst	Magnesian Limestone
PTS	Permo-Triassic sandstones	CLst	Carboniferous Limestone

* dry

rise with the prospects of further substantial recharge early in 1995; the outlook for groundwater resources was exceptionally good.

References

1. Manley, G (1974) Central England Temperatures: monthly means 1659 to 1973. Quart. Jour. Royal Met. Soc., 100, 389-405.

2. Smith, K (1995). Precipitation over Scotland, 1757-1992: some aspects of temporal variability. Int. Jour. Clim. Vol. 15, 543-556.

1994 HYDROLOGICAL DIARY

Compiled by F. J. Sanderson

January

A mild and wet month with weather patterns dominated by the passage of a continuing sequence of Atlantic frontal systems, blizzard conditions were common in Scotland. Sustained late-1993 rainfall had made most catchments vulnerable to further precipitation and flooding in January was very widespread.

December 1993–14 January 1994: Very notable rainfall totals were recorded over 20–40 day periods beginning around mid-December 1993 – twice the seasonal average over wide areas, reaching a third of the annual average in parts of the South Downs. Runoff rates increased rapidly in early January and spate conditions were extensive by the 4th. In Northern Ireland three men were drowned in the swollen River Bann; commercial premises, plus some houses were flooded in Belfast. Flooding was also widespread in southern England; on the 5th over 100 houses were flooded at Darenth (Kent) when the Darent overtopped its banks. By the 6th over 150 flood warnings had been issued across central and southern Britain. An estimated 4000 hectares of farmland were inundated in the Somerset Levels despite heavy pumping (up to 50 m^3s^{-1}) to the sea. Flooding was especially widespread in the Severn Valley, particularly between Worcester and Tewkesbury – some properties experiencing seven weeks under water. Transport disruption was considerable over a wide area. The most extreme conditions occurred in the South Downs above Chichester – see article on page 23.

February

February was another largely unsettled month especially during the first ten days. Spatial variability in temperature and rainfall totals were large and snow constituted a substantial proportion of upland precipitation in northern Britain. The relatively even distribution of rainfall through the month played a valuable role in moderating the flood risk.

2nd-3rd: A rapidly deepening Atlantic depression brought belts of heavy rainfall and subsequent flooding to many parts of the South and West – snowmelt making a significant contribution. Saturated catchments produced brisk responses even in some permeable catchments.

20–24th: A very cold easterly airflow produced dramatic declines in temperatures followed by snowstorms – these were heavy in North Yorkshire (22 cm in Fylingdales). Trans-Pennine roads were closed and Bridlington was cut off by heavy snowfalls for 24 hours on the 22nd.

26–28th: Prolonged heavy rain (snow at higher altitudes) lead to significant flooding in Scotland. Many roads were impassable after 118 mm of precipitation was recorded at Aberdeen Airport in 72 hours. Subsequently the River Dee (at Park) registered its highest March flow (528 m^3s^{-1}) in a record from 1972.

March

March was mild and very wet in much of north-western Britain but dry in most south-eastern areas where rain-shadow effects were evident. Scotland registered its wettest March on record and in parts of Wales it was the wettest month in 22 years. Some gauging stations in northern and eastern Scotland registered new maximum monthly runoff totals. Spate conditions were common but the relatively even pattern of rainfall through the month again helped reduce the risk of flooding.

April

The month began in boisterous vein – wet, windy and cool – but high pressure predominated in the eastern lowlands thereafter. Some parts of Anglesey recorded their wettest April in 30 years and rainfall was substantially above average throughout most of north-west Britain. New monthly maximum runoff records were set in a significant number of western catchments as well as some baseflow-dominated lowland rivers. Snowmelt contributed to the abundant runoff in western and northern catchments.

May

A month characterised by very large regional variations in rainfall, temperature and sunshine amounts. Scotland was exceptionally dry – registering its fourth lowest May rainfall total. By contrast, some southern areas were notably wet – Guernsey had its wettest May in a record from 1843.

June

June continued the pattern of the spring with large spatial variations in weather conditions. North-western Scotland was very wet and the English lowlands mostly dry although thunderstorms near the end of the month boosted some local rainfall totals.

24th: Active convectional cells, associated with a slow-moving frontal system, produced notable rainfall intensities over many localities. At Hollinsclough (Derbyshire), 43 mm was recorded in three hours including a 23 mm burst in 15 mins (estimated return period of around 100 years). A total of 49 mm fell at East Malling (Kent), and 41 mm in two hours at Hambleden Lock on the Thames. Precipitation intensities exceeded infiltration capacities in many catchments and localised flooding occurred throughout much of southern Britain.

July

A persistent anticyclone over Scandinavia resulted in warm continental air bringing heatwave conditions across the British Isles. The Central England Temperature series ranks this month as the fourth warmest July this century and evaporative demands were exceptional. Some parts of southern England recorded their driest July for over 50 years; sequences of 20 or more dry days were common but thunderstorms became increasingly prevalent over the latter half of the month. River flow recessions, especially in impervious catchments were steep and a few monthly minimum runoff totals were established (e.g. on the South Tyne).

30–31st: Widespread thunderstorms occurred over the Midlands and East Anglia, producing localised flooding. The River Leen at Triumph Road, Nottingham recorded a peak flow of 17.13 m^3s^{-1} on 31 July, in a (patchy) flow series from 1967.

August

August was substantially cooler and more unsettled than July but an average month at the national scale. Much of northern Britain registered its fourth successive month with below average rainfall and eastern Scotland was again particularly dry. In the English lowlands, a significant proportion of the monthly rainfall total was convectional and spatial variability was large.

3–4th: Warm, humid conditions triggered thundery downpours in several parts of the country. The most notable was in Northumberland; a daily total of 103 mm was recorded at Fawcett whilst 30 mm fell in 15 minutes (estimated return period of about 120 years) at Wallington Hall, in a daily total of 83.6 mm. Flows in the River Wansbeck rose extremely quickly (0.6–44.5 m^3s^{-1} in 15 minutes); observers reported a "wall of water" travelling downstream.

10–11th: A vigorous low pressure system containing active convective cells tracked northwards from France across the South-East during the evening of the 10th before returning southwards across the London area the next morning. Rainfall totals varied considerably although none had return periods exceeding 70 years. The highest 2-day total – 87.6 mm – was recorded at Holland Park (Central London); 28.2 mm falling in 30 mins on the 10th. Runoff rates climbed accordingly, especially in responsive urban catchments. In South London new maximum August flow rates (estimated return periods of about 25 years) were recorded in the Rivers Ravensbourne and Wandle. Urban drainage systems were overwhelmed and widespread disruption was caused to road and rail transport (the Underground especially) in the London region.

31st: Convective cells embedded in a warm front tracking north-east from France produced exceptional rainfall totals at several localities in eastern England. At Ditchingham on the Norfolk/Suffolk border, a storm which achieved its maximum intensity overnight, registered a rain-day total of 146.8 mm – the highest daily rainfall in south-east Britain since the Hampstead storm in London of July 1975 – with an estimated return period in excess of 2000 years. Roads and buildings, including a local school and Beccles Hospital, were inundated and significant surface runoff and sediment transport occurred. North Thorpe (Norfolk) registered its wettest August day since the Norwich floods of 1912.

September

Generally cool and wet with the weather dominated by the passage of active frontal systems; these were replaced by high pressure towards month-end. Parts of southern England recorded around three times the monthly average rainfall but a few districts in eastern Scotland registered their fifth successive relatively dry month.

14–16th: A complex low pressure system – with embedded thunder cells – produced rainfall totals in the 60–80 mm range over wide swathes of central England. During 36 hours, 77 mm was recorded at Wittering, near Peterborough and new twentieth century daily maxima were reported for Birmingham, Sheffield and

Chesterfield. The Trent (at Colwick) recorded its highest September flow in 30 years and flood warnings were issued throughout southern Britain - but most peak flows had return periods of less than five years.

October

Contrasts in weather conditions were notable in both spatial and temporal terms. The first three weeks were extremely dry, many places in southern central regions reported an absolute drought (15 days without appreciable rainfall) and in parts of Grampian Region the dry spell was the longest in October for 47 years. Heavy rain during the last ten days of the month over southern Britain produced monthly totals well above average. Scotland and Northern Ireland continued their drier than normal sequence of months.

29–31st: Heavy and persistent frontal rainfall swept eastwards across England and Wales causing widespread flooding in the South-West and South Wales. On the 30th, Dorchester (Dorset) recorded its wettest rain-day (57.1 mm) for almost 40 years, and totals of over 100 mm were recorded on Dartmoor and at Treherbert (West Glamorgan), in 24-hour periods. Farmland was flooded and livestock swept away. In Devon, the Torridge broke its banks inundating property near Bideford, the Exe flooded property in Bickleigh and disrupted transport services. The Taw recorded its highest flow since 1981, causing severe localised flooding in its lower catchment. In South Wales, new highest instantaneous flows were recorded for the Ogmore and Llynfi (on the 30th); the peak on the latter was 50% higher than the previous maximum in a 25-year record.

November

November was a remarkable month climatologically but unexceptional in hydrological terms. The weather was dull but exceptionally mild - the warmest November in the 337-year CET series. Cyclonic conditions dominated the first half of the month but, from the 18th, precipitation totals were very limited in most eastern regions. Ely (Cambridgeshire) had its driest November since 1945. In Scotland, the north excepted, the lengthy sequence of relatively dry months was broken.

8–11th: More than 50 hours of persistent rainfall over southern England and South Wales produced totals of 40–50 mm in many catchments. River flows rose accordingly; the Dorset Stour recorded its highest flow since 1979.

13–14th: Over 50 mm rain fell widely in northern and western Britain, especially over the Lake District and north Wales. Flooding was reported in Blaenau Ffestiniog, Gwynedd after 124.2 mm of rain fell in 20 hours; the River Conwy recorded its highest flow in a 30-year record, 530.7 m^3s^{-1}, on the 13th.

December

Generally a mild and wet month punctuated by some very windy interludes and several short cold spells. South-westerlies prevailed throughout most of December and the associated sequence of frontal systems resulted in high rainfall totals, in the west especially. Scotland recorded its second wettest December this century. The saturated catchments encouraged very rapid runoff and for much of December the risk of flooding was widespread and persistent, in Scotland particularly.

8th: Torrential rain and hurricane force winds caused widespread problems in the West Country and Wales, disrupting ferry crossings and flights. The NRA called six Red Alerts after 50 mm of rain fell in South Wales. Alerts were also in force in the South-West and floodplain inundations were reported in south-eastern England.

10–12th: Heavy and continuous rain fell across west-central Scotland, associated with a vigorous depression bringing very moist tropical air from the south-west. The front remained almost stationary over a 48-hour period and around 170 mm of rain was recorded in the Glasgow area, far exceeding previous maximum December 2-day rainfall totals and corresponding to a return period in excess of 250 years. In the north of the region, 250 mm fell at Loch Sloy during the same period and falls in the 150–250 mm range were common even at low elevations. Numerous rivers in Scotland recorded peak runoff and flows at this time. Very severe flooding ensued in Strathclyde – its coincidence with centres of population and commercial activities resulted in one of the most financial damaging of modern UK floods, for details see page 29.

26–30th: Heavy and persistent frontal rainfall fell over Wales and south-western England. At Treherbert (West Glamorgan) 223 mm of rain fell in three days and return periods of up to 40 years were estimated for 3- or 4-day rainfall totals in the headwaters of the River Severn. At Hereford, the Wye rose to its highest levels since March 1981 and Red Alerts were in force on the Rhondda, Severn, Taff, Wye, Dyfi and Ogmore. The Rivers Torridge, Mole and Exe in Devon burst their banks for the second time in less than two months, again causing extensive disruption. Widespread flooding was also reported from Yorkshire and the Midlands, where rail services were cut.

THE CHICHESTER FLOOD, JANUARY 1994

S.M. TAYLOR

National Rivers Authority, Southern Region

Flooding is a familiar phenomenon in the United Kingdom and communities tend to adjust, albeit imperfectly, to the short term disturbance associated with the relatively rapid rise, and subsequent fall, of river levels during a flood event. However, when the principal causative factors are sustained rainfall and exceptionally high groundwater levels flooding can be very protracted and the associated problems outside recent experience. The 1993/94 inundation at Chichester was a remarkable hydrological event which provided a graphic demonstration of the role groundwater can play in generating and sustaining flood conditions. As the spring-fed River Lavant remained above previous maximum levels for an extended period, mitigation of the flood's impact constituted a considerable challenge. This report on the flood, and the response to it, is based upon a paper presented at the British Hydrological Society's Fifth National Hydrological Symposium.[1].

Introduction

Sussex is no stranger to both tidal and river flooding with its long low lying coastline and many flashy rivers. However, what made the 1993/94 event and the response different was that flooding and communication disruption continued in major urban areas for over a month. Consequently, the response of the National Rivers Authority (NRA), Local Authorities and Emergency Services required careful management and coordination over several weeks.

The Catchment

The River Lavant is a small West Sussex Chalk stream which flows through the centre of the County City of Chichester. The Lavant rises in the folds of the South Downs to the north east of the city with its normal winter spring head somewhere between the villages of Singleton and Charlton. Its initial course is from east to west, it then swings towards the south below Singleton and flows between the villages of Mid and East Lavant. It then drops onto the coastal plain, turning through a further right angle bend in the Westhampnett area to flow west through the city to the sea at Fishbourne. This somewhat tortuous route, controlled partly by geology and partly by man, can be seen in Figure 1.

Although the Lavant is a Chalk stream, just under half of its course on the coastal plain lies over younger Tertiary strata. The catchment drains about one-third of the outcrop of the Chichester Chalk block which is bounded by the Rivers Arun, Ems, the South Downs scarp and the coast. Most of the outcrop in the upper catchment comprises Upper Chalk but the Middle and Lower Chalk is exposed in some locations. The Chalk has a shallow southward dip associated with the Wealden anticline, but the Lavant is particularly affected by the minor features of the Singleton anticline and the Chichester syncline. These east to west trending folds govern the upper river course and result in the thick sequence of Lower London Tertiaries which confine the Chalk in the lower valley below East Lavant. Of equal importance in the lower valley are the superficial deposits which take the form of two raised beaches and an extensive alluvial fan derived from the Lavant and on which Chichester sits. These gravels vary from some 10 m in depth in the Westhampnett

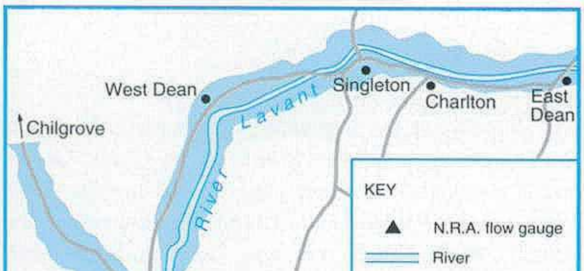


Figure 1 Location map

area to around 2 m on the southern edge of the fan, (British Geological Survey[2]). The catchment is unique in that the longest continuous Chalk groundwater record in the country (records back to 1836) is located at Chilgrove House in the upper catchment.

Throughout its upper reaches the Lavant flow is governed by the hydrogeology. Although the normal winter spring head lies just above Singleton, following wet winters the spring head may migrate well upstream of the village of East Dean. Conversely, following dry winters the Lavant may disappear altogether; indeed during the period of 1989–93 much of the river was dry. Rainfall records have been collected in the valley from 1834 (again at Chilgrove House), but flow records are available only from 1971. The flows are recorded at Graylingwell gauging station, the location of which can be seen in Figure 1. Normal winter flows average around 2 m^3s^{-1}.

Winter 1993–94

In October, at the beginning of the 1993/94 winter half-year, groundwater levels in the Chalk Downs were reasonably low (see page 153). However, from then onwards to the end of January the weather was much wetter than average. The monthly areal rainfalls for the Lavant catchment are given in Table 1. The total for the October to January period was

TABLE 1 WINTER RAINFALL IN THE LAVANT CATCHMENT OCTOBER 1993 TO JANUARY 1994

Month	1961-90 Average (mm)	Actual (mm)
October	90	140
November	90	80
December	100	200
January	99	190
Total	379	610

some 610 mm against an average of 379 mm (1961–90). Of particular note are the heavy rainfalls in late December and early/mid January where daily totals on one occasion reached almost 50 mm (December 30th) in the lower Lavant valley. Between the 29th September and the 13th October 1993, a period of heavy rainfall totalled 175 mm. This overcame the summer soil moisture deficit, groundwater levels responded rapidly and a small but sustained flow of about 0.1 m^3s^{-1} appeared in the Lavant by late October. This was followed by a relatively dry spell until the end of November in which groundwater levels declined slightly, but the flow in the Lavant increased slowly up to around 0.25 m^3s^{-1} during this period. From the 28th November until mid-January the area was swept by a series of vigorous depressions which resulted in more than 350 mm of rainfall. 40% of this fell on six days in late December and early January. As a result, groundwater levels rose rapidly, between mid-December and Christmas Day the Chilgrove level rose some 16–18 metres above the December average. On the 7th January the well became artesian and remained so for some 18 days (see Plate 1). This is the longest recorded period of artesian overflow. Consequently river flows also rose rapidly from 0.3 m^3s^{-1} in mid-December to 1.7 m^3s^{-1} on the 29th and peaking at around 8.1 m^3s^{-1} on the 10th January. Whilst these are not 'large' flows, in a flat bottomed Chalk valley with a channel adjusted to flows of around 2 m^3s^{-1} plus a flat impermeable tide-locked coastal plain, the potential for flooding is easy to imagine. The resultant hydrograph from Graylingwell can be seen in Figure 2. (The spot gauged peak exceeds the flow over the weir which was bypassed by out-of-bank flows).

Plate 1 Chilgrove House borehole overflowing, January 1994
Photo: Phillip Turton

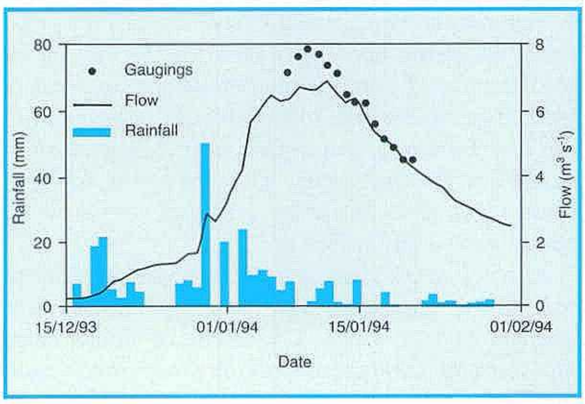


Figure 2 Flows at Graylingwell (River Lavant) and daily rainfall totals at West Dean

Of great interest is the change in response to rainfall of the catchment over the mid-December to January period. Prior to mid-December the Lavant behaved as a normal Chalk stream with delayed response of river flow and groundwater levels to rainfall. After mid-December this began to change and until late January the response of flow to rainfall was extremely rapid and the catchment became almost flashy. Later analysis by Posford Duvivier[3], who were contracted to investigate the floods, identified a critical groundwater level at Chilgrove well of 69.5 m aOD. Once this threshold level is reached then the response of the catchment appears to switch from a baseflow dominated flow regime to a more rainfall responsive regime. It has been postulated that this level marks the movement into a zone of much more fissured Chalk which enables a more rapid response to rainfall.

This, plus the fact that by the time this level is reached the whole catchment and valley bottom is saturated, possibly leads to rapid runoff. The full reasons for this phenomenon still remain to be explored, but other independently obtained hydrogeological data may provide additional evidence. Packer testing was carried out on a site some two kilometres to the east of Chilgrove, which indicated a marked change in transmissivity at or around 70 m aOD.

Event Magnitude

Estimation of the flood return period is difficult, even though there are long period rainfall and groundwater level records available. Whilst the event was characterised by an extremely high flow, it is difficult to determine the significance of short and long term rainfall and of groundwater level. In many respects it is the combined probability of intense rainfall on top of a generally wet winter causing high groundwater levels, which produced the flood. In order to assess the impact of rainfall on groundwater storage, various durations of daily totals were examined. Single daily totals, whilst quite large, do not produce results which explain the flood conditions. Although the impact of a >25 mm storm on an already saturated catchment produces a worsening of the conditions, indications are that all groundwater storage must be exhausted first. This produces the two stage catchment response described earlier.

TABLE 2 FREQUENCY OF RAINFALL EVENTS - SEPTEMBER 1993 TO JANUARY 1994

Rainfall Duration (days)	Dates of rainfall	Rainfall (mm)	Return Period (years)
1	01/10/93	33.4	2.1
1	30/12/93	25.7	1.3
5	30/12/93-03/01/94	78.9	2.7
5	28/09/93-03/10/94	79.0	2.7
10	28/12/93-06/01/94	132.3	5.7
40	06/12/93-14/01/94	335.0	38.6
90	03/11/93-31/01/94	455.6	6.3

Source: Ref. 3.

TABLE 3 RELATIVE RANKINGS OF 40- AND 45-DAY CUMULATIVE RAINFALL TOTALS (TOP 10 YEARS 1921 TO 1995) FOR CHILGROVE WITH CORRESPONDING PEAK FLOWS (FROM 1971)

Rank	40-Day	Total (mm)	45-Day	Total (mm)	Peak Q* (cumecs)
1	1930	353	1961	375	
2	1994	345	1994	373	8.1
3	1961	341	1930	368	-
4	1935	319	1977	339	
5	1995	315	1935	339	4.4
6	1977	308	1995	332	2.2
7	1971	307	1950	326	0.9
8	1988	306	1928	322	3.9
9	1950	304	1988	321	-
10	1987	298	1971	313	1.2

* Associated with year in 40-day ranking

Examining a 6-month period (October-March) for rainfall totals, the return period appears to be around 30–60 years. The return period assessment for various durations peak at around the 40–50 day timeframe. (See Table 2.) By taking cumulative 40- and 45-day rainfall totals from Chilgrove House, a ranked list of events is obtained. Extending from 40 to 45 days does not change the years involved in 9 out of 10 cases, although the rank position does alter. This can be seen in Table 3. This gives 1993/94 a return period of about 1 in 45 for a 40 day period. For 45 days 1994 increases to 1 in 55. These cumulative rainfall totals perhaps suggest that >300 mm (40 days) or >320 mm (45 days) is required before more major problems may occur. At somewhere over 300 mm of rainfall Chalk groundwater storage must be at or around capacity and any storms of significance (>20 mm) cause an instant peaky flow response. This possibly explains the increased flooding from individual storms in 1993/94.

A variety of return periods have been postulated using combinations of hydrometeorological variables. The results vary from 1 in 17 for the total winter rainfall, through 1 in 100 for the Graylingwell flow, to approaching 400 years for groundwater levels and combined probability analyses. Possibly the best estimate, assuming a stable climate, is that the return period exceeds the 1 in 100 year event.

Previous Records

Searching carefully through the archives it appears that "flood" events have happened in the past every 30 years or so. Undoubtedly the areas of urban flooding were greater in the past, but flows were probably less. The last major event occurred in 1960/61. This was certainly a very severe flood, although no river flow records exist. Much of the flood protection built after 1961 withstood the flood waters of 1994, although the impact of flooding was different. In the case of 1960/61 water was diverted from the Lavant into gravel workings, subsequently infilled. The site is now occupied by a Sainsbury's superstore, which had burnt down in December 1993! Flooding in the upper valley in particular was exacerbated by the Chalk stream character of the land. Small channels, low banks and low capacity bridges all played a part. Towards the city itself, man's activities on the coastal plain played an even greater part in the events. In the relatively recent past it is almost certain that the Lavant has been diverted from its original path to the sea at the mouth of Pagham Harbour. This accounts for the westward course of the river from Westhampnett through the city to Chichester Harbour. Diversion possibly occurred in Roman times (contemporary rumour). The normally placid or dry nature of the summer Lavant would aid this. Certainly early maps of the city[4] show the Lavant forming part of the city defence and, presumably, water supply. As time went on the city expanded and a large section of the Lavant source within the city became culverted. The majority of the present culverts date back to Victorian times.

The 1993/94 Flood

First evidence of the flood problems to come surfaced in the Westhampnett area around the 20th of December 1993. Here flooding caused by excessive groundwater discharge began to occur in a low-lying industrial estate set amongst old gravel workings (Church Farm Pit). By the beginning of January springs were appearing throughout the valley and in several locations in the upper Lavant valley the channel could no longer cope with the flow. As the road was the next lowest conduit this began to become a subsidiary channel (see Plate 2). Attendant traffic wash then began to affect adjacent properties. The first widespread flooding occurred on the 4th when the Lavant began to overtop right along the channel length. The most serious occurrences were at Westhampnett where the river burst its banks and flowed off towards the Pagham Rife, and in The Hornet/St Pancras area of the city, where demolition of a building appears to have affected the flood wall. Here serious overtopping occurred. Within the Hornet around twenty properties and business premises were inundated by the overtopping (Plate 3). Around this time the city centre culverts became surcharged. They remained in this state until virtually the end of January.

Meanwhile, in the Westhampnett area overflow from the Lavant had been channelled down the B2141 and across the A285, closing them to traffic, before entering the Church Farm Pit. The industrial estate around the Pit was already flooded with groundwater and the Lavant overflow of around 1.25 m^3s^{-1} simply added to the depth of inundation.

Plate 2 Floodwater on the B2141, near Chilgrove, in January 1994
Photo: NRA, Southern Region

Plate 3 Flooding in The Hornet, Chichester City Centre
Photo: NRA, Southern Region

Within 24 hours the available storage in the Pit was used up and the flood of combined groundwater/surface water overflow crossed the A27 (T) and closed it. Next the floodwater closed the B2144, passed under the railway line (where small culverts throttled back the flow) and by the 9th January the flood closed the A259 on its flow path towards Pagham Harbour. Supplemented by groundwater the 1.25 m^3s^{-1} flood to the south reached well over 3 m^3s^{-1} within a kilometre. Thankfully the number of properties severely flooded was relatively small, less than 50. However, the disruption to commerce and communications (see Cover) was tremendous. At one point the most secure route between Southampton and Brighton by road was via London and the M3, M25 and M23. All the main South Coast roads were closed and on the main South Coast railway line, trains passed through the flood area at walking pace with water passing through the ballast. Road traffic around the city was only reinstated with the provision of military Bailey bridges at key points.

Whilst this major overtopping was occurring every village along the Lavant was suffering widespread flooding and road closures. In The Hornet area of the city the river was periodically rising with rainfall causing culvert surcharging and overtopping. There was no respite from the flooding for almost a month.

The city centre Victorian culverts were giving cause for increasing concern. The most constricted section has a normal capacity of around 4.5 m^3s^{-1}. Peak flow at Graylingwell was around 8.1 m^3s^{-1} and although around 1.25 m^3s^{-1} was out of bank around the city some 5–6 m^3s^{-1} was at times passing through the culvert. The culvert was itself in dubious structural condition and at times a spray mist could be seen through fine cracks in the floor of buildings along the culvert line.

During periods of rainfall the river rose, the culvert surcharged and water spilled out upstream of the culvert into the city. Fortunately a combination of relays of 'green goddess' fire appliances and Maine Coastal Pollution Unit pumps kept the city centre flood water confined to a restricted area. Throughout most of January there was an ever present fear of culvert collapse. Had this happened some 1200 properties would have been inundated within 30 minutes, around 10,000 people would have required evacuation and all roads/railways to the east would have been closed. As a result Operation Badminton was conceived by the Emergency Committee. Initially alternative flood water routes both around and through the city were investigated, but gradients and services prevented this. Sandbag channels were planned through the city but they would have virtually isolated the centre. Consequently, evacuation procedures using public service vehicles and fully fitted reception centres in Hampshire were set up. Military, NRA, County/District and Emergency Service staff were available on a 24 hour basis and strategic sandbag stores were located through the city. Had the need arisen the sandbags, plus selected buildings, would have formed the new channel. Whilst precautions were in place the vast majority of city and commercial life continued as normal.

Discussion

Although the areas flooded are low lying and have a history of inundation, there have been no problems since the early 1960s. In the intervening period residents have changed and many properties have been renovated. During past floods it appears possessions were moved upstairs and the residents waited for the water to abate. It is difficult to do this with central heating systems, fitted furniture/carpets and sophisticated electrical equipment, even if warning is given. The question was raised "why did they not stop it?", as attempts were made to apportion blame and impute negligence. This was particularly so where the flooding was associated with sewer surcharging and contaminated water.

Associated with the direct public response is management of the media. January is traditionally a quiet month for news, Chichester is in easy reach of London for media crews, the imagery of pumps, floods and fire engines is newsworthy and the length of the event in 'commuter land' led to intense media interest. Whilst the Lavant and Chichester event of 1993–1994 was caused by exceptional weather it did not flood a large number of individual properties. However, it was distinguished by its longevity, media interest and disruption to communications.

Response to the event was hindered by the arcane state of Flood Defence and Land Drainage law. Flooding is no respecter of the limits of NRA main river and riparian responsibility. Interestingly, if flooding occurs naturally then there is no liability. If water is diverted from a river and flooding damage subsequently occurs then there is potential for liability and claims of negligence.

NRA investigations are underway to decide upon the optimum route for a Chichester flood alleviation scheme. Three proposals are being given detailed consideration and a decision on the preferred option is expected early in 1996.

References

1. Midgeley, P and Taylor, S M (1975) Chichester 1994: the impact of man on a groundwater flood. Proc. 5th National Hydrological Symposium. BHS. 3.27 to 35

2. British Geological Survey. (1982) Geological notes and details for 1:10000 sheets covering the West Sussex Coastal Plain. BGS.

3. Posford Duvivier (1994) River Lavant flood investigation – commissioned by the National Rivers Authority, Southern Region.

4. Newbury, K (1987) The River Lavant: Chichester's Power from Source to Mouth, Phillimore, 64 pp.

REGIONAL FLOODING IN STRATHCLYDE DECEMBER 1994

A. R. BLACK* **and** **A. M. BENNETT†**
Institute of Hydrology **Clyde River Purification Board**

Between the 10th and 12th December 1994, major flooding occurred in rivers and urban watercourses across the Glasgow conurbation and its surrounding areas. A slow-moving weather system delivered persistent rain over a 48-hour period and across a wide geographical area, such that previous peak river flow values were exceeded in all major catchments in the region. The River Clyde is thought to have reached its highest level in 150 years, and the total cost of the damage may reach £100 million. The event is the latest in a series of major floods in Scotland and raises questions concerning land use planning and flood hazard management.

Introduction

Major floods always attract considerable public attention when they occur, and with good justification: whole communities are often rendered helpless while uncontrolled waters inundate property, sometimes taking lives in their wake. With damage attributable to flooding throughout the world increasing despite continuing attempts to mitigate their impact, interest in floods and their consequences is as high as ever. In a global context UK floods are small scale and represent only a limited threat to lives and livelihoods. Nonetheless, they can still pose a considerable threat in terms of their economic and social impact.

Yearbooks in the *Hydrological data UK* series have documented several of the most significant floods to occur since 1980: the Tywi flood of 1987[1], the two Truro floods of 1988[2], the Tay floods of 1990[3] and 1993[4] and, in this volume, the Chichester flood of January 1994. December of the same year also witnessed flooding in Strathclyde which became the latest event in a striking list of floods to occur in Scotland since the late 1980s. Flooding on the Ness in 1989[5], and on the Spey[6] and Teith[7] in several recent winters since 1988, combined with the Tay floods and others elsewhere, has caused significant economic and social impact. As in many other parts of the world, possible links between recent hydrological events and climate change are of considerable concern. Whether there is any common cause of this now well-recognised increase in flooding in Scotland[8], it accords well with a general steepening in the north-west/south-east rainfall gradient across Britain[9] which, if sustained, may necessitate significant adjustments in the provision of regional water resource systems and flood defences.

The flooding which forms the focus of this paper was unusual for its geographical extent, involving all the rivers converging on Glasgow and affecting many of its suburbs. Strathclyde Region accommodates 45% of the Scottish population of 5.1 million, with 1.6 million located in the Glasgow conurbation. The resulting pressure on land resources may be considered to contribute to the risk of flooding problems.

The River Clyde is the main river in the Region (Figure 1), draining a catchment which rises to some 750 m in the Southern Uplands. It includes tributaries on the south side of Glasgow, such as the White Cart Water, which fall steeply from their upland headwaters, and others such as the River Kelvin which, although also having some very steep

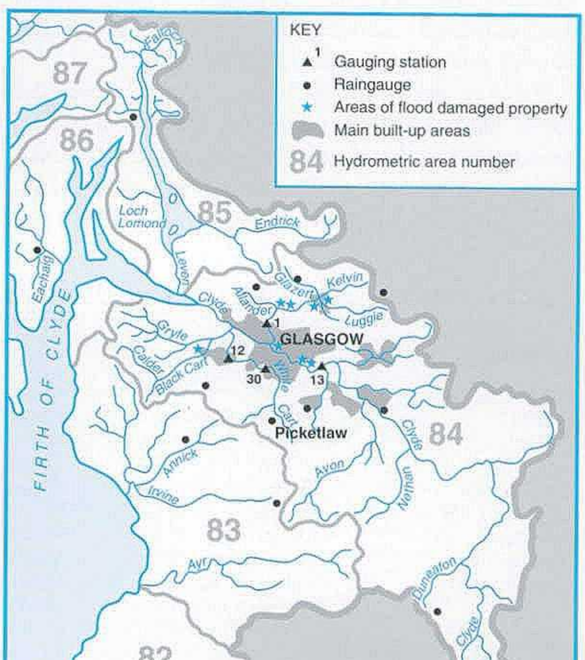


Figure 1 Location map

* Now Lecturer, Dept. of Geography, Dundee University.
† Now Director, Scotia Water Services, Wanlockhead, Lanarkshire.

headwaters, flows slowly through a gentle floodplain in its middle course to the north-east of Glasgow. Mean annual rainfall varies strongly with altitude, from around 900 mm on the Ayrshire coast and in the middle Clyde valley, to more than 3000 mm in the mountains to the north of Glasgow; hydrological characteristics also vary strongly in response to these controls. When these diverse characteristics are taken into consideration, the response of the rivers of Strathclyde to the heavy December rainfall in 1994 was especially remarkable.

Rainfall

December 1994 started with generally damp conditions, following on from a November of near-average rainfall. At Picketlaw in the centre of the Clyde River Purification Board (CRPB) area, rain fell on each day of December until the 20th. Daily totals were in the range 1-10 mm on the first six days of the month, but on the 7th and 8th falls of 22.4 and 19.4 mm respectively were recorded. This rainfall ensured that soil moisture levels were at, or approaching, saturation throughout the region.

In the early hours of December 10th, a slow-moving frontal system brought sustained rainfall of 1-5 mm per hour to the whole of west-central Scotland, lasting for about 48 hours. The rain was produced by an unusually wide warm sector, which caused warm, moist air from the west-south-west to be conveyed continuously across the area. More unusual was the coincidence of this rainfall with a large conurbation and, as the rain continued, fears of flooding grew. A similar meteorological situation had been responsible for the damaging Ness and Conon floods of February 1989[10] although, on that occasion, the cold front marking the northern limit of the rainfall was much further to the north.

Table 1 shows the daily rainfall totals recorded across the area while in Figure 2 hourly totals are presented for three sites located around the main Glasgow conurbation. The sustained nature of the rainfall is clearly illustrated, and it can be seen that

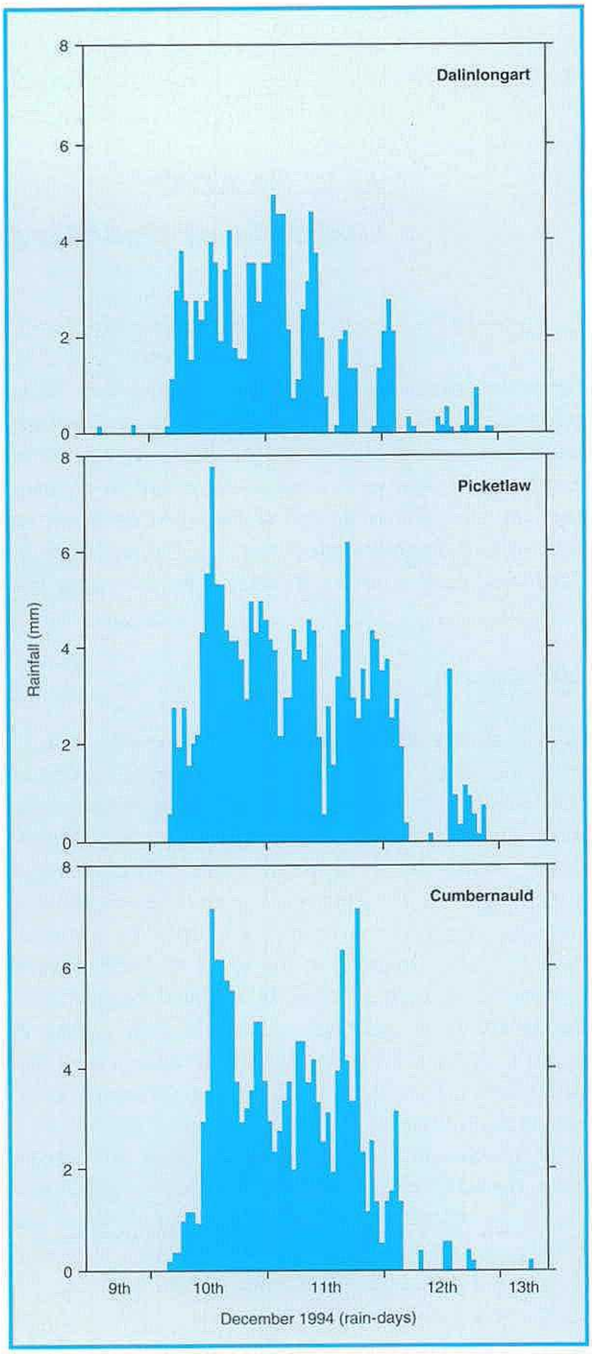


Figure 2 Hourly rainfall for three selected rainguages. (See Table 1 for location)

TABLE 1 DAILY RAINFALL TOTALS FOR SELECTED CLYDE RPB RAINGAUGES

Raingauge	Catchment	NGR	Alt (m aOD)	Water-day rainfall totals 9th	10th	11th
Dunlop	Annick Water	NS412489	148	16.4	88.0	57.2
Saughall	Irvine	NS598364	222	6.9	80.5	54.3
Leadhills	Clyde	NS888151	384	3.2	65.8	46.5
East Kilbride	Clyde	NS638535	178	9.4	69.0	48.0
Clyde Park SW	Clyde	NS772539	30	3.4	42.2	29.4
Picketlaw	White Cart	NS568515	220	14.0	100.8	57.6
Gleniffer Braes	Black Cart	NS435595	183	22.7	165.4	54.6
Mugdock Park	Allander/Kelvin	NS546779	164	11.9	126.0	53.4
Glenmill	Glazert/Kelvin	NS605794	99	18.1	89.3	57.3
Cumbernauld*	Kelvin	NS783770	85	5.4	99.6	52.6
Dalinlongart TS	Eachaig	NS138813	60	15.8	73.4	23.2
Inveruglas	Loch Lomond	NN320091	13	36.9	100.4	28.5

Note: Almost all the rain was received within 48 hours at each gauge.

* Operated by Forth RPB

most of the rain fell within the water days (09.00-09.00) of the 10th and 11th. An assessment of the rarity of the 2-day falls by CRPB staff has produced estimated return periods of over 500 years for some sites. It is striking that five of the six 2-day totals exceeding 140 mm were at sites below 200 m aOD, with two of these being below 100 m.

Hydrological Response, Hydrometric Network Operation and Flood Warning

The first rivers to show a significant response to the rainfall were those draining the urban areas to the south of Glasgow. The CRPB flood warning staff were monitoring the situation, as they had been given a heavy rain warning by the Met Office on the 9th, predicting between 18 and 25 mm of rain in the area.

The first telemetry alarm was received at 11.45 on Saturday 10th December from the White Cart system, and at 15.05 Strathclyde Police were officially warned that flooding was likely in parts of Cathcart, southern Glasgow. The White Cart initially peaked at 18.30 but by 23.00 had started to rise again, eventually peaking at Overlee gauging station at 01.30 on Sunday 11th (Figure 3). The White Cart (84030) has a long history of flooding, a result of the steep nature of the catchment and its tributaries, causing a rapid response to rainfall. However, as the rainfall in this event was of long duration but only moderate intensity, the flows at Overlee in the middle of the catchment were not exceptional, the peak level being more than 0.5 m less than the previous recorded maximum in a record commencing in 1981.

Further down the catchment at Hawkhead (on the outskirts of Paisley), where the peak flows are sometimes less than those at Overlee due to attenuation down the channel, a new maximum flow of 193 m^3s^{-1} was recorded at 04.45 on Sunday 12th, with the recorded level being almost 0.7 m above the previous recorded maximum (Table 2). This clearly demonstrates one of the most striking features of this event, namely that the prolonged duration of the rainfall ensured that the effects were greatest in the larger catchments where peak flows from tributaries were able to coincide. The Black Cart, which joins the White Cart below Paisley, peaked at 18.00 on the 11th (Table 2), the coincidence of the high flows in both rivers causing significant flooding and backing up along the main channels.

Once the warnings had been issued for the White Cart, attention turned to other rivers in the region. It had been observed early on the 10th that the rivers draining the Campsie Fells to the north of Glasgow were very high, and they were the next group to reach peak levels, typically around 03.00 on the 11th. Many of these rivers drain into the Kelvin which, because of its large, flat middle section, was unable to effectively drain the coincident peak flows. Flows in the Kelvin were the most notable in the region, with a peak flow at Killermont (84001) gauging station estimated to be more than twice the previous maximum (in a 47-year record). There were such large volumes of water contained in the floodplain that the river did not finally peak until 07.00 on Monday 12th, more than 48 hours after it had started to rise (Figure 3). The Kelvin caused widespread flooding at Kirkintilloch in the centre of the large floodplain, and downstream in Glasgow, particularly following ingress into a disused railway tunnel (see below).

Further south, the River Irvine peaked in the early hours of Sunday 11th, causing flooding in the town of Irvine, and localised, minor flooding was also reported on the Ayr. As the rain moved to the south-east, the River Clyde itself began to cause concern. This had been much slower to rise, given its greater catchment area, but quickly made up for lost time and eventually recorded a new maximum at Daldowie (84013) at 06.15 on Monday 12th (Figure 3). Peak levels were more than a metre above any previous level, with the corresponding flows estimated to be between 1100 and 1300 m^3s^{-1}, compared to a previous maximum of 803 m^3s^{-1}.

A total of 27 gauging stations recorded new maximum levels during the event, including 17 with 25 or more years of record (Table 2). Several instrument huts were inundated, a number of

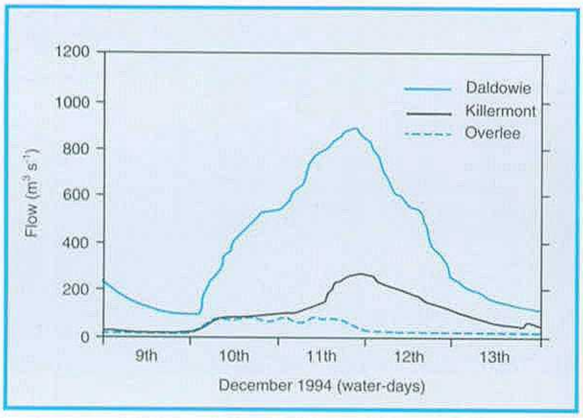


Figure 3 Flows at three gauging stations in the Clyde basin (see map)

Plate 1 Redlees gauging station on the Rotten Calder Photo: Clyde RPB

TABLE 2 MAXIMUM LEVELS/ESTIMATED FLOWS RECORDED IN DECEMBER 1994: CRPB STATIONS WITH 25+ YEARS OF RECORD*

River	Station	First Yr of Record	Catchment area (km²)	Day	Time	Max. Level (m)	Flow (m^3s^{-1})	Previous max. level (m)
Duneaton	Maidencots	1966	110	11	23.59	2.126	120	2.092
Clyde	Sills	1957	742	12	10.29	3.113	403	3.023
Clyde	Tulliford Mill	1969	933	12	05.59	2.843	539	2.592
Clyde	Hazelbank	1956	1093	12	06.35	3.778	606	3.637
Nethan	Kirkmuirhill	1966	66	11	21.28	2.239	75.0	2.308
Avon	Fairholm	1964	266	11	01.00	3.173	289	3.916
South Calder	Forgewood	1965	93	12	06.44	1.147	26.5	1.682
Clyde	Blairston	1958	1704	12	05.41	4.038	>830	3.480
North Calder	Calderbank	1968	61	11	20.29	1.684	27.3	1.821
North Calder	Calderpark	1963	130	12	03.11	2.674	134	2.278
Rotten Calder	Redlees	1966	51	11	17.11	1.820	44.6	2.119
Clyde	Daldowie	1963	1903	12	06.15	5.903	>1100	4.815
White Cart	Hawkhead	1963	227	12	04.43	4.372	193	3.680
Black Cart	Milliken Park	1967	103	11	18.14	2.012	110	1.383
Gryfe	Craigend	1963	71	11	05.13	2.618	129	2.007
Glazert	Milton of Campsie	1968	52	11	02.32	2.089	87.1	1.972
Luggie	Condorrat	1966	34	11	19.53	2.280	51.3	1.835
Kelvin	Dryfield	1960	235	12	08.44	5.223	104	4.586
Kelvin	Killermont	1948	335	12	07.11	3.781	>300	2.255
Falloch	Glen Falloch	1970	80	11	02.29	2.665	176	2.746
Endrick	Gaidrew	1963	220	11	06.59	3.606	134	3.744
Leven	Linnbrane	1963	784	13	00.28	2.370	138	2.996
Little Eachaig	Dalinlongart	1968	31	11	02.13	1.271	31.1	2.310
Eachaig	Eckford	1968	140	11	03.28	2.661	126	2.477
Ayr	Catrine	1970	166	10	22.29	2.993	201	2.704
Irvine	Glenfield	1914	218	11	01.23	2.895	437	2.106

* Some of the featured levels and flows result from site investigations and may involve the use of special high flow stage-discharge relations; moderate differences from the routinely processed flows may occur.

cableways were damaged and flood debris created considerable flow measurement difficulties (Plate 1). Some telemetry lines were affected by water, but the system as a whole was robust enough to allow the CRPB staff to keep both the emergency services and the Met. Office advised of conditions as the event progressed. It is worth noting that the rainfall radar station at Corse Hill (to the south of Glasgow) was not working through the event, due to a technical fault, yet sufficient information was available from the CRPB's telemetry raingauges to map the rainfall.

Due to the exceptionally high flows it was not possible to current meter many of the peak river flows, especially where station huts were inundated. However, many new high level gaugings were completed whilst still ensuring that the network continued to operate. Low flow gaugings during the following summer have revealed that some of the stations will require recalibration as a result of channel erosion or deposition during the event.

Flood Impact

It was inescapable that flows of the magnitude experienced would cause considerable impact across the area. Damage was caused to properties over an area more than 50 km wide, as a result of the widespread nature of the rainfall and associated runoff. Three lives were lost: two when a car plunged from a submerged and collapsed bridge over the Kelvin near Twechar, and the other on the River Nith to the south. At the height of the floods 80 roads were closed and, in central Glasgow, Argyll Line and Glasgow Underground rail services were halted when tunnels became flooded. Ten months were required to repair damage on the Argyll Line - caused by ingress of floodwaters from the Kelvin via a disused tunnel. Water from the same source inundated part of the Scottish Exhibition & Conference Centre, a hotel (see Plate 2) and the Glasgow Expressway.

Plate 2 Walkway in front of Moat House Hotel, Finnieston, Glasgow, undermined by floodwater
Photo: Clyde RPB

Inundation of residential property was one of the most prominent features of the floods, affecting properties of a wide range of ages. Some 700 homes were flooded, with many families needing to be evacuated. Residential flooding was most extensive in Paisley and Kirkintilloch, and occurred in a range of circumstances. In Paisley much of the flooding appears to have occurred as a result of the culvert capacity of a small watercourse being exceeded, causing ponding in a deep hollow. Some houses were inundated by up to 4.5 m of floodwater. Most of the flooding in Kirkintilloch occurred on, and along the margins of, the wide floodplain of the River Kelvin. While some flooding is experienced in many winters, historical sources suggest that the levels reached in this event may not have been exceeded for more than 100 years. Much of the damage centred on a 1960s development at Hayston, and the new Summerfield Gate housing estate, where house building was still in progress (Plate 3).

Commercial losses also occurred in Kirkintilloch, mostly at a floodplain industrial estate, and at several locations to the south of Glasgow, eg. a whisky distiller's bonded warehouses, industrial units and a public health laboratory, as a result of the Clyde overtopping its banks. An insurance survey of the damage caused by the floods suggests that total damage costs may approach £100 million, with £30 million to be met in insurance claims[11].

Plate 3 Flooding on the Summerfield Estate, Kirkintilloch Photo: Andrew Black

Discussion

The damage costs associated with these floods suggest that they are probably the most damaging witnessed anywhere in the UK since the 1968 flooding in southern England. The essence of their impact lies in the coincidence of a most unusual near-stationary frontal system with the UK's third-largest urban centre. Costs have been incurred in not only economic but also social terms. In common with other floods such as the Tay event of 1993, those social groups least able to withstand the effects of flooding have often found themselves most exposed to it. In this case the Ferguslie Park area of Paisley, with high unemployment and very low levels of insurance cover, experienced great hardship.

The history of flood defence provision demonstrates that the cost of constructing defences is often worthwhile, in terms of offering protection against the range of losses which flooding causes. However, evidence suggests that many of those defences which have been provided were inadequate in this event. It should be a matter of concern that some of the worst flooding would not have occurred if more thought had gone into the sizing and maintenance of culverts and screens, and the significance of embankments as effective dams. A more coordinated approach may well have been beneficial in this instance.

Elsewhere, however, particularly on land adjacent to the Clyde and Kelvin, the hydrological analysis above suggests that the flood flows experienced were truly exceptional. Such flooding might therefore be considered to lie within the scope of that risk which home-owners and businesses choose to accept when locating in floodplain areas, although it should be noted that the perception of risk does appear to vary according to the length of time since flooding last occurred. Many of these same areas are successfully protected against floods of lower magnitude.

There has been much discussion of the effectiveness of planning controls following these floods; suggestions have been made that much of the flood damage was avoidable. The Scottish Office has subsequently issued a National Planning Policy Guideline[12], directing planning authorities to exercise the precautionary principle by refusing applications for floodplain development, except where other reasons for granting permission take precedence over flood risk. Difficult decisions may need to be taken in assessing the balance between development and the benefits of limiting the potential for flood damage, and the assessment of risk is therefore as important as ever. A well-founded understanding of the nature of flood risk must be an essential input for future development plans to be made on an informed basis. Particularly in the case of a heavily developed conurbation such as Glasgow, the use of floodplain areas may be an essential part of future development and, with control over the types of development permitted and the level of structural protection offered, an equitable distribution of risk may be achieved. New duties of flood survey, and input into planning procedures, for the forthcoming Scottish Environment Protection Agency (SEPA) will aid the future management of flood risk in Scotland. A survey of the flooding[13], commissioned by CRPB with Scottish Office backing, will also be valuable in this regard, and can be seen as anticipating the new duties to be given to SEPA.

Climate change remains a relevant issue in considering this event, as with others. Warm, moist air masses may bring rain such as that experienced in

Strathclyde more frequently to north-western Europe under preferred climate change scenarios. Therefore it would seem appropriate for those involved in risk assessment for new flood defence works, the design of structures, etc. to exercise caution in their assessments. A particular hydrological aspect of this flood which deserves further study is the high percentage runoff which was achieved in some catchments. Inspection of data for the responsive White Cart Water catchment (111.8 km^2) above Overlee shows that, in the 36 hours from 15.00 on the 10th December (Figure 3), the estimated runoff equates to 75% of the point rainfall simultaneously received at Picketlaw in the headwaters of the catchment.

Conclusions

The Strathclyde floods of December 1994 were remarkable for their geographical extent, stretching 50 km across a major conurbation, and for the severity of flooding with some 700 homes and many business properties flooded. The unusually persistent rainfall resulted in previous river flow records being exceeded in all river basins around Glasgow, in both small and large catchments.

In a large conurbation, where development pressures are sure to continue in the foreseeable future, risk assessment is vital in order that floodplain management can offer widely acceptable solutions to the threat of flooding. Through monitoring and research, the role of the hydrologist must be to ensure that the relevant decisions are made on a fully informed basis.

Acknowledgement

Thanks to Marjory Roy of Edinburgh University for providing details and interpretation of meteorological aspects of the event.

References

1. Frost, J R and Jones, E C (1988) The October 1987 flood on the River Tywi. 1987 Yearbook, Hydrological data UK series, Institute of Hydrology, 23-29.
2. Acreman, M C (1989) Hydrological analysis of the Truro floods of January and October 1988. 1988 Yearbook, Hydrological data UK series, Institute of Hydrology, 27-33.
3. Marsh, T J and Bryant, S J (1991) 1990 - a year of floods and drought. 1990 Yearbook, Hydrological data UK series, Institute of Hydrology, 25-37.
4. Black, A R and Anderson, J L (1994) The Great Tay Flood of January 1993. 1993 Yearbook, Hydrological data UK series, Institute of Hydrology, 25-34.
5. Inglis, T (1989) River flows and flood warning. Proceedings, East Highland Floods Symposium, Dingwall, October 1989, Paper A3.
6. Sprott, W C and McKenna, E (1992) River Spey flooding in 1989 and 1990 and subsequent recommendations. Paper presented at joint IWEM/SHG/SHSG meeting, Perth, 31 March 1992.
7. Evans, T E, Smith, T M and Gill, B (1995) Flood management of upper Teith basin, above Callander. Proceedings, BHS Fifth National Hydrology Symposium, Edinburgh, 1995, Black, A R and Johnson, R C (eds), British Hydrological Society.
8. Grew, H and Werritty, A (1995) Changes in flood frequency and magnitude in Scotland 1964-92. Proceedings, BHS Fifth National Hydrology Symposium, Edinburgh, 1995, Black, A R and Johnson, R C (eds), British Hydrological Society.
9. Anon (1995) Hydrological Review in: 1994 Yearbook, Hydrological data UK series, Institute of Hydrology, 3–20.
10. Roy, M G (1989) Meteorological conditions. Proceedings, East Highland Floods Symposium, Dingwall, October 1989, Paper A1.
11. Flooding in Glasgow & Ayrshire. Alexander Howden Group Ltd Report.
12. Planning and flooding (1995) National Planning Policy Guideline, The Scottish Office Environment Department.
13. Clyde RPB (1995) The 10th-12th December 1994 flood event - Floodplain mapping: Factual report. Babtie Group report to Clyde RPB.

LONG RIVER FLOW RECORDS

Hydrometric data are the foundations upon which water management is built. The lack of any long term trend in most lengthy rainfall, river flow (Figure 1) and groundwater level series in the United Kingdom serves to underpin water management strategies and operational procedures designed to mitigate the problems caused by flooding or drought. The resilience of these strategies has been brought into question both by the magnitude of the departures from average conditions over the last decade and the broad similarity between recent climate patterns and a number of favoured climate change scenarios.

The inherent variability of the UK climate implies that any short term trends need to be treated with caution. A temporary shift in the preferred tracks of rain-bearing Atlantic frontal systems, for instance, can produce significant perturbations in hydrometric time series. These can easily assume an exaggerated significance given the very limited length of most UK river flow and borehole records. Rainfall data series provide a much longer historical perspective – around 2000 raingauges were operational by 1880 – and are useful in hindcasting hydrometric series. However, reservoirs and aquifers are replenished, and rivers sustained, not by rainfall directly but by that proportion which remains after allowing for evaporative losses.

Although in global terms the UK maintains a relatively dense network of flow measurement stations (around 1250), it is less well blessed in terms of the length of flow records. This is especially true of those datasets which have been systematically archived to allow general access and analysis. For monitoring sites incorporated in the National River Flow Archive (NRFA) the average record length is less than 23 years and fewer than 15 stations offer sensibly continuous records of more than 50 years. A substantial proportion commence in the 1960s, a period of intense network growth in much of the UK – and their ability to fully characterise runoff variability is necessarily limited.

Until recently, the Rivers Thames and Lee were alone on the NRFA in having records extending back to the nineteenth century. In 1993 the Institute of Hydrology instigated a programme to acquire additional long runoff records, most hitherto not formally held on national or regional archives. Many such records have been referenced in the literature and some measuring authorities, notably the Thames Region of the NRA, have collated important datasets. Most, however, tend to be less continuous and of a lower hydrometric quality than their modern counterparts. Nonetheless, they provide a valuable opportunity to explore historical runoff variability and identify significant trends.

In order to capitalise fully on these important series it is essential to critically review the likely data accuracy and appraise, at least qualitatively, temporal changes in artificial influences and their impact on the flow regime. Data precision and consistency is a major problem with many early hydrometric records. In the twentieth century instrumentation and data acquisition facilities have improved but Man's influence on river flow regimes has become increasingly pervasive. In many areas, the complex pattern of water utilisation has a profound effect on runoff patterns. These effects are compounded by the less perceptible impacts of land use change; most such changes defy easy quantification.

An important milestone was passed in 1994 with the incorporation into the NRFA of a long monthly flow series for the Wendover Springs; the earliest extant monitoring site in the UK. Flows are currently measured at a thin-plate weir gauging station operated by British Waterways. Their utility is greatly enhanced by the existence of an 1841–97 dataset derived from a count of the monthly total of lockages which fed water from the Wendover Arm to the main Grand Union Canal; the possibility exists of extending the record back to 1793. Lockage counts can introduce significant errors into flow assessments but the Wendover series does capture the main elements of runoff variability (see Figure 2)

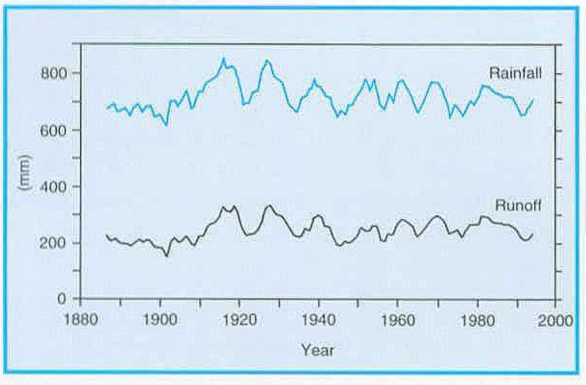


Figure 1 Five-year running mean plots for the River Thames (naturalised flows used)

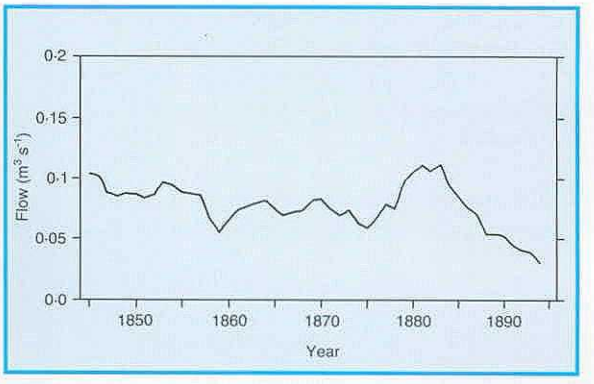


Figure 2 Five-year running mean plot of the Wendover Springs flow

over a period with few, if any, other sensibly continuous records. Unfortunately, the Wendover Arm fell into disuse and, being constructed largely in Chalk, began to leak badly around the 1880s. Eventually, after a period of substantial under-registration of runoff, the monitoring site was abandoned. It will be apparent that considerable curatorial skills, and a commitment to rigorous data quality appraisal are an essential pre-requisite if historical series of this type are to be fully exploited.

The need for critical reviews of historical series are not confined to little-used or recently acquired series. A major rainfall/runoff modelling exercise using flows for the River Thames - one of the most widely used records in the world - revealed that the long recognised underestimation of historical low flows at Teddington Weir (now superseded by the Kingston ultrasonic gauging station - see page 66) is of a greater magnitude than previously thought[1]. Artificial influences on the Thames regime are considerable and have changed substantially through time. Attempts to monitor the major abstractions have been reasonably successful and the underestimation is in large part a consequence of leakage through the old weir complex and lockages. Once the conventional adjustments for such losses are increased to a more realistic level, the severity of recent drought episodes (especially those of 1976 and 1989-92) relative to their historical counterparts increases significantly.

Table 1 lists some recently acquired lengthy runoff records. These have been incorporated in the NRFA but until further validation has been undertaken and details of the origin, and method of derivation of the individual series, are fully documented such datasets will be released on a restricted basis only.

The potential effects of global warming on UK hydrological conditions has focused attention on the need for continuing and careful hydrometric monitoring to help determine the extent and magnitude of any departures from the historical norm - and to assess the relative contribution of climate and man to any associated regime changes. Despite the shortcomings of many early series, most of which are to be expected with hydrometric series of long vintage, preliminary analyses has revealed an interesting measure of spatial coherence regarding a number of early very dry, or very wet, episodes (for example, over the 1850-70 period). At other times spatial variability appears substantial and the NRFA wishes to extend its regional coverage of datasets covering the pre-1950 period particularly. Further lengthy records, whether of springs, runoff, river levels, well levels or bourne flow occurrences, would be welcomed and holders of such data are invited to contact the National Water Archive Office (see page 135).

TABLE 1 RECENTLY ACQUIRED LONG RUNOFF SERIES

River	Station	NGR	Catchment Area	Length of Record	Comments
Loch Leven	17806	NT171993	158.3	1855–1993	Derived loch inflows (monthly)
Wendover Springs at Wendover Wharf	39801	SP869083	9.5	1841–1897	Monthly flows based on lockages at Tringford
Sutton Poyntz Spring at Sutton Poyntz	44814	SY707844	11.3	1858–1970	Gauged 'spot' monthly flows
Havant and Bedhampton Springs at Havant	42812	SU712062	93.0	1908–1992	Derived monthly flows
Rickford Spring at Rickford	53810	ST487592	2.1	1931–1969	Gauged daily flows
Langford Spring at Langford	53811	ST466593	1.0	1931–1969	Gauged daily flows
Tyne Reservoir Group	23820	NY960760	96.2	1904–1957	Monthly yields for a group of reservoirs
Tributary of Endon Bk Deep Hayes Reservoir	28805	SJ961534	9.8	1915–1964	Naturalised monthly flows

Reference

1. Littlewood, I G and Marsh, T J (1995) A re-assessment of the monthly naturalised flow record for the River Thames at Kingston since 1883, and the implications for the relative severity of historic droughts. Regulated Rivers (in press).

Computation and Accuracy of Gauged Flows

Gauged flows are generally calculated by the conversion of the record of stage, or water level, using a stage-discharge relation, often referred to as the rating or calibration. Stage is measured and recorded against time by instruments usually actuated by a float in a stilling well. The instrument records the level either digitally, on a solid state logger, less commonly on punched tape, or continuously by pen and chart. At the majority of the gauging stations in the United Kingdom provision is made for the routine transmission of river levels directly to the processing centre, by telephone line or, less generally, by radio; on occasions satellites have been used to receive and re-transmit the radio signal. The rapid growth in the use of the public telephone network for the transmission of river level and flow data is enabling hydrometric data acquisition to proceed on a near real-time basis in most areas. Typically, levels are recorded at 15-minute intervals and stored on-site for overnight transmission to allow the initial processing to be completed on the following day. Normally, both digital and analogue recording devices are deployed at gauging stations to provide a measure of security against loss of record caused by instrument malfunction.

The stage-discharge relation is obtained either by installing a gauging structure, usually a weir or flume with known hydraulic characteristics, or by measuring the stream velocity and cross-sectional area at points throughout the range of flow at a site characterised by its ability to maintain the relationship.

The accuracy of the processed gauged flows therefore depends upon several factors:

i. accuracy and reliability in measuring and recording water levels,
ii. accuracy and reliability of the derived stage-discharge relation, and
iii. concurrency of revised ratings and the stage record with respect to changes in the station control.

Flow data from ultrasonic gauging stations are computed on-site where the times are measured for acoustic pulses to traverse a river section along an oblique path in both directions. The mean river velocity is related to the difference in the two timings and the flow is then assessed using the river's cross-sectional area. Accurate computed flows can be expected for stable river sections and within a range in stage that permits good estimates of mean channel velocity to be derived from a velocity traverse set at a series of fixed depths.

Flow data from electromagnetic gauging stations may also be computed on-site. The technique requires the measurement of the electromotive force (emf) induced in flowing water as it cuts a vertical magnetic field generated by means of a large coil buried beneath the river bed, or constructed above it. This emf is sensed by electrodes at each side of the river and is directly proportional to the average velocity in the cross-section.

British and International Standards are followed as far as possible in the design, installation and operation of gauging stations. Most of these Standards include a section devoted to accuracy, which results in recommendations for reducing uncertainties in discharge measurements and for estimating the extent of the uncertainties which do arise.

The National River Flow Archive exists to provide not only a central UK database and retrieval service but also an extra level of hydrological validation. To further this aim, staff at the Institute of Hydrology liaise with their counterparts in the water industry on a regional basis and, by visiting gauging stations and data processing centres, endeavour to maintain the necessary knowledge of local conditions and problems which is essential to help identify and rectify anomalous flow data.

Scope of the Flow Data Tabulations

River flow data are presented in two parts. In the first, daily mean gauged flows are tabulated for 49 gauging stations; daily naturalised flows are also tabulated for the River Lee (page 63) and River Thames (page 66). Monthly flow data for a further 163 gauging stations are given in the second part. The featured gauging stations have been selected to give a broad geographical coverage and to typify a wide range of catchment types found throughout the United Kingdom. A map (Figure 9) is provided on page 42 to assist in locating the gauging stations featured in this section.

For each gauging station, basic reference information is given together with comparative average and extreme river flow and rainfall figures based upon the archived record.

Explanatory notes precede the two sets of tables and are provided to assist in the interpretation of particular items. The notes relating to the daily flow tables are given in the following section; those relating to the monthly data are given on page 93.

Part (i) – the daily mean flow tabulations

Station Number

The gauging station number is a unique six-digit reference number which serves as the primary identifier of the station record on the River Flow Archive. The first digit is a regional identifier being 0 for mainland Britain, 1 for the islands around Britain and 2 for Ireland. This is followed by the hydrometric area number given in the second and third digits. Hydrometric areas are either integral river catchments having one or more outlets to the sea or tidal estuary or, for convenience, they may include several contiguous river catchments having topographical similarity with separate tidal outlets. In Britain they are numbered from 1 to 97 in clockwise order around the coastline commencing in north-east Scotland: Ireland has a unified numbering system from 1 to 40, commencing with the River Foyle catchment and circulating clockwise; not all Irish hydrometric areas, however, have an outlet directly on the coast.

The numbers and boundaries of the United Kingdom hydrometric areas are shown in the frontispiece.

The fourth, fifth and sixth digits comprise the number, usually allocated chronologically, of the gauging station within the hydrometric area. Where the leading digit, or digits, are zero they may be omitted giving rise to apparent four or five-digit reference numbers.

Measuring Authority

The abbreviation references the organisation responsible for the provision of flow data to the River Flow Archive. A list of measuring authority codes together with the corresponding names and addresses for organisations currently contributing data to the National River Flow Archive appears on pages 172 and 173.

Grid Reference

The initial two-letter and two-figure codes each designate the relevant 100 kilometre National Grid square or Irish Grid square; the standard six-figure map reference follows.
Note: Irish Grid references - which are italicised - have only one prefix letter but it is common practice to precede it with the letter I to make the identification clear.

Catchment Area

The surface catchment area, in the horizontal plane, draining to the gauging station in square kilometres. There are a few gauging stations where, because of geological considerations, or as a result of water transfers - for instance, the use of catchwaters to increase reservoir yields - the actual contributing area may differ appreciably from that defined by the topographical boundary. In consequence, the river flows whether augmented or diminished, may cause the runoff (as a depth in millimetres) values to appear anomalous.

First Year

The year in which the station started producing daily mean flow data, usually the first year for which data are held on the River Flow Archive. Earlier data, often of a sporadic nature or of poorer quality, may occasionally be available from the measuring authorities or other sources.

Level of Station

The level of the station is, generally, the level of the gauge zero in metres above Ordnance Datum, or above Malin Head Datum for stations in Northern Ireland. Although gauge zero is usually closely related to zero discharge, it is the practice in a few areas for an arbitrary height, typically one metre, to be added to the level of the lowest crest of a measuring structure to avoid the possibility of false recording of negative values by some digital recorders. Station levels are stored to the nearest 0.1 m on the Archive.

Maximum Altitude

The level to the nearest metre of the highest point in the catchment.

Table of daily mean gauged (or naturalised) discharges

The mean flow in cubic metres per second (abbreviated to m^3s^{-1} and sometimes also referred to as 'cumecs') in a water-day, normally 09.00 to 09.00. The naturalised discharge is the gauged discharge adjusted to take account of net abstractions and discharges upstream of the gauging station.

Throughout the River Flow Data section flows are given to four significant figures.

Peak Flow: The highest flow in cubic metres per second for each month. The day of peak generally refers to the water-day but the calendar day has also been used, particularly in Scotland. Normally the peak flow corresponds to the highest fifteen-minute flow where water levels are recorded digitally, or the highest instantaneous flow associated with maximum stage where analogue recorders are used.

Runoff: The notional depth of water in millimetres over the catchment equivalent to the mean flow for the month as measured at the gauging station. It is computed using the relationship:

$$\text{Runoff in mm} = \frac{\text{Average Flow in Cumecs} \times 86.4 \times \text{n}}{\text{Catchment Area (km}^2\text{)}}$$

where n is the number of days in the month. The runoff total is rounded to the nearest millimetre.

Runoff is computed on the basis of naturalised flows (see 'Factors Affecting Runoff') for the minority of catchments where daily, or monthly, naturalised flows are available.

Rainfall: The rainfall over the catchment in millimetres for each month. Each areal rainfall total is derived from a one kilometre square grid of rainfall values generated from all available daily and monthly rainfall data. A computer program calculates catchment rainfall by averaging the values at the grid points lying within the digitised catchment boundary. Validation procedures allow for the rejection of obviously erroneous raingauge observations prior to the gridding exercise. The bulk of the rainfall data are provided by the Meteorological Office†. Where, as for instance in some small mountainous catchments, raingauges are few and their siting and exposure are not ideal, great precision in the areal rainfall estimates cannot be expected.

Statistics of monthly data for previous record

Only complete monthly records are used in the derivation of the average, low and high values of river flow, runoff and rainfall. The rainfall and runoff statistics are normally directly comparable but full equivalence will not obtain where the pattern of missing data differs between the archived rainfall and runoff data sets.

Where applicable, a guide to the amount of missing data is given following the section heading. Some slight variations from the statistics held by the measuring authorities may occur; these may be due to the different methods of computation or the need for uniformity in presentation.

Summary statistics

Current year flow statistics are tabulated alongside the corresponding values for the previous record. Where appropriate, the current year figures are expressed as a percentage* of the preceding average.

Mean Flow: The average of all available daily mean flows during the term indicated.

Lowest Daily Mean: The value and date of occurrence of the lowest mean flow in cubic metres per second in a water-day during the term indicated. In a record in which the value recurs, the date is that of the last occasion.

River flow measurement tends to become more imprecise at very low discharges. Very low velocities, heavy weed growth and the insensitivity of stage-discharge relations combine with the difficulty of accurately measuring limited water depths to reduce the accuracy of computed flows. The reliability of both the lowest daily mean flow and the 95 per cent exceedance flow (see below) as representative measures of low flow must, therefore, be considered carefully and the values used with caution in view of the increasing proportional variability between the natural flow and the artificial influences, such as abstractions, discharges and storage changes as the river flow diminishes.

† For the IH research catchments, the monthly totals are subsequently updated using areal figures derived from a dense local raingauge network.
* As a consequence of leap years the runoff and mean flow percentage may not be identical.

Peak: The peak flow in cubic metres per second during the term indicated. The date of occurrence, normally the water-day, is also indicated. Generally, the peak flows are derived from the record of monthly instantaneous maximum flows stored on the River Flow Archive.

Note: The peak flows submitted to the NRFA are of variable quality. The primary sources of nationally archived flood data are the UK Flood Event Archive, the Peaks-over-Threshold Floods Database (see page 136) and the Flood Studies Report[1].

10% exceedance: The flow in cubic metres per second which was equalled or exceeded for 10 per cent of the specified term – a high flow parameter which, when compared with the mean may give a measure of the variability, or 'flashiness', of the flow regime. The 10 per cent exceedance value is computed using daily flow data only for those years with ten days, or less, missing on the River Flow Archive.

50% exceedance: The flow in cubic metres per second which was equalled or exceeded for 50 per cent of the specified term – the median value. The same conditions for completeness of the annual records apply as for the 10 per cent exceedance flow.

95% exceedance: The flow in cubic metres per second which was equalled or exceeded for 95 per cent of the specified term – a significant low flow parameter relevant in the assessment of river water quality consent conditions. The same conditions for completeness of the annual records apply as for the 10 per cent exceedance flow.

Factors Affecting Runoff (FAR)

An indication of the various types of abstractions from, and discharges to, the river operating within the catchment which alter the natural flow is given by a standard set of abbreviated descriptions. In Part (ii) – the monthly flow data – each description is shortened to a code letter. An explanation of the abbreviated descriptions and the code letters is given overleaf. With the exception of the induced loss in surface flow resulting from underlying groundwater abstraction, these codes and descriptions refer to quantifiable variations and do not include the progressive, and difficult to measure, modifications in the regime related to land-use changes.

Except for a small set of gauging stations for which the net variation, i.e. reservoir storage changes and/or the balance between imports and exports of water to, or from, the catchment, is assessed in order to derive the 'naturalised' flow from the gauged flow, (see page 38), the record of individual abstractions, discharges and changes in storage as indicated in the code above is not held centrally.

[1] Flood Studies Report 1975. Natural Environment Research Council (5 vols. reprinted 1993).

CODE	EXPLANATION	ABBREVIATED DESCRIPTION
N	Natural, i.e., there are no significant abstractions and discharges or the variation due to them is so limited that the gauged flow is within 10 per cent of the natural flow at, or in excess of, the 95 per cent exceedance flow.	Natural within 10 per cent at the 95 per cent exceedance flow.
	Storage or impounding reservoir. Natural river flows will be affected by water stored in a reservoir situated in, and supplied from, the catchment above the gauging station.	Reservoirs in catchment.
R	Regulated river. Under certain flow conditions the river will be augmented from surface water and/or groundwater storage upstream of the gauging station.	Augmentation from surface water and/or groundwater.
	Public water supplies. Natural river flows are reduced by the quantity abstracted from a reservoir or by a river intake if the water is conveyed outside the gauging station's catchment area.	Abstraction for public water supply.
	Groundwater abstraction. Natural river flow may be reduced or augmented by groundwater abstraction or recharge. This category includes catchments where minewater discharges influence the flow regime.	Flows influenced by groundwater abstraction and/or recharge.
	Effluent return. Outflows from sewage treatment works will augment the river flow if the effluents originate from outside the catchment.	Augmentation from effluent returns.
	Industrial and agricultural abstractions. Direct industrial and agricultural abstractions from surface water and from groundwater may reduce the natural river flow.	Flow reduced by industrial and/or agricultural abstraction.
H	Hydro-electric power. The river flow is regulated to suit the need for power generation.	Regulation for HEP.

Station and catchment description

A short commentary providing a guide to the characteristics of the station, its flow record and the catchment it commands; refer to page 176 for an explanatory listing of the abbreviations and acronyms used. The principal objectives of this summary information are to assist data users in the selection of gauging station records appropriate to their needs and to assist in the interpretation of flow variability at individual gauging stations particularly where the natural flow pattern is significantly disturbed by artificial influences.

A comprehensive set of gauging station and catchment descriptions is provided in the '*Hydrometric Register and Statistics 1986–90*' (see page 174). Further details of the net impact of abstractions and discharges on river flow patterns are given in: Gustard, A., Bullock, A. and Dixon, J.M. 1992. Estimating Low River Flows in the United Kingdom. Institute of Hydrology Report number 108.

Comment

A summary of any important factors influencing the accuracy of the current year's flow data specifically; for instance, the reconstruction of a gauging station or the use of extrapolated stage-discharge relations during periods of very low or very high flows.

STATIONS FOR WHICH DAILY OR MONTHLY DATA ARE GIVEN IN THE RIVER FLOW SECTION

continued on page 43

Figure 9 Gauging station location map

A 'D' indicates that the featured station is in the daily flow section.

003003 Oykel at Easter Turnaig 1994

Measuring authority: HRPB
First year: 1977

Grid reference: 29 (NC) 403 001
Level stn. (m OD): 15.60

Catchment area (sq km): 330.7
Max alt. (m OD): 998

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.893	25.340	3.934	40.830	9.761	1.684	2.832	0.758	4.453	28.870	74.030	4.966
2	5.831	14.330	10.340	43.740	8.669	1.602	2.117	0.753	3.000	26.320	16.010	4.969
3	23.770	9.754	27.010	27.190	6.386	15.870	1.732	0.780	2.613	13.520	7.952	6.402
4	30.700	17.460	79.560	18.130	4.841	14.890	5.766	0.855	3.140	21.720	5.307	7.653
5	18.640	10.610	40.320	26.260	9.775	7.378	21.870	0.803	3.757	12.460	4.509	7.746
6	20.820	6.493	99.790	27.110	6.940	6.581	6.115	0.802	2.642	8.873	5.891	13.590
7	12.630	4.853	54.740	14.730	4.402	15.500	3.061	0.809	2.056	8.673	4.233	18.050
8	6.536	6.427	60.370	10.920	3.351	19.670	2.534	0.762	14.350	7.060	3.404	46.540
9	19.060	32.080	28.140	33.680	2.786	39.100	2.269	0.723	7.834	5.278	3.824	67.590
10	24.360	11.600	74.130	22.590	2.729	11.410	2.163	0.680	42.660	3.810	28.620	81.470
11	13.490	6.002	34.820	16.360	2.644	5.434	1.865	0.635	29.760	3.514	23.080	118.000
12	14.500	4.577	29.540	9.924	2.813	3.971	2.353	0.634	12.850	3.034	19.650	62.670
13	40.630	3.245	46.420	7.004	2.646	2.762	2.058	0.617	7.064	2.556	34.720	22.800
14	33.090	2.224	43.850	5.929	2.201	2.146	1.650	0.608	3.976	2.344	54.900	10.550
15	11.880	2.032	21.200	5.080	1.849	2.678	1.465	0.613	3.013	3.119	34.250	21.670
16	5.916	2.333	10.910	5.948	1.632	3.228	1.526	0.830	2.767	2.515	31.350	21.990
17	30.410	2.919	11.670	5.381	1.512	4.310	1.389	1.460	3.005	2.055	25.870	34.570
18	70.800	2.101	9.771	20.240	1.350	45.460	1.180	1.481	2.490	1.865	21.470	28.100
19	32.060	1.747	7.970	44.190	1.231	14.750	1.052	4.396	3.354	1.656	26.480	42.330
20	86.930	1.692	6.077	39.430	1.132	7.979	1.099	9.048	3.374	1.599	36.700	26.500
21	43.620	1.454	31.170	18.860	1.049	9.961	1.237	4.456	2.585	1.692	14.190	10.080
22	30.640	1.409	151.500	14.990	1.056	16.180	1.185	2.664	2.169	1.619	7.101	40.980
23	15.310	1.291	82.390	26.530	1.021	8.578	0.985	2.751	2.524	22.440	37.160	70.250
24	39.310	1.462	44.280	13.630	0.984	15.110	0.976	3.303	2.941	13.770	12.520	24.860
25	52.220	1.683	26.840	8.290	0.973	10.220	0.925	3.083	2.231	6.650	14.550	37.430
26	43.770	1.616	13.510	41.080	0.990	5.287	0.934	9.663	29.900	9.067	10.310	21.980
27	34.160	2.010	9.416	34.910	0.907	3.881	0.932	10.680	36.620	12.930	14.430	9.821
28	10.680	1.738	19.480	26.250	0.896	3.192	0.838	37.040	208.700	9.965	32.270	48.050
29	124.400		24.640	40.690	0.927	4.355	0.781	25.130	176.600	11.180	14.580	42.960
30	37.800		17.180	22.670	1.034	4.202	0.732	15.330	113.700	7.763	7.097	27.610
31	28.890		44.700		1.606		0.701	8.072		68.170		12.330
Average	31.280	6.446	37.600	22.420	2.906	10.250	2.462	4.846	24.540	10.520	20.880	32.080
Lowest	5.831	1.291	3.934	5.080	0.896	1.602	0.701	0.608	2.056	1.599	3.404	4.966
Highest	124.400	32.080	151.500	44.190	9.775	45.460	21.870	37.040	208.700	68.170	74.030	118.000
Peak flow	241.70	56.66	254.30	117.80	15.09	89.43	53.37	57.45	303.50	255.80	204.80	244.50
Day of peak	29	9	22	26	5	18	5	28	30	31	1	11
Monthly total (million cu m)	83.79	15.59	100.70	58.11	7.78	26.56	6.59	12.98	63.60	28.17	54.13	85.93
Runoff (mm)	253	47	305	176	24	80	20	39	192	85	164	260
Rainfall (mm)	263	67	338	197	30	140	56	104	220	119	157	343

Statistics of monthly data for previous record (Nov 1977 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	25.900	18.390	22.680	9.800	6.401	6.412	8.528	10.930	19.330	23.340	25.070	23.700
	Low	13.550	2.376	6.649	5.445	1.067	0.752	2.756	2.332	3.710	7.329	4.587	8.246
	(year)	1985	1986	1980	1980	1980	1982	1992	1984	1993	1979	1993	1977
	High	43.980	39.930	48.340	17.710	14.380	14.140	20.530	22.590	31.870	41.100	49.380	38.210
	(year)	1983	1989	1990	1979	1982	1980	1993	1985	1981	1980	1981	1980
Runoff:	Avg.	210	136	184	77	52	50	69	89	151	189	197	192
	Low	110	17	54	43	9	6	22	19	29	59	36	67
	High	356	292	391	139	116	111	166	183	250	333	387	309
Rainfall:	Avg.	242	145	210	95	84	100	114	144	204	228	235	225
	Low	113	21	76	50	29	44	60	52	49	96	44	82
	High	430	423	436	175	167	176	191	263	326	401	458	361

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m³s⁻¹)	17.250		16.710		103
Lowest yearly mean			12.970	1987	
Highest yearly mean			20.250	1981	
Lowest monthly mean	2.462	Jul	0.752	Jun 1982	
Highest monthly mean	37.600	Mar	49.380	Nov 1981	
Lowest daily mean	0.608	14 Aug	0.353	26 Jun 1982	
Highest daily mean	208.700	28 Sep	404.800	29 Jan 1982	
Peak	303.500	30 Sep	847.500	6 Oct 1978	
10% exceedance	41.280		40.240		103
50% exceedance	7.975		8.458		94
95% exceedance	0.838		1.076		78
Annual total (million cu m)	544.00		527.30		103
Annual runoff (mm)	1645		1595		103
Annual rainfall (mm)	2034		2026		100
1961-90 rainfall average (mm)			1900		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

40m wide river section. Flows fully contained except in extreme circumstances (e.g. October 1978). Construction of gabion groynes immediately downstream, in February 1986, has rendered the low flow rating less stable. 100% natural flow regime with little loch storage. Catchment is typical Highland mix of rough grazing and moorland with some afforestation in the middle reaches.

007002 Findhorn at Forres 1994

Measuring authority: HRPB
First year: 1958

Grid reference: 38 (NJ) 018 583
Level stn. (m OD): 6.80

Catchment area (sq km): 781.9
Max alt. (m OD): 941

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.519	53.850	6.502	57.500	35.760	14.240	5.050	3.181	5.120	18.170	65.330	7.000
2	9.048	32.440	7.168	35.430	45.280	9.282	4.425	3.032	4.326	33.730	23.980	6.738
3	8.211	19.600	10.640	24.300	45.030	15.070	4.392	3.116	3.898	35.210	18.330	8.783
4	10.420	21.380	64.970	26.000	34.080	14.390	4.350	20.770	3.902	20.810	14.800	16.430
5	8.968	26.980	119.200	19.960	35.850	9.226	5.058	9.511	4.183	17.680	14.910	8.699
6	31.500	19.780	114.700	18.230	27.310	8.758	5.936	5.544	3.752	11.650	15.290	9.206
7	37.310	14.840	154.800	16.870	21.710	10.570	5.528	4.126	4.094	9.146	11.260	16.500
8	18.390	12.150	159.900	16.180	17.800	8.279	5.846	3.647	6.938	8.712	9.061	12.730
9	14.090	16.210	54.690	15.050	17.060	7.785	6.064	3.425	15.150	7.043	8.683	25.690
10	46.370	18.370	49.370	45.640	25.520	9.186	4.643	3.351	6.898	6.084	25.450	110.500
11	25.740	12.660	71.430	83.150	21.190	6.995	4.362	3.312	6.468	5.383	32.400	115.400
12	22.460	10.970	32.950	57.690	27.850	7.185	4.612	3.248	40.540	5.062	22.040	49.590
13	19.320	9.374	41.860	35.800	24.410	7.193	5.408	3.084	45.440	4.769	25.080	32.820
14	27.180	7.153	108.900	31.970	18.920	6.164	4.355	3.065	16.040	4.542	97.840	16.850
15	19.370	6.778	41.280	32.310	15.030	5.398	3.916	3.031	14.590	4.552	41.410	12.710
16	13.760	6.758	25.630	36.240	11.050	5.989	3.761	3.046	24.130	4.670	23.650	12.060
17	10.780	6.463	20.340	38.530	9.178	5.190	3.548	3.210	33.060	4.497	20.010	29.840
18	48.350	6.995	18.300	36.940	8.135	5.689	3.347	3.741	14.620	4.210	23.130	18.240
19	38.460	6.605	16.880	46.630	6.996	8.201	3.213	3.354	11.260	4.106	41.710	12.950
20	47.140	5.727	14.620	48.370	6.620	5.585	3.175	3.178	35.640	4.072	31.010	12.120
21	94.210	5.793	12.870	48.960	8.270	7.361	3.194	3.789	21.310	6.317	24.320	9.793
22	34.280	5.575	103.500	39.960	10.650	10.480	3.114	3.148	11.440	5.296	16.110	8.801
23	24.270	5.177	128.900	52.330	10.360	11.390	3.028	4.721	8.194	30.200	21.180	38.780
24	16.270	5.645	60.530	81.610	9.427	7.316	2.955	10.180	6.913	20.810	16.800	50.390
25	47.480	4.997	41.720	49.270	8.935	23.780	2.993	4.758	6.182	21.540	11.410	30.030
26	38.680	4.990	28.820	89.800	7.670	14.730	2.989	4.162	5.563	12.760	11.130	18.550
27	38.960	4.920	21.550	96.850	6.920	10.030	2.978	5.614	5.563	8.927	10.220	12.510
28	20.950	4.647	34.250	112.900	6.876	7.551	2.907	12.480	5.894	14.210	9.109	25.650
29	87.820		41.880	70.820	7.360	6.588	2.860	11.740	6.281	14.790	8.330	37.620
30	75.800		66.370	44.540	8.312	6.602	2.802	6.392	9.497	17.930	7.372	27.600
31	35.450		100.900		17.900		2.879	6.405		23.910		29.090
Average	31.630	12.740	57.270	46.990	17.980	9.207	3.990	5.334	12.900	12.610	23.380	26.570
Lowest	8.211	4.647	6.502	15.050	6.620	5.190	2.802	3.031	3.752	4.072	7.372	6.738
Highest	94.210	53.850	159.900	112.900	45.280	23.780	6.064	20.770	45.440	35.210	97.840	115.400
Peak flow	209.70	71.59	222.10	189.60	57.70	33.78	9.00	58.12	93.80	56.07	150.80	184.70
Day of peak	29	1	8	26	3	25	8	4	12	23	14	11
Monthly total (million cu m)	84.72	30.83	153.40	121.80	48.16	23.86	10.69	14.29	33.43	33.76	60.60	71.17
Runoff (mm)	108	39	196	156	62	31	14	18	43	43	78	91
Rainfall (mm)	149	54	199	105	23	70	33	67	96	78	85	129

Statistics of monthly data for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	25.560	21.550	24.990	20.880	15.670	10.480	9.590	13.270	14.820	21.830	23.090	24.610
	Low	9.429	5.259	8.615	5.561	3.836	3.141	2.743	2.478	2.864	3.548	6.965	8.333
	(year)	1963	1963	1964	1974	1960	1992	1984	1976	1972	1972	1993	1976
	High	55.880	53.760	58.360	54.180	41.990	41.900	24.650	58.840	37.870	49.540	39.710	61.550
	(year)	1993	1990	1990	1979	1968	1966	1965	1970	1965	1981	1977	1966
Runoff:	Avg.	88	67	86	69	54	35	33	45	49	75	77	84
	Low	32	16	30	18	13	10	9	8	9	12	23	29
	High	191	166	200	180	144	139	84	202	126	170	132	211
Rainfall:	Avg.	108	70	91	62	72	78	81	101	99	114	113	108
	Low	34	19	29	13	22	22	26	18	18	26	27	37
	High	217	197	228	136	169	239	167	247	216	223	225	210

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	21.780		18.860		115
Lowest yearly mean			11.990	1972	
Highest yearly mean			25.650	1990	
Lowest monthly mean	3.990	Jul	2.478	Aug 1976	
Highest monthly mean	57.270	Mar	61.550	Dec 1966	
Lowest daily mean	2.802	30 Jul	1.752	23 Aug 1976	
Highest daily mean	159.900	8 Mar	612.000	17 Aug 1970	
Peak	222.100	8 Mar	2410.000	17 Aug 1970	
10% exceedance	47.910		41.470		116
50% exceedance	12.200		11.430		107
95% exceedance	3.173		3.267		97
Annual total (million cu m)	686.90		595.20		115
Annual runoff (mm)	878		761		115
Annual rainfall (mm)	1088		1097		99
1961-90 rainfall average (mm)			1064		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

50m wide river section in a mobile gravel reach which necessitates frequent recalibration of low flow rating. Flows contained under cableway up to 3.8m. Adequately gauged to bankfull. 100% natural catchment with minimal surface storage. Other than a narrow agricultural coastal plain the catchment drains the Monadhliath Mountains with an extensive blanket peat cover.

008006 Spey at Boat o Brig 1994

Measuring authority: NERPB
First year: 1952

Grid reference: 38 (NJ) 318 518
Level stn. (m OD): 43.10

Catchment area (sq km): 2861.2
Max alt. (m OD): 1309

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	41.030	163.300	39.320	210.300	153.900	46.350	36.730	18.800	24.330	30.630	115.200	35.400
2	41.400	139.700	42.950	163.300	130.700	42.820	32.710	17.770	21.380	46.160	75.970	34.130
3	44.120	101.500	51.250	117.000	127.600	44.430	31.060	18.430	19.910	63.890	62.950	33.850
4	59.850	145.300	124.800	99.290	118.100	50.930	30.120	20.540	20.320	47.820	64.700	46.660
5	51.110	151.600	278.700	81.170	106.500	43.050	33.690	26.460	20.190	45.210	63.810	43.940
6	88.850	106.600	220.900	71.510	100.300	37.990	32.750	23.980	19.450	40.320	63.000	43.680
7	79.400	82.670	311.100	65.840	85.740	39.240	30.020	21.150	20.120	33.910	52.180	68.710
8	57.890	69.320	360.500	63.430	75.850	38.140	28.310	19.230	33.970	30.740	45.100	64.480
9	60.010	68.340	316.000	60.610	66.770	35.970	26.970	18.120	41.870	28.530	44.210	71.980
10	158.800	77.010	230.100	100.400	66.750	39.390	25.870	17.380	32.770	26.670	71.940	145.000
11	112.700	63.840	218.300	170.000	71.520	36.660	25.530	17.050	28.180	24.950	92.900	213.500
12	102.600	56.400	167.500	151.300	72.880	34.710	26.250	16.600	42.800	23.860	71.070	234.200
13	87.510	50.720	151.700	105.900	82.170	34.210	28.180	16.140	77.550	22.900	81.540	166.400
14	99.660	45.380	229.700	90.670	75.650	32.990	26.850	15.720	47.420	22.180	139.200	105.000
15	79.360	43.130	194.900	88.710	64.260	31.830	25.160	15.370	38.750	21.730	139.900	74.470
16	62.430	40.240	146.500	92.670	53.870	31.930	23.570	15.400	74.450	21.330	100.800	61.220
17	52.900	38.860	109.700	99.000	46.960	31.790	22.290	16.050	81.620	20.720	78.970	65.000
18	108.800	39.450	90.020	93.790	42.600	32.060	21.190	16.500	50.590	20.330	69.470	81.870
19	109.200	37.760	76.640	102.900	39.470	34.050	20.400	16.170	43.180	19.940	102.600	64.100
20	105.600	35.810	66.950	109.900	36.700	34.160	20.070	15.640	57.100	20.280	87.620	56.960
21	212.500	34.820	61.340	119.900	35.590	33.750	20.010	15.930	54.570	33.150	81.860	50.030
22	148.900	34.130	157.700	112.300	36.530	34.360	19.840	15.940	40.980	29.770	66.130	43.090
23	114.300	32.750	252.300	146.400	37.410	39.100	19.250	15.720	34.180	142.400	63.090	62.400
24	84.430	32.440	223.300	162.200	37.190	38.030	18.790	19.590	30.580	76.490	63.570	109.400
25	105.500	32.250	177.400	152.600	36.260	54.630	18.860	19.680	28.190	70.570	53.350	85.160
26	105.400	31.710	128.200	167.500	35.100	56.420	19.170	19.540	26.330	69.860	47.730	73.990
27	115.900	32.600	98.080	213.000	33.580	48.600	19.040	21.320	24.940	53.140	44.630	58.520
28	80.440	33.840	94.350	254.800	32.430	43.910	18.420	22.410	24.260	51.190	41.870	56.780
29	149.200		118.500	250.400	32.420	41.100	18.050	33.580	23.670	48.740	39.130	102.300
30	198.700		135.900	211.900	33.670	41.140	17.790	28.140	25.030	50.460	37.240	88.110
31	126.700		230.400		37.750		17.520	26.530		57.730		79.320
Average	98.230	65.050	164.700	131.000	64.720	39.460	24.340	19.380	36.960	41.790	72.060	81.280
Lowest	41.030	31.710	39.320	60.610	32.420	31.790	17.520	15.370	19.450	19.940	37.240	33.850
Highest	212.500	163.300	360.500	254.800	153.900	56.420	36.730	33.580	81.620	142.400	139.900	234.200
Peak flow	280.90	194.90	392.70	268.70	182.40	63.98	39.28	36.16	102.10	206.40	192.30	246.90
Day of peak	29	1	8	28	1	25	1	29	17	23	14	12
Monthly total (million cu m)	263.10	157.40	441.10	339.40	173.30	102.30	65.19	51.92	95.79	111.90	186.80	217.70
Runoff (mm)	92	55	154	119	61	36	23	18	33	39	65	76
Rainfall (mm)	157	68	200	101	19	74	35	64	89	91	92	144

Statistics of monthly data for previous record (Oct 1952 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	86.860	73.980	79.240	68.890	58.160	41.910	38.950	47.050	48.690	69.250	74.960	84.210
	Low	41.080	26.470	35.760	33.580	26.910	17.900	15.530	11.310	14.090	13.350	30.130	31.230
	(year)	1979	1963	1964	1974	1960	1961	1992	1955	1972	1972	1958	1989
	High	164.100	200.500	186.200	135.200	103.400	103.000	79.860	119.600	105.500	153.900	147.000	198.600
	(year)	1993	1990	1990	1979	1968	1966	1980	1956	1965	1981	1984	1954
Runoff:	Avg.	81	63	74	62	54	38	36	44	44	65	68	79
	Low	38	22	33	30	25	16	15	11	13	12	27	29
	High	154	170	174	122	97	93	75	112	96	144	133	186
Rainfall:	Avg.	114	76	87	64	76	75	84	97	96	117	111	117
	Low	38	26	29	19	24	23	20	21	21	30	30	46
	High	267	212	179	128	146	181	158	188	178	205	213	211

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	69.950		64.340		109
Lowest yearly mean			44.210	1972	
Highest yearly mean			82.810	1954	
Lowest monthly mean	19.380	Aug	11.310	Aug 1955	
Highest monthly mean	164.700	Mar	200.500	Feb 1990	
Lowest daily mean	15.370	15 Aug	9.311	16 Aug 1955	
Highest daily mean	360.500	8 Mar	1089.000	17 Aug 1970	
Peak	392.700	8 Mar	1675.000	17 Aug 1970	
10% exceedance	149.100		120.600		124
50% exceedance	48.670		49.670		98
95% exceedance	18.240		19.150		95
Annual total (million cu m)	2206.00		2030.00		109
Annual runoff (mm)	771		710		109
Annual rainfall (mm)	1134		1114		102
1961-90 rainfall average (mm)			1120		

Factors affecting runoff

- Regulation for HEP.

Station and catchment description

Lowest station currently operating on the Spey. Cableway rated 65m wide section with natural control, extreme floods bypass station on left bank. 380 sq km developed for hydro-power with diversions and storage; limited net impact on annual runoff (small loss). Mainly granites and Moinian metamorphics. Geology is some Dalradian with a little Old Red Sandstone. Catchment is mixed with mountain (includes all northern slopes of Cairngorms), moorland, hill grazing, arable and forestry.

012001 Dee at Woodend 1994

Measuring authority: NERPB
First year: 1929

Grid reference: 37 (NO) 635 956
Level stn. (m OD): 70.50

Catchment area (sq km): 1370.0
Max alt. (m OD): 1309

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	21.180	131.300	29.120	90.560	67.850	29.970	15.260	7.883	10.890	10.700	52.050	18.640
2	27.860	67.380	27.390	61.840	69.030	25.180	14.050	6.893	8.985	14.940	35.230	17.810
3	39.940	47.260	30.990	49.620	73.210	29.090	13.900	6.958	8.286	17.610	47.460	30.950
4	45.320	101.700	121.600	50.360	65.150	29.570	13.520	7.245	9.139	14.990	67.940	28.960
5	36.790	110.000	256.300	38.150	61.160	22.550	15.510	8.675	9.306	15.940	59.720	24.740
6	63.780	73.930	182.500	34.430	57.490	19.440	16.010	7.257	8.258	17.520	50.110	32.380
7	53.120	56.000	276.400	31.660	47.080	22.240	12.610	6.478	12.560	15.030	37.650	71.440
8	37.070	47.370	330.000	30.420	41.280	21.030	11.380	6.123	33.590	13.490	33.330	46.300
9	79.930	50.010	125.900	27.630	37.660	19.430	10.720	5.972	32.390	12.160	60.990	48.360
10	156.700	51.600	90.840	40.710	40.400	24.250	10.990	5.761	18.370	11.180	65.660	121.600
11	87.830	39.070	117.500	55.520	40.040	20.470	11.280	5.521	15.740	10.310	70.150	139.700
12	91.650	34.390	66.600	58.460	45.620	19.690	12.100	5.257	18.330	9.788	71.010	68.760
13	67.530	30.670	64.000	44.010	51.170	19.340	14.050	5.062	31.620	9.296	104.700	50.640
14	63.760	26.900	149.500	38.420	44.760	18.620	11.460	5.033	21.060	8.878	109.600	37.300
15	47.310	25.830	71.680	38.530	36.930	16.550	10.580	4.930	17.820	8.639	79.700	31.890
16	38.110	23.900	52.630	48.900	29.970	17.190	9.737	5.008	42.540	8.501	56.840	28.850
17	33.080	20.990	45.740	56.190	25.550	15.380	8.974	5.613	43.990	8.129	47.110	44.760
18	68.680	24.740	40.650	47.970	22.550	15.190	8.298	5.716	27.200	7.972	44.770	40.080
19	65.990	21.850	35.710	48.080	20.340	16.880	7.899	5.139	21.970	7.768	73.120	29.350
20	82.700	20.300	32.030	43.440	18.520	15.740	7.640	4.930	26.810	44.020	48.920	25.590
21	177.600	20.140	28.690	43.650	18.030	16.560	7.740	4.804	26.460	33.720	43.900	21.900
22	70.130	19.190	84.080	45.960	18.960	15.860	7.759	4.648	20.040	39.500	37.440	19.090
23	54.680	18.730	161.500	120.200	20.130	17.600	7.206	11.820	16.900	119.200	35.000	31.080
24	40.760	18.060	73.330	112.200	19.970	16.660	6.939	21.560	14.890	54.160	31.210	45.390
25	49.440	17.640	55.670	89.090	19.010	36.070	6.954	12.190	13.360	61.570	27.590	32.090
26	41.180	17.530	44.380	99.510	17.890	26.770	7.713	10.510	12.140	43.070	25.730	27.280
27	43.850	17.950	39.840	116.500	16.760	23.570	9.581	10.160	11.200	34.040	23.690	20.840
28	27.940	18.910	63.900	172.900	16.220	20.940	7.485	9.921	10.730	31.060	21.780	29.930
29	75.250		65.200	131.600	16.320	19.940	6.819	13.730	10.400	27.730	20.470	53.840
30	91.880		151.800	91.540	17.140	18.180	6.554	10.340	10.540	32.970	19.140	39.320
31	50.580		182.600		22.730		6.800	13.510		33.000		30.060
Average	62.310	41.190	99.940	65.270	35.450	21.000	10.240	7.892	18.850	25.060	50.070	41.580
Lowest	21.180	17.530	27.390	27.630	16.220	15.190	6.554	4.648	8.258	7.768	19.140	17.810
Highest	177.600	131.300	330.000	172.900	73.210	36.070	16.010	21.560	43.990	119.200	109.600	139.700
Peak flow	436.70	200.60	537.70	191.00	80.11	55.31	20.68	47.91	82.75	183.50	192.10	199.10
Day of peak	9	1	5	28	1	25	6	24	8	23	13	11
Monthly total (million cu m)	166.90	99.65	267.70	169.20	94.95	54.43	27.43	21.14	48.86	67.12	129.80	111.40
Runoff (mm)	122	73	195	123	69	40	20	15	36	49	95	81
Rainfall (mm)	177	138	139	80	16	57	43	55	83	101	101	111

Statistics of monthly data for previous record (Oct 1929 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	47.790	40.870	43.830	45.130	35.920	22.240	18.320	22.020	25.780	40.240	46.270	48.020
	Low	15.450	13.420	15.160	11.380	12.130	7.340	6.851	5.141	6.491	6.798	12.230	22.020
	(year)	1940	1947	1973	1938	1946	1940	1989	1984	1972	1972	1983	1976
	High	127.800	104.200	88.680	113.300	85.950	56.080	36.710	63.850	71.830	138.200	127.500	108.400
	(year)	1937	1990	1977	1947	1986	1948	1958	1948	1930	1982	1984	1954
Runoff:	Avg.	93	73	86	85	70	42	36	43	49	79	88	94
	Low	30	24	30	22	24	14	13	10	12	13	23	43
	High	250	184	173	214	168	106	72	125	136	270	241	212
Rainfall:	Avg.	120	78	80	70	80	68	87	94	93	121	112	117
	Low	36	10	16	12	21	16	22	13	13	8	22	43
	High	374	216	175	196	179	160	206	185	227	310	320	282

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	39.910		36.350		110
Lowest yearly mean			24.190	1973	
Highest yearly mean			49.050	1982	
Lowest monthly mean	7.892	Aug	5.141	Aug 1984	
Highest monthly mean	99.940	Mar	138.200	Oct 1982	
Lowest daily mean	4.648	22 Aug	3.536	27 Aug 1976	
Highest daily mean	330.000	8 Mar	648.500	24 Jan 1937	
Peak	537.700	5 Mar	1133.000	24 Jan 1937	
10% exceedance	81.000		72.350		112
50% exceedance	28.410		25.790		110
95% exceedance	6.845		8.343		82
Annual total (million cu m)	1259.00		1147.00		110
Annual runoff (mm)	919		837		110
Annual rainfall (mm)	1101		1120		98
1961-90 rainfall average (mm)			1109		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Cableway rated, fairly stable natural control. Present station, built in 1972, replaced earlier station (flow records from 1929, chart records from 1934) on same reach, Cairnton; c/m measurements at Woodend established by Capt. McClean. Earlier staff gauge record dates from 1911. No regulation, little natural storage, minor abstractions. Dalradian and Moinian metamorphic along most of the valley, flanked by igneous intrusive. Mountain, moorland, forestry, pastoral and some arable in the valley bottom.

015006 Tay at Ballathie 1994

Measuring authority: TRPB
First year: 1952

Grid reference: 37 (NO) 147 367
Level stn. (m OD): 26.30

Catchment area (sq km): 4587.1
Max alt. (m OD): 1214

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	141.400	541.200	110.100	570.400	300.900	70.070	125.400	43.320	95.060	71.920	177.300	169.200
2	151.700	408.000	112.300	465.800	282.300	69.430	97.570	42.710	79.020	65.860	160.100	167.200
3	211.100	350.300	164.800	410.700	270.200	96.150	90.150	44.010	91.280	62.690	208.000	207.100
4	229.100	445.800	323.600	377.100	264.100	93.960	90.310	60.440	102.800	57.150	251.500	220.900
5	174.100	460.000	639.000	341.700	277.400	83.620	95.940	61.660	86.270	54.610	254.800	217.200
6	194.600	412.100	487.300	308.500	270.100	81.210	88.980	58.240	75.930	53.430	213.200	230.500
7	206.800	371.700	642.300	251.100	243.800	73.810	83.570	54.810	75.500	58.260	165.700	338.700
8	159.700	335.800	925.100	289.900	224.700	72.030	75.480	50.910	90.220	61.210	155.700	361.200
9	192.900	333.400	686.900	262.800	213.700	70.650	72.390	49.130	110.900	62.170	318.200	406.600
10	427.100	306.100	559.900	251.600	202.600	69.750	70.930	49.050	94.600	60.490	301.000	686.400
11	347.300	281.400	613.300	242.500	181.600	65.870	72.630	48.210	107.200	57.990	271.600	1061.000
12	384.600	265.300	486.000	216.600	181.200	62.350	76.000	46.770	109.600	57.150	297.500	783.400
13	392.900	227.800	458.100	209.800	164.300	60.870	74.590	43.540	109.700	59.130	412.600	598.900
14	377.900	216.800	689.900	221.100	110.900	49.110	68.020	41.390	95.850	58.660	509.500	453.900
15	288.700	187.300	549.400	210.300	103.900	50.220	65.210	41.370	94.700	60.210	463.500	362.900
16	249.100	165.300	482.600	219.000	129.700	55.350	63.780	41.060	92.370	60.730	376.600	335.400
17	221.200	153.000	403.200	212.700	129.100	57.090	58.560	42.270	84.910	63.790	357.800	364.300
18	278.300	149.200	337.100	196.200	124.300	59.410	56.420	40.910	83.290	61.230	374.500	340.100
19	293.900	142.700	302.200	192.400	123.900	88.300	54.760	40.140	78.800	54.310	440.600	317.500
20	329.600	131.500	241.600	182.700	124.900	79.690	57.250	40.550	81.890	347.700	390.800	283.800
21	477.500	114.900	236.400	172.200	111.500	89.440	58.580	39.830	69.320	207.800	363.300	238.300
22	373.500	106.800	397.900	175.800	119.500	91.800	57.120	39.640	65.700	191.400	306.500	227.700
23	370.800	102.000	699.400	248.900	123.900	87.810	54.030	142.600	62.740	297.500	297.000	270.900
24	313.900	100.600	541.600	287.700	120.200	97.440	50.800	106.800	51.330	188.600	270.100	310.400
25	368.400	99.570	420.500	299.200	116.400	170.100	53.110	81.080	47.310	274.600	257.900	274.400
26	349.200	92.730	342.100	352.700	112.400	172.800	55.020	75.570	43.350	232.600	255.100	275.000
27	369.800	86.940	313.100	395.800	94.970	147.900	51.080	74.220	42.570	197.700	233.500	249.300
28	322.900	101.100	360.500	486.000	74.030	127.600	46.690	124.900	42.300	173.300	223.300	328.800
29	397.100		391.000	424.600	69.330	134.500	44.700	130.200	43.140	175.000	205.200	410.600
30	421.000		493.300	346.600	67.160	133.100	43.570	107.100	47.240	197.100	181.400	407.800
31	349.000		750.500		69.100		42.100	114.400		219.600		358.400
Average	302.100	238.900	456.800	294.100	161.400	88.710	67.570	63.770	78.500	124.000	289.800	363.200
Lowest	141.400	86.940	110.100	172.200	67.160	49.110	42.100	39.640	42.300	53.430	155.700	167.200
Highest	477.500	541.200	925.100	570.400	300.900	172.800	125.400	142.600	110.900	347.700	509.500	1061.000
Peak flow	588.60	660.90	1112.00	702.70	324.30	186.50	132.10	253.80	134.10	489.10	616.30	1156.00
Day of peak	29	1	8	1	1	25	1	23	8	20	14	11
Monthly total (million cu m)	809.10	578.00	1224.00	762.30	432.20	229.90	181.00	170.80	203.50	332.10	751.10	972.70
Runoff (mm)	176	126	267	166	94	50	39	37	44	72	164	212
Rainfall (mm)	230	107	308	114	26	107	47	102	66	129	173	252

Statistics of monthly data for previous record (Oct 1952 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	255.200	215.300	218.500	155.100	118.800	79.250	68.050	88.180	124.700	190.600	211.100	241.400
	Low	92.900	52.560	69.380	75.210	45.500	42.080	31.390	14.700	40.660	39.690	73.190	110.500
	(year)	1963	1963	1953	1974	1980	1957	1984	1955	1955	1972	1993	1989
	High	563.200	661.000	551.600	306.900	321.100	190.400	129.600	286.100	283.900	390.500	407.700	491.400
	(year)	1993	1990	1990	1993	1986	1966	1988	1985	1985	1982	1984	1954
Runoff:	Avg.	149	115	128	88	69	45	40	51	70	111	119	141
	Low	54	28	41	43	27	24	18	9	23	23	41	65
	High	329	349	322	173	188	108	76	167	160	228	230	287
Rainfall:	Avg.	167	109	128	75	94	82	93	109	132	151	143	167
	Low	33	29	39	10	24	23	21	14	11	63	38	64
	High	403	353	251	150	214	181	219	250	266	269	311	304

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	210.700		163.700		129
Lowest yearly mean			107.300	1955	
Highest yearly mean			215.100	1990	
Lowest monthly mean	63.770	Aug	14.700	Aug 1955	
Highest monthly mean	456.800	Mar	661.000	Feb 1990	
Lowest daily mean	39.640	22 Aug	11.460	6 Aug 1955	
Highest daily mean	1061.000	11 Dec	1965.000	17 Jan 1993	
Peak	1156.000	11 Dec	2268.000	17 Jan 1993	
10% exceedance	413.300		321.800		128
50% exceedance	170.300		129.400		132
95% exceedance	43.920		43.400		101
Annual total (million cu m)	6645.00		5166.00		129
Annual runoff (mm)	1449		1126		129
Annual rainfall (mm)	1661		1450		115
1961-90 rainfall average (mm)			1425		

Factors affecting runoff

- Reservoir(s) in catchment.
- Regulation for HEP.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.

Station and catchment description

Velocity-area station with cableway. 90m wide. The most d/s station on the Tay, records highest mean flow in UK. Since end of 1957, 1980 sq. km (43%) controlled for HEP; there was some control prior to this. 73 sq. km controlled for water supply. Catchment is mostly steep, comprising mountains and moorland; exceptions are lower valleys. Mainly rough grazing and forestry. Geology: mainly metamorphics and granite, but lower 20% (Isla Valley) is Old Red Sandstone.

019001 Almond at Craigiehall 1994

Measuring authority: FRPB
First year: 1957

Grid reference: 36 (NT) 165 752
Level stn. (m OD): 22.90

Catchment area (sq km): 369.0
Max alt. (m OD): 518

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.853	34.400	25.360	6.704	2.308	1.622	1.295	1.843	1.871	1.581	5.729	2.704
2	6.628	14.500	27.960	5.487	2.515	1.598	1.273	1.136	1.563	3.384	3.554	2.550
3	9.923	9.808	46.140	5.824	2.656	2.119	1.337	1.296	2.157	4.867	3.423	3.915
4	8.755	10.220	26.990	7.362	2.698	1.634	1.758	1.440	2.296	2.577	4.307	3.741
5	17.200	7.520	33.160	10.330	3.229	1.483	1.693	1.084	1.960	1.941	11.570	3.660
6	35.870	6.505	18.130	9.738	3.467	1.535	2.006	0.962	2.924	1.681	6.887	7.483
7	18.500	5.484	16.820	21.570	2.855	1.648	2.191	0.957	4.000	1.549	4.300	8.122
8	9.537	5.474	40.710	21.850	2.302	1.620	1.598	0.991	3.325	1.408	3.204	31.130
9	9.245	5.803	23.070	14.400	2.114	1.581	1.403	1.037	2.683	1.346	3.161	15.770
10	9.945	4.830	18.190	10.000	2.034	1.550	2.301	1.009	3.178	1.397	4.729	50.680
11	7.327	4.335	12.830	7.124	2.034	1.447	2.356	1.000	5.721	1.325	4.822	140.000
12	9.819	3.935	13.440	5.646	1.994	1.447	2.010	1.003	4.302	1.289	5.796	61.620
13	19.870	3.475	26.050	4.595	1.912	1.470	1.961	0.974	3.196	1.284	30.940	18.520
14	22.280	3.262	57.200	4.024	1.788	1.425	1.623	1.010	2.313	1.312	33.090	10.620
15	12.570	3.205	14.750	3.611	1.720	1.464	1.448	1.080	1.905	1.270	18.580	8.416
16	7.560	2.939	12.900	3.325	1.713	2.337	1.242	1.474	1.636	1.245	10.740	7.172
17	5.792	2.774	13.850	3.201	1.702	1.733	1.192	1.416	1.403	1.181	16.200	9.015
18	8.169	2.887	14.180	3.148	1.712	2.352	1.202	1.339	1.333	1.220	31.630	9.117
19	8.396	2.765	10.810	3.132	1.708	1.781	1.203	1.524	1.517	1.248	23.820	15.870
20	8.906	2.551	8.271	2.883	1.714	1.569	0.989	1.460	1.959	1.723	12.940	9.883
21	7.117	2.570	7.565	3.135	1.646	2.305	0.975	1.265	1.540	1.418	8.758	6.216
22	10.180	2.565	14.980	3.847	1.628	2.354	0.957	1.354	1.402	3.795	7.243	4.704
23	15.490	2.436	70.210	4.000	1.666	1.696	0.886	2.321	1.309	15.110	6.664	4.791
24	9.998	2.473	20.300	3.502	1.661	1.937	1.412	1.707	1.180	5.803	4.895	6.508
25	34.340	2.527	11.540	3.724	1.724	1.924	1.129	1.772	1.172	5.875	4.207	10.310
26	35.510	7.882	7.922	4.136	1.705	1.858	1.446	1.616	1.196	4.990	5.069	18.010
27	36.440	65.110	7.111	3.118	1.676	1.748	1.065	1.686	1.205	4.094	4.679	12.120
28	12.800	50.440	7.023	2.850	1.567	1.473	0.909	8.673	1.320	2.979	3.964	38.830
29	12.290		7.311	2.933	1.588	1.341	0.852	8.241	1.387	6.695	3.433	18.310
30	12.780		8.639	2.585	1.677	1.327	0.832	4.000	1.787	7.084	3.034	24.290
31	9.361		10.420		1.667		1.980	2.398		11.840		12.710
Average	14.140	9.738	20.450	6.259	2.012	1.713	1.436	1.905	2.158	3.371	9.712	18.610
Lowest	5.792	2.436	7.023	2.585	1.567	1.327	0.832	0.957	1.172	1.181	3.034	2.550
Highest	36.440	65.110	70.210	21.850	3.467	2.354	2.356	8.673	5.721	15.110	33.090	140.000
Peak flow	70.94	100.80	128.00	32.47	4.01	3.49	4.42	18.77	7.27	26.44	55.03	167.60
Day of peak	26	27	14	8	6	16	6	28	11	23	13	11
Monthly total (million cu m)	37.88	23.56	54.76	16.22	5.39	4.44	3.85	5.10	5.59	9.03	25.17	49.83
Runoff (mm)	103	64	148	44	15	12	10	14	15	24	68	135
Rainfall (mm)	128	81	170	66	16	55	55	66	54	81	107	177

Statistics of monthly data for previous record (Jan 1957 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	10.130	7.798	6.726	4.524	3.282	2.430	2.357	3.153	4.576	6.491	8.962	9.492
	Low	3.574	1.782	1.918	1.410	1.091	0.817	0.950	0.869	0.668	0.668	1.862	3.016
	(year)	1963	1963	1973	1974	1961	1961	1960	1983	1959	1972	1972	1975
	High	20.820	22.010	14.300	9.841	12.030	8.572	9.223	8.568	20.360	15.120	21.660	19.860
	(year)	1993	1990	1979	1986	1993	1966	1958	1985	1985	1981	1963	1986
Runoff:	Avg.	74	52	49	32	24	17	17	23	32	47	63	69
	Low	26	12	14	10	8	6	7	6	5	5	13	22
	High	151	144	104	69	87	60	67	62	143	110	152	144
Rainfall:	Avg.	86	59	71	52	60	61	72	84	88	90	89	89
	Low	28	11	22	8	16	15	17	19	14	23	19	21
	High	178	167	142	89	134	136	173	152	195	177	190	179

Summary statistics *

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	7.637		5.820		131
Lowest yearly mean			2.890	1973	
Highest yearly mean			8.199	1986	
Lowest monthly mean	1.436	Jul	0.668	Oct 1972	
Highest monthly mean	20.450	Mar	22.010	Feb 1990	
Lowest daily mean	0.832	30 Jul	0.241	9 Oct 1959	
Highest daily mean	140.000	11 Dec	147.200	6 Oct 1990	
Peak	167.600	11 Dec	220.000	6 Oct 1990	
10% exceedance	18.160		13.220		137
50% exceedance	3.153		2.927		108
95% exceedance	1.095		0.903		121
Annual total (million cu m)	240.80		183.70		131
Annual runoff (mm)	653		498		131
Annual rainfall (mm)	1056		901		117
1961-90 rainfall average (mm)			1017		

Factors affecting runoff

- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from effluent returns.

Station and catchment description

The recorder is well sited on a straight even reach with steep banks which have contained all recorded floods. Stable rating over the period of record. Weed growth in summer - some adjustment to stage is required. Low flows substantially affected by sewage effluent especially from Mid Calder. Abstraction at Almondell to feed a canal. A number of storage reservoirs are situated in the catchment. Geology - predominantly Carboniferous rocks. Land use - mainly rural. Livingston new town and several small mining towns in catchment.

021009 Tweed at Norham 1994

Measuring authority: TWRP
First year: 1962

Grid reference: 36 (NT) 898 477
Level stn. (m OD): 4.30

Catchment area (sq km): 4390.0
Max alt. (m OD): 839

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	108.500	264.700	222.000	146.600	47.720	18.620	16.000	26.490	24.310	15.530	68.670	48.100
2	109.900	196.500	181.100	114.000	47.890	20.310	14.130	20.980	20.410	17.370	49.350	45.090
3	159.500	148.000	287.400	97.860	49.430	22.140	13.870	15.960	18.110	32.700	54.790	53.870
4	186.700	210.900	219.800	123.600	59.250	22.450	14.200	19.030	18.540	37.290	63.160	65.420
5	184.500	160.700	436.300	95.790	66.140	20.170	14.480	25.360	19.480	26.050	79.300	66.670
6	390.200	142.700	252.500	87.580	68.100	18.660	15.410	17.120	17.570	22.350	83.260	85.280
7	291.900	128.300	201.200	108.300	52.380	18.180	16.470	14.480	26.600	20.060	63.660	157.800
8	191.900	110.200	222.100	134.500	47.740	17.560	19.130	13.350	25.040	18.710	55.040	436.400
9	201.900	118.900	192.300	127.900	43.200	18.420	15.920	12.960	21.490	17.850	66.770	224.000
10	397.600	95.670	145.400	126.500	40.640	19.570	14.300	12.420	26.230	16.940	90.590	222.200
11	238.300	85.250	134.600	116.800	37.630	17.060	23.620	12.480	26.300	16.210	78.910	632.500
12	288.500	76.460	119.200	108.900	35.540	16.530	22.680	14.450	43.970	15.560	100.600	759.300
13	342.100	69.280	169.900	92.080	32.930	16.190	18.850	12.830	41.160	15.980	266.100	306.300
14	378.600	63.690	181.200	77.300	31.060	15.210	16.750	11.370	36.180	16.630	332.300	197.500
15	229.200	59.860	144.400	67.500	29.530	15.050	16.020	11.040	29.280	14.890	320.800	155.700
16	172.800	56.010	121.400	61.400	28.940	19.050	14.020	11.000	28.900	14.780	194.000	134.200
17	137.500	52.160	111.300	58.460	27.480	22.820	13.240	11.280	24.610	14.710	162.900	142.100
18	131.700	49.800	106.100	53.260	26.460	20.350	12.570	12.290	21.230	14.300	225.500	175.500
19	146.600	47.830	96.090	49.930	26.280	21.140	12.200	14.940	20.050	14.030	285.100	138.200
20	122.200	45.350	82.160	46.130	25.240	21.920	11.830	11.980	24.020	30.330	199.600	119.700
21	134.200	43.680	74.130	44.620	24.300	19.220	12.070	11.920	33.030	55.510	145.000	97.930
22	110.300	41.310	90.200	60.080	23.520	25.930	13.680	11.260	27.050	42.700	125.100	84.190
23	139.000	39.650	265.000	73.540	22.760	21.980	11.810	16.100	22.170	105.400	128.300	80.560
24	106.800	38.950	207.900	88.920	21.990	19.600	11.110	41.670	19.740	69.020	98.330	88.920
25	141.000	38.040	140.100	69.440	21.500	19.680	11.110	66.160	18.580	50.960	83.810	87.760
26	159.100	42.670	107.100	78.250	23.200	20.710	11.360	36.640	17.500	43.030	75.390	98.520
27	258.500	259.600	90.570	60.940	22.850	23.850	16.370	29.900	16.520	38.630	67.840	107.000
28	156.000	386.700	110.000	54.020	20.790	25.010	15.610	29.010	15.600	34.640	60.790	179.600
29	132.000		117.000	59.200	20.210	19.030	14.630	37.300	15.440	32.050	55.470	249.100
30	155.800		94.070	54.530	19.410	17.090	11.870	32.220	15.460	34.340	51.530	335.100
31	118.600		188.000		18.750		12.500	25.610		84.290		236.200
Average	194.200	109.700	164.900	84.600	34.290	19.780	14.770	20.630	23.820	31.700	124.400	187.400
Lowest	106.800	38.040	74.130	44.620	18.750	15.050	11.110	11.000	15.440	14.030	49.350	45.090
Highest	397.600	386.700	436.300	146.600	68.100	25.930	23.620	66.160	43.970	105.400	332.300	759.300
Peak flow	532.60	468.50	555.00	168.30	79.11	32.14	30.88	92.79	62.86	137.70	456.10	976.90
Day of peak	10	27	5	1	6	27	11	25	12	23	13	12
Monthly total (million cu m)	520.20	265.50	441.50	219.30	91.83	51.28	39.55	55.26	61.74	84.92	322.40	502.00
Runoff (mm)	119	60	101	50	21	12	9	13	14	19	73	114
Rainfall (mm)	138	81	122	69	19	50	45	71	57	74	118	165

Statistics of monthly data for previous record (Jan 1962 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	130.700	104.500	100.700	73.880	54.990	35.030	31.730	43.900	54.830	80.070	107.600	119.000
	Low	50.320	37.180	26.290	25.190	17.950	15.550	11.650	9.881	10.990	10.170	24.710	40.690
	(year)	1973	1963	1973	1974	1980	1974	1984	1976	1972	1972	1973	1975
	High	249.700	274.200	236.400	165.800	153.300	66.200	85.330	146.300	179.900	176.300	271.700	200.600
	(year)	1982	1990	1963	1992	1967	1981	1985	1985	1985	1967	1963	1993
Runoff:	Avg.	80	58	61	44	34	21	19	27	32	49	64	73
	Low	31	20	16	15	11	9	7	6	6	6	15	25
	High	152	151	144	98	94	39	52	89	106	108	160	122
Rainfall:	Avg.	98	67	84	62	73	67	73	90	91	95	97	96
	Low	45	15	21	12	20	20	23	21	19	25	16	23
	High	165	176	139	120	181	129	186	188	164	163	224	175

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	84.210		77.990		108
Lowest yearly mean			33.920	1973	
Highest yearly mean			102.400	1963	
Lowest monthly mean	14.770	Jul	9.881	Aug 1976	
Highest monthly mean	194.200	Jan	274.200	Feb 1990	
Lowest daily mean	11.000	16 Aug	7.427	28 Aug 1976	
Highest daily mean	759.300	12 Dec	1169.000	1 Apr 1992	
Peak	976.900	12 Dec	1518.000	4 Jan 1982	
10% exceedance	203.100		166.900		122
50% exceedance	47.900		51.470		93
95% exceedance	12.580		14.430		87
Annual total (million cu m)	2656.00		2461.00		108
Annual runoff (mm)	605		561		108
Annual rainfall (mm)	1009		993		102
1961-90 rainfall average (mm)			955		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.

Comment

The naturalised runoff total for 1994 is 622 mm.

Station and catchment description

Lowest station on River Tweed. Velocity-area station at very wide natural section. Complex control. Moderate seasonal weed growth effects on rating. Reservoirs in headwaters have only a small impact on the flow regime - monthly naturalised flows available. Geology: mixed but principally impervious Palaeozoic formations. Moorland and hill pasture predominates; improved grasslands and arable farming below Melrose.

022001 Coquet at Morwick 1994

Measuring authority: NRA-NY
First year: 1963
Grid reference: 46 (NU) 234 044
Level stn. (m OD): 5.20
Catchment area (sq km): 569.8
Max alt. (m OD): 776

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11.470	11.210	36.430	8.879	3.756	1.853	1.261	1.702	1.604	1.663	5.900	4.277
2	23.210	11.310	25.310	6.694	3.829	1.879	1.302	1.603	1.511	1.879	4.119	4.114
3	37.970	19.680	34.200	5.595	5.061	1.966	1.458	4.883	1.444	3.851	5.291	4.071
4	25.310	37.390	19.750	5.365	4.257	2.253	1.452	10.860	1.473	4.650	6.540	5.693
5	64.120	18.730	23.070	5.348	3.942	2.066	1.475	3.656	1.464	3.552	12.710	5.693
6	46.850	12.610	13.610	6.106	4.076	1.845	1.365	2.323	1.418	2.860	10.070	5.750
7	32.840	10.340	11.450	7.386	3.595	1.818	1.289	1.888	1.436	2.392	6.950	7.435
8	18.370	9.010	10.460	12.530	3.311	1.691	1.299	1.693	1.668	2.180	5.769	26.230
9	22.910	8.599	10.140	11.520	3.350	1.715	1.253	1.553	1.745	2.041	11.040	12.270
10	46.040	7.456	8.401	13.320	3.675	1.716	1.257	1.545	1.622	1.915	10.900	9.444
11	30.810	6.839	8.328	9.787	3.306	1.666	1.254	1.503	1.610	1.836	10.790	10.470
12	37.870	6.273	7.753	9.968	3.019	1.621	1.211	1.458	2.107	1.750	22.200	11.120
13	41.980	5.722	9.726	8.240	2.841	1.547	1.171	1.400	7.637	1.686	32.060	7.992
14	31.340	5.256	8.393	6.619	2.725	1.467	1.139	1.352	5.007	1.647	40.340	6.724
15	17.290	5.075	7.744	5.813	2.638	1.414	1.091	1.310	3.786	1.640	32.310	6.073
16	13.670	4.885	6.960	5.312	2.578	1.685	1.083	1.251	4.723	1.664	15.770	5.959
17	11.080	4.548	6.687	4.990	2.489	2.148	1.048	1.294	3.276	1.634	15.510	5.861
18	15.960	4.709	6.431	4.709	2.448	2.089	1.021	1.314	2.494	1.560	30.650	10.660
19	13.110	4.505	6.147	4.526	2.376	1.864	1.088	1.244	2.241	1.574	34.440	9.841
20	10.350	4.364	5.377	4.330	2.370	1.695	1.048	1.227	4.327	4.208	21.710	7.340
21	11.190	4.112	5.034	4.229	2.324	1.701	1.053	1.195	7.185	5.075	13.710	6.057
22	8.960	3.873	4.955	5.540	2.365	1.720	1.119	1.184	4.013	5.015	10.760	5.217
23	8.279	4.039	10.510	12.610	2.230	1.613	1.091	1.301	2.970	9.948	9.119	4.864
24	7.434	4.052	11.060	9.680	2.180	1.589	1.049	1.510	2.491	5.469	7.894	5.334
25	9.161	4.222	7.210	6.228	2.094	1.724	1.110	4.979	2.259	3.960	6.974	5.179
26	9.144	12.700	5.813	5.829	2.076	1.576	1.109	3.372	2.091	3.353	6.377	6.175
27	16.490	89.790	5.435	4.715	2.031	1.488	1.107	2.437	1.892	3.064	5.788	8.036
28	9.382	60.160	7.011	4.342	2.003	2.199	1.074	2.252	1.787	2.771	5.189	18.170
29	7.916		7.202	4.816	1.936	0.975	0.978	2.077	1.682	2.604	4.801	22.160
30	9.488		5.839	4.197	1.907	0.913	0.992	1.894	1.694	3.442	4.506	24.130
31	7.740		8.014		1.864		1.016	1.744		9.432		17.980
Average	21.220	13.620	11.110	6.974	2.860	1.717	1.170	2.226	2.689	3.236	13.670	9.365
Lowest	7.434	3.873	4.955	4.197	1.864	0.913	0.978	1.184	1.418	1.560	4.119	4.071
Highest	64.120	89.790	36.430	13.320	5.061	2.253	1.475	10.860	7.637	9.948	40.340	26.230
Peak flow	107.20	115.80	46.67	24.63	6.07	6.54	1.57	23.42	13.66	14.65	52.48	53.06
Day of peak	5	27	3	23	3	28	4	4	13	23	15	8
Monthly total (million cu m)	56.83	32.96	29.76	18.08	7.66	4.45	3.13	5.96	6.97	8.67	35.44	25.08
Runoff (mm)	100	58	52	32	13	8	6	10	12	15	62	44
Rainfall (mm)	103	77	60	56	17	36	26	90	67	65	96	77

Statistics of monthly data for previous record (Nov 1963 to Dec 1993—incomplete or missing months total 0.6 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	14.510	12.770	12.130	9.229	5.610	3.492	3.188	4.077	4.424	7.707	11.910	13.310
	Low	5.029	2.672	1.729	2.153	2.039	1.140	1.135	1.119	1.121	1.084	1.926	4.563
	(year)	1992	1973	1973	1990	1984	1970	1989	1990	1991	1972	1973	1971
	High	32.310	26.350	31.390	23.490	15.410	6.441	8.138	12.950	14.240	26.860	31.370	33.340
	(year)	1982	1978	1979	1992	1983	1987	1988	1986	1965	1976	1965	1978
Runoff:	Avg.	68	55	57	42	26	16	15	19	20	36	54	63
	Low	24	11	8	10	10	5	5	5	5	5	9	21
	High	152	112	148	107	72	29	38	61	65	126	143	157
Rainfall:	Avg.	87	61	77	59	64	55	65	74	74	79	85	85
(1966-		27	15	18	8	18	8	13	18	15	19	19	31
1993)		140	126	144	127	127	129	169	161	215	176	214	251

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	7.451		8.512		88
Lowest yearly mean			3.716	1973	
Highest yearly mean			11.380	1969	
Lowest monthly mean	1.170	Jul	1.084	Oct 1972	
Highest monthly mean	21.220	Jan	33.340	Dec 1978	
Lowest daily mean	0.913	30 Jun	0.721	20 Jun 1970	
Highest daily mean	89.790	27 Feb	261.500	1 Apr 1992	
Peak	115.800	27 Feb	341.200	1 Apr 1992	
10% exceedance	16.680		18.680		89
50% exceedance	4.413		4.789		92
95% exceedance	1.123		1.264		89
Annual total (million cu m)	235.00		268.60		87
Annual runoff (mm)	412		471		87
Annual rainfall (mm)	770		865		89
1961-90 rainfall average (mm)			850		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station with 34m wide concrete Flat V weir (informal design, approx. 1:20 cross-slope) made with pre-cast segments (installed 1973). Cableway. Fairly straight section with high banks. Replaced earlier station at Guyzance. Responsive natural regime, occasional impoundment by landowner. A predominantly upland catchment draining from the Cheviots with some afforestation. Largely Carboniferous Limestone and Devonian Igneous series.

025006 Greta at Rutherford Bridge 1994

Measuring authority: NRA-NY
First year: 1960

Grid reference: 45 (NZ) 034 122
Level stn. (m OD): 223.00

Catchment area (sq km): 86.1
Max alt. (m OD): 596

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.171	11.900	5.186	5.990	0.549	0.232	0.123	0.088	0.937	0.662	2.665	0.587
2	5.757	2.964	5.956	2.542	0.477	0.240	0.126	0.080	0.342	3.898	1.335	0.558
3	8.441	3.350	13.730	2.538	0.439	1.061	0.130	0.233	0.222	4.679	3.939	3.865
4	3.437	10.530	3.726	3.045	0.555	1.309	0.131	0.510	0.228	1.655	3.105	9.445
5	2.144	3.391	6.123	6.879	0.971	0.527	0.127	0.201	0.314	1.212	7.625	9.355
6	2.446	2.685	2.520	4.635	1.078	0.348	0.177	0.137	0.522	0.744	2.191	7.650
7	2.206	1.935	2.429	4.227	0.582	0.294	0.172	0.116	0.764	0.575	1.407	11.150
8	1.550	2.461	4.477	7.034	0.436	0.241	0.147	0.110	0.667	0.509	1.240	12.130
9	12.760	1.874	2.269	2.931	0.365	0.257	0.133	0.103	1.361	0.424	3.582	2.838
10	4.685	1.216	1.338	2.637	0.331	0.263	0.120	0.113	5.040	0.367	3.927	4.192
11	3.375	0.950	4.327	1.475	0.297	0.229	0.124	0.119	3.657	0.322	3.034	9.761
12	11.770	0.776	5.315	1.602	0.273	0.204	0.123	0.109	7.002	0.292	6.697	5.675
13	11.580	0.542	4.871	1.218	0.249	0.186	0.110	0.096	3.793	0.271	11.000	7.748
14	5.516	0.455	5.921	0.827	0.243	0.165	0.103	0.086	6.359	0.251	15.980	2.662
15	2.555	0.472	2.411	0.662	1.434	0.153	0.097	0.082	3.994	0.274	6.947	2.169
16	1.454	0.468	1.841	0.574	0.979	0.172	0.095	0.086	1.665	0.465	3.635	2.262
17	0.999	0.460	2.308	0.517	0.479	0.210	0.095	0.939	0.863	0.375	8.036	7.297
18	2.362	0.456	3.448	0.477	0.350	0.194	0.094	0.373	0.592	0.306	10.860	5.632
19	1.731	0.445	2.228	0.449	0.301	0.192	0.092	0.195	0.534	0.342	7.560	3.579
20	1.431	0.388	1.585	0.685	0.276	0.182	0.090	0.148	1.165	3.332	6.988	2.142
21	1.191	0.347	1.314	1.172	0.306	0.307	0.093	0.119	1.799	2.760	2.548	1.387
22	1.462	0.363	1.783	4.935	5.528	0.354	0.095	0.103	0.877	9.940	1.761	0.987
23	4.355	0.353	19.370	10.300	1.382	0.203	0.089	0.257	0.552	8.509	1.436	0.921
24	2.772	0.337	3.504	2.455	0.714	0.183	0.121	0.364	2.779	2.440	1.368	1.412
25	10.740	0.334	4.465	1.709	0.490	0.242	0.134	0.726	5.963	1.610	1.068	2.262
26	15.080	0.761	1.786	1.467	0.404	0.195	0.106	0.291	1.878	1.542	0.954	7.967
27	11.370	20.260	2.136	0.876	0.349	0.167	0.115	0.324	1.028	1.225	0.843	6.486
28	2.688	11.380	2.438	1.589	0.311	0.155	0.102	0.286	0.709	1.172	0.738	28.090
29	7.808		1.673	1.111	0.287	0.134	0.088	0.208	0.539	0.934	0.660	13.980
30	3.122		2.050	0.681	0.251	0.126	0.091	0.167	0.446	1.834	0.615	14.810
31	1.772		12.060		0.225		0.097	0.229		5.447		7.249
Average	4.830	2.923	4.342	2.575	0.674	0.291	0.114	0.226	1.886	1.883	4.125	6.331
Lowest	0.999	0.334	1.314	0.449	0.225	0.126	0.088	0.080	0.222	0.251	0.615	0.558
Highest	15.080	20.260	19.370	10.300	5.528	1.309	0.177	0.939	7.002	9.940	15.980	28.090
Peak flow	37.61	31.83	40.56	22.35	14.25	3.67	0.24	2.22	12.56	20.77	24.21	46.30
Day of peak	26	27	3	23	22	3	6	17	12	22	18	28
Monthly total (million cu m)	12.94	7.07	11.63	6.67	1.81	0.75	0.31	0.60	4.89	5.04	10.69	16.96
Runoff (mm)	150	82	135	78	21	9	4	7	57	59	124	197
Rainfall (mm)	160	78	141	100	41	38	34	82	114	90	128	212

Statistics of monthly data for previous record (Oct 1960 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	3.819	2.878	3.159	2.156	1.276	0.800	0.663	1.232	1.461	2.487	3.326	3.786
	Low	0.290	0.280	0.697	0.375	0.148	0.130	0.092	0.098	0.110	0.195	0.898	0.944
	(year)	1963	1963	1993	1982	1980	1970	1984	1976	1989	1972	1993	1971
	High	7.155	8.185	8.926	4.682	3.951	2.502	2.784	4.107	4.067	6.665	6.878	6.607
	(year)	1975	1990	1979	1969	1967	1980	1988	1971	1965	1967	1963	1990
Runoff:	Avg.	119	82	98	65	40	24	21	38	44	77	100	118
	Low	9	8	22	11	5	4	3	3	3	6	27	29
	High	223	230	278	141	123	75	87	128	122	207	207	206
Rainfall:	Avg.	122	88	98	77	74	69	70	95	92	105	113	124
	Low	38	13	31	10	16	18	20	35	18	21	43	43
	High	206	248	220	138	164	188	194	200	206	269	219	296

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	2.517		2.252		112
Lowest yearly mean			1.447	1973	
Highest yearly mean			2.926	1979	
Lowest monthly mean	0.114	Jul	0.092	Jul 1984	
Highest monthly mean	6.331	Dec	8.926	Mar 1979	
Lowest daily mean	0.080	2 Aug	0.040	24 Aug 1976	
Highest daily mean	28.090	28 Dec	54.090	6 Mar 1963	
Peak	46.300	28 Dec	210.400	25 Aug 1986	
10% exceedance	7.174		5.758		125
50% exceedance	0.990		0.797		124
95% exceedance	0.101		0.121		83
Annual total (million cu m)	79.38		71.07		112
Annual runoff (mm)	922		825		112
Annual rainfall (mm)	1218		1127		108
1961-90 rainfall average (mm)			1128		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Compound Crump profile weir, total width 19.2m, low flow crest 3m broad. Theoretical rating with check gaugings. Responsive, natural regime. An eastward-draining Pennine catchment developed largely on Millstone Grit.

027002 Wharfe at Flint Mill Weir 1994

Measuring authority: NRA-NY
First year: 1936

Grid reference: 44 (SE) 422 473
Level stn. (m OD): 13.70

Catchment area (sq km): 758.9
Max alt. (m OD): 704

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	23.300	33.620	33.200	69.210	6.244	3.114	3.057	3.449	12.190	4.691	33.550	7.232
2	58.220	30.450	25.760	30.820	6.079	3.319	2.911	3.283	7.397	23.460	16.350	7.300
3	86.670	29.700	59.360	26.440	5.752	3.359	2.794	3.269	5.144	29.160	19.330	10.130
4	56.510	43.100	31.930	58.550	5.716	4.821	2.718	7.848	4.401	14.170	23.540	38.500
5	38.620	30.690	27.310	29.020	6.565	4.419	2.586	6.212	6.573	8.639	47.880	40.760
6	36.490	24.250	21.360	27.960	12.290	3.708	2.668	3.720	5.817	6.521	26.230	38.880
7	23.770	21.760	54.720	26.120	7.750	3.871	2.948	3.052	12.240	6.363	15.990	36.390
8	18.310	17.230	70.260	49.590	6.300	4.060	2.939	2.812	8.677	7.729	12.490	52.450
9	26.480	30.800	44.940	41.630	5.346	3.482	2.676	2.579	7.877	7.818	47.400	28.140
10	49.370	16.990	23.290	27.610	4.795	3.346	2.502	2.464	16.440	5.576	34.680	69.240
11	26.170	13.280	20.240	21.280	4.718	3.415	2.450	2.401	27.360	5.193	21.430	42.790
12	40.680	11.320	21.540	17.140	4.486	3.244	2.534	2.470	36.600	5.108	37.030	55.850
13	45.080	9.385	64.690	15.090	4.188	3.072	2.360	2.230	34.550	4.788	76.780	42.410
14	53.940	8.764	59.900	11.840	4.225	2.916	2.312	2.037	16.280	4.525	119.000	31.740
15	35.490	8.431	35.300	9.794	5.570	2.785	2.235	1.993	38.470	4.296	69.440	20.310
16	21.050	8.585	22.330	8.344	5.000	2.705	2.182	1.989	24.100	4.168	42.290	24.210
17	15.640	8.051	20.780	7.714	4.687	2.736	2.114	2.310	11.490	4.048	31.690	18.690
18	22.040	8.135	21.620	7.712	4.179	2.624	2.140	5.562	7.799	3.914	36.830	47.160
19	36.400	7.604	24.100	7.375	3.819	2.685	2.116	3.381	7.314	3.879	62.360	33.430
20	30.580	7.062	15.800	7.450	3.677	5.793	2.068	2.858	6.819	4.289	67.370	21.410
21	27.750	6.751	12.450	8.148	4.255	10.100	2.085	2.781	9.834	6.536	33.760	15.820
22	24.040	6.454	21.440	10.280	5.265	12.730	2.069	2.448	7.211	13.030	22.420	12.460
23	79.220	6.464	82.050	25.240	6.341	4.903	1.982	2.986	5.348	52.320	17.650	10.350
24	30.280	6.285	62.330	19.270	4.607	4.252	2.760	6.837	5.371	26.030	14.770	8.926
25	98.550	7.826	37.780	12.650	3.964	4.328	3.176	30.840	19.540	34.180	12.390	16.380
26	73.450	25.060	25.230	15.430	3.665	4.059	2.603	10.860	13.440	30.990	10.580	38.650
27	103.300	76.170	16.880	10.340	3.452	4.552	2.961	7.076	8.024	17.310	10.070	56.600
28	52.000	59.040	22.230	9.417	3.375	6.098	2.507	20.410	6.278	17.390	9.237	139.000
29	46.450		17.880	10.300	3.295	3.856	2.451	9.742	5.352	13.390	8.693	102.000
30	50.060		13.860	7.394	3.208	3.274	2.304	6.095	4.754	15.100	7.472	72.470
31	26.620		14.260		3.107		3.527	6.578		35.960		55.370
Average	43.760	20.120	33.060	20.970	5.030	4.254	2.540	5.567	12.760	13.570	32.960	38.550
Lowest	15.640	6.285	12.450	7.375	3.107	2.624	1.982	1.989	4.401	3.879	7.472	7.232
Highest	103.300	76.170	82.050	69.210	12.290	12.730	3.527	30.840	38.470	52.320	119.000	139.000
Peak flow	146.50	100.70	171.10	127.70	18.48	32.68	4.19	61.71	61.60	77.59	182.70	191.00
Day of peak	23	27	23	1	6	21	24	25	12	23	13	28
Monthly total (million cu m)	117.20	48.67	88.54	54.36	13.47	11.03	6.80	14.91	33.06	36.34	85.42	103.30
Runoff (mm)	154	64	117	72	18	15	9	20	44	48	113	136
Rainfall (mm)	174	84	155	91	40	49	55	93	111	106	150	203

Statistics of monthly data for previous record (Oct 1955 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	27.900	23.170	21.300	15.960	10.690	7.182	7.441	11.190	13.150	17.680	23.020	28.060
	Low	4.472	2.974	5.740	4.496	2.312	1.545	1.674	0.991	1.419	3.026	6.876	10.230
	(year)	1963	1963	1993	1974	1980	1957	1976	1976	1959	1972	1958	1963
	High	44.000	54.590	53.940	35.240	26.750	18.530	16.440	41.340	33.520	54.000	51.090	62.090
	(year)	1984	1966	1981	1970	1967	1972	1963	1956	1968	1967	1963	1965
Runoff:	Avg.	98	75	75	55	38	25	26	39	45	62	79	99
	Low	16	9	20	15	8	5	6	4	5	11	23	36
	High	155	174	190	120	94	63	58	146	115	191	174	219
Rainfall:	Avg.	117	85	91	77	74	75	83	99	101	108	111	127
	Low	41	14	24	8	13	18	20	18	8	32	33	41
	High	217	201	222	147	181	183	185	226	241	225	211	234

Summary statistics [1]

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	19.440		17.210		113
Lowest yearly mean			11.420	1975	
Highest yearly mean			23.300	1966	
Lowest monthly mean	2.540	Jul	0.991	Aug 1976	
Highest monthly mean	43.760	Jan	62.090	Dec 1965	
Lowest daily mean	1.982	23 Jul	0.425	23 Jun 1957	
Highest daily mean	139.000	28 Dec	292.100	23 Feb 1991	
Peak	191.000	28 Dec	362.800	3 Jan 1982	
10% exceedance	49.110		40.820		120
50% exceedance	10.090		9.453		107
95% exceedance	2.450		2.360		104
Annual total (million cu m)	613.10		543.10		113
Annual runoff (mm)	808		716		113
Annual rainfall (mm)	1311		1148		114
1961-90 rainfall average (mm)			1161		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.

Station and catchment description

Broad-crested masonry weir 47m wide with a current meter cableway 1.5km u/s (moved to new US station at Tadcaster in 1990). Insensitive at low flows. Level data only from 1936 to 1955. Recalibration(from 1965) completed but flows reprocessed from 1982 only. Pre-1965 data less reliable. Regulation effect of headwater reservoirs evident at low flows. Small net export of water (inc. Bradford supply). Mixed geology - mainly Carboniferous Limestone, grits and Coal Measures. Predominantly rural catchment with moorland headwaters.

027035 Aire at Kildwick Bridge 1994

Measuring authority: NRA-NY
First year: 1968

Grid reference: 44 (SE) 013 457
Level stn. (m OD): 87.30

Catchment area (sq km): 282.3
Max alt. (m OD): 593

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12.080	13.390	14.210	23.050	2.325	0.848	0.601	2.640	2.678	3.039	12.870	3.222
2	31.660	10.280	12.820	11.460	2.167	0.925	0.622	1.350	1.435	13.070	7.971	2.917
3	35.320	17.310	20.650	13.000	2.152	1.233	0.623	1.277	1.170	11.720	10.270	3.618
4	21.320	16.970	11.460	14.630	2.139	1.061	0.551	2.292	1.338	6.279	9.811	18.150
5	20.440	10.920	9.569	12.790	2.204	0.821	0.540	1.253	1.357	4.450	25.800	14.260
6	14.680	9.470	8.794	9.212	2.224	0.793	1.258	0.919	2.550	3.507	11.460	13.120
7	10.280	7.828	11.220	13.480	2.075	0.757	0.935	0.780	3.597	2.999	7.654	13.080
8	8.426	7.838	21.530	23.200	1.889	0.740	0.657	0.742	2.283	2.904	7.292	18.510
9	11.720	7.965	15.660	21.000	1.835	0.749	0.560	0.663	3.308	2.482	16.220	11.190
10	11.260	6.248	9.589	12.740	1.650	0.736	0.534	0.626	7.548	2.147	9.991	33.400
11	8.639	5.477	10.240	8.838	1.546	0.703	0.525	0.613	7.435	1.932	7.247	16.680
12	12.450	4.730	16.080	7.480	1.449	0.691	0.482	0.590	26.160	1.743	20.230	21.700
13	11.990	4.156	19.240	5.936	1.343	0.681	0.462	0.540	15.770	1.624	35.140	24.650
14	22.700	3.696	19.350	4.757	1.312	0.665	0.401	0.498	7.363	1.534	49.720	14.390
15	13.190	3.396	12.540	3.994	1.605	0.637	0.388	0.496	15.230	1.432	44.400	10.340
16	8.973	3.203	11.390	3.525	1.391	0.630	0.388	0.497	7.771	1.354	29.630	8.975
17	6.498	2.999	12.530	3.172	1.273	0.610	0.373	1.084	4.717	1.280	22.740	14.640
18	11.110	3.062	12.800	2.954	1.206	0.590	0.375	0.853	3.556	1.224	23.200	16.470
19	9.793	2.831	10.130	2.805	1.139	0.760	0.385	0.716	4.178	1.165	32.330	14.880
20	11.910	2.507	7.401	2.857	1.129	0.721	0.389	0.615	5.135	1.242	40.810	10.120
21	9.664	2.202	5.940	3.247	1.179	1.902	0.396	0.527	4.084	1.362	19.690	7.808
22	14.590	2.066	6.781	3.807	1.109	1.437	0.398	0.525	3.016	3.414	12.570	6.112
23	31.060	2.099	35.350	7.237	1.066	0.995	0.366	1.520	2.513	14.600	9.349	5.112
24	18.850	2.074	20.900	5.194	1.017	1.136	1.483	2.483	2.822	12.580	7.273	5.201
25	49.830	5.401	17.980	5.320	1.005	1.115	0.992	5.269	7.784	20.970	6.072	9.270
26	37.180	29.480	10.570	5.023	0.955	0.865	0.647	2.192	4.382	13.900	6.034	24.560
27	43.100	32.890	8.725	3.830	0.909	0.817	1.181	2.125	3.245	10.380	5.258	35.790
28	23.610	25.680	8.320	3.288	0.907	0.776	0.701	3.783	2.658	15.870	4.448	53.390
29	22.000		6.366	2.893	0.889	0.710	0.560	1.908	2.248	10.410	3.985	48.010
30	15.670		5.623	2.544	0.843	0.672	2.346	1.378	2.054	13.080	3.618	45.830
31	10.660		13.260		0.793		3.923	1.441		19.870		26.800
Average	18.410	8.792	13.130	8.109	1.443	0.859	0.775	1.361	5.313	6.567	16.770	17.810
Lowest	6.498	2.066	5.623	2.544	0.793	0.590	0.366	0.496	1.170	1.165	3.618	2.917
Highest	49.830	32.890	35.350	23.200	2.325	1.902	3.923	5.269	26.160	20.970	49.720	53.390
Peak flow	55.16	41.59	53.62	47.52	2.41	2.72	8.33	8.53	34.03	27.94	61.51	55.81
Day of peak	22	26	23	1	6	21	31	25	12	31	13	28
Monthly total (million cu m)	49.30	21.27	35.17	21.02	3.86	2.23	2.08	3.65	13.77	17.59	43.47	47.71
Runoff (mm)	175	75	125	74	14	8	7	13	49	62	154	169
Rainfall (mm)	171	77	161	88	23	57	68	94	122	108	145	195

Statistics of monthly data for previous record (Dec 1968 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	11.450	8.513	7.694	4.969	2.832	2.186	1.791	3.126	3.721	6.775	10.130	11.560
	Low	4.463	3.216	1.219	0.923	0.611	0.604	0.298	0.289	0.498	0.789	2.545	3.175
	(year)	1973	1993	1993	1974	1974	1970	1984	1976	1989	1972	1993	1971
	High	19.130	19.810	22.520	11.400	8.174	6.416	5.927	11.410	10.360	17.570	17.750	24.710
	(year)	1990	1990	1981	1986	1983	1982	1973	1985	1974	1981	1991	1993
Runoff:	Avg.	109	74	73	46	27	20	17	30	34	64	93	110
	Low	42	28	12	8	6	6	3	3	5	7	23	30
	High	181	170	214	105	78	59	56	108	95	167	163	234
Rainfall:	Avg.	124	79	101	70	70	76	76	94	104	112	124	128
	Low	45	13	19	3	10	23	17	17	22	37	47	42
	High	222	191	233	135	142	155	179	171	250	213	195	249

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	8.280		6.223		133
Lowest yearly mean			3.655	1971	
Highest yearly mean			8.161	1988	
Lowest monthly mean	0.775	Jul	0.289	Aug 1976	
Highest monthly mean	18.410	Jan	24.710	Dec 1993	
Lowest daily mean	0.366	23 Jul	0.180	23 Aug 1976	
Highest daily mean	53.390	28 Dec	79.900	27 Oct 1980	
Peak	61.510	13 Nov			
10% exceedance	21.200		15.860		134
50% exceedance	3.918		3.078		127
95% exceedance	0.532		0.506		105
Annual total (million cu m)	261.10		196.40		133
Annual runoff (mm)	925		696		133
Annual rainfall (mm)	1309		1158		113
1961-90 rainfall average (mm)			1153		

Factors affecting runoff

- Reservoir(s) in catchment.

Comment

A review of the stage-discharge relation is underway; some reprocessing of daily and peak flows is expected.

Station and catchment description

Velocity-area station rated by current meter cableway 150m downstream. The bridge sills provide the low flow control. Flows below one cumec underestimated - recalibration scheduled. Washland storage, minor reservoirs, and the Leeds-Liverpool Canal can influence the flow pattern but small overall impact; minor net export. Geology is mainly Carboniferous Limestone with some Millstone Grit series. Rural catchment draining part of the eastern Pennines.

027041 Derwent at Buttercrambe 1994

Measuring authority: NRA-NY
First year: 1973

Grid reference: 44 (SE) 731 587
Level stn. (m OD): 9.50

Catchment area (sq km): 1586.0
Max alt. (m OD): 454

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	35.410	25.410	71.690	21.190	10.870	7.865	5.122	5.047	4.801	5.674	11.190	10.380
2	40.470	24.440	50.650	18.890	10.760	7.898	5.196	5.143	5.446	6.496	9.254	10.050
3	50.500	34.590	41.330	14.820	10.840	7.981	5.293	5.287	4.836	11.770	9.042	10.210
4	57.960	42.370	33.820	15.100	10.680	8.466	5.313	5.456	4.527	15.500	11.690	19.190
5	69.740	35.640	28.720	14.200	10.460	8.221	5.316	5.378	4.399	10.870	15.430	31.990
6	73.780	30.920	25.550	13.340	10.490	7.803	5.276	4.931	4.385	8.529	19.210	26.630
7	75.450	35.650	24.070	13.630	10.360	7.556	5.512	4.708	4.388	7.448	16.150	22.800
8	74.760	30.750	22.880	16.190	10.230	7.389	5.583	4.657	4.463	6.868	13.090	24.410
9	66.670	28.170	21.540	19.980	10.030	7.307	5.313	4.477	4.562	6.549	12.510	23.710
10	72.840	25.680	20.290	18.280	9.711	7.256	5.150	4.454	4.614	6.237	13.680	18.940
11	85.670	23.890	19.650	16.150	9.522	7.081	4.937	4.487	4.620	6.009	12.160	17.530
12	81.150	22.650	19.160	15.490	9.392	6.873	5.085	4.618	5.446	5.839	12.170	15.910
13	68.820	21.480	18.730	16.540	9.187	6.821	5.123	4.764	7.259	5.761	22.280	19.690
14	55.770	20.530	17.880	14.890	9.106	6.351	5.086	4.434	6.991	5.726	20.840	26.610
15	47.940	20.040	17.200	14.340	10.650	6.107	5.076	4.266	8.166	5.658	18.580	20.500
16	43.040	19.540	16.850	13.500	10.910	6.274	4.953	4.172	11.280	5.545	14.510	17.920
17	40.350	19.970	16.610	13.000	9.600	6.585	4.849	4.422	8.173	5.548	13.070	17.170
18	40.270	19.770	16.520	12.640	9.176	6.638	4.706	5.018	6.476	5.471	13.290	19.380
19	44.350	18.720	17.090	12.560	8.946	6.449	4.657	4.762	5.887	5.573	20.310	18.950
20	38.190	18.050	15.930	12.640	8.662	6.253	4.572	4.411	6.561	10.490	28.210	17.000
21	33.530	17.630	15.060	12.980	8.987	6.484	4.528	4.268	10.580	15.420	27.500	15.110
22	30.490	17.400	14.890	12.880	11.170	6.664	4.505	4.168	9.159	10.700	19.790	14.460
23	29.860	17.180	14.750	12.980	15.200	6.144	4.452	4.173	7.240	15.180	17.040	13.570
24	28.080	17.070	14.320	14.040	11.590	5.772	4.714	4.450	6.488	16.130	15.150	13.000
25	31.390	19.730	14.380	13.590	9.768	5.662	6.126	4.449	9.031	12.910	13.870	13.570
26	36.150	49.010	14.360	15.400	9.093	5.594	5.751	4.466	12.250	14.560	13.010	17.920
27	34.040	60.990	13.750	13.330	8.660	5.561	5.855	4.313	8.611	11.390	12.280	28.140
28	38.730	73.660	13.990	12.180	8.540	5.409	5.960	4.192	7.136	9.697	11.550	36.100
29	31.530		13.590	11.580	8.299	5.263	5.318	4.119	6.368	8.979	11.050	36.260
30	29.850		13.270	11.180	7.944	5.166	5.042	4.090	5.850	9.264	10.730	34.490
31	26.510		14.160		7.841		4.950	4.284		12.170		35.530
Average	48.820	28.250	21.700	14.580	9.893	6.696	5.139	4.576	6.666	9.160	15.290	20.870
Lowest	26.510	17.070	13.270	11.180	7.841	5.166	4.452	4.090	4.385	5.471	9.042	10.050
Highest	85.670	73.660	71.690	21.190	15.200	8.466	6.126	5.456	12.250	16.130	28.210	36.260
Peak flow	89.00	79.14	79.14	26.00	16.32	8.72	6.78	5.61	14.27	20.80	32.05	43.79
Day of peak	11	28	1	1	23	4	25	4	26	21	20	31
Monthly total (million cu m)	130.70	68.34	58.12	37.80	26.50	17.36	13.77	12.26	17.28	24.53	39.63	55.91
Runoff (mm)	82	43	37	24	17	11	9	8	11	15	25	35
Rainfall (mm)	105	73	37	52	39	28	56	53	89	71	63	94

Statistics of monthly data for previous record (Jan 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	25.660	24.360	23.760	19.360	13.660	9.665	7.819	7.735	8.403	12.910	15.110	24.500
	Low	9.596	8.606	6.254	6.640	5.282	4.778	3.882	3.126	3.077	3.929	5.472	8.276
	(year)	1992	1973	1973	1990	1990	1992	1976	1990	1990	1991	1989	1991
	High	48.190	49.280	56.110	37.540	29.840	21.260	17.120	15.430	23.520	36.820	25.220	42.740
	(year)	1977	1978	1979	1986	1979	1979	1973	1980	1993	1976	1980	1978
Runoff:	Avg.	43	38	40	32	23	16	13	13	14	22	25	41
	Low	16	13	11	11	9	8	7	5	5	7	9	14
	High	81	75	95	61	50	35	29	26	38	62	41	72
Rainfall:	Avg.	71	50	68	53	54	57	59	66	70	77	68	79
	Low	20	5	7	11	13	11	18	10	18	21	28	24
	High	132	101	143	113	142	149	138	126	192	158	111	180

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	15.930		16.050		99
Lowest yearly mean			7.900	1989	
Highest yearly mean			25.320	1979	
Lowest monthly mean	4.576	Aug	3.077	Sep 1990	
Highest monthly mean	48.820	Jan	56.110	Mar 1979	
Lowest daily mean	4.090	30 Aug	2.697	23 Aug 1976	
Highest daily mean	85.670	11 Jan	121.400	29 Dec 1978	
Peak	89.000	11 Jan	124.800	5 Jan 1982	
10% exceedance	33.910		33.030		103
50% exceedance	11.590		11.730		99
95% exceedance	4.451		3.983		112
Annual total (million cu m)	502.40		506.50		99
Annual runoff (mm)	317		319		99
Annual rainfall (mm)	760		772		98
1961-90 rainfall average (mm)			765		

Factors affecting runoff

- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.

Station and catchment description

Crump weir, 20m wide; high flow rating derived from limited number of gaugings. Pre-October 1973 data (monthly only) of poorer quality; derives from Stamford Br.(27015) - slightly smaller catchment area (1586.0 sq km). Peak flows from the headwaters upstream of Forge Valley (8% catchment) are diverted down the Sea Cut (27033). Minor net impact of artificial influences (spray irrigation is appreciable). Mixed geology of clays, shales and limestone. Rural catchment draining the North York Moors.

028009 Trent at Colwick 1994

Measuring authority: NRA-ST
First year: 1958

Grid reference: 43 (SK) 620 399
Level stn. (m OD): 16.00

Catchment area (sq km): 7486.0
Max alt. (m OD): 636

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	204.200	123.400	200.500	224.100	57.340	43.480	34.150	47.410	52.050	48.350	123.800	60.230
2	289.200	122.900	172.900	226.400	55.180	41.730	35.040	38.340	47.920	67.140	91.800	60.170
3	317.000	164.200	148.900	156.100	54.110	44.420	33.440	36.730	35.610	122.300	87.660	63.250
4	356.000	260.900	125.000	214.900	54.560	44.580	37.840	46.490	35.710	110.600	111.800	117.700
5	377.100	187.300	114.700	232.600	56.360	44.690	38.960	39.710	33.090	75.880	250.900	166.400
6	365.000	147.800	102.100	175.200	57.180	39.640	37.120	32.460	33.520	61.780	232.200	166.000
7	273.500	151.400	95.820	148.500	58.590	39.900	37.710	30.180	35.680	52.910	145.300	191.900
8	183.700	129.500	90.490	176.300	55.320	39.220	35.310	28.840	41.790	50.530	111.100	213.100
9	172.100	116.700	97.900	247.700	52.110	37.240	31.610	29.500	42.320	47.790	168.200	186.000
10	217.400	107.100	110.100	233.400	50.920	37.860	30.120	28.430	36.980	44.040	278.400	136.100
11	202.100	121.700	93.560	183.400	48.390	39.370	30.690	35.560	38.590	41.930	199.300	112.100
12	255.800	139.600	98.090	142.800	48.070	38.590	29.620	36.780	38.310	40.540	220.900	96.830
13	342.800	112.200	101.700	136.000	48.460	37.990	30.040	32.290	45.610	39.620	292.700	130.300
14	314.600	99.290	92.820	114.900	54.590	37.410	28.750	29.210	84.590	38.880	225.500	204.000
15	226.900	93.630	111.900	102.200	78.010	35.020	30.160	28.650	233.700	36.600	169.000	144.300
16	169.900	91.070	120.300	92.630	65.110	33.380	30.220	28.470	229.100	36.600	129.900	115.900
17	141.600	98.750	102.600	86.320	55.970	34.360	29.220	32.120	170.400	35.130	115.600	110.100
18	126.800	103.000	110.100	82.050	48.850	33.330	28.840	37.640	101.100	35.640	104.300	228.000
19	144.900	94.990	247.300	80.030	46.630	31.840	29.260	32.090	83.110	35.240	104.200	218.100
20	127.200	88.370	182.400	79.380	47.270	32.350	29.410	30.810	103.900	37.580	111.300	151.600
21	119.300	82.600	125.200	80.030	66.100	33.840	29.660	28.240	111.700	43.560	140.300	131.100
22	115.400	77.520	122.800	78.310	107.100	35.900	29.840	28.270	85.580	47.620	112.400	109.100
23	182.600	83.080	121.500	92.700	80.880	34.370	29.020	29.290	64.000	81.250	98.880	93.860
24	189.600	99.240	115.300	90.260	65.250	33.000	30.790	30.410	56.160	72.540	84.950	85.680
25	189.800	125.200	155.500	76.690	59.710	47.100	49.230	33.520	65.090	56.080	77.530	86.180
26	260.900	311.400	163.900	76.720	66.620	40.860	39.760	30.420	61.200	54.400	71.090	112.500
27	224.800	383.200	117.800	69.660	62.560	34.960	36.200	28.710	49.790	60.970	67.810	322.300
28	234.900	329.500	114.500	65.790	51.240	34.020	39.780	27.560	45.500	56.990	65.830	405.500
29	174.500		106.600	62.960	48.980	33.090	34.630	26.550	42.110	72.340	62.450	370.400
30	155.400		96.730	60.390	46.590	33.060	31.710	26.370	39.750	111.300	59.760	277.400
31	132.900		123.600		44.210		40.240	30.280		148.400		214.400
Average	219.000	144.500	125.200	129.600	57.810	37.550	33.500	32.300	71.470	60.150	137.200	163.900
Lowest	115.400	77.520	90.490	60.390	44.210	31.840	28.750	26.370	33.090	35.130	59.760	60.170
Highest	377.100	383.200	247.300	247.700	107.100	47.100	49.230	47.410	233.700	148.400	292.700	405.500
Peak flow	388.20	390.20	266.10	275.20	137.20	62.11	57.92	53.06	252.70	158.50	304.10	414.80
Day of peak	5	27	19	1	22	25	25	1	15	31	13	28
Monthly total (million cu m)	586.50	349.50	335.50	336.00	154.90	97.34	89.72	86.51	185.20	161.10	355.50	439.00
Runoff (mm)	78	47	45	45	21	13	12	12	25	22	47	59
Rainfall (mm)	94	62	82	58	48	25	48	51	128	67	77	105

Statistics of monthly data for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	138.500	127.400	108.900	91.600	68.310	54.760	44.500	45.570	48.550	66.310	88.820	127.100
	Low	52.910	47.130	38.030	35.220	32.090	24.690	19.460	18.440	23.070	25.260	34.170	46.240
	(year)	1963	1992	1993	1976	1990	1976	1976	1976	1959	1959	1975	1975
	High	216.400	384.000	227.600	179.500	175.100	103.100	104.100	76.480	121.100	187.000	231.800	351.600
	(year)	1988	1977	1981	1966	1969	1987	1968	1966	1965	1960	1960	1965
Runoff:	Avg.	50	42	39	32	24	19	16	16	17	24	31	45
	Low	19	16	14	12	11	9	7	7	8	9	12	17
	High	77	124	81	62	63	36	37	27	42	67	80	126
Rainfall:	Avg.	72	52	59	58	58	62	59	69	65	67	73	79
	Low	23	8	13	9	11	14	18	21	3	12	38	15
	High	138	175	116	116	144	148	125	120	149	141	145	173

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	100.700		84.010		120
Lowest yearly mean			47.030	1976	
Highest yearly mean			124.000	1966	
Lowest monthly mean	32.300	Aug	18.440	Aug 1976	
Highest monthly mean	219.000	Jan	384.000	Feb 1977	
Lowest daily mean	26.370	30 Aug	14.700	23 Aug 1976	
Highest daily mean	405.500	28 Dec	854.900	26 Feb 1977	
Peak	414.800	28 Dec	956.700	25 Feb 1977	
10% exceedance	219.100		169.600		129
50% exceedance	77.650		59.020		132
95% exceedance	29.520		27.390		108
Annual total (million cu m)	3176.00		2651.00		120
Annual runoff (mm)	424		354		120
Annual rainfall (mm)	845		773		109
1961-90 rainfall average (mm)			761		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Velocity-area station in the navigable Trent. Main channel approx. 62m; cableway span 99m. Holme sluices 750m u/s affect water levels up to medium flows. Bypassed at high flows on rb when gravel workings inundated. Very substantial flow modifications owing to imports, WRW's, cooling water and industrial usage. Predominantly impervious - glacial clay and Triassic Marl, but some sandstone and limestone. Extensive terrace gravels and alluvium maintain baseflow.

028085 Derwent at St. Marys Bridge 1994

Measuring authority: NRA-ST
First year: 1936

Grid reference: 43 (SK) 355 368
Level stn. (m OD): 44.00

Catchment area (sq km): 1054.0
Max alt. (m OD): 636

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	47.340	34.160	35.030	50.960	10.770	7.076	4.512	5.227	5.983	8.871	22.930	14.800
2	84.360	30.070	34.520	39.780	11.020	6.847	6.148	4.585	3.799	13.700	19.520	15.500
3	79.580	46.640	31.150	37.020	11.750	7.142	5.927	5.613	4.091	19.210	23.320	16.950
4	65.480	45.400	27.220	50.960	11.880	6.990	8.702	5.137	4.595	13.780	27.390	28.300
5	63.980	37.890	24.980	39.900	12.050	6.556	5.291	4.162	4.379	11.000	58.600	26.720
6	47.880	34.800	22.780	36.200	11.390	6.277	5.378	3.953	4.176	9.608	34.700	26.380
7	38.500	32.550	21.700	34.260	11.190	6.569	4.940	4.207	4.691	8.945	25.360	34.090
8	33.580	28.830	20.290	48.700	10.690	6.269	4.648	4.133	4.604	8.400	22.710	32.710
9	34.770	27.240	22.340	53.890	10.460	6.052	4.164	4.178	4.053	7.856	53.010	27.500
10	37.940	25.350	21.150	44.770	9.053	6.109	4.027	4.110	6.309	7.290	56.530	26.110
11	37.840	24.830	19.800	38.830	8.298	6.349	4.099	4.056	4.964	7.041	38.330	23.750
12	61.830	23.040	21.380	35.100	8.116	6.205	4.190	3.988	6.341	6.536	60.420	21.910
13	60.570	21.550	25.700	34.590	7.890	6.151	4.210	4.004	5.898	6.224	48.600	32.290
14	44.150	20.730	22.390	31.400	9.188	6.534	4.059	4.080	24.300	6.286	43.310	28.050
15	36.580	20.350	24.070	26.380	10.570	6.306	3.998	4.499	37.360	6.272	35.000	24.460
16	32.030	19.980	24.090	23.150	8.901	6.489	4.015	4.342	13.880	6.223	31.880	22.420
17	28.850	20.070	23.480	21.040	7.806	5.403	4.046	4.737	8.332	6.001	31.970	26.590
18	28.420	19.740	29.020	19.740	7.609	4.797	3.953	4.529	7.118	5.898	29.720	38.060
19	27.760	18.750	41.850	18.190	7.367	4.793	4.743	4.717	9.155	5.795	27.920	26.240
20	25.580	17.860	27.010	17.470	7.917	4.884	4.059	3.757	9.942	5.895	33.870	24.430
21	24.770	16.380	23.270	17.530	15.900	6.236	3.911	3.867	14.360	5.967	30.970	22.910
22	25.170	16.810	25.050	17.110	17.210	5.644	4.198	4.508	8.702	9.756	28.530	20.890
23	65.220	16.780	23.940	20.390	10.920	4.789	4.078	4.124	7.815	13.980	25.410	19.710
24	42.020	15.020	31.560	17.210	9.414	4.772	6.048	4.380	7.824	11.910	19.120	19.520
25	66.050	21.610	44.160	16.640	8.774	7.692	5.603	4.022	11.850	10.640	17.660	19.690
26	69.450	51.120	33.480	16.530	8.073	5.342	5.274	4.162	8.976	12.330	16.040	29.450
27	73.440	66.750	28.680	14.670	7.527	5.371	6.320	4.770	7.830	12.790	14.890	82.720
28	62.540	44.880	27.780	13.730	7.120	4.927	5.384	4.166	7.337	17.470	15.230	71.650
29	49.210		23.960	12.640	7.530	4.512	4.000	4.052	6.612	19.240	13.570	53.550
30	43.620		22.790	11.310	7.551	4.485	4.292	3.930	6.204	25.080	12.700	49.050
31	34.870		27.750		7.173		6.414	5.775		27.040		43.680
Average	47.530	28.540	26.850	28.670	9.713	5.919	4.859	4.380	8.716	10.870	30.640	30.650
Lowest	24.770	15.020	19.800	11.310	7.120	4.485	3.911	3.757	3.799	5.795	12.700	14.800
Highest	84.360	66.750	44.160	53.890	17.210	7.692	8.702	5.775	37.360	27.040	60.420	82.720
Peak flow	101.50	74.19	67.01	71.64	25.93	13.08	16.09	9.43	59.72	28.70	75.69	98.50
Day of peak	2	27	19	8	21	25	4	31	15	31	12	27
Monthly total (million cu m)	127.30	69.05	71.92	74.31	26.02	15.34	13.01	11.73	22.59	29.12	79.42	82.09
Runoff (mm)	121	66	68	71	25	15	12	11	21	28	75	78
Rainfall (mm)	146	77	113	82	51	44	53	54	146	99	115	140

Statistics of monthly data for previous record (Jan 1936 to Dec 1993—incomplete or missing months total 2.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	29.250	27.770	22.560	17.830	12.420	10.040	8.489	8.785	10.220	13.450	21.110	26.710
	Low	9.749	8.084	7.361	7.253	4.710	4.647	4.211	3.647	3.955	4.155	4.304	8.480
	(year)	1963	1963	1993	1990	1990	1990	1976	1976	1959	1959	1975	1975
	High	67.000	76.780	69.530	39.590	26.410	20.240	28.660	33.840	32.940	35.130	54.330	88.690
	(year)	1939	1977	1947	1966	1967	1987	1958	1956	1946	1960	1940	1965
Runoff:	Avg.	74	64	57	44	32	25	22	22	25	34	52	68
	Low	25	19	19	18	12	11	11	9	10	11	11	22
	High	170	176	177	97	67	50	73	86	81	89	134	225
Rainfall:	Avg.	104	77	76	67	67	71	76	82	81	90	103	104
	Low	33	8	16	8	13	15	16	10	3	17	16	20
	High	215	236	185	132	163	188	158	185	199	178	232	246

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	19.720		17.340		114
Lowest yearly mean			9.625	1976	
Highest yearly mean			25.200	1966	
Lowest monthly mean	4.380	Aug	3.647	Aug 1976	
Highest monthly mean	47.530	Jan	88.690	Dec 1965	
Lowest daily mean	3.757	20 Aug	1.819	30 Aug 1952	
Highest daily mean	84.360	2 Jan	334.200	10 Dec 1965	
Peak	101.500	2 Jan			
10% exceedance	43.640		35.690		122
50% exceedance	14.900		11.800		126
95% exceedance	4.073		4.710		86
Annual total (million cu m)	621.90		547.20		114
Annual runoff (mm)	590		519		114
Annual rainfall (mm)	1120		998		112
1961-90 rainfall average (mm)			1012		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Ten-channel, interleaved cross path US gauge in the centre of Derby, 1.75km ds of Longbridge Weir (28010). Record continuous with 28010. Peaks from 1976 only. Derby may flood but bypassing small. Substantial flow modification owing to Derwent reservoirs, milling and PWS abstractions. Large, predominantly upland catchment draining Millstone Grit and Carb. Lst. Lower reaches drain Coal Measures on the lb and Triassic sandstones and marls on the rb. Peat moorland headwaters; forestry, pasture and some arable.

030001 Witham at Claypole Mill — 1994

Measuring authority: NRA-A
First year: 1959

Grid reference: 43 (SK) 842 480
Level stn. (m OD): 16.90

Catchment area (sq km): 297.9
Max alt. (m OD): 158

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.422	3.673	4.528	3.383	1.725	1.221	0.755	0.739	2.017	1.543	1.800	1.950
2	8.305	3.364	4.309	6.466	1.685	1.154	0.748	0.656	0.792	1.847	1.511	1.912
3	8.570	7.423	3.913	6.380	1.754	1.185	0.733	0.678	0.712	3.118	1.388	1.906
4	8.410	6.477	3.613	3.739	1.734	1.166	0.719	0.891	0.703	2.689	1.917	3.403
5	12.210	4.569	3.525	2.878	1.830	1.158	0.788	0.672	0.629	1.963	6.802	4.011
6	9.063	4.225	3.315	2.198	1.763	1.128	0.737	0.601	0.670	1.643	3.888	3.720
7	6.518	4.244	3.284	2.362	1.778	1.148	0.837	0.672	0.795	1.523	2.582	4.852
8	5.870	3.763	3.201	2.693	1.799	1.125	0.733	0.653	0.784	1.463	2.272	4.654
9	6.255	3.494	3.250	3.038	1.786	1.164	0.681	0.615	0.648	1.409	2.350	3.743
10	7.971	3.306	2.948	2.543	1.593	1.191	0.660	0.606	0.874	1.330	4.785	2.987
11	6.326	3.088	3.007	2.283	1.533	1.089	0.625	0.531	0.649	1.343	3.407	2.615
12	8.229	3.002	2.970	2.407	1.525	1.020	0.576	0.422	0.842	1.324	6.370	2.374
13	10.840	2.893	2.874	2.459	1.484	0.874	0.576	0.420	0.728	1.320	6.373	3.888
14	7.603	2.836	2.771	2.419	1.786	0.843	0.585	0.401	3.519	1.308	4.222	5.008
15	5.885	2.861	3.268	2.193	1.957	0.861	0.591	0.382	10.110	1.318	3.260	3.408
16	5.114	3.025	3.050	2.349	1.620	0.846	0.608	0.526	5.555	1.310	2.901	2.897
17	4.694	3.553	2.845	2.183	1.547	0.828	0.580	0.806	2.611	1.281	2.724	2.992
18	4.527	3.762	3.111	2.083	1.412	0.839	0.551	0.663	1.789	1.266	2.690	8.614
19	4.336	3.175	4.200	2.027	1.469	0.835	0.570	0.480	1.795	1.278	2.488	4.994
20	4.098	2.892	3.094	1.917	1.714	0.803	0.579	0.529	2.269	1.361	2.563	3.619
21	3.962	2.803	2.821	1.953	2.075	0.873	0.602	0.472	2.667	1.301	2.511	3.030
22	3.864	2.700	2.906	1.906	2.605	0.833	0.631	0.427	2.070	1.339	2.439	2.679
23	4.585	2.807	2.791	3.794	2.218	0.758	0.611	0.494	1.656	1.318	2.344	2.510
24	4.123	2.843	2.675	2.806	1.835	0.746	1.430	0.518	1.560	1.112	2.238	2.448
25	4.975	4.816	2.774	2.262	1.672	0.942	1.258	0.451	1.697	1.098	2.194	2.437
26	5.856	11.160	2.524	2.002	1.407	0.715	0.803	0.437	1.462	1.067	2.175	3.637
27	5.465	8.932	2.382	1.871	1.379	0.760	0.741	0.422	1.388	1.048	2.129	15.510
28	5.282	5.474	2.574	1.813	1.313	0.795	2.170	0.366	1.303	1.058	2.037	9.952
29	4.412		2.235	1.777	1.248	0.741	1.128	0.361	1.241	1.186	2.015	6.117
30	4.154		2.146	1.760	1.218	0.772	0.955	0.345	1.217	1.751	1.999	4.899
31	3.763		2.321		1.176		0.870	0.718		2.627		4.079
Average	6.151	4.184	3.072	2.665	1.666	0.947	0.788	0.547	1.825	1.501	2.946	4.221
Lowest	3.763	2.700	2.146	1.760	1.176	0.715	0.551	0.345	0.629	1.048	1.388	1.906
Highest	12.210	11.160	4.528	6.466	2.605	1.221	2.170	0.891	10.110	3.118	6.802	15.510
Peak flow	13.68	12.12	5.13	8.48	2.76	1.29	4.42	1.42	12.30	3.97	9.32	16.84
Day of peak	5	27	19	2	22	9	28	31	15	3	12	27
Monthly total (million cu m)	16.48	10.12	8.23	6.91	4.46	2.45	2.11	1.47	4.73	4.02	7.64	11.31
Runoff (mm)	55	34	28	23	15	8	7	5	16	14	26	38
Rainfall (mm)	69	52	50	51	42	13	69	54	117	52	53	76

Statistics of monthly data for previous record (May 1959 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	2.793	3.125	2.802	2.339	1.694	1.122	0.784	0.758	0.749	1.070	1.458	2.205
	Low	0.673	0.492	0.453	0.365	0.311	0.184	0.063	0.136	0.232	0.218	0.278	0.312
	(year)	1965	1976	1976	1976	1976	1976	1976	1976	1959	1959	1959	1964
	High	5.857	10.690	6.995	5.748	4.695	3.141	2.118	2.376	2.886	4.190	6.525	7.879
	(year)	1988	1977	1979	1979	1983	1985	1968	1980	1968	1993	1960	1965
Runoff:	Avg.	25	26	25	20	15	10	7	7	7	10	13	20
	Low	6	4	4	3	3	2	1	1	2	2	2	3
	High	53	87	63	50	42	27	19	21	25	38	57	71
Rainfall:	Avg.	54	39	47	50	49	53	52	60	53	51	56	55
	Low	20	3	8	10	11	3	9	5	3	5	24	13
	High	117	140	92	103	130	148	132	127	127	137	115	142

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	2.534		1.735		146
Lowest yearly mean			0.594	1976	
Highest yearly mean			2.807	1979	
Lowest monthly mean	0.547	Aug	0.063	Jul 1976	
Highest monthly mean	6.151	Jan	10.690	Feb 1977	
Lowest daily mean	0.345	30 Aug	0.021	24 Jul 1976	
Highest daily mean	15.510	27 Dec	31.600	11 Feb 1977	
Peak	16.840	27 Dec	37.540	11 Feb 1977	
10% exceedance	4.998		3.758		133
50% exceedance	1.961		1.060		185
95% exceedance	0.548		0.352		156
Annual total (million cu m)	79.91		54.75		146
Annual runoff (mm)	268		184		146
Annual rainfall (mm)	698		619		113
1961-90 rainfall average (mm)			614		

Factors affecting runoff

- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

An old weir at three levels with a total width of 24.99m converted into a standard Lea designed broad-crested weir. It is rated theoretically and there is no bypassing or drowning. Low flows moderately influenced by transfer of water from Rutland Water (Feb. 1977 to Apr. 1986). Abstractions for public supply at Saltersford. The catchment is clay (50%) with limestone (40%) and gravel, and is largely rural.

032004 Ise Brook at Harrowden Old Mill 1994

Measuring authority: NRA-A
First year: 1943
Grid reference: 42 (SP) 898 715
Level stn. (m OD): 45.30
Catchment area (sq km): 194.0
Max alt. (m OD): 197

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.685	1.731	2.659	3.940	0.813	0.569	0.277	0.261	0.355	0.602	2.338	0.711
2	7.159	1.693	2.783	2.308	0.785	0.762	0.286	0.264	0.262	0.618	1.393	0.691
3	7.048	6.242	2.503	2.218	0.782	0.652	0.271	0.303	0.259	0.607	1.132	0.870
4	7.083	4.851	1.438	5.812	0.809	0.721	0.277	0.300	0.248	1.017	1.876	1.318
5	12.910	2.584	2.010	3.269	0.828	0.586	0.276	0.253	0.224	0.602	5.923	1.988
6	9.662	2.377	1.917	2.350	0.763	0.561	0.384	0.229	0.219	0.561	4.044	2.077
7	4.891	2.578	1.768	2.112	0.811	0.523	0.335	0.223	0.245	0.509	1.991	2.298
8	4.048	2.142	1.335	3.039	0.745	0.487	0.319	0.231	0.258	0.493	1.630	3.969
9	4.469	1.898	1.964	4.120	0.694	0.566	0.274	0.225	0.230	1.111	2.075	2.662
10	7.359	1.775	1.042	3.543	0.666	0.488	0.261	0.381	0.224	0.512	3.427	1.932
11	5.254	2.230	1.377	2.149	0.659	0.467	0.274	0.469	0.234	0.461	2.221	1.580
12	7.082	1.970	1.472	2.686	0.647	0.446	0.253	0.327	0.256	0.462	2.504	1.416
13	6.745	1.755	1.383	2.428	0.630	0.433	0.290	0.287	0.222	0.445	2.979	1.780
14	4.382	1.629	1.402	1.832	0.936	0.414	0.211	0.243	3.454	0.441	2.199	2.438
15	3.645	1.687	1.999	1.726	0.787	0.400	0.233	0.226	5.028	0.442	1.814	1.877
16	3.236	2.087	1.766	1.607	0.720	0.382	0.246	0.276	3.926	0.445	1.424	1.568
17	2.725	2.652	1.486	1.470	0.621	0.383	0.244	0.490	1.344	0.422	1.250	1.941
18	2.685	2.417	1.714	1.383	0.590	0.382	0.251	0.280	0.735	0.415	1.228	3.793
19	2.584	1.942	2.174	1.339	0.573	0.373	0.244	0.239	1.321	0.430	1.121	2.464
20	2.365	1.746	1.722	1.278	0.611	0.349	0.242	0.219	1.535	0.474	1.108	1.891
21	2.199	1.568	1.397	1.222	1.292	0.390	0.227	0.213	1.599	0.486	1.014	1.608
22	2.126	1.505	1.951	1.270	1.557	0.353	0.223	0.211	1.017	0.707	0.986	1.427
23	2.142	1.923	1.533	1.758	1.169	0.329	0.225	0.248	0.753	0.552	0.927	1.308
24	2.032	2.749	1.402	1.389	0.923	0.478	0.519	0.257	0.690	0.524	0.866	1.285
25	2.189	5.340	1.406	1.181	0.884	0.395	0.310	0.245	0.605	0.475	0.821	1.387
26	2.114	9.830	1.242	1.069	0.946	0.330	0.262	0.214	0.553	0.453	0.806	1.915
27	2.134	4.790	1.284	1.012	0.794	0.328	0.287	0.195	0.498	0.427	0.801	4.599
28	1.913	3.222	1.478	0.944	0.712	0.313	0.728	0.185	0.461	0.443	0.774	4.197
29	1.807		1.421	0.896	0.662	0.278	0.506	0.186	0.520	1.668	0.725	4.986
30	1.738		1.510	0.850	0.616	0.280	0.379	0.193	0.434	3.837	0.725	3.124
31	1.628		1.983		0.579		0.386	0.318		5.343		2.448
Average	4.227	2.818	1.694	2.073	0.794	0.447	0.306	0.264	0.924	0.838	1.737	2.179
Lowest	1.628	1.505	1.042	0.850	0.573	0.278	0.211	0.185	0.219	0.415	0.725	0.691
Highest	12.910	9.830	2.783	5.812	1.557	0.762	0.728	0.490	5.028	5.343	5.923	4.986
Peak flow	14.60	10.73	3.01	6.39	2.80	1.13	1.51	1.07	6.35	6.52	7.56	5.62
Day of peak	6	26	1	9	22	2	24	10	14	31	6	29
Monthly total (million cu m)	11.32	6.82	4.54	5.37	2.13	1.16	0.82	0.71	2.39	2.24	4.50	5.84
Runoff (mm)	58	35	23	28	11	6	4	4	12	12	23	30
Rainfall (mm)	68	56	55	53	55	23	37	44	126	62	45	65

Statistics of monthly data for previous record (Dec 1943 to Dec 1993—incomplete or missing months total 0.8 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	2.451	2.521	2.165	1.523	1.071	0.754	0.556	0.528	0.537	0.780	1.408	1.968
	Low	0.459	0.324	0.219	0.330	0.143	0.128	0.166	0.110	0.128	0.185	0.176	0.219
	(year)	1944	1944	1944	1948	1944	1944	1945	1944	1949	1947	1947	1947
	High	6.441	6.948	7.984	3.835	3.608	2.421	3.018	2.656	2.584	4.384	5.330	5.827
	(year)	1959	1977	1947	1979	1967	1981	1958	1980	1992	1960	1960	1965
Runoff:	Avg.	34	32	30	20	15	10	8	7	7	11	19	27
	Low	6	4	3	4	2	2	2	2	2	3	2	3
	High	89	87	110	51	50	32	42	37	35	61	71	80
Rainfall:	Avg.	55	42	48	46	52	56	53	63	55	53	59	58
	Low	15	3	5	8	6	5	5	3	3	5	10	13
	High	112	115	127	109	130	141	112	139	127	137	132	123

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	1.517		1.350		112
Lowest yearly mean			0.422	1944	
Highest yearly mean			2.337	1960	
Lowest monthly mean	0.264	Aug	0.110	Aug 1944	
Highest monthly mean	4.227	Jan	7.984	Mar 1947	
Lowest daily mean	0.185	28 Aug	0.048	11 Aug 1944	
Highest daily mean	12.910	5 Jan	21.360	15 Aug 1980	
Peak	14.600	6 Jan	28.390	17 Mar 1947	
10% exceedance	3.416		2.990		114
50% exceedance	0.991		0.730		136
95% exceedance	0.228		0.197		116
Annual total (million cu m)	47.84		42.60		112
Annual runoff (mm)	247		220		112
Annual rainfall (mm)	689		640		108
1961-90 rainfall average (mm)			635		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow reduced by industrial and/or agricultural abstractions.

Station and catchment description

Flume with low flow notch and side weir to 1965, compound Crump profile weir to April 1976, and theoretically-rated Flat V weir with 5.94m crest since. Crump weir modular to 15.6 cumecs, but bypassed at 14.2m. Flat V also bypassed. Two small storage reservoirs with minor influence on low flows. Underlain by clay (59%) and sandstone (24%), mostly rural but includes Kettering.

033002 Bedford Ouse at Bedford 1994

Measuring authority: NRA-A
First year: 1933

Grid reference: 52 (TL) 055 495
Level stn. (m OD): 24.70

Catchment area (sq km): 1460.0
Max alt. (m OD): 247

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	54.550	16.150	24.580	20.340	8.120	6.270	4.090	3.280	3.400	3.280	27.060	5.100
2	50.650	20.620	21.000	29.330	8.080	6.150	3.910	3.170	4.900	3.610	15.770	5.000
3	55.320	25.970	18.740	18.150	6.680	6.320	3.580	3.000	4.250	4.090	10.080	5.200
4	57.010	48.060	16.380	26.000	6.930	6.620	3.760	3.120	3.790	4.340	8.820	6.800
5	64.050	41.940	15.640	27.920	7.010	7.080	3.780	3.050	3.500	3.100	18.610	8.000
6	68.750	26.210	15.120	16.690	7.030	8.360	3.770	3.060	3.230	3.000	39.540	17.800
7	74.390	32.120	14.060	18.580	7.620	8.290	3.940	2.940	3.400	3.280	31.390	22.400
8	78.740	32.370	13.620	22.240	7.790	7.660	4.060	2.680	3.530	3.040	15.860	32.900
9	47.810	24.240	12.870	34.900	7.240	6.540	3.920	3.200	5.810	3.250	12.550	33.900
10	49.110	20.680	11.730	36.890	6.950	7.010	3.610	2.800	4.370	3.220	15.840	33.900
11	59.220	20.340	11.720	27.470	6.360	6.610	3.540	2.910	3.820	3.130	20.020	21.900
12	59.300	35.140	11.710	19.920	6.120	6.770	3.440	4.650	3.500	2.960	14.790	16.100
13	55.780	26.330	11.570	25.120	5.480	6.780	3.430	4.430	3.470	2.870	14.670	14.200
14	54.500	20.810	11.040	26.030	6.570	6.410	3.350	3.930	4.100	2.940	15.610	15.800
15	38.740	18.230	11.340	19.000	8.190	6.520	3.260	3.320	7.870	2.770	12.580	14.900
16	35.890	17.140	11.760	16.290	8.830	5.070	3.000	3.250	14.040	3.170	10.390	11.200
17	32.610	20.090	10.960	16.800	7.330	4.820	3.330	3.390	13.710	2.720	9.000	11.100
18	26.930	20.590	11.170	14.390	7.610	4.590	3.200	3.590	9.150	2.980	8.560	15.400
19	25.310	23.400	14.330	12.880	6.880	4.940	3.140	3.630	6.620	3.080	8.150	39.300
20	23.990	23.220	14.650	12.490	6.280	4.570	2.900	3.540	6.800	3.000	8.440	32.900
21	21.700	21.790	12.370	11.490	7.200	4.450	3.270	3.470	7.740	3.570	8.200	21.200
22	20.590	20.750	11.580	10.840	18.590	4.660	2.860	3.200	5.320	4.020	6.890	13.800
23	20.210	24.540	12.380	11.440	12.060	4.670	3.090	2.960	5.880	5.810	6.450	11.600
24	20.250	48.810	11.770	12.190	9.050	4.770	2.920	2.980	5.110	5.510	5.990	10.100
25	21.130	43.500	11.240	11.020	6.830	5.350	2.920	2.910	4.570	4.510	5.870	11.200
26	27.350	41.530	11.250	9.900	11.060	6.820	2.920	3.040	4.970	4.790	5.720	11.200
27	27.340	47.510	10.350	9.340	13.790	5.460	2.920	2.960	4.220	4.570	5.640	14.100
28	24.230	33.520	10.190	9.040	12.110	4.810	2.810	2.740	3.500	4.730	5.500	33.700
29	21.440		10.540	8.850	9.060	3.960	2.740	2.830	3.610	6.190	5.440	36.700
30	19.070		9.980	8.510	7.520	4.180	3.300	2.850	2.850	14.730	5.240	40.000
31	23.940		11.340		6.740		2.960	3.200		26.000		31.500
Average	40.640	28.410	13.130	18.130	8.294	5.884	3.346	3.228	5.368	4.783	12.620	19.320
Lowest	19.070	16.150	9.980	8.510	5.480	3.960	2.740	0.070	2.850	2.720	5.240	5.000
Highest	78.740	48.810	24.580	36.890	18.590	8.360	4.090	4.650	14.040	26.000	39.540	40.000
Peak flow	80.73	55.06	27.81	50.09	27.73	11.54	5.09	5.09	16.20	28.62	48.53	
Day of peak	8	24	1	10	22	7	11	12	17	31	6	
Monthly total (million cu m)	108.90	68.74	35.16	47.01	22.21	15.25	8.96	8.15	13.91	12.81	32.72	51.74
Runoff (mm)	75	47	24	32	15	10	6	6	10	9	22	35
Rainfall (mm)	73	56	49	52	65	28	21	42	87	72	45	76

Statistics of monthly data for previous record (Jan 1933 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	19.650	19.780	16.740	11.440	7.111	4.717	3.312	2.879	3.117	5.923	11.430	15.790
	Low	2.608	2.232	2.410	1.996	1.411	0.483	0.100	0.040	0.268	0.454	1.152	1.531
	(year)	1934	1965	1944	1976	1934	1934	1934	1934	1934	1934	1934	1964
	High	55.190	53.300	62.010	31.470	28.280	14.280	19.080	14.400	19.760	30.420	43.800	40.400
	(year)	1939	1977	1947	1951	1983	1985	1968	1980	1992	1987	1960	1960
Runoff:	Avg.	36	33	31	20	13	8	6	5	6	11	20	29
	Low	5	4	4	4	3	1	0	0	0	1	2	3
	High	101	88	114	56	52	25	35	26	35	56	78	74
Rainfall:	Avg.	58	41	48	46	54	54	54	60	54	60	63	60
(1934-		14	3	5	3	6	8	5	3	3	4	10	13
1993)		124	111	140	96	113	119	120	138	110	147	178	134

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	13.510		10.110		134
Lowest yearly mean			2.401	1934	
Highest yearly mean			18.890	1937	
Lowest monthly mean	3.228	Aug	0.040	Aug 1934	
Highest monthly mean	40.640	Jan	62.010	Mar 1947	
Lowest daily mean	2.680	8 Aug	0.008	15 Aug 1934	
Highest daily mean	78.740	8 Jan	278.100	15 Mar 1947	
Peak	80.730	8 Jan			
10% exceedance	32.220		26.360		122
50% exceedance	8.163		4.743		172
95% exceedance	2.938		0.976		301
Annual total (million cu m)	426.10		319.00		134
Annual runoff (mm)	292		219		134
Annual rainfall (mm)	666		652		102
1961-90 rainfall average (mm)			636		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from effluent returns.

Comment

December 1994 flow values are estimated. More accurate flow data are available, from 1972, at a downstream gauging station (033039).

Station and catchment description

3 broad-crested weirs, 30m, 20m and 12m wide supplemented by 3 vertical sluice gates which are either fully open or shut. High flow rating confirmed by current meter measurements. Records before 1959 based on daily gauge board readings and gate openings. (Improved flow record, from 1972, d/s at 33039). Significant surface and groundwater abstractions in catchment for PWS, Milton Keynes' effluent now significant. Geology - predominantly clay. Land use - agricultural with substantial urban development over last 15 years.

033034 Little Ouse at Abbey Heath 1994

Measuring authority: NRA-A
First year: 1968
Grid reference: 52 (TL) 851 844
Level stn. (m OD): 7.20
Catchment area (sq km): 699.3
Max alt. (m OD): 98

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11.200	7.118	8.395	8.790	5.236	3.357	1.983	1.680	2.170	1.882	4.971	2.228
2	11.760	7.188	8.340	10.630	5.125	3.316	1.979	1.566	2.844	2.126	3.734	2.135
3	12.690	8.387	8.223	8.663	4.736	3.348	1.989	1.679	2.492	2.272	3.268	2.188
4	13.000	13.130	7.643	12.230	4.962	3.497	1.992	1.698	2.169	2.352	3.186	2.278
5	14.670	10.950	7.294	15.630	4.968	3.514	1.919	1.537	1.950	2.303	2.924	2.485
6	16.670	8.990	6.893	13.010	5.072	3.158	1.911	1.512	1.827	2.172	2.755	2.589
7	18.200	8.013	6.403	10.960	5.474	3.176	1.881	1.422	1.860	2.060	2.795	2.690
8	18.010	7.576	6.208	11.270	6.612	3.340	1.870	1.414	1.976	2.025	2.671	2.832
9	15.450	7.280	6.101	13.140	6.787	3.304	1.812	1.375	1.964	2.005	2.520	3.074
10	14.440	6.994	5.827	11.490	6.296	3.127	1.766	1.387	1.945	2.003	2.585	3.057
11	14.230	6.730	5.621	9.060	5.529	2.994	1.724	1.891	1.788	1.921	2.632	3.008
12	13.700	6.509	5.603	8.213	4.946	2.892	1.652	1.695	1.768	1.875	2.726	2.884
13	14.410	6.314	5.473	8.270	4.638	2.828	1.649	1.754	1.727	1.877	2.759	2.884
14	13.100	6.145	5.416	8.116	4.658	2.743	1.730	1.602	2.032	1.942	3.056	3.270
15	11.070	6.172	5.906	8.534	4.679	2.643	1.742	1.480	2.635	1.935	2.970	3.304
16	9.797	6.276	6.123	8.712	4.486	2.594	1.661	1.651	2.724	1.932	2.812	3.164
17	8.860	6.266	5.746	8.400	4.401	2.598	1.609	1.727	2.588	1.892	2.674	2.983
18	8.397	6.139	5.922	7.720	4.354	2.533	1.591	1.614	2.353	1.824	2.663	3.398
19	8.476	5.899	7.594	7.200	4.173	2.462	1.583	1.499	2.369	1.879	2.651	3.418
20	8.211	5.860	7.274	6.950	4.162	2.400	1.506	1.468	2.400	1.969	2.569	3.189
21	8.010	5.773	6.528	6.647	4.297	2.430	1.491	1.407	2.575	1.912	2.494	3.001
22	7.841	5.694	6.390	6.395	4.474	2.429	1.503	1.379	2.315	1.912	2.474	2.873
23	7.973	6.167	6.321	6.300	4.364	2.354	1.445	1.479	2.162	2.243	2.473	2.730
24	7.876	7.749	6.184	6.172	4.234	2.493	1.788	1.515	2.153	2.090	2.496	2.740
25	8.020	8.655	7.053	5.939	4.131	2.465	1.683	1.463	2.129	2.034	2.432	2.382
26	8.587	8.913	7.936	5.734	3.988	2.481	1.638	1.547	2.068	1.997	2.410	2.632
27	8.414	9.193	7.130	5.539	3.857	2.420	1.610	1.539	2.056	1.967	2.388	3.050
28	8.007	8.397	7.010	5.438	3.794	2.105	1.582	1.486	1.956	2.070	2.390	4.979
29	7.373		6.803	5.365	3.702	2.042	1.712	1.454	1.862	2.690	2.390	4.990
30	7.313		6.555	5.317	3.622	2.049	1.640	1.450	1.771	3.358	2.314	4.746
31	6.972		6.798		3.494		1.670	2.136		5.027		4.003
Average	11.060	7.446	6.668	8.528	4.686	2.770	1.720	1.565	2.154	2.179	2.773	3.070
Lowest	6.972	5.694	5.416	5.317	3.494	2.042	1.445	1.375	1.727	1.824	2.314	2.135
Highest	18.200	13.130	8.395	15.630	6.787	3.514	1.992	2.136	2.844	5.027	4.971	4.990
Peak flow	19.12	15.80	8.64	17.93	7.26	3.91	3.26	5.08	3.09	6.47	6.16	5.75
Day of peak	8	4	2	4	10	4	24	31	1	31	1	29
Monthly total (million cu m)	29.61	18.01	17.86	22.10	12.55	7.18	4.61	4.19	5.58	5.84	7.19	8.22
Runoff (mm)	42	26	26	32	18	10	7	6	8	8	10	12
Rainfall (mm)	61	41	64	53	41	29	33	82	64	70	21	47

Statistics of monthly data for previous record (Jan 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	5.867	6.018	5.523	4.801	3.707	2.808	2.094	1.876	1.739	2.484	3.304	4.500
	Low	2.026	1.728	1.931	2.063	1.767	1.165	0.798	0.621	0.902	1.154	1.264	1.500
	(year)	1992	1992	1973	1973	1991	1976	1976	1976	1976	1991	1990	1991
	High	11.270	12.010	10.240	8.286	7.677	6.851	3.603	5.210	5.028	10.200	9.033	10.640
	(year)	1988	1979	1988	1979	1969	1985	1985	1987	1987	1987	1974	1993
Runoff:	Avg.	22	21	21	18	14	10	8	7	6	10	12	17
	Low	8	6	7	8	7	4	3	2	3	4	5	6
	High	43	42	39	31	29	25	14	20	19	39	33	41
Rainfall:	Avg.	56	38	48	44	46	54	50	47	50	55	64	55
	Low	16	9	12	10	6	10	9	8	2	4	24	27
	High	114	78	100	84	97	137	99	116	101	123	147	98

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	4.533		3.716		122
Lowest yearly mean			1.735	1991	
Highest yearly mean			5.670	1969	
Lowest monthly mean	1.565	Aug	0.621	Aug 1976	
Highest monthly mean	11.060	Jan	12.010	Feb 1979	
Lowest daily mean	1.375	9 Aug	0.482	28 Aug 1976	
Highest daily mean	18.200	7 Jan	24.320	13 Oct 1987	
Peak	19.120	8 Jan	25.290	13 Oct 1987	
10% exceedance	8.537		7.082		121
50% exceedance	3.002		2.836		106
95% exceedance	1.521		1.145		133
Annual total (million cu m)	143.00		117.30		122
Annual runoff (mm)	204		168		122
Annual rainfall (mm)	606		607		100
1961-90 rainfall average (mm)			607		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from effluent returns.

Station and catchment description

Rectangular section Crump profile weir with crest tapping. Replaced 33008 in 1968. Weir subject to drowning and spills on rare occasions. Since the late 1980s, low flows augmented from groundwater in drought conditions. Geology - Chalk with approx. 85% Boulder Clay cover. Land use - predominately agricultural with large areas of forest and heathland.

034006 Waveney at Needham Mill 1994

Measuring authority: NRA-A
First year: 1963

Grid reference: 62 (TM) 229 811
Level stn. (m OD): 16.50

Catchment area (sq km): 370.0
Max alt. (m OD): 65

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.913	2.251	3.587	5.700	0.937	0.491	0.392	0.461	2.798	0.453	3.901	0.588
2	10.230	2.174	3.771	5.809	0.890	0.495	0.393	0.445	2.959	0.555	1.631	0.590
3	9.596	8.144	3.792	4.134	0.883	0.490	0.388	0.367	1.362	0.879	1.380	0.584
4	11.460	15.420	3.054	12.190	0.893	0.516	0.377	0.355	0.779	0.961	1.152	0.604
5	14.200	7.086	2.839	13.060	0.880	0.587	0.370	0.361	0.593	0.792	0.990	0.614
6	16.090	4.436	2.233	6.812	0.990	0.553	0.394	0.347	0.515	0.629	0.904	0.585
7	18.810	3.697	2.072	6.398	1.110	0.494	0.389	0.312	0.471	0.557	0.797	0.624
8	13.050	2.908	1.851	7.212	1.975	0.488	0.348	0.305	0.482	0.524	0.755	1.737
9	7.364	2.442	1.761	9.939	1.521	0.496	0.343	0.304	0.469	0.495	0.727	3.133
10	10.400	2.145	1.527	5.999	1.230	0.468	0.328	0.313	0.438	0.475	0.857	1.805
11	9.758	1.998	1.436	4.313	1.111	0.424	0.304	0.392	0.400	0.483	1.136	1.420
12	9.563	1.766	1.436	3.572	0.928	0.376	0.309	0.459	0.389	0.471	1.391	0.842
13	11.200	1.598	1.434	3.392	0.795	0.419	0.354	0.406	0.380	0.461	2.575	1.324
14	7.413	1.526	1.282	3.343	0.769	0.454	0.351	0.330	0.567	0.456	2.218	2.467
15	5.198	1.640	1.854	4.449	0.764	0.464	0.346	0.300	1.230	0.452	1.508	1.982
16	4.614	1.668	1.889	6.560	0.771	0.456	0.325	0.297	1.594	0.439	1.200	1.575
17	4.092	1.649	1.726	4.783	0.701	0.444	0.304	0.293	1.241	0.428	1.006	1.346
18	3.743	1.582	2.212	3.474	0.692	0.427	0.294	0.313	0.811	0.446	0.926	1.562
19	4.103	1.414	5.084	2.892	0.665	0.415	0.297	0.311	0.829	0.448	0.900	1.869
20	3.713	1.431	3.475	2.311	0.622	0.396	0.277	0.299	1.090	0.477	0.842	1.601
21	3.310	1.357	2.509	2.062	0.613	0.421	0.270	0.273	1.090	0.471	0.793	1.331
22	3.031	1.339	2.190	1.767	0.763	0.419	0.266	0.284	0.830	0.505	0.755	1.134
23	3.192	1.799	2.128	1.658	0.770	0.408	0.251	0.273	0.661	0.493	0.723	0.929
24	3.024	4.877	1.902	1.506	0.691	0.396	0.262	0.284	0.589	0.493	0.694	0.866
25	3.321	5.020	2.887	1.344	0.652	0.498	0.252	0.305	0.565	0.537	0.655	0.906
26	3.916	5.046	3.104	1.219	0.604	0.587	0.258	0.334	0.546	0.531	0.639	1.009
27	3.848	4.748	2.285	1.128	0.569	0.471	0.262	0.304	0.510	0.506	0.611	2.477
28	3.032	3.723	2.213	1.045	0.563	0.434	0.443	0.292	0.471	0.476	0.600	5.855
29	2.348		1.883	1.002	0.535	0.456	0.503	0.298	0.449	0.662	0.594	4.208
30	2.393		1.687	0.972	0.527	0.433	0.403	0.298	0.437	2.406	0.591	3.747
31	2.121		1.905		0.454		0.431	0.379		6.327		2.421
Average	6.937	3.389	2.355	4.335	0.835	0.463	0.338	0.332	0.851	0.784	1.115	1.669
Lowest	2.121	1.339	1.282	0.972	0.454	0.376	0.251	0.273	0.380	0.428	0.591	0.584
Highest	18.810	15.420	5.084	13.060	1.975	0.587	0.503	0.461	2.959	6.327	3.901	5.855
Peak flow	19.54	17.02	5.65	14.77	2.10	0.61	0.52	0.88	4.01	6.91	5.69	6.35
Day of peak	7	4	19	5	8	26	29	31	2	31	1	28
Monthly total (million cu m)	18.58	8.20	6.31	11.24	2.23	1.20	0.91	0.89	2.21	2.10	2.89	4.47
Runoff (mm)	50	22	17	30	6	3	2	2	6	6	8	12
Rainfall (mm)	64	40	57	52	38	32	40	90	59	67	22	47

Statistics of monthly data for previous record (Dec 1963 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	3.910	3.166	2.580	1.928	1.080	0.753	0.519	0.685	0.807	1.135	1.801	2.869
	Low	0.609	0.587	0.591	0.487	0.369	0.285	0.242	0.281	0.261	0.330	0.386	0.492
	(year)	1973	1992	1973	1974	1974	1974	1990	1973	1964	1989	1989	1964
	High	14.260	10.670	7.665	5.646	3.254	4.302	1.197	6.959	9.753	10.260	8.852	8.379
	(year)	1988	1979	1981	1983	1969	1985	1987	1987	1968	1987	1974	1965
Runoff:	Avg.	28	21	19	14	8	5	4	5	6	8	13	21
	Low	4	4	4	3	3	2	2	2	2	2	3	4
	High	103	70	55	40	24	30	9	50	68	74	62	61
Rainfall:	Avg.	52	37	44	45	45	52	48	49	53	55	63	55
	Low	16	10	10	9	5	10	11	7	2	4	25	18
	High	122	76	96	86	97	132	93	110	161	118	150	100

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	1.941		1.764		110
Lowest yearly mean			0.537	1973	
Highest yearly mean			3.366	1987	
Lowest monthly mean	0.332	Aug	0.242	Jul 1990	
Highest monthly mean	6.937	Jan	14.260	Jan 1988	
Lowest daily mean	0.251	23 Jul	0.165	30 Jul 1990	
Highest daily mean	18.810	7 Jan	89.760	16 Sep 1968	
Peak	19.540	7 Jan	113.300	16 Sep 1968	
10% exceedance	4.603		4.025		114
50% exceedance	0.852		0.767		111
95% exceedance	0.298		0.306		98
Annual total (million cu m)	61.21		55.67		110
Annual runoff (mm)	165		150		110
Annual rainfall (mm)	608		598		102
1961-90 rainfall average (mm)			594		

Factors affecting runoff

- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.

Station and catchment description
A compound Crump weir 8.5m wide in the main channel with a single crested Crump in the mill bypass. Sluice action at a mill 2.4 km upstream is infrequent but is evident in flow records. Surface water abstractions, and the use of river gravels as an aquifer, influence flows but the overall impact is minimal. Record affected by the Waveney Groundwater Scheme between 1975 and 1979. Predominantly a Boulder Clay catchment with largely rural land use.

038001 *Lee at Feildes Weir* 1994

Measuring authority: NRA-T
First year: 1879

Grid reference: 52 (TL) 390 092
Level stn. (m OD): 27.70

Catchment area (sq km): 1036.0
Max alt. (m OD): 229

Daily mean naturalised discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12.500	10.200	9.010	16.700	5.980	5.860	4.580	3.210	3.440	2.530	6.380	2.620
2	17.900	9.660	9.570	10.100	6.100	5.840	4.670	3.130	3.150	2.790	4.900	2.600
3	16.000	27.300	9.310	10.200	6.240	6.120	4.800	3.150	3.080	2.960	4.290	2.950
4	22.600	20.600	8.510	20.900	6.380	6.890	4.750	3.180	3.010	2.790	4.800	3.080
5	34.500	13.400	8.350	14.000	6.400	6.460	4.590	3.240	2.870	2.530	6.630	3.240
6	37.400	10.500	7.860	9.370	6.370	5.830	4.860	3.150	2.820	2.540	5.900	3.370
7	35.400	10.900	7.890	9.490	7.620	5.710	4.680	3.090	3.050	2.490	4.770	3.840
8	21.400	10.300	7.600	14.400	7.340	5.850	4.450	3.050	4.820	2.430	4.450	18.000
9	23.800	9.920	7.400	20.500	6.490	5.810	4.030	3.620	3.520	2.460	4.760	9.950
10	41.000	9.460	7.130	32.700	6.080	5.800	3.900	4.360	3.010	2.470	5.190	5.740
11	23.900	9.760	7.070	24.200	5.860	5.570	3.860	5.490	2.890	2.500	4.570	4.780
12	23.600	8.890	7.100	15.900	5.900	5.480	3.890	4.810	3.020	2.450	4.580	4.330
13	23.200	8.580	7.090	23.000	5.800	5.570	4.070	3.770	2.870	2.470	4.530	3.550
14	17.200	8.430	6.840	15.700	6.920	5.450	3.890	3.460	3.670	2.370	4.430	4.050
15	16.000	8.880	7.660	12.100	6.950	5.450	3.550	3.370	5.700	2.400	4.440	3.930
16	14.400	9.550	7.350	10.700	6.350	5.380	3.490	3.410	5.380	2.410	3.990	3.880
17	11.100	9.760	6.870	9.290	8.820	5.370	3.490	3.640	3.470	2.400	3.460	3.830
18	10.900	9.110	7.540	8.900	6.990	5.290	3.480	3.390	3.180	2.390	3.570	5.510
19	10.900	8.400	7.900	8.380	6.250	5.170	3.380	3.240	3.900	2.540	3.690	5.240
20	10.500	8.460	6.810	6.640	5.830	5.220	3.440	3.190	3.880	3.720	3.460	4.390
21	9.550	8.210	6.760	7.150	9.440	5.220	3.340	3.090	3.440	3.090	3.380	4.090
22	9.340	8.250	7.050	7.410	11.000	4.800	3.320	3.040	3.140	6.750	3.390	3.960
23	9.590	12.900	6.830	7.440	9.090	4.750	3.200	2.830	3.070	4.700	3.350	3.880
24	9.350	14.600	6.630	7.370	8.170	5.100	3.200	2.820	3.130	3.680	3.340	3.850
25	9.350	10.200	6.810	7.080	7.270	5.820	3.260	2.780	3.100	4.110	3.270	3.910
26	9.100	10.300	6.410	6.820	6.860	5.170	3.140	2.710	2.960	4.050	3.240	4.150
27	9.500	9.740	6.170	6.730	6.420	4.730	3.140	2.730	2.560	4.090	3.240	10.300
28	9.920	9.350	6.300	6.590	6.370	4.800	4.070	2.580	2.500	3.600	3.210	10.600
29	9.090		6.560	6.480	6.210	4.650	3.690	2.560	2.520	5.550	2.810	15.300
30	8.860		6.650	6.360	6.000	4.530	3.360	2.540	2.470	9.320	2.660	13.200
31	8.390		9.200		5.980		3.260	2.700		10.400		8.900
Average	16.980	10.910	7.427	12.090	6.886	5.456	3.833	3.269	3.321	3.580	4.156	5.839
Lowest	8.390	8.210	6.170	6.360	5.800	4.530	3.140	2.540	2.470	2.370	2.660	2.600
Highest	41.000	27.300	9.570	32.700	11.000	6.890	4.860	5.490	5.700	10.400	6.630	18.000
Monthly total (million cu m)	45.47	26.40	19.89	31.33	18.44	14.14	10.27	8.76	8.61	9.59	10.77	15.64
Nat'ised runoff (mm)	44	25	19	30	18	14	10	8	8	9	10	15
Rainfall (mm)	79	44	47	67	69	23	26	36	60	85	32	73

Statistics of monthly data for previous record (Oct 1883 to Dec 1993—incomplete or missing months total 2.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean	Avg.	8.351	8.324	7.507	5.995	4.950	3.763	3.118	2.905	2.882	3.931	5.445	7.036
nat'ised	Low	1.718	1.525	1.607	1.640	1.408	1.072	1.019	0.801	0.840	1.074	1.369	1.564
flows:	(year)	1992	1992	1944	1944	1944	1949	1949	1949	1949	1934	1934	1991
	High	22.830	25.730	30.700	19.270	13.810	9.592	7.420	8.707	8.218	17.320	16.730	19.130
	(year)	1928	1919	1947	1919	1919	1903	1889	1917	1968	1903	1916	1929
Nat'ised	Avg.	22	20	19	15	13	9	8	8	7	10	14	18
runoff:	Low	4	4	4	4	4	3	3	2	2	3	3	4
	High	59	60	79	48	36	24	19	23	21	45	42	49
Rainfall:	Avg.	57	41	46	45	49	51	55	57	55	62	64	58
(1936-	Low	10	3	3	5	7	5	8	3	3	4	8	15
1993)	High	132	117	135	104	112	137	104	124	129	157	173	129

Summary statistics
(naturalised flows)

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	6.954		5.337		130
Lowest yearly mean			1.617	1934	
Highest yearly mean			11.510	1919	
Lowest monthly mean	3.269	Aug	0.801	Aug 1949	
Highest monthly mean	16.980	Jan	30.700	Mar 1947	
Lowest daily mean	2.370	14 Oct	0.579	4 Sep 1949	
Highest daily mean	41.000	10 Jan	119.000	17 Mar 1947	
10% exceedance	10.990		9.331		118
50% exceedance	5.461		3.697		148
95% exceedance	2.551		1.588		161
Annual total (million cu m)	219.30		168.40		130
Annual runoff (mm)	212		163		130
Annual rainfall (mm)	641		640		100
1961-90 rainfall average (mm)			630		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from effluent returns.

Station and catchment description
Thin-plate weir (insensitive - 29m wide) and 3 vertical-lift sluices; completed 1978 to improve range and precision of flow measurement. Model rated. All flows (bar lockages) now contained but Ryemeads STW effluent bypasses. Pre-1978: barrage of gates/sluices; no peak flows prior to 1965, low flows probably under-estimated. Gauging instigated by Beardsmore in 1850s. Significant g/w abstraction; net export from catchment. Naturalised flows (New Gauge abstraction only) from 1883. A mainly pervious (Chalk) catchment. Predominantly rural headwaters; significant urban growth in lower valleys.

038003 Mimram at Panshanger Park 1994

Measuring authority: NRA-T
First year: 1952

Grid reference: 52 (TL) 282 133
Level stn. (m OD): 47.10

Catchment area (sq km): 133.9
Max alt. (m OD): 195

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.080	1.400	1.180	1.250	0.967	0.904	0.703	0.608	0.593	0.492	0.552	0.481
2	1.060	1.290	1.180	1.120	0.959	0.895	0.694	0.612	0.527	0.544	0.530	0.481
3	1.180	1.710	1.170	1.250	0.963	0.973	0.723	0.598	0.548	0.502	0.520	0.542
4	1.150	1.380	1.150	1.230	0.971	1.010	0.741	0.603	0.531	0.486	0.713	0.532
5	1.350	1.290	1.140	1.150	0.977	0.903	0.698	0.589	0.514	0.484	0.618	0.604
6	1.470	1.370	1.140	1.090	0.974	0.899	0.771	0.584	0.513	0.477	0.544	0.553
7	1.330	1.310	1.140	1.130	1.080	0.891	0.702	0.578	0.646	0.478	0.527	0.601
8	1.200	1.270	1.130	1.290	0.993	0.896	0.699	0.572	0.616	0.474	0.527	0.948
9	1.570	1.250	1.130	1.230	0.968	0.883	0.683	0.593	0.529	0.474	0.601	0.578
10	1.630	1.240	1.110	1.190	0.970	0.903	0.674	0.805	0.512	0.471	0.535	0.544
11	1.420	1.300	1.120	1.120	0.963	0.882	0.660	0.770	0.550	0.470	0.519	0.520
12	1.470	1.230	1.120	1.210	0.965	0.848	0.656	0.620	0.519	0.473	0.568	0.510
13	1.460	1.220	1.110	1.240	0.952	0.844	0.672	0.608	0.511	0.460	0.521	0.535
14	1.370	1.230	1.150	1.250	1.140	0.838	0.663	0.596	0.643	0.458	0.528	0.515
15	1.430	1.280	1.170	1.200	0.999	0.842	0.653	0.592	0.745	0.454	0.516	0.512
16	1.390	1.240	1.130	1.120	0.983	0.842	0.649	0.594	0.566	0.450	0.508	0.505
17	1.360	1.210	1.150	1.100	1.250	0.835	0.647	0.724	0.527	0.454	0.512	0.535
18	1.370	1.200	1.180	1.100	1.010	0.823	0.637	0.601	0.523	0.442	0.541	0.697
19	1.360	1.190	1.130	1.100	0.975	0.792	0.632	0.594	0.706	0.450	0.510	0.527
20	1.340	1.190	1.100	1.100	0.983	0.781	0.631	0.583	0.567	0.485	0.501	0.516
21	1.330	1.200	1.110	1.100	1.240	0.789	0.617	0.573	0.536	0.491	0.496	0.511
22	1.340	1.210	1.120	1.090	1.070	0.770	0.610	0.571	0.521	0.731	0.494	0.507
23	1.370	1.380	1.100	1.130	1.170	0.758	0.616	0.573	0.512	0.502	0.498	0.504
24	1.360	1.230	1.110	1.090	1.110	0.851	0.606	0.568	0.506	0.502	0.492	0.502
25	1.340	1.250	1.140	1.080	1.020	0.771	0.599	0.579	0.502	0.520	0.485	0.512
26	1.310	1.210	1.070	1.070	1.030	0.750	0.595	0.565	0.500	0.547	0.484	0.567
27	1.370	1.190	1.080	1.050	0.974	0.737	0.591	0.551	0.489	0.482	0.481	0.707
28	1.290	1.180	1.110	1.030	0.978	0.706	0.921	0.541	0.484	0.501	0.480	0.589
29	1.280		1.090	1.020	0.961	0.692	0.646	0.543	0.481	0.743	0.483	0.766
30	1.280		1.140	0.988	0.943	0.696	0.623	0.548	0.482	0.880	0.483	0.589
31	1.290		1.300		0.924		0.611	0.577		0.688		0.649
Average	1.340	1.273	1.135	1.137	1.015	0.834	0.665	0.600	0.547	0.518	0.526	0.569
Lowest	1.060	1.180	1.070	0.988	0.924	0.692	0.591	0.541	0.481	0.442	0.480	0.481
Highest	1.630	1.710	1.300	1.290	1.250	1.010	0.921	0.805	0.745	0.880	0.713	0.948
Peak flow	2.24	2.19	1.64	1.53	1.55	1.26	1.79	1.47	1.08	1.33	1.17	1.61
Day of peak	9	3	31	1	17	4	28	10	7	30	4	8
Monthly total (million cu m)	3.59	3.08	3.04	2.95	2.72	2.16	1.78	1.61	1.42	1.39	1.36	1.52
Runoff (mm)	27	23	23	22	20	16	13	12	11	10	10	11
Rainfall (mm)	91	49	50	65	68	23	24	40	62	80	36	80

Statistics of monthly data for previous record (Dec 1952 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	0.571	0.630	0.650	0.641	0.599	0.547	0.476	0.435	0.410	0.416	0.450	0.508
	Low	0.222	0.220	0.221	0.222	0.216	0.187	0.163	0.145	0.195	0.176	0.176	0.189
	(year)	1992	1992	1992	1992	1976	1976	1976	1976	1973	1973	1973	1973
	High	1.102	1.167	1.119	1.050	1.084	0.971	0.803	0.765	0.632	0.926	0.827	1.005
	(year)	1961	1961	1961	1979	1979	1979	1979	1979	1968	1993	1993	1960
Runoff:	Avg.	11	11	13	12	12	11	10	9	8	8	9	10
	Low	4	4	4	4	4	4	3	3	4	4	3	4
	High	22	21	22	20	22	19	16	15	12	19	16	20
Rainfall:	Avg.	56	41	47	48	50	59	55	57	57	62	61	62
	Low	11	3	3	5	4	5	5	7	5	5	20	13
	High	121	99	116	105	115	122	123	127	121	171	151	141

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	0.844		0.527		160
Lowest yearly mean			0.231	1973	
Highest yearly mean			0.767	1961	
Lowest monthly mean	0.518	Oct	0.145	Aug 1976	
Highest monthly mean	1.340	Jan	1.167	Feb 1961	
Lowest daily mean	0.442	18 Oct	0.135	19 Aug 1976	
Highest daily mean	1.710	3 Feb	2.430	13 Oct 1993	
Peak	2.240	9 Jan	3.820	12 Oct 1993	
10% exceedance	1.282		0.790		162
50% exceedance	0.757		0.501		151
95% exceedance	0.480		0.222		217
Annual total (million cu m)	26.62		16.64		160
Annual runoff (mm)	199		124		160
Annual rainfall (mm)	668		655		102
1961-90 rainfall average (mm)			656		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Flow reduced by industrial and/or agricultural abstractions.

Station and catchment description

Critical-depth flume; 5m overall width. Theoretical calibration confirmed by gaugings. All flows contained. Appreciable net export of water (considerable groundwater abstraction in headwaters). Very high baseflow component. A predominantly permeable catchment (Upper Chalk - overlain by glacial deposits near headwaters); mainly rural but some urbanisation in the lower valley.

039001 Thames at Kingston 1994

Measuring authority: NRA-T
First year: 1883

Grid reference: 51 (TQ) 177 698
Level stn. (m OD): 4.70

Catchment area (sq km): 9948.0
Max alt. (m OD): 330

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	232.000	130.000	145.000	155.000	50.600	45.700	13.200	8.940	11.600	9.260	113.000	29.400
2	244.000	144.000	132.000	142.000	49.500	43.300	16.800	8.370	13.200	9.650	60.200	42.800
3	254.000	186.000	117.000	115.000	43.000	44.300	14.900	8.010	8.410	9.530	32.800	54.000
4	285.000	238.000	111.000	140.000	44.900	52.900	11.900	8.580	9.530	9.320	43.900	62.100
5	324.000	197.000	104.000	140.000	48.500	57.500	12.600	7.540	8.820	8.590	149.000	57.300
6	339.000	171.000	100.000	111.000	51.700	50.500	9.900	7.410	6.790	8.200	120.000	76.200
7	349.000	206.000	98.100	102.000	52.500	46.400	12.600	18.800	8.810	8.560	80.700	92.200
8	315.000	184.000	95.000	110.000	54.800	38.200	17.300	23.100	10.200	9.240	54.800	193.000
9	322.000	151.000	92.900	181.000	49.000	33.100	19.100	19.200	8.600	8.540	64.500	274.000
10	384.000	131.000	88.900	181.000	42.700	34.100	16.800	16.300	8.800	11.500	65.300	205.000
11	377.000	155.000	83.500	147.000	43.300	33.300	13.000	17.700	9.020	12.300	60.500	121.000
12	336.000	192.000	83.800	114.000	47.200	33.000	12.500	14.500	9.250	9.090	69.300	96.100
13	335.000	175.000	80.800	110.000	46.900	31.200	10.200	11.600	10.000	12.200	59.100	79.100
14	305.000	155.000	77.700	106.000	53.300	24.700	10.600	10.200	10.100	10.400	63.000	65.600
15	286.000	130.000	78.400	94.500	62.900	22.700	9.730	11.900	22.600	9.670	69.700	62.800
16	291.000	126.000	78.300	97.200	55.400	20.000	9.330	20.700	28.600	9.080	48.500	54.900
17	269.000	121.000	75.100	87.500	82.400	19.200	9.560	16.900	18.500	8.910	42.100	54.800
18	232.000	117.000	74.600	80.300	84.100	20.200	9.830	11.000	14.700	7.860	42.500	79.200
19	211.000	118.000	79.000	67.600	58.900	19.600	9.100	11.000	16.000	9.970	77.400	116.000
20	185.000	109.000	77.600	72.000	46.700	19.000	9.220	10.200	20.900	13.400	74.500	101.000
21	166.000	99.000	75.100	67.800	71.500	23.000	9.740	8.600	11.200	10.400	53.500	77.200
22	154.000	98.700	73.200	62.700	115.000	26.900	9.330	8.510	12.900	24.200	38.200	62.400
23	145.000	146.000	80.100	77.200	95.300	28.300	9.000	9.230	13.400	27.700	45.000	58.400
24	155.000	173.000	77.300	77.900	78.400	29.700	10.400	9.430	9.750	9.130	39.100	55.400
25	171.000	167.000	72.400	67.800	72.400	40.600	10.400	9.610	16.800	22.400	32.100	54.900
26	167.000	156.000	71.400	63.900	98.300	28.700	8.880	9.140	11.300	19.600	33.100	72.000
27	158.000	162.000	67.100	52.500	127.000	27.500	9.100	9.190	8.180	9.150	36.100	107.000
28	156.000	163.000	65.500	57.100	96.600	25.700	10.000	8.150	8.040	9.710	33.400	161.000
29	146.000		58.800	55.400	60.100	20.300	10.100	9.100	7.540	17.400	31.100	215.000
30	129.000		66.800	52.900	53.300	13.200	8.770	8.830	7.810	55.100	29.100	240.000
31	131.000		80.300		52.600		8.680	12.200		131.000		192.000
Average	243.600	153.600	85.830	99.610	64.150	31.760	11.370	11.740	12.050	17.130	58.720	103.600
Lowest	129.000	98.700	58.800	52.500	42.700	13.200	8.680	7.410	6.790	7.860	29.100	29.400
Highest	384.000	238.000	145.000	181.000	127.000	57.500	19.100	23.100	28.600	131.000	149.000	274.000
Peak flow	405.00	247.00	166.00	206.00	162.00	73.20	28.70	67.40	48.30	159.00	198.00	308.00
Day of peak	10	4	1	10	27	25	24	9	7	31	5	9
Monthly total (million cu m)	652.60	371.60	229.90	258.20	171.80	82.32	30.46	31.44	31.22	45.88	152.20	277.50
Runoff (mm)	66	37	23	26	17	8	3	3	3	5	15	28
Rainfall (mm)	99	64	51	54	80	25	21	49	77	83	59	95

Statistics of monthly data for previous record (Jan 1883 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	125.600	122.400	102.900	74.740	52.680	36.620	23.150	21.500	23.180	38.840	71.500	101.100
	Low	18.570	12.290	9.426	8.975	4.391	3.302	2.079	1.912	0.688	3.144	4.248	8.350
	(year)	1976	1976	1976	1976	1976	1976	1921	1976	1976	1934	1990	1990
	High	325.300	342.000	359.500	188.800	171.700	171.600	72.290	79.330	123.900	179.800	334.000	333.900
	(year)	1915	1904	1947	1916	1932	1903	1968	1931	1927	1903	1894	1929
Runoff:	Avg.	34	30	28	19	14	10	6	6	6	10	19	27
	Low	5	3	3	2	1	1	1	1	0	1	1	2
	High	88	86	97	49	46	45	19	21	32	48	87	90
Rainfall:	Avg.	65	49	52	49	54	53	58	63	58	73	72	72
	Low	14	3	3	3	7	3	8	3	3	5	8	13
	High	137	127	142	104	137	137	130	147	157	188	188	185

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	74.050		65.920		112
Lowest yearly mean			20.410	1934	
Highest yearly mean			120.000	1951	
Lowest monthly mean	11.370	Jul	0.688	Sep 1976	
Highest monthly mean	243.600	Jan	359.500	Mar 1947	
Lowest daily mean	6.790	6 Sep	0.010	9 Oct 1976	
Highest daily mean	384.000	10 Jan	1059.000	18 Nov 1894	
Peak	405.000	10 Jan			
10% exceedance	171.600		160.100		107
50% exceedance	53.260		41.380		129
95% exceedance	8.639		8.618		100
Annual total (million cu m)	2335.00		2080.00		112
Annual runoff (mm)	235		209		112
Annual rainfall (mm)	757		718		105
1961-90 rainfall average (mm)			706		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Ultrasonic station commissioned in 1974; multi-path operation from 1986. Full range. No peak flows pre-1974 when dmfs derived from Teddington weir complex (70m wide); significant structural improvements since 1883. Some underestimation of pre-1951 low flows. Baseflow sustained mainly from the Chalk and the Oolites. Runoff decreased by major PWS abstractions - naturalised flows available. Diverse topography, geology and land use which - together with the pattern of water utilisation - has undergone important historical changes.

039001 Thames at Kingston 1994

Measuring authority: NRA-T
First year: 1883

Grid reference: 51 (TQ) 177 698
Level stn. (m OD): 4.70

Catchment area (sq km): 9948.0
Max alt. (m OD): 330

Daily mean naturalised discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	251.000	141.000	167.000	179.000	70.300	66.700	38.500	28.400	35.300	33.200	138.000	52.900
2	262.000	159.000	150.000	164.000	69.500	64.000	39.700	29.800	38.900	32.600	84.800	56.600
3	272.000	203.000	139.000	136.000	65.200	63.700	38.400	29.500	32.600	33.500	59.300	56.200
4	300.000	255.000	132.000	161.000	71.000	71.400	37.100	30.000	32.900	31.800	73.800	65.500
5	340.000	217.000	125.000	161.000	74.200	74.500	39.300	31.600	31.700	29.000	174.000	75.900
6	355.000	191.000	121.000	134.000	74.900	67.700	37.200	32.100	27.600	30.000	145.000	103.000
7	368.000	224.000	125.000	126.000	74.800	64.500	38.300	27.400	27.900	29.100	109.000	118.000
8	335.000	200.000	121.000	133.000	77.600	59.900	41.700	30.000	34.700	29.100	84.800	216.000
9	342.000	170.000	120.000	204.000	70.700	54.900	42.400	28.900	31.900	28.500	94.200	301.000
10	400.000	150.000	115.000	202.000	64.400	56.300	40.100	30.300	36.700	31.200	94.800	230.000
11	394.000	177.000	105.000	165.000	66.100	53.900	39.700	38.300	36.600	32.100	86.400	147.000
12	356.000	215.000	104.000	129.000	69.800	54.100	39.200	39.200	40.900	30.700	94.300	122.000
13	355.000	197.000	103.000	126.000	66.600	55.500	31.800	39.500	38.900	31.800	84.000	101.000
14	327.000	172.000	97.500	121.000	73.400	49.400	33.600	34.700	36.900	29.800	85.700	91.300
15	307.000	146.000	98.300	113.000	82.900	47.500	32.700	28.900	49.600	29.100	92.500	88.600
16	311.000	145.000	97.400	117.000	76.000	46.200	33.400	31.000	63.700	28.600	72.900	84.200
17	288.000	142.000	96.800	108.000	99.700	36.000	33.000	29.900	54.200	29.100	67.900	81.200
18	252.000	143.000	95.200	101.000	102.000	36.000	32.100	28.600	49.900	28.700	69.100	103.000
19	230.000	141.000	99.000	90.900	76.000	35.500	31.300	29.000	47.500	29.700	101.000	136.000
20	204.000	129.000	98.800	95.200	66.100	40.400	31.400	28.500	52.300	33.100	98.500	126.000
21	184.000	127.000	96.700	91.300	93.700	35.200	28.900	27.800	42.700	35.500	79.200	102.000
22	173.000	127.000	95.900	85.300	134.000	42.200	29.500	27.400	38.400	51.800	65.300	86.600
23	165.000	174.000	103.000	102.000	115.000	46.900	29.900	26.300	38.800	63.500	70.800	80.200
24	173.000	199.000	99.700	97.700	97.800	49.100	29.300	25.800	29.800	40.100	64.500	76.200
25	191.000	192.000	94.000	88.600	94.100	58.200	31.600	27.200	34.600	55.700	56.300	76.100
26	190.000	178.000	92.200	83.200	119.000	46.400	30.100	30.700	38.900	53.500	55.300	93.500
27	181.000	186.000	87.700	72.200	148.000	46.000	30.100	29.400	36.300	39.100	58.400	129.000
28	173.000	188.000	87.300	79.300	116.000	47.600	30.000	27.600	36.400	36.000	59.500	183.000
29	159.000		80.700	75.500	79.400	47.100	32.800	24.400	36.500	46.000	55.600	238.000
30	142.000		87.300	72.600	74.000	36.300	31.900	25.200	32.300	86.300	52.900	262.000
31	143.000		102.000		73.900		30.500	27.900		161.000		214.000
Average	262.000	174.600	107.600	120.500	85.040	51.770	34.370	29.850	38.850	41.260	84.260	125.700
Lowest	142.000	127.000	80.700	72.200	64.400	35.200	28.900	24.400	27.600	28.500	52.900	52.900
Highest	400.000	255.000	167.000	204.000	148.000	74.500	42.400	39.500	63.700	161.000	174.000	301.000
Monthly total (million cu m)	701.80	422.30	288.30	312.20	227.80	134.20	92.06	79.95	100.70	110.50	218.40	336.60
Nat'ised runoff (mm)	71	42	29	31	23	13	9	8	10	11	22	34
Rainfall (mm)	99	64	51	54	80	25	--	49	77	83	59	95

Statistics of monthly data for previous record (Jan 1883 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean	Avg.	137.100	133.900	114.500	86.200	64.480	48.570	35.200	32.480	34.430	50.410	82.970	112.500
nat'ised	Low	32.210	25.100	27.320	26.510	18.200	13.470	10.760	11.040	11.230	15.120	17.750	22.480
flows:	(year)	1905	1905	1944	1976	1944	1944	1921	1976	1898	1934	1921	1921
	High	332.900	348.100	370.900	199.800	181.300	178.700	88.840	88.780	139.400	185.300	339.600	343.900
	(year)	1915	1904	1947	1951	1932	1903	1968	1931	1968	1903	1894	1929
Nat'ised	Avg.	37	33	31	22	17	13	9	9	9	14	22	30
runoff:	Low	9	6	7	7	5	4	3	3	3	4	5	6
	High	90	88	100	52	49	47	24	24	36	50	88	93
Rainfall:	Avg.	65	49	52	49	54	53	58	63	58	73	72	72
(1883-	Low	14	3	3	3	7	3	8	3	3	5	8	13
1993)	High	137	127	142	104	137	137	130	147	157	188	188	185

Summary statistics
(naturalised flows)

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	95.920		77.460		124
Lowest yearly mean			30.940	1934	
Highest yearly mean			131.800	1951	
Lowest monthly mean	29.850	Aug	10.760	Jul 1921	
Highest monthly mean	262.000	Jan	370.900	Mar 1947	
Lowest daily mean	24.400	29 Aug	7.370	9 Jul 1934	
Highest daily mean	400.000	10 Jan	1065.000	18 Nov 1894	
10% exceedance	193.600		171.100		113
50% exceedance	74.030		53.140		139
95% exceedance	28.790		18.540		155
Annual total (million cu m)	3025.00		2444.00		124
Annual runoff (mm)	304		246		124
Annual rainfall (mm)	757		718		105
1961-90 rainfall average (mm)			706		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description
Ultrasonic station commissioned in 1974; multi-path operation from 1986. Full range. No peak flows pre-1974 when dmfs derived from Teddington weir complex (70m wide); significant structural improvements since 1883. Some underestimation of pre-1951 low flows. Baseflow sustained mainly from the Chalk and the Oolites. Runoff decreased by major PWS abstractions - naturalised flows available. Diverse topography, geology and land use which - together with the pattern of water utilisation - has undergone important historical changes.

039020 Coln at Bibury 1994

Measuring authority: NRA-T
First year: 1963

Grid reference: 42 (SP) 122 062
Level stn. (m OD): 100.60

Catchment area (sq km): 106.7
Max alt. (m OD): 330

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.110	3.120	2.950	2.020	1.700	1.300	0.887	0.699	0.583	0.544	0.593	0.987
2	3.310	3.040	3.000	1.930	1.670	1.300	0.894	0.691	0.573	0.558	0.581	0.973
3	3.560	3.110	3.010	1.970	1.640	1.320	0.884	0.694	0.579	0.572	0.598	0.988
4	3.780	3.040	3.000	2.030	1.630	1.300	0.882	0.692	0.565	0.557	0.623	1.000
5	4.360	3.010	2.990	2.020	1.610	1.310	0.864	0.680	0.560	0.562	0.650	1.090
6	4.610	3.040	2.930	2.020	1.570	1.260	0.885	0.661	0.566	0.550	0.655	1.110
7	4.720	3.020	2.870	2.050	1.560	1.230	0.834	0.647	0.571	0.532	0.651	1.220
8	4.770	3.020	2.820	2.180	1.520	1.200	0.853	0.652	0.575	0.536	0.670	1.360
9	4.750	2.990	2.790	2.260	1.490	1.180	0.841	0.639	0.573	0.540	0.728	1.410
10	4.590	3.020	2.700	2.280	1.450	1.150	0.850	0.659	0.565	0.537	0.748	1.540
11	4.510	3.100	2.650	2.310	1.410	1.130	0.826	0.678	0.567	0.534	0.740	1.650
12	4.660	3.010	2.600	2.410	1.400	1.090	0.813	0.664	0.571	0.526	0.779	1.730
13	4.660	3.000	2.510	2.340	1.360	1.100	0.838	0.647	0.554	0.546	0.808	1.790
14	4.780	3.030	2.460	2.360	1.380	1.110	0.808	0.644	0.569	0.534	0.850	1.800
15	4.870	3.050	2.420	2.360	1.370	1.080	0.815	0.642	0.592	0.525	0.860	1.800
16	4.770	3.040	2.360	2.360	1.340	1.070	0.826	0.643	0.595	0.520	0.879	1.770
17	4.640	3.020	2.310	2.320	1.330	1.060	0.808	0.640	0.579	0.521	0.901	1.790
18	4.520	2.980	2.250	2.280	1.290	1.090	0.787	0.631	0.575	0.515	0.940	1.850
19	4.360	2.940	2.220	2.250	1.260	1.070	0.780	0.637	0.591	0.503	0.950	1.790
20	4.200	2.880	2.170	2.200	1.260	1.050	0.753	0.618	0.597	0.517	0.970	1.770
21	4.060	2.830	2.130	2.160	1.300	1.060	0.744	0.620	0.595	0.514	0.968	1.760
22	3.940	2.820	2.120	2.120	1.310	1.040	0.747	0.618	0.582	0.526	0.974	1.750
23	3.850	2.850	2.060	2.100	1.290	1.020	0.744	0.609	0.579	0.514	0.975	1.750
24	3.750	2.770	2.010	2.040	1.250	0.981	0.735	0.613	0.576	0.506	0.973	1.740
25	3.630	2.780	1.990	1.990	1.330	1.010	0.735	0.612	0.571	0.509	0.982	1.750
26	3.480	2.820	1.910	1.900	1.490	0.991	0.728	0.594	0.570	0.509	0.998	1.770
27	3.450	2.820	1.930	1.860	1.380	0.952	0.731	0.583	0.562	0.507	1.000	1.820
28	3.320	2.870	1.920	1.820	1.330	0.922	0.726	0.583	0.560	0.498	1.010	1.870
29	3.250		1.850	1.770	1.330	0.905	0.718	0.579	0.557	0.529	0.999	1.990
30	3.170		1.860	1.740	1.310	0.907	0.719	0.556	0.536	0.606	0.996	2.080
31	3.120		1.970		1.290		0.715	0.575		0.610		2.190
Average	4.082	2.965	2.412	2.115	1.415	1.106	0.799	0.636	0.573	0.534	0.835	1.609
Lowest	3.110	2.770	1.850	1.740	1.250	0.905	0.715	0.556	0.536	0.498	0.581	0.973
Highest	4.870	3.120	3.010	2.410	1.700	1.320	0.894	0.699	0.597	0.610	1.010	2.190
Peak flow	4.93	3.30	3.05	2.48	1.78	1.37	1.04	0.76	0.65	0.94	1.03	2.25
Day of peak	15	11	3	12	1	3	8	4	16	30	27	31
Monthly total (million cu m)	10.93	7.17	6.46	5.48	3.79	2.87	2.14	1.70	1.48	1.43	2.16	4.31
Runoff (mm)	102	67	61	51	36	27	20	16	14	13	20	40
Rainfall (mm)	120	79	65	57	94	23	18	54	107	78	69	122

Statistics of monthly data for previous record (Oct 1963 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	2.058	2.322	2.101	1.741	1.290	1.082	0.828	0.663	0.585	0.657	1.010	1.602
	Low	0.374	0.380	0.383	0.371	0.334	0.290	0.243	0.207	0.202	0.259	0.332	0.375
	(year)	1976	1976	1976	1976	1976	1976	1976	1976	1976	1976	1990	1975
	High	3.494	4.414	3.385	3.415	2.599	2.290	1.397	1.085	0.908	1.299	2.714	3.492
	(year)	1993	1990	1977	1979	1983	1979	1985	1985	1968	1968	1967	1992
Runoff:	Avg.	52	53	53	42	32	26	21	17	14	16	25	40
	Low	9	9	10	9	8	7	6	5	5	7	8	9
	High	88	100	85	83	65	56	35	27	22	33	66	88
Rainfall:	Avg.	78	58	66	54	66	62	60	66	68	68	76	86
	Low	13	8	15	5	5	9	15	13	17	8	30	20
	High	142	159	143	109	161	158	120	149	149	171	163	159

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	1.583		1.323		120
Lowest yearly mean			0.400	1976	
Highest yearly mean			1.771	1966	
Lowest monthly mean	0.534	Oct	0.202	Sep 1976	
Highest monthly mean	4.082	Jan	4.414	Feb 1990	
Lowest daily mean	0.498	28 Oct	0.190	19 Aug 1976	
Highest daily mean	4.870	15 Jan	5.310	11 Feb 1990	
Peak	4.930	15 Jan	5.480	11 Feb 1990	
10% exceedance	3.069		2.584		119
50% exceedance	1.215		1.066		114
95% exceedance	0.533		0.395		135
Annual total (million cu m)	49.92		41.75		120
Annual runoff (mm)	468		391		120
Annual rainfall (mm)	886		808		110
1961-90 rainfall average (mm)			820		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Augmentation from effluent returns.

Station and catchment description

Crump weir (9.1m broad). Modular throughout the range. Some overspill onto floodplain before design capacity reached. Limited impact of artificial influences on river flows - net import (sewage effluent). Baseflow dominated flow regime. Pervious (Oolitic Limestone) catchment on the dip-slope of the Cotswolds; predominantly rural.

040003 Medway at Teston 1994

Measuring authority: NRA-S
First year: 1956

Grid reference: 51 (TQ) 708 530
Level stn. (m OD): 7.00

Catchment area (sq km): 1256.1
Max alt. (m OD): 267

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	96.710	12.070	10.060	35.470	5.670	5.745	3.498	3.064	18.890	3.178	62.430	2.400
2	82.850	12.400	11.100	19.440	5.489	5.629	3.834	2.454	5.777	3.159	20.860	4.525
3	87.590	44.030	9.484	16.320	5.355	5.584	3.498	2.270	3.020	3.670	14.450	7.140
4	133.200	62.300	8.464	35.470	6.105	9.344	3.562	1.974	3.008	3.491	13.100	16.020
5	140.900	57.930	8.023	22.710	6.233	10.640	3.577	2.120	3.365	2.583	25.360	17.220
6	137.200	19.470	7.623	14.510	6.116	6.723	3.371	2.114	2.358	2.726	21.690	18.030
7	127.300	24.250	7.546	15.060	8.922	5.290	3.196	2.183	3.762	2.505	12.650	56.340
8	65.260	18.460	8.409	41.850	11.490	7.691	4.027	2.207	4.225	2.710	9.919	118.300
9	70.230	15.890	7.406	64.590	6.475	7.369	3.716	2.035	4.195	2.746	5.475	143.300
10	115.700	13.630	6.868	67.740	5.326	5.394	3.429	2.153	4.662	2.906	10.850	76.410
11	81.130	12.910	5.469	45.030	5.125	4.718	2.975	7.028	5.956	2.706	10.940	51.020
12	85.570	12.350	6.327	25.030	5.754	4.488	2.865	4.784	14.390	2.403	9.656	21.760
13	77.970	10.910	8.170	24.660	5.240	4.149	4.297	2.354	7.192	2.567	14.660	16.530
14	40.720	10.140	6.837	21.150	9.537	4.156	3.421	2.652	13.620	2.628	17.210	14.230
15	24.930	10.460	6.647	45.030	10.410	4.824	2.867	2.085	16.720	2.611	15.590	11.840
16	25.260	14.120	5.969	36.620	10.670	4.091	2.815	2.460	21.080	2.630	7.761	10.830
17	23.640	13.850	5.856	23.450	25.850	3.166	2.599	2.152	7.638	2.551	4.448	9.935
18	19.900	11.920	4.736	17.780	25.250	3.725	2.756	2.293	5.262	2.469	6.975	20.370
19	21.050	10.100	7.860	14.550	20.310	3.625	2.425	2.295	5.186	2.947	12.620	19.870
20	18.180	9.684	8.475	12.620	13.020	3.569	2.843	2.110	10.740	5.796	8.183	13.010
21	16.220	8.797	6.648	9.685	21.650	3.744	1.974	2.140	7.692	4.901	5.616	10.900
22	15.070	10.250	6.957	9.557	24.590	3.676	2.285	2.200	5.062	23.390	4.691	10.710
23	15.650	24.090	10.230	9.114	16.570	3.322	2.430	2.099	4.379	32.230	4.228	9.733
24	16.560	23.300	8.688	8.333	11.310	10.400	2.359	2.180	3.773	14.310	3.915	9.279
25	18.370	16.780	7.644	7.914	10.090	13.880	2.396	5.310	3.750	65.300	3.707	12.560
26	20.680	14.240	6.783	7.234	16.610	5.697	2.218	3.616	3.695	36.170	3.128	25.040
27	17.450	12.210	6.097	6.803	14.950	4.195	2.417	2.716	3.405	12.650	2.967	49.660
28	16.470	10.960	4.342	6.714	10.100	3.845	3.340	2.422	3.088	7.938	2.775	56.070
29	13.640		7.943	6.581	8.205	3.639	2.764	2.285	3.066	19.130	2.692	85.210
30	13.390		5.008	5.988	6.395	3.388	3.138	2.360	3.122	65.780	2.566	50.030
31	11.950		18.400		6.128		3.078	6.606		109.400		25.530
Average	53.250	18.480	7.744	22.570	11.130	5.524	3.031	2.797	6.736	14.520	11.370	32.060
Lowest	11.950	8.797	4.342	5.988	5.125	3.166	1.974	1.974	2.358	2.403	2.566	2.400
Highest	140.900	62.300	18.400	67.740	25.850	13.880	4.297	7.028	21.080	109.400	62.430	143.300
Peak flow												
Day of peak												
Monthly total (million cu m)	142.60	44.71	20.74	58.49	29.80	14.32	8.12	7.49	17.46	38.90	29.47	85.86
Runoff (mm)	114	36	17	47	24	11	6	6	14	31	23	68
Rainfall (mm)	119	47	52	81	91	51	35	84	89	114	45	117

Statistics of monthly data for previous record (Oct 1956 to Dec 1993—incomplete or missing months total 1.7 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	22.070	18.990	13.870	10.640	6.663	4.651	3.029	3.204	4.534	8.772	14.870	19.230
	Low	3.287	4.781	3.320	2.328	1.751	1.141	1.118	0.578	1.068	1.401	2.339	3.670
	(year)	1992	1992	1993	1976	1976	1976	1976	1976	1959	1972	1978	1988
	High	48.240	59.480	31.600	23.550	20.820	21.690	7.553	9.969	30.090	53.220	66.830	39.210
	(year)	1988	1990	1975	1983	1978	1984	1980	1985	1968	1987	1960	1993
Runoff:	Avg.	47	37	30	22	14	10	6	7	9	19	31	41
	Low	7	10	7	5	4	2	2	1	2	3	5	8
	High	103	115	67	49	44	45	16	21	62	113	138	84
Rainfall:	Avg.	74	49	56	52	51	54	53	56	68	78	80	80
	Low	13	3	3	7	3	8	9	10	5	5	14	15
	High	187	130	113	108	112	127	103	122	183	198	169	168

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	15.790		10.840		146
Lowest yearly mean			6.079	1989	
Highest yearly mean			19.330	1960	
Lowest monthly mean	2.797	Aug	0.578	Aug 1976	
Highest monthly mean	53.250	Jan	66.830	Nov 1960	
Lowest daily mean	1.974	21 Jul	0.383	22 Aug 1976	
Highest daily mean	143.300	9 Dec	269.300	4 Nov 1960	
Peak			294.500	4 Nov 1960	
10% exceedance	36.030		24.360		148
50% exceedance	7.646		4.783		160
95% exceedance	2.300		1.455		158
Annual total (million cu m)	498.00		342.10		146
Annual runoff (mm)	396		272		146
Annual rainfall (mm)	925		751		123
1961-90 rainfall average (mm)			744		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.

Station and catchment description
Crump profile weir plus sharp-crested weir superseded insensitive broad-crested weir. Flows greater than 27 cumecs measured at well calibrated river section 2km d/s (East Farleigh), updating of primary record incomplete. Responsive regime. Complex water utilisation. Significant artificial disturbance; low flow augmentation from Bewl Water (via River Teise); >20 yrs of naturalised flows available. Mixed geology; impervious formations constitute up to 50% of the catchment. Diverse land use with significant areas of woodland and orchard.

040011 Great Stour at Horton 1994

Measuring authority: NRA-S
First year: 1964

Grid reference: 61 (TR) 116 554
Level stn. (m OD): 12.50

Catchment area (sq km): 345.0
Max alt. (m OD): 205

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	16.400	4.327	3.593	6.573	3.323	2.410	1.846	1.318	4.881	1.691	9.091	2.194
2	15.970	4.225	3.985	4.205	3.226	2.404	2.351	1.457	3.334	1.646	6.180	2.160
3	14.690	11.590	3.744	4.435	3.268	2.440	2.015	1.421	2.118	2.014	4.460	2.401
4	16.360	11.990	3.596	10.190	3.209	2.888	1.946	1.519	1.786	1.826	3.469	3.251
5	17.250	7.988	3.515	6.807	2.772	3.922	2.058	1.640	1.849	1.673	3.985	3.271
6	17.220	6.397	3.356	4.693	2.871	2.848	1.923	1.466	1.732	1.624	3.883	3.050
7	13.130	5.917	3.386	4.355	3.032	2.561	1.793	1.404	1.696	1.622	3.358	3.861
8	10.900	5.196	3.381	5.692	3.975	3.055	1.850	1.381	1.858	1.620	2.992	11.510
9	10.940	4.774	3.310	9.312	3.176	3.535	1.847	1.397	2.033	1.565	3.126	17.760
10	12.620	4.506	3.331	10.010	2.819	2.717	1.770	1.410	1.937	1.651	5.554	10.640
11	10.730	4.335	3.257	9.982	2.771	2.484	1.716	1.925	2.044	1.553	5.498	8.192
12	11.970	4.212	3.250	6.509	2.749	2.310	1.715	2.302	3.625	1.563	4.592	6.609
13	12.810	4.067	3.238	6.077	2.698	2.274	2.002	1.726	2.799	1.586	6.271	5.270
14	9.642	3.967	3.153	5.424	2.827	2.250	1.961	1.491	2.138	1.571	5.596	4.113
15	8.250	3.934	3.288	7.889	3.141	2.130	1.789	1.506	2.339	1.521	5.230	3.601
16	7.628	3.857	3.249	8.903	3.084	2.127	1.733	1.571	3.521	1.506	3.876	3.317
17	6.259	3.756	3.148	6.712	8.255	2.043	1.605	1.792	2.786	1.520	3.398	3.133
18	5.557	3.643	3.216	5.229	9.144	1.971	1.675	1.703	2.165	1.517	3.473	4.802
19	6.137	3.481	3.287	4.684	5.237	1.927	1.702	1.691	2.364	1.506	4.339	4.610
20	5.578	3.441	3.049	4.350	3.998	2.018	1.691	1.581	4.551	2.167	3.797	3.698
21	5.171	3.320	3.029	4.032	4.711	1.979	1.560	1.420	3.682	1.831	3.301	3.330
22	4.953	3.515	3.468	3.832	5.307	1.911	1.531	1.459	2.657	5.145	3.027	4.410
23	5.122	4.423	3.796	3.891	4.023	1.887	1.496	1.450	2.286	8.426	2.799	4.549
24	5.048	4.812	3.459	3.995	3.660	1.943	1.465	1.453	2.120	6.878	2.647	3.773
25	5.084	4.063	3.278	3.767	3.542	3.039	1.474	1.763	1.872	7.560	2.505	3.670
26	5.392	4.008	3.008	3.691	3.782	2.577	1.508	1.928	1.916	7.600	2.442	5.797
27	4.991	3.849	2.767	3.874	3.949	2.070	1.454	1.693	1.837	5.235	2.398	7.566
28	4.786	3.692	2.850	3.720	3.377	2.060	1.843	1.492	1.836	3.418	2.343	8.832
29	4.433		2.734	3.597	3.025	1.942	1.769	1.445	1.731	4.125	2.285	13.690
30	4.478		2.692	3.439	2.780	1.860	1.556	1.495	1.719	7.588	2.239	10.410
31	4.286		3.860		2.745		1.372	2.252		11.670		7.142
Average	9.154	4.903	3.299	5.662	3.757	2.386	1.742	1.598	2.440	3.304	3.938	5.826
Lowest	4.286	3.320	2.692	3.439	2.698	1.860	1.372	1.318	1.696	1.506	2.239	2.160
Highest	17.250	11.990	3.985	10.190	9.144	3.922	2.351	2.302	4.881	11.670	9.091	17.760
Peak flow	22.11	16.67	6.34	11.96	11.31	5.15	4.43	5.81	5.64	14.02	11.42	20.57
Day of peak	1	3	31	10	17	2	6	31	1	31	1	9
Monthly total (million cu m)	24.52	11.86	8.84	14.68	10.06	6.18	4.67	4.28	6.33	8.85	10.21	15.60
Runoff (mm)	71	34	26	43	29	18	14	12	18	26	30	45
Rainfall (mm)	91	41	48	89	85	48	37	96	79	115	39	106

Statistics of monthly data for previous record (Oct 1964 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	5.091	4.610	4.167	3.392	2.669	2.002	1.792	1.682	1.778	2.634	3.591	4.436
	Low	1.777	2.026	1.812	1.655	1.314	0.976	0.965	0.877	0.842	1.057	1.329	1.687
	(year)	1989	1989	1973	1976	1990	1992	1976	1976	1990	1989	1978	1971
	High	10.940	8.189	9.086	7.143	5.810	3.221	3.231	3.092	3.626	8.687	8.195	9.088
	(year)	1988	1988	1975	1975	1983	1971	1980	1987	1968	1987	1974	1966
Runoff:	Avg.	40	33	32	25	21	15	14	13	13	20	27	34
	Low	14	14	14	12	10	7	7	7	6	8	10	13
	High	85	59	71	54	45	24	25	24	27	67	62	71
Rainfall:	Avg.	73	48	57	52	49	52	59	55	67	81	84	75
	Low	22	16	4	11	2	10	14	12	13	6	18	15
	High	192	104	141	117	105	120	132	106	169	224	175	146

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	3.998		3.148		127
Lowest yearly mean			1.808	1973	
Highest yearly mean			4.717	1966	
Lowest monthly mean	1.598	Aug	0.842	Sep 1990	
Highest monthly mean	9.154	Jan	10.940	Jan 1988	
Lowest daily mean	1.318	1 Aug	0.658	19 Sep 1990	
Highest daily mean	17.760	9 Dec	28.850	5 Nov 1967	
Peak	22.110	1 Jan	38.290	9 Apr 1979	
10% exceedance	7.706		5.922		130
50% exceedance	3.270		2.286		143
95% exceedance	1.490		1.076		138
Annual total (million cu m)	126.10		99.35		127
Annual runoff (mm)	365		288		127
Annual rainfall (mm)	874		752		116
1961-90 rainfall average (mm)			747		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Augmentation from effluent returns.

Station and catchment description

Broad-crested weir (width: 10.7m, insensitive) in trapezoidal section plus a VA section for flows >20 cumecs. EM installed 1992. All flows contained. Minor impact of artificial influences on runoff (import of 0.03 cumecs in 1988), modest PWS and irrigation abstractions in lower valley. Flood storage reservoirs above Ashford (constructed 1990-2). U/s mill regulation evident on the hydrographs. The E.& W. branches of the Stour flow over Weald Clay; below the confluence (at Ashford) Chalk dominates. A rural catchment with mixed land use.

042010 Itchen at Highbridge+Allbrook 1994

Measuring authority: NRA-S
First year: 1958
Grid reference: 41 (SU) 467 213
Level stn. (m OD): 17.10
Catchment area (sq km): 360.0
Max alt. (m OD): 208

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.604	10.130	9.264	8.792	7.164	6.002	4.853	4.072	4.248	3.648	5.653	5.300
2	8.947	10.150	9.644	8.201	7.150	6.173	4.831	4.171	3.959	3.607	4.975	5.269
3	8.979	11.180	9.140	8.556	7.100	6.215	4.660	4.161	3.909	3.629	4.890	5.571
4	9.270	10.830	9.060	8.624	7.202	6.597	4.687	4.132	3.851	3.663	5.259	5.798
5	9.877	10.430	8.954	8.296	7.245	6.547	4.688	4.034	3.753	3.682	5.776	5.684
6	10.050	10.600	8.874	8.054	7.314	6.361	4.742	3.929	3.681	3.547	5.216	5.677
7	9.850	10.630	8.832	8.062	7.206	5.336	4.689	3.897	3.707	3.563	4.999	5.897
8	9.882	10.240	8.749	8.736	7.047	5.494	4.700	3.863	3.740	3.561	5.296	8.225
9	10.510	10.010	8.767	9.270	6.889	5.491	4.579	3.816	3.794	3.493	6.736	7.373
10	10.950	10.010	8.742	8.786	6.804	5.520	4.461	3.869	3.903	3.517	5.982	6.630
11	10.870	10.600	8.557	8.303	6.639	5.222	4.328	3.976	3.894	3.571	5.563	6.159
12	11.090	10.120	8.505	8.155	6.990	5.171	4.228	3.954	3.968	3.588	5.550	6.072
13	11.060	9.915	8.469	8.072	6.713	5.332	4.296	3.816	4.328	3.627	5.460	6.098
14	10.930	9.815	8.334	8.048	7.002	5.216	4.285	3.754	4.871	3.492	5.591	6.013
15	11.020	9.839	8.346	8.050	6.791	5.305	4.263	3.715	4.739	3.464	5.463	6.124
16	11.000	9.788	8.336	8.084	6.816	5.285	4.284	3.737	4.661	3.433	5.306	6.117
17	10.860	9.780	8.283	7.940	7.511	5.197	4.195	3.784	4.207	3.426	5.330	6.168
18	10.710	9.583	8.432	7.820	6.917	5.153	4.182	3.818	4.058	3.420	5.911	6.642
19	10.590	9.502	8.392	7.718	6.651	5.130	4.201	3.919	4.145	3.814	5.713	6.456
20	10.960	9.601	8.262	7.711	6.530	5.221	4.107	3.904	4.088	3.749	5.517	6.231
21	10.860	9.494	8.263	7.815	7.128	5.269	4.100	3.870	3.958	3.892	5.391	6.222
22	10.790	9.786	8.357	7.718	7.103	5.202	4.006	3.707	3.889	4.295	5.370	6.148
23	10.810	9.939	8.294	7.929	6.918	5.072	3.885	3.700	3.820	4.100	5.398	6.086
24	10.850	9.670	8.211	7.816	6.771	5.037	3.860	3.782	3.818	3.872	5.288	6.129
25	10.730	9.492	7.987	7.666	6.954	5.194	3.842	3.959	3.891	4.259	5.268	6.208
26	10.700	9.528	7.850	7.553	7.258	5.151	3.943	3.854	3.770	4.011	5.292	6.452
27	10.750	9.380	7.767	7.511	7.104	5.082	4.057	3.783	3.710	3.888	5.286	7.358
28	10.520	9.364	7.825	7.361	6.776	4.908	4.045	3.743	3.682	3.905	5.258	7.468
29	10.320		7.753	7.243	6.628	4.680	4.062	3.685	3.645	4.295	5.273	7.932
30	10.160		7.759	7.176	6.458	4.598	3.958	3.688	3.598	5.755	5.249	7.219
31	10.010		8.487		6.169		4.039	4.097		7.025		6.899
Average	10.400	9.979	8.468	8.036	6.934	5.405	4.292	3.877	3.976	3.896	5.442	6.375
Lowest	8.604	9.364	7.753	7.176	6.169	4.598	3.842	3.685	3.598	3.420	4.890	5.269
Highest	11.090	11.180	9.644	9.270	7.511	6.597	4.853	4.171	4.871	7.025	6.736	8.225
Peak flow												
Day of peak												
Monthly total (million cu m)	27.86	24.14	22.68	20.83	18.57	14.01	11.50	10.38	10.31	10.44	14.11	17.07
Runoff (mm)	77	67	63	58	52	39	32	29	29	29	39	47
Rainfall (mm)	127	78	67	78	88	26	18	49	84	124	84	123

Statistics of monthly data for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	6.393	7.089	6.838	6.395	5.594	4.742	4.042	3.730	3.606	4.071	4.709	5.603
	Low	3.527	3.571	3.517	3.203	3.093	2.581	2.474	2.331	2.670	2.702	2.840	3.136
	(year)	1989	1992	1992	1976	1976	1976	1976	1976	1973	1959	1973	1973
	High	10.520	11.060	9.923	8.521	7.311	6.549	5.219	5.244	5.127	7.867	9.858	10.860
	(year)	1969	1990	1977	1969	1966	1979	1979	1979	1968	1960	1960	1960
Runoff:	Avg.	48	48	51	46	42	34	30	28	26	30	34	42
	Low	26	25	26	23	23	19	18	17	19	20	20	23
	High	78	74	74	61	54	47	39	39	37	59	71	81
Rainfall:	Avg.	90	57	71	56	56	58	56	62	74	86	88	95
(1959-		12	5	3	2	8	10	14	13	5	6	27	19
1993)		159	173	172	113	145	128	109	120	201	234	218	229

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	6.402		5.224		123
Lowest yearly mean			3.614	1992	
Highest yearly mean			6.594	1960	
Lowest monthly mean	3.877	Aug	2.331	Aug 1976	
Highest monthly mean	10.400	Jan	11.060	Feb 1990	
Lowest daily mean	3.420	18 Oct	2.167	24 Aug 1976	
Highest daily mean	11.180	3 Feb	12.800	29 Jan 1969	
Peak					
10% exceedance	9.931		7.679		129
50% exceedance	6.009		4.802		125
95% exceedance	3.653		2.921		125
Annual total (million cu m)	201.90		164.90		122
Annual runoff (mm)	561		458		122
Annual rainfall (mm)	946		849		111
1961-90 rainfall average (mm)			833		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.

Station and catchment description

Crump weir 7.75m broad (which can drown), superseded, in 1971, a rated section with weedgrowth problems. Plus thin-plate weir (Allbrook). All flows contained (rare bypassing resulted from wrong sluice settings). Flows for Allbrook for Nov/Dec 1993 were estimated due to construction of a fish path. Flow augmentation from GW during droughts. GW catchment exceeds topographical catchment. Artificial influences have minor, but increasing, impact on baseflow dominated regime; small net export of water. Very permeable catchment (90% Chalk). Land use is mainly arable with scattered settlements.

043005 Avon at Amesbury 1994

Measuring authority: NRA-SW
First year: 1965

Grid reference: 41 (SU) 151 413
Level stn. (m OD): 67.10

Catchment area (sq km): 323.7
Max alt. (m OD): 294

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.589	8.603	7.677	7.398	4.738	3.686	2.352	1.655	1.571	1.541	3.586	3.178
2	8.956	8.434	7.528	6.159	4.633	3.642	2.353	1.657	1.517	1.551	2.934	3.182
3	9.246	10.230	7.271	6.102	4.617	3.667	2.346	1.690	1.473	1.562	2.694	3.409
4	10.080	11.340	7.122	6.669	4.655	3.961	2.292	1.685	1.453	1.540	2.908	3.499
5	12.920	9.322	7.155	6.123	4.633	4.026	2.259	1.642	1.424	1.534	3.352	3.716
6	17.130	9.296	6.915	5.885	4.601	3.812	2.279	1.622	1.419	1.529	3.239	4.799
7	14.410	10.460	6.855	5.627	4.594	3.673	2.266	1.598	1.508	1.518	2.931	5.449
8	13.150	8.685	6.749	5.953	4.532	3.580	2.260	1.565	1.476	1.510	2.801	6.826
9	13.630	8.259	6.654	7.701	4.291	3.482	2.210	1.541	1.480	1.511	3.274	6.961
10	14.830	8.129	6.487	7.805	4.236	3.411	2.132	1.575	1.509	1.480	3.654	5.706
11	13.460	10.860	6.422	6.430	4.195	3.369	2.074	1.787	1.515	1.470	3.264	5.349
12	13.750	10.470	6.385	6.112	4.318	3.300	2.045	1.786	1.524	1.465	3.218	5.084
13	15.010	8.866	6.300	5.885	4.214	3.212	2.003	1.698	1.717	1.459	3.227	5.018
14	13.640	8.568	6.116	5.722	4.266	3.132	1.956	1.629	2.242	1.453	3.168	4.940
15	13.110	8.472	6.348	5.613	4.290	3.073	1.967	1.567	2.327	1.457	3.075	4.839
16	13.580	8.376	6.364	5.556	4.272	3.021	1.964	1.548	2.390	1.445	3.015	4.822
17	12.170	8.329	6.115	5.463	4.475	2.936	1.937	1.537	2.106	1.430	3.029	4.879
18	11.550	8.361	6.193	5.345	4.271	2.920	1.915	1.531	1.854	1.477	3.445	5.313
19	11.230	8.245	6.830	5.405	4.115	2.896	1.880	1.537	1.900	1.622	3.926	5.293
20	10.680	8.338	6.331	5.411	4.057	2.920	1.865	1.527	1.923	1.583	3.693	5.029
21	10.390	8.011	6.260	5.376	4.299	2.921	1.829	1.509	1.858	1.620	3.432	4.914
22	10.020	8.156	6.165	5.354	4.453	2.912	1.811	1.475	1.772	2.138	3.375	4.791
23	10.250	8.982	6.098	5.467	4.356	2.869	1.791	1.457	1.698	2.150	3.304	4.694
24	10.630	8.370	5.952	5.322	4.413	2.776	1.760	1.438	1.679	1.966	3.285	4.663
25	10.480	8.133	5.880	5.245	4.435	2.760	1.761	1.587	1.713	2.032	3.236	4.761
26	10.640	8.475	5.716	5.050	4.565	2.718	1.673	1.507	1.641	1.907	3.233	4.984
27	10.120	8.202	5.674	5.010	4.517	2.729	1.656	1.433	1.605	1.811	3.257	5.448
28	10.480	7.831	5.746	4.964	4.311	2.612	1.663	1.400	1.525	1.768	3.199	6.026
29	9.315		5.557	4.920	4.100	2.490	1.683	1.379	1.551	2.031	3.148	6.505
30	8.841		5.582	4.873	3.906	2.535	1.634	1.449	1.560	2.675	3.168	6.863
31	8.460		6.088		3.768		1.627	1.496		3.856		7.826
Average	11.640	8.850	6.404	5.798	4.359	3.168	1.976	1.565	1.698	1.745	3.236	5.121
Lowest	8.460	7.831	5.557	4.873	3.768	2.490	1.627	1.379	1.419	1.430	2.694	3.178
Highest	17.130	11.340	7.677	7.805	4.738	4.026	2.353	1.787	2.390	3.856	3.926	7.826
Peak flow	18.18	12.01	7.80	8.44	4.84	4.14	2.54	1.91	3.00	4.56	4.56	8.18
Day of peak	6	11	1	10	1	5	1	11	15	31	1	31
Monthly total (million cu m)	31.17	21.41	17.15	15.03	11.67	8.21	5.29	4.19	4.40	4.67	8.39	13.72
Runoff (mm)	96	66	53	46	36	25	16	13	14	14	26	42
Rainfall (mm)	107	78	60	54	65	23	18	66	103	103	65	114

Statistics of monthly data for previous record (Feb 1965 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	5.159	6.037	5.326	4.504	3.444	2.623	1.953	1.634	1.544	1.894	2.548	3.988
	Low	1.199	1.188	1.158	1.039	0.834	0.626	0.475	0.372	0.645	0.973	1.090	1.366
	(year)	1976	1976	1976	1976	1976	1976	1976	1976	1976	1989	1973	1990
	High	8.901	16.000	8.352	7.586	5.146	4.259	3.022	2.362	2.528	3.597	6.440	9.947
	(year)	1993	1990	1972	1979	1979	1979	1971	1979	1974	1993	1974	1992
Runoff:	Avg.	43	45	44	36	28	21	16	14	12	16	20	33
	Low	10	9	10	8	7	5	4	3	5	8	9	11
	High	74	120	69	61	43	34	25	20	20	30	52	82
Rainfall:	Avg.	79	53	65	48	56	58	52	61	66	70	73	86
	Low	14	5	14	1	8	3	15	16	11	4	31	17
	High	134	147	150	100	121	143	113	152	179	161	185	160

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	4.608		3.374		137
Lowest yearly mean			1.430	1976	
Highest yearly mean			4.476	1977	
Lowest monthly mean	1.565	Aug	0.372	Aug 1976	
Highest monthly mean	11.640	Jan	16.000	Feb 1990	
Lowest daily mean	1.379	29 Aug	0.175	22 Aug 1976	
Highest daily mean	17.130	6 Jan	26.000	4 Feb 1990	
Peak	18.180	6 Jan	28.540	4 Feb 1990	
10% exceedance	8.929		6.485		138
50% exceedance	3.737		2.736		137
95% exceedance	1.478		1.115		133
Annual total (million cu m)	145.30		106.50		136
Annual runoff (mm)	449		329		136
Annual rainfall (mm)	856		767		112
1961-90 rainfall average (mm)			745		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.

Station and catchment description

Crump profile weir (crest 9.14m broad) flanked by broad-crested weirs. Small bypass channel approx. 2m u/s of weir - included in rating. Full range station. Bankfull is 1.37m. During summer flows are naturally augmented from groundwater draining from northern half of River Bourne catchment. Some groundwater pumping also takes place within the catchment. Predominantly permeable (Chalk) catchment with a small inlier of Upper Greensand and Gault. Land use - rural. Topographical and groundwater catchments do not coincide.

045001 Exe at Thorverton 1994

Measuring authority: NRA-SW
First year: 1956.

Grid reference: 21 (SS) 936 016
Level stn. (m OD): 25.90

Catchment area (sq km): 600.9
Max alt. (m OD): 519

Daily mean gauged discharges (cubic metres per second)

DAY.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	70.810	33.450	30.530	65.400	5.624	8.450	2.929	2.463	2.520	7.412	62.080	8.967
2	66.200	31.560	26.970	51.910	5.423	7.903	2.862	2.712	2.252	7.464	43.260	8.403
3	64.370	55.220	22.470	90.860	5.236	7.770	2.814	2.723	2.293	7.470	47.810	13.170
4	67.080	40.410	19.730	85.800	5.514	8.177	2.866	2.576	2.304	6.151	37.970	13.260
5	111.200	36.120	18.140	62.350	5.824	7.046	2.941	2.363	2.264	5.614	31.920	20.590
6	66.510	34.860	15.760	48.220	7.331	6.968	3.683	2.215	2.297	5.383	27.180	35.170
7	48.860	29.420	21.290	42.280	6.193	6.432	4.950	2.159	3.005	5.043	24.430	45.150
8	46.800	27.470	20.920	76.950	5.677	5.915	4.018	2.076	5.944	4.878	55.320	74.490
9	57.670	24.000	25.980	70.210	5.480	5.327	3.240	2.083	5.471	4.590	96.500	49.360
10	48.600	28.010	20.650	51.360	5.160	5.005	2.938	2.225	11.480	4.432	70.860	41.830
11	43.640	36.310	18.710	40.700	5.145	4.756	2.916	2.691	8.413	4.286	49.690	33.880
12	61.560	28.840	19.690	33.120	5.384	4.542	2.714	2.359	8.399	4.022	51.130	28.390
13	50.210	25.290	18.570	26.990	4.861	4.290	2.667	2.156	8.378	3.814	41.130	24.600
14	44.340	22.020	15.790	21.860	6.751	4.076	2.560	2.029	15.780	3.752	67.180	20.720
15	47.580	19.040	22.010	18.300	6.141	3.879	2.595	1.952	29.420	3.629	44.830	18.110
16	41.930	16.880	17.400	15.750	7.673	3.734	2.528	2.011	24.270	3.436	37.270	16.300
17	35.830	15.870	17.450	13.750	6.675	3.534	2.424	2.213	16.410	3.415	33.240	22.240
18	33.500	19.670	43.940	12.170	5.725	3.414	2.528	2.374	13.460	3.743	52.560	34.030
19	29.170	19.190	44.720	11.000	5.356	3.396	2.514	2.564	16.280	5.707	46.820	35.440
20	27.930	36.110	39.320	9.987	5.332	3.349	2.381	2.424	12.170	4.787	40.450	32.000
21	24.070	26.210	37.270	9.370	7.767	4.279	2.330	2.184	12.490	5.618	34.130	27.670
22	26.450	40.520	39.060	8.648	7.412	4.706	2.263	2.086	10.490	7.796	29.090	22.940
23	52.070	71.570	38.440	8.185	6.551	3.541	2.202	2.065	9.658	7.933	23.970	19.340
24	50.110	49.440	39.200	7.844	14.300	3.375	2.167	2.234	9.212	8.767	19.830	16.910
25	60.670	55.010	43.330	7.672	12.940	3.531	2.286	3.421	13.000	14.360	16.860	20.640
26	43.980	52.880	34.300	8.274	14.350	3.332	2.433	2.770	12.700	14.450	14.870	33.860
27	43.610	42.390	35.010	7.814	12.580	3.316	2.775	2.511	9.907	25.380	13.150	195.500
28	34.750	35.290	38.250	6.932	11.790	3.258	2.582	2.407	9.165	23.170	11.610	203.900
29	34.700		31.160	6.377	10.840	3.056	2.258	2.264	8.588	55.460	10.600	115.600
30	33.930		36.730	5.934	9.863	3.012	2.181	2.299	7.919	173.700	9.694	88.030
31	29.690		54.280		9.028		2.345	2.686		130.400		73.260
Average	48.320	34.040	29.260	30.870	7.546	4.779	2.738	2.364	9.865	18.260	38.180	44.960
Lowest	24.070	15.870	15.760	5.934	4.861	3.012	2.167	1.952	2.252	3.415	9.694	8.403
Highest	111.200	71.570	54.280	90.860	14.350	8.450	4.950	3.421	29.420	173.700	96.500	203.900
Peak flow	161.30	106.90	77.74	150.20	22.23	8.86	5.77	4.14	37.54	246.30	126.30	237.80
Day of peak	5	23	19	4	25	1	7	25	15	31	10	28
Monthly total (million cu m)	129.40	82.34	78.37	80.01	20.21	12.39	7.33	6.33	25.57	48.91	98.97	120.40
Runoff (mm)	215	137	130	133	34	21	12	11	43	81	165	200
Rainfall (mm)	208	150	161	117	94	34	49	77	150	164	149	261

Statistics of monthly data for previous record (May 1956 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	29.020	25.030	18.600	12.940	8.289	5.625	4.711	6.299	8.918	16.650	22.490	30.320
	Low	5.438	6.450	3.858	4.341	2.594	1.978	1.151	0.693	1.699	1.560	5.297	12.460
	(year)	1963	1965	1993	1974	1976	1975	1976	1976	1972	1978	1978	1963
	High	57.190	51.730	49.640	28.800	29.380	15.870	19.770	20.550	35.830	59.830	46.170	68.440
	(year)	1984	1990	1981	1966	1983	1958	1968	1985	1974	1960	1986	1965
Runoff:	Avg.	129	102	83	56	37	24	21	28	38	74	97	135
	Low	24	26	17	19	12	9	5	3	7	7	23	56
	High	255	208	221	124	131	68	88	92	155	267	199	305
Rainfall:	Avg.	144	102	102	75	74	74	82	96	109	128	131	155
	Low	30	7	18	7	10	9	19	28	13	13	48	51
	High	297	239	222	163	175	160	174	185	254	300	243	321

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	22.520		15.710		143
Lowest yearly mean			9.692	1964	
Highest yearly mean			22.600	1960	
Lowest monthly mean	2.364	Aug	0.693	Aug 1976	
Highest monthly mean	48.320	Jan	68.440	Dec 1965	
Lowest daily mean	1.952	15 Aug	0.440	27 Aug 1976	
Highest daily mean	203.900	28 Dec	282.200	4 Dec 1960	
Peak	246.300	31 Oct	492.600	4 Dec 1960	
10% exceedance	51.790		37.620		138
50% exceedance	12.450		9.282		134
95% exceedance	2.254		1.916		118
Annual total (million cu m)	710.20		495.80		143
Annual runoff (mm)	1182		825		143
Annual rainfall (mm)	1614		1272		127
1961-90 rainfall average (mm)			1248		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Velocity-area station with cableway. Flat V Crump profile weir constructed in 1973 due to unstable bed condition. Minor culvert flow through mill u/s of station included in rating. Wimbleball Reservoir has significant effect upon low flows. Station is control point for Wimbleball Reservoir operational releases. Headwaters drain Exmoor. Geology predominantly Devonian sandstones and Carboniferous Culm Measures, with subordinate Permian sandstones in the east. Moorland, forestry and a range of agriculture.

050001 Taw at Umberleigh 1994

Measuring authority: NRA-SW
First year: 1958

Grid reference: 21 (SS) 608 237
Level stn. (m OD): 14.10

Catchment area (sq km): 826.2
Max alt. (m OD): 604

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	81.570	41.450	29.760	76.180	5.151	5.784	1.880	1.280	2.091	6.356	71.010	9.054
2	81.180	31.220	25.990	57.350	4.915	5.501	1.846	1.425	1.904	6.358	48.500	8.349
3	74.280	97.850	21.590	132.800	4.880	5.595	1.860	1.601	1.587	6.179	59.880	15.730
4	79.650	55.360	19.000	131.400	5.144	6.587	2.014	1.507	1.556	5.215	43.680	17.740
5	134.400	44.320	17.650	76.660	5.686	5.825	2.045	1.327	1.548	4.668	33.750	25.430
6	86.070	41.070	15.140	52.900	6.604	6.731	2.498	1.204	1.440	4.372	26.810	42.210
7	61.960	33.770	29.980	44.910	5.995	5.432	3.233	1.132	1.807	4.203	24.160	69.280
8	56.610	30.090	28.640	91.350	5.726	4.865	3.140	1.090	5.457	4.028	39.540	113.000
9	69.730	26.660	32.530	82.380	5.068	4.296	2.325	1.056	5.979	3.830	87.230	63.510
10	56.060	30.880	26.920	56.560	4.807	4.015	1.926	1.284	8.183	3.620	72.020	49.100
11	49.510	57.080	24.000	41.820	4.747	3.806	1.845	1.931	6.083	3.450	50.520	37.510
12	78.390	37.290	22.810	33.300	6.275	3.630	1.803	1.373	6.672	3.275	64.180	29.920
13	57.720	30.720	21.050	25.830	4.860	3.484	1.707	1.214	5.983	3.086	46.660	25.820
14	50.820	25.220	17.060	20.980	9.399	3.339	1.591	1.121	18.200	3.029	70.190	21.710
15	61.630	21.570	21.910	17.520	8.168	3.152	1.616	1.093	20.910	2.993	50.040	18.590
16	45.410	18.740	18.050	14.950	11.840	3.050	1.612	1.122	25.270	2.770	43.240	16.920
17	35.520	16.750	17.950	13.070	12.770	2.933	1.515	1.384	15.810	2.641	41.440	21.450
18	33.460	31.130	55.320	11.540	8.550	2.820	1.458	1.381	13.910	2.595	119.600	53.210
19	30.480	23.230	78.820	10.520	6.574	2.759	1.488	2.411	23.920	3.573	89.390	49.620
20	31.780	44.900	56.450	9.574	6.154	2.728	1.395	1.962	18.660	3.780	64.450	45.310
21	26.780	28.780	53.200	8.914	10.480	3.181	1.366	1.440	17.830	5.233	47.230	34.800
22	31.950	46.600	52.710	8.068	9.239	3.317	1.343	1.288	14.420	6.867	36.430	27.350
23	84.510	98.480	46.360	7.640	6.906	2.625	1.286	1.348	12.380	6.983	28.370	22.390
24	93.250	61.950	45.580	7.283	10.690	2.506	1.256	1.513	10.980	7.132	22.560	18.920
25	89.860	66.270	45.760	7.034	11.060	2.631	1.228	2.991	12.400	18.190	18.690	24.060
26	59.340	61.240	34.810	7.771	14.820	2.367	1.256	1.838	15.360	16.250	16.140	39.950
27	53.650	45.950	37.340	7.513	9.862	2.196	2.049	1.657	10.280	27.820	14.040	219.000
28	40.380	36.810	39.290	6.459	8.283	2.171	1.648	1.485	8.789	26.780	12.140	271.800
29	38.960		30.480	5.860	7.367	2.057	1.381	1.407	7.790	59.690	10.950	141.000
30	38.240		41.070	5.475	6.644	1.948	1.271	1.423	7.043	209.800	9.909	109.900
31	31.620		61.860		6.115		1.238	1.724		156.500		85.850
Average	59.510	42.330	34.490	35.790	7.574	3.711	1.746	1.484	10.140	20.040	45.420	55.760
Lowest	26.780	16.750	15.140	5.475	4.747	1.948	1.228	1.056	1.440	2.595	9.909	8.349
Highest	134.400	98.480	78.820	132.800	14.820	6.731	3.233	2.991	25.270	209.800	119.600	271.800
Peak flow	188.90	152.90	135.60	242.60	21.02	7.47	3.70	4.27	37.54	323.30	138.90	308.90
Day of peak	5	23	19	4	25	5	7	25	16	30	18	28
Monthly total (million cu m)	159.40	102.40	92.37	92.76	20.28	9.62	4.68	3.98	26.29	53.68	117.70	149.30
Runoff (mm)	193	124	112	112	25	12	6	5	32	65	143	181
Rainfall (mm)	191	138	147	108	84	34	45	83	142	144	129	234

Statistics of monthly data for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	35.590	28.230	20.440	13.880	8.914	5.469	4.819	5.743	7.746	19.270	29.200	36.770
	Low	6.657	3.235	3.369	3.888	1.982	1.329	0.794	0.423	0.857	1.043	3.654	13.200
	(year)	1963	1959	1993	1974	1990	1984	1976	1976	1959	1978	1978	1963
	High	62.100	68.000	52.140	32.800	37.000	23.370	23.390	19.130	47.670	77.360	58.500	73.670
	(year)	1984	1990	1981	1966	1983	1993	1968	1985	1974	1960	1963	1965
Runoff:	Avg.	115	83	66	44	29	17	16	19	24	62	92	119
	Low	22	9	11	12	6	4	3	1	3	3	11	43
	High	201	199	169	103	120	73	76	62	150	251	184	239
Rainfall:	Avg.	131	88	90	71	68	70	75	87	93	119	128	139
	Low	28	3	18	8	12	10	23	24	14	14	53	41
	High	242	225	183	145	146	164	156	175	247	278	239	271

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	26.400		17.970		147
Lowest yearly mean			11.310	1964	
Highest yearly mean			27.590	1960	
Lowest monthly mean	1.484	Aug	0.423	Aug 1976	
Highest monthly mean	59.510	Jan	77.360	Oct 1960	
Lowest daily mean	1.056	9 Aug	0.202	28 Aug 1976	
Highest daily mean	271.800	28 Dec	363.800	4 Dec 1960	
Peak	323.300	30 Oct	644.900	4 Dec 1960	
10% exceedance	64.550		47.110		137
50% exceedance	12.560		9.062		139
95% exceedance	1.336		1.218		110
Annual total (million cu m)	832.60		567.10		147
Annual runoff (mm)	1008		686		147
Annual rainfall (mm)	1479		1159		128
1961-90 rainfall average (mm)			1155		

Factors affecting runoff

- Abstraction for public water supplies.

Station and catchment description

Velocity-area station, main channel 34m wide, cableway span 54.9m. Rock step downstream forms control. Bypassing begins at about 3.7m on right bank, but a good rating accommodates this. Significant modification to flows owing to PWS abstraction. Some naturalised flow data available. Large rural catchment - drains Dartmoor (granite) in south and Devonian shales and sandstones of Exmoor in north. Central area underlain mainly by Culm shales and sandstones (Carboniferous). Agriculture conditioned by grade 3 and 4 soils.

052005 Tone at Bishops Hull 1994

Measuring authority: NRA-SW
First year: 1961

Grid reference: 31 (ST) 206 250
Level stn. (m OD): 16.20

Catchment area (sq km): 202.0
Max alt. (m OD): 409

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14.040	6.258	6.448	10.910	2.113	2.166	0.965	0.822	0.853	0.957	5.662	2.046
2	14.010	5.462	5.858	7.818	2.031	2.087	0.969	0.965	0.761	0.954	4.537	1.971
3	11.910	19.980	5.191	10.130	2.009	2.112	0.941	0.962	0.790	0.922	6.574	3.489
4	12.580	8.358	4.816	11.190	1.992	2.163	0.981	0.894	0.790	0.864	4.945	3.367
5	37.120	6.679	4.508	9.635	1.970	1.896	0.969	0.821	0.731	0.854	3.824	6.699
6	13.400	7.626	4.039	8.282	1.993	1.826	1.249	0.773	0.808	0.851	3.366	6.848
7	9.820	6.245	3.836	7.609	2.079	1.753	1.364	0.768	1.032	0.859	3.461	10.390
8	9.200	5.504	3.551	18.030	2.032	1.647	1.193	0.746	1.058	0.841	17.400	20.930
9	21.800	5.003	3.346	12.610	1.879	1.579	0.990	0.734	0.951	0.833	51.830	9.579
10	10.940	5.872	3.041	9.108	1.845	1.542	0.952	0.861	0.917	0.825	18.800	7.770
11	9.570	8.177	2.934	7.631	1.813	1.528	0.914	0.842	0.865	0.822	8.652	6.377
12	16.160	5.433	3.020	6.812	1.816	1.466	0.885	0.771	0.893	0.790	8.721	5.421
13	9.811	4.746	2.978	5.872	1.721	1.428	0.843	0.715	1.311	0.789	6.446	4.741
14	9.136	4.477	2.676	5.162	2.630	1.360	0.803	0.694	2.208	0.825	6.071	4.174
15	21.440	4.180	2.756	4.583	2.216	1.297	0.837	0.692	1.579	0.822	5.069	3.804
16	12.390	3.874	2.559	4.168	2.145	1.289	0.831	0.741	1.339	0.793	4.532	3.462
17	8.228	3.727	2.493	3.826	2.960	1.257	0.824	0.777	0.972	0.781	4.210	4.706
18	7.709	4.337	3.554	3.502	2.073	1.247	0.827	0.755	0.922	0.810	5.309	8.901
19	6.811	4.325	3.746	3.361	1.810	1.247	0.813	0.861	1.130	1.332	4.917	6.561
20	5.942	12.290	3.786	3.085	1.789	1.243	0.780	0.748	0.965	1.475	4.350	5.256
21	5.340	5.812	4.925	3.017	4.182	1.366	0.791	0.748	0.900	1.773	3.981	4.726
22	4.918	18.610	3.873	2.897	3.164	1.271	0.770	0.920	0.850	1.390	3.733	4.212
23	6.229	20.930	3.840	2.982	2.466	1.190	0.738	0.915	0.857	1.163	3.429	3.867
24	5.858	10.320	3.592	2.744	6.352	1.276	0.753	0.794	0.897	1.188	3.127	3.609
25	6.832	12.790	3.821	2.698	4.466	1.222	0.726	0.998	2.772	1.624	2.888	3.812
26	5.768	11.650	3.465	2.567	5.071	1.152	0.840	0.762	2.244	1.430	2.718	5.164
27	6.085	8.746	3.959	2.415	3.509	1.128	0.861	0.724	1.233	1.697	2.531	31.560
28	5.404	7.394	4.323	2.327	2.897	1.076	0.784	0.687	1.091	1.586	2.337	34.900
29	5.096		3.831	2.274	2.556	1.018	0.754	0.691	1.034	3.398	2.238	22.480
30	5.105		6.687	2.183	2.340	0.986	0.765	0.757	0.988	14.320	2.129	21.350
31	4.688		11.580		2.213		0.887	1.054		8.777		14.710
Average	10.430	8.172	4.162	5.981	2.585	1.461	0.890	0.806	1.125	1.818	6.926	8.932
Lowest	4.688	3.727	2.493	2.183	1.721	0.986	0.726	0.687	0.731	0.781	2.129	1.971
Highest	37.120	20.930	11.580	18.030	6.352	2.166	1.364	1.054	2.772	14.320	51.830	34.900
Peak flow	59.48	46.94	22.39	33.86	9.30	2.34	1.94	1.35	6.04	25.74	82.16	40.66
Day of peak	5	22	31	8	24	4	7	25	25	30	9	28
Monthly total (million cu m)	27.94	19.77	11.15	15.50	6.92	3.79	2.38	2.16	2.91	4.87	17.95	23.92
Runoff (mm)	138	98	55	77	34	19	12	11	14	24	89	118
Rainfall (mm)	150	127	94	83	92	23	39	55	119	115	114	188

Statistics of monthly data for previous record (Feb 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	5.944	5.910	4.202	2.966	2.004	1.349	1.132	0.914	1.181	2.022	3.327	5.218
	Low	1.246	1.746	1.355	1.176	0.734	0.456	0.326	0.266	0.501	0.580	0.651	1.821
	(year)	1976	1965	1993	1976	1976	1976	1976	1976	1964	1978	1978	1975
	High	14.560	14.160	9.259	6.655	6.562	2.770	5.628	1.685	4.892	9.873	7.611	11.280
	(year)	1984	1990	1981	1966	1983	1972	1968	1965	1974	1976	1982	1965
Runoff:	Avg.	79	71	56	38	27	17	15	12	15	27	43	69
	Low	17	21	18	15	10	6	4	4	6	8	8	24
	High	193	170	123	85	87	36	75	22	63	131	98	150
Rainfall:	Avg.	112	81	81	63	62	60	59	68	81	94	97	114
	Low	25	6	5	6	9	8	16	19	8	8	31	34
	High	250	194	170	150	137	147	144	131	202	249	192	231

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	4.416		3.001		147
Lowest yearly mean			1.600	1964	
Highest yearly mean			4.084	1974	
Lowest monthly mean	0.806	Aug	0.266	Aug 1976	
Highest monthly mean	10.430	Jan	14.560	Jan 1984	
Lowest daily mean	0.687	28 Aug	0.179	22 Aug 1976	
Highest daily mean	51.830	9 Nov	84.200	23 Feb 1978	
Peak	82.160	9 Nov	112.700	11 Jul 1968	
10% exceedance	9.772		6.473		151
50% exceedance	2.571		1.749		147
95% exceedance	0.761		0.596		128
Annual total (million cu m)	139.30		94.70		147
Annual runoff (mm)	689		469		147
Annual rainfall (mm)	1199		972		123
1961-90 rainfall average (mm)			966		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.

Station and catchment description

Crump profile weir (breadth 12.2m) with crest tapping (not operational). Prior to March 1968 velocity area station (flows were unreliable below 1.42 cumecs). Full range station. Clatworthy and smaller Luxhay Reservoir in headwaters. Compensation flow maintains low flows. Reservoirs not large enough to influence fairly rapid response to rainfall. Minor surface water abstractions for PWS. Catchment geology - predominantly sandstones and marls. Land use - rural.

053018 Avon at Bathford 1994

Measuring authority: NRA-SW
First year: 1969

Grid reference: 31 (ST) 785 670
Level stn. (m OD): 18.00

Catchment area (sq km): 1552.0
Max alt. (m OD): 305

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	55.680	31.840	27.850	65.990	9.385	10.610	3.879	3.114	2.987	3.615	29.720	11.090
2	79.030	30.720	28.760	32.900	9.330	10.220	3.713	2.733	2.761	3.448	19.790	10.600
3	73.530	55.690	24.670	31.720	9.293	11.080	3.630	4.217	2.432	3.349	18.480	11.840
4	73.880	39.390	22.770	49.720	9.368	12.370	4.084	6.845	2.099	3.626	27.780	14.550
5	157.600	30.920	22.610	35.660	8.894	11.870	3.874	3.738	2.113	3.587	31.450	23.980
6	164.200	41.820	20.140	31.270	8.867	9.781	6.650	2.764	1.915	3.217	21.820	39.770
7	72.140	38.940	19.260	26.530	8.673	9.025	6.750	2.267	2.107	3.583	17.650	56.310
8	50.530	29.040	18.840	41.680	8.421	8.206	5.421	2.593	2.637	3.611	17.090	84.650
9	62.750	25.300	18.290	88.600	7.687	7.559	4.378	1.518	3.994	3.427	53.460	60.390
10	73.300	24.910	17.760	51.450	7.389	7.249	3.925	3.167	5.964	3.225	41.640	36.860
11	58.060	72.270	16.650	34.030	7.146	6.806	3.590	7.743	4.464	3.467	27.160	29.630
12	94.050	46.890	16.240	29.720	8.238	6.697	3.490	4.007	3.366	3.178	28.730	25.740
13	101.300	31.710	16.510	26.150	7.225	6.356	2.705	3.000	3.622	3.496	27.060	23.430
14	64.980	27.540	14.550	22.780	7.848	6.781	2.825	2.155	10.180	3.181	25.400	22.410
15	68.940	25.230	21.040	20.400	7.922	6.519	2.478	2.420	13.920	3.188	24.250	20.160
16	66.270	24.450	18.260	19.060	8.658	6.361	2.484	1.881	11.370	3.448	21.260	19.150
17	45.220	23.230	16.210	17.610	10.740	5.976	2.601	2.748	7.262	3.415	20.080	23.000
18	42.660	23.480	20.390	16.480	8.463	5.944	1.910	2.529	5.075	3.531	32.440	59.810
19	40.000	22.750	28.460	15.770	7.230	5.562	2.006	2.750	5.173	4.515	35.690	40.350
20	34.180	25.050	19.480	14.800	6.706	5.740	2.485	1.923	5.425	4.977	26.360	30.130
21	31.120	21.750	23.990	14.150	9.726	6.505	2.373	1.960	4.870	4.976	22.500	25.880
22	29.190	28.240	19.890	13.470	14.430	6.307	1.722	1.845	4.108	7.271	20.280	22.830
23	40.660	52.600	18.970	12.910	12.800	5.581	1.516	1.884	3.853	7.523	18.220	20.460
24	39.010	34.570	17.010	12.390	13.030	5.121	2.236	1.978	3.889	5.564	16.540	19.510
25	45.450	33.070	17.510	11.880	16.990	4.907	1.706	2.276	4.628	5.606	15.320	20.980
26	37.670	54.280	16.560	11.700	43.240	4.404	1.640	2.209	4.313	8.020	14.290	32.910
27	37.670	39.440	15.890	10.910	26.230	4.425	1.856	1.499	3.772	10.150	13.330	120.400
28	31.660	32.930	18.030	10.690	17.270	4.332	1.696	1.446	3.429	8.082	12.900	142.300
29	29.590		17.550	10.480	14.320	4.140	1.582	1.342	3.209	17.760	12.140	104.700
30	28.960		18.890	10.130	12.450	3.683	1.413	1.160	3.323	57.620	11.630	106.800
31	25.880		39.330		11.220		4.059	3.215		59.300		86.620
Average	59.840	34.570	20.400	26.370	11.590	7.004	3.054	2.740	4.609	8.482	23.480	43.460
Lowest	25.880	21.750	14.550	10.130	6.706	3.683	1.413	1.160	1.915	3.178	11.630	10.600
Highest	164.200	72.270	39.330	88.600	43.240	12.370	6.750	7.743	13.920	59.300	53.460	142.300
Peak flow	192.00	78.03	84.21	111.50	48.32	14.31	8.04	9.72	14.97	94.07	66.89	162.10
Day of peak	6	11	31	9	26	4	6	11	15	30	9	28
Monthly total (million cu m)	160.30	83.64	54.64	68.34	31.03	18.15	8.18	7.34	11.95	22.72	60.87	116.40
Runoff (mm)	103	54	35	44	20	12	5	5	8	15	39	75
Rainfall (mm)	123	81	76	55	83	28	35	72	87	93	72	140

Statistics of monthly data for previous record (Dec 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	31.940	30.390	24.160	16.500	11.230	8.790	5.507	5.350	6.447	11.150	19.280	29.220
	Low	9.227	11.370	7.216	7.719	5.048	3.289	2.410	1.715	2.699	3.115	4.406	10.290
	(year)	1976	1976	1993	1976	1976	1992	1976	1976	1990	1978	1978	1991
	High	51.270	67.120	54.230	26.520	31.020	30.110	9.956	13.830	25.450	28.180	44.240	50.080
	(year)	1984	1990	1981	1987	1983	1971	1973	1985	1974	1976	1992	1992
Runoff:	Avg.	55	48	42	28	19	15	10	9	11	19	32	50
	Low	16	18	12	13	9	5	4	3	5	5	7	18
	High	88	105	94	44	54	50	17	24	43	49	74	86
Rainfall: (1970-1993)	Avg.	87	59	73	51	55	66	56	65	74	76	80	90
		18	7	17	2	7	5	25	17	15	6	35	20
		148	143	163	110	142	151	115	141	178	149	178	155

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	20.410		16.600		123
Lowest yearly mean			10.360	1973	
Highest yearly mean			22.160	1977	
Lowest monthly mean	2.740	Aug	1.715	Aug 1976	
Highest monthly mean	59.840	Jan	67.120	Feb 1990	
Lowest daily mean	1.160	30 Aug	1.093	27 Aug 1976	
Highest daily mean	164.200	6 Jan	253.600	28 Dec 1979	
Peak	192.000	6 Jan	300.500	28 Dec 1979	
10% exceedance	47.830		35.710		134
50% exceedance	12.440		10.420		119
95% exceedance	1.938		2.978		65
Annual total (million cu m)	643.60		523.80		123
Annual runoff (mm)	415		338		123
Annual rainfall (mm)	945		832		114
1961-90 rainfall average (mm)			817		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Velocity-area station with cableway next to a railway bridge 4 km u/s of Bath (replacement station for Bath St James). Situated immediately d/s of confluence with Bybrook. Widely inundated in flood conditions, but all flows contained through bridge. Deep section and low velocities render flows below 5 cumecs inaccurate. Flows augmented by groundwater scheme in catchment. Mixed geology - predominantly clays and limestone with eastern tributaries rising from Chalk. Land use - mainly rural, some urbanisation.

054001 Severn at Bewdley 1994

Measuring authority: NRA-ST
First year: 1921

Grid reference: 32 (SO) 782 762
Level stn. (m OD): 17.00

Catchment area (sq km): 4325.0
Max alt. (m OD): 827

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	230.900	95.880	224.300	163.200	29.010	16.950	10.110	13.330	13.230	22.350	133.200	36.370
2	221.800	128.700	179.100	204.500	27.740	16.660	10.110	13.590	13.850	23.310	102.400	34.360
3	253.800	142.500	147.800	201.100	27.480	17.660	10.330	14.220	17.220	31.730	75.830	36.610
4	257.700	148.100	116.000	183.300	26.010	20.240	10.670	14.490	12.150	38.870	85.190	72.100
5	252.400	147.800	65.860	206.200	26.790	33.370	10.930	13.920	10.160	29.240	110.400	175.500
6	216.900	116.100	77.840	201.900	27.600	28.010	12.980	13.150	9.668	25.670	84.530	175.700
7	178.200	108.100	71.450	190.300	32.110	21.790	14.840	11.750	11.440	23.530	66.530	168.300
8	143.900	98.820	73.570	193.000	27.550	25.100	18.330	10.600	13.810	20.180	56.890	216.000
9	143.800	83.190	80.820	224.100	25.890	26.810	13.410	10.780	14.750	18.980	70.290	215.500
10	176.900	80.540	90.630	243.700	26.810	20.380	10.810	11.520	15.450	18.220	96.640	179.900
11	173.800	127.900	76.740	231.300	27.240	18.140	10.280	12.200	35.680	16.940	86.770	133.700
12	195.600	183.400	70.160	166.000	28.350	16.820	9.244	11.550	33.760	17.490	87.170	119.700
13	246.400	128.000	78.090	121.000	27.630	16.410	9.477	10.100	57.860	15.710	118.000	111.100
14	260.200	93.540	107.400	94.770	27.200	15.100	10.790	9.501	80.090	15.160	134.600	120.500
15	243.200	80.350	84.110	75.270	30.790	13.880	9.668	10.450	141.100	14.960	182.100	114.700
16	190.500	72.480	98.510	63.230	33.760	13.530	10.540	10.190	154.700	14.590	162.600	92.310
17	153.300	70.180	79.720	53.750	32.310	12.430	9.942	11.710	108.200	14.290	129.600	88.290
18	120.700	86.600	75.110	56.220	27.650	12.000	9.767	13.070	63.600	13.830	113.500	124.900
19	105.300	112.000	116.500	55.100	24.770	11.640	10.370	12.130	46.720	15.810	101.500	164.400
20	93.660	96.260	162.900	52.730	23.270	13.080	10.330	11.040	49.260	17.570	111.200	126.500
21	90.690	77.220	94.730	45.680	19.770	13.140	10.360	9.983	57.990	14.820	169.000	105.600
22	85.440	68.550	78.890	42.440	19.920	15.740	10.250	11.020	48.890	17.920	143.300	94.090
23	91.130	65.250	87.470	41.380	19.450	28.520	10.180	11.800	39.780	38.070	107.600	80.700
24	186.100	64.590	101.100	39.530	18.490	17.710	12.370	11.850	33.160	75.010	87.700	68.330
25	160.000	81.860	108.200	41.020	20.190	14.190	16.730	11.990	32.030	49.470	68.770	62.870
26	183.600	149.800	177.600	40.990	28.650	12.770	13.360	10.940	33.210	82.320	61.620	82.190
27	165.400	203.100	135.600	45.020	26.980	12.490	13.040	11.820	32.280	90.190	53.300	167.800
28	170.600	228.200	101.300	36.450	23.520	10.960	10.690	10.870	26.860	85.760	48.970	250.400
29	152.000		103.200	33.380	20.300	10.490	9.903	11.450	24.440	75.940	44.440	331.700
30	123.100		90.490	30.490	18.370	10.850	10.170	11.750	22.510	69.510	39.160	377.500
31	114.600		108.500		17.780		11.520	11.330		115.600		347.700
Average	173.600	112.100	105.300	112.600	25.590	17.230	11.340	11.740	41.790	36.230	97.760	144.400
Lowest	85.440	64.590	65.860	30.490	17.780	10.490	9.244	9.501	9.668	13.830	39.160	34.360
Highest	260.200	228.200	224.300	243.700	33.760	33.370	18.330	14.490	154.700	115.600	182.100	377.500
Peak flow	268.50	232.60	233.80	247.70	37.38	38.66	21.64	15.97	175.90	128.50	188.70	383.10
Day of peak	3	28	1	10	16	5	8	4	15	31	15	30
Monthly total (million cu m)	465.00	271.20	282.00	291.80	68.55	44.66	30.37	31.46	108.30	97.03	253.40	386.70
Runoff (mm)	108	63	65	67	16	10	7	7	25	22	59	89
Rainfall (mm)	122	88	106	78	48	34	44	64	129	79	82	162

Statistics of monthly data for previous record (Apr 1921 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	114.400	100.700	74.070	52.660	37.890	29.480	22.560	27.900	36.140	53.470	89.100	102.200
	Low	22.100	21.200	19.440	15.880	10.230	9.804	9.587	7.461	7.668	10.490	21.730	17.850
	(year)	1963	1934	1993	1938	1938	1976	1976	1976	1949	1947	1942	1933
	High	250.600	232.300	261.900	112.400	131.600	117.400	91.240	92.360	126.700	140.700	238.300	297.400
	(year)	1939	1946	1947	1947	1969	1931	1968	1927	1946	1967	1940	1965
Runoff:	Avg.	71	57	46	32	23	18	14	17	22	33	53	63
	Low	14	12	12	10	6	6	6	5	5	7	13	11
	High	155	130	162	67	81	70	57	57	76	87	143	184
Rainfall:	Avg.	93	67	63	61	68	62	71	78	77	85	96	96
	Low	23	8	3	5	11	5	10	13	5	13	13	10
	High	226	170	175	128	186	136	193	161	209	174	244	294

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	73.900		61.530		120
Lowest yearly mean			36.460	1964	
Highest yearly mean			94.740	1960	
Lowest monthly mean	11.340	Jul	7.461	Aug 1976	
Highest monthly mean	173.600	Jan	297.400	Dec 1965	
Lowest daily mean	9.244	12 Jul	5.990	4 Sep 1976	
Highest daily mean	377.500	30 Dec	637.100	21 Mar 1947	
Peak	383.100	30 Dec			
10% exceedance	178.800		147.200		121
50% exceedance	49.250		37.060		133
95% exceedance	10.300		11.030		93
Annual total (million cu m)	2331.00		1942.00		120
Annual runoff (mm)	539		449		120
Annual rainfall (mm)	1036		917		113
1961-90 rainfall average (mm)			913		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.
- Augmentation from effluent returns.

Station and catchment description

Since 1988, reflective X-pattern, 20 path US gauge. Originally velocity-area station with rock control. Peak flows from 1972. Stage monitoring site relocated in 1950 and 1970; lowest flows not reliable in earlier record. Sig. exports for PWS and CEGB; minimum flow maintained by Clywedog releases. Naturalised flow series accommodates major usages. Diverse catchment; wet western 50% from impermeable Palaeozoic rocks and river gravels; drier northern 50% from Drift covered Carboniferous to Liassic sandstones and marls. Moorland, forestry, mixed farming.

054002 Avon at Evesham 1994

Measuring authority: NRA-ST
First year: 1936

Grid reference: 42 (SP) 040 438
Level stn. (m OD): 19.50

Catchment area (sq km): 2210.0
Max alt. (m OD): 320

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	42.060	19.720	34.220	58.160	9.699	9.219	5.389	6.171	7.656	7.184	33.460	8.120
2	79.920	21.380	29.150	41.000	9.615	9.258	6.912	5.754	7.227	8.769	20.390	7.915
3	84.070	48.770	25.880	29.600	9.685	9.458	6.328	5.832	6.238	9.154	16.140	11.290
4	91.060	61.160	22.160	58.950	10.050	10.090	5.991	7.972	6.088	8.806	18.960	24.670
5	124.800	40.620	20.800	61.510	10.530	10.310	6.021	6.697	5.449	7.409	49.220	33.520
6	118.300	31.040	18.680	39.930	10.500	8.780	6.281	5.559	5.302	7.056	52.630	40.020
7	73.910	31.390	17.420	33.880	11.080	8.321	7.042	5.085	6.043	6.648	38.990	54.940
8	39.930	26.090	16.650	43.730	10.280	7.876	6.074	4.819	6.659	6.548	22.260	66.830
9	45.210	22.140	20.360	56.190	9.505	7.537	5.701	4.853	6.180	6.491	36.470	51.850
10	70.900	21.460	19.940	51.840	8.979	7.413	5.402	5.717	6.376	7.402	34.060	34.470
11	52.490	60.540	17.670	35.610	8.740	7.091	5.158	8.689	6.270	5.929	27.030	25.400
12	62.970	50.060	17.290	26.500	8.735	6.771	5.142	7.999	6.165	5.597	34.770	20.740
13	90.660	32.210	16.650	24.980	8.758	6.784	4.983	6.202	5.957	5.088	39.870	20.730
14	63.430	25.980	13.820	21.640	10.760	6.871	4.950	5.483	16.750	4.897	31.470	24.600
15	44.340	22.650	19.210	19.180	16.400	6.405	5.159	5.112	51.550	5.175	22.820	24.630
16	40.620	20.910	21.670	17.170	15.140	6.458	5.055	5.146	37.840	5.227	17.540	21.010
17	33.320	22.560	18.030	15.830	11.410	6.233	4.963	5.780	27.230	5.336	14.910	18.970
18	28.650	24.270	17.560	14.730	9.316	6.211	4.809	5.641	17.360	4.688	14.140	41.370
19	26.160	22.430	28.830	14.370	8.494	6.120	4.757	5.332	14.790	4.667	15.350	35.400
20	24.320	20.110	25.860	13.800	8.372	6.104	4.698	5.021	17.780	5.608	14.390	25.920
21	23.250	17.890	19.530	13.250	10.600	6.423	4.716	4.937	17.040	8.799	14.470	20.560
22	20.910	16.700	18.150	12.620	16.540	6.356	4.683	4.883	12.430	9.164	14.280	17.720
23	25.110	37.500	18.480	16.310	18.120	5.994	4.642	4.844	9.317	8.922	15.670	15.570
24	25.060	53.680	17.180	15.220	14.950	5.934	5.242	5.469	8.615	7.409	11.580	14.160
25	28.570	53.650	17.150	12.710	21.260	5.927	8.545	5.838	9.322	6.320	10.860	15.420
26	37.210	106.000	15.030	11.590	32.140	6.101	6.111	5.154	8.600	6.960	9.979	22.160
27	30.900	91.240	13.260	10.850	22.390	6.174	5.651	4.882	7.739	6.230	9.500	61.770
28	25.990	52.700	16.250	10.440	15.950	5.759	5.252	4.725	6.944	6.443	8.881	65.060
29	21.430		14.960	9.980	12.220	5.663	5.191	4.602	6.621	19.710	8.393	61.760
30	20.130		14.420	9.831	10.590	5.381	5.159	4.671	6.636	35.860	8.251	51.230
31	18.840		24.800		9.616		5.665	5.305		40.710		37.160
Average	48.860	37.670	19.710	26.710	12.590	7.101	5.538	5.619	11.940	9.168	22.220	31.450
Lowest	18.840	16.700	13.260	9.831	8.372	5.381	4.642	4.602	5.302	4.667	8.251	7.915
Highest	124.800	106.000	34.220	61.510	32.140	10.310	8.545	8.689	51.550	40.710	52.630	66.830
Peak flow	143.40	117.80	39.18	69.10	34.51	11.47	10.70	12.05	58.87	43.47	56.83	72.22
Day of peak	5	26	1	1	26	5	25	11	15	31	5	27
Monthly total (million cu m)	130.90	91.14	52.80	69.24	33.73	18.41	14.83	15.05	30.95	24.56	57.61	84.24
Runoff (mm)	59	41	24	31	15	8	7	7	14	11	26	38
Rainfall (mm)	75	62	58	49	61	16	31	48	111	59	54	77

Statistics of monthly data for previous record (Dec 1936 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	28.390	27.190	22.010	15.170	11.340	8.792	6.703	6.767	6.985	9.789	17.620	23.190
	Low	5.143	4.868	2.261	3.237	2.220	1.935	2.256	2.042	1.968	2.485	2.681	3.549
	(year)	1950	1944	1944	1938	1944	1944	1976	1943	1959	1959	1943	1943
	High	73.520	77.930	75.600	36.110	37.690	27.380	42.230	16.100	24.200	45.410	55.910	65.160
	(year)	1939	1977	1947	1987	1983	1977	1968	1969	1960	1960	1960	1965
Runoff:	Avg.	34	30	27	18	14	10	8	8	8	12	21	28
	Low	6	6	3	4	3	2	3	2	2	3	3	4
	High	89	85	92	42	46	32	51	20	28	55	66	79
Rainfall:	Avg.	60	42	48	44	54	54	58	68	55	59	64	60
(1937-		13	3	5	5	8	10	8	5	3	6	8	15
1993)		127	122	140	94	130	121	122	130	127	150	163	121

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	19.770		15.270		129
Lowest yearly mean			6.895	1944	
Highest yearly mean			25.020	1960	
Lowest monthly mean	5.538	Jul	1.935	Jun 1944	
Highest monthly mean	48.860	Jan	77.930	Feb 1977	
Lowest daily mean	4.602	29 Aug	1.274	4 Oct 1959	
Highest daily mean	124.800	5 Jan	277.100	11 Jul 1968	
Peak	143.400	5 Jan	371.000	11 Jul 1968	
10% exceedance	45.270		34.020		133
50% exceedance	13.520		8.255		164
95% exceedance	4.940		2.913		170
Annual total (million cu m)	623.50		481.90		129
Annual runoff (mm)	282		218		129
Annual rainfall (mm)	701		666		105
1961-90 rainfall average (mm)			654		

Factors affecting runoff

- Reservoir(s) in catchment.
- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from effluent returns.

Station and catchment description

Velocity-area station. Recording site, control and gauging site are widely separated; recording at a site where all flows contained. Gauge site can measure out-of-bank flows. Extensive modification to flow regime from abstractions and returns. Large catchment of low relief, draining argillaceous rocks almost exclusively. Contains many large towns, but chief land use is agriculture.

054008 Teme at Tenbury 1994

Measuring authority: NRA-ST
First year: 1956

Grid reference: 32 (SO) 597 686
Level stn. (m OD): 48.00

Catchment area (sq km): 1134.4
Max alt. (m OD): 546

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	49.940	26.300	38.260	50.620	6.806	4.978	2.321	1.927	2.250	4.910	17.880	8.977
2	61.240	24.050	32.330	39.930	6.622	4.922	2.295	1.944	2.104	5.406	14.580	8.645
3	76.790	50.370	26.660	31.130	6.566	5.076	2.326	2.136	1.721	6.375	19.160	12.340
4	71.140	54.050	22.930	35.250	6.446	5.653	2.378	2.115	1.648	5.247	27.470	39.450
5	63.560	40.140	20.870	37.600	6.216	5.897	2.442	1.882	1.571	4.637	30.020	67.250
6	52.510	33.380	18.010	41.540	6.079	4.984	2.942	1.752	1.571	4.330	21.210	63.210
7	39.890	28.390	16.890	36.150	6.021	4.715	3.257	1.706	1.591	4.174	16.950	72.460
8	34.130	23.610	15.680	52.790	5.838	4.516	2.609	1.674	1.732	4.064	15.800	99.530
9	49.990	20.870	16.810	58.260	5.539	4.282	2.368	1.610	1.738	3.922	48.360	68.220
10	58.860	21.120	14.740	52.820	5.377	4.146	2.215	1.809	1.756	3.738	43.800	51.240
11	56.600	66.010	13.800	38.280	5.263	4.008	2.152	2.142	1.748	3.601	30.320	37.280
12	80.310	43.050	13.610	31.250	5.257	3.923	2.074	1.882	2.475	3.476	45.440	29.120
13	81.740	32.810	13.820	25.660	5.159	3.840	1.963	1.686	2.800	3.326	42.780	27.130
14	65.080	26.560	12.290	21.250	5.401	3.636	1.875	1.602	11.580	3.304	39.180	25.700
15	55.990	23.020	12.170	18.330	7.170	3.485	1.871	1.568	52.760	3.274	30.380	21.970
16	45.220	19.870	11.780	16.200	6.896	3.385	1.850	1.565	28.900	3.113	25.270	19.730
17	34.700	19.760	11.200	14.690	6.062	3.310	1.805	1.649	13.830	3.007	24.610	22.430
18	30.190	33.380	12.700	13.430	5.346	3.268	1.772	1.785	9.551	2.951	23.160	56.820
19	26.490	26.400	17.080	12.650	5.066	3.229	1.751	1.623	14.030	3.273	24.490	38.640
20	22.980	22.330	14.710	11.870	4.995	3.190	1.734	1.535	16.330	3.884	24.350	30.260
21	20.700	19.680	13.510	11.230	5.127	3.255	1.744	1.511	19.020	3.634	22.620	25.480
22	18.850	18.520	12.660	10.640	5.493	3.250	1.760	1.444	13.570	7.682	20.370	21.230
23	24.390	20.850	12.040	10.190	5.144	3.005	1.724	1.407	10.770	12.110	17.820	18.410
24	21.940	20.650	12.360	9.609	5.213	2.920	2.577	1.439	9.120	8.794	15.400	17.040
25	25.500	31.800	14.260	9.115	6.315	2.872	2.506	1.506	8.844	8.577	13.760	18.340
26	29.460	69.690	12.980	8.741	7.648	2.788	1.955	1.462	7.819	8.942	12.680	36.260
27	26.710	61.890	12.580	8.057	7.098	2.683	2.208	1.410	6.718	8.947	11.650	81.100
28	25.780	51.190	15.080	7.638	6.121	2.587	2.102	1.357	6.004	8.457	10.530	66.730
29	23.060		13.190	7.356	5.696	2.437	1.812	1.341	5.478	9.729	9.965	63.430
30	21.340		13.900	7.057	5.367	2.393	1.798	1.358	5.079	17.560	9.461	62.870
31	19.290		23.880		5.097		2.020	1.638		22.760		54.190
Average	42.400	33.210	16.540	24.310	5.885	3.754	2.136	1.660	8.804	6.361	23.650	40.820
Lowest	18.850	18.520	11.200	7.057	4.995	2.393	1.724	1.341	1.571	2.951	9.461	8.645
Highest	81.740	69.690	38.260	58.260	7.648	5.897	3.257	2.142	52.760	22.760	48.360	99.530
Peak flow	95.79	80.97	43.63	73.70	8.91	6.47	3.56	2.24	57.38	24.94	58.26	113.00
Day of peak	3	11	1	8	26	5	7	3	15	31	12	8
Monthly total (million cu m)	113.60	80.33	44.30	63.01	15.76	9.73	5.72	4.45	22.82	17.04	61.30	109.30
Runoff (mm)	100	71	39	56	14	9	5	4	20	15	54	96
Rainfall (mm)	107	91	74	64	56	23	46	63	137	69	79	149

Statistics of monthly data for previous record (Oct 1956 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	28.440	24.430	20.870	14.690	9.970	6.092	4.061	4.109	5.873	10.770	16.480	25.340
	Low	6.281	7.267	4.349	4.599	2.569	1.558	1.010	0.744	1.075	1.347	3.087	5.567
	(year)	1964	1992	1993	1990	1976	1976	1976	1976	1990	1959	1975	1975
	High	51.630	58.160	51.940	32.850	35.380	13.090	21.920	16.680	29.650	43.130	50.140	57.290
	(year)	1960	1990	1981	1987	1969	1969	1968	1957	1958	1960	1960	1965
Runoff:	Avg.	67	53	49	34	24	14	10	10	13	25	38	60
	Low	15	16	10	11	6	4	2	2	2	3	7	13
	High	122	124	123	75	84	30	52	39	68	102	115	135
Rainfall:	Avg.	87	62	68	60	62	59	59	72	77	75	82	92
	Low	23	7	5	7	9	12	15	23	3	17	33	23
	High	157	138	146	132	174	125	122	170	211	183	169	183

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	17.360		14.220		122
Lowest yearly mean			7.279	1964	
Highest yearly mean			23.490	1960	
Lowest monthly mean	1.660	Aug	0.744	Aug 1976	
Highest monthly mean	42.400	Jan	58.160	Feb 1990	
Lowest daily mean	1.341	29 Aug	0.647	27 Aug 1976	
Highest daily mean	99.530	8 Dec	248.900	4 Dec 1960	
Peak	113.000	8 Dec	266.500	4 Dec 1960	
10% exceedance	48.360		34.050		142
50% exceedance	9.873		8.375		118
95% exceedance	1.622		1.544		105
Annual total (million cu m)	547.50		448.80		122
Annual runoff (mm)	483		396		122
Annual rainfall (mm)	958		855		112
1961-90 rainfall average (mm)			841		

Factors affecting runoff

- Augmentation from effluent returns.
- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station with a gravel control. Upstream shoaling may render low flow rating variable from year to year. Rarely goes out of bank. Adjustments small and dispersed; natural catchment. Left bank characterised by high relief hills and broad valleys. Steep and narrow on the right bank. Geology mainly Palaeozoic sediments with Pre-Cambrian crystalline rocks of the Longmynd. Relatively Drift free; some valley gravel and Boulder Clay in the lower reaches. Forestry, grazing.

056001 Usk at Chain Bridge 1994

Measuring authority: NRA-WEL
First year: 1957

Grid reference: 32 (SO) 345 056
Level stn. (m OD): 22.60

Catchment area (sq km): 911.7
Max alt. (m OD): 886

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	62.170	77.770	50.560	158.300	14.590	12.230	6.028	4.510	3.929	6.916	56.280	15.580
2	82.600	51.680	46.970	74.950	13.770	11.870	5.939	4.421	3.784	6.775	39.100	14.900
3	100.600	92.240	40.120	75.460	13.620	14.690	5.860	5.648	3.701	7.849	65.010	29.910
4	95.450	81.420	37.220	96.960	14.710	18.230	5.904	5.364	3.699	6.913	53.270	64.590
5	88.260	66.340	40.340	66.230	14.470	15.260	6.082	4.711	3.863	6.239	37.520	88.890
6	60.640	65.760	33.090	56.780	15.360	13.050	7.427	4.239	3.943	5.952	30.430	76.960
7	48.550	56.010	35.050	62.920	13.290	12.470	7.955	4.017	4.398	5.728	27.120	140.500
8	46.200	46.830	36.770	113.900	12.330	12.160	6.628	3.854	6.483	5.557	65.670	218.100
9	81.170	41.820	49.310	105.900	11.580	10.750	6.010	3.679	9.972	5.426	139.100	79.050
10	69.560	38.900	37.300	81.570	11.090	10.150	5.618	8.496	10.060	5.228	72.880	61.920
11	68.150	55.520	33.060	57.800	10.660	9.824	5.389	13.850	7.685	5.050	50.480	56.020
12	181.400	39.740	36.520	49.140	10.770	9.455	5.135	6.939	10.610	4.910	62.180	50.900
13	134.600	34.950	41.880	40.730	10.440	9.164	4.905	5.273	11.750	4.776	67.130	46.700
14	87.510	31.060	30.320	34.910	11.840	8.713	4.736	4.623	29.890	4.715	101.800	41.390
15	88.920	29.180	39.620	30.790	24.640	8.281	4.649	4.279	31.510	4.633	57.910	35.810
16	71.580	26.940	33.050	27.780	19.980	7.934	4.543	4.179	21.040	4.512	47.850	31.540
17	54.200	27.480	29.670	25.480	15.580	7.654	4.400	5.019	14.190	4.405	40.520	40.960
18	50.930	32.570	46.910	23.440	13.550	7.418	4.292	5.390	11.480	4.333	41.050	69.110
19	47.930	28.930	62.060	21.920	12.440	7.310	4.190	4.516	13.420	5.234	43.390	42.680
20	44.760	32.390	38.010	20.530	11.960	7.241	4.128	4.406	13.460	6.148	70.490	35.570
21	40.560	26.840	35.960	19.330	17.060	12.410	4.065	4.045	14.190	11.690	46.600	30.800
22	40.290	25.800	34.610	19.360	21.330	14.850	4.052	3.853	11.680	28.730	37.990	26.970
23	90.510	41.840	39.870	18.410	15.560	9.338	3.915	3.785	10.220	27.070	33.460	24.480
24	56.040	34.190	47.220	19.610	17.850	8.191	3.900	3.951	9.743	16.480	28.090	23.590
25	73.310	80.490	50.740	22.900	23.720	7.758	4.642	4.659	10.660	34.890	25.260	32.950
26	58.630	136.800	36.420	26.610	30.680	7.358	4.452	4.105	9.977	25.230	23.130	117.100
27	65.450	89.430	42.060	20.130	21.880	7.052	7.938	3.861	8.788	21.020	21.220	265.600
28	52.080	66.340	79.800	19.460	17.990	6.877	6.280	3.722	8.118	18.410	19.240	309.900
29	47.550		46.400	17.490	15.580	6.411	4.786	3.568	7.577	39.880	18.010	160.800
30	49.030		61.140	15.680	14.000	6.198	4.363	3.519	7.162	111.500	16.570	131.100
31	39.380		138.000		12.940		4.623	3.875		93.260		77.750
Average	70.260	52.120	45.490	47.480	15.650	10.010	5.253	4.850	10.570	17.400	47.960	78.780
Lowest	39.380	25.800	29.670	15.680	10.440	6.198	3.900	3.519	3.699	4.333	16.570	14.900
Highest	181.400	136.800	138.000	158.300	30.680	18.230	7.955	13.850	31.510	111.500	139.100	309.900
Peak flow	280.50	212.50	310.60	288.10	40.84	25.57	9.41	22.07	42.80	161.80	201.30	441.10
Day of peak	12	26	31	1	15	21	6	10	14	30	9	28
Monthly total (million cu m)	188.20	126.10	121.80	123.10	41.93	25.95	14.07	12.99	27.39	46.61	124.30	211.00
Runoff (mm)	206	138	134	135	46	28	15	14	30	51	136	231
Rainfall (mm)	200	143	171	107	87	49	56	80	116	138	132	270

Statistics of monthly data for previous record (Mar 1957 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	52.730	41.940	34.380	23.840	16.640	11.130	8.202	10.720	15.840	28.090	39.530	51.190
	Low	10.850	12.680	7.392	8.121	6.051	4.273	3.390	2.698	2.939	4.303	13.760	17.770
	(year)	1964	1963	1993	1974	1990	1957	1976	1976	1959	1978	1988	1988
	High	88.650	116.000	100.700	49.330	46.590	26.740	27.490	38.540	45.680	86.350	99.840	112.700
	(year)	1974	1990	1981	1985	1983	1972	1968	1985	1974	1967	1960	1959
Runoff:	Avg.	155	112	101	68	49	32	24	32	45	83	112	150
	Low	32	34	22	23	18	12	10	8	8	13	39	52
	High	260	308	296	140	137	76	81	113	130	254	284	331
Rainfall:	Avg.	161	112	113	86	87	77	78	98	120	138	148	169
	Low	28	10	15	8	9	17	21	25	8	19	55	46
	High	331	289	303	175	221	144	177	247	259	325	323	351

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	33.720		27.810		121
Lowest yearly mean			14.880	1973	
Highest yearly mean			44.050	1960	
Lowest monthly mean	4.850	Aug	2.698	Aug 1976	
Highest monthly mean	78.780	Dec	116.000	Feb 1990	
Lowest daily mean	3.519	30 Aug	1.607	27 Aug 1976	
Highest daily mean	309.900	28 Dec	585.400	27 Dec 1979	
Peak	441.100	28 Dec	945.000	27 Dec 1979	
10% exceedance	77.690		64.030		121
50% exceedance	20.870		16.380		127
95% exceedance	3.970		4.216		94
Annual total (million cu m)	1063.00		877.60		121
Annual runoff (mm)	1166		963		121
Annual rainfall (mm)	1549		1387		112
1961-90 rainfall average (mm)			1363		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.

Station and catchment description

Velocity-area station; permanent cableway. Low flows measured at complementary station downstream (56010 - Trostrey weir). There is a partial impact on flows resulting from three large existing public water supply reservoirs in upper catchment. Intake to canal upstream of gauge. Some naturalised flows available. Geology - mainly Old Red Sandstone. Hill farming in upper areas, with dairy or livestock farming below; forest 3%. Peaty soils in uplands, seasonally wet.

062001 Teifi at Glan Teifi 1994

Measuring authority: NRA-WEL
First year: 1959
Grid reference: 22 (SN) 244 416
Level stn. (m OD): 5.20
Catchment area (sq km): 893.6
Max alt. (m OD): 593

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	58.410	60.750	60.610	139.600	25.960	7.745	4.209	4.567	5.982	12.400	90.280	18.190
2	60.810	49.470	52.180	97.020	23.770	7.651	4.165	4.382	5.911	14.970	62.160	17.880
3	117.200	85.840	45.370	84.960	23.420	9.106	4.123	12.390	5.696	18.670	67.980	50.100
4	118.500	91.970	44.320	89.660	22.590	11.330	4.866	10.270	6.447	16.000	65.420	135.500
5	98.620	77.190	44.390	76.410	21.720	11.800	5.286	7.805	6.437	13.340	51.610	140.900
6	77.980	77.700	39.060	64.520	20.030	10.500	11.360	6.776	7.918	12.260	45.210	153.200
7	69.850	65.310	39.340	56.210	20.250	12.600	14.030	5.885	7.214	11.620	38.680	175.100
8	61.770	55.330	42.030	77.410	18.810	11.270	8.509	5.262	9.564	11.200	61.260	184.400
9	71.920	48.490	57.840	78.640	17.080	9.758	6.681	4.870	10.600	10.780	75.590	112.600
10	67.740	44.670	50.770	79.550	16.010	8.396	5.896	7.117	12.370	10.210	57.740	77.920
11	68.350	49.650	47.450	61.950	15.150	7.361	5.375	7.342	16.040	9.310	48.160	58.470
12	96.890	42.500	50.750	50.470	15.330	6.617	5.017	5.956	36.710	8.927	73.180	48.290
13	82.520	36.150	52.410	42.790	14.280	6.064	4.595	5.361	25.520	8.586	77.250	46.420
14	67.430	30.820	45.360	37.170	14.790	5.785	4.288	5.007	33.630	8.322	85.960	45.680
15	59.330	27.540	48.360	31.780	20.430	5.485	4.217	4.787	42.790	8.051	69.910	39.110
16	49.880	25.910	45.290	28.050	19.010	5.257	4.169	4.731	42.680	7.706	59.370	33.740
17	43.960	24.530	40.290	25.290	15.110	5.068	4.146	5.066	32.760	7.495	49.630	41.620
18	42.610	25.390	51.640	23.050	13.540	4.902	4.109	5.037	34.350	7.362	55.720	58.630
19	43.120	24.410	65.820	21.480	12.310	4.776	4.062	4.884	43.540	8.106	57.200	50.280
20	43.950	24.660	61.520	26.200	11.390	4.693	4.058	4.539	43.570	8.081	77.130	42.770
21	42.240	21.230	51.000	33.700	10.740	6.960	4.020	4.346	40.850	12.330	63.400	36.380
22	44.770	22.220	55.220	37.700	10.180	8.182	3.987	4.205	32.230	30.140	53.920	31.030
23	67.550	39.270	49.540	34.090	9.845	6.932	3.919	4.680	25.610	31.510	45.320	27.340
24	63.880	30.540	48.090	41.190	10.550	5.580	3.886	4.828	23.300	31.130	39.300	25.780
25	67.260	59.710	55.860	43.850	12.440	5.103	3.827	4.992	21.960	48.530	33.440	31.150
26	57.630	72.280	52.980	42.270	10.840	4.866	5.277	4.981	19.870	49.660	29.200	63.200
27	51.780	93.570	55.430	38.710	9.818	4.778	6.657	4.862	17.040	48.660	26.140	161.700
28	45.750	73.430	57.970	35.480	9.188	4.479	5.517	4.958	15.330	44.020	23.340	235.600
29	42.130		48.280	31.980	8.667	4.317	4.418	5.449	14.040	54.800	21.280	195.300
30	42.610		61.350	28.640	8.244	4.250	3.903	4.788	13.030	93.300	19.580	125.100
31	39.390		102.400		7.895		3.859	5.590		105.900		90.900
Average	63.410	49.300	52.350	51.990	15.140	7.054	5.240	5.668	21.770	24.630	54.150	82.400
Lowest	39.390	21.230	39.060	21.480	7.895	4.250	3.827	4.205	5.696	7.362	19.580	17.880
Highest	118.500	93.570	102.400	139.600	25.960	12.600	14.030	12.390	43.570	105.900	90.280	235.600
Peak flow	137.70	107.70	145.90	149.60	27.32	13.30	24.54	17.22	52.26	114.90	109.50	261.90
Day of peak	3	27	31	1	1	7	6	3	15	31	1	28
Monthly total (million cu m)	169.80	119.30	140.20	134.80	40.56	18.28	14.03	15.18	56.42	65.96	140.30	220.70
Runoff (mm)	190	133	157	151	45	20	16	17	63	74	157	247
Rainfall (mm)	180	137	186	122	52	52	91	98	131	140	123	266

Statistics of monthly data for previous record (Jul 1959 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	48.450	38.150	31.620	22.770	17.210	11.700	8.400	12.390	16.620	34.690	46.310	53.540
	Low	7.086	11.140	8.280	7.481	4.228	2.975	1.819	1.127	1.073	3.886	16.060	17.270
	(year)	1963	1965	1962	1974	1984	1984	1984	1976	1959	1972	1983	1991
	High	106.000	87.130	96.730	41.810	36.780	41.700	24.930	39.210	48.680	102.000	85.130	93.960
	(year)	1974	1990	1981	1985	1979	1972	1968	1985	1974	1981	1986	1965
Runoff:	Avg.	145	104	95	66	52	34	25	37	48	104	134	160
	Low	21	30	25	22	13	9	5	3	3	12	47	52
	High	318	236	290	121	110	121	75	118	141	306	247	282
Rainfall:	Avg.	148	95	104	86	78	81	81	101	114	149	153	161
	Low	28	2	25	10	17	17	25	16	10	40	75	28
	High	326	213	312	163	168	148	166	235	242	293	279	315

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	36.010		28.460		127
Lowest yearly mean			18.860	1964	
Highest yearly mean			38.230	1974	
Lowest monthly mean	5.240	Jul	1.073	Sep 1959	
Highest monthly mean	82.400	Dec	106.000	Jan 1974	
Lowest daily mean	3.827	25 Jul	0.731	25 Aug 1976	
Highest daily mean	235.600	28 Dec	373.600	18 Oct 1987	
Peak	261.900	28 Dec	448.800	18 Oct 1987	
10% exceedance	77.090		64.120		120
50% exceedance	27.470		18.650		147
95% exceedance	4.273		3.047		140
Annual total (million cu m)	1136.00		898.10		126
Annual runoff (mm)	1271		1005		126
Annual rainfall (mm)	1578		1351		117
1961-90 rainfall average (mm)			1382		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.

Station and catchment description

Velocity-area station. Straight reach (width: 35m), natural control. Flood flows spill over right bank. Public water supply impounding reservoirs in upland area where there is mostly hill farming. Tregaron bog (10 sq. km.) has partial effect on flows; sensibly natural regime. Geology - mainly Ordovician and Silurian deposits. Dairy farming predominates in southern area. Forest: 5%. Peaty soils on hills, seasonally wet. Apart from Tregaron bog, most of the lower areas have soils with permeable substrate.

067015 Dee at Manley Hall 1994

Measuring authority: NRA-WEL
First year: 1937

Grid reference: 33 (SJ) 348 415
- Level stn. (m OD): 25.40

Catchment area (sq km): 1019.3
Max alt. (m OD): 884

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	89.380	74.530	89.610	119.900	12.280	9.817	10.960	13.650	12.870	14.640	42.230	16.680
2	95.260	65.390	69.620	102.400	10.840	10.200	11.430	13.260	11.510	17.570	35.300	15.330
3	104.900	73.080	58.170	84.380	10.740	11.090	11.540	13.470	10.950	25.600	38.080	26.380
4	92.550	79.590	49.280	84.660	10.970	11.260	11.380	14.200	11.010	23.380	40.100	54.450
5	83.890	63.400	42.540	88.850	10.670	10.510	11.250	13.450	10.820	19.980	33.870	67.680
6	67.570	57.400	37.160	80.950	11.660	9.357	12.460	12.520	10.110	17.830	29.010	68.990
7	55.720	52.040	39.050	85.240	11.590	10.990	13.490	12.590	10.420	16.950	25.920	107.400
8	49.750	46.810	39.430	103.200	12.040	11.990	11.460	12.810	10.310	15.090	26.350	161.600
9	57.120	43.230	41.850	111.500	11.530	11.060	11.020	12.670	13.020	12.600	37.760	106.200
10	58.010	39.830	39.720	102.200	10.630	10.630	10.990	12.540	20.150	10.990	34.620	81.540
11	57.560	60.700	38.330	80.990	10.260	10.260	11.300	12.550	25.410	10.410	30.580	70.510
12	100.000	46.720	44.230	65.380	10.020	10.160	11.250	11.450	44.330	13.580	42.410	70.460
13	109.500	40.290	59.320	49.240	9.670	9.665	10.960	10.970	42.030	13.350	62.590	84.470
14	98.580	34.610	53.860	37.820	10.390	9.709	10.930	11.130	39.940	13.020	142.600	74.720
15	82.810	31.170	61.170	31.350	14.600	10.220	10.860	11.420	48.110	12.920	108.200	60.670
16	64.540	30.160	64.910	26.290	14.090	10.590	10.610	11.280	44.780	12.730	77.270	50.920
17	52.470	29.590	54.460	24.530	10.500	10.770	10.640	11.630	32.550	12.610	58.590	52.160
18	48.860	31.940	69.910	22.500	9.266	10.750	10.490	10.450	25.760	12.090	48.720	67.010
19	47.840	28.940	80.710	20.250	9.801	10.600	10.700	10.090	22.890	11.560	51.220	56.930
20	45.210	26.440	64.710	18.890	9.534	10.470	14.320	10.040	23.770	11.130	107.700	48.320
21	43.510	24.260	50.960	17.830	9.820	12.120	14.400	10.230	22.410	10.890	87.160	43.230
22	42.400	21.980	52.540	19.290	10.010	20.530	14.000	10.320	18.330	16.320	66.490	37.460
23	75.910	20.200	68.930	21.230	9.770	14.450	13.500	10.590	14.580	23.760	50.810	33.050
24	67.370	18.940	78.940	22.250	9.380	11.550	14.860	10.780	13.750	20.530	40.240	30.860
25	78.640	21.690	97.110	23.760	9.831	10.910	14.690	11.110	17.510	32.650	33.320	33.290
26	84.290	62.700	92.890	27.000	9.455	10.720	13.630	10.920	15.320	38.230	28.560	69.610
27	97.000	118.500	74.050	32.570	9.225	10.550	14.020	11.190	13.110	41.470	24.880	164.600
28	91.120	108.800	72.570	30.980	9.003	10.750	12.840	11.270	12.240	42.680	22.030	216.000
29	80.380		63.450	25.580	9.582	10.810	12.920	10.940	11.560	36.610	19.960	221.900
30	74.230		59.350	16.820	10.500	10.710	13.410	10.550	11.040	41.950	18.180	203.400
31	60.810		84.790		9.774		13.730	10.680		47.590		145.700
Average	72.810	48.320	61.080	52.590	10.560	11.110	12.260	11.640	20.690	20.990	48.830	81.980
Lowest	42.400	18.940	37.160	16.820	9.003	9.357	10.490	10.040	10.110	10.410	18.180	15.330
Highest	109.500	118.500	97.110	119.900	14.600	20.530	14.860	14.200	48.110	47.590	142.600	221.900
Peak flow	128.90	134.30	151.30	158.20	15.74	24.36	16.40	14.92	67.41	49.05	177.90	257.90
Day of peak	3	27	31	1	15	22	24	4	15	31	14	28
Monthly total (million cu m)	195.00	116.90	163.60	136.30	28.29	28.79	32.84	31.17	53.62	56.22	126.60	219.60
Runoff (mm)	191	115	161	134	28	28	32	31	53	55	124	215
Rainfall (mm)	199	127	204	120	53	57	54	85	149	111	142	300

Statistics of monthly data for previous record (Oct 1937 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	51.900	44.260	33.470	24.680	17.390	13.970	12.970	17.200	23.220	32.830	46.630	53.030
	Low	13.460	7.858	8.128	7.841	4.273	3.742	3.113	3.288	3.052	4.216	11.580	18.610
	(year)	1964	1963	1943	1938	1938	1961	1949	1955	1949	1947	1937	1963
	High	109.300	106.700	103.700	61.030	41.940	31.240	40.270	59.400	69.470	92.470	103.000	105.200
	(year)	1948	1946	1947	1970	1969	1972	1957	1957	1950	1967	1960	1965
Runoff:	Avg.	136	106	88	63	46	36	34	45	59	86	119	139
	Low	35	19	21	20	11	10	8	9	8	11	29	49
	High	287	253	273	155	110	79	106	156	177	243	262	277
Rainfall:	Avg.	152	109	104	85	91	82	93	109	119	139	157	161
	Low	41	14	28	10	18	13	20	9	13	25	15	36
	High	338	252	251	182	197	168	244	211	306	317	300	373

Summary statistics P

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	37.700		30.910		122
Lowest yearly mean			20.460	1964	
Highest yearly mean			44.600	1954	
Lowest monthly mean	10.560	May	3.052	Sep 1949	
Highest monthly mean	81.980	Dec	109.300	Jan 1948	
Lowest daily mean	9.003	28 May	1.926	30 Jul 1949	
Highest daily mean	221.900	29 Dec	521.000	14 Dec 1964	
Peak	257.900	28 Dec	665.400	14 Dec 1964	
10% exceedance	84.150		70.500		119
50% exceedance	23.310		19.270		121
95% exceedance	9.978		5.345		187
Annual total (million cu m)	1189.00		975.40		122
Annual runoff (mm)	1166		957		122
Annual rainfall (mm)	1601		1401		114
1961-90 rainfall average (mm)			1369		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.
- Flow reduced by industrial and/or agricultural abstractions.
- Augmentation from surface water and/or groundwater.

Comment

The naturalised runoff total for 1994 is 1197 mm.

Station and catchment description

Asymmetrical compound Crump profile weir, checked by current meter. Drowns at flows above 200 cumecs. Low flows maintained by releases from major river regulating res. (Celyn and Brenig). Data prior to February 1970 is poorer quality - based on d/s Erbistock (67002, area: 1040.0 sq. km.) flow record. D/s flood attenuation is notable. Geology is 75% shales, slates, mudstones and palaeozoic grits; 25% extrusive igneous and Carboniferous rocks. 80% grazed open moorland, 12% forestry, remainder arable, urban negligible.

068001 Weaver at Ashbrook 1994

Measuring authority: NRA-NW
First year: 1937

Grid reference: 33 (SJ) 670 633
Level stn. (m OD): 16.30

Catchment area (sq km): 622.0
Max alt. (m OD): 222

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	16.480	9.572	13.310	29.320	2.888	2.006	1.373	4.368	2.079	3.362	7.938	3.380
2	25.410	10.070	11.600	14.320	2.813	2.080	1.398	2.843	1.541	9.423	5.194	3.243
3	33.140	22.660	9.514	9.762	2.857	2.628	1.508	2.922	1.530	10.240	6.576	4.649
4	34.580	21.350	8.047	15.330	2.784	2.372	1.728	2.473	2.085	5.552	8.637	28.060
5	23.380	12.050	7.208	14.130	2.787	2.104	1.808	1.861	1.831	3.141	17.410	26.170
6	16.460	10.070	6.055	11.020	2.766	2.157	3.042	1.625	1.603	2.454	11.700	20.370
7	11.690	9.131	5.559	13.440	2.890	2.153	2.613	1.507	1.791	2.177	7.288	20.890
8	10.460	8.071	5.347	19.810	2.813	2.165	1.822	1.452	1.706	2.229	5.778	27.610
9	18.040	7.347	7.594	28.650	2.664	2.084	1.613	1.411	1.837	2.017	12.470	17.610
10	24.050	6.848	7.368	20.310	2.655	1.992	1.515	1.421	2.566	1.918	12.980	12.660
11	19.170	15.650	6.794	11.960	2.598	1.942	1.504	1.407	1.644	1.852	9.698	9.898
12	26.790	11.060	7.582	10.170	2.573	1.935	1.542	1.509	4.308	1.828	18.720	8.442
13	29.080	8.289	6.951	8.737	2.574	1.900	1.398	1.391	2.512	1.736	18.820	19.290
14	17.830	6.763	9.303	6.875	2.758	1.810	1.348	1.320	8.509	1.804	14.970	19.900
15	12.630	5.810	11.330	5.894	4.779	1.700	1.373	1.243	19.030	1.856	9.985	13.050
16	10.370	5.379	7.884	5.312	3.526	1.669	1.333	1.342	8.975	1.748	7.022	11.560
17	8.685	5.936	6.190	4.775	2.922	1.638	1.280	2.607	3.278	1.606	5.996	12.010
18	10.660	6.393	15.490	4.488	2.626	1.598	1.224	1.760	2.464	1.569	5.819	19.120
19	10.760	5.781	23.830	4.418	2.481	1.569	1.294	1.473	3.042	1.776	6.461	14.240
20	9.116	5.341	11.950	4.720	2.448	1.602	1.416	1.278	4.180	2.013	25.810	19.020
21	8.593	5.067	8.674	4.452	2.483	1.799	1.550	1.221	3.254	2.037	18.500	17.920
22	9.707	4.811	8.374	3.932	2.625	1.676	1.576	1.166	2.425	3.279	11.170	12.170
23	21.700	4.923	6.938	3.746	2.485	1.516	1.430	1.254	2.076	6.713	8.501	9.246
24	13.580	4.815	7.104	3.562	2.536	1.746	2.035	1.241	2.328	4.332	6.401	8.178
25	25.410	8.032	17.510	4.644	2.495	1.678	2.143	1.186	3.731	4.677	5.791	9.757
26	18.980	17.610	9.066	4.023	2.461	1.561	1.721	1.229	2.581	3.835	5.417	18.600
27	14.220	14.850	6.709	3.508	2.355	1.468	3.434	1.206	2.164	6.437	4.785	57.810
28	13.970	15.260	5.883	3.479	2.234	1.437	2.511	1.091	2.001	7.179	4.188	47.000
29	10.600		5.033	3.002	2.144	1.415	1.736	1.051	1.857	6.634	3.853	33.720
30	9.077		5.275	3.006	2.094	1.336	1.774	1.075	1.783	11.850	3.594	30.350
31	7.637		11.150		2.072		5.477	1.318		12.200		22.670
Average	16.850	9.605	9.052	9.360	2.683	1.825	1.855	1.621	3.357	4.177	9.716	18.660
Lowest	7.637	4.811	5.033	3.002	2.072	1.336	1.224	1.051	1.530	1.569	3.594	3.243
Highest	34.580	22.660	23.830	29.320	4.779	2.628	5.477	4.368	19.030	12.200	25.810	57.810
Peak flow	41.63	28.78	29.33	34.09	5.33	3.09	10.61	5.80	20.90	13.51	30.99	63.96
Day of peak	3	3	31	1	15	3	31	1	15	30	20	27
Monthly total (million cu m)	45.12	23.24	24.25	24.26	7.19	4.73	4.97	4.34	8.70	11.19	25.18	49.99
Runoff (mm)	73	37	39	39	12	8	8	7	14	18	40	80
Rainfall (mm)	80	51	77	53	31	20	51	43	114	72	61	115

Statistics of monthly data for previous record (Oct 1937 to Dec 1993—incomplete or missing months total 1.8 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	10.380	8.923	6.724	4.902	3.713	2.803	2.704	2.931	3.141	4.413	7.605	9.607
	Low	1.966	2.376	2.183	1.491	0.905	1.125	0.737	0.641	0.918	1.184	1.302	2.430
	(year)	1964	1965	1938	1938	1946	1962	1976	1976	1964	1947	1942	1947
	High	21.950	19.860	18.580	11.760	22.720	6.996	12.750	8.405	16.990	15.970	22.540	22.250
	(year)	1939	1980	1947	1986	1969	1954	1968	1971	1957	1954	1954	1965
Runoff:	Avg.	45	35	29	20	16	12	12	13	13	19	32	41
	Low	8	9	9	6	4	5	3	3	4	5	5	10
	High	95	80	80	49	98	29	55	36	71	69	94	96
Rainfall:	Avg.	67	48	51	49	59	59	67	70	65	69	76	70
	Low	18	2	12	2	9	13	16	6	5	15	13	10
	High	145	145	127	98	194	142	168	175	169	137	170	140

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	7.393		5.641		131
Lowest yearly mean			2.752	1964	
Highest yearly mean			9.209	1954	
Lowest monthly mean	1.621	Aug	0.641	Aug 1976	
Highest monthly mean	18.660	Dec	22.720	May 1969	
Lowest daily mean	1.051	29 Aug	0.394	17 Aug 1976	
Highest daily mean	57.810	27 Dec	84.950	9 Feb 1946	
Peak	63.960	27 Dec	212.400	8 Feb 1946	
10% exceedance	18.620		12.410		150
50% exceedance	4.404		3.209		137
95% exceedance	1.335		1.155		116
Annual total (million cu m)	233.10		178.00		131
Annual runoff (mm)	375		286		131
Annual rainfall (mm)	768		750		102
1961-90 rainfall average (mm)			731		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Abstraction for public water supplies.
- Augmentation from effluent returns.

Station and catchment description

Initially a river section (from 1937). Early gaugings lost; rating accuracy unknown. Mobile control. Data before 1972, particularly low flows, unreliable. Unstable low flow rating led to relocation 400m d/s with an informal Flat V control and cableway in 8/78. Prone to weed and algal growth. High flow rating (above 40 cumec) has yet to be defined. Flat catchment includes western half of Crewe. Post glacial deposits over (mostly) Keuper Marl.

072004 Lune at Caton 1994

Measuring authority: NRA-NW
First year: 1959
Grid reference: 34 (SD) 529 653
Level stn. (m OD): 10.70
Catchment area (sq km): 983.0
Max alt. (m OD): 736

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	43.750	132.900	47.450	106.200	18.100	4.416	8.811	9.942	25.150	16.100	59.050	13.890
2	112.200	56.830	44.980	49.900	15.460	4.342	7.715	9.703	13.770	125.400	31.700	12.850
3	134.300	46.380	139.400	105.400	14.030	5.163	7.048	18.160	12.540	59.310	41.600	19.280
4	64.680	43.950	53.040	80.450	19.320	7.571	6.747	47.210	31.530	28.320	29.320	78.700
5	79.520	31.470	93.270	73.550	53.790	5.955	6.486	16.420	23.270	19.970	57.080	66.360
6	56.180	33.970	96.060	53.920	37.930	5.439	8.554	10.740	38.740	15.980	32.080	49.550
7	34.070	29.430	120.700	95.400	21.600	8.357	6.593	7.942	55.760	21.460	23.080	76.200
8	28.910	65.300	246.900	132.600	16.700	5.738	5.545	6.762	32.500	27.330	25.910	129.500
9	50.140	46.440	83.260	80.190	13.910	5.189	4.904	5.965	43.190	16.100	68.520	48.300
10	48.900	27.940	44.760	62.400	12.270	5.735	5.030	5.364	80.810	12.900	43.950	218.900
11	33.730	22.440	68.640	39.340	10.880	5.081	11.880	4.985	68.820	11.150	28.480	192.100
12	75.450	18.610	115.200	32.570	9.846	4.482	8.170	4.653	104.200	9.975	62.410	182.300
13	72.390	15.960	103.100	26.190	8.897	4.086	5.759	4.278	68.570	9.148	327.800	102.700
14	78.640	13.690	106.700	20.500	8.315	3.636	4.977	3.911	35.580	8.505	214.300	56.940
15	42.760	12.470	56.500	17.100	10.860	3.453	4.777	3.662	39.810	7.943	113.500	50.790
16	28.770	11.810	44.300	15.000	11.060	3.588	4.499	3.925	29.700	7.585	70.460	51.140
17	22.090	11.220	40.370	13.580	8.467	3.596	4.065	15.480	19.830	7.260	102.800	124.400
18	175.800	11.040	60.510	12.440	7.426	3.597	3.736	8.775	16.100	6.810	93.180	96.400
19	71.360	10.410	41.180	12.130	7.016	11.650	3.434	6.932	15.060	6.577	142.100	65.390
20	68.650	9.394	28.360	33.620	6.883	11.130	3.290	6.625	16.590	7.565	130.900	43.070
21	62.400	8.532	23.480	29.370	6.602	65.580	3.234	5.382	15.770	8.135	58.280	31.750
22	83.910	8.093	76.980	105.900	6.684	21.440	3.215	4.590	12.310	18.740	40.180	24.560
23	135.500	7.749	329.800	57.830	6.244	10.750	3.084	17.680	10.480	74.880	36.120	20.860
24	82.260	8.050	90.010	33.500	5.874	12.170	3.489	92.070	10.270	34.560	29.640	25.590
25	186.600	12.620	85.270	35.140	5.576	17.580	3.896	83.570	32.610	45.200	24.500	47.320
26	134.700	72.320	43.580	35.390	5.340	29.900	3.165	36.960	17.870	47.170	25.100	122.900
27	166.100	123.100	51.870	30.400	5.210	80.650	4.852	55.260	13.080	51.120	22.490	94.870
28	70.330	97.900	55.130	70.310	5.054	22.770	4.096	41.390	11.320	63.510	18.810	449.800
29	105.100		41.630	35.260	4.968	14.290	3.133	26.410	10.170	32.100	16.680	143.600
30	70.990		31.460	22.950	4.720	10.740	2.887	23.090	9.757	48.080	15.120	137.600
31	43.030		127.800		4.516		4.805	19.890		117.400		84.150
Average	79.460	35.360	83.600	50.820	12.050	13.270	5.157	19.600	30.510	31.170	66.170	92.310
Lowest	22.090	7.749	23.480	12.130	4.516	3.453	2.887	3.662	9.757	6.577	15.120	12.850
Highest	186.600	132.900	329.800	132.600	53.790	80.650	11.880	92.070	104.200	125.400	327.800	449.800
Peak flow	394.60	259.80	582.00	285.90	123.10	150.60	13.49	212.70	129.60	224.10	609.60	579.50
Day of peak	18	1	23	1	5	27	11	25	10	2	13	28
Monthly total (million cu m)	212.80	85.54	223.90	131.20	32.27	34.39	13.81	52.51	79.07	83.49	171.50	247.30
Runoff (mm)	217	87	228	133	33	35	14	53	80	85	174	252
Rainfall (mm)	224	81	255	145	41	98	59	151	121	129	174	287

Statistics of monthly data for previous record (Jan 1959 to Dec 1993—incomplete or missing months total 4.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	54.080	39.570	36.770	28.560	18.250	14.740	18.310	24.670	31.550	43.150	50.980	57.900
	Low	6.622	3.842	10.040	4.203	2.565	3.385	1.882	2.167	2.790	4.314	11.220	18.730
	(year)	1963	1963	1993	1974	1974	1975	1984	1976	1959	1972	1993	1971
	High	88.800	114.000	113.800	67.970	40.700	49.190	42.800	71.330	67.010	134.400	97.220	108.900
	(year)	1990	1990	1981	1970	1986	1972	1988	1985	1985	1967	1963	1986
Runoff:	Avg.	147	98	100	75	50	39	50	67	83	118	134	158
	Low	18	9	27	11	7	9	5	6	7	12	30	51
	High	242	280	310	179	111	130	117	194	177	366	256	297
Rainfall:	Avg.	153	101	112	95	89	89	112	128	135	154	149	170
	Low	20	9	44	5	21	22	29	24	26	46	60	55
	High	279	309	246	193	178	169	245	270	262	402	277	333

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	43.370		34.880		124
Lowest yearly mean			24.700	1976	
Highest yearly mean			46.500	1967	
Lowest monthly mean	5.157	Jul	1.882	Jul 1984	
Highest monthly mean	92.310	Dec	134.400	Oct 1967	
Lowest daily mean	2.887	30 Jul	1.166	25 Aug 1984	
Highest daily mean	449.800	28 Dec	718.300	23 Mar 1968	
Peak	609.600	13 Nov	873.600	19 Feb 1990	
10% exceedance	104.700		81.350		129
50% exceedance	25.690		16.860		152
95% exceedance	4.004		2.843		141
Annual total (million cu m)	1368.00		1101.00		124
Annual runoff (mm)	1391		1120		124
Annual rainfall (mm)	1765		1487		119
1961-90 rainfall average (mm)			1523		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.
- Augmentation from surface water and/or groundwater.

Station and catchment description

Bazin type compound broad-crested weir operated after 10/6/77 as full-range station. Previously used for low/medium flows; high flows from Halton 3km downstream. High flows inundate wide floodplain. Transfers to River Wyre under Lancs. Conjunctive Use Scheme. Major abstractions for PWS. Headwaters rise from Shap Fell and the Pennines. Mixed geology: Carboniferous Limestone; Silurian shales; Millstone Grit and Coal Measures, substantial Drift cover. Agriculture in valleys; grassland rising to peat moss in highest areas.

073010 Leven at Newby Bridge 1994

Measuring authority: NRA-NW
First year: 1939

Grid reference: 34 (SD) 367 863
Level stn. (m OD): 37.30

Catchment area (sq km): 247.0
Max alt. (m OD): 873

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	23.240	44.160	25.720	26.890	12.690	1.176	9.217	2.944	8.678	3.374	26.500	7.772
2	22.980	47.360	24.110	25.300	11.260	1.273	7.387	3.069	7.309	5.377	24.840	6.661
3	26.720	40.550	26.980	26.900	9.760	1.609	6.011	6.782	6.464	6.654	24.540	7.782
4	31.640	33.740	28.330	36.770	11.420	2.127	5.211	13.980	6.291	6.120	23.700	11.850
5	29.290	26.680	31.240	35.170	16.810	2.072	4.511	14.200	6.480	5.404	22.960	15.210
6	27.820	22.840	32.350	31.670	18.860	2.506	4.237	12.510	8.867	4.519	20.990	16.760
7	24.940	20.610	41.070	30.630	17.490	3.139	3.832	10.390	12.570	4.701	18.440	19.100
8	21.780	20.890	53.160	32.190	15.480	3.201	3.279	8.386	13.990	5.004	16.680	28.590
9	20.250	23.200	54.810	33.550	13.480	3.494	2.664	7.129	15.490	4.651	20.790	29.230
10	21.130	21.760	45.250	31.000	11.730	4.002	5.346	5.527	19.600	4.012	21.370	35.070
11	20.040	19.230	38.350	25.260	10.350	3.801	9.848	4.179	23.860	3.474	19.470	43.560
12	22.270	16.740	34.760	22.630	8.659	3.441	10.320	3.140	28.710	2.951	20.780	49.850
13	24.690	14.560	37.630	19.970	7.666	3.150	8.966	2.621	31.650	2.554	40.500	45.920
14	25.120	12.480	38.100	17.350	6.614	2.867	7.330	2.320	28.350	2.232	55.630	39.100
15	23.450	10.260	36.600	14.270	5.913	2.383	6.209	2.146	21.900	2.210	52.900	33.160
16	20.500	8.939	32.070	11.840	5.188	2.171	5.128	2.128	18.060	1.799	46.440	28.000
17	17.350	7.773	25.910	10.100	4.303	1.837	3.947	2.662	14.960	1.467	41.520	26.780
18	20.540	6.811	23.050	8.411	3.619	1.918	3.069	2.686	12.320	1.432	41.430	28.990
19	26.820	6.194	20.370	7.586	3.327	3.289	2.418	3.213	10.560	1.745	45.000	27.560
20	25.920	5.281	17.870	8.729	3.065	3.882	1.967	3.506	9.485	2.603	43.750	25.350
21	24.900	4.641	15.440	9.430	2.931	12.030	1.945	3.546	7.704	3.223	38.490	22.250
22	23.880	4.268	18.080	15.700	2.531	14.390	1.918	3.585	6.345	5.611	33.170	19.010
23	28.650	4.978	36.390	18.510	2.136	12.570	1.852	5.064	5.339	9.788	27.390	16.330
24	28.080	4.299	46.110	18.510	1.938	10.310	1.906	7.546	5.075	11.870	23.510	15.350
25	31.580	4.735	41.340	17.960	1.890	8.312	1.543	11.530	4.263	12.360	19.850	15.910
26	35.550	6.450	35.140	17.880	1.713	8.601	2.565	12.410	3.714	13.930	16.950	19.060
27	43.830	13.410	30.380	16.910	1.470	14.960	3.492	12.640	3.521	16.490	14.570	23.570
28	42.560	24.890	29.730	16.320	1.320	14.780	3.419	12.140	3.140	18.860	12.580	44.670
29	39.050		27.290	15.630	1.345	12.840	3.045	11.920	3.021	18.440	10.760	54.490
30	37.870		23.850	14.440	1.072	11.100	2.742	10.700	2.966	19.260	9.156	52.020
31	33.590		24.300		1.133		2.856	9.653		24.470		50.360
Average	27.290	17.060	32.120	20.580	7.005	5.774	4.457	6.911	11.690	7.309	27.820	27.720
Lowest	17.350	4.268	15.440	7.586	1.072	1.176	1.543	2.128	2.966	1.432	9.156	6.661
Highest	43.830	47.360	54.810	36.770	18.860	14.960	10.320	14.200	31.650	24.470	55.630	54.490
Peak flow	45.89	50.26	59.77	38.07	19.26	15.93	10.68	14.93	33.27	26.77	56.78	56.78
Day of peak	27	1	8	4	6	27	12	4	13	31	14	29
Monthly total (million cu m)	73.10	41.28	86.04	53.35	18.76	14.97	11.94	18.51	30.30	19.58	72.11	74.24
Runoff (mm)	296	167	348	216	76	61	48	75	123	79	292	301
Rainfall (mm)	344	149	372	211	71	154	103	180	160	186	270	393

Statistics of monthly data for previous record (Jan 1939 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	20.050	16.710	14.020	11.330	7.501	6.296	7.316	10.370	13.970	17.070	20.250	21.500
	Low	1.935	0.974	3.699	1.796	0.641	0.545	0.774	0.652	0.560	1.438	5.059	8.207
	(year)	1963	1963	1962	1974	1980	1978	1941	1984	1959	1972	1993	1963
	High	38.020	37.450	36.040	21.640	18.680	18.730	16.990	31.070	33.930	50.170	36.450	40.110
	(year)	1975	1990	1989	1949	1986	1972	1953	1985	1946	1967	1986	1954
Runoff:	Avg.	217	165	152	119	81	66	79	112	147	185	213	233
	Low	21	10	40	19	7	6	8	7	6	16	53	89
	High	412	367	391	227	203	197	184	337	356	544	383	435
Rainfall:	Avg.	231	156	167	122	116	124	148	183	211	224	234	244
	Low	26	7	32	12	22	17	32	7	29	30	17	90
	High	439	410	398	243	241	269	309	428	427	557	428	482

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	16.300		13.850		118
Lowest yearly mean			9.234	1973	
Highest yearly mean			21.840	1954	
Lowest monthly mean	4.457	Jul	0.545	Jun 1978	
Highest monthly mean	32.120	Mar	50.170	Oct 1967	
Lowest daily mean	1.072	30 May	0.108	7 Oct 1972	
Highest daily mean	55.630	14 Nov	115.900	2 Dec 1954	
Peak	59.770	8 Mar	135.800	2 Dec 1954	
10% exceedance	35.560		30.980		115
50% exceedance	12.800		10.050		127
95% exceedance	1.919		1.213		158
Annual total (million cu m)	514.00		437.10		118
Annual runoff (mm)	2081		1770		118
Annual rainfall (mm)	2593		2160		120
1961-90 rainfall average (mm)			2167		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.
- Augmentation from effluent returns.

Station and catchment description

Level record since 1939 from four different sites at Newby Bridge. All flow records from 1939 to 1974 combined into a single sequence. Since 5/5/71 compound Crump profile weir - increased sensitivity at low flows. Full-range. Just d/s of Lake Windermere - highly regulated, compensation flow. Occasional very low flows (e.g. in autumn 1972) have resulted from closure of u/s fish pass. Major abstractions for PWS, sewage effluent from Ambleside. Predominantly impervious, Borrowdale Volcanics in north and Silurian slate in south. Boulder Clay along river valleys. Mainly grassland, very wooded in lower reaches.

076007 Eden at Sheepmount 1994

Measuring authority: NRA-NW
First year: 1967

Grid reference: 35 (NY) 390 571
Level stn. (m OD): 7.00

Catchment area (sq km): 2286.5
Max alt. (m OD): 950

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	66.170	226.000	80.580	154.200	34.200	12.400	13.700	13.150	18.920	16.810	79.570	29.060
2	98.500	139.500	64.700	84.080	32.270	12.850	12.870	11.400	18.190	31.590	54.430	27.230
3	135.000	93.740	168.400	87.180	30.500	15.820	12.390	15.270	15.550	70.860	64.750	41.400
4	113.000	98.530	92.180	118.400	35.460	17.430	12.420	39.500	16.190	38.300	62.350	97.110
5	109.600	74.600	208.500	84.210	42.980	16.500	12.190	25.500	17.290	28.910	92.700	115.500
6	113.800	65.140	110.600	82.360	44.720	14.690	14.440	20.000	17.340	24.030	72.000	92.040
7	77.570	59.710	114.200	127.500	33.330	14.630	19.090	16.540	23.930	22.300	50.950	170.600
8	62.550	61.290	227.800	155.000	29.100	14.350	13.610	14.850	21.200	23.340	42.190	290.800
9	83.120	78.990	136.900	120.200	26.190	13.810	12.020	13.800	23.260	19.940	73.250	121.500
10	108.000	55.980	86.320	95.010	24.130	13.950	11.630	12.900	56.750	17.770	75.510	161.800
11	69.980	47.900	89.140	74.560	22.460	13.680	13.580	12.220	88.460	16.310	57.590	312.100
12	110.300	41.680	97.490	66.760	20.980	13.070	13.780	11.840	112.500	15.270	91.560	298.000
13	175.600	37.020	158.400	59.350	19.660	12.630	12.930	11.360	104.100	14.510	283.300	154.700
14	117.900	32.740	116.700	48.750	18.800	12.120	11.930	10.870	61.920	13.970	278.500	114.000
15	88.830	30.130	90.280	41.150	19.390	11.880	11.550	10.430	48.940	13.480	166.200	87.110
16	67.360	28.520	75.140	36.630	23.090	12.910	11.090	10.540	42.580	13.130	105.900	84.830
17	54.570	26.650	70.650	33.760	19.340	14.930	10.590	11.610	33.310	12.790	118.600	116.200
18	73.700	25.500	72.490	31.350	17.680	14.270	10.180	12.920	28.050	12.350	155.700	171.700
19	92.900	24.320	68.020	29.660	16.760	18.140	9.797	12.330	26.050	12.130	205.700	123.700
20	65.540	22.920	52.720	32.460	16.040	15.980	9.567	12.440	28.120	13.210	170.200	86.710
21	60.080	21.760	45.600	40.790	15.550	40.490	9.727	11.310	29.570	19.680	104.000	66.930
22	55.390	20.330	66.110	84.560	15.720	34.110	9.705	10.510	24.860	25.410	76.100	54.440
23	103.500	19.700	289.100	81.240	16.180	20.840	9.223	14.070	21.190	86.080	64.840	48.420
24	71.050	19.390	162.100	62.040	15.200	17.270	9.237	23.710	19.300	51.820	58.120	49.170
25	153.900	19.530	110.600	52.080	14.520	15.800	9.561	66.020	31.240	39.190	50.130	60.740
26	152.500	39.460	80.610	54.050	14.030	15.610	9.537	29.610	29.390	42.580	47.690	112.100
27	233.800	151.100	65.470	43.250	13.700	24.580	9.809	34.320	22.580	47.010	43.240	115.200
28	114.400	151.900	82.450	57.640	13.490	22.470	9.807	31.530	19.650	39.070	38.080	326.700
29	89.830		72.670	58.150	13.270	17.250	9.630	29.070	17.960	34.210	34.400	294.700
30	104.900		60.390	40.820	12.880	15.030	9.648	24.060	16.750	59.740	31.380	234.500
31	74.020		109.900		12.650		12.240	18.820		125.000		237.100
Average	99.910	61.220	107.300	71.240	22.070	16.980	11.530	19.110	34.500	32.280	94.960	138.600
Lowest	54.570	19.390	45.600	29.660	12.650	11.880	9.223	10.430	15.550	12.130	31.380	27.230
Highest	233.800	226.000	289.100	155.000	44.720	40.490	19.090	66.020	112.500	125.000	283.300	326.700
Peak flow	325.90	368.20	448.90	213.00	57.72	57.81	24.22	96.87	146.00	139.80	453.60	444.90
Day of peak	27	1	23	1	6	21	7	25	12	31	13	29
Monthly total (million cu m)	267.60	148.10	287.40	184.70	59.12	44.02	30.89	51.19	89.44	86.47	246.10	371.20
Runoff (mm)	117	65	126	81	26	19	14	22	39	38	108	162
Rainfall (mm)	159	68	179	104	29	71	49	114	92	91	140	241

Statistics of monthly data for previous record (Oct 1967 to Dec 1993—incomplete or missing months total 3.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	88.490	67.770	58.770	42.810	28.700	21.900	22.330	25.780	36.930	59.790	73.000	80.590
	Low	39.680	26.440	21.930	13.070	11.050	10.420	8.377	7.023	9.216	7.961	22.420	32.490
	(year)	1992	1986	1993	1974	1974	1973	1984	1976	1972	1972	1993	1971
	High	151.200	210.700	119.700	69.930	69.120	50.380	59.240	92.380	105.400	225.000	126.400	143.100
	(year)	1975	1990	1968	1993	1983	1972	1988	1985	1985	1967	1984	1986
Runoff:	Avg.	104	72	69	49	34	25	26	30	42	70	83	94
	Low	46	28	26	15	13	12	10	8	10	9	25	38
	High	177	223	140	79	81	57	69	108	120	264	143	168
Rainfall:	Avg.	133	83	100	71	70	71	85	93	107	127	123	132
	Low	44	13	43	8	19	21	22	19	25	31	54	43
	High	232	279	179	142	135	126	221	211	231	307	208	371

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	59.180		50.520		117
Lowest yearly mean			28.190	1973	
Highest yearly mean			60.790	1982	
Lowest monthly mean	11.530	Jul	7.023	Aug 1976	
Highest monthly mean	138.600	Dec	225.000	Oct 1967	
Lowest daily mean	9.223	23 Jul	5.468	7 Sep 1976	
Highest daily mean	326.700	28 Dec	772.900	23 Mar 1968	
Peak	453.600	13 Nov	1357.000	24 Mar 1968	
10% exceedance	125.800		109.000		115
50% exceedance	36.700		31.280		117
95% exceedance	11.080		10.090		110
Annual total (million cu m)	1866.00		1594.00		117
Annual runoff (mm)	816		697		117
Annual rainfall (mm)	1337		1195		112
1961-90 rainfall average (mm)			1183		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.

Station and catchment description

Velocity-area station. Permanent cableway. Full-range. Most floods contained in immediate channel. Pre-1970 (when floodbanks constructed) bypassed via Caldew floodplain. Highly influenced by Ullswater, Haweswater and Wet Sleddale especially at low flows. Rural except for Carlisle, Penrith and Appleby. Headwaters in Carboniferous Limestone of Pennines to east, impervious Lower Palaeozoics of Lake District massif to west; moorland. Extensive Boulder Clay covered Permo-Triassic sandstone in Vale of Eden. Arable and grazing.

079006 Nith at Drumlanrig 1994

Measuring authority: SRPB
First year: 1967

Grid reference: 25 (NX) 858 994
Level stn. (m OD): 52.20

Catchment area (sq km): 471.0
Max alt. (m OD): 725

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12.790	138.400	19.380	39.800	6.272	1.494	1.547	14.560	7.054	4.186	27.300	7.083
2	17.680	42.000	34.920	38.460	6.515	1.477	1.458	5.308	5.464	8.215	25.920	7.251
3	57.330	30.630	49.160	90.680	9.902	2.082	1.442	15.810	5.198	9.573	73.510	37.430
4	26.790	62.790	95.070	54.340	21.450	2.375	1.712	18.570	5.895	5.945	42.520	23.830
5	27.360	48.480	67.360	39.140	24.770	1.918	3.311	7.699	5.296	8.811	25.040	39.460
6	32.010	51.470	49.330	28.930	14.300	1.817	6.773	5.495	27.800	6.177	23.560	67.880
7	23.410	30.780	44.320	32.160	10.250	1.747	5.323	4.263	15.180	5.147	16.470	67.470
8	19.130	34.570	69.490	43.420	7.785	1.586	3.079	3.589	20.430	4.338	15.620	104.200
9	102.500	24.630	31.670	31.710	6.356	3.150	2.448	3.090	32.190	3.709	30.570	33.220
10	65.580	16.810	22.500	27.160	5.574	3.201	8.180	2.657	34.490	3.334	16.110	156.800
11	55.180	14.190	23.410	21.500	4.905	2.025	7.874	2.354	41.850	2.990	12.170	342.100
12	80.220	11.200	40.270	20.820	4.259	1.740	11.500	2.095	19.770	2.701	25.460	128.600
13	67.590	9.016	45.870	13.790	3.826	1.548	8.272	1.901	13.000	2.510	125.800	45.030
14	63.910	7.382	57.160	10.630	3.507	1.324	4.680	1.787	9.762	2.388	77.140	26.020
15	32.780	6.826	32.280	8.700	3.240	1.333	4.142	1.701	7.650	2.307	113.800	21.240
16	20.720	6.391	27.840	7.558	2.992	1.798	3.259	1.961	6.091	2.230	77.340	19.700
17	17.970	7.157	30.810	6.881	2.793	3.056	2.619	2.475	5.127	2.063	84.340	64.160
18	49.170	7.058	37.630	6.153	2.672	11.630	2.206	2.060	4.650	1.974	87.210	26.860
19	26.050	6.552	27.500	5.983	2.562	12.290	1.941	2.455	5.610	2.401	64.890	41.520
20	27.710	5.717	22.510	5.189	2.400	4.354	1.780	2.220	5.335	5.193	40.320	27.180
21	25.070	5.264	37.070	5.092	2.252	16.620	1.739	1.943	4.347	6.426	27.660	16.160
22	30.490	4.865	74.490	6.991	2.138	6.893	1.635	1.756	3.776	45.190	33.630	12.400
23	37.100	3.640	110.100	13.170	2.030	4.130	1.463	15.490	3.416	59.810	22.220	20.000
24	31.500	3.428	48.290	12.610	1.924	3.557	1.666	23.080	3.134	18.750	16.490	19.480
25	59.280	3.264	28.040	19.530	1.819	3.140	1.882	11.850	2.911	11.020	13.740	31.160
26	72.800	6.087	17.950	14.680	1.736	3.019	6.934	10.810	2.733	11.060	16.060	29.490
27	46.030	72.980	42.230	8.567	1.693	3.128	3.277	13.150	2.874	11.430	12.360	20.100
28	22.990	35.790	35.100	8.515	1.631	2.333	2.230	37.730	2.912	13.200	10.160	91.610
29	33.040		25.860	9.781	1.563	1.896	1.865	41.650	3.253	11.990	8.559	42.090
30	31.340		73.170	7.874	1.515	1.697	1.648	14.140	3.168	16.650	7.644	62.110
31	23.920		49.760		1.492		17.680	9.443		47.650		28.330
Average	39.980	24.910	44.210	21.330	5.359	3.612	4.050	9.132	10.350	10.950	39.120	53.550
Lowest	12.790	3.264	17.950	5.092	1.492	1.324	1.442	1.701	2.733	1.974	7.644	7.083
Highest	102.500	138.400	110.100	90.680	24.770	16.620	17.680	41.650	41.850	59.810	125.800	342.100
Peak flow	273.60	258.00	236.20	155.10	31.21	26.74	78.04	86.97	55.76	161.80	204.00	509.10
Day of peak	9	1	4	3	4	21	31	29	11	22	13	11
Monthly total (million cu m)	107.10	60.25	118.40	55.28	14.35	9.36	10.85	24.46	26.82	29.32	101.40	143.40
Runoff (mm)	227	128	251	117	30	20	23	52	57	62	215	305
Rainfall (mm)	242	119	260	131	30	89	112	116	86	115	206	310

Statistics of monthly data for previous record (Jun 1967 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	29.870	21.400	20.060	11.220	8.077	5.237	5.513	8.579	14.010	22.550	26.120	27.130
	Low	9.037	4.288	4.427	2.457	1.390	1.489	0.868	0.841	1.261	2.744	5.268	12.770
	(year)	1985	1986	1969	1974	1980	1984	1984	1984	1972	1972	1983	1971
	High	61.220	60.660	35.660	27.270	27.570	14.660	15.780	38.280	39.000	39.200	49.350	55.190
	(year)	1974	1990	1992	1993	1986	1972	1988	1985	1985	1967	1982	1986
Runoff:	Avg.	170	111	114	62	46	29	31	49	77	128	144	154
	Low	51	22	25	14	8	8	5	5	7	16	29	73
	High	348	312	203	150	157	81	90	218	215	223	272	314
Rainfall:	Avg.	189	119	141	82	93	84	96	113	146	176	170	172
	Low	67	10	34	11	19	30	41	23	20	61	35	69
	High	398	382	239	175	230	163	211	302	247	301	285	345

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	22.230		16.640		134
Lowest yearly mean			10.720	1971	
Highest yearly mean			21.700	1982	
Lowest monthly mean	3.612	Jun	0.841	Aug 1984	
Highest monthly mean	53.550	Dec	61.220	Jan 1974	
Lowest daily mean	1.324	14 Jun	0.606	26 Aug 1984	
Highest daily mean	342.100	11 Dec	231.700	19 Dec 1982	
Peak	509.100	11 Dec	538.400	18 Oct 1982	
10% exceedance	57.460		42.950		134
50% exceedance	11.270		8.222		137
95% exceedance	1.699		1.351		126
Annual total (million cu m)	701.00		525.10		133
Annual runoff (mm)	1488		1115		133
Annual rainfall (mm)	1816		1581		115
1961-90 rainfall average (mm)			1483		

Factors affecting runoff

- Reservoir(s) in catchment.
- Abstraction for public water supplies.

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station on long straight reach at particularly well confined site. Cableway. Gravel and rock bed. Natural channel control. Sensibly natural flow regime. Afton Reservoir has small influence.

084005 Clyde at Blairston 1994

Measuring authority: CRPB
First year: 1958

Grid reference: 26 (NS) 704 579
Level stn. (m OD): 17.60

Catchment area (sq km): 1704.2
Max alt. (m OD): 732

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	39.280	242.900	85.740	83.980	20.550	9.414	7.979	11.650	14.470	11.180	53.750	23.900
2	45.740	142.800	102.700	86.570	19.080	9.386	7.991	10.880	12.970	14.700	34.060	28.270
3	70.610	76.570	170.400	108.800	18.310	9.806	8.098	15.060	13.220	25.970	34.460	45.400
4	71.270	87.540	169.300	134.700	19.500	9.775	11.700	15.000	16.190	20.110	59.340	45.220
5	59.180	68.030	106.500	122.400	32.700	9.775	12.260	13.000	14.810	15.510	49.200	44.830
6	119.900	66.430	87.200	95.680	38.390	9.062	16.310	10.000	20.470	14.060	46.880	105.600
7	90.870	58.610	153.400	108.800	25.940	8.871	18.660	9.000	34.980	13.940	38.630	121.400
8	53.060	54.310	132.700	125.600	22.430	8.882	12.550	8.500	21.640	13.350	30.920	251.800
9	63.000	63.690	121.900	102.000	19.250	8.665	10.680	7.937	25.230	12.220	28.320	130.400
10	124.200	46.360	91.080	84.280	18.080	8.132	24.170	6.669	46.870	11.120	34.450	386.200
11	69.900	39.600	85.220	64.540	16.340	8.203	22.490	6.528	65.930	9.994	33.200	676.400
12	109.600	34.660	89.810	54.820	17.470	8.107	23.310	6.265	42.960	9.470	39.960	516.600
13	174.000	30.180	152.300	47.210	17.930	8.098	20.990	5.932	28.500	9.459	206.400	159.800
14	191.700	27.030	239.800	39.540	17.060	8.160	14.590	5.771	22.250	9.242	199.100	93.100
15	98.840	25.160	109.700	34.510	16.300	8.144	11.190	5.953	18.240	8.795	181.400	72.750
16	63.720	23.320	88.150	30.870	16.400	8.852	10.500	6.054	15.630	8.752	120.900	63.880
17	48.910	21.550	90.000	29.350	16.190	9.116	9.064	6.576	14.050	8.878	161.500	92.140
18	94.270	20.680	88.040	26.670	15.810	12.420	8.974	6.988	13.360	8.131	201.000	99.580
19	80.690	20.110	73.210	25.300	15.140	17.340	8.507	7.164	12.650	7.710	190.900	122.000
20	72.460	18.940	59.260	23.470	14.270	12.820	8.241	6.912	11.740	8.338	103.000	84.910
21	63.100	17.740	60.930	21.430	14.630	13.630	8.235	7.023	11.890	9.297	72.390	55.140
22	87.200	16.670	129.400	24.210	14.470	18.590	8.244	7.175	11.360	19.050	64.080	44.580
23	108.100	15.010	286.600	25.810	14.270	12.110	8.373	7.710	10.060	127.100	60.010	57.160
24	75.450	16.140	148.800	24.850	13.890	11.520	8.309	16.360	9.039	53.120	46.860	76.260
25	168.800	15.540	85.150	25.890	13.760	11.520	8.297	26.390	8.497	40.740	39.950	86.320
26	191.200	23.210	60.950	32.080	13.420	10.900	9.365	15.990	8.534	31.600	47.580	99.060
27	190.300	101.700	52.500	25.320	12.650	12.430	11.100	14.110	8.464	32.690	42.550	74.530
28	82.760	153.400	71.610	21.300	10.510	10.380	8.690	55.960	8.361	25.990	35.230	178.300
29	79.980		68.540	22.610	10.110	9.023	8.154	54.840	8.597	35.050	28.500	144.200
30	84.040		76.250	23.290	9.185	8.336	8.017	30.540	8.849	40.130	25.650	157.100
31	71.610		128.000		9.445		8.536	19.390		76.640		107.600
Average	94.960	54.570	111.800	55.860	17.210	10.380	11.730	13.780	18.660	23.620	77.010	136.900
Lowest	39.280	15.010	52.500	21.300	9.185	8.098	7.979	5.771	8.361	7.710	25.650	23.900
Highest	191.700	242.900	286.600	134.700	38.390	18.590	24.170	55.960	65.930	127.100	206.400	676.400
Peak flow	275.00	288.10	322.90	168.90	42.28	21.89	26.52	71.95	73.98	167.40	262.20	830.90
Day of peak	27	2	24	4	7	23	11	29	12	24	14	12
Monthly total (million cu m)	254.30	132.00	299.40	144.80	46.09	26.91	31.41	36.92	48.37	63.27	199.60	366.70
Runoff (mm)	149	77	176	85	27	16	18	22	28	37	117	215
Rainfall (mm)	173	82	205	90	21	65	83	92	66	83	143	252

Statistics of monthly data for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	69.590	53.130	48.040	32.220	23.460	16.590	15.670	24.700	35.940	50.810	63.620	67.380
	Low	11.920	8.854	14.810	10.430	7.994	7.491	5.041	4.536	7.630	8.243	15.870	26.080
	(year)	1963	1963	1969	1974	1980	1984	1984	1984	1972	1972	1983	1963
	High	134.300	160.100	91.060	64.400	56.230	41.190	47.620	82.370	128.400	114.600	129.600	133.400
	(year)	1975	1990	1990	1991	1986	1972	1985	1985	1985	1967	1982	1986
Runoff:	Avg.	109	76	76	49	37	25	25	39	55	80	97	106
	Low	19	13	23	16	13	11	8	7	12	13	24	41
	High	211	227	143	98	88	63	75	129	195	180	197	210
Rainfall:	Avg.	120	79	97	67	71	72	81	101	113	122	122	122
	Low	25	16	28	9	18	17	32	24	16	33	24	38
	High	250	254	166	125	150	157	166	206	230	231	221	237

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	52.320		41.730		125
Lowest yearly mean			27.090	1973	
Highest yearly mean			58.800	1990	
Lowest monthly mean	10.380	Jun	4.536	Aug 1984	
Highest monthly mean	136.900	Dec	160.100	Feb 1990	
Lowest daily mean	5.771	14 Aug	3.366	23 Aug 1984	
Highest daily mean	676.400	11 Dec	581.700	21 Sep 1985	
Peak	830.900	12 Dec	666.400	22 Sep 1985	
10% exceedance	124.100		98.220		126
50% exceedance	25.400		24.030		106
95% exceedance	8.024		7.827		103
Annual total (million cu m)	1650.00		1317.00		125
Annual runoff (mm)	968		773		125
Annual rainfall (mm)	1355		1167		116
1961-90 rainfall average (mm)			1140		

Factors affecting runoff

- Regulation for HEP.

Comment

August 1994 contains estimated daily mean flows.

Station and catchment description

Recorder moved to present position in Nov. 1974 from opposite bank. Section is natural with steep grass and tree covered banks. Velocity profile slightly uneven due to upstream bend. Control - piers of redundant rail bridge, 300m d/s. Section rated by current meter to 3.4m, just below max. recorded stage. Some naturalised flows available. Very mixed geology with the older formations (Ordovician/Silurian) to the south. Hill pasture and moorland predominates but some mixed farming and urban development is found in the lower valley.

085003 Falloch at Glen Falloch 1994

Measuring authority: CRPB
First year: 1970

Grid reference: 27 (NN) 321 197
Level stn. (m OD): 9.50

Catchment area (sq km): 80.3
Max alt. (m OD): 1130

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.806	26.110	1.478	12.960	3.165	0.724	1.311	1.471	0.847	6.012	3.673	1.484
2	3.137	5.656	7.771	5.953	3.405	1.440	1.088	0.635	0.570	4.699	8.934	3.480
3	12.050	4.970	9.314	18.250	4.621	9.100	0.998	16.880	1.530	1.997	14.180	26.470
4	2.777	13.160	60.890	5.167	12.450	2.883	3.323	11.800	1.813	2.394	3.667	4.239
5	3.374	15.140	12.350	6.971	13.050	1.695	2.803	1.889	1.196	3.091	2.900	14.520
6	3.807	8.159	47.530	6.779	4.015	5.529	1.246	0.913	4.024	10.870	3.725	21.160
7	1.960	4.715	40.450	5.517	3.645	3.021	0.852	0.664	1.458	5.314	2.397	8.450
8	2.067	7.668	42.800	3.956	1.982	3.187	0.639	0.538	5.328	3.350	8.933	21.020
9	22.180	7.200	10.050	3.978	1.476	3.187	5.777	0.450	5.952	1.674	12.670	30.620
10	10.430	2.341	26.320	4.267	1.722	4.318	3.091	0.287	18.330	1.177	6.985	123.600
11	11.000	1.658	8.506	6.969	1.672	1.418	3.198	0.236	4.541	0.929	2.749	46.310
12	18.450	1.422	22.170	4.969	2.224	0.913	6.752	0.196	1.828	0.765	7.253	16.270
13	28.330	0.917	55.530	3.021	1.651	0.756	1.468	0.171	1.233	0.664	28.690	3.660
14	7.177	0.698	23.410	3.482	1.156	0.553	0.912	0.163	0.885	0.627	20.060	1.968
15	2.352	0.707	5.002	2.740	0.757	0.464	0.810	0.160	0.664	0.628	14.110	3.943
16	1.352	0.987	3.206	3.550	0.601	0.603	0.628	1.204	0.528	0.552	7.395	3.583
17	4.049	0.834	3.466	3.608	0.487	3.446	0.500	0.562	0.450	0.500	10.890	23.740
18	27.020	0.768	2.699	4.339	0.412	10.320	0.413	0.849	0.446	0.465	27.550	6.307
19	9.904	0.663	2.089	3.745	0.384	48.880	0.356	5.126	0.741	10.790	17.980	5.718
20	36.350	0.553	1.604	2.651	0.385	4.355	0.324	3.084	0.654	13.840	12.100	2.423
21	26.330	0.529	14.610	2.124	0.404	18.450	0.504	0.946	0.546	5.556	4.879	1.320
22	17.650	0.478	61.270	4.912	0.461	5.035	0.408	5.383	0.487	8.244	8.527	6.654
23	4.704	0.461	30.720	16.780	0.451	7.875	0.316	17.530	0.436	2.422	6.288	29.960
24	19.680	0.466	6.699	8.836	0.403	5.184	1.824	2.840	0.382	38.250	2.485	5.500
25	10.300	0.447	4.144	6.124	0.372	9.354	3.332	6.369	0.361	10.260	19.990	15.830
26	22.380	0.718	2.011	27.160	0.330	3.011	4.189	7.583	0.920	3.850	5.233	7.149
27	5.962	1.549	13.000	20.370	0.305	7.698	1.047	18.770	0.887	2.893	3.486	3.060
28	2.279	1.461	18.630	25.260	0.324	5.699	0.703	34.370	10.760	2.121	3.950	40.650
29	32.840		10.100	10.660	0.337	8.484	0.531	3.173	14.230	7.669	2.117	23.130
30	6.591		34.770	4.407	0.396	13.480	0.430	1.694	19.230	9.593	1.570	27.280
31	32.060		26.840		1.234		1.214	1.248		12.610		2.085
Average	12.590	3.944	19.660	7.984	2.073	6.369	1.645	4.748	3.375	5.607	9.179	17.150
Lowest	1.352	0.447	1.478	2.124	0.305	0.464	0.316	0.160	0.361	0.465	1.570	1.320
Highest	36.350	26.110	61.270	27.160	13.050	48.880	6.752	34.370	19.230	38.250	28.690	123.600
Peak flow	101.90	77.04	167.70	53.44	37.38	96.50	18.24	96.71	50.01	93.81	101.80	176.40
Day of peak	25	1	14	27	6	20	13	28	11	25	14	11
Monthly total (million cu m)	33.73	9.54	52.65	20.69	5.55	16.51	4.40	12.72	8.75	15.02	23.79	45.93
Runoff (mm)	420	119	656	258	69	206	55	158	109	187	296	572
Rainfall (mm)	485	164	686	273	57	252	108	218	152	235	316	666

Statistics of monthly data for previous record (Oct 1970 to Dec 1993—incomplete or missing months total 0.3 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	9.546	5.973	7.422	3.543	2.751	2.175	2.783	4.095	6.503	7.068	8.227	8.469
	Low	1.926	0.489	0.854	0.408	0.133	0.284	0.634	0.339	0.751	1.362	2.875	1.416
	(year)	1985	1986	1975	1974	1980	1992	1984	1983	1972	1974	1993	1981
	High	20.620	18.500	21.400	9.346	10.980	5.609	7.402	10.810	11.210	16.050	14.670	15.740
	(year)	1993	1990	1990	1991	1986	1973	1988	1992	1981	1983	1986	1986
Runoff:	Avg.	318	182	248	114	92	70	93	137	210	236	266	282
	Low	64	15	28	13	4	9	21	11	24	45	93	47
	High	688	557	714	302	366	181	247	361	362	535	474	525
Rainfall:	Avg.	385	233	291	140	136	132	167	204	293	307	340	352
	Low	93	11	100	15	19	42	66	42	40	89	117	111
	High	739	675	696	357	439	249	365	507	468	645	614	637

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	7.905		5.718		138
Lowest yearly mean			4.440	1972	
Highest yearly mean			7.729	1990	
Lowest monthly mean	1.645	Jul	0.133	May 1980	
Highest monthly mean	19.660	Mar	21.400	Mar 1990	
Lowest daily mean	0.160	15 Aug	0.032	12 Jul 1977	
Highest daily mean	123.600	10 Dec	119.800	16 Jan 1993	
Peak	176.400	11 Dec	226.700	22 Oct 1971	
10% exceedance	21.900		16.010		137
50% exceedance	3.501		2.160		162
95% exceedance	0.389		0.262		149
Annual total (million cu m)	249.30		180.40		138
Annual runoff (mm)	3105		2247		138
Annual rainfall (mm)	3612		2980		121
1961-90 rainfall average (mm)			2842		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station with artificial low flow control (long broad-crested weir with rectangular low flow notch) - installed 1975. Damage to part of the high flow crest results in a small discharge bypassing the central notch. All but very high flows contained. No significant abstractions or discharges. Very responsive flow regime. A very wet mountainous catchment developed on ancient metamorphic formations - some Drift cover.

093001 Carron at New Kelso 1994

Measuring authority: HRPB
First year: 1979

Grid reference: 18 (NG) 942 429
Level stn. (m OD): 5.60

Catchment area (sq km): 137.8
Max alt. (m OD): 1053

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.423	37.140	1.359	35.750	7.135	1.564	3.921	1.031	2.174	18.680	29.650	3.334
2	4.374	13.030	3.458	19.460	8.051	1.838	2.727	0.995	1.727	19.250	8.108	2.795
3	7.787	6.593	9.867	17.560	5.531	4.718	2.198	3.236	2.336	8.354	4.258	9.006
4	6.590	5.077	47.580	13.130	7.876	5.280	2.031	2.516	4.281	11.310	3.011	8.099
5	4.111	7.275	27.760	12.470	14.120	4.252	2.991	1.722	4.667	10.260	2.439	6.606
6	4.557	5.717	67.350	12.830	9.070	11.140	2.437	1.401	3.371	19.430	2.305	7.629
7	4.881	4.421	46.910	11.300	6.316	15.580	1.869	1.163	3.001	12.750	2.035	11.080
8	3.693	7.170	47.900	8.036	4.250	16.040	1.561	1.027	2.577	8.640	1.772	30.040
9	7.942	17.590	18.360	13.280	3.163	20.450	1.565	0.930	2.883	5.532	1.848	56.440
10	9.942	7.514	48.700	12.730	2.710	7.670	2.446	0.852	16.250	3.399	4.075	74.470
11	7.013	4.426	28.700	18.930	2.613	4.343	2.858	0.783	13.380	2.684	5.200	63.580
12	10.920	3.897	23.080	12.670	2.607	3.538	4.601	0.741	5.695	2.188	4.031	57.590
13	35.630	3.395	35.470	7.276	2.525	2.667	2.841	0.723	3.397	1.846	27.300	17.370
14	21.540	2.572	37.370	5.666	2.224	2.219	2.011	0.717	2.347	1.906	45.940	6.799
15	8.453	2.042	11.210	4.884	1.869	3.137	1.783	0.702	1.803	2.506	21.100	9.015
16	4.587	1.860	6.700	4.813	1.597	3.543	1.681	0.842	1.579	1.887	18.760	7.698
17	16.800	1.718	6.795	4.438	1.428	9.346	1.482	1.008	1.531	1.510	14.030	22.930
18	64.540	1.657	5.729	17.320	1.316	51.960	1.280	1.760	1.382	1.326	17.740	19.280
19	27.270	1.630	4.740	24.450	1.233	16.680	1.158	12.120	2.033	1.191	27.000	18.160
20	58.240	1.527	4.037	13.130	1.171	30.010	1.130	14.330	2.520	1.166	21.450	10.410
21	46.410	1.435	12.520	8.057	1.102	15.430	1.667	5.453	1.823	1.176	10.480	5.510
22	19.820	1.354	67.150	5.515	1.067	11.600	1.588	2.717	1.515	1.064	10.180	17.910
23	12.490	1.261	46.250	6.658	1.063	6.207	1.340	3.083	1.970	6.047	29.110	74.590
24	19.970	1.210	17.110	7.148	1.052	8.897	1.264	2.926	2.412	8.817	9.295	24.070
25	29.220	1.248	14.270	5.731	1.019	8.069	1.557	2.654	1.913	5.822	11.440	23.120
26	25.380	1.289	7.248	36.290	0.988	7.942	5.356	9.337	6.625	3.556	15.220	13.270
27	17.880	1.300	6.358	62.560	0.945	8.511	2.652	17.780	11.980	5.425	16.600	6.811
28	8.299	1.272	28.100	44.180	0.929	6.401	2.018	28.110	76.240	6.326	13.790	39.880
29	70.370		24.380	40.500	0.938	13.370	1.567	9.949	72.410	7.588	7.680	29.620
30	20.800		19.290	16.430	0.981	7.193	1.270	4.785	55.790	11.130	4.423	18.240
31	30.080		35.300		1.315		1.111	3.021		25.610		7.840
Average	19.810	5.236	24.550	16.770	3.168	10.320	2.128	4.465	10.390	7.044	13.010	22.680
Lowest	3.693	1.210	1.359	4.438	0.929	1.564	1.111	0.702	1.382	1.064	1.772	2.795
Highest	70.370	37.140	67.350	62.560	14.120	51.960	5.356	28.110	76.240	25.610	45.940	74.590
Peak flow	113.90	51.88	95.13	128.90	17.83	61.08	7.73	43.12	106.40	63.14	66.85	103.30
Day of peak	29	1	6	27	5	18	26	28	30	31	14	23
Monthly total (million cu m)	53.05	12.67	65.75	43.48	8.49	26.75	5.70	11.96	26.92	18.87	33.72	60.76
Runoff (mm)	385	92	477	316	62	194	41	87	195	137	245	441
Rainfall (mm)	391	73	547	322	41	273	68	189	277	183	228	493

Statistics of monthly data for previous record (Jan 1979 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	16.360	12.240	14.560	7.306	5.008	3.928	6.378	8.715	13.720	13.000	15.090	17.670
	Low	5.887	1.361	4.103	2.863	0.698	0.921	2.426	2.703	1.745	6.332	3.251	5.635
	(year)	1985	1986	1980	1980	1980	1982	1984	1984	1993	1979	1993	1989
	High	31.650	32.590	39.000	13.440	14.120	8.623	12.040	15.050	21.050	24.070	31.120	30.710
	(year)	1989	1989	1990	1984	1986	1980	1993	1989	1990	1983	1981	1983
Runoff:	Avg.	318	217	283	137	97	74	124	169	258	253	284	343
	Low	114	24	80	54	14	17	47	53	33	123	61	110
	High	615	572	758	253	274	162	234	293	396	468	585	597
Rainfall:	Avg.	338	223	308	141	114	116	160	209	297	300	319	371
	Low	94	6	95	70	36	28	89	85	55	115	90	124
	High	623	583	768	285	295	275	248	384	425	532	629	546

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	11.670		11.170		104
Lowest yearly mean			8.852	1987	
Highest yearly mean			14.740	1990	
Lowest monthly mean	2.128	Jul	0.698	May 1980	
Highest monthly mean	24.550	Mar	39.000	Mar 1990	
Lowest daily mean	0.702	15 Aug	0.425	24 Jun 1982	
Highest daily mean	76.240	28 Sep	203.900	2 Jan 1992	
Peak	128.900	27 Apr	337.400	18 Sep 1990	
10% exceedance	29.490		27.090		109
50% exceedance	5.817		5.629		103
95% exceedance	1.042		1.035		101
Annual total (million cu m)	368.00		352.50		104
Annual runoff (mm)	2671		2558		104
Annual rainfall (mm)	3085		2896		107
1961-90 rainfall average (mm)			2620		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

40m wide river section with floodbank on right. Any bypassing in extreme floods will be over 30m wide floodplain on left bank. Unstable gravel control requires regular calibration of low flow range. Adequately gauged to bankfull. Computed flows are 100% natural. 70% of catchment drains through Loch Dughaill with little additional surface storage. Typical mix of rough grazing and moorland. One of the wetter Highland catchments currently gauged.

201005 Camowen at Camowen Terrace 1994

Measuring authority: DOEN
First year: 1972

Grid reference: *23* (IH) 460 730
Level stn. (m OD): 66.00

Catchment area (sq km): 274.6
Max alt. (m OD): 539

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	33.320	27.810	12.930	11.400	3.589	1.994	2.040	2.719	2.699	4.346	4.924	3.953
2	21.570	11.770	16.640	16.120	3.556	2.342	1.910	2.401	2.432	4.430	8.085	3.922
3	24.190	54.100	20.300	17.860	6.579	2.952	2.067	4.219	8.832	3.361	14.220	7.622
4	12.100	41.220	14.410	17.120	9.460	3.015	11.370	2.488	4.953	2.743	8.421	10.520
5	18.850	17.940	18.240	24.960	8.038	2.684	6.612	2.130	3.335	2.523	4.980	17.630
6	12.860	12.500	16.180	20.860	5.500	2.637	27.300	1.905	2.793	2.348	4.157	18.640
7	10.340	10.500	13.130	26.890	4.596	2.367	7.933	1.858	2.821	2.330	3.911	14.280
8	20.650	17.250	27.910	26.210	5.003	2.145	4.365	1.790	19.190	2.279	16.500	16.000
9	24.350	10.530	12.350	15.360	4.358	2.196	4.883	1.636	8.177	2.195	9.947	10.380
10	13.680	33.380	9.879	11.550	4.011	2.281	4.600	1.584	8.845	2.175	5.832	35.740
11	12.030	22.040	10.570	9.765	4.091	2.081	3.869	1.513	15.820	2.142	4.988	29.980
12	23.730	11.210	16.710	8.732	3.629	2.007	6.961	1.544	7.861	2.136	16.630	17.560
13	22.700	8.655	11.850	7.384	3.296	1.836	4.093	1.548	5.436	2.040	39.350	25.670
14	27.550	7.092	10.680	6.507	3.093	1.646	3.396	1.536	4.826	1.990	17.850	11.460
15	13.390	6.332	10.730	5.882	2.978	1.606	3.350	1.644	4.190	2.036	15.530	9.641
16	9.588	5.547	13.900	5.338	2.916	1.573	2.913	1.853	3.555	1.954	10.400	8.619
17	8.127	6.467	11.170	4.924	2.655	1.508	2.597	2.123	3.210	1.923	9.171	10.170
18	8.984	14.300	17.620	4.526	2.588	1.694	2.407	1.804	4.006	1.799	22.650	11.340
19	15.590	7.747	9.796	4.325	2.508	1.798	2.280	2.010	6.480	5.640	12.820	11.190
20	13.810	7.455	7.863	4.087	2.449	1.636	2.300	1.989	8.041	3.661	9.733	9.700
21	10.700	6.090	10.340	3.879	2.406	1.758	2.389	1.872	4.791	2.898	7.463	7.765
22	9.876	5.228	17.350	4.049	2.279	1.803	2.161	9.709	3.723	3.040	6.477	6.519
23	8.919	5.202	29.450	6.428	2.337	1.751	2.071	8.526	3.308	2.652	6.083	5.906
24	9.779	5.738	15.900	16.700	2.292	16.010	2.106	13.810	3.043	2.579	5.980	5.848
25	21.160	40.460	20.680	11.730	2.289	5.171	2.108	7.682	2.986	5.921	5.369	8.407
26	17.810	46.550	9.740	6.537	2.189	3.371	2.245	4.720	2.852	6.527	5.069	10.020
27	30.380	47.190	13.960	4.821	2.160	3.070	1.968	6.794	2.748	5.188	4.675	26.350
28	16.820	13.900	10.440	4.366	2.113	3.616	1.878	8.028	2.734	4.134	4.337	32.010
29	18.880		9.121	4.073	2.043	3.240	1.859	5.705	2.763	3.466	4.167	16.270
30	11.270		13.190	3.655	2.036	2.380	2.095	4.115	2.708	5.082	4.042	16.080
31	10.290		11.810		1.976		2.178	3.164		5.968		16.250
Average	16.560	18.010	14.350	10.530	3.517	2.806	4.203	3.691	5.305	3.274	9.792	14.050
Lowest	8.127	5.202	7.863	3.655	1.976	1.508	1.859	1.513	2.432	1.799	3.911	3.922
Highest	33.320	54.100	29.450	26.890	9.460	16.010	27.300	13.810	19.190	6.527	39.350	35.740
Peak flow	80.39	94.98	43.77	42.12	11.26	41.25	39.06	27.10	36.91	8.83	59.67	47.45
Day of peak	1	27	8	7	4	24	6	24	8	25	13	27
Monthly total (million cu m)	44.35	43.56	38.43	27.31	9.42	7.27	11.26	9.89	13.75	8.77	25.38	37.62
Runoff (mm)	162	159	140	99	34	26	41	36	50	32	92	137
Rainfall (mm)	177	145	160	115	42	76	84	88	82	51	91	162

Statistics of monthly data for previous record (May 1972 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	12.500	9.093	8.884	5.658	3.563	2.859	2.379	3.922	4.998	7.478	9.096	11.470
	Low	7.334	2.992	2.210	1.701	1.076	0.911	0.554	0.927	0.680	1.215	3.194	5.000
	(year)	1989	1986	1973	1974	1980	1974	1989	1983	1972	1972	1993	1989
	High	19.140	19.580	13.630	12.640	9.152	7.289	5.956	13.070	14.560	14.560	18.020	19.470
	(year)	1984	1990	1981	1993	1986	1993	1993	1985	1985	1990	1979	1993
Runoff:	Avg.	122	81	87	53	35	27	23	38	47	73	86	112
	Low	72	26	22	16	11	9	5	9	6	12	30	49
	High	187	173	133	119	89	69	58	127	137	142	170	190
Rainfall:	Avg.	127	83	108	68	69	72	76	97	99	111	107	122
	Low	55	4	38	20	11	28	20	20	13	23	45	39
	High	194	199	156	126	145	129	146	188	177	206	182	209

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	8.784		6.821		129
Lowest yearly mean			4.102	1975	
Highest yearly mean			8.435	1986	
Lowest monthly mean	2.806	Jun	0.554	Jul 1989	
Highest monthly mean	18.010	Feb	19.580	Feb 1990	
Lowest daily mean	1.508	17 Jun	0.367	14 Jul 1989	
Highest daily mean	54.100	3 Feb	139.600	21 Oct 1987	
Peak	94.980	27 Feb	180.200	21 Oct 1987	
10% exceedance	18.990		15.460		123
50% exceedance	5.574		4.236		132
95% exceedance	1.818		1.046		174
Annual total (million cu m)	277.00		215.30		129
Annual runoff (mm)	1009		784		129
Annual rainfall (mm)	1273		1139		112
1961-90 rainfall average (mm)			1144		

Factors affecting runoff

Comment
March and April 1994 contain estimated daily mean flows.

Station and catchment description
Velocity-area station with cableway and weir control - informal broad-crested structure (for angling enhancement), dimensions not known. The net effect of abstractions for public water supply and augmentations from effluent returns is minor. Catchment geology: mixed impermeable rocks (granite, schist and gneiss, and sandstone) overlain by substantial deposits of till, sand and gravel. Largely upland given over mainly to grassland or heath.

203010 Blackwater at Maydown Bridge 1994

Measuring authority: DOEN
First year: 1970

Grid reference: 23 (IH) 820 519
Level stn. (m OD): 15.00

Catchment area (sq km): 951.4
Max alt. (m OD): 380

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	38.250	68.380	33.410	24.750	8.612	2.869	3.792	2.499	4.619	5.784	12.460	7.947
2	84.320	41.340	36.820	35.560	8.248	3.069	3.329	3.646	4.122	10.710	10.310	7.834
3	74.550	79.530	79.000	50.850	8.794	4.914	3.061	12.730	7.743	8.367	21.880	17.170
4	43.990	122.000	41.900	51.600	10.600	6.468	14.680	7.223	9.003	6.158	20.850	19.220
5	41.390	102.000	53.120	66.120	13.610	4.720	12.250	5.001	6.158	5.084	12.110	32.940
6	34.470	58.390	36.030	47.990	11.610	4.067	20.780	3.885	4.968	4.496	9.609	32.750
7	30.050	36.830	28.520	63.350	9.114	3.885	18.820	3.424	4.690	4.176	8.867	36.850
8	33.410	42.530	53.170	65.370	8.710	3.427	8.369	3.030	36.670	3.961	12.180	52.760
9	49.600	35.370	37.880	41.620	9.145	3.137	10.580	2.814	27.600	3.802	20.930	26.690
10	56.120	39.850	26.980	28.650	7.467	2.868	14.590	2.577	16.090	3.593	12.920	44.020
11	32.050	80.850	25.270	22.550	7.567	2.797	8.791	2.403	19.520	3.379	10.680	50.040
12	52.870	34.690	25.280	19.840	7.131	2.683	10.550	2.280	15.090	3.217	19.170	52.900
13	44.070	24.120	30.210	17.120	6.152	2.524	9.395	2.184	10.570	3.133	84.990	60.820
14	36.910	19.590	21.510	14.830	5.534	2.406	7.304	2.071	9.211	3.054	61.200	38.640
15	28.170	16.830	21.150	13.010	5.335	2.238	7.578	2.009	8.309	3.110	28.210	24.780
16	21.650	14.480	35.330	11.690	5.693	2.101	5.997	2.179	7.018	3.047	21.320	22.610
17	19.000	13.450	30.220	10.670	5.199	2.020	5.155	3.839	6.024	2.867	19.580	29.040
18	18.060	31.100	30.590	10.150	4.677	2.105	4.493	3.197	6.280	2.819	30.700	27.580
19	18.730	21.630	27.200	9.792	4.307	2.282	3.933	2.739	11.440	4.800	37.480	33.870
20	24.620	17.070	19.540	9.205	3.992	2.344	3.692	2.729	12.380	6.090	25.700	27.560
21	20.090	15.720	17.010	8.769	3.879	2.285	3.626	2.814	9.441	4.766	19.260	22.330
22	18.250	12.810	20.930	10.190	3.768	2.443	3.350	9.743	7.313	4.858	15.930	17.840
23	25.050	15.810	31.170	16.810	3.645	2.412	3.117	33.860	6.292	4.757	14.560	16.190
24	19.690	20.080	31.750	33.400	3.630	31.470	3.048	18.080	5.707	4.032	14.470	15.780
25	45.370	79.260	32.900	28.070	3.775	21.940	2.978	20.770	5.257	4.070	12.890	15.850
26	53.980	120.000	21.650	18.130	3.604	9.060	3.148	11.330	4.870	4.996	11.650	27.130
27	69.080	117.600	48.650	12.970	3.390	7.178	3.093	10.370	4.495	5.331	10.540	58.640
28	53.510	62.330	42.950	10.970	3.204	5.826	2.759	9.761	4.273	5.888	9.435	108.800
29	50.870		24.730	10.270	3.124	5.783	2.400	8.265	4.129	5.290	8.754	83.640
30	38.950		26.450	9.273	3.067	4.726	2.329	6.491	4.061	16.320	8.403	75.460
31	26.900		35.090		2.978		2.365	5.375		19.040		75.680
Average	38.840	47.990	33.110	25.790	6.115	5.202	6.753	6.752	9.445	5.516	20.230	37.530
Lowest	18.060	12.810	17.010	8.769	2.978	2.020	2.329	2.009	4.061	2.819	8.403	7.834
Highest	84.320	122.000	79.000	66.120	13.610	31.470	20.780	33.860	36.670	19.040	84.990	108.800
Peak flow	108.10	130.00	95.47	75.39	14.16	59.49	33.25	46.33	57.01	23.72	102.10	112.50
Day of peak	2	25	3	8	5	24	6	23	8	30	13	28
Monthly total (million cu m)	104.00	116.10	88.68	66.84	16.38	13.48	18.09	18.09	24.48	14.77	52.45	100.50
Runoff (mm)	109	122	93	70	17	14	19	19	26	16	55	106
Rainfall (mm)	156	135	128	88	40	69	70	90	81	46	79	145

Statistics of monthly data for previous record (Jul 1970 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	32.990	25.950	23.200	14.670	8.006	6.058	4.145	8.414	10.270	17.570	25.270	31.530
	Low	18.050	7.186	8.772	3.441	1.306	0.973	0.859	0.596	1.920	2.163	6.882	10.570
	(year)	1971	1986	1973	1974	1984	1975	1984	1975	1972	1972	1993	1971
	High	56.780	66.170	43.250	33.100	19.810	17.540	13.260	32.480	30.110	33.770	51.680	58.120
	(year)	1984	1990	1981	1989	1983	1981	1993	1985	1985	1988	1970	1993
Runoff:	Avg.	93	67	65	40	23	17	12	24	28	49	69	89
	Low	51	18	25	9	4	3	2	2	5	6	19	30
	High	160	168	122	90	56	48	37	91	82	95	141	164
Rainfall:	Avg.	109	75	88	63	59	63	66	84	83	96	94	99
	Low	46	4	33	14	8	19	17	15	7	36	36	30
	High	185	177	142	123	124	111	129	165	153	178	146	185

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	20.100		17.310		116
Lowest yearly mean			9.712	1975	
Highest yearly mean			23.860	1988	
Lowest monthly mean	5.202	Jun	0.596	Aug 1975	
Highest monthly mean	47.990	Feb	66.170	Feb 1990	
Lowest daily mean	2.009	15 Aug	0.043	6 Sep 1975	
Highest daily mean	122.000	4 Feb	172.000	22 Dec 1991	
Peak	130.000	25 Feb	174.200	31 Dec 1991	
10% exceedance	50.200		43.960		114
50% exceedance	11.610		10.160		114
95% exceedance	2.431		1.135		214
Annual total (million cu m)	633.90		546.30		116
Annual runoff (mm)	666		574		116
Annual rainfall (mm)	1127		979		115
1961-90 rainfall average (mm)			1008		

Factors affecting runoff

- Flow influenced by groundwater abstraction and/or recharge.
- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station with cableway and natural control. Flows influenced by major arterial drainage scheme - started in 1988. A substantial portion of the catchment is in the Irish Republic where some groundwater may be abstracted but its hydrological significance is uncertain. Geology: Carboniferous Limestone and Millstone Grit with sandstones overlain by substantial amounts of till. A predominantly rural catchment with limited afforestation. Monaghan Town (pop. 5,000) - in the Irish Republic - is the only significant urban centre.

203028 Agivey at White Hill 1994

Measuring authority: DOEN
First year: 1972

Grid reference: 24 (IC) 883 193
Level stn. (m OD): 17.00

Catchment area (sq km): 98.9
Max alt. (m OD): 461

Daily mean gauged discharges (cubic metres per second)

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14.530	9.640	6.749	4.402	1.066	0.567	0.687	0.963	0.577	0.725	3.978	1.071
2	8.781	3.784	5.947	6.056	1.027	0.625	0.622	0.748	0.546	0.869	8.038	2.293
3	14.200	8.711	5.882	9.627	1.698	1.345	0.606	1.069	1.835	1.172	12.390	5.448
4	4.824	22.270	6.657	8.428	2.158	1.349	2.380	0.740	1.234	1.005	3.867	6.286
5	10.820	6.528	9.328	14.630	3.228	1.042	1.463	0.598	0.830	0.741	1.900	8.687
6	6.976	3.668	4.983	6.538	2.002	0.969	1.244	0.543	0.684	0.597	1.404	5.632
7	4.027	2.866	3.461	10.650	1.428	0.819	0.988	0.513	0.682	0.555	1.453	3.944
8	10.830	3.155	7.790	6.721	1.367	0.803	0.753	0.466	2.590	0.527	7.692	4.909
9	22.500	2.684	5.200	7.191	1.299	1.070	0.731	0.443	3.154	0.494	4.268	2.409
10	5.363	8.307	4.163	3.624	1.655	1.113	0.816	0.428	1.860	0.453	2.733	8.013
11	6.873	5.864	3.952	2.638	2.293	0.826	0.697	0.417	1.605	0.432	2.077	11.580
12	9.152	3.400	3.623	2.267	1.319	0.758	1.231	0.397	1.310	0.438	9.153	4.364
13	7.243	2.451	3.661	1.887	1.039	0.624	0.953	0.386	1.056	0.428	7.870	3.634
14	6.240	1.886	3.132	1.645	0.956	0.573	0.983	0.383	0.976	0.429	6.174	2.462
15	3.718	1.679	3.161	1.503	0.906	0.548	1.155	0.389	0.760	0.426	4.687	2.324
16	2.909	1.549	5.649	1.372	0.891	0.527	0.736	0.574	0.655	0.416	3.042	2.130
17	2.445	4.276	4.571	1.288	0.850	0.536	0.541	1.156	0.608	0.427	7.646	2.873
18	2.333	8.619	6.203	1.255	0.822	0.537	0.445	0.744	0.947	0.432	12.390	4.341
19	3.329	3.095	3.955	1.263	0.760	0.606	0.437	1.106	1.392	1.039	4.541	5.939
20	3.580	2.158	2.915	1.136	0.732	0.634	0.427	0.999	2.266	1.024	2.539	4.134
21	2.539	1.703	2.562	1.100	0.717	0.665	0.441	1.018	1.188	0.716	2.000	2.601
22	2.284	1.457	2.821	1.574	0.710	0.646	0.437	5.381	0.846	1.103	1.759	2.065
23	2.159	1.399	9.380	2.874	0.704	0.588	0.406	4.115	0.695	1.088	1.865	2.003
24	3.278	1.406	3.464	15.670	0.666	5.237	0.391	3.006	0.638	2.639	1.856	1.740
25	11.970	6.480	4.769	4.560	0.652	1.798	0.404	1.623	0.620	1.917	1.579	2.275
26	7.991	23.420	2.714	2.669	0.641	1.210	0.429	1.179	0.582	2.272	1.407	2.905
27	7.781	20.250	15.520	1.633	0.620	1.121	0.408	1.023	0.502	3.413	1.348	9.579
28	3.797	6.483	4.921	1.395	0.596	1.131	0.394	0.964	0.541	3.657	1.224	10.200
29	5.014		2.900	1.279	0.605	1.102	0.388	0.921	0.526	1.651	1.146	8.643
30	3.212		8.810	1.136	0.582	0.792	0.380	0.791	0.526	1.939	1.092	9.993
31	3.648		5.474		0.571		0.382	0.664		4.837		5.856
Average	6.592	6.042	5.301	4.267	1.115	1.005	0.721	1.089	1.074	1.221	4.104	4.849
Lowest	2.159	1.399	2.562	1.100	0.571	0.527	0.380	0.383	0.502	0.416	1.092	1.071
Highest	22.500	23.420	15.520	15.670	3.228	5.237	2.380	5.381	3.154	4.837	12.390	11.580
Peak flow	52.35	55.84	31.85	33.70	4.04	14.80	5.03	14.99	5.68	9.85	35.77	22.27
Day of peak	9	4	27	24	5	24	4	22	8	31	18	5
Monthly total (million cu m)	17.66	14.62	14.20	11.06	2.99	2.61	1.93	2.92	2.78	3.27	10.64	12.99
Runoff (mm)	179	148	144	112	30	26	20	29	28	33	108	131
Rainfall (mm)	177	122	146	113	31	86	69	87	71	65	110	162

Statistics of monthly data for previous record (Dec 1972 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mean flows:	Avg.	5.277	3.844	3.398	2.238	1.589	1.087	0.994	1.544	2.182	3.772	3.839	4.627
	Low	2.609	0.847	1.384	0.870	0.282	0.340	0.191	0.212	0.414	1.841	0.815	2.218
	(year)	1989	1986	1973	1984	1984	1984	1984	1983	1991	1973	1983	1987
	High	7.902	8.037	5.407	5.844	4.214	2.389	1.924	5.077	6.371	6.337	8.405	7.859
	(year)	1974	1990	1992	1993	1993	1982	1990	1985	1985	1981	1982	1993
Runoff:	Avg.	143	95	92	59	43	28	27	42	57	102	101	125
	Low	71	21	37	23	8	9	5	6	11	50	21	60
	High	214	197	146	153	114	63	52	138	167	172	220	213
Rainfall:	Avg.	145	94	112	74	75	73	79	94	100	135	119	132
	Low	63	5	36	22	14	37	26	23	15	51	33	58
	High	221	217	191	149	179	150	144	218	213	233	196	251

Summary statistics

	For 1994		For record preceding 1994		1994 As % of pre-1994
Mean flow (m^3s^{-1})	3.097		2.864		108
Lowest yearly mean			2.165	1983	
Highest yearly mean			3.599	1981	
Lowest monthly mean	0.721	Jul	0.191	Jul 1984	
Highest monthly mean	6.592	Jan	8.405	Nov 1982	
Lowest daily mean	0.380	30 Jul	0.080	7 Sep 1976	
Highest daily mean	23.420	26 Feb	76.500	21 Oct 1987	
Peak	55.840	4 Feb	159.300	21 Oct 1987	
10% exceedance	7.928		6.642		119
50% exceedance	1.616		1.584		102
95% exceedance	0.429		0.318		135
Annual total (million cu m)	97.67		90.39		108
Annual runoff (mm)	988		914		108
Annual rainfall (mm)	1239		1232		101
1961-90 rainfall average (mm)			1270		

Factors affecting runoff

- Natural to within 10% at 95 percentile flow.

Station and catchment description

Velocity-area station with cableway. Geology: mainly basalt overlain by till with some peat. Significant proportion of upland, predominantly grassland or heath. No urban areas or major industry.

Part (ii) – The monthly flow data

The introductory information (measuring authority etc.) is as described in Part (i).

Hydrometric statistics for the year

The monthly average, peak flow, runoff and rainfall figures are equivalent to the summary information following the daily mean gauged discharges in Part (i). Because of the rounding of monthly runoff values the runoff for the year may differ slightly from the sum of the individual monthly totals; this can be particularly significant in catchments with low runoff.

Monthly and yearly statistics for previous record

Monthly mean flows (average, low and high) and the monthly rainfall and runoff figures are equivalent to those presented in Part (i). Again due to the rounding of monthly runoff values, the average runoff for the year derived from the previous record may differ slightly from the sum of the individual monthly totals. The peak flow is the highest discharge, in cubic metres per second, for each month. For many stations the archived series of monthly instantaneous maximum flows, from which the preceding record peak is abstracted, is incomplete, particularly for the earlier years, and certain of the peak flows are known to be of limited accuracy. Where the peak value – in an incomplete series – is exceeded by the highest daily mean flow on record, the latter is substituted; such substitutions are indicated by a 'd' flag. An examination of the quality of the peak flow figures is continuing and significant revision may be expected as this review proceeds. The figures are published primarily to provide a guide to the range of river flows experienced throughout the year at the featured gauging stations.

Factors Affecting Runoff

Code letters are used as described in Part (i). FAR codes have yet to be determined for a few catchments featured in the Yearbook; their absence does not imply a natural flow regime.

Station type

The station type is coded by the list of abbreviations given below – two abbreviations may be applied to each station relating to the measurement of lower or higher flows. Where total flow is a summation of the flows measured in several component channels a '+' separates the code for the principal monitoring station from that of the subsidiary site(s).

B	Broad-crested weir
C	Crump (triangular profile) single crest weir
CB	Compound broad-crested weir. The compounding may include a mixture of types such as rectangular profiles, flumes and shallow-Vs and with or without divide walls
CC	Compound Crump weir
EM	Electromagnetic gauging station
EW	Essex weir (simple Crump weir modified with angled, sloping, triangular profile flanking crests) in trapezoidal channel
FL	Flume
FV	Flat-V triangular profile weir
MIS	Miscellaneous method
TP	Rectangular thin-plate weir
US	Ultrasonic gauging station
VA	Velocity-area gauging station
VN	Triangular (V notch) thin-plate weir

Comment

A note clarifying or qualifying data featured in the Hydrometric Statistics section; for instance to indicate that the runoff values have been derived from naturalised flows.

003002 Carron at Sgodachail — 1994

Measuring authority: HRPB
First year: 1973

Grid reference: 28 (NH) 490 921
Level stn. (m OD): 70.70

Catchment area (sq km): 241.1
Max alt. (m OD): 954

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	17.850	4.524	28.630	17.950	4.245	3.645	1.705	2.256	7.922	5.950	10.480	15.590	**10.108**
(m^3s^{-1}): Peak	146.10	24.88	175.20	98.89	18.81	24.39	17.84	19.52	80.39	170.10	155.70	108.20	**175.20**
Runoff (mm)	198	45	318	193	47	39	19	25	85	66	113	173	**1322**
Rainfall (mm)	326	81	399	217	26	129	53	103	169	112	162	328	**2105**

Monthly and yearly statistics for previous record (Jan 1974 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	14.910	10.220	11.460	7.348	4.808	4.001	3.656	4.548	8.555	12.090	12.620	13.370	**8.964**
flows Low	7.226	1.944	3.680	1.294	1.020	0.957	1.142	0.983	3.117	3.963	2.390	5.595	**6.846**
(m^3s^{-1}) High	29.740	25.850	33.120	15.030	10.110	10.270	9.481	10.680	17.670	29.670	25.410	28.120	**12.192**
Peak flow (m^3s^{-1})	281.80	264.70	225.00	127.90	101.20	140.40	165.20	207.30	340.30	288.90	219.10	255.70	**340.30**
Runoff (mm)	166	104	127	79	53	43	41	51	92	134	136	148	**1173**
Rainfall (mm)*	272	165	232	96	96	93	94	127	198	242	222	244	**2081**

*(1981-1993)

Factors affecting runoff: H
Station type: VA

1994 runoff is 113% of previous mean
rainfall 101%

004001 Conon at Moy Bridge — 1994

Measuring authority: HRPB
First year: 1947

Grid reference: 28 (NH) 482 547
Level stn. (m OD): 10.00

Catchment area (sq km): 961.8
Max alt. (m OD): 1052

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	81.430	49.560	123.000	94.150	55.480	48.190	18.340	16.240	21.040	48.280	59.730	95.500	**59.363**
(m^3s^{-1}): Peak	214.80	155.50	276.80	180.50	113.60	75.77	50.94	66.90	88.43	112.30	131.90	240.10	**276.80**
Runoff (mm)	227	125	343	254	155	130	51	45	57	134	161	266	**1946**
Rainfall (mm)	279	65	419	200	22	130	42	108	120	109	174	332	**2000**

Monthly and yearly statistics for previous record (Oct 1947 to Dec 1993—incomplete or missing months total 5.7 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	71.580	62.360	60.710	42.750	31.350	21.740	21.700	28.110	41.230	55.500	64.740	72.660	**47.818**
flows Low	31.690	25.810	18.670	13.940	10.940	8.861	2.959	8.162	12.510	23.090	23.200	27.970	**29.991**
(m^3s^{-1}) High	138.300	164.600	191.500	75.730	53.050	47.560	40.010	45.140	94.870	94.030	121.700	165.100	**77.536**
Peak flow (m^3s^{-1})	617.00	703.90	507.00	203.90	232.20	165.20	247.40	254.90	223.70	324.80	411.80	1076.00	**1076.00**
Runoff (mm)	199	158	169	115	87	59	60	78	111	155	174	202	**1569**
Rainfall (mm)*	203	141	172	102	101	93	105	126	166	209	202	227	**1847**

*(1953-1993)

Factors affecting runoff: H
Station type: VA

1994 runoff is 124% of previous mean
rainfall 108%

006008 Enrick at Mill of Tore — 1994

Measuring authority: HRPB
First year: 1979

Grid reference: 28 (NH) 450 300
Level stn. (m OD): 109.40

Catchment area (sq km): 105.9
Max alt. (m OD): 678

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	7.697	2.695	13.050	6.798	0.864	0.745	0.351	0.389	0.770	1.082	3.715	9.540	**3.996**
(m^3s^{-1}): Peak	26.35	25.34	70.05	57.52	3.80	3.39	1.10	2.97	2.48	3.97	16.18	51.24	**70.05**
Runoff (mm)	195	62	330	166	22	18	9	10	19	27	91	241	**1190**
Rainfall (mm)	225	60	343	159	41	92	28	90	73	67	111	274	**1563**

Monthly and yearly statistics for previous record (Dec 1979 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	6.519	4.834	4.755	1.879	1.466	0.946	0.927	0.941	2.254	4.410	4.736	5.522	**3.263**
flows Low	1.947	0.707	1.154	0.422	0.184	0.087	0.054	0.020	0.166	2.654	1.206	1.422	**2.118**
(m^3s^{-1}) High	14.910	18.220	13.870	3.466	4.387	1.959	3.332	3.235	3.994	7.068	9.382	9.554	**4.986**
Peak flow (m^3s^{-1})	83.62	77.96	51.08	20.17	21.87	19.35	59.86	15.83	51.30	50.41	60.67	56.46	**83.62**
Runoff (mm)	165	112	120	46	37	23	23	24	55	112	116	140	**973**
Rainfall (mm)	197	115	156	62	73	73	68	87	134	164	157	187	**1473**

Factors affecting runoff: N
Station type: VA

1994 runoff is 122% of previous mean
rainfall 106%

008007 Spey at Invertruim — 1994

Measuring authority: NERPB
First year: 1952

Grid reference: 27 (NN) 687 962
Level stn. (m OD): 242.50

Catchment area (sq km): 400.4
Max alt. (m OD): 951

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	11.050	5.190	27.790	12.360	3.572	4.065	2.742	2.484	3.010	3.500	7.857	15.160	**8.272**
(m^3s^{-1}): Peak	62.12	31.74	155.90	95.77	6.03	10.97	4.32	8.74	5.77	15.57	33.75	139.60	**155.90**
Runoff (mm)	74	31	186	80	24	26	18	17	19	23	51	101	**652**
Rainfall (mm)	248	68	402	138	28	122	32	113	68	101	150	288	**1758**

Monthly and yearly statistics for previous record (Oct 1952 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	9.965	7.512	7.539	4.227	3.603	2.939	2.844	3.310	4.702	6.797	7.490	9.386	**5.858**
flows Low	3.314	1.953	2.722	2.075	1.413	1.123	1.042	0.852	1.454	1.638	2.516	3.518	**3.935**
(m^3s^{-1}) High	27.710	39.990	42.630	7.126	6.210	6.269	5.021	7.545	14.650	14.830	15.960	24.970	**11.121**
Peak flow (m^3s^{-1})	264.50	269.10	274.50	61.90	92.03	45.93	72.83	75.00	108.00	106.90	170.60	259.50	**274.50**
Runoff (mm)	67	46	50	27	24	19	19	22	30	45	48	63	**462**
Rainfall (mm)	174	113	131	75	86	75	85	104	134	165	160	181	**1483**

Factors affecting runoff: H
Station type: VA

1994 runoff is 141% of previous mean
rainfall 119%

009001 Deveron at Avochie 1994

Measuring authority: NERPB
First year: 1959
Grid reference: 38 (NJ) 532 464
Level stn. (m OD): 81.80
Catchment area (sq km): 441.6
Max alt. (m OD): 775

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	18.860	11.630	18.960	10.040	4.487	3.074	2.375	1.847	4.123	5.101	7.364	4.322	**7.666**
(m^3s^{-1}):	Peak	85.26	66.31	98.25	48.89	6.27	4.38	4.26	2.21	18.52	54.27	25.55	10.23	**98.25**
Runoff (mm)		114	64	115	59	27	18	14	11	24	31	43	26	**547**
Rainfall (mm)		133	106	63	71	17	45	44	31	124	91	69	61	**855**

Monthly and yearly statistics for previous record (Oct 1959 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	11.790	10.180	11.280	9.832	7.508	5.121	4.573	5.724	5.693	9.380	10.560	11.090	**8.557**
flows	Low	3.527	3.052	3.391	4.314	3.274	2.610	1.766	1.621	2.092	1.934	2.668	3.504	**4.051**
(m^3s^{-1})	High	24.440	19.720	22.230	21.500	21.930	11.130	9.841	19.110	16.040	28.210	29.790	23.590	**12.437**
Peak flow (m^3s^{-1})		120.50	84.90	118.00	76.13	183.70	153.10	146.40	236.50	155.70	221.90	177.70	157.10	**236.50**
Runoff (mm)		72	56	68	58	46	30	28	35	33	57	62	67	**612**
Rainfall (mm)		89	63	76	69	73	69	74	92	84	105	101	87	**982**

Factors affecting runoff: N
Station type: VA

1994 runoff is 90% of previous mean
rainfall 87%

010002 Ugie at Inverugie 1994

Measuring authority: NERPB
First year: 1971
Grid reference: 48 (NK) 101 485
Level stn. (m OD): 8.50
Catchment area (sq km): 325.0
Max alt. (m OD): 234

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	10.960	8.648	9.636	3.633	2.413	1.657	1.259	1.137	1.375	2.008	4.804	3.405	**4.223**
(m^3s^{-1}):	Peak	36.02	65.30	70.49	5.73	3.05	2.45	1.87	2.05	3.47	3.47	15.71	6.99	**70.49**
Runoff (mm)		90	64	79	29	20	13	10	9	11	17	38	28	**410**
Rainfall (mm)		89	95	39	44	12	40	25	37	61	80	73	62	**657**

Monthly and yearly statistics for previous record (Feb 1971 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	7.278	6.171	5.563	4.116	3.309	2.267	1.982	2.138	2.435	5.053	6.371	7.105	**4.477**
flows	Low	2.085	2.088	1.791	1.624	1.467	1.200	0.927	0.858	0.912	0.894	1.531	1.360	**2.069**
(m^3s^{-1})	High	11.300	14.620	9.751	7.785	8.103	4.296	4.901	6.225	7.052	9.785	18.230	13.320	**6.505**
Peak flow (m^3s^{-1})		66.40	96.74	66.40	40.26	35.57	13.29	23.66	21.24	36.25	94.52	99.28	87.75	**99.28**
Runoff (mm)		60	46	46	33	27	18	16	18	19	42	51	59	**435**
Rainfall (mm)		74	48	64	51	51	54	58	64	78	89	87	74	**792**

Factors affecting runoff: N
Station type: VA

1994 runoff is 94% of previous mean
rainfall 83%

011001 Don at Parkhill 1994

Measuring authority: NERPB
First year: 1969
Grid reference: 38 (NJ) 887 141
Level stn. (m OD): 9.90
Catchment area (sq km): 1273.0
Max alt. (m OD): 872

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	52.260	31.360	50.410	22.880	11.950	7.247	5.640	4.908	7.279	8.205	18.640	11.690	**19.333**
(m^3s^{-1}):	Peak	128.30	95.43	159.30	54.99	17.85	9.62	8.22	6.47	21.07	43.37	47.24	18.04	**159.30**
Runoff (mm)		110	60	106	47	25	15	12	10	15	17	38	25	**479**
Rainfall (mm)		121	119	44	59	14	38	43	32	86	71	80	56	**763**

Monthly and yearly statistics for previous record (Dec 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	28.200	26.150	26.930	23.960	16.340	11.880	10.600	11.490	11.160	20.170	22.920	25.880	**19.615**
flows	Low	8.070	6.557	6.274	8.487	7.514	6.424	5.128	4.644	5.019	4.567	5.692	7.738	**8.833**
(m^3s^{-1})	High	48.660	52.240	48.950	44.750	34.770	27.560	27.530	40.150	36.470	56.480	86.230	50.960	**29.185**
Peak flow (m^3s^{-1})		185.90	131.00	143.70	107.50	92.06	101.60	118.10	277.40	107.20	273.10	213.20	154.50	**277.40**
Runoff (mm)		59	50	57	49	34	24	22	24	23	42	47	54	**486**
Rainfall (mm)		89	57	72	62	63	63	68	74	74	92	85	76	**875**

Factors affecting runoff: N
Station type: VA

1994 runoff is 98% of previous mean
rainfall 87%

012006 Gairn at Invergairn 1994

Measuring authority: NERPB
First year: 1978
Grid reference: 37 (NO) 353 971
Level stn. (m OD): 217.70
Catchment area (sq km): 150.0
Max alt. (m OD): 1171

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.559	3.911	9.570	5.468	2.876	1.747	0.955	0.743	2.185	2.316	4.407	3.107	**3.569**
(m^3s^{-1}):	Peak	30.96	18.48	54.69	16.31	6.22	3.52	1.48	1.24	9.99	17.86	14.68	10.76	**54.69**
Runoff (mm)		99	63	171	94	51	30	17	13	38	41	76	55	**750**
Rainfall (mm)		125	124	96	63	11	45	38	49	86	84	76	74	**871**

Monthly and yearly statistics for previous record (Nov 1978 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.828	4.268	5.467	5.149	3.789	2.650	1.801	2.043	2.615	4.805	4.319	4.663	**3.865**
flows	Low	2.698	1.548	3.535	2.110	1.732	0.952	0.743	0.612	0.999	1.319	1.257	1.832	**2.338**
(m^3s^{-1})	High	8.758	7.692	7.418	9.595	7.605	5.608	3.036	5.057	6.389	12.420	12.420	7.661	**4.871**
Peak flow (m^3s^{-1})		85.37	38.88	88.91	37.34	28.96	47.25	24.92	65.69	58.09	95.09	61.22	48.55	**95.09**
Runoff (mm)		86	70	98	89	68	46	32	36	45	86	75	83	**813**
Rainfall (mm)*		104	70	89	57	66	70	60	78	93	123	96	86	**992**

*(1981-1993)

Factors affecting runoff: N
Station type: VA

1994 runoff is 92% of previous mean
rainfall 88%

013007 North Esk at Logie Mill 1994

Measuring authority: TRPB
First year: 1976

Grid reference: 37 (NO) 699 640
Level stn. (m OD): 10.60

Catchment area (sq km): 730.0
Max alt. (m OD): 939

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	37.620	27.030	40.700	21.640	9.814	4.658	3.236	3.061	4.171	8.218	29.300	15.720	**17.039**
(m^3s^{-1}):	Peak	257.50	128.70	204.30	88.51	30.22	8.86	4.90	16.50	20.58	81.32	208.30	55.73	**257.50**
Runoff (mm)		138	90	149	77	36	17	12	11	15	30	104	58	**736**
Rainfall (mm)		156	140	74	75	17	41	42	40	52	82	134	85	**938**

Monthly and yearly statistics for previous record (Jan 1976 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	24.860	24.260	28.390	22.190	14.490	9.161	7.217	9.500	11.250	26.860	24.690	27.060	**19.148**
flows	Low	10.970	8.612	13.160	7.156	4.110	3.684	2.685	2.548	3.622	4.096	10.980	9.359	**11.043**
(m^3s^{-1})	High	50.000	46.630	45.240	34.870	36.420	24.300	18.060	35.810	30.540	80.410	91.170	59.880	**24.927**
Peak flow (m^3s^{-1})		315.60	195.00	279.30	277.90	186.40	271.90	133.00	320.60	342.80	452.80	462.10	398.10	**462.10**
Runoff (mm)		91	81	104	79	53	33	26	35	40	99	88	99	**828**
Rainfall (mm)		117	81	107	65	76	69	71	84	98	137	103	112	**1120**

Factors affecting runoff: S P I
Station type: VA

1994 runoff is 89% of previous mean
rainfall 84%

014001 Eden at Kemback 1994

Measuring authority: TRPB
First year: 1967

Grid reference: 37 (NO) 415 158
Level stn. (m OD): 6.20

Catchment area (sq km): 307.4
Max alt. (m OD): 522

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	8.675	7.334	9.204	4.007	2.400	1.716	1.203	1.060	1.162	1.413	4.243	4.376	**3.883**
(m^3s^{-1}):	Peak	33.29	41.73	29.42	6.74	3.40	2.55	1.93	2.29	1.87	3.61	13.08	12.33	**41.73**
Runoff (mm)		76	58	80	34	21	14	10	9	10	12	36	38	**398**
Rainfall (mm)		92	97	84	56	14	48	31	41	36	68	93	75	**735**

Monthly and yearly statistics for previous record (Oct 1967 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	7.403	6.215	4.976	3.880	3.057	2.190	1.530	1.663	2.009	3.318	4.389	5.657	**3.848**
flows	Low	2.546	2.170	1.408	1.199	1.406	1.077	0.861	0.799	0.749	0.833	0.830	1.731	**1.446**
(m^3s^{-1})	High	18.380	19.460	8.237	7.243	8.335	6.651	3.390	6.038	11.260	8.162	14.440	12.390	**5.634**
Peak flow (m^3s^{-1})		59.05	71.31	64.71	62.06	47.48	41.93	26.20	17.19	53.64	47.78	39.37	47.82	**71.31**
Runoff (mm)		65	49	43	33	27	18	13	14	17	29	37	49	**395**
Rainfall (mm)		89	55	67	47	63	58	58	62	73	78	72	74	**796**

Factors affecting runoff: S GEI
Station type: VA

1994 runoff is 101% of previous mean
rainfall 92%

015011 Lyon at Comrie Bridge 1994

Measuring authority: TRPB
First year: 1958

Grid reference: 27 (NN) 786 486
Level stn. (m OD): 92.10

Catchment area (sq km): 391.1
Max alt. (m OD): 1215

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	20.740	11.430	40.580	19.610	8.663	6.781	4.275	6.133	6.216	9.452	18.120	28.440	**15.092**
(m^3s^{-1}):	Peak	129.40	126.70	205.30	93.28	28.86	31.80	11.80	92.37	25.80	82.32	94.77	206.30	**206.30**
Runoff (mm)		142	71	278	130	59	45	29	42	41	65	120	195	**1217**
Rainfall (mm)		324	125	504	160	41	150	66	133	81	143	232	398	**2357**

Monthly and yearly statistics for previous record (Jan 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	18.440	14.790	15.880	10.320	9.344	6.404	6.093	7.466	10.330	14.810	14.500	15.810	**12.013**
flows	Low	3.596	3.198	4.219	4.002	3.537	3.470	3.062	2.221	2.843	3.662	5.320	6.182	**8.330**
(m^3s^{-1})	High	43.920	54.190	67.160	17.390	24.520	18.870	20.800	28.940	28.120	29.930	30.550	32.780	**19.871**
Peak flow (m^3s^{-1})		370.90	377.90	311.30	129.00	181.70	109.70	154.70	128.70	145.10	191.90	271.30	199.60	**377.90**
Runoff (mm)		126	92	109	68	64	42	42	51	68	101	96	108	**969**
Rainfall (mm)*		283	159	215	92	103	87	105	127	184	213	227	240	**2035**

*(1971-1993)

Factors affecting runoff: H
Station type: VA

1994 runoff is 126% of previous mean
rainfall 116%

016003 Ruchill Water at Cultybraggan 1994

Measuring authority: TRPB
First year: 1970

Grid reference: 27 (NN) 764 204
Level stn. (m OD): 62.30

Catchment area (sq km): 99.5
Max alt. (m OD): 985

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	10.570	4.628	16.630	5.453	1.712	2.096	1.792	2.618	1.559	4.987	8.481	12.390	**6.107**
(m^3s^{-1}):	Peak	124.80	122.60	189.00	28.20	19.24	45.31	17.84	67.58	15.57	110.50	76.43	116.20	**189.00**
Runoff (mm)		284	113	448	142	46	55	48	70	41	134	221	334	**1936**
Rainfall (mm)		327	123	444	152	31	144	85	138	64	178	238	382	**2306**

Monthly and yearly statistics for previous record (Oct 1970 to Dec 1993—incomplete or missing months total 1.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	8.561	6.501	7.247	3.512	2.699	1.866	1.765	2.720	4.948	6.058	7.356	7.493	**5.057**
flows	Low	2.263	1.050	2.519	0.758	0.304	0.381	0.239	0.164	0.345	0.789	2.306	1.630	**3.281**
(m^3s^{-1})	High	19.720	20.280	13.660	8.053	10.120	4.562	5.739	9.246	10.260	12.130	16.550	12.350	**6.586**
Peak flow (m^3s^{-1})		250.40	189.20	179.60	90.24	165.00	221.30	160.00	143.00	227.30	176.50	183.30	174.50	**250.40**
Runoff (mm)		230	160	195	91	73	49	48	73	129	163	192	202	**1604**
Rainfall (mm)		259	168	201	100	113	96	111	138	199	202	228	232	**2047**

Factors affecting runoff: N
Station type: VA

1994 runoff is 121% of previous mean
rainfall 113%

016004 Earn at Forteviot Bridge 1994

Measuring authority: TRPB
First year: 1972

Grid reference: 37 (NO) 043 184
Level stn. (m OD): 7.80

Catchment area (sq km): 782.2
Max alt. (m OD): 985

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	52.380	43.380	79.410	41.740	17.750	11.770	7.146	9.078	9.470	20.830	46.680	65.060	**33.714**
(m^3s^{-1}): Peak	129.10	214.90	289.70	125.40	36.16	53.03	18.92	66.96	25.34	129.70	133.40	232.20	**289.70**
Runoff (mm)	179	134	272	138	61	39	24	31	31	71	155	223	**1359**
Rainfall (mm)	213	112	289	101	22	99	67	94	50	128	172	266	**1613**

Monthly and yearly statistics for previous record (Oct 1972 to Dec 1993—incomplete or missing months total 0.9 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	52.890	40.140	39.640	23.730	15.050	9.618	8.559	11.820	19.750	29.730	37.630	43.630	**27.642**
flows Low	19.630	16.070	12.310	8.389	4.906	4.095	2.658	2.456	5.302	5.984	15.120	15.060	**15.508**
(m^3s^{-1}) High	116.500	127.100	74.340	51.570	47.200	20.070	24.620	46.660	55.680	61.980	89.750	79.160	**33.908**
Peak flow (m^3s^{-1})	415.00	337.00	264.60	209.40	186.50	114.90	142.30	169.70	271.80	241.20	328.60	238.70	**415.00**
Runoff (mm)	181	125	136	79	52	32	29	40	65	102	125	149	**1115**
Rainfall (mm)	186	114	147	67	81	74	85	104	147	149	157	164	**1475**

Factors affecting runoff: P H
Station type: VA

1994 runoff is 122% of previous mean
rainfall 109%

017001 Carron at Headswood 1994

Measuring authority: FRPB
First year: 1969

Grid reference: 26 (NS) 832 820
Level stn. (m OD): 17.10

Catchment area (sq km): 122.3
Max alt. (m OD): 570

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	9.121	4.356	14.480	3.826	1.375	0.977	0.968	1.374	1.014	2.049	5.661	13.830	**4.946**
(m^3s^{-1}): Peak	73.00	73.38	68.17	20.45	22.65	6.10	5.06	19.78	3.31	19.88	50.19	179.70	**179.70**
Runoff (mm)	200	86	317	81	30	21	21	30	21	45	120	303	**1276**
Rainfall (mm)	278	125	358	125	33	125	79	122	70	117	217	342	**1991**

Monthly and yearly statistics for previous record (Aug 1969 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	6.435	4.311	4.295	2.197	1.519	1.168	1.115	1.646	2.952	3.901	5.046	5.327	**3.324**
flows Low	1.943	1.018	1.232	0.807	0.590	0.580	0.549	0.557	0.467	0.424	1.412	1.084	**2.108**
(m^3s^{-1}) High	15.330	14.130	9.819	4.616	5.724	2.834	4.650	8.092	16.720	10.270	9.759	10.470	**4.606**
Peak flow (m^3s^{-1})	138.10	147.70	132.90	43.62	51.35	33.74	65.38	84.48	124.30	124.80	105.80	147.90	**147.90**
Runoff (mm)	141	86	94	47	33	25	24	36	63	85	107	117	**858**
Rainfall (mm)	185	117	149	80	86	86	90	118	153	162	175	171	**1572**

Factors affecting runoff: S E
Station type: VA

1994 runoff is 149% of previous mean
rainfall 127%

017002 Leven at Leven 1994

Measuring authority: FRPB
First year: 1969

Grid reference: 37 (NO) 369 006
Level stn. (m OD): 4.10

Catchment area (sq km): 424.0
Max alt. (m OD): 522

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	13.200	10.500	17.120	8.016	3.850	1.531	1.670	1.179	1.450	2.346	9.239	11.980	**6.830**
(m^3s^{-1}): Peak	19.94	26.66	27.69	14.71	5.96	3.22	5.22	4.91	2.44	6.83	19.78	32.62	**32.62**
Runoff (mm)	83	60	108	49	24	9	11	7	9	15	56	76	**508**
Rainfall (mm)	120	88	150	67	19	58	50	56	46	81	125	142	**1002**

Monthly and yearly statistics for previous record (Aug 1969 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	12.250	10.380	7.830	5.503	3.874	3.213	2.089	3.269	3.969	6.085	8.167	10.060	**6.373**
flows Low	4.786	2.882	1.543	1.413	2.012	1.166	0.902	0.820	0.970	0.795	0.972	3.462	**2.269**
(m^3s^{-1}) High	26.030	22.660	14.680	10.630	12.050	7.044	5.300	11.840	21.040	13.170	26.510	19.200	**9.294**
Peak flow (m^3s^{-1})	85.42	128.00	69.64	70.96	44.54	26.93	28.83	25.69	84.25	48.50	56.76	62.69	**128.00**
Runoff (mm)	77	60	49	34	24	20	13	21	24	38	50	64	**474**
Rainfall (mm)	103	64	82	52	61	67	65	75	89	90	93	93	**934**

Factors affecting runoff: SR EI
Station type: VA

1994 runoff is 107% of previous mean
rainfall 107%

018003 Teith at Bridge of Teith 1994

Measuring authority: FRPB
First year: 1957

Grid reference: 27 (NN) 725 011
Level stn. (m OD): 14.70

Catchment area (sq km): 518.0
Max alt. (m OD): 1165

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	51.520	29.060	79.140	34.560	11.690	12.450	9.529	14.170	10.660	17.130	39.580	70.340	**31.754**
(m^3s^{-1}): Peak	146.10	164.40	220.80	114.90	40.88	55.75	21.11	67.42	29.23	47.25	103.10	312.20	**312.20**
Runoff (mm)	266	136	409	173	60	62	49	73	53	89	198	364	**1933**
Rainfall (mm)	329	119	455	171	37	154	89	171	84	152	227	422	**2410**

Monthly and yearly statistics for previous record (Jan 1957 to Dec 1993—incomplete or missing months total 0.1 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	38.550	30.050	29.760	17.300	14.290	9.256	9.654	13.550	20.450	27.380	31.020	34.790	**22.989**
flows Low	9.608	5.743	6.589	5.612	4.017	3.953	3.781	3.135	3.635	5.897	9.842	11.790	**15.094**
(m^3s^{-1}) High	99.850	109.100	81.670	44.110	55.000	21.520	26.390	54.210	51.510	66.410	70.650	72.370	**32.716**
Peak flow (m^3s^{-1})	378.30	361.80	217.40	182.40	158.00	161.70	118.30	174.40	184.10	242.60	245.10	241.10	**378.30**
Runoff (mm)	199	141	154	87	74	46	50	70	102	142	155	180	**1400**
Rainfall (mm)*	250	157	191	100	116	102	112	137	198	216	218	223	**2020**

*(1963-1993)

Factors affecting runoff: S P I
Station type: VA

1994 runoff is 138% of previous mean
rainfall 119%

018005 Allan Water at Bridge of Allan 1994

Measuring authority: FRPB
First year: 1971
Grid reference: 26 (NS) 786 980
Level stn. (m OD): 11.20
Catchment area (sq km): 210.0
Max alt. (m OD): 633

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	15.940	8.773	24.460	7.154	3.019	2.320	2.368	2.450	2.005	4.272	12.260	22.420	**8.988**
(m^3s^{-1}):	Peak	88.01	102.50	118.20	25.72	20.06	16.76	19.02	32.46	8.27	32.38	62.43	158.80	**158.80**
Runoff (mm)		203	101	312	88	39	29	30	31	25	54	151	286	**1350**
Rainfall (mm)		214	100	299	90	23	94	80	85	51	102	166	270	**1574**

Monthly and yearly statistics for previous record (Jul 1971 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	12.280	8.884	9.447	5.261	3.835	2.638	2.275	3.151	5.182	7.186	8.847	10.040	**6.580**
flows	Low	4.751	3.631	3.152	1.654	1.189	0.945	0.726	0.648	0.907	0.971	3.642	3.709	**4.269**
(m^3s^{-1})	High	28.570	22.270	18.170	10.410	15.430	5.423	6.309	12.390	15.180	12.420	17.760	17.150	**9.091**
Peak flow (m^3s^{-1})		194.30	81.93	83.43	69.63	72.11	61.86	66.37	67.48	105.60	111.00	97.89	112.60	**194.30**
Runoff (mm)		157	104	120	65	49	33	29	40	64	92	109	128	**989**
Rainfall (mm)		162	99	128	68	77	73	82	96	126	131	135	144	**1321**

Factors affecting runoff: I
Station type: VA

1994 runoff is 136% of previous mean
rainfall 119%

018018 Kirkton Burn at Balquhidder 1994

Measuring authority: IH
First year: 1983
Grid reference: 27 (NN) 532 219
Level stn. (m OD): 246.00
Catchment area (sq km): 6.8
Max alt. (m OD): 852

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	0.712	0.368	1.215	0.574	0.177	0.226	0.164	0.294	0.198	0.324	0.622	0.949	**0.487**
(m^3s^{-1}):	Peak	5.09	5.86	10.37	3.23	0.88	1.38	0.83	5.05	1.39	2.63	5.17	7.92	**10.37**
Runoff (mm)		278	130	475	217	69	85	64	115	75	127	236	371	**2243**
Rainfall (mm)		351	162	489	184	46	165	73	189	69	162	249	434	**2573**

Monthly and yearly statistics for previous record (Jan 1983 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.692	0.516	0.614	0.375	0.222	0.141	0.197	0.324	0.383	0.583	0.497	0.639	**0.432**
flows	Low	0.178	0.105	0.214	0.190	0.066	0.055	0.047	0.031	0.070	0.242	0.178	0.339	**0.346**
(m^3s^{-1})	High	1.280	1.489	1.144	0.687	0.847	0.261	0.539	0.767	0.726	0.906	1.028	1.052	**0.509**
Peak flow (m^3s^{-1})		13.57	7.66	8.69	4.01	8.51	2.56	5.98	10.90	7.45	12.20	9.25	10.09	**13.57**
Runoff (mm)		271	184	240	142	87	53	77	127	145	228	188	250	**1992**
Rainfall (mm)*		341	197	267	132	113	92	136	185	202	256	221	301	**2442**

*(1983-1993)

Factors affecting runoff: N
Station type: C

1994 runoff is 113% of previous mean
rainfall 105%

Comment: Period of record rainfall statistics derived from a network of ground flush raingauges.

020001 Tyne at East Linton 1994

Measuring authority: FRPB
First year: 1961
Grid reference: 36 (NT) 591 768
Level stn. (m OD): 16.50
Catchment area (sq km): 307.0
Max alt. (m OD): 528

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	8.835	4.812	4.741	2.601	1.320	1.010	0.778	0.643	0.662	0.902	1.672	3.380	**2.607**
(m^3s^{-1}):	Peak	57.84	46.56	17.82	6.12	1.99	2.27	1.30	1.14	1.49	4.26	7.94	23.82	**57.84**
Runoff (mm)		77	38	41	22	12	9	7	6	6	8	14	29	**268**
Rainfall (mm)		89	65	62	53	15	40	25	28	54	65	62	85	**643**

Monthly and yearly statistics for previous record (Jan 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.660	3.827	3.848	2.915	2.399	1.431	1.253	1.571	1.697	2.501	3.429	3.850	**2.779**
flows	Low	1.032	0.783	0.531	0.644	0.781	0.586	0.500	0.468	0.461	0.451	0.524	0.582	**0.709**
(m^3s^{-1})	High	11.540	8.625	8.789	7.824	11.600	6.142	4.393	9.855	8.490	9.421	11.210	9.447	**4.146**
Peak flow (m^3s^{-1})		93.02	53.51	118.80	143.00	119.70	59.12	70.18	112.70	90.84	148.50	127.50	52.02	**148.50**
Runoff (mm)		41	30	34	25	21	12	11	14	14	22	29	34	**286**
Rainfall (mm)		64	43	58	48	58	54	60	76	68	71	68	62	**730**

Factors affecting runoff: EI
Station type: VA

1994 runoff is 94% of previous mean
rainfall 88%

021006 Tweed at Boleside 1994

Measuring authority: TWRP
First year: 1961
Grid reference: 36 (NT) 498 334
Level stn. (m OD): 94.50
Catchment area (sq km): 1500.0
Max alt. (m OD): 839

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	89.530	49.530	96.310	48.750	18.210	10.130	9.076	12.730	15.460	21.090	73.670	118.700	**47.020**
(m^3s^{-1}):	Peak	255.20	228.60	332.30	102.50	48.71	22.81	25.14	52.67	59.11	91.45	282.90	799.60	**799.60**
Runoff (mm)		160	80	172	84	33	18	16	23	27	38	127	212	**990**
Rainfall (mm)		176	95	189	91	25	63	62	86	63	89	143	242	**1324**

Monthly and yearly statistics for previous record (Jan 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	61.090	48.840	46.110	33.240	25.330	16.210	15.410	23.020	30.780	43.680	52.460	57.500	**37.770**
flows	Low	14.740	10.780	16.230	10.250	7.290	5.669	4.314	3.834	4.316	4.655	12.230	24.150	**20.090**
(m^3s^{-1})	High	111.900	159.700	104.200	68.230	67.600	35.350	44.590	85.410	98.480	99.430	121.300	101.900	**49.790**
Peak flow (m^3s^{-1})		678.60	507.60	469.80	447.30	385.00	125.90	342.40	444.30	496.30	1019.00	486.30	571.90	**1019.00**
Runoff (mm)		109	80	82	57	45	28	28	41	53	78	91	103	**795**
Rainfall (mm)		129	86	104	72	84	76	85	108	115	124	121	124	**1226**

Factors affecting runoff: S P
Station type: VA

1994 runoff is 125% of previous mean
rainfall 108%

Comment: Monthly naturalised flows used.

021012 Teviot at Hawick 1994

Measuring authority: TWRP
First year: 1961
Grid reference: 36 (NT) 522 159
Level stn. (m OD): 90.10
Catchment area (sq km): 323.0
Max alt. (m OD): 608

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	19.160	12.760	20.600	9.703	3.521	1.734	1.640	3.197	2.472	4.148	19.220	26.520	**10.393**
(m^3s^{-1}):	Peak	84.21	150.70	123.70	35.62	16.32	7.74	13.30	35.95	12.70	40.33	110.50	187.90	**187.90**
Runoff (mm)		159	96	171	78	29	14	14	27	20	34	154	220	**1015**
Rainfall (mm)		188	96	186	93	22	79	65	99	55	94	158	245	**1380**

Monthly and yearly statistics for previous record (Jan 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	14.520	11.160	10.510	6.994	5.694	3.770	3.358	4.980	6.564	9.934	12.370	14.140	**8.661**
flows	Low	3.587	2.601	2.991	2.190	1.296	0.909	0.676	0.735	0.915	0.816	2.555	4.523	**4.183**
(m^3s^{-1})	High	28.570	34.800	27.700	14.200	17.340	10.500	12.300	19.120	18.960	25.690	29.910	26.550	**11.280**
Peak flow (m^3s^{-1})		257.40	235.30	182.40	179.00	135.00	89.41	148.30	178.60	185.90	273.40	188.50	230.00	**273.40**
Runoff (mm)		120	84	87	56	47	30	28	41	53	82	99	117	**846**
Rainfall (mm)		127	83	101	70	85	75	86	103	107	118	119	126	**1201**

Factors affecting runoff: N
Station type: VA
1994 runoff is 120% of previous mean
rainfall 115%

Comment: Monthly naturalised flows used.

021018 Lyne Water at Lyne Station 1994

Measuring authority: TWRP
First year: 1962
Grid reference: 36 (NT) 209 401
Level stn. (m OD): 168.00
Catchment area (sq km): 175.0
Max alt. (m OD): 562

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.515	4.261	8.294	4.320	1.664	0.908	0.684	0.777	0.798	1.205	4.830	10.350	**3.809**
(m^3s^{-1}):	Peak	16.58	19.58	23.30	11.67	2.76	1.35	1.27	3.13	2.11	5.79	18.34	83.46	**83.46**
Runoff (mm)		115	59	127	64	25	13	10	12	12	18	72	158	**685**
Rainfall (mm)		126	68	148	74	18	49	46	65	59	68	107	195	**1023**

Monthly and yearly statistics for previous record (Jan 1962 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	5.109	4.227	3.892	2.895	2.079	1.522	1.361	1.751	2.519	3.548	4.483	4.704	**3.170**
flows	Low	1.666	1.416	1.491	1.197	0.881	0.795	0.609	0.522	0.542	0.540	1.100	1.756	**1.599**
(m^3s^{-1})	High	8.991	11.260	7.613	6.084	4.907	2.738	4.433	5.606	10.660	11.320	9.053	8.581	**4.304**
Peak flow (m^3s^{-1})		52.31	41.55	41.21	41.08	23.97	16.46	31.72	20.77	58.74	73.75	53.60	37.98	**73.75**
Runoff (mm)		78	59	60	43	32	23	21	27	37	54	66	72	**572**
Rainfall (mm)		93	63	79	57	64	66	71	89	97	99	96	91	**965**

Factors affecting runoff: S P
Station type: VA
1994 runoff is 120% of previous mean
rainfall 106%

Comment: Monthly naturalised flows used.

021022 Whiteadder Water at Hutton Castle 1994

Measuring authority: TWRP
First year: 1969
Grid reference: 36 (NT) 881 550
Level stn. (m OD): 29.00
Catchment area (sq km): 503.0
Max alt. (m OD): 533

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	21.530	11.650	9.750	5.228	2.917	2.010	1.223	1.121	1.297	1.737	6.380	8.288	**6.075**
(m^3s^{-1}):	Peak	155.70	107.00	34.99	14.32	4.34	2.82	2.29	2.33	2.64	6.81	22.71	42.25	**155.70**
Runoff (mm)		115	56	52	27	16	10	7	6	7	9	33	44	**382**
Rainfall (mm)		108	75	51	54	13	37	26	44	49	61	94	86	**698**

Monthly and yearly statistics for previous record (Oct 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	11.170	9.928	9.363	7.711	5.396	3.443	2.474	2.930	3.256	5.892	7.571	9.140	**6.509**
flows	Low	2.616	1.806	1.295	1.523	1.390	1.421	1.192	0.988	1.056	0.981	1.283	1.569	**2.077**
(m^3s^{-1})	High	26.470	27.460	19.270	16.170	24.280	9.083	6.882	8.413	16.700	17.890	28.980	20.830	**9.112**
Peak flow (m^3s^{-1})		265.90	160.90	247.60	274.70	226.20	75.82	84.85	181.10	105.80	226.20	279.80	108.10	**279.80**
Runoff (mm)		60	48	50	40	29	18	13	16	17	31	39	49	**408**
Rainfall (mm)		75	52	67	56	64	59	62	78	74	77	79	70	**811**

Factors affecting runoff: S P
Station type: CC
1994 runoff is 94% of previous mean
rainfall 86%

Comment: Monthly naturalised flows used.

021024 Jed Water at Jedburgh 1994

Measuring authority: TWRP
First year: 1960
Grid reference: 36 (NT) 655 214
Level stn. (m OD): 67.50
Catchment area (sq km): 139.0
Max alt. (m OD): 553

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.305	3.449	4.262	2.128	0.916	0.588	0.467	0.694	0.472	0.714	2.908	5.692	**2.299**
(m^3s^{-1}):	Peak	32.66	36.95	57.01	10.83	2.16	1.32	2.65	12.60	1.91	5.71	24.59	75.33	**75.33**
Runoff (mm)		102	60	82	40	18	11	9	13	9	14	54	110	**521**
Rainfall (mm)		119	70	107	62	17	40	34	66	44	64	107	164	**894**

Monthly and yearly statistics for previous record (Jan 1960 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.073	3.073	2.928	2.080	1.628	1.086	1.018	1.261	1.513	2.120	3.091	3.568	**2.285**
flows	Low	1.482	0.997	0.782	0.733	0.635	0.404	0.352	0.312	0.346	0.327	0.698	0.967	**1.068**
(m^3s^{-1})	High	7.748	9.041	7.398	4.556	4.990	2.345	4.770	4.329	6.868	5.002	9.433	6.962	**3.091**
Peak flow (m^3s^{-1})		106.30	74.82	84.94	68.83	38.25	58.35	66.25	63.76	50.94	71.65	167.10	85.25	**167.10**
Runoff (mm)		79	54	56	39	31	20	20	24	28	41	58	69	**519**
Rainfall (mm)		92	63	75	60	70	63	73	86	80	88	91	91	**933**

Factors affecting runoff: N
Station type: VA
1994 runoff is 101% of previous mean
rainfall 96%

Comment: Monthly naturalised flows used.

022006 Blyth at Hartford Bridge 1994

Measuring authority: NRA-NY
First year: 1966
Grid reference: 45 (NZ) 243 800
Level stn. (m OD): 24.60
Catchment area (sq km): 269.4
Max alt. (m OD): 259

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows,	Avg.	5.353	4.469	2.442	1.638	0.464	0.217	0.118	0.273	0.215	0.308	2.280	2.256	**1.653**
(m^3s^{-1}):	Peak	36.41	53.69	17.98	22.62	0.94	0.55	0.19	3.27	0.61	1.26	12.47	7.82	**53.69**
Runoff (mm)		53	40	24	16	5	2	1	3	2	3	22	22	**193**
Rainfall (mm)		66	69	44	54	15	33	33	89	60	53	77	62	**655**

Monthly and yearly statistics for previous record (Oct 1966 to Dec 1993—incomplete or missing months total 1.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.276	3.575	3.451	2.561	1.425	0.569	0.417	0.586	0.694	1.494	2.272	3.760	**2.085**
flows	Low	0.587	0.398	0.245	0.359	0.212	0.161	0.096	0.067	0.107	0.111	0.162	0.274	**0.537**
(m^3s^{-1})	High	10.150	7.997	11.090	10.360	5.502	1.895	1.800	2.963	2.695	9.680	5.735	12.500	**3.410**
Peak flow (m^3s^{-1})		146.60	59.52	150.20	162.80	101.50	31.54	21.52	61.09	30.02	56.84	69.20	122.30	**162.80**
Runoff (mm)		43	32	34	25	14	5	4	6	7	15	22	37	**244**
Rainfall (mm)		64	47	61	48	55	50	56	69	62	62	65	64	**703**

Factors affecting runoff: E
Station type: FV

1994 runoff is 79% of previous mean
rainfall 93%

023001 Tyne at Bywell 1994

Measuring authority: NRA-NY
First year: 1956
Grid reference: 45 (NZ) 038 617
Level stn. (m OD): 14.00
Catchment area (sq km): 2175.6
Max alt. (m OD): 893

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	106.300	68.350	104.400	52.660	15.400	11.590	7.751	14.310	24.930	26.830	84.860	120.900	**53.172**
(m^3s^{-1}):	Peak	356.20	386.10	795.40	164.50	38.33	79.48	21.57	117.20	120.90	171.10	698.70	709.10	**795.40**
Runoff (mm)		131	76	129	63	19	14	10	18	30	33	101	149	**771**
Rainfall (mm)		128	73	148	79	20	57	48	102	74	78	125	187	**1119**

Monthly and yearly statistics for previous record (Oct 1956 to Dec 1993—incomplete or missing months total 0.3 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	74.070	60.690	55.930	38.790	25.140	17.610	19.090	28.060	33.840	46.040	61.600	70.530	**44.226**
flows	Low	19.220	14.360	18.450	8.461	7.246	4.910	5.199	3.403	4.155	4.727	18.090	23.080	**25.849**
(m^3s^{-1})	High	150.800	162.800	150.900	75.620	60.650	50.010	58.000	77.360	106.600	147.200	147.000	123.000	**63.834**
Peak flow (m^3s^{-1})		1525.00	1198.00	1472.00	905.60	550.90	440.30	1105.00	1561.00	1243.00	1586.00	1382.00	1317.00	**1586.00**
Runoff (mm)		91	68	69	46	31	21	23	35	40	57	73	87	**641**
Rainfall (mm)		105	75	86	65	68	67	82	95	90	96	103	108	**1040**

Factors affecting runoff: S
Station type: VA

1994 runoff is 120% of previous mean
rainfall 108%

023006 South Tyne at Featherstone 1994

Measuring authority: NRA-NY
First year: 1966
Grid reference: 35 (NY) 672 611
Level stn. (m OD): 131.70
Catchment area (sq km): 321.9
Max alt. (m OD): 893

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	19.700	9.486	21.480	12.150	2.727	3.415	1.386	3.812	7.796	7.550	17.310	25.900	**11.082**
(m^3s^{-1}):	Peak	193.20	129.10	208.80	102.40	19.82	75.75	1.72	46.56	50.93	63.97	176.00	178.00	**208.80**
Runoff (mm)		164	71	179	98	23	28	12	32	63	63	139	215	**1086**
Rainfall (mm)		206	66	205	112	26	81	42	121	97	98	157	272	**1483**

Monthly and yearly statistics for previous record (Oct 1966 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	16.110	12.570	13.570	9.347	6.185	4.888	5.130	6.709	9.241	12.400	15.230	16.100	**10.620**
flows	Low	6.606	3.380	4.733	1.850	1.311	1.465	1.123	0.960	1.467	1.181	5.895	5.110	**7.630**
(m^3s^{-1})	High	25.510	33.950	30.210	17.380	13.850	12.740	17.170	19.240	23.670	30.330	24.670	28.810	**12.915**
Peak flow (m^3s^{-1})		292.10	255.30	260.80	178.00	131.30	164.70	273.60	297.30	264.70	263.10	309.90	283.70	**309.90**
Runoff (mm)		134	95	113	75	51	39	43	56	74	103	123	134	**1041**
Rainfall (mm)		140	96	122	82	85	86	100	114	125	138	141	144	**1373**

Factors affecting runoff: N
Station type: CC

1994 runoff is 104% of previous mean
rainfall 108%

023011 Kielder Burn at Kielder 1994

Measuring authority: NRA-NY
First year: 1970
Grid reference: 35 (NY) 644 946
Level stn. (m OD): 214.00
Catchment area (sq km): 58.8
Max alt. (m OD): 602

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.850	1.967	3.942	1.935	0.677	0.627	0.355	1.291	0.963	1.349	3.539	4.564	**2.093**
(m^3s^{-1}):	Peak	27.99	23.58	57.88	7.87	2.74	4.08	4.96	45.58	9.79	17.80	33.83	50.45	**57.88**
Runoff (mm)		175	81	180	85	31	28	16	59	42	61	156	208	**1122**
Rainfall (mm)		159	102	165	96	25	69	50	118	66	91	162	232	**1335**

Monthly and yearly statistics for previous record (Jul 1970 to Dec 1993—incomplete or missing months total 2.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.047	2.370	2.444	1.613	1.192	1.013	0.852	1.214	1.362	2.043	2.622	2.915	**1.890**
flows	Low	1.646	0.722	0.945	0.389	0.331	0.316	0.302	0.243	0.316	0.247	0.694	1.011	**1.201**
(m^3s^{-1})	High	4.893	6.677	4.882	3.209	2.605	2.134	2.632	4.407	3.296	3.589	6.000	5.113	**2.470**
Peak flow (m^3s^{-1})		95.31	73.28	44.44	35.55	60.14	95.07	39.21	138.90	56.86	128.80	118.70	67.89	**138.90**
Runoff (mm)		139	98	111	71	54	45	39	55	60	93	116	133	**1014**
Rainfall (mm)		140	96	115	74	77	73	89	103	102	124	124	146	**1271**

Factors affecting runoff: N
Station type: FVVA

1994 runoff is 111% of previous mean
rainfall 105%

024004 Bedburn Beck at Bedburn 1994

Measuring authority: NRA-NY
First year: 1959
Grid reference: 45 (NZ) 118 322
Level stn. (m OD): 109.00
Catchment area (sq km): 74.9
Max alt. (m OD): 535

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.886	1.949	2.160	1.532	0.568	0.264	0.174	0.175	0.461	0.835	2.015	2.561	**1.296**
(m^3s^{-1}):	Peak	16.14	11.57	12.55	13.44	3.11	0.41	0.30	1.70	2.50	9.00	12.01	11.72	**16.14**
Runoff (mm)		103	63	77	53	20	9	6	6	16	30	70	92	**545**
Rainfall (mm)		129	84	93	83	38	32	37	88	99	75	93	148	**999**

Monthly and yearly statistics for previous record (Oct 1959 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.088	1.772	1.775	1.380	0.885	0.520	0.430	0.544	0.603	1.170	1.518	1.882	**1.212**
flows	Low	0.515	0.472	0.436	0.316	0.270	0.191	0.152	0.120	0.110	0.146	0.244	0.444	**0.667**
(m^3s^{-1})	High	4.341	4.011	5.128	2.986	2.231	1.524	1.522	1.465	1.790	4.346	3.722	4.488	**1.842**
Peak flow (m^3s^{-1})		34.67	39.16	38.51	35.09	33.41	21.66	27.72	46.19	32.30	38.06	34.26	42.93	**46.19**
Runoff (mm)		75	58	63	48	32	18	15	19	21	42	53	67	**511**
Rainfall (mm)		90	65	73	61	63	56	63	76	72	81	88	88	**876**

Factors affecting runoff: N
Station type: CC

1994 runoff is 107% of previous mean
rainfall 114%

024009 Wear at Chester le Street 1994

Measuring authority: NRA-NY
First year: 1977
Grid reference: 45 (NZ) 283 512
Level stn. (m OD): 5.50
Catchment area (sq km): 1008.3
Max alt. (m OD): 747

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	36.930	21.160	22.200	16.030	6.386	4.070	4.054	4.182	5.916	8.386	20.640	32.540	**15.198**
(m^3s^{-1}):	Peak	164.80	137.40	143.50	89.94	18.00	5.48	7.78	12.06	18.29	73.60	99.17	165.40	**165.40**
Runoff (mm)		98	51	59	41	17	10	11	11	15	22	53	86	**475**
Rainfall (mm)		111	71	79	68	38	30	44	72	87	73	86	134	**893**

Monthly and yearly statistics for previous record (Sep 1977 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	24.240	21.190	22.700	17.510	10.440	6.758	5.522	6.530	6.957	11.210	16.620	24.540	**14.495**
flows	Low	8.610	7.302	6.215	4.738	3.941	3.447	2.948	3.057	3.054	4.563	4.812	12.780	**8.661**
(m^3s^{-1})	High	40.980	39.880	64.200	36.800	30.170	14.650	14.010	19.300	23.480	27.060	35.820	50.640	**19.785**
Peak flow (m^3s^{-1})		309.80	263.70	349.60	277.60	314.40	200.60	226.50	354.40	203.70	273.40	254.10	353.10	**354.40**
Runoff (mm)		64	51	60	45	28	17	15	17	18	30	43	65	**454**
Rainfall (mm)		85	62	81	61	60	60	56	78	68	82	87	98	**878**

Factors affecting runoff: R G
Station type: FV

1994 runoff is 105% of previous mean
rainfall 102%

025001 Tees at Broken Scar 1994

Measuring authority: NRA-NY
First year: 1956
Grid reference: 45 (NZ) 259 137
Level stn. (m OD): 37.20
Catchment area (sq km): 818.4
Max alt. (m OD): 893

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	47.930	26.490	36.850	27.010	8.837	7.133	4.863	6.652	12.670	12.240	27.130	45.530	**21.945**
(m^3s^{-1}):	Peak	342.80	142.80	260.50	123.20	30.22	33.95	7.63	59.11	61.08	95.37	145.00	282.30	**342.80**
Runoff (mm)		157	78	121	86	29	23	16	22	40	40	86	149	**846**
Rainfall (mm)		186	84	152	100	36	40	38	96	108	92	127	218	**1277**

Monthly and yearly statistics for previous record (Oct 1956 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	29.950	24.650	23.730	18.660	10.340	6.559	6.734	9.764	11.080	17.650	22.390	29.150	**17.533**
flows	Low	2.906	2.804	5.482	2.539	2.007	0.502	1.794	0.458	0.638	2.707	4.060	5.778	**9.383**
(m^3s^{-1})	High	57.570	64.770	68.660	60.870	27.020	15.270	25.100	28.520	25.800	53.940	51.580	50.040	**25.161**
Peak flow (m^3s^{-1})		590.80	521.10	679.30	350.90	311.50	191.90	380.70	709.80	331.30	525.80	416.30	565.10	**709.80**
Runoff (mm)		98	74	78	59	34	21	22	32	35	58	71	95	**676**
Rainfall (mm)		121	89	96	77	77	72	81	99	95	106	112	125	**1150**

Factors affecting runoff: SRP
Station type: CC

1994 runoff is 125% of previous mean
rainfall 111%

025019 Leven at Easby 1994

Measuring authority: NRA-NY
First year: 1971
Grid reference: 45 (NZ) 585 087
Level stn. (m OD): 101.30
Catchment area (sq km): 14.8
Max alt. (m OD): 335

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	0.422	0.252	0.154	0.128	0.143	0.072	0.054	0.054	0.088	0.120	0.153	0.222	**0.155**
(m^3s^{-1}):	Peak	1.69	1.88	0.53	0.48	1.81	0.12	0.18	0.32	0.48	0.57	0.47	1.06	**1.88**
Runoff (mm)		76	41	28	22	26	13	10	10	15	22	27	40	**330**
Rainfall (mm)		97	54	42	41	63	29	45	59	99	81	58	112	**780**

Monthly and yearly statistics for previous record (May 1971 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.282	0.276	0.272	0.242	0.164	0.119	0.100	0.121	0.129	0.166	0.195	0.269	**0.194**
flows	Low	0.082	0.094	0.076	0.066	0.069	0.058	0.044	0.038	0.039	0.049	0.058	0.129	**0.083**
(m^3s^{-1})	High	0.630	0.729	0.821	0.771	0.544	0.239	0.189	0.427	0.532	0.556	0.507	0.543	**0.305**
Peak flow (m^3s^{-1})		3.56	4.38	5.68	9.36	7.56	1.99	3.14	15.53	16.01	6.11	5.20	7.66	**16.01**
Runoff (mm)		51	46	49	42	30	21	18	22	23	30	34	49	**414**
Rainfall (mm)		74	51	68	60	56	60	60	75	74	79	77	77	**811**

Factors affecting runoff: N
Station type: FV

1994 runoff is 80% of previous mean
rainfall 96%

026003 Foston Beck at Foston Mill 1994

Measuring authority: NRA-NY
First year: 1959

Grid reference: 54 (TA) 093 548
Level stn. (m OD): 6.40

Catchment area (sq km): 57.2
Max alt. (m OD): 164

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	2.002	1.774	1.465	1.096	0.788	0.581	0.461	0.363	0.327	0.287	0.254	0.274	**0.801**
(m^3s^{-1}): Peak	2.49	2.69	1.63	1.36	0.98	0.69	0.62	0.41	0.42	0.35	0.32	0.72	**2.69**
Runoff (mm)	94	75	69	50	37	26	22	17	15	13	12	13	**442**
Rainfall (mm)	110	62	34	51	43	17	52	40	99	54	50	95	**707**

Monthly and yearly statistics for previous record (Oct 1959 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	0.780	1.021	1.003	0.916	0.789	0.617	0.483	0.379	0.314	0.301	0.376	0.541	**0.624**
flows Low	0.113	0.105	0.087	0.096	0.098	0.083	0.101	0.089	0.091	0.077	0.073	0.122	**0.141**
(m^3s^{-1}) High	2.224	2.332	2.242	2.070	1.708	1.231	0.882	0.675	0.567	0.612	1.845	2.379	**1.282**
Peak flow (m^3s^{-1})	2.89	3.31	2.69	2.70	1.95	2.01	1.47	0.99	0.80	1.22	2.49	2.86	**3.31**
Runoff (mm)	37	44	47	42	37	28	23	18	14	14	17	25	**345**
Rainfall (mm)	67	50	56	52	51	53	55	62	58	65	73	74	**716**

Factors affecting runoff: N G
Station type: TP

1994 runoff is 128% of previous mean
rainfall 99%

026005 Gypsey Race at Boynton 1994

Measuring authority: NRA-NY
First year: 1981

Grid reference: 54 (TA) 137 677
Level stn. (m OD): 16.80

Catchment area (sq km): 240.0
Max alt. (m OD): 211

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.324	0.936	1.172	0.627	0.321	0.171	0.058	0.006	0.005	0.005	0.008	0.017	**0.385**
(m^3s^{-1}): Peak	2.44	1.19	1.43	1.02	0.43	0.27	0.12	0.04	0.03	0.01	0.03	0.06	**2.44**
Runoff (mm)	15	9	13	7	4	2	1	0	0	0	0	0	**51**
Rainfall (mm)	111	64	35	52	40	21	58	45	100	58	51	96	**731**

Monthly and yearly statistics for previous record (Feb 1981 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	0.150	0.282	0.303	0.396	0.363	0.220	0.124	0.056	0.027	0.014	0.014	0.046	**0.165**
flows Low	0.006	0.005	0.005	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	**0.004**
(m^3s^{-1}) High	0.475	0.887	0.872	1.585	1.217	0.623	0.351	0.184	0.098	0.055	0.033	0.190	**0.349**
Peak flow (m^3s^{-1})	0.72	1.00	1.86	1.87	1.58	0.86	0.60	0.28	0.29	0.14	0.10	0.91	**1.87**
Runoff (mm)	2	3	3	4	4	2	1	1	0	0	0	1	**22**
Rainfall (mm)	60	48	64	55	44	52	54	59	63	64	69	66	**698**

Factors affecting runoff: G I
Station type: FV

1994 runoff is 233% of previous mean
rainfall 105%

027007 Ure at Westwick Lock 1994

Measuring authority: NRA-NY
First year: 1958

Grid reference: 44 (SE) 356 671
Level stn. (m OD): 14.20

Catchment area (sq km): 914.6
Max alt. (m OD): 713

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	55.110	32.460	47.850	30.500	9.393	6.233	3.520	6.494	16.810	16.790	38.230	60.480	**26.989**
(m^3s^{-1}): Peak	169.60	177.10	221.10	144.40	33.33	30.90	5.27	63.92	63.32	75.18	173.00	282.60	**282.60**
Runoff (mm)	161	86	140	86	28	18	10	19	48	49	108	177	**931**
Rainfall (mm)	170	89	164	95	42	41	43	88	103	91	124	219	**1269**

Monthly and yearly statistics for previous record (Oct 1958 to Dec 1993—incomplete or missing months total 1.0 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	34.590	30.040	27.260	20.360	12.810	8.411	7.863	11.330	13.670	21.330	28.030	34.370	**20.804**
flows Low	4.009	3.886	8.875	5.674	3.831	3.024	2.202	1.287	1.450	5.856	7.078	11.330	**12.946**
(m^3s^{-1}) High	59.590	84.770	60.330	40.980	31.290	21.400	20.130	31.600	33.030	68.480	65.010	59.960	**27.066**
Peak flow (m^3s^{-1})	537.90	625.90	413.10	263.30	248.50	161.50	153.30	271.90	296.20	266.50	288.80	320.80	**625.90**
Runoff (mm)	101	80	80	58	38	24	23	33	39	62	79	101	**718**
Rainfall (mm)	122	86	96	79	72	69	75	90	94	106	118	127	**1134**

Factors affecting runoff: S P
Station type: B VA

1994 runoff is 130% of previous mean
rainfall 112%

027025 Rother at Woodhouse Mill 1994

Measuring authority: NRA-NY
First year: 1961

Grid reference: 43 (SK) 432 857
Level stn. (m OD): 28.70

Catchment area (sq km): 352.2
Max alt. (m OD): 367

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	9.415	7.243	4.223	4.107	2.850	1.561	1.856	1.352	3.857	2.433	7.934	8.426	**4.586**
(m^3s^{-1}): Peak	31.54	46.46	12.54	16.46	17.40	2.48	8.20	11.36	35.62	9.82	41.13	36.35	**46.46**
Runoff (mm)	72	50	32	30	22	11	14	10	28	19	58	64	**411**
Rainfall (mm)	89	65	57	51	59	14	40	50	143	53	95	103	**819**

Monthly and yearly statistics for previous record (Oct 1961 to Dec 1993—incomplete or missing months total 2.5 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	6.798	6.508	6.019	5.018	3.513	2.915	1.964	1.944	2.185	2.949	4.463	6.537	**4.224**
flows Low	1.287	1.424	1.500	1.400	1.257	1.166	0.934	0.760	0.712	0.693	1.023	2.393	**2.540**
(m^3s^{-1}) High	13.000	22.440	14.330	13.160	10.110	10.840	4.907	3.323	7.786	7.600	8.200	18.140	**6.364**
Peak flow (m^3s^{-1})	60.30	78.80	53.21	78.14	61.40	105.40	45.63	33.55	45.59	41.74	50.55	91.46	**105.40**
Runoff (mm)	52	45	46	37	27	21	15	15	16	22	33	50	**378**
Rainfall (mm)	71	56	64	62	59	65	55	60	62	65	73	78	**770**

Factors affecting runoff: SRPGEI
Station type: VA

1994 runoff is 109% of previous mean
rainfall 106%

027042 Dove at Kirkby Mills 1994

Measuring authority: NRA-NY
First year: 1972

Grid reference: 44 (SE) 705 855
Level stn. (m OD): 35.60

Catchment area (sq km): 59.2
Max alt. (m OD): 433

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	2.909	1.779	1.083	0.947	0.531	0.336	0.252	0.239	0.522	0.902	1.307	1.468	**1.019**
(m^3s^{-1}): Peak	26.22	12.55	3.55	4.89	2.63	0.64	1.50	1.47	2.97	4.28	3.65	7.14	**26.22**
Runoff (mm)	132	73	49	41	24	15	11	11	23	41	57	66	**543**
Rainfall (mm)	118	81	50	53	43	34	63	60	109	82	77	106	**876**

Monthly and yearly statistics for previous record (Feb 1972 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	1.593	1.554	1.583	1.217	0.780	0.591	0.483	0.535	0.695	0.977	1.180	1.641	**1.067**
Low	0.589	0.541	0.347	0.376	0.329	0.257	0.211	0.161	0.170	0.251	0.499	0.664	**0.576**
(m^3s^{-1}) High	2.861	3.180	4.701	2.915	1.702	1.099	1.021	1.397	2.743	2.683	2.032	3.237	**1.554**
Peak flow (m^3s^{-1})	37.45	41.51	40.93	27.63	30.01	7.43	19.33	32.36	56.38	24.71	49.59	53.38	**56.38**
Runoff (mm)	72	64	72	53	35	26	22	24	30	44	52	74	**569**
Rainfall (mm)	90	61	84	64	61	63	66	76	84	90	87	93	**919**

Factors affecting runoff: N
Station type: FV

1994 runoff is 95% of previous mean
rainfall 95%

027047 Snaizeholme Beck at Low Houses 1994

Measuring authority: NRA-NY
First year: 1972

Grid reference: 34 (SD) 833 883
Level stn. (m OD): 260.00

Catchment area (sq km): 10.2
Max alt. (m OD): 668

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.366	0.562	1.428	0.720	0.122	0.169	0.031	0.289	0.434	0.443	0.927	1.418	**0.661**
(m^3s^{-1}): Peak	12.40	7.88	13.45	9.98	2.33	3.31	0.15	6.87	4.60	5.44	14.55	14.01	**14.55**
Runoff (mm)	359	133	375	183	32	43	8	76	110	116	236	372	**2044**
Rainfall (mm)	294	96	387	149	43	105	49	155	131	136	218	379	**2142**

Monthly and yearly statistics for previous record (Jan 1973 to Dec 1993—incomplete or missing months total 1.0 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.934	0.726	0.712	0.369	0.258	0.199	0.231	0.346	0.520	0.684	0.840	1.009	**0.569**
Low	0.428	0.110	0.186	0.047	0.024	0.025	0.021	0.029	0.076	0.220	0.226	0.376	**0.425**
(m^3s^{-1}) High	1.498	1.774	1.689	0.700	0.758	0.510	0.798	0.738	0.995	1.124	1.365	1.611	**0.644**
Peak flow (m^3s^{-1})	14.82	15.46	14.45	12.66	14.67	11.58	10.47	14.90	15.74	12.22	16.10	14.85	**16.10**
Runoff (mm)	245	174	187	94	68	50	61	91	132	180	213	265	**1759**
Rainfall (mm)	201	136	163	89	88	88	107	142	159	174	201	228	**1776**

Factors affecting runoff: N
Station type: FV

1994 runoff is 116% of previous mean
rainfall 121%

027050 Esk at Sleights 1994

Measuring authority: NRA-NY
First year: 1970

Grid reference: 45 (NZ) 865 081
Level stn. (m OD): 4.90

Catchment area (sq km): 308.0
Max alt. (m OD): 435

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	15.910	9.424	3.317	3.752	2.934	1.260	0.905	0.824	2.487	3.326	5.210	8.057	**4.763**
(m^3s^{-1}): Peak	90.13	116.90	18.17	21.08	29.29	2.81	2.10	1.31	20.31	20.38	19.75	43.89	**116.90**
Runoff (mm)	138	74	29	32	26	11	8	7	21	29	44	70	**488**
Rainfall (mm)	121	77	49	49	59	29	55	55	108	74	67	118	**861**

Monthly and yearly statistics for previous record (Oct 1970 to Dec 1993—incomplete or missing months total 1.6 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	7.839	6.935	7.243	5.195	3.163	2.085	1.833	2.570	2.591	4.165	6.147	8.673	**4.864**
Low	1.823	1.917	1.497	1.041	1.004	0.749	0.453	0.268	0.446	0.675	1.794	2.539	**2.228**
(m^3s^{-1}) High	13.110	21.220	30.470	19.380	9.565	5.231	6.585	8.767	19.130	16.150	14.760	18.770	**7.574**
Peak flow (m^3s^{-1})	159.30	198.10	358.70	191.70	144.00	106.80	165.70	276.00	347.90	156.80	243.00	350.10	**358.70**
Runoff (mm)	68	55	63	44	28	18	16	22	22	36	52	75	**499**
Rainfall (mm)*	71	59	79	65	45	72	64	87	69	104	85	85	**885**

*(1980-1993)

Factors affecting runoff: N
Station type: B VA

1994 runoff is 98% of previous mean
rainfall 97%

027053 Nidd at Birstwith 1994

Measuring authority: NRA-NY
First year: 1975

Grid reference: 44 (SE) 230 603
Level stn. (m OD): 67.40

Catchment area (sq km): 217.6
Max alt. (m OD): 705

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	12.840	6.606	9.864	5.714	1.496	1.080	0.948	0.889	1.491	2.984	9.413	12.890	**5.521**
(m^3s^{-1}): Peak	43.95	37.30	95.02	33.28	3.12	1.51	2.66	4.29	8.17	14.16	39.49	77.13	**95.02**
Runoff (mm)	158	73	121	68	18	13	12	11	18	37	112	159	**800**
Rainfall (mm)	168	107	160	106	50	44	57	95	122	106	144	220	**1379**

Monthly and yearly statistics for previous record (Apr 1975 to Dec 1993—incomplete or missing months total 0.1 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	9.931	8.059	7.582	4.343	2.762	1.681	1.224	1.780	2.530	4.451	6.414	9.836	**5.041**
Low	3.073	2.591	1.159	1.363	0.837	0.771	0.808	0.531	0.523	0.743	1.893	3.612	**3.642**
(m^3s^{-1}) High	16.110	18.220	21.140	12.770	7.061	3.131	2.164	5.690	11.310	15.120	12.830	20.280	**7.148**
Peak flow (m^3s^{-1})	204.40	282.80	203.40	154.70	96.48	38.77	29.50	67.77	221.10	113.60	83.49	196.00	**282.80**
Runoff (mm)	122	91	93	52	34	20	15	22	30	55	76	121	**731**
Rainfall (mm)*	144	98	123	80	77	76	65	101	110	129	126	157	**1286**

*(1976-1993)

Factors affecting runoff: SRP
Station type: VA

1994 runoff is 109% of previous mean
rainfall 107%

027071 Swale at Crakehill 1994

Measuring authority: NRA-NY
First year: 1980
Grid reference: 44 (SE) 425 734
Level stn. (m OD): 12.00
Catchment area (sq km): 1363.0
Max alt. (m OD): 713

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	56.710	32.540	36.800	21.870	9.209	5.622	3.484	4.439	12.500	13.880	31.950	54.920	**23.650**
(m^3s^{-1}):	Peak	151.80	162.90	150.80	82.69	31.49	11.64	4.80	22.09	45.05	79.29	115.60	195.40	**195.40**
Runoff (mm)		111	58	72	42	18	11	7	9	24	27	61	108	**547**
Rainfall (mm)		120	69	84	63	33	30	43	71	92	81	89	144	**919**

Monthly and yearly statistics for previous record (Nov 1955 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	33.020	28.570	25.970	19.510	13.210	9.280	8.405	11.760	11.850	18.570	23.310	30.070	**19.430**
flows	Low	6.906	5.465	7.465	7.120	4.585	3.739	2.712	1.959	2.082	4.270	7.131	9.007	**11.155**
(m^3s^{-1})	High	56.800	64.050	71.680	46.690	32.370	23.110	21.790	50.310	33.140	53.710	52.200	62.830	**26.046**
Peak flow (m^3s^{-1})		230.70	225.50	255.70	183.30	194.30	129.80	136.50	199.80	194.70	232.70	197.90	219.40	**255.70**
Runoff (mm)		65	51	51	37	26	18	17	23	23	36	44	59	**450**
Rainfall (mm)		85	61	66	58	57	61	66	83	72	75	79	87	**850**

Factors affecting runoff: N
Station type: C VA

1994 runoff is 122% of previous mean
rainfall 108%

028015 Idle at Mattersey 1994

Measuring authority: NRA-ST
First year: 1961
Grid reference: 43 (SK) 690 895
Level stn. (m OD): 3.80
Catchment area (sq km): 529.0
Max alt. (m OD): 195

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.521	4.352	3.552	2.745	2.412	1.526	1.007	1.154	2.645	2.129	3.307	3.819	**2.838**
(m^3s^{-1}):	Peak	9.56	10.61	6.67	4.39	5.62	2.30	1.82	2.03	8.41	3.80	6.68	8.55	**10.61**
Runoff (mm)		28	20	18	13	12	7	5	6	13	11	16	19	**169**
Rainfall (mm)		69	51	42	37	59	12	47	51	129	48	68	80	**693**

Monthly and yearly statistics for previous record (Jun 1965 to Dec 1993—incomplete or missing months total 12.3 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.215	4.360	4.016	3.960	3.223	2.797	2.271	2.197	2.291	2.606	2.870	3.924	**3.222**
flows	Low	1.851	1.590	1.689	1.476	0.587	0.324	1.072	0.808	0.990	1.452	1.896	1.697	**1.620**
(m^3s^{-1})	High	6.417	8.714	7.853	6.351	6.624	5.423	6.123	5.805	4.692	4.209	5.257	8.959	**5.180**
Peak flow (m^3s^{-1})		13.31	15.12	14.89	15.01	15.16	18.52	10.28	11.30	6.17	11.33	13.77	14.11	**18.52**
Runoff (mm)		21	20	20	19	16	14	11	11	11	13	14	20	**192**
Rainfall (mm)		58	39	54	58	62	56	49	53	51	58	63	61	**662**

Factors affecting runoff: SR GE
Station type: EM

1994 runoff is 88% of previous mean
rainfall 105%

028018 Dove at Marston on Dove 1994

Measuring authority: NRA-ST
First year: 1961
Grid reference: 43 (SK) 235 288
Level stn. (m OD): 47.20
Catchment area (sq km): 883.2
Max alt. (m OD): 555

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	36.200	22.980	22.410	24.420	8.166	5.450	4.239	4.189	9.931	12.900	22.830	27.890	**16.762**
(m^3s^{-1}):	Peak	92.08	77.18	74.61	76.09	10.85	6.60	8.02	8.35	70.41	44.18	86.95	160.90	**160.90**
Runoff (mm)		110	63	68	72	25	16	13	13	29	39	67	85	**599**
Rainfall (mm)		134	76	110	78	37	43	68	52	137	96	93	136	**1060**

Monthly and yearly statistics for previous record (Oct 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	22.510	19.570	17.740	14.550	11.160	8.716	7.182	7.326	7.913	10.770	16.500	22.300	**13.831**
flows	Low	7.822	4.615	5.959	6.130	4.755	3.380	2.377	1.873	2.705	3.110	5.622	7.907	**7.732**
(m^3s^{-1})	High	34.470	59.880	38.890	26.040	22.480	16.610	15.530	14.630	29.350	23.490	31.070	56.460	**19.411**
Peak flow (m^3s^{-1})		202.30	215.20	122.60	118.10	120.90	87.25	77.10	113.80	113.90	132.10	130.80	226.50	**226.50**
Runoff (mm)		68	54	54	43	34	26	22	22	23	33	48	68	**494**
Rainfall (mm)		90	65	76	67	70	76	67	79	78	82	93	98	**941**

Factors affecting runoff: SRPG
Station type: FVVA

1994 runoff is 121% of previous mean
rainfall 113%

Comment: Reprocessing of post-1973 flow data has resulted in changes to previously published monthly and yearly statistics.

028024 Wreake at Syston Mill 1994

Measuring authority: NRA-ST
First year: 1967
Grid reference: 43 (SK) 615 124
Level stn. (m OD): 47.70
Catchment area (sq km): 413.8
Max alt. (m OD): 230

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	9.063	7.196	4.495	4.401	1.377	0.632	0.566	0.494	2.227	1.381	4.806	6.995	**3.614**
(m^3s^{-1}):	Peak	40.28	44.56	36.00	17.13	6.05	0.98	2.63	1.68	14.47	7.33	24.31	30.90	**44.56**
Runoff (mm)		59	42	29	28	9	4	4	3	14	9	30	45	**275**
Rainfall (mm)		63	57	67	49	51	13	60	50	116	49	56	74	**705**

Monthly and yearly statistics for previous record (Aug 1967 to Dec 1993—incomplete or missing months total 1.6 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	5.587	5.634	4.527	3.392	2.009	1.210	0.983	0.821	0.969	1.656	2.639	4.591	**2.822**
flows	Low	0.959	0.619	0.494	0.358	0.286	0.222	0.138	0.122	0.254	0.264	0.418	0.745	**0.923**
(m^3s^{-1})	High	10.150	21.740	12.630	8.772	8.117	2.918	4.547	3.230	5.367	6.897	7.618	11.910	**4.396**
Peak flow (m^3s^{-1})		43.11	73.37	99.82	97.07	51.83	39.17	26.88	30.44	32.52	32.41	50.25	52.95	**99.82**
Runoff (mm)		36	33	29	21	13	8	6	5	6	11	17	30	**215**
Rainfall (mm)*		54	43	51	48	49	61	51	57	55	54	52	58	**633**

*(1971-1993)

Factors affecting runoff: GE
Station type: EM

1994 runoff is 128% of previous mean
rainfall 111%

028026 Anker at Polesworth 1994

Measuring authority: NRA-ST
First year: 1966
Grid reference: 43 (SK) 263 034
Level stn. (m OD): 60.40
Catchment area (sq km): 368.0
Max alt. (m OD): 278

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.551	5.860	4.343	4.531	2.400	1.387	1.204	1.269	2.967	1.962	5.118	6.788	**3.768**
(m^3s^{-1}):	Peak	27.04	28.15	17.28	19.12	8.79	2.92	4.20	3.67	20.01	5.73	24.25	25.44	**28.15**
Runoff (mm)		55	39	32	32	17	10	9	9	21	14	36	49	**323**
Rainfall (mm)		67	56	67	51	61	17	42	55	109	53	67	86	**731**

Monthly and yearly statistics for previous record (Oct 1966 to Dec 1993—incomplete or missing months total 2.7 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	5.261	5.098	4.024	2.893	2.228	1.862	1.368	1.347	1.385	2.176	2.837	4.432	**2.900**
flows	Low	1.298	0.953	0.650	0.657	0.686	0.484	0.343	0.405	0.711	0.728	0.855	1.175	**1.213**
(m^3s^{-1})	High	9.572	16.200	9.233	6.629	8.389	4.650	5.580	4.173	3.363	8.109	7.309	9.473	**4.114**
Peak flow (m^3s^{-1})		75.63	73.18	56.09	45.84	59.77	52.68	59.34	45.03	37.59	42.46	68.52	74.01	**75.63**
Runoff (mm)		38	34	29	20	16	13	10	10	10	16	20	32	**249**
Rainfall (mm)*		58	48	52	47	50	62	51	56	60	58	54	62	**658**

*(1971-1993)

Factors affecting runoff: GE
Station type: C VA

1994 runoff is 130% of previous mean
rainfall 111%

028031 Manifold at Ilam 1994

Measuring authority: NRA-ST
First year: 1968
Grid reference: 43 (SK) 140 507
Level stn. (m OD): 131.00
Catchment area (sq km): 148.5
Max alt. (m OD): 513

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	8.858	5.289	5.798	6.025	1.453	1.084	0.848	0.729	3.092	4.332	6.133	6.727	**4.190**
(m^3s^{-1}):	Peak	41.41	25.81	33.83	33.78	2.14	14.84	3.75	1.45	39.92	22.95	30.02	42.11	**42.11**
Runoff (mm)		160	86	105	105	26	19	15	13	54	78	107	121	**890**
Rainfall (mm)		153	87	129	95	37	61	75	56	149	115	105	148	**1210**

Monthly and yearly statistics for previous record (May 1968 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	6.010	4.916	4.826	3.659	2.306	1.883	1.491	1.757	1.772	2.988	4.858	5.615	**3.501**
flows	Low	2.561	2.039	1.065	1.277	0.812	0.745	0.493	0.386	0.458	0.716	1.555	2.135	**2.241**
(m^3s^{-1})	High	8.522	12.710	9.455	6.200	5.713	5.151	3.505	4.560	4.147	6.697	8.198	10.450	**4.806**
Peak flow (m^3s^{-1})		80.13	74.53	66.72	47.36	52.40	39.58	37.29	137.00	45.69	75.78	91.61	160.50	**160.50**
Runoff (mm)		108	81	87	64	42	33	27	32	31	54	85	101	**744**
Rainfall (mm)*		116	80	93	75	71	82	73	80	83	98	115	116	**1082**

*(1969-1993)

Factors affecting runoff: P E
Station type: C

1994 runoff is 120% of previous mean
rainfall 112%

028039 Rea at Calthorpe Park 1994

Measuring authority: NRA-ST
First year: 1967
Grid reference: 42 (SP) 071 847
Level stn. (m OD): 104.20
Catchment area (sq km): 74.0
Max alt. (m OD): 291

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.245	1.126	0.850	0.921	0.471	0.360	0.349	0.334	1.254	0.495	0.961	1.392	**0.810**
(m^3s^{-1}):	Peak	11.75	10.28	16.69	9.12	4.88	7.55	6.71	7.68	31.93	5.66	11.33	21.46	**31.93**
Runoff (mm)		45	37	31	32	17	13	13	12	44	18	34	50	**345**
Rainfall (mm)		86	71	77	61	51	22	31	47	146	58	73	116	**839**

Monthly and yearly statistics for previous record (May 1967 to Dec 1993—incomplete or missing months total 1.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.183	1.010	0.975	0.796	0.715	0.658	0.543	0.624	0.599	0.681	0.868	1.097	**0.812**
flows	Low	0.481	0.433	0.375	0.316	0.318	0.287	0.257	0.286	0.295	0.320	0.493	0.378	**0.602**
(m^3s^{-1})	High	1.950	2.610	2.101	1.489	1.780	1.324	0.995	1.366	1.423	1.408	1.753	1.934	**1.058**
Peak flow (m^3s^{-1})		36.71	27.44	28.64	25.15	30.37	37.44	46.86	46.38	40.85	24.68	24.97	54.02	**54.02**
Runoff (mm)		43	33	35	28	26	23	20	23	21	25	30	40	**346**
Rainfall (mm)*		77	56	64	58	64	64	59	71	66	65	72	77	**793**

*(1968-1993)

Factors affecting runoff: E
Station type: C B

1994 runoff is 100% of previous mean
rainfall 106%

028052 Sow at Great Bridgford 1994

Measuring authority: NRA-ST
First year: 1971
Grid reference: 33 (SJ) 883 270
Level stn. (m OD): 77.10
Catchment area (sq km): 163.0
Max alt. (m OD): 168

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.587	1.809	1.627	1.719	0.772	0.553	0.432	0.463	0.608	0.559	1.122	2.136	**1.196**
(m^3s^{-1}):	Peak	8.67	5.58	5.42	4.76	1.05	0.68	1.15	1.32	2.88	1.02	3.59	9.82	**9.82**
Runoff (mm)		43	27	27	27	13	9	7	8	10	9	18	35	**231**
Rainfall (mm)		83	56	81	55	34	21	50	45	115	65	65	109	**779**

Monthly and yearly statistics for previous record (Jun 1971 to Dec 1993—incomplete or missing months total 2.5 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.819	1.785	1.557	1.198	0.875	0.775	0.587	0.720	0.543	0.813	1.083	1.640	**1.114**
flows	Low	0.753	0.625	0.659	0.520	0.474	0.315	0.174	0.138	0.277	0.317	0.379	0.524	**0.711**
(m^3s^{-1})	High	2.715	4.607	3.448	2.258	1.925	1.426	1.388	3.047	0.818	1.731	2.461	2.975	**1.593**
Peak flow (m^3s^{-1})		11.07	18.82	9.21	9.86	18.05	9.78	10.89	15.11	3.51	10.21	9.51	12.72	**18.82**
Runoff (mm)		30	27	26	19	14	12	10	12	9	13	17	27	**216**
Rainfall (mm)		69	54	61	47	58	64	56	61	69	66	71	73	**749**

Factors affecting runoff: GE
Station type: FVVA

1994 runoff is 107% of previous mean
rainfall 104%

028067 Derwent at Church Wilne 1994

Measuring authority: NRA-ST
First year: 1973

Grid reference: 43 (SK) 438 316
Level stn. (m OD): 31.00

Catchment area (sq km): 1177.5
Max alt. (m OD): 636

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	51.170	30.690	29.400	31.270	12.190	7.735	6.292	6.093	11.230	12.390	33.080	33.390	**22.020**
(m^3s^{-1}):	Peak	96.68	73.69	63.83	71.69	30.36	12.99	15.26	10.51	61.95	30.77	80.78	108.00	**108.00**
Runoff (mm)		116	63	67	69	28	17	14	14	25	28	73	76	**590**
Rainfall (mm)		141	75	109	79	51	41	51	53	144	95	111	137	**1087**

Monthly and yearly statistics for previous record (May 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	32.780	30.080	27.720	21.300	13.630	11.270	8.755	8.131	8.629	13.800	19.010	29.420	**18.666**
flows	Low	13.270	10.020	8.793	7.891	6.652	5.411	4.445	3.965	4.429	4.933	5.152	9.272	**10.267**
(m^3s^{-1})	High	52.530	81.270	59.290	40.240	28.060	23.060	22.050	16.600	17.130	31.970	35.860	57.850	**25.542**
Peak flow (m^3s^{-1})		194.10	215.70	173.60	158.40	142.20	118.70	156.20	153.60	71.96	146.50	94.66	214.70	**215.70**
Runoff (mm)		75	62	63	47	31	25	20	18	19	31	42	67	**500**
Rainfall (mm)		107	74	88	66	62	77	64	75	81	95	93	114	**996**

Factors affecting runoff: S P EI
Station type: FV

1994 runoff is 118% of previous mean
rainfall 109%

028082 Soar at Littlethorpe 1994

Measuring authority: NRA-ST
First year: 1971

Grid reference: 42 (SP) 542 973
Level stn. (m OD): 61.40

Catchment area (sq km): 183.9
Max alt. (m OD): 151

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.355	2.576	1.762	2.156	0.937	0.495	0.413	0.419	0.978	0.681	2.237	2.922	**1.571**
(m^3s^{-1}):	Peak	17.25	14.35	8.80	12.04	3.84	1.22	2.76	1.57	8.32	3.33	13.66	9.78	**17.25**
Runoff (mm)		49	34	26	30	14	7	6	6	14	10	32	43	**269**
Rainfall (mm)		66	58	68	50	61	19	50	56	105	47	64	77	**721**

Monthly and yearly statistics for previous record (Aug 1971 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.633	2.476	2.140	1.525	0.990	0.930	0.531	0.637	0.585	1.017	1.368	2.374	**1.430**
flows	Low	0.713	0.568	0.424	0.346	0.350	0.245	0.164	0.225	0.167	0.338	0.398	0.553	**0.644**
(m^3s^{-1})	High	4.661	6.868	5.031	3.105	2.654	2.346	1.447	2.242	1.771	3.434	3.279	5.101	**2.133**
Peak flow (m^3s^{-1})		23.49	24.47	20.78	21.18	14.93	15.78	13.71	20.41	15.94	20.60	18.87	22.46	**24.47**
Runoff (mm)		38	33	31	21	14	13	8	9	8	15	19	35	**245**
Rainfall (mm)*		57	43	50	46	50	64	51	58	55	57	54	63	**648**

*(1972-1993)

Factors affecting runoff: E
Station type: EM

1994 runoff is 110% of previous mean
rainfall 111%

029003 Lud at Louth 1994

Measuring authority: NRA-A
First year: 1968

Grid reference: 53 (TF) 337 879
Level stn. (m OD): 15.40

Catchment area (sq km): 55.2
Max alt. (m OD): 149

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.516	1.107	0.871	0.766	0.614	0.454	0.368	0.275	0.288	0.259	0.298	0.480	**0.606**
(m^3s^{-1}):	Peak	3.61	2.61	1.31	1.54	1.95	0.74	1.91	0.78	1.83	1.08	0.62	2.07	**3.61**
Runoff (mm)		74	49	42	36	30	21	18	13	14	13	14	23	**346**
Rainfall (mm)		102	63	64	50	72	22	53	49	132	61	42	81	**791**

Monthly and yearly statistics for previous record (Aug 1968 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.586	0.726	0.691	0.643	0.524	0.410	0.316	0.264	0.231	0.255	0.312	0.417	**0.446**
flows	Low	0.139	0.157	0.162	0.150	0.156	0.131	0.112	0.097	0.108	0.093	0.088	0.090	**0.145**
(m^3s^{-1})	High	1.279	1.428	1.338	1.289	1.177	0.687	0.507	0.414	0.625	0.719	1.158	0.980	**0.703**
Peak flow (m^3s^{-1})		3.70	3.81	3.58	5.06	3.51	3.27	3.93	3.10	3.30	5.39	6.77	3.10	**6.77**
Runoff (mm)		28	32	34	30	25	19	15	13	11	12	15	20	**255**
Rainfall (mm)		65	46	60	52	50	57	53	59	57	58	67	64	**688**

Factors affecting runoff: G
Station type: C

1994 runoff is 136% of previous mean
rainfall 115%

030004 Partney Lymn at Partney Mill 1994

Measuring authority: NRA-A
First year: 1962

Grid reference: 53 (TF) 402 676
Level stn. (m OD): 14.90

Catchment area (sq km): 61.6
Max alt. (m OD): 142

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.472	0.858	0.610	0.643	0.315	0.196	0.220	0.129	0.401	0.357	0.495	0.671	**0.529**
(m^3s^{-1}):	Peak	7.58	4.07	1.57	2.38	0.88	0.31	0.80	0.44	3.80	1.04	2.78	2.94	**7.58**
Runoff (mm)		64	34	27	27	14	8	10	6	17	16	21	29	**271**
Rainfall (mm)		102	50	60	47	48	19	65	41	117	58	42	68	**717**

Monthly and yearly statistics for previous record (Feb 1963 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.803	0.725	0.675	0.591	0.428	0.309	0.260	0.266	0.281	0.407	0.547	0.715	**0.500**
flows	Low	0.351	0.264	0.276	0.220	0.169	0.116	0.088	0.083	0.119	0.134	0.190	0.210	**0.224**
(m^3s^{-1})	High	1.574	1.838	1.538	1.518	0.886	0.691	0.863	0.593	0.917	1.144	1.112	1.804	**0.754**
Peak flow (m^3s^{-1})		10.01	12.59	7.71	13.34	11.30	8.13	13.38	7.06	6.64	10.46	10.17	8.48	**13.38**
Runoff (mm)		35	29	29	25	19	13	11	12	12	18	23	31	**256**
Rainfall (mm)		60	46	58	53	54	58	54	62	55	56	69	63	**688**

Factors affecting runoff: P I
Station type: C

1994 runoff is 106% of previous mean
rainfall 104%

030012 Stainfield Beck at Stainfield 1994

Measuring authority: NRA-A
First year: 1970

Grid reference: 53 (TF) 127 739
Level stn. (m OD): 7.70

Catchment area (sq km): 37.4
Max alt. (m OD): 134

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	0.985	0.593	0.296	0.310	0.176	0.063	0.028	0.020	0.338	0.159	0.288	0.555	**0.316**
(m^3s^{-1}):	Peak		5.94	1.57	1.56	2.19	0.12	0.14	0.21	6.71	0.71	1.50	8.19	
Runoff (mm)		71	38	21	21	13	4	2	1	23	11	20	40	**267**
Rainfall (mm)		87	51	57	40	59	16	50	53	116	55	41	69	**694**

Monthly and yearly statistics for previous record (Dec 1970 to Dec 1993—incomplete or missing months total 0.8 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.539	0.519	0.448	0.275	0.164	0.083	0.069	0.044	0.072	0.134	0.227	0.414	**0.248**
flows	Low	0.093	0.114	0.078	0.050	0.032	0.019	0.006	0.004	0.007	0.009	0.017	0.024	**0.061**
(m^3s^{-1})	High	1.050	1.521	1.078	0.838	0.496	0.202	0.524	0.161	0.599	0.780	0.729	1.084	**0.414**
Peak flow (m^3s^{-1})		21.53	11.04	10.00	12.42	8.58	4.23	17.57	5.91	3.93	12.33	7.42	7.83	**21.53**
Runoff (mm)		39	34	32	19	12	6	5	3	5	10	16	30	**209**
Rainfall (mm)		59	42	56	46	47	52	48	54	52	54	56	58	**624**

Factors affecting runoff: N
Station type: CC

1994 runoff is 127% of previous mean
rainfall 111%

Comment: January 1994 contains estimated daily flows.

031002 Glen at Kates Br and King St Br 1994

Measuring authority: NRA-A
First year: 1960

Grid reference: 53 (TF) 106 149
Level stn. (m OD): 6.10

Catchment area (sq km): 341.9
Max alt. (m OD): 129

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.705	3.419	2.260	2.514	1.104	0.498	0.217	0.186	0.282	0.251	1.413	2.001	**1.560**
(m^3s^{-1}):	Peak	16.55		5.40	7.06	1.59	1.02	0.47	0.59	2.62	2.54	8.16	8.39	
Runoff (mm)		37	24	18	19	9	4	2	1	2	2	11	16	**144**
Rainfall (mm)		67	54	56	53	41	12	56	48	105	57	50	62	**661**

Monthly and yearly statistics for previous record (Oct 1960 to Dec 1993—incomplete or missing months total 0.7 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.950	2.276	2.150	1.785	1.344	0.727	0.402	0.339	0.331	0.535	0.893	1.523	**1.183**
flows	Low	0.093	0.048	0.033	0.018	0.008	0.004	0.000	0.001	0.008	0.019	0.017	0.026	**0.154**
(m^3s^{-1})	High	6.351	10.110	6.317	4.903	5.060	2.182	1.465	1.615	1.873	2.810	5.552	7.868	**2.333**
Peak flow (m^3s^{-1})		16.00	15.32	10.32	12.48	9.85	1.64	0.83	3.50	16.13	12.57	17.60	14.89	**17.60**
Runoff (mm)		15	16	17	14	11	6	3	3	3	4	7	12	**109**
Rainfall (mm)		52	40	47	52	50	53	50	61	55	51	56	55	**622**

Factors affecting runoff: G I
Station type: FV+FL

1994 runoff is 132% of previous mean
rainfall 106%

Comment: February 1994 contains estimated daily flows.

031010 Chater at Fosters Bridge 1994

Measuring authority: NRA-A
First year: 1968

Grid reference: 43 (SK) 961 030
Level stn. (m OD): 38.40

Catchment area (sq km): 68.9
Max alt. (m OD): 230

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.487	1.338	0.879	0.938	0.354	0.178	0.140	0.123	0.458	0.563	1.156	1.077	**0.720**
(m^3s^{-1}):	Peak	9.76	9.26	5.20	4.76	1.28	0.27	0.87	0.26	4.15	3.18	5.11	3.16	**9.76**
Runoff (mm)		58	47	34	35	14	7	5	5	17	22	44	42	**329**
Rainfall (mm)		66	61	73	60	52	17	62	55	122	50	54	60	**732**

Monthly and yearly statistics for previous record (Feb 1968 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.936	0.909	0.800	0.628	0.420	0.291	0.195	0.180	0.205	0.351	0.469	0.772	**0.511**
flows	Low	0.147	0.106	0.090	0.065	0.051	0.033	0.024	0.044	0.061	0.048	0.073	0.098	**0.198**
(m^3s^{-1})	High	1.724	3.094	1.677	1.670	1.471	0.717	0.867	0.818	0.997	1.188	1.343	1.891	**0.828**
Peak flow (m^3s^{-1})		16.19	16.06	15.77	15.07	16.44	11.78	20.64	20.76	15.04	9.04	12.48	14.69	**20.76**
Runoff (mm)		36	32	31	24	16	11	8	7	8	14	18	30	**234**
Rainfall (mm)		59	43	52	52	52	60	56	63	55	53	59	58	**662**

Factors affecting runoff: N
Station type: CC

1994 runoff is 141% of previous mean
rainfall 111%

032003 Harpers Brook at Old Mill Bridge 1994

Measuring authority: NRA-A
First year: 1938

Grid reference: 42 (SP) 983 799
Level stn. (m OD): 30.30

Catchment area (sq km): 74.3
Max alt. (m OD): 146

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.394	0.999	0.500	0.701	0.273	0.153	0.119	0.109	0.451	0.325	0.606	0.866	**0.538**
(m^3s^{-1}):	Peak	13.00	6.71	2.57	4.58	1.60	0.53	0.64	0.44	5.04	4.49	4.37	4.30	**13.00**
Runoff (mm)		50	33	18	24	10	5	4	4	16	12	21	31	**229**
Rainfall (mm)		63	55	56	57	53	21	40	41	146	59	42	64	**697**

Monthly and yearly statistics for previous record (Dec 1938 to Dec 1993—incomplete or missing months total 0.7 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.771	0.780	0.685	0.485	0.298	0.204	0.146	0.154	0.141	0.235	0.437	0.604	**0.410**
flows	Low	0.097	0.080	0.076	0.066	0.056	0.049	0.052	0.048	0.049	0.057	0.069	0.077	**0.159**
(m^3s^{-1})	High	2.766	2.485	2.363	1.334	1.246	0.616	0.685	0.791	1.147	1.176	1.688	1.762	**0.676**
Peak flow (m^3s^{-1})		16.06	18.58	17.01	22.00	18.65	11.44	12.49	20.50	6.80	16.58	13.47	17.90	**22.00**
Runoff (mm)		28	26	25	17	11	7	5	6	5	8	15	22	**174**
Rainfall (mm)		58	41	48	45	50	53	53	62	51	54	61	57	**633**

Factors affecting runoff: N
Station type: CC

1994 runoff is 131% of previous mean
rainfall 110%

033006 Wissey at Northwold — 1994

Measuring authority: NRA-A
First year: 1956

Grid reference: 52 (TL) 771 965
Level stn. (m OD): 5.30

Catchment area (sq km): 274.5
Max alt. (m OD): 95

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.997	3.424	3.579	3.515	2.649	1.559	0.881	0.642	0.966	1.059	1.719	1.872	**2.147**
(m^3s^{-1}):	Peak	5.67	4.09	4.35	4.75		2.05	1.50	1.09	1.95	2.59	3.13	3.26	
Runoff (mm)		39	30	35	33	26	15	9	6	9	10	16	18	**247**
Rainfall (mm)		72	44	78	54	54	28	30	86	83	89	21	50	**689**

Monthly and yearly statistics for previous record (Mar 1956 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.845	2.912	2.651	2.374	1.794	1.327	1.071	0.896	0.861	1.095	1.607	2.301	**1.806**
flows	Low	0.903	0.909	1.026	1.015	0.767	0.490	0.319	0.264	0.228	0.242	0.419	0.536	**0.684**
(m^3s^{-1})	High	5.422	5.288	4.702	4.586	3.833	2.592	2.234	2.229	2.481	3.243	4.569	4.768	**2.760**
Peak flow (m^3s^{-1})		9.31	11.29	12.23	8.47	5.82	3.50	3.39	4.00	4.06	7.15	13.30	8.72	**13.30**
Runoff (mm)		28	26	26	22	18	13	10	9	8	11	15	22	**208**
Rainfall (mm)		57	40	47	46	46	56	59	57	56	58	67	62	**651**

Factors affecting runoff: PGEI
Station type: FL

1994 runoff is 119% of previous mean
rainfall 106%

033012 Kym at Meagre Farm — 1994

Measuring authority: NRA-A
First year: 1960

Grid reference: 52 (TL) 155 631
Level stn. (m OD): 17.20

Catchment area (sq km): 137.5
Max alt. (m OD): 101

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.779	1.460	0.452	0.992	0.209	0.081	0.031	0.033	0.114	0.238	0.445	1.342	**0.678**
(m^3s^{-1}):	Peak	14.30	7.16	1.22	6.41	1.34	0.26	0.05	0.10	0.63	3.67	2.66	12.14	**14.30**
Runoff (mm)		54	26	9	19	4	2	1	1	2	5	8	26	**155**
Rainfall (mm)		66	43	47	53	54	25	12	34	93	68	36	70	**601**

Monthly and yearly statistics for previous record (May 1960 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.323	1.288	1.073	0.781	0.338	0.227	0.130	0.101	0.104	0.452	0.681	1.042	**0.625**
flows	Low	0.074	0.047	0.044	0.041	0.024	0.009	0.001	0.004	0.017	0.015	0.022	0.050	**0.103**
(m^3s^{-1})	High	3.296	5.577	3.474	2.107	1.469	1.489	2.438	1.096	1.685	3.515	3.718	3.348	**1.048**
Peak flow (m^3s^{-1})		25.26	22.70	30.24	30.75	20.61	24.10	16.68	23.42	23.40	25.91	34.71	33.98	**34.71**
Runoff (mm)		26	23	21	15	7	4	3	2	2	9	13	20	**143**
Rainfall (mm)		50	38	45	49	50	58	51	55	50	53	54	55	**608**

Factors affecting runoff: EI
Station type: CB

1994 runoff is 108% of previous mean
rainfall 99%

033024 Cam at Dernford — 1994

Measuring authority: NRA-A
First year: 1949

Grid reference: 52 (TL) 466 506
Level stn. (m OD): 14.70

Catchment area (sq km): 198.0
Max alt. (m OD): 146

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.661	1.745	1.199	1.616	1.015	0.675	0.476	0.392	0.373	0.442	0.492	0.777	**0.985**
(m^3s^{-1}):	Peak	8.57	6.98	1.48	6.70		0.86	0.77	0.57	0.74	1.44	1.08	3.46	
Runoff (mm)		36	21	16	21	14	9	6	5	5	6	6	11	**157**
Rainfall (mm)		67	33	40	58	62	24	24	37	65	82	25	58	**575**

Monthly and yearly statistics for previous record (Mar 1949 to Dec 1993—incomplete or missing months total 1.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.404	1.439	1.302	1.158	0.945	0.754	0.608	0.575	0.554	0.751	0.931	1.160	**0.963**
flows	Low	0.284	0.302	0.353	0.351	0.294	0.240	0.184	0.248	0.155	0.217	0.271	0.233	**0.333**
(m^3s^{-1})	High	3.592	2.703	2.608	2.431	2.144	1.338	1.608	1.542	1.965	2.970	2.790	3.492	**1.506**
Peak flow (m^3s^{-1})		13.30	14.09	10.22	9.94	13.63	6.94	5.28	10.70	10.99	12.70	12.50	12.06	**14.09**
Runoff (mm)		19	18	18	15	13	10	8	8	7	10	12	16	**153**
Rainfall (mm)*		50	38	42	42	45	50	54	57	53	55	57	54	**597**

*(1950-1993)

Factors affecting runoff: GEI
Station type: TP

1994 runoff is 102% of previous mean
rainfall 96%

Comment: October 1994 contains estimated daily flows.

033027 Rhee at Wimpole — 1994

Measuring authority: NRA-A
First year: 1965

Grid reference: 52 (TL) 333 485
Level stn. (m OD): 17.90

Catchment area (sq km): 119.1
Max alt. (m OD): 168

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.303	1.417	0.822	1.001	0.541	0.291	0.181	0.132	0.124	0.132	0.162	0.198	**0.604**
(m^3s^{-1}):	Peak	5.65	3.48	1.38	3.33	1.62	0.42	0.24	0.16	0.22	0.59	0.34	0.50	**5.65**
Runoff (mm)		52	29	18	22	12	6	4	3	3	3	4	4	**160**
Rainfall (mm)		64	36	38	50	61	20	16	38	63	69	27	50	**532**

Monthly and yearly statistics for previous record (Jul 1965 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.877	0.928	0.765	0.728	0.520	0.343	0.211	0.182	0.207	0.370	0.472	0.653	**0.519**
flows	Low	0.088	0.092	0.089	0.099	0.067	0.041	0.022	0.014	0.040	0.053	0.058	0.065	**0.079**
(m^3s^{-1})	High	2.687	1.911	2.077	2.074	1.579	0.936	0.434	0.586	1.090	1.751	1.848	1.718	**0.945**
Peak flow (m^3s^{-1})		8.79	6.00	5.29	5.19	8.87	4.55	1.11	5.72	5.62	9.19	7.14	7.11	**9.19**
Runoff (mm)		20	19	17	16	12	7	5	4	5	8	10	15	**138**
Rainfall (mm)		47	33	41	45	50	51	50	52	53	52	53	52	**579**

Factors affecting runoff: GEI
Station type: FL

1994 runoff is 116% of previous mean
rainfall 92%

033032 Heacham at Heacham 1994

Measuring authority: NRA-A
First year: 1965

Grid reference: 53 (TF) 685 375
Level stn. (m OD): 9.40

Catchment area (sq km): 59.0
Max alt. (m OD): 88

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	0.885	0.576	0.480	0.431	0.382	0.288	0.213	0.170	0.160	0.159	0.177	0.199	**0.342**
(m^3s^{-1}):	Peak	1.12		0.56	0.48	0.45	0.33	0.25	0.23	0.30	0.22	0.19	0.25	
Runoff (mm)		40	24	22	19	17	13	10	8	7	7	8	9	**183**
Rainfall (mm)		83	46	72	43	53	26	37	69	129	75	20	63	**716**

Monthly and yearly statistics for previous record (Nov 1965 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.216	0.293	0.298	0.285	0.251	0.210	0.165	0.136	0.119	0.119	0.126	0.174	**0.199**
flows	Low	0.028	0.045	0.053	0.060	0.061	0.053	0.043	0.034	0.030	0.025	0.022	0.018	**0.057**
(m^3s^{-1})	High	0.435	0.671	0.671	0.776	0.636	0.441	0.300	0.256	0.371	0.399	0.425	0.590	**0.331**
Peak flow (m^3s^{-1})		0.70	0.95	1.04	1.11	0.82	0.90	0.68	1.21	0.52	0.53	0.55	0.75	**1.21**
Runoff (mm)		10	12	14	13	11	9	7	6	5	5	6	8	**106**
Rainfall (mm)		58	42	51	49	56	55	59	61	59	58	73	63	**684**

Factors affecting runoff: G I
Station type: C

1994 runoff is 172% of previous mean
rainfall 105%

Comment: February 1994 contains estimated daily flows.

034003 Bure at Ingworth 1994

Measuring authority: NRA-A
First year: 1959

Grid reference: 63 (TG) 192 296
Level stn. (m OD): 12.20

Catchment area (sq km): 164.7
Max alt. (m OD): 101

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.483	1.681	1.595	1.477	1.092	0.834	0.750	0.886	1.558	1.234	1.237	1.385	**1.349**
(m^3s^{-1}):	Peak		3.25	2.70	2.52		1.01	1.76	1.70	6.82	3.07	2.13	2.64	
Runoff (mm)		40	25	26	23	18	13	12	14	25	20	19	23	**258**
Rainfall (mm)		87	46	67	37	46	20	52	87	113	70	23	62	**710**

Monthly and yearly statistics for previous record (Jun 1959 to Sep 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.513	1.413	1.266	1.184	0.956	0.780	0.765	0.777	0.836	0.979	1.208	1.366	**1.085**
flows	Low	0.844	0.792	0.779	0.688	0.600	0.495	0.493	0.472	0.548	0.649	0.688	0.827	**0.752**
(m^3s^{-1})	High	2.450	2.954	2.115	2.322	1.639	1.168	1.158	1.955	1.823	2.428	2.024	2.560	**1.488**
Peak flow (m^3s^{-1})		8.27	10.65	6.45	18.30	6.07	3.79	3.47	12.82	9.26	10.17	10.05	9.63	**18.30**
Runoff (mm)		25	21	21	19	16	12	12	13	13	16	19	22	**208**
Rainfall (mm)		61	41	49	48	45	49	59	59	58	64	74	66	**673**

Factors affecting runoff: G I
Station type: MIS

1994 runoff is 124% of previous mean
rainfall 105%

Comment: January and May 1994 contain estimated daily flows.

035008 Gipping at Stowmarket 1994

Measuring authority: NRA-A
First year: 1966

Grid reference: 62 (TM) 058 578
Level stn. (m OD): 25.10

Catchment area (sq km): 128.9
Max alt. (m OD): 98

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.441	1.358	0.651	1.596	0.334	0.162	0.119	0.114	0.212	0.318	0.331	0.664	**0.688**
(m^3s^{-1}):	Peak	10.04	14.72	1.74	9.77		0.88	1.28	1.27	1.26	3.71	1.25	3.19	
Runoff (mm)		51	25	14	32	7	3	2	2	4	7	7	14	**168**
Rainfall (mm)		64	44	48	56	47	33	36	61	72	74	21	50	**606**

Monthly and yearly statistics for previous record (Apr 1964 to Dec 1993—incomplete or missing months total 1.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.394	1.118	0.907	0.637	0.361	0.233	0.147	0.174	0.235	0.438	0.711	0.965	**0.608**
flows	Low	0.161	0.125	0.159	0.156	0.119	0.083	0.072	0.069	0.072	0.092	0.101	0.131	**0.149**
(m^3s^{-1})	High	4.383	3.527	2.626	2.012	1.244	1.616	0.501	1.490	1.880	3.251	3.433	3.125	**1.043**
Peak flow (m^3s^{-1})		28.13	34.39	18.60	19.30	20.18	7.98	6.22	23.77	24.19	25.30	23.21	25.54	**34.39**
Runoff (mm)		29	21	19	13	7	5	3	4	5	9	14	20	**149**
Rainfall (mm)*		51	36	43	42	45	49	48	47	52	54	61	54	**582**

*(1965-1993)

Factors affecting runoff: GEI
Station type: CC

1994 runoff is 113% of previous mean
rainfall 104%

Comment: May 1994 contains estimated daily flows.

036006 Stour at Langham 1994

Measuring authority: NRA-A
First year: 1962

Grid reference: 62 (TM) 020 344
Level stn. (m OD): 6.40

Catchment area (sq km): 578.0
Max alt. (m OD): 128

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	11.050	5.949	3.509	6.293	1.969	1.091	0.826	1.463	1.199	1.215	1.671	2.609	**3.222**
(m^3s^{-1}):	Peak	28.71	24.65	6.94	17.43	4.07	2.11	1.62	2.54	4.19	10.24	8.16	11.34	**28.71**
Runoff (mm)		51	25	16	28	9	5	4	7	5	6	8	12	**176**
Rainfall (mm)		66	42	46	58	52	33	23	47	65	77	24	52	**585**

Monthly and yearly statistics for previous record (Oct 1962 to Nov 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	5.406	4.860	4.546	3.580	2.347	1.644	1.119	1.153	1.184	2.066	2.980	4.009	**2.8[illegible]9**
flows	Low	1.398	0.884	1.597	1.218	0.757	0.453	0.190	0.209	0.395	0.509	0.578	0.693	**1.428**
(m^3s^{-1})	High	16.080	12.980	9.776	9.335	7.253	5.999	2.956	6.237	4.946	13.170	11.340	10.550	**5.119**
Peak flow (m^3s^{-1})		48.47	41.27	38.37	28.45	39.31	20.64	17.06	39.52	91.00	53.63	38.93	43.85	**91.00**
Runoff (mm)		25	21	21	16	11	7	5	5	5	10	13	19	**158**
Rainfall (mm)		49	34	46	45	46	53	47	50	52	52	59	53	**586**

Factors affecting runoff: RPG I
Station type: FL

1994 runoff is 111% of previous mean
rainfall 100%

037001 Roding at Redbridge 1994

Measuring authority: NRA-T
First year: 1950

Grid reference: 51 (TQ) 415 884
Level stn. (m OD): 5.70

Catchment area (sq km): 303.3
Max alt. (m OD): 117

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	7.848	3.509	1.536	4.439	1.177	0.432	0.243	0.299	0.412	0.676	0.892	1.942	**1.942**
(m^3s^{-1}): Peak	22.60	13.10	4.51	16.90	3.92	1.63	0.56	6.39	1.95	8.54	3.75	9.57	**22.60**
Runoff (mm)	69	28	14	38	10	4	2	3	4	6	8	17	**202**
Rainfall (mm)	78	41	44	63	63	26	16	37	54	82	29	69	**602**

Monthly and yearly statistics for previous record (Feb 1950 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	3.710	3.358	2.627	1.886	1.160	0.846	0.616	0.644	0.821	1.523	2.167	2.912	**1.849**
flows Low	0.382	0.379	0.537	0.482	0.280	0.226	0.202	0.224	0.197	0.283	0.364	0.392	**0.801**
(m^3s^{-1}) High	10.920	10.670	6.862	6.768	4.044	2.953	1.975	3.925	4.009	7.883	10.340	9.455	**2.809**
Peak flow (m^3s^{-1})	42.00	40.10	38.10	27.70	32.70	21.80	24.50	31.30	25.60	35.60	62.40	36.40	**62.40**
Runoff (mm)	33	27	23	16	10	7	5	6	7	13	19	26	**192**
Rainfall (mm)	52	40	45	44	48	52	52	56	58	58	61	56	**622**

Factors affecting runoff: S EI
Station type: EW

1994 runoff is 105% of previous mean
rainfall 97%

037005 Colne at Lexden 1994

Measuring authority: NRA-A
First year: 1959

Grid reference: 52 (TL) 962 261
Level stn. (m OD): 8.20

Catchment area (sq km): 238.2
Max alt. (m OD): 114

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	4.386	2.278	1.126	1.985	0.853	0.424	0.241	0.235	0.401	0.575	0.715		
(m^3s^{-1}): Peak	14.15	12.92	2.06	6.36	3.49	0.93	0.48	0.45	0.77	3.12	2.60		
Runoff (mm)	49	23	13	22	10	5	3	3	4	6	8		
Rainfall (mm)	67	42	41	53	57	30	23	50	60	78	24	55	**580**

Monthly and yearly statistics for previous record (Oct 1959 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	1.989	1.723	1.570	1.183	0.752	0.491	0.366	0.351	0.398	0.784	1.161	1.544	**1.023**
flows Low	0.460	0.346	0.380	0.358	0.229	0.146	0.101	0.088	0.175	0.188	0.288	0.352	**0.362**
(m^3s^{-1}) High	6.543	4.684	3.556	3.344	2.353	1.528	0.907	1.558	1.099	4.838	5.521	4.200	**1.732**
Peak flow (m^3s^{-1})	21.13	22.65	20.68	13.34	12.56	8.07	6.41	8.86	10.50	24.81	21.29	20.58	**24.81**
Runoff (mm)	22	18	18	13	8	5	4	4	4	9	13	17	**136**
Rainfall (mm)	49	33	43	43	43	49	47	48	53	54	58	54	**574**

Factors affecting runoff: RP I
Station type: FL

1994 runoff is % of previous mean
rainfall 101%

037010 Blackwater at Appleford Bridge 1994

Measuring authority: NRA-A
First year: 1962

Grid reference: 52 (TL) 845 158
Level stn. (m OD): 14.60

Catchment area (sq km): 247.3
Max alt. (m OD): 127

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	4.432	2.500	1.202	2.278	0.869	0.617	0.709	0.949	0.655	0.605	0.730	1.174	**1.388**
(m^3s^{-1}): Peak	15.00	16.60	1.73	8.06	2.27	1.72	6.04	1.83	1.93	3.09	2.69	4.50	**16.60**
Runoff (mm)	48	24	13	24	9	6	8	10	7	7	8	13	**177**
Rainfall (mm)	66	40	41	54	61	35	23	46	56	80	24	57	**583**

Monthly and yearly statistics for previous record (Oct 1962 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	2.107	1.931	1.848	1.468	1.033	0.800	0.577	0.514	0.546	0.887	1.232	1.712	**1.218**
flows Low	0.532	0.460	0.479	0.479	0.341	0.356	0.182	0.161	0.215	0.288	0.325	0.379	**0.822**
(m^3s^{-1}) High	7.181	4.888	3.583	3.843	2.860	1.777	1.359	1.738	1.651	4.955	4.676	4.307	**1.659**
Peak flow (m^3s^{-1})	26.80	21.60	20.00	12.31	17.80	7.76	4.10	13.75	15.25	26.08	20.20	21.60	**26.80**
Runoff (mm)	23	19	20	15	11	8	6	6	6	10	13	19	**155**
Rainfall (mm)	48	33	46	45	45	53	47	49	52	51	57	52	**578**

Factors affecting runoff: RPG I
Station type: FL

1994 runoff is 114% of previous mean
rainfall 101%

038021 Turkey Brook at Albany Park 1994

Measuring authority: NRA-T
First year: 1971

Grid reference: 51 (TQ) 359 985
Level stn. (m OD): 16.60

Catchment area (sq km): 42.2
Max alt. (m OD): 128

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	0.780	0.383	0.127	0.366	0.109	0.028	0.012	0.021	0.037	0.084	0.102	0.363	**0.200**
(m^3s^{-1}): Peak	7.00	6.19	2.60	4.21	1.18	0.43	0.23	0.82	0.47	1.61	0.76	5.35	**7.00**
Runoff (mm)	50	22	8	22	7	2	1	1	2	5	6	23	**150**
Rainfall (mm)	83	54	49	66	80	24	19	42	62	85	39	83	**686**

Monthly and yearly statistics for previous record (Sep 1971 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	0.420	0.335	0.312	0.217	0.152	0.093	0.043	0.048	0.058	0.191	0.236	0.330	**0.202**
flows Low	0.019	0.022	0.024	0.020	0.009	0.021	0.009	0.008	0.008	0.013	0.019	0.022	**0.057**
(m^3s^{-1}) High	1.180	0.988	0.811	0.626	0.626	0.240	0.087	0.171	0.228	0.941	1.158	0.724	**0.339**
Peak flow (m^3s^{-1})	10.50	11.50	7.68	7.72	20.70	15.30	2.38	2.76	7.55	10.70	12.80	10.50	**20.70**
Runoff (mm)	27	19	20	13	10	6	3	3	4	12	14	21	**151**
Rainfall (mm)	62	42	55	50	55	57	48	52	61	65	60	63	**670**

Factors affecting runoff: PG
Station type: FV

1994 runoff is 99% of previous mean
rainfall 102%

039002 Thames at Days Weir 1994

Measuring authority: NRA-T
First year: 1938
Grid reference: 41 (SU) 568 935
Level stn. (m OD): 46.00
Catchment area (sq km): 3444.7
Max alt. (m OD): 330

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	111.600	67.340	36.560	39.380	22.260	12.940	5.512	4.410	6.021	6.329	24.300	50.340	**32.088**
(m^3s^{-1}): Peak	205.00	96.30	77.40	91.20	55.80	20.80	9.61	7.00	16.50	40.20	41.40	111.00	**205.00**
Runoff (mm)	87	47	28	30	17	10	4	3	5	5	18	39	**294**
Rainfall (mm)	90	67	52	47	79	20	27	47	81	70	58	93	**731**

Monthly and yearly statistics for previous record (Oct 1938 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	55.070	55.540	44.520	30.700	20.260	14.420	8.523	7.204	8.779	15.290	31.200	45.410	**27.945**
flows Low	6.250	5.554	5.620	4.253	2.855	1.502	0.399	0.296	1.741	2.778	3.748	5.312	**10.095**
(m^3s^{-1}) High	133.600	120.800	163.200	85.070	61.140	41.560	48.820	18.690	38.630	74.570	128.100	128.700	**51.292**
Peak flow (m^3s^{-1})													
Runoff (mm)	43	39	35	23	16	11	7	6	7	12	23	35	**256**
Rainfall (mm)	67	47	53	47	58	55	54	66	60	65	70	72	**714**

Factors affecting runoff: P EI
Station type: MIS

1994 runoff is 115% of previous mean
rainfall 102%

Comment: Peak flows available from 1992 only.

039005 Beverley Brook at Wimbledon Common 1994

Measuring authority: NRA-T
First year: 1935
Grid reference: 51 (TQ) 216 717
Level stn. (m OD): 11.00
Catchment area (sq km): 43.6
Max alt. (m OD): 190

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.069	0.617	0.530	0.715	0.683	0.485	0.488	0.505	0.498	0.638	0.576	0.735	**0.629**
(m^3s^{-1}): Peak	7.83	4.06	3.74	6.12	4.94	3.55	2.56	10.90	3.42	7.08	7.09	11.20	**11.20**
Runoff (mm)	66	34	33	43	42	29	30	31	30	39	34	45	**455**
Rainfall (mm)	97	40	46	60	80	21	21	57	57	86	40	80	**685**

Monthly and yearly statistics for previous record (Mar 1935 to Dec 1993—incomplete or missing months total 24.2 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	0.707	0.606	0.559	0.564	0.483	0.483	0.447	0.454	0.503	0.519	0.579	0.632	**0.544**
flows Low	0.280	0.244	0.290	0.257	0.214	0.157	0.211	0.189	0.224	0.161	0.274	0.247	**0.291**
(m^3s^{-1}) High	1.237	1.208	1.023	1.538	1.092	0.956	0.920	0.970	1.340	1.321	1.415	1.057	**0.695**
Peak flow (m^3s^{-1})	10.90	14.10	7.51	22.40	14.80	12.90	16.50	17.30	16.50	15.90	11.10	14.00	**22.40**
Runoff (mm)	43	34	34	34	30	29	27	28	30	32	34	39	**394**
Rainfall (mm)	59	39	44	45	49	53	50	55	58	61	62	62	**637**

Factors affecting runoff: GE
Station type: FL

1994 runoff is 115% of previous mean
rainfall 108%

039007 Blackwater at Swallowfield 1994

Measuring authority: NRA-T
First year: 1952
Grid reference: 41 (SU) 731 648
Level stn. (m OD): 42.30
Catchment area (sq km): 354.8
Max alt. (m OD): 225

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	8.936	6.161	3.671	4.679	3.675	2.215	1.648	1.479	2.087	2.613	4.426	5.156	**3.883**
(m^3s^{-1}): Peak	24.80	19.40	15.70	16.30	11.30	7.37	3.13	2.75	5.77	17.10	18.60	23.40	**24.80**
Runoff (mm)	67	42	28	34	28	16	12	11	15	20	32	39	**345**
Rainfall (mm)	108	61	50	57	78	28	15	41	68	99	65	93	**763**

Monthly and yearly statistics for previous record (Oct 1952 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	4.697	4.192	3.823	3.167	2.522	2.022	1.531	1.523	1.817	2.619	3.324	4.043	**2.934**
flows Low	1.758	1.687	1.323	1.521	1.081	0.766	0.711	0.723	0.638	0.907	1.262	1.298	**1.466**
(m^3s^{-1}) High	8.000	11.010	6.898	5.600	5.946	6.472	2.829	2.622	6.609	7.613	8.019	7.022	**3.777**
Peak flow (m^3s^{-1})	25.60	25.90	30.50	24.30	24.40	25.20	11.80	11.20	41.00	27.80	28.60	26.90	**41.00**
Runoff (mm)	35	29	29	23	19	15	12	11	13	20	24	31	**261**
Rainfall (mm)	68	45	53	47	53	52	54	58	64	72	70	73	**709**

Factors affecting runoff: GE
Station type: CC

1994 runoff is 132% of previous mean
rainfall 108%

039014 Ver at Hansteads 1994

Measuring authority: NRA-T
First year: 1956
Grid reference: 52 (TL) 151 016
Level stn. (m OD): 61.30
Catchment area (sq km): 132.0
Max alt. (m OD): 243

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.306	1.286	1.125	1.062	1.140	0.864	0.549	0.481	0.457	0.460	0.530	0.577	**0.817**
(m^3s^{-1}): Peak	1.65	1.61	1.33	1.34	2.06	1.42	0.91	0.79	0.70	1.16	1.06	1.50	**2.06**
Runoff (mm)	27	24	23	21	23	17	11	10	9	9	10	12	**195**
Rainfall (mm)	100	53	52	65	73	25	32	57	72	87	44	90	**750**

Monthly and yearly statistics for previous record (Oct 1956 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean Avg.	0.454	0.515	0.538	0.518	0.454	0.398	0.333	0.292	0.262	0.295	0.342	0.398	**0.399**
flows Low	0.079	0.076	0.074	0.093	0.069	0.045	0.028	0.016	0.025	0.057	0.039	0.048	**0.095**
(m^3s^{-1}) High	0.981	1.336	1.312	1.254	1.028	0.857	0.651	0.564	0.660	0.716	0.791	0.977	**0.752**
Peak flow (m^3s^{-1})	1.77	1.91	1.88	1.90	2.07	1.65	1.44	1.13	2.34	1.50	2.31	2.64	**2.64**
Runoff (mm)	9	10	11	10	9	8	7	6	5	6	7	8	**95**
Rainfall (mm)	64	46	55	54	54	61	54	58	63	68	66	73	**716**

Factors affecting runoff: G
Station type: CC

1994 runoff is 205% of previous mean
rainfall 105%

Comment: The Ver is included in the NRA 'Alleviation of Low Flow' programme. Decreased groundwater abstraction contributed to the very high percentage runoff for 1994.

039016 Kennet at Theale 1994

Measuring authority: NRA-T
First year: 1961
Grid reference: 41 (SU) 649 708
Level stn. (m OD): 43.40
Catchment area (sq km): 1033.4
Max alt. (m OD): 297

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	28.110	24.430	17.110	15.570	12.270	8.698	6.069	5.469	5.610	5.621	8.421	11.880	**12.371**
(m^3s^{-1}):	Peak	43.60	37.40	20.60	23.70	16.50	12.50	7.63	12.60	12.00	19.30	16.90	31.60	**43.60**
Runoff (mm)		73	57	44	39	32	22	16	14	14	15	21	31	**378**
Rainfall (mm)		110	72	59	51	73	23	22	66	87	91	65	113	**832**

Monthly and yearly statistics for previous record (Oct 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	13.010	14.450	14.160	12.380	9.989	8.299	6.340	5.563	5.300	6.186	7.842	10.470	**9.473**
flows	Low	4.144	4.401	4.190	3.429	2.739	2.041	1.620	1.377	2.787	3.596	3.943	4.333	**4.056**
(m^3s^{-1})	High	23.000	27.780	22.010	19.790	15.430	18.600	11.120	9.542	10.000	13.970	17.710	23.850	**12.882**
Peak flow (m^3s^{-1})		48.30	52.10	44.30	36.90	31.50	70.00	19.00	20.50	33.40	38.20	43.50	47.30	**70.00**
Runoff (mm)		34	34	37	31	26	21	16	14	13	16	20	27	**289**
Rainfall (mm)		75	50	67	52	59	61	50	65	66	69	74	81	**769**

Factors affecting runoff: R G I
Station type: C

1994 runoff is 131% of previous mean
rainfall 108%

039019 Lambourn at Shaw 1994

Measuring authority: NRA-T
First year: 1962
Grid reference: 41 (SU) 470 682
Level stn. (m OD): 75.60
Catchment area (sq km): 234.1
Max alt. (m OD): 261

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.552	4.160	3.718	3.070	2.500	2.005	1.581	1.367	1.237	1.142	1.357	1.685	**2.270**
(m^3s^{-1}):	Peak	4.40	4.93	4.11	3.78	2.84	2.41	2.04	2.38	1.66	1.94	1.64	2.35	**4.93**
Runoff (mm)		41	43	43	34	29	22	18	16	14	13	15	19	**306**
Rainfall (mm)		101	66	55	47	84	26	23	61	82	82	63	98	**788**

Monthly and yearly statistics for previous record (Oct 1962 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.748	2.189	2.410	2.334	2.064	1.791	1.478	1.249	1.129	1.119	1.205	1.435	**1.676**
flows	Low	0.797	0.787	0.743	0.695	0.639	0.573	0.538	0.485	0.681	0.683	0.757	0.710	**0.739**
(m^3s^{-1})	High	3.854	3.719	3.583	3.550	2.979	2.764	2.359	2.048	1.699	1.921	2.392	3.200	**2.151**
Peak flow (m^3s^{-1})		4.30	4.20	4.39	4.08	4.97	4.34	3.06	3.54	3.75	3.17	5.02	4.15	**5.02**
Runoff (mm)		20	23	28	26	24	20	17	14	12	13	13	16	**226**
Rainfall (mm)		69	48	63	50	59	59	51	61	63	65	72	76	**736**

Factors affecting runoff: R G
Station type: C

1994 runoff is 135% of previous mean
rainfall 107%

039021 Cherwell at Enslow Mill 1994

Measuring authority: NRA-T
First year: 1965
Grid reference: 42 (SP) 482 183
Level stn. (m OD): 65.00
Catchment area (sq km): 551.7
Max alt. (m OD): 239

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	12.180	9.345	5.571	6.739	3.061	1.842	1.035	0.980	1.316	1.334	4.386	6.301	**4.478**
(m^3s^{-1}):	Peak	17.80	15.00	12.70	12.30	5.04	3.04	1.48	1.87	3.56	7.27	9.36	12.20	**17.80**
Runoff (mm)		59	41	27	32	15	9	5	5	6	6	21	31	**256**
Rainfall (mm)		81	66	55	51	64	20	38	49	88	77	55	80	**724**

Monthly and yearly statistics for previous record (Feb 1965 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	7.196	6.882	6.039	4.439	3.204	2.345	1.505	1.407	1.466	2.292	3.400	5.853	**3.823**
flows	Low	0.919	0.905	0.754	0.566	0.445	0.309	0.156	0.132	0.468	0.630	0.730	0.915	**1.370**
(m^3s^{-1})	High	12.040	15.900	12.090	8.710	8.674	6.632	4.997	2.634	5.577	7.615	9.223	13.330	**5.373**
Peak flow (m^3s^{-1})		22.50	23.80	26.70	20.70	19.30	17.60	24.50	10.30	20.80	17.40	22.00	30.20	**30.20**
Runoff (mm)		35	30	29	21	16	11	7	7	7	11	16	28	**219**
Rainfall (mm)		62	44	54	47	57	60	57	62	58	59	59	68	**687**

Factors affecting runoff: P E
Station type: CC

1994 runoff is 117% of previous mean
rainfall 105%

039023 Wye at Hedsor 1994

Measuring authority: NRA-T
First year: 1964
Grid reference: 41 (SU) 896 867
Level stn. (m OD): 26.80
Catchment area (sq km): 137.3
Max alt. (m OD): 244

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.612	1.719	1.736	1.739	1.521	1.331	1.103	1.035	0.962	0.852	0.959	0.971	**1.292**
(m^3s^{-1}):	Peak	2.64	3.01	2.33	2.93	2.31	2.00	2.06	1.92	1.75	1.81	2.29	2.86	**3.01**
Runoff (mm)		31	30	34	33	30	25	22	20	18	17	18	19	**297**
Rainfall (mm)		106	71	52	61	82	54	16	51	68	95	63	95	**814**

Monthly and yearly statistics for previous record (Dec 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.963	1.059	1.138	1.165	1.117	1.080	0.984	0.927	0.853	0.832	0.822	0.880	**0.984**
flows	Low	0.419	0.484	0.467	0.470	0.432	0.380	0.370	0.314	0.381	0.395	0.375	0.340	**0.442**
(m^3s^{-1})	High	1.699	1.933	1.976	1.891	1.842	1.582	1.434	1.317	1.182	1.180	1.329	1.452	**1.365**
Peak flow (m^3s^{-1})		3.49	2.92	3.21	3.44	3.98	3.51	2.94	4.17	4.43	3.55	2.79	3.19	**4.43**
Runoff (mm)		19	19	22	22	22	20	19	18	16	16	16	17	**226**
Rainfall (mm)		72	49	59	56	60	62	57	65	68	70	70	78	**766**

Factors affecting runoff: G I
Station type: C

1994 runoff is 131% of previous mean
rainfall 106%

039029 Tillingbourne at Shalford 1994

Measuring authority: NRA-T
First year: 1968

Grid reference: 51 (TQ) 000 478
Level stn. (m OD): 31.70

Catchment area (sq km): 59.0
Max alt. (m OD): 294

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	0.882	0.704	0.618	0.640	0.572	0.468	0.406	0.379	0.440	0.452	0.538	0.694	**0.565**
(m^3s^{-1}): Peak	3.19	1.40	1.98	1.27	0.99	0.61	0.54	0.70	0.71	1.28	2.15	2.50	**3.19**
Runoff (mm)	40	29	28	28	26	20	18	17	19	21	24	32	**302**
Rainfall (mm)	132	66	60	77	95	29	24	55	95	98	69	127	**927**

Monthly and yearly statistics for previous record (Jun 1968 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.648	0.629	0.605	0.584	0.532	0.488	0.446	0.438	0.458	0.507	0.540	0.592	**0.539**
Low	0.322	0.346	0.350	0.357	0.308	0.257	0.283	0.292	0.280	0.292	0.353	0.319	**0.353**
(m^3s^{-1}) High	0.998	1.072	0.900	0.897	0.819	0.830	0.599	0.619	0.885	0.938	0.883	0.840	**0.686**
Peak flow (m^3s^{-1})	4.54	3.04	3.23	3.00	1.91	2.79	1.65	2.36	6.09	5.09	3.65	3.25	**6.09**
Runoff (mm)	29	26	27	26	24	21	20	20	20	23	24	27	**288**
Rainfall (mm)	85	50	66	58	56	58	53	59	73	80	80	81	**799**

Factors affecting runoff: N G I
Station type: C

1994 runoff is 105% of previous mean
rainfall 116%

Comment: High flows in December 1994 are estimated.

039049 Silk Stream at Colindeep Lane 1994

Measuring authority: NRA-T
First year: 1973

Grid reference: 51 (TQ) 217 895
Level stn. (m OD): 39.90

Catchment area (sq km): 29.0
Max alt. (m OD): 153

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	0.606	0.362	0.223	0.375	0.259	0.089	0.078	0.146	0.174	0.236	0.217	0.367	**0.261**
(m^3s^{-1}): Peak	4.13	3.79	2.72	3.69	3.35	1.40	1.99	11.10	3.16	3.81	3.13	10.60	**11.10**
Runoff (mm)	56	30	21	34	24	8	7	13	16	22	19	34	**283**
Rainfall (mm)	86	51	48	61	76	19	20	63	65	86	42	78	**695**

Monthly and yearly statistics for previous record (Dec 1973 to Dec 1993—incomplete or missing months total 4.4 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.368	0.275	0.303	0.260	0.213	0.204	0.151	0.123	0.157	0.300	0.307	0.322	**0.249**
Low	0.093	0.102	0.092	0.030	0.035	0.061	0.047	0.053	0.057	0.062	0.096	0.096	**0.178**
(m^3s^{-1}) High	0.790	0.725	0.677	0.560	0.570	0.566	0.248	0.204	0.505	0.808	0.967	0.593	**0.308**
Peak flow (m^3s^{-1})	8.54	14.30	6.28	10.26	17.10	16.30	14.50	14.20	17.20	17.30	13.00	16.00	**17.30**
Runoff (mm)	34	23	28	23	20	18	14	11	14	28	27	30	**270**
Rainfall (mm)	62	39	56	51	60	61	52	50	65	73	60	62	**691**

Factors affecting runoff:
Station type: FV

1994 runoff is 105% of previous mean
rainfall 101%

039069 Mole at Kinnersley Manor 1994

Measuring authority: NRA-T
First year: 1972

Grid reference: 51 (TQ) 262 462
Level stn. (m OD): 48.00

Catchment area (sq km): 142.0
Max alt. (m OD): 178

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	8.231	3.422	1.875	3.600	2.095	0.817	0.614	0.592	1.432	2.406	2.801	6.349	**2.856**
(m^3s^{-1}): Peak	48.80	26.90	24.10	23.70	13.10	4.10	6.62	7.49	8.30	32.30	18.00	63.50	**63.50**
Runoff (mm)	155	58	35	66	40	15	12	11	26	45	51	120	**634**
Rainfall (mm)	139	61	60	74	83	27	26	59	94	115	57	134	**929**

Monthly and yearly statistics for previous record (Dec 1972 to Dec 1993—incomplete or missing months total 1.5 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	3.798	2.976	2.499	1.969	1.381	1.040	0.800	0.798	0.969	2.214	2.436	3.585	**2.036**
Low	0.940	0.829	0.833	0.388	0.305	0.221	0.296	0.169	0.281	0.207	0.260	1.071	**0.950**
(m^3s^{-1}) High	9.375	8.634	4.668	3.666	3.552	2.225	2.818	2.864	5.419	8.486	5.894	6.493	**2.614**
Peak flow (m^3s^{-1})	42.30	46.50	22.30	47.00	32.90	23.30	28.90	29.80	40.70	71.90	56.70	68.50	**71.90**
Runoff (mm)	72	51	47	36	26	19	15	15	18	42	44	68	**452**
Rainfall (mm)	79	53	63	54	52	59	50	55	67	92	78	90	**792**

Factors affecting runoff: E
Station type: MIS

1994 runoff is 140% of previous mean
rainfall 117%

040004 Rother at Udiam 1994

Measuring authority: NRA-S
First year: 1962

Grid reference: 51 (TQ) 773 245
Level stn. (m OD): 1.90

Catchment area (sq km): 206.0
Max alt. (m OD): 197

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.954	2.783	1.649	3.478	2.061	0.968	0.445	0.337	0.772	2.541	3.439	4.951	**2.109**
(m^3s^{-1}): Peak													
Runoff (mm)	25	33	21	33	20	12	6	4	10	19	29	23	**236**
Rainfall (mm)	139	55	63	94	101	61	46	78	89	133	62	142	**1063**

Monthly and yearly statistics for previous record (Oct 1962 to Dec 1993—incomplete or missing months total 2.7 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	4.072	3.505	3.018	2.252	1.272	1.002	0.650	0.620	0.767	1.758	2.904	3.376	**2.093**
Low	0.719	0.792	0.422	0.343	0.302	0.268	0.221	0.182	0.195	0.151	0.184	0.427	**0.756**
(m^3s^{-1}) High	11.990	10.370	6.927	4.533	2.817	4.157	2.790	2.682	3.952	10.750	12.360	9.547	**3.322**
Peak flow (m^3s^{-1})	41.57	44.74	49.84	25.43	24.09	24.24	22.20	14.36	33.98	42.76	50.43	51.82	**51.82**
Runoff (mm)	53	41	39	28	17	13	8	8	10	23	37	44	**321**
Rainfall (mm)	87	59	70	59	54	62	54	61	75	91	99	90	**861**

Factors affecting runoff: S GE
Station type: VA

1994 runoff is 74% of previous mean
rainfall 123%

Comment: Some 1994 monthly flows are estimated. Pre-1992 flows are being reprocessed.

042006 Meon at Mislingford 1994

Measuring authority: NRA-S
First year: 1958
Grid reference: 41 (SU) 589 141
Level stn. (m OD): 29.30
Catchment area (sq km): 72.8
Max alt. (m OD): 233

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.069	3.039	1.976	1.945	1.428	1.004	0.643	0.431	0.352	0.348	0.779	1.578	**1.458**
(m^3s^{-1}):	Peak	4.83	4.22	2.63	2.46	1.81	1.24	0.86	0.61	0.69	0.90	1.03	2.73	**4.83**
Runoff (mm)		150	101	73	69	53	36	24	16	13	13	28	58	**634**
Rainfall (mm)		157	91	72	93	95	33	14	51	94	137	100	144	**1081**

Monthly and yearly statistics for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.461	1.741	1.580	1.342	0.993	0.717	0.509	0.380	0.334	0.518	0.787	1.098	**0.951**
flows	Low	0.332	0.353	0.356	0.335	0.164	0.120	0.079	0.068	0.102	0.110	0.124	0.179	**0.334**
(m^3s^{-1})	High	3.470	3.310	2.820	2.024	1.738	1.220	0.827	0.657	0.882	2.309	4.126	3.917	**1.813**
Peak flow (m^3s^{-1})		3.84	4.27	3.26	2.83	2.07	1.50	1.23	1.08	0.96	2.66	2.83	3.77	**4.27**
Runoff (mm)		54	58	58	48	37	26	19	14	12	19	28	40	**412**
Rainfall (mm)		97	62	75	61	60	60	56	69	80	96	97	102	**915**

Factors affecting runoff: G
Station type: FL

1994 runoff is 154% of previous mean
rainfall 118%

Comment: January 1994 contains estimated daily flows.

043006 Nadder at Wilton Park 1994

Measuring authority: NRA-SW
First year: 1966
Grid reference: 41 (SU) 098 308
Level stn. (m OD): 51.10
Catchment area (sq km): 220.6
Max alt. (m OD): 277

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	9.238	7.156	5.044	5.037	3.148	1.994	1.651	1.436	1.312	1.706	3.736	4.946	**3.849**
(m^3s^{-1}):	Peak	17.80	13.74	9.17	11.24	7.25	2.89	2.15	1.86	1.96	10.43	11.16	14.64	**17.80**
Runoff (mm)		112	78	61	59	38	23	20	17	15	21	44	60	**550**
Rainfall (mm)		128	97	83	64	81	25	27	55	84	134	87	140	**1005**

Monthly and yearly statistics for previous record (Jan 1966 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.536	5.008	4.198	3.275	2.396	1.875	1.464	1.282	1.304	1.825	2.471	3.840	**2.779**
flows	Low	1.011	1.263	1.358	1.048	0.993	0.839	0.684	0.595	0.801	0.829	0.878	1.219	**1.535**
(m^3s^{-1})	High	6.773	12.290	6.732	5.935	4.044	3.283	2.234	2.040	3.093	4.526	6.413	7.316	**3.821**
Peak flow (m^3s^{-1})		22.71	26.61	18.80	14.27	28.13	8.83	13.39	6.71	16.68	20.92	22.90	47.88	**47.88**
Runoff (mm)		55	55	51	38	29	22	18	16	15	22	29	47	**397**
Rainfall (mm)		95	71	77	55	63	63	54	68	76	87	86	104	**899**

Factors affecting runoff: N
Station type: C

1994 runoff is 138% of previous mean
rainfall 112%

043007 Stour at Throop Mill 1994

Measuring authority: NRA-SW
First year: 1973
Grid reference: 40 (SZ) 113 958
Level stn. (m OD): 4.40
Catchment area (sq km): 1073.0
Max alt. (m OD): 277

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	50.480	36.690	21.880	23.860	11.250	6.617	3.782	3.382	4.367	6.362	30.250	29.140	**18.890**
(m^3s^{-1}):	Peak	119.30	81.39	41.31	76.26	23.16	10.01	4.98	4.65	8.45	42.21	141.20	108.10	**141.20**
Runoff (mm)		126	83	55	58	28	16	9	8	11	16	73	73	**555**
Rainfall (mm)		122	106	83	57	84	20	32	54	93	124	105	125	**1005**

Monthly and yearly statistics for previous record (Jan 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	23.800	24.860	19.670	14.380	9.122	6.328	4.421	4.046	4.936	9.309	13.010	22.910	**13.014**
flows	Low	4.319	6.826	7.548	4.483	3.157	2.231	1.614	1.358	1.892	2.716	2.823	6.386	**6.138**
(m^3s^{-1})	High	38.730	69.370	32.620	27.070	18.900	16.940	7.932	8.998	20.340	31.730	36.730	42.950	**17.377**
Peak flow (m^3s^{-1})		116.60	137.70	110.20	88.24	150.00	180.00	47.60	32.41	90.33	128.70	133.40	280.00	**280.00**
Runoff (mm)		59	56	49	35	23	15	11	10	12	23	31	57	**383**
Rainfall (mm)		89	67	76	50	53	57	52	61	77	88	79	106	**855**

Factors affecting runoff: PGE
Station type: CC

1994 runoff is 145% of previous mean
rainfall 118%

043012 Wylye at Norton Bavant 1994

Measuring authority: NRA-SW
First year: 1969
Grid reference: 31 (ST) 909 428
Level stn. (m OD): 96.70
Catchment area (sq km): 112.4
Max alt. (m OD): 288

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.584	2.465	1.901	1.980	1.139	0.788	0.626	0.594	0.675	0.686	1.508	1.910	**1.483**
(m^3s^{-1}):	Peak	5.82	4.08	3.37	3.48	1.70	1.50	1.48	1.70	2.94	2.97	3.28	3.73	**5.82**
Runoff (mm)		85	53	45	46	27	18	15	14	16	16	35	46	**416**
Rainfall (mm)		134	89	88	68	85	35	44	77	112	122	83	141	**1078**

Monthly and yearly statistics for previous record (Jul 1971 to Dec 1993—incomplete or missing months total 0.8 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.678	1.884	1.566	1.322	0.949	0.738	0.590	0.547	0.561	0.660	0.854	1.415	**1.060**
flows	Low	0.454	0.468	0.503	0.482	0.450	0.335	0.279	0.287	0.405	0.413	0.456	0.523	**0.652**
(m^3s^{-1})	High	2.444	4.465	2.403	2.230	1.454	1.238	0.771	0.694	1.033	1.387	1.731	2.628	**1.362**
Peak flow (m^3s^{-1})		5.90	7.26	5.24	3.84	6.74	2.98	3.44	2.76	7.19	3.64	3.39	6.33	**7.26**
Runoff (mm)		40	41	37	30	23	17	14	13	13	16	20	34	**298**
Rainfall (mm)		99	69	84	56	60	69	59	72	79	87	84	109	**927**

Factors affecting runoff: E
Station type: C

1994 runoff is 140% of previous mean
rainfall 116%

044002 Piddle at Baggs Mill 1994

Measuring authority: NRA-SW
First year: 1963

Grid reference: 30 (SY) 913 876
Level stn. (m OD): 2.10

Catchment area (sq km): 183.1
Max alt. (m OD): 275

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.836	5.990	5.015	4.161	2.973	1.975	1.320	1.074	1.113	1.307	3.414	4.186	**3.350**
(m^3s^{-1}):	Peak	8.86	8.49	7.57	6.68	5.00	2.74	1.75	1.37	2.34	6.95	7.83	7.68	**8.86**
Runoff (mm)		115	79	73	59	43	28	19	16	16	19	48	61	**577**
Rainfall (mm)		137	128	86	64	97	21	31	58	103	148	140	137	**1150**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993—incomplete or missing months total 1.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.554	4.335	3.777	2.907	2.122	1.624	1.218	1.057	1.083	1.451	2.061	2.966	**2.336**
flows	Low	1.045	1.020	1.093	0.945	0.757	0.571	0.483	0.433	0.598	0.707	0.721	0.853	**1.328**
(m^3s^{-1})	High	5.959	8.785	6.202	4.782	3.376	2.907	1.755	1.526	2.300	3.285	5.047	5.654	**3.233**
Peak flow (m^3s^{-1})		11.87	10.02	9.37	6.48	8.11	9.23	4.79	4.50	8.18	9.29	9.20	8.62	**11.87**
Runoff (mm)		52	58	55	41	31	23	18	15	15	21	29	43	**403**
Rainfall (mm)		110	79	84	55	63	58	49	65	86	93	104	115	**961**

Factors affecting runoff: G
Station type: FL

1994 runoff is 143% of previous mean
rainfall 120%

044009 Wey at Broadwey 1994

Measuring authority: NRA-SW
First year: 1975

Grid reference: 30 (SY) 666 839
Level stn. (m OD): 17.80

Catchment area (sq km): 7.0
Max alt. (m OD): 183

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.156	0.924	0.821	0.621	0.442	0.324	0.223	0.164	0.128	0.122	0.401	0.489	**0.482**
(m^3s^{-1}):	Peak	2.34	2.61	1.19	1.12	1.05	0.53	0.33	0.26	0.21	0.44	0.82	1.02	**2.61**
Runoff (mm)		442	320	314	230	169	120	85	63	47	47	148	187	**2173**
Rainfall (mm)		135	131	86	62	108	26	27	52	71	139	125	122	**1082**

Monthly and yearly statistics for previous record (Jul 1975 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.429	0.530	0.511	0.433	0.297	0.239	0.181	0.142	0.123	0.152	0.199	0.342	**0.297**
flows	Low	0.100	0.100	0.126	0.117	0.099	0.093	0.095	0.085	0.076	0.067	0.070	0.076	**0.188**
(m^3s^{-1})	High	0.698	0.970	0.896	0.730	0.486	0.450	0.318	0.211	0.178	0.359	0.390	0.698	**0.410**
Peak flow (m^3s^{-1})		1.46	1.79	2.86	1.23	3.31	3.18	2.29	1.25	0.65	0.98	1.26	5.47	**5.47**
Runoff (mm)		164	185	195	160	114	89	69	55	46	58	74	131	**1339**
Rainfall (mm)		87	80	89	52	50	55	51	58	74	97	84	111	**888**

Factors affecting runoff: N
Station type: FV

1994 runoff is 162% of previous mean
rainfall 122%

045003 Culm at Wood Mill 1994

Measuring authority: NRA-SW
First year: 1962

Grid reference: 31 (ST) 021 058
Level stn. (m OD): 44.00

Catchment area (sq km): 226.1
Max alt. (m OD): 293

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	10.070	8.647	4.121	5.574	3.225	1.805	1.347	1.370	1.896	2.707	6.751	7.003	**4.515**
(m^3s^{-1}):	Peak	53.92	47.88	13.66	26.78	16.02	3.27	2.32	2.31	8.01	29.01	80.20	34.69	**80.20**
Runoff (mm)		119	93	49	64	38	21	16	16	22	32	77	83	**630**
Rainfall (mm)		155	130	82	77	84	23	34	55	106	102	117	149	**1114**

Monthly and yearly statistics for previous record (Feb 1962 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	6.491	6.124	4.808	3.393	2.624	1.922	1.688	1.546	1.861	2.983	4.375	6.064	**3.647**
flows	Low	1.929	2.144	1.687	1.317	1.083	0.803	0.650	0.570	0.971	0.971	1.287	2.480	**2.277**
(m^3s^{-1})	High	12.870	13.330	9.184	7.434	6.326	4.459	5.200	2.787	7.328	11.430	8.167	11.880	**4.840**
Peak flow (m^3s^{-1})		110.70	100.10	50.11	61.98	33.82	30.58	202.20	58.62	94.16	49.07	134.50	142.80	**202.20**
Runoff (mm)		77	66	57	39	31	22	20	18	21	35	50	72	**509**
Rainfall (mm)		108	81	83	61	65	63	60	66	79	91	96	111	**964**

Factors affecting runoff: PGEI
Station type: FVVA

1994 runoff is 124% of previous mean
rainfall 116%

045004 Axe at Whitford 1994

Measuring authority: NRA-SW
First year: 1964

Grid reference: 30 (SY) 262 953
Level stn. (m OD): 7.30

Catchment area (sq km): 288.5
Max alt. (m OD): 316

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	13.000	13.460	6.059	7.364	5.330	2.490	1.744	1.804	3.596	4.998	12.770	10.380	**6.866**
(m^3s^{-1}):	Peak	62.72	74.78	45.46	58.99	44.84	7.18	3.20	3.44	41.76	66.11	134.80	83.07	**134.80**
Runoff (mm)		121	113	56	66	49	22	16	17	32	46	115	96	**751**
Rainfall (mm)		138	146	86	71	108	24	32	74	112	113	140	143	**1187**

Monthly and yearly statistics for previous record (Oct 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.080	8.148	6.316	4.365	3.429	2.502	1.941	2.033	2.558	4.372	5.801	8.486	**4.907**
flows	Low	1.891	2.448	2.150	1.567	1.176	0.817	0.626	0.554	1.222	1.243	1.714	2.829	**2.665**
(m^3s^{-1})	High	15.730	18.720	11.670	8.346	7.284	4.678	5.312	4.935	9.911	16.440	11.980	15.430	**6.406**
Peak flow (m^3s^{-1})		110.60	114.60	93.02	75.42	173.40	75.04	228.80	128.00	88.95	146.10	116.90	244.00	**244.00**
Runoff (mm)		84	69	59	39	32	22	18	19	23	41	52	79	**537**
Rainfall (mm)		119	84	81	59	66	65	59	70	83	97	96	119	**998**

Factors affecting runoff: PGEI
Station type: CC

1994 runoff is 140% of previous mean
rainfall 119%

046003 Dart at Austins Bridge 1994

Measuring authority: NRA-SW
First year: 1958

Grid reference: 20 (SX) 751 659
Level stn. (m OD): 22.40

Catchment area (sq km): 247.6
Max alt. (m OD): 604

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	29.660	27.320	16.750	16.650	8.953	5.508	2.484	3.393	8.496	10.340	20.900	29.130	**14.887**
(m^3s^{-1}):	Peak	135.30	141.20	126.20	116.00	45.46	22.63	4.70	42.16	58.46	170.40	91.54	215.80	**215.80**
Runoff (mm)		321	267	181	174	97	58	27	37	89	112	219	315	**1896**
Rainfall (mm)		304	290	210	144	151	58	69	147	174	204	177	392	**2320**

Monthly and yearly statistics for previous record (Oct 1958 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	19.790	16.900	13.620	9.886	7.026	4.911	3.898	4.641	5.925	10.740	14.900	19.520	**10.958**
flows	Low	5.428	4.270	3.246	3.275	1.942	1.447	0.994	0.713	0.905	1.229	5.048	8.229	**7.298**
(m^3s^{-1})	High	36.680	43.870	33.520	22.720	14.530	14.260	10.930	12.590	26.290	28.000	33.410	35.660	**15.592**
Peak flow (m^3s^{-1})		284.00	309.40	236.10	187.40	98.88	253.00	206.50	222.20	327.60	168.20	317.80	549.70	**549.70**
Runoff (mm)		214	167	147	103	76	51	42	50	62	116	156	211	**1397**
Rainfall (mm)		229	161	161	116	102	94	95	119	138	179	198	234	**1826**

Factors affecting runoff: SR
Station type: VA

1994 runoff is 136% of previous mean
rainfall 127%

046005 East Dart at Bellever 1994

Measuring authority: NRA-SW
First year: 1964

Grid reference: 20 (SX) 657 775
Level stn. (m OD): 309.00

Catchment area (sq km): 21.5
Max alt. (m OD): 604

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.991	2.488	2.079	1.663	0.952	0.632	0.283	0.472	1.093	1.228	1.881	3.414	**1.594**
(m^3s^{-1}):	Peak	20.52	17.71	18.94	17.05	8.49	4.29	0.91	10.23	11.61	26.58	13.15	35.63	**35.63**
Runoff (mm)		373	280	259	201	119	76	35	59	132	153	227	425	**2338**
Rainfall (mm)		365	294	292	159	158	78	85	154	198	222	190	483	**2678**

Monthly and yearly statistics for previous record (Apr 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.086	1.763	1.403	0.968	0.755	0.643	0.551	0.624	0.797	1.256	1.663	2.131	**1.218**
flows	Low	0.718	0.468	0.385	0.348	0.250	0.185	0.126	0.105	0.203	0.176	0.783	0.971	**0.808**
(m^3s^{-1})	High	3.830	5.103	3.639	1.990	1.605	1.589	1.303	1.571	3.306	2.903	3.586	3.756	**1.775**
Peak flow (m^3s^{-1})		50.12	45.63	32.53	26.80	18.89	47.89	65.13	54.01	53.35	34.55	53.76	67.06	**67.06**
Runoff (mm)		260	200	175	117	94	78	69	78	96	156	200	265	**1788**
Rainfall (mm)		255	179	183	120	116	115	115	132	159	198	219	273	**2064**

Factors affecting runoff: N
Station type: VA

1994 runoff is 131% of previous mean
rainfall 130%

047001 Tamar at Gunnislake 1994

Measuring authority: NRA-SW
First year: 1956

Grid reference: 20 (SX) 426 725
Level stn. (m OD): 8.20

Catchment area (sq km): 916.9
Max alt. (m OD): 586

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	65.500	53.050	33.620	33.340	8.382	5.421	3.453	3.868	16.750	22.630	44.120	61.200	**29.130**
(m^3s^{-1}):	Peak	203.80	163.10	149.70	225.00	26.07	9.75	4.91	12.46	66.32	296.20	142.50	294.00	**296.20**
Runoff (mm)		191	140	98	94	24	15	10	11	47	66	125	179	**1002**
Rainfall (mm)		191	165	132	96	81	31	49	111	142	142	114	238	**1492**

Monthly and yearly statistics for previous record (Jul 1956 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	44.950	36.050	25.340	16.480	11.110	7.280	6.367	8.387	11.590	22.520	34.810	44.820	**22.428**
flows	Low	8.476	9.161	6.193	5.681	3.112	1.995	1.181	0.757	1.118	1.540	4.213	13.710	**12.519**
(m^3s^{-1})	High	89.410	86.970	65.520	35.200	32.370	32.990	28.730	42.100	59.840	65.080	78.760	91.690	**34.886**
Peak flow (m^3s^{-1})		347.90	306.70	411.70	268.00	154.50	363.70	96.00	238.00	401.40	373.50	530.20	714.60	**714.60**
Runoff (mm)		131	96	74	47	32	21	19	24	33	66	98	131	**772**
Rainfall (mm)		144	98	97	70	71	73	84	93	103	126	136	146	**1241**

Factors affecting runoff: SRP EI
Station type: VA

1994 runoff is 130% of previous mean
rainfall 120%

047008 Thrushel at Tinhay 1994

Measuring authority: NRA-SW
First year: 1969

Grid reference: 20 (SX) 398 856
Level stn. (m OD): 55.50

Catchment area (sq km): 112.7
Max alt. (m OD): 375

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	6.407	5.160	3.349	3.625	0.951	0.605	0.845	1.169	1.801	2.184	3.994	5.812	**2.979**
(m^3s^{-1}):	Peak	26.77	22.64	28.99	32.52	4.56	0.84	1.45	2.42	9.68	29.53	22.68	25.83	**32.52**
Runoff (mm)		152	111	80	83	23	14	20	28	41	52	92	138	**834**
Rainfall (mm)		180	134	114	90	74	25	44	97	131	128	101	220	**1338**

Monthly and yearly statistics for previous record (Oct 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.923	3.893	2.955	1.625	1.062	0.762	0.547	0.801	1.045	2.326	3.674	4.658	**2.351**
flows	Low	1.317	0.951	0.918	0.482	0.239	0.110	0.028	0.019	0.116	0.069	0.442	1.662	**1.643**
(m^3s^{-1})	High	9.727	8.847	7.477	4.038	4.209	2.500	2.131	2.916	6.687	6.878	7.195	8.122	**3.757**
Peak flow (m^3s^{-1})		53.32	61.78	61.46	27.72	38.72	57.13	11.97	33.64	75.12	66.18	57.07	124.40	**124.40**
Runoff (mm)		117	84	70	37	25	18	13	19	24	55	85	111	**658**
Rainfall (mm)*		142	98	97	63	65	75	73	86	94	118	129	140	**1180**

*(1970-1993)

Factors affecting runoff: S H
Station type: CC

1994 runoff is 127% of previous mean
rainfall 113%

048005 Kenwyn at Truro 1994

Measuring authority: NRA-SW
First year: 1968
Grid reference: 10 (SW) 820 450
Level stn. (m OD): 7.20
Catchment area (sq km): 19.1
Max alt. (m OD): 152

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.452	1.440	0.522	0.640	0.292	0.203	0.109	0.111	0.141	0.274	1.110	1.006	**0.602**
(m^3s^{-1}):	Peak	8.05	11.11	3.91	3.11	1.31	0.61	0.26	1.81	0.60	2.30	3.69	4.04	**11.11**
Runoff (mm)		204	182	73	87	41	28	15	16	19	38	151	141	**995**
Rainfall (mm)		143	201	87	78	102	25	44	100	118	131	134	177	**1340**

Monthly and yearly statistics for previous record (Oct 1968 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.810	0.743	0.534	0.323	0.199	0.152	0.095	0.089	0.119	0.275	0.469	0.759	**0.379**
flows	Low	0.169	0.206	0.144	0.156	0.090	0.070	0.043	0.026	0.037	0.034	0.046	0.218	**0.263**
(m^3s^{-1})	High	1.506	1.638	0.997	0.613	0.418	0.594	0.245	0.179	0.560	0.899	1.093	1.353	**0.540**
Peak flow (m^3s^{-1})		22.50	7.19	5.74	4.07	4.56	3.71	2.79	2.29	4.10	30.37	9.74	14.76	**30.37**
Runoff (mm)		114	95	75	44	28	21	13	12	16	39	64	106	**626**
Rainfall (mm)		142	101	95	61	61	64	59	73	86	114	127	140	**1123**

Factors affecting runoff: N
Station type: CC

1994 runoff is 159% of previous mean
rainfall 119%

048011 Fowey at Restormel 1994

Measuring authority: NRA-SW
First year: 1961
Grid reference: 20 (SX) 098 624
Level stn. (m OD): 9.20
Catchment area (sq km): 169.1
Max alt. (m OD): 420

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	13.930	12.490	7.530	7.814	2.280	1.871	1.361	1.414	3.374	3.928	9.918	10.020	**6.283**
(m^3s^{-1}):	Peak	29.88	29.88	24.09	29.28	3.40	3.15	2.55	4.92	8.31	30.26	23.99	37.19	**37.19**
Runoff (mm)		221	179	119	120	36	29	22	22	52	62	152	159	**1172**
Rainfall (mm)		231	229	153	110	90	39	62	130	171	162	150	250	**1777**

Monthly and yearly statistics for previous record (Apr 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.020	8.043	5.953	4.039	2.938	2.236	1.838	1.967	2.533	4.485	6.681	8.970	**4.879**
flows	Low	2.267	2.704	1.641	1.684	1.034	0.693	0.562	0.343	0.673	0.617	0.921	2.947	**3.391**
(m^3s^{-1})	High	17.330	21.780	12.130	7.641	6.447	7.763	4.859	6.044	10.490	11.720	15.450	20.890	**7.440**
Peak flow (m^3s^{-1})		104.80	111.90	45.62	24.52	30.98	39.44	31.10	48.51	70.02	35.07	223.70	126.60	**223.70**
Runoff (mm)		143	116	94	62	47	34	29	31	39	71	102	142	**911**
Rainfall (mm)		178	121	127	83	88	90	97	106	122	142	169	181	**1504**

Factors affecting runoff: SRP
Station type: CC

1994 runoff is 129% of previous mean
rainfall 118%

049001 Camel at Denby 1994

Measuring authority: NRA-SW
First year: 1964
Grid reference: 20 (SX) 017 682
Level stn. (m OD): 4.60
Catchment area (sq km): 208.8
Max alt. (m OD): 420

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	18.560	17.090	10.300	9.738	3.469	2.258	1.352	1.408	4.146	6.221	13.390	13.600	**8.402**
(m^3s^{-1}):	Peak	59.77	68.75	27.91	46.66	6.35	3.79	2.31	5.37	13.75	74.94	45.19	71.51	**74.94**
Runoff (mm)		238	198	132	121	45	28	17	18	51	80	166	175	**1269**
Rainfall (mm)		214	221	149	103	91	38	56	120	150	166	145	235	**1688**

Monthly and yearly statistics for previous record (Sep 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	11.120	9.578	6.999	4.599	3.322	2.799	2.406	2.511	3.006	5.535	8.080'	10.980	**5.898**
flows	Low	3.819	4.070	2.216	2.081	0.960	0.888	0.582	0.421	0.798	0.882	1.371	4.184	**4.081**
(m^3s^{-1})	High	19.600	23.260	16.420	9.395	8.491	15.770	7.322	7.858	11.920	16.640	17.990	19.110	**8.165**
Peak flow (m^3s^{-1})		73.18	80.21	94.75	35.42	58.52	306.40	40.59	63.98	125.80	92.14	94.75	227.90	**306.40**
Runoff (mm)		143	112	90	57	43	35	31	32	37	71	100	141	**891**
Rainfall (mm)		165	109	115	77	81	88	97	100	116	138	153	163	**1402**

Factors affecting runoff: SRP E
Station type: VA

1994 runoff is 142% of previous mean
rainfall 120%

050002 Torridge at Torrington 1994

Measuring authority: NRA-SW
First year: 1962
Grid reference: 21 (SS) 500 185
Level stn. (m OD): 13.90
Catchment area (sq km): 663.0
Max alt. (m OD): 621

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	47.620	33.950	27.640	25.780	5.973	3.193	1.332	1.304	16.080	19.410	31.910	49.790	**21.930**
(m^3s^{-1}):	Peak	181.60	123.70	126.90	188.80	20.48	10.02	2.96	5.11	103.00	381.00	120.50	305.00	**381.00**
Runoff (mm)		192	124	112	101	24	12	5	5	63	78	125	201	**1043**
Rainfall (mm)		192	136	149	105	80	36	53	108	145	142	111	239	**1496**

Monthly and yearly statistics for previous record (Aug 1960 to Dec 1993—incomplete or missing months total 1.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	30.300	24.290	17.800	10.990	7.490	4.811	4.414	5.263	7.345	16.960	26.910	31.560	**15.647**
flows	Low	5.018	4.695	3.265	3.082	1.399	1.092	0.443	0.252	0.954	0.668	3.798	10.270	**8.968**
(m^3s^{-1})	High	57.510	64.240	51.280	28.120	31.290	20.540	21.540	19.690	45.910	50.100	55.730	64.530	**21.036**
Peak flow (m^3s^{-1})		391.10	294.40	535.60	164.40	205.70	189.90	310.60	228.50	415.00	276.40	370.40	730.00	**730.00**
Runoff (mm)		122	89	72	43	30	19	18	21	29	69	105	128	**745**
Rainfall (mm)*		131	91	96	68	70	75	77	85	97	117	134	134	**1175**

*(1962-1993)

Factors affecting runoff: SRP EI
Station type: VA

1994 runoff is 140% of previous mean
rainfall 127%

052007 Parrett at Chiselborough 1994

Measuring authority: NRA-SW
First year: 1966
Grid reference: 31 (ST) 461 144
Level stn. (m OD): 20.70
Catchment area (sq km): 74.8
Max alt. (m OD): 219

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	3.626	3.037	1.080	1.450	1.067	0.391	0.259	0.252	0.627	1.100	3.075	2.667	**1.542**
(m^3s^{-1}):	Peak	22.55	19.66	19.29	17.40	9.15	0.97	0.83	0.88	12.79	18.96	34.05	26.83	**34.05**
Runoff (mm)		130	98	39	50	38	14	9	9	22	39	107	95	**650**
Rainfall (mm)		113	116	72	56	108	21	37	77	128	99	125	116	**1068**

Monthly and yearly statistics for previous record (Aug 1966 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.397	1.959	1.496	0.895	0.677	0.479	0.335	0.329	0.450	1.011	1.299	2.153	**1.121**
flows	Low	0.258	0.544	0.343	0.285	0.206	0.130	0.106	0.090	0.145	0.186	0.219	0.409	**0.564**
(m^3s^{-1})	High	4.914	6.120	3.055	1.867	2.048	1.053	0.921	0.988	2.225	4.819	3.789	4.219	**1.534**
Peak flow (m^3s^{-1})		36.38	30.70	27.46	21.21	57.21	12.81	16.14	23.88	32.25	28.69	29.53	44.94	**57.21**
Runoff (mm)		86	64	54	31	24	17	12	12	16	36	45	77	**473**
Rainfall (mm)		104	73	78	50	64	63	54	66	78	89	84	106	**909**

Factors affecting runoff: E
Station type: C

1994 runoff is 137% of previous mean
rainfall 117%

052010 Brue at Lovington 1994

Measuring authority: NRA-SW
First year: 1964
Grid reference: 31 (ST) 590 318
Level stn. (m OD): 19.80
Catchment area (sq km): 135.2
Max alt. (m OD): 260

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	6.074	3.851	2.537	2.900	1.141	0.554	0.357	0.378	0.521	1.646	3.888	4.222	**2.331**
(m^3s^{-1}):	Peak	44.63	22.14	15.20	16.21	10.03	1.58	1.17	6.90	8.22	31.50	39.64	37.27	**44.63**
Runoff (mm)		120	69	50	56	23	11	7	7	10	33	75	84	**544**
Rainfall (mm)		134	85	87	63	80	26	44	87	90	119	85	125	**1025**

Monthly and yearly statistics for previous record (Oct 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.482	3.167	2.464	1.567	1.109	0.757	0.798	0.745	0.807	1.403	2.203	3.466	**1.826**
flows	Low	0.743	0.910	0.589	0.526	0.313	0.218	0.150	0.130	0.218	0.190	0.407	1.034	**1.153**
(m^3s^{-1})	High	5.752	6.961	5.263	3.352	3.554	2.203	4.081	2.449	4.873	4.380	4.883	6.158	**2.427**
Peak flow (m^3s^{-1})		47.28	53.57	43.49	27.19	95.48	35.46	83.00	48.42	69.42	61.06	74.62	61.06	**95.48**
Runoff (mm)		69	57	49	30	22	15	16	15	15	28	42	69	**426**
Rainfall (mm)		87	65	72	54	62	68	70	72	76	78	84	95	**883**

Factors affecting runoff: N
Station type: C VA

1994 runoff is 128% of previous mean
rainfall 116%

053004 Chew at Compton Dando 1994

Measuring authority: NRA-SW
First year: 1958
Grid reference: 31 (ST) 648 647
Level stn. (m OD): 16.80
Catchment area (sq km): 129.5
Max alt. (m OD): 305

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.335	2.939	2.313	3.275	1.173	0.689	0.539	0.525	0.610	0.979	1.992	4.316	**1.969**
(m^3s^{-1}):	Peak	20.35	7.17	14.39	20.33	3.08	1.09	0.83	0.84	1.12	15.68	9.95	41.85	**41.85**
Runoff (mm)		90	55	48	66	24	14	11	11	12	20	40	89	**480**
Rainfall (mm)		151	91	111	87	85	28	47	89	103	134	87	214	**1227**

Monthly and yearly statistics for previous record (Mar 1958 to Dec 1993—incomplete or missing months total 1.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.897	1.687	1.363	0.995	0.803	0.589	0.461	0.455	0.562	0.809	1.229	1.767	**1.049**
flows	Low	0.444	0.557	0.410	0.469	0.333	0.287	0.243	0.195	0.232	0.300	0.264	0.622	**0.540**
(m^3s^{-1})	High	3.935	4.166	4.210	2.185	2.493	1.211	0.811	1.245	2.135	3.251	3.898	5.017	**1.766**
Peak flow (m^3s^{-1})		39.43	48.99	50.00	14.19	67.50	13.00	6.23	6.09	59.26	49.56	58.85	63.78	**67.50**
Runoff (mm)		39	32	28	20	17	12	10	9	11	17	25	37	**256**
Rainfall (mm)		102	69	79	62	67	70	71	83	90	93	102	114	**1002**

Factors affecting runoff: S P
Station type: FL

1994 runoff is 188% of previous mean
rainfall 122%

053006 Frome(Bristol) at Frenchay 1994

Measuring authority: NRA-SW
First year: 1961
Grid reference: 31 (ST) 637 772
Level stn. (m OD): 20.00
Catchment area (sq km): 148.9
Max alt. (m OD): 193

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.468	3.303	1.734	2.416	1.363	0.546	0.323	0.446	0.686	1.035	2.997	5.447	**2.143**
(m^3s^{-1}):	Peak	22.09	11.96	11.88	14.62	10.21	2.07	2.95	5.42	4.77	13.13	8.40	19.27	**22.09**
Runoff (mm)		98	54	31	42	25	10	6	8	12	19	52	98	**454**
Rainfall (mm)		108	81	67	53	94	28	39	73	90	93	81	144	**951**

Monthly and yearly statistics for previous record (Sep 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.401	2.768	2.260	1.375	1.086	0.758	0.589	0.526	0.688	1.226	2.213	3.102	**1.662**
flows	Low	0.670	0.613	0.468	0.476	0.228	0.220	0.122	0.139	0.208	0.162	0.211	0.808	**0.804**
(m^3s^{-1})	High	6.266	6.040	5.762	3.434	5.028	2.973	3.516	2.398	5.113	4.691	5.559	9.807	**2.255**
Peak flow (m^3s^{-1})		35.06	41.09	33.84	29.63	49.00	29.01	70.79	12.75	29.73	42.93	39.90	66.55	**70.79**
Runoff (mm)		61	45	41	24	20	13	11	9	12	22	39	56	**352**
Rainfall (mm)		78	53	63	50	60	63	56	69	72	72	77	85	**798**

Factors affecting runoff: N
Station type: FL

1994 runoff is 129% of previous mean
rainfall 119%

054012 Tern at Walcot 1994

Measuring authority: NRA-ST
First year: 1960

Grid reference: 33 (SJ) 592 123
Level stn. (m OD): 44.60

Catchment area (sq km): 852.0
Max alt. (m OD): 366

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	16.310	10.790	9.065	8.864	4.801	3.232	2.891	2.800	5.259	3.965	7.463	13.820	**7.424**
(m^3s^{-1}):	Peak	34.53	25.60	19.33	20.42	7.53	5.09	7.02	4.97	20.50	6.03	16.48	38.80	**38.80**
Runoff (mm)		51	31	29	27	15	10	9	9	16	12	23	43	**275**
Rainfall (mm)		71	56	64	47	38	20	45	46	108	56	58	95	**704**

Monthly and yearly statistics for previous record (Jan 1961 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	11.060	9.894	8.656	7.151	6.114	4.486	3.701	3.814	3.857	5.147	7.378	10.540	**6.805**
flows	Low	4.018	3.479	4.069	3.557	2.904	1.026	0.926	1.171	1.680	2.227	2.538	3.346	**3.757**
(m^3s^{-1})	High	20.320	22.280	17.810	12.320	22.390	9.069	14.060	6.655	9.490	11.590	15.190	24.950	**10.266**
Peak flow (m^3s^{-1})		60.05	45.98	40.53	40.73	40.35	27.00	48.71	38.53	32.17	37.59	44.54	55.82	**60.05**
Runoff (mm)		35	28	27	22	19	14	12	12	12	16	22	33	**252**
Rainfall (mm)		61	44	53	50	61	57	55	63	61	59	69	68	**701**

Factors affecting runoff: GEI
Station type: FV

1994 runoff is 109% of previous mean
rainfall 100%

054019 Avon at Stareton 1994

Measuring authority: NRA-ST
First year: 1962

Grid reference: 42 (SP) 333 715
Level stn. (m OD): 54.70

Catchment area (sq km): 347.0
Max alt. (m OD): 214

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.711	6.364	3.454	4.498	1.449	0.776	0.570	0.582	1.936	1.263	4.200	4.476	**3.083**
(m^3s^{-1}):	Peak	32.68	25.76	7.52	16.63	3.31	1.73	1.01	1.39	11.32	9.65	20.79	13.39	**32.68**
Runoff (mm)		60	44	27	34	11	6	4	4	14	10	31	35	**280**
Rainfall (mm)		71	59	63	50	58	18	35	47	117	60	56	69	**703**

Monthly and yearly statistics for previous record (Oct 1962 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.499	4.310	3.986	2.774	1.969	1.382	1.026	1.028	1.165	1.724	2.514	4.073	**2.531**
flows	Low	0.798	0.777	0.545	0.485	0.474	0.368	0.247	0.356	0.414	0.507	0.549	0.667	**1.094**
(m^3s^{-1})	High	9.679	12.890	8.577	6.356	6.149	4.862	5.379	3.332	6.469	5.361	7.450	10.400	**3.588**
Peak flow (m^3s^{-1})		55.83	59.60	55.89	42.67	39.05	42.89	71.36	26.08	54.17	32.89	40.38	56.28	**71.36**
Runoff (mm)		35	30	31	21	15	10	8	8	9	13	19	31	**230**
Rainfall (mm)		55	43	53	49	55	60	58	66	57	55	58	61	**670**

Factors affecting runoff: S EI
Station type: C VA

1994 runoff is 122% of previous mean
rainfall 105%

054020 Perry at Yeaton 1994

Measuring authority: NRA-ST
First year: 1963

Grid reference: 33 (SJ) 434 192
Level stn. (m OD): 61.30

Catchment area (sq km): 180.8
Max alt. (m OD): 356

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.778	3.604	2.383	2.406	1.061	0.702	0.511	0.433	0.615	0.722	1.655	3.346	**1.842**
(m^3s^{-1}):	Peak	10.61	9.39	5.17	7.72	1.54	0.96	0.94	0.57	1.11	1.42	5.17	9.45	**10.61**
Runoff (mm)		71	48	35	34	16	10	8	6	9	11	24	50	**321**
Rainfall (mm)		85	74	65	55	40	20	35	44	106	64	66	117	**771**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.838	2.629	2.277	1.694	1.327	0.950	0.695	0.678	0.689	1.088	1.717	2.657	**1.599**
flows	Low	0.901	0.669	0.796	0.728	0.520	0.379	0.271	0.208	0.350	0.412	0.427	0.725	**0.809**
(m^3s^{-1})	High	4.870	6.507	4.265	3.041	4.232	2.046	2.735	1.416	1.785	3.308	3.103	6.244	**2.335**
Peak flow (m^3s^{-1})		14.26	17.66	12.94	10.83	10.41	8.49	7.87	5.49	7.32	7.52	10.02	13.73	**17.66**
Runoff (mm)		42	35	34	24	20	14	10	10	10	16	25	39	**279**
Rainfall (mm)		69	53	60	49	63	58	57	62	64	66	78	80	**759**

Factors affecting runoff: GEI
Station type: C

1994 runoff is 115% of previous mean
rainfall 102%

054022 Severn at Plynlimon flume 1994

Measuring authority: IH
First year: 1953

Grid reference: 22 (SN) 853 872
Level stn. (m OD): 331.00

Catchment area (sq km): 8.7
Max alt. (m OD): 740

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.151	0.683	1.307	0.835	0.183	0.363	0.121	0.170	0.634	0.715	0.788	1.389	**0.695**
(m^3s^{-1}):	Peak	14.63	5.84	10.33	7.76	0.94	5.63	0.70	0.65	4.23	6.27	6.97	13.18	**14.63**
Runoff (mm)		354	190	403	249	56	108	37	52	189	220	235	428	**2521**
Rainfall (mm)		402	204	495	271	77	164	75	166	234	304	235	580	**3207**

Monthly and yearly statistics for previous record (Oct 1953 to Dec 1993—incomplete or missing months total 11.8 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.773	0.580	0.615	0.348	0.238	0.230	0.295	0.422	0.513	0.651	0.812	0.821	**0.525**
flows	Low	0.363	0.136	0.171	0.046	0.046	0.060	0.043	0.032	0.073	0.059	0.347	0.175	**0.317**
(m^3s^{-1})	High	1.567	1.249	1.566	0.878	0.818	0.638	0.754	0.935	1.092	1.464	1.420	1.695	**0.646**
Peak flow (m^3s^{-1})		14.50	17.00	16.79	11.64	9.86	10.66	8.84	32.22	15.38	18.86	17.77	17.11	**32.22**
Runoff (mm)		238	163	189	104	73	68	91	130	153	200	242	253	**1904**
Rainfall (mm)		289	185	214	135	126	134	151	189	218	245	280	290	**2456**

Factors affecting runoff: N
Station type: FL

1994 runoff is 132% of previous mean
rainfall 131%

Comment: 1994 monthly rainfall totals derived from data supplied by Met. Office.

054024 Worfe at Burcote 1994

Measuring authority: NRA-ST
First year: 1969
Grid reference: 32 (SO) 747 953
Level stn. (m OD): 33.20
Catchment area (sq km): 258.0
Max alt. (m OD): 120

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	2.748	2.231	1.692	1.676	0.945	0.591	0.387	0.494	1.221	0.851	1.491	1.995	**1.354**
(m^3s^{-1}): Peak	6.10	5.14	2.78	3.12	1.53	1.42	1.08	0.96	5.27	1.73	3.30	3.55	**6.10**
Runoff (mm)	29	21	18	17	10	6	4	5	12	9	15	21	**166**
Rainfall (mm)	73	60	61	46	37	31	50	52	129	52	56	87	**734**

Monthly and yearly statistics for previous record (Apr 1969 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	1.860	1.773	1.593	1.408	1.138	0.846	0.587	0.641	0.643	0.824	1.123	1.567	**1.164**
Low	0.617	0.593	0.712	0.548	0.426	0.256	0.101	0.094	0.322	0.422	0.499	0.508	**0.687**
(m^3s^{-1}) High	3.144	3.802	3.171	2.491	4.490	1.527	1.293	1.111	0.887	1.535	2.235	2.551	**1.519**
Peak flow (m^3s^{-1})	10.84	10.56	6.86	7.73	7.26	5.65	4.06	4.32	5.10	3.87	5.88	16.00	**16.00**
Runoff (mm)	19	17	17	14	12	9	6	7	6	9	11	16	**142**
Rainfall (mm)	66	45	55	51	57	57	51	64	57	58	65	65	**691**

Factors affecting runoff: PGEI
Station type: C

1994 runoff is 116% of previous mean
rainfall 106%

054034 Dowles Brook at Oak Cottage, Dowles 1994

Measuring authority: NRA-ST
First year: 1971
Grid reference: 32 (SO) 768 764
Level stn. (m OD): 24.20
Catchment area (sq km): 40.8
Max alt. (m OD): 230

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.176	1.214	0.379	0.567	0.144	0.069	0.041	0.036	0.213	0.133	0.626	1.091	**0.469**
(m^3s^{-1}): Peak	6.33	6.78	1.76	4.43	0.54	0.12	0.08	0.13	2.80	0.97	3.12	7.39	**7.39**
Runoff (mm)	77	72	25	36	9	4	3	2	14	9	40	72	**363**
Rainfall (mm)	85	88	50	48	45	19	40	53	136	56	69	105	**794**

Monthly and yearly statistics for previous record (Oct 1971 to Dec 1993—incomplete or missing months total 3.2 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.787	0.688	0.626	0.457	0.292	0.223	0.086	0.089	0.120	0.216	0.328	0.689	**0.382**
Low	0.097	0.160	0.108	0.116	0.073	0.033	0.017	0.019	0.020	0.036	0.046	0.072	**0.240**
(m^3s^{-1}) High	1.617	1.738	1.637	1.090	1.016	0.826	0.255	0.347	0.880	1.047	0.786	1.414	**0.508**
Peak flow (m^3s^{-1})	16.57	9.67	14.96	12.90	12.14	21.64	4.73	6.39	19.35	5.09	8.61	18.90	**21.64**
Runoff (mm)	51	43	42	28	19	14	6	5	8	15	20	45	**296**
Rainfall (mm)	71	51	62	51	54	60	56	60	64	64	58	77	**728**

Factors affecting runoff: N
Station type: FVVA

1994 runoff is 123% of previous mean
rainfall 109%

Comment: Reprocessing of post-1984 flow data has resulted in changes to previously published monthly average mean flows.

054038 Tanat at Llanyblodwel 1994

Measuring authority: NRA-ST
First year: 1973
Grid reference: 33 (SJ) 252 225
Level stn. (m OD): 77.00
Catchment area (sq km): 229.0
Max alt. (m OD): 827

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	16.840	12.600	10.390	10.900	1.979	1.343	0.607	0.412	3.135	3.639	11.290	17.340	**7.508**
(m^3s^{-1}): Peak	51.30	81.36	53.77	46.32	3.06	2.97	1.89	0.87	21.25	15.93	46.92	68.96	**81.36**
Runoff (mm)	197	133	122	123	23	15	7	5	35	43	128	203	**1034**
Rainfall (mm)	192	130	155	114	54	48	46	62	129	99	118	254	**1401**

Monthly and yearly statistics for previous record (Jun 1973 to Dec 1993—incomplete or missing months total 0.8 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	11.970	9.833	8.663	5.465	3.278	2.379	1.332	2.413	3.425	6.489	9.533	12.740	**6.448**
Low	5.037	3.477	1.406	1.392	0.867	0.699	0.348	0.190	0.520	1.701	2.895	5.738	**4.185**
(m^3s^{-1}) High	19.220	21.460	17.800	9.686	10.250	4.751	2.589	7.609	9.885	15.020	17.370	27.610	**7.510**
Peak flow (m^3s^{-1})	123.10	101.20	85.77	49.50	31.27	56.87	13.17	55.72	69.56	82.17	76.12	97.28	**123.10**
Runoff (mm)	140	105	101	62	38	27	16	28	39	76	108	149	**889**
Rainfall (mm)	135	96	109	71	74	71	64	91	105	118	132	158	**1224**

Factors affecting runoff: N EI
Station type: FV

1994 runoff is 116% of previous mean
rainfall 114%

055008 Wye at Cefn Brwyn 1994

Measuring authority: IH
First year: 1951
Grid reference: 22 (SN) 829 838
Level stn. (m OD): 341.00
Catchment area (sq km): 10.6
Max alt. (m OD): 740

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.475	0.828	1.630	0.989	0.231	0.476	0.145	0.233	0.830	0.986	0.985	1.876	**0.891**
(m^3s^{-1}): Peak	23.36	6.13	20.11	12.14	2.36	10.06	2.17	1.46	6.54	14.48	13.65	22.05	**23.36**
Runoff (mm)	374	190	414	243	59	117	37	59	204	250	242	476	**2665**
Rainfall (mm)	382	197	492	263	80	157	84	164	228	312	236	548	**3143**

Monthly and yearly statistics for previous record (Aug 1951 to Dec 1993—incomplete or missing months total 3.2 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.967	0.736	0.698	0.521	0.374	0.341	0.437	0.585	0.660	0.819	1.045	1.145	**0.694**
Low	0.492	0.137	0.206	0.064	0.054	0.074	0.053	0.036	0.050	0.092	0.376	0.198	**0.447**
(m^3s^{-1}) High	1.870	1.486	1.735	1.312	1.144	0.954	1.264	1.478	1.478	2.031	1.761	2.655	**0.994**
Peak flow (m^3s^{-1})	23.47	21.10	24.23	19.12	17.89	25.49	19.11	48.87	22.64	27.68	29.15	32.00	**48.87**
Runoff (mm)	246	170	177	128	95	84	111	149	162	208	257	291	**2077**
Rainfall (mm)	262	175	202	149	128	137	163	200	202	241	274	314	**2447**

Factors affecting runoff: N
Station type: CC

1994 runoff is 128% of previous mean
rainfall 128%

Comment: 1994 monthly rainfall totals derived from data supplied by Met. Office.

055013 Arrow at Titley Mill 1994

Measuring authority: NRA-WEL
First year: 1966

Grid reference: 32 (SO) 328 585
Level stn. (m OD): 129.00

Catchment area (sq km): 126.4
Max alt. (m OD): 542

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	6.133	4.551	2.738	3.451	1.482	0.947	0.360	0.285	0.780	1.339	3.794	5.209	**2.581**
(m^3s^{-1}): Peak	22.95	14.26	9.40	13.10	5.09	2.16	0.57	1.13	3.47	8.85	9.28	27.53	**27.53**
Runoff (mm)	130	87	58	71	31	19	8	7	16	28	78	110	**644**
Rainfall (mm)	145	116	84	69	84	30	47	73	130	100	89	176	**1143**

Monthly and yearly statistics for previous record (Oct 1966 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	4.755	3.953	3.393	2.232	1.627	1.082	0.691	0.649	0.884	1.943	3.071	4.407	**2.385**
Low	1.528	1.369	0.666	0.632	0.355	0.257	0.211	0.154	0.135	0.255	0.662	1.366	**1.309**
(m^3s^{-1}) High	9.004	8.763	8.933	5.028	5.001	2.559	3.842	2.219	2.644	6.916	6.625	8.464	**3.418**
Peak flow (m^3s^{-1})	101.10	42.40	57.85	37.95	32.49	13.09	30.68	24.80	18.85	36.45	34.78	63.34	**101.10**
Runoff (mm)	101	76	72	46	34	22	15	14	18	41	63	93	**596**
Rainfall (mm)	112	80	84	61	70	66	58	77	88	96	99	113	**1004**

Factors affecting runoff: N
Station type: VA

1994 runoff is 108% of previous mean
rainfall 114%

Comment: July, August and September 1994 average flows have been estimated.

055014 Lugg at Byton 1994

Measuring authority: NRA-WEL
First year: 1966

Grid reference: 32 (SO) 364 647
Level stn. (m OD): 124.10

Catchment area (sq km): 203.3
Max alt. (m OD): 660

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	11.120	8.920	6.972	7.123	3.003	1.747	1.070	0.797	1.233	1.849	7.126	12.580	**5.276**
(m^3s^{-1}): Peak	24.83	17.72	14.55	16.21	3.93	2.87	1.45	1.08	3.53	10.11	18.10	28.51	**28.51**
Runoff (mm)	147	106	92	91	40	22	14	10	16	24	91	166	**819**
Rainfall (mm)	147	112	104	68	74	28	40	68	130	103	101	196	**1171**

Monthly and yearly statistics for previous record (Oct 1966 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	7.516	6.730	5.733	4.082	2.947	1.984	1.371	1.217	1.391	2.638	4.416	6.703	**3.883**
Low	2.604	2.597	1.504	1.626	1.054	0.772	0.557	0.414	0.420	0.657	1.219	2.443	**2.321**
(m^3s^{-1}) High	11.940	16.530	13.980	8.647	7.994	4.113	5.253	3.599	4.313	7.962	8.774	12.360	**4.954**
Peak flow (m^3s^{-1})	54.27	37.53	33.24	30.08	45.56	14.18	26.16	13.32	12.46	28.51	27.22	37.49	**54.27**
Runoff (mm)	99	81	76	52	39	25	18	16	18	35	56	88	**603**
Rainfall (mm)	116	82	87	66	74	66	59	77	87	94	99	115	**1022**

Factors affecting runoff: P
Station type: FVVA

1994 runoff is 136% of previous mean
rainfall 115%

055018 Frome at Yarkhill 1994

Measuring authority: NRA-WEL
First year: 1968

Grid reference: 32 (SO) 615 428
Level stn. (m OD): 55.40

Catchment area (sq km): 144.0
Max alt. (m OD): 244

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	2.925	2.769	1.120	1.283	0.831	0.438	0.256	0.203	0.401	0.440	1.371	3.136	**1.256**
(m^3s^{-1}): Peak	13.66	14.54	3.09	6.42	1.45	0.66	0.60	0.29	2.39	2.84	7.56	17.90	**17.90**
Runoff (mm)	54	47	21	23	15	8	5	4	7	8	25	58	**275**
Rainfall (mm)	76	78	49	47	63	16	37	56	132	71	62	114	**801**

Monthly and yearly statistics for previous record (Oct 1968 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	2.587	2.352	1.979	1.301	1.008	0.594	0.341	0.318	0.306	0.494	0.993	1.989	**1.184**
Low	0.214	0.389	0.509	0.359	0.274	0.146	0.091	0.063	0.096	0.142	0.119	0.210	**0.672**
(m^3s^{-1}) High	4.668	5.456	5.176	3.299	3.972	1.349	0.630	0.759	0.970	2.405	2.266	4.230	**1.628**
Peak flow (m^3s^{-1})	24.98	24.99	24.28	24.57	25.89	16.99	5.96	9.61	15.68	11.25	18.51	25.14	**25.89**
Runoff (mm)	48	40	37	23	19	11	6	6	6	9	18	37	**259**
Rainfall (mm)	75	50	59	47	57	57	49	64	60	61	64	72	**715**

Factors affecting runoff: E
Station type: VA

1994 runoff is 106% of previous mean
rainfall 112%

055023 Wye at Redbrook 1994

Measuring authority: NRA-WEL
First year: 1936

Grid reference: 32 (SO) 528 110
Level stn. (m OD): 9.20

Catchment area (sq km): 4010.0
Max alt. (m OD): 752

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	210.800	150.400	124.300	129.500	40.110	28.480	13.820	13.240	37.860	48.490	123.600	216.400	**94.456**
(m^3s^{-1}): Peak	450.50	359.80	340.70	410.70	107.50	50.15	23.86	20.13	173.90	301.70	304.10	751.10	**751.10**
Runoff (mm)	141	91	83	84	27	18	9	9	24	32	80	145	**743**
Rainfall (mm)	142	110	113	81	76	33	42	72	123	107	92	193	**1184**

Monthly and yearly statistics for previous record (Oct 1936 to Dec 1993—incomplete or missing months total 0.2 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	133.900	121.200	92.840	64.850	43.440	34.120	24.180	28.590	39.770	59.670	101.100	127.000	**72.329**
Low	25.050	30.760	21.840	17.930	12.340	10.970	7.426	5.180	7.271	9.582	31.730	46.890	**39.916**
(m^3s^{-1}) High	241.900	333.900	325.400	143.600	125.000	131.600	95.830	83.680	174.000	174.700	252.400	262.200	**113.382**
Peak flow (m^3s^{-1})	748.00	700.40	905.40	493.30	387.90	467.20	368.30	347.80	531.70	472.90	600.30	812.70	**905.40**
Runoff (mm)	89	74	62	42	29	22	16	19	26	40	65	85	**569**
Rainfall (mm)	112	78	76	64	72	63	68	83	86	96	111	115	**1024**

Factors affecting runoff: S P E
Station type: VA

1994 runoff is 131% of previous mean
rainfall 116%

056013 Yscir at Pontaryscir 1994

Measuring authority: NRA-WEL
First year: 1972

Grid reference: 32 (SO) 003 304
Level stn. (m OD): 161.20

Catchment area (sq km): 62.8
Max alt. (m OD): 474

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.686	3.154	3.801	3.382	1.019	0.564	0.316	0.228	0.870	1.800	3.555	5.688	**2.419**
(m^3s^{-1}):	Peak	23.88	12.27	20.71	23.38	9.78	1.56	0.90	0.35	4.48	18.81	14.94	41.84	**41.84**
Runoff (mm)		200	122	162	140	43	23	13	10	36	77	147	243	**1215**
Rainfall (mm)		203	137	192	124	86	51	64	70	121	148	127	288	**1611**

Monthly and yearly statistics for previous record (May 1972 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.557	2.669	2.532	1.477	0.968	0.723	0.526	0.775	1.111	2.093	3.032	3.672	**1.926**
flows	Low	1.146	0.920	0.403	0.431	0.269	0.214	0.150	0.104	0.251	0.214	0.941	1.540	**1.286**
(m^3s^{-1})	High	5.795	5.914	6.303	3.211	3.041	1.788	1.758	3.044	3.947	4.280	5.290	6.392	**2.465**
Peak flow (m^3s^{-1})		36.98	34.72	40.55	13.74	14.81	74.33	11.06	30.69	21.44	85.01	34.02	59.93	**85.01**
Runoff (mm)		152	104	108	61	41	30	22	33	46	89	125	157	**968**
Rainfall (mm)*		169	109	131	77	80	77	81	102	126	144	154	184	**1434**

*(1973-1993)

Factors affecting runoff: N
Station type: C

1994 runoff is 126% of previous mean
rainfall 112%

057008 Rhymney at Llanedeyrn 1994

Measuring authority: NRA-WEL
First year: 1973

Grid reference: 31 (ST) 225 821
Level stn. (m OD): 11.80

Catchment area (sq km): 178.7
Max alt. (m OD): 617

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	14.330	9.198	10.010	7.918	3.535	2.417	1.135	0.819	2.063	4.643	12.250	15.760	**6.998**
(m^3s^{-1}):	Peak	60.08	33.88	83.56	35.97	13.44	24.42	3.41	2.37	15.03	86.96	66.33	117.80	**117.80**
Runoff (mm)		215	125	150	115	53	35	17	12	30	70	178	236	**1235**
Rainfall (mm)		230	147	199	111	108	67	57	80	116	172	179	293	**1759**

Monthly and yearly statistics for previous record (Jan 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.789	8.108	6.930	4.299	2.800	1.985	1.578	2.436	3.404	5.726	7.826	9.549	**5.359**
flows	Low	3.313	2.732	1.342	1.204	0.611	0.873	0.602	0.453	0.570	0.748	2.355	3.218	**2.903**
(m^3s^{-1})	High	17.500	22.510	20.960	9.695	8.340	4.604	4.235	10.450	11.500	13.700	16.560	17.370	**7.153**
Peak flow (m^3s^{-1})		108.30	156.70	110.50	55.31	31.31	54.31	27.39	87.41	101.60	118.50	128.30	147.30	**156.70**
Runoff (mm)		147	111	104	62	42	29	24	37	49	86	114	143	**946**
Rainfall (mm)		167	115	125	76	75	74	77	103	132	148	150	172	**1414**

Factors affecting runoff: S PGE
Station type: FVVA

1994 runoff is 130% of previous mean
rainfall 124%

058009 Ewenny at Keepers Lodge 1994

Measuring authority: NRA-WEL
First year: 1971

Grid reference: 21 (SS) 920 782
Level stn. (m OD): 8.30

Catchment area (sq km): 62.5
Max alt. (m OD): 300

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.948	3.412	5.516	3.918	1.372	0.867	0.599	0.539	0.772	2.937	3.551	4.983	**2.870**
(m^3s^{-1}):	Peak	50.72	16.89	37.63	56.59	11.18	9.13	3.08	3.17	6.33	73.68	35.06	54.65	**73.68**
Runoff (mm)		255	132	236	162	59	36	26	23	32	126	147	214	**1448**
Rainfall (mm)		221	130	226	120	86	72	74	108	99	185	158	256	**1735**

Monthly and yearly statistics for previous record (Nov 1971 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.931	2.494	2.283	1.529	1.089	0.919	0.862	1.030	1.265	2.036	2.731	2.976	**1.843**
flows	Low	1.268	1.224	0.804	0.654	0.500	0.431	0.302	0.220	0.458	0.409	1.082	1.323	**1.037**
(m^3s^{-1})	High	5.921	4.745	6.004	2.683	2.515	1.756	2.196	3.879	3.604	4.391	5.680	5.988	**2.344**
Peak flow (m^3s^{-1})		69.10	30.15	51.23	27.50	20.44	17.24	28.97	57.64	42.60	59.45	65.14	55.14	**69.10**
Runoff (mm)		126	97	98	63	47	38	37	44	52	87	113	128	**931**
Rainfall (mm)		145	99	113	73	76	88	84	110	129	141	146	147	**1351**

Factors affecting runoff: E
Station type: FVVA

1994 runoff is 156% of previous mean
rainfall 128%

060002 Cothi at Felin Mynachdy 1994

Measuring authority: NRA-WEL
First year: 1961

Grid reference: 22 (SN) 508 225
Level stn. (m OD): 16.10

Catchment area (sq km): 297.8
Max alt. (m OD): 484

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	21.600	16.560	18.100	16.080	3.710	2.942	2.577	3.885	7.373	8.426	17.410	32.040	**12.543**
(m^3s^{-1}):	Peak	100.30	75.66	96.10	80.80	8.39	9.92	9.23	36.04	25.00	58.56	57.18	190.10	**190.10**
Runoff (mm)		194	135	163	140	33	26	23	35	64	76	152	288	**1328**
Rainfall (mm)		228	155	229	150	61	76	117	109	130	153	139	342	**1889**

Monthly and yearly statistics for previous record (Oct 1961 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	18.810	14.250	12.670	8.736	6.408	4.467	3.492	6.350	7.394	13.910	18.080	20.480	**11.249**
flows	Low	2.990	3.708	2.821	1.444	0.835	0.824	0.418	0.363	1.500	1.610	7.211	5.748	**7.174**
(m^3s^{-1})	High	37.580	40.210	40.710	20.380	14.820	13.070	11.810	23.350	23.920	37.940	36.270	41.140	**14.950**
Peak flow (m^3s^{-1})		219.10	181.20	220.90	85.88	87.22	90.33	144.40	171.00	129.70	283.70	194.50	367.70	**367.70**
Runoff (mm)		169	117	114	76	58	39	31	57	64	125	157	184	**1192**
Rainfall (mm)		182	119	133	99	100	97	98	127	140	177	177	193	**1642**

Factors affecting runoff: N
Station type: VA

1994 runoff is 111% of previous mean
rainfall 115%

060010 Tywi at Nantgaredig 1994

Measuring authority: NRA-WEL
First year: 1959

Grid reference: 22 (SN) 485 206
Level stn. (m OD): 7.80

Catchment area (sq km): 1090.4
Max alt. (m OD): 792

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	78.470	54.300	65.970	58.090	11.090	8.390	5.848	8.134	20.620	28.500	58.200	92.990	**40.823**
(m^3s^{-1}):	Peak	199.90	137.10	203.00	202.80	23.47	38.30	20.53	55.05	62.88	157.20	143.90	281.60	**281.60**
Runoff (mm)		193	120	162	138	27	20	14	20	49	70	138	228	**1181**
Rainfall (mm)		229	141	232	146	63	77	92	96	124	168	137	329	**1834**

Monthly and yearly statistics for previous record (Oct 1958 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	65.690	48.900	42.540	31.920	22.250	15.160	12.610	20.600	25.250	45.760	61.540	68.010	**38.326**
flows	Low	9.473	12.210	9.657	6.201	4.507	3.736	2.752	2.699	1.523	8.708	23.910	19.470	**22.516**
(m^3s^{-1})	High	120.600	109.300	137.800	64.470	51.420	43.990	42.120	78.470	76.490	128.700	122.600	134.400	**54.099**
Peak flow (m^3s^{-1})		507.40	578.80	702.30	215.30	180.10	256.80	295.90	312.50	322.80	1200.00	461.10	526.70	**1200.00**
Runoff (mm)		161	109	104	76	55	36	31	51	60	112	146	167	**1109**
Rainfall (mm)		180	114	112	111	96	96	105	124	121	163	172	187	**1581**

Factors affecting runoff: RP
Station type: FVVA

1994 runoff is 106% of previous mean
rainfall 116%

063001 Ystwyth at Pont Llolwyn 1994

Measuring authority: NRA-WEL
First year: 1963

Grid reference: 22 (SN) 591 774
Level stn. (m OD): 12.00

Catchment area (sq km): 169.6
Max alt. (m OD): 611

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	13.510	8.048	15.060	10.110	1.626	1.882	1.084	0.427	4.799	7.458	7.867	15.250	**7.266**
(m^3s^{-1}):	Peak	87.18	24.45	64.88	61.57	9.62	18.25	6.71	2.03	19.80	79.62	43.82	101.40	**101.40**
Runoff (mm)		213	115	238	155	26	29	17	7	73	118	120	241	**1351**
Rainfall (mm)		213	118	255	145	56	73	73	97	150	181	126	298	**1785**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.430	6.865	6.280	4.424	3.083	2.566	2.665	3.456	4.297	7.182	9.430	11.020	**5.892**
flows	Low	2.268	2.283	2.180	0.961	0.577	0.625	0.422	0.181	0.882	0.558	3.757	2.219	**3.783**
(m^3s^{-1})	High	15.330	15.200	18.470	10.080	10.100	7.571	5.831	8.556	10.670	19.800	18.320	22.600	**7.775**
Peak flow (m^3s^{-1})		105.60	88.63	126.70	90.32	105.10	129.70	68.24	174.30	76.84	147.40	128.10	210.40	**210.40**
Runoff (mm)		149	99	99	68	49	39	42	55	66	113	144	174	**1096**
Rainfall (mm)		156	102	120	88	87	93	100	114	128	153	168	181	**1490**

Factors affecting runoff: N
Station type: VA

1994 runoff is 123% of previous mean
rainfall 120%

064001 Dyfi at Dyfi Bridge 1994

Measuring authority: NRA-WEL
First year: 1962

Grid reference: 23 (SH) 745 019
Level stn. (m OD): 5.90

Catchment area (sq km): 471.3
Max alt. (m OD): 907

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	49.710	32.440	55.450	36.960	6.633	10.130	3.840	4.704	26.090	24.020	41.660	67.110	**29.888**
(m^3s^{-1}):	Peak	327.30	153.50	303.60	245.50	38.55	104.30	28.74	18.88	127.00	147.70	311.30	371.90	**371.90**
Runoff (mm)		283	167	315	203	38	56	22	27	143	137	229	381	**2000**
Rainfall (mm)		292	162	331	192	58	113	63	129	191	193	187	406	**2317**

Monthly and yearly statistics for previous record (Oct 1962 to Dec 1993—incomplete or missing months total 4.6 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	34.070	25.390	27.540	16.870	11.440	9.577	8.630	13.770	16.860	27.750	36.330	42.070	**22.530**
flows	Low	6.245	5.174	5.340	2.626	1.295	1.618	0.822	0.663	5.966	9.697	14.530	7.501	**14.412**
(m^3s^{-1})	High	68.810	55.560	75.790	42.490	31.380	21.770	18.780	40.440	36.260	76.960	70.470	88.280	**26.520**
Peak flow (m^3s^{-1})		350.20	342.20	360.70	288.10	337.20	402.10	162.00	210.00	329.80	344.00	375.50	580.50	**580.50**
Runoff (mm)		194	131	156	93	65	53	49	78	93	158	200	239	**1508**
Rainfall (mm)		204	133	164	109	103	108	111	144	163	190	212	244	**1885**

Factors affecting runoff: N
Station type: VA

1994 runoff is 133% of previous mean
rainfall 123%

064002 Dysynni at Pont-y-Garth 1994

Measuring authority: NRA-WEL
First year: 1966

Grid reference: 23 (SH) 632 066
Level stn. (m OD): 2.30

Catchment area (sq km): 75.1
Max alt. (m OD): 892

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.659	4.247	6.417	6.401	1.488	2.098	1.244	1.852	5.249	5.858	7.598	10.760	**4.907**
(m^3s^{-1}):	Peak	24.69	26.12	25.80	29.88	5.18	25.37	4.74	7.08	28.64	40.11	56.52	60.56	**60.56**
Runoff (mm)		202	137	229	221	53	72	44	66	181	209	262	384	**2060**
Rainfall (mm)		262	167	313	181	56	141	96	161	205	237	210	404	**2433**

Monthly and yearly statistics for previous record (Jan 1966 to Dec 1993—incomplete or missing months total 3.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	6.249	4.809	4.982	3.584	2.506	2.431	2.676	3.685	4.063	6.159	7.686	7.818	**4.723**
flows	Low	3.371	1.548	0.986	0.457	0.298	0.427	0.278	0.289	1.926	2.231	3.011	3.782	**3.523**
(m^3s^{-1})	High	11.830	10.330	14.780	7.209	7.602	5.921	5.158	8.900	8.282	12.350	15.460	13.070	**7.137**
Peak flow (m^3s^{-1})		61.40	41.34	98.71	48.57	76.32	48.42	53.35	56.75	70.14	107.70	121.30	84.70	**121.30**
Runoff (mm)		223	156	178	124	89	84	95	131	140	220	265	279	**1984**
Rainfall (mm)		220	148	186	126	121	139	142	172	188	236	243	254	**2175**

Factors affecting runoff: N
Station type: VA

1994 runoff is 104% of previous mean
rainfall 112%

Comment: The overall water balance for this catchment is under review.

065005 Erch at Pencaenewydd 1994

Measuring authority: NRA-WEL
First year: 1973
Grid reference: 23 (SH) 400 404
Level stn. (m OD): 56.10
Catchment area (sq km): 18.1
Max alt. (m OD): 564

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	0.932	0.885	1.141	0.977	0.350	0.162	0.179	0.180	0.317	0.590	0.964	1.204	**0.655**
(m^3s^{-1}):	Peak	4.38	5.80	11.79	4.82	1.17	0.62	0.99	1.47	1.35	5.22	7.60	9.24	**11.79**
Runoff (mm)		138	118	169	140	52	23	27	27	45	87	138	178	**1142**
Rainfall (mm)		146	144	207	150	47	49	96	92	145	138	144	236	**1594**

Monthly and yearly statistics for previous record (Jan 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	0.966	0.779	0.755	0.487	0.331	0.237	0.188	0.303	0.394	0.724	0.982	1.065	**0.600**
flows	Low	0.372	0.366	0.311	0.177	0.120	0.089	0.081	0.062	0.103	0.236	0.264	0.366	**0.430**
(m^3s^{-1})	High	1.673	1.869	1.804	0.892	0.728	0.647	0.427	1.113	0.919	1.736	1.816	1.764	**0.739**
Peak flow (m^3s^{-1})		10.41	15.45	19.78	11.00	4.68	6.99	5.53	9.22	7.76	25.01	16.91	15.50	**25.01**
Runoff (mm)		143	105	112	70	49	34	28	45	56	107	141	158	**1047**
Rainfall (mm)		145	99	128	78	78	75	81	118	122	156	162	165	**1407**

Factors affecting runoff: N
Station type: C

1994 runoff is 109% of previous mean
rainfall 113%

066006 Elwy at Pont-y-Gwyddel 1994

Measuring authority: NRA-WEL
First year: 1973
Grid reference: 23 (SH) 952 718
Level stn. (m OD): 87.90
Catchment area (sq km): 194.0
Max alt. (m OD): 518

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.776	5.656	8.140	6.772	1.194	0.600	0.382	0.415	2.123	2.906	7.643	14.380	**4.831**
(m^3s^{-1}):	Peak	19.16	22.48	56.56	32.68	5.93	1.35	1.09	2.54	20.03	13.74	57.08	61.98	**61.98**
Runoff (mm)		107	71	112	90	16	8	5	6	28	40	102	199	**785**
Rainfall (mm)		125	88	169	99	47	36	56	92	129	90	112	250	**1293**

Monthly and yearly statistics for previous record (Dec 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	7.997	6.010	5.168	3.020	1.744	1.357	0.669	1.168	2.328	4.852	7.075	8.224	**4.128**
flows	Low	3.115	2.180	0.816	0.823	0.479	0.359	0.278	0.242	0.249	1.360	2.263	4.085	**2.908**
(m^3s^{-1})	High	13.060	15.070	11.950	6.939	5.918	3.527	1.402	4.351	7.450	11.530	11.850	15.560	**5.094**
Peak flow (m^3s^{-1})		100.40	58.00	76.59	50.76	21.66	25.38	27.05	38.13	58.57	143.00	101.60	75.42	**143.00**
Runoff (mm)		110	76	71	40	24	18	9	16	31	67	95	114	**671**
Rainfall (mm)		131	87	100	64	73	75	65	89	113	130	137	146	**1210**

Factors affecting runoff: SRP
Station type: VA

1994 runoff is 117% of previous mean
rainfall 107%

067008 Alyn at Pont-y-Capel 1994

Measuring authority: NRA-WEL
First year: 1965
Grid reference: 33 (SJ) 336 541
Level stn. (m OD): 37.30
Catchment area (sq km): 227.1
Max alt. (m OD): 562

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.275	3.720	2.884	4.143	1.214	0.741	0.583	0.504	0.790	0.921	3.578	6.004	**2.522**
(m^3s^{-1}):	Peak	17.10	12.97	16.98	15.96	4.14	0.99	1.52	1.03	3.10	2.62	17.92	24.25	**24.25**
Runoff (mm)		62	40	34	47	14	8	7	6	9	11	41	71	**350**
Rainfall (mm)		89	68	88	74	54	23	47	48	121	72	99	153	**936**

Monthly and yearly statistics for previous record (Jun 1965 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.170	3.660	3.106	2.445	1.681	1.183	0.842	0.860	0.980	1.904	3.000	4.300	**2.339**
flows	Low	1.328	1.234	0.766	1.023	0.677	0.438	0.331	0.287	0.391	0.452	0.614	1.246	**1.266**
(m^3s^{-1})	High	7.219	9.085	8.027	6.474	5.657	2.873	2.098	2.456	3.906	6.896	6.168	9.481	**3.027**
Peak flow (m^3s^{-1})		27.53	28.52	26.11	25.28	26.86	18.34	23.23	20.81	59.11	26.46	28.21	35.92	**59.11**
Runoff (mm)		49	39	37	28	20	14	10	10	11	22	34	51	**325**
Rainfall (mm)		84	63	73	61	70	66	60	72	80	88	102	98	**917**

Factors affecting runoff: S EI
Station type: CC

1994 runoff is 108% of previous mean
rainfall 102%

067018 Dee at New Inn 1994

Measuring authority: NRA-WEL
First year: 1969
Grid reference: 23 (SH) 874 308
Level stn. (m OD): 163.50
Catchment area (sq km): 53.9
Max alt. (m OD): 750

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	6.050	3.931	6.425	4.051	0.816	1.351	0.484	1.021	2.619	3.188	4.548	8.993	**3.626**
(m^3s^{-1}):	Peak	75.46	35.18	53.89	51.95	11.86	40.87	4.86	11.86	26.06	21.36	77.63	73.69	**77.63**
Runoff (mm)		301	176	319	195	41	65	24	51	126	158	219	447	**2121**
Rainfall (mm)		300	173	333	185	57	113	66	144	187	181	201	424	**2364**

Monthly and yearly statistics for previous record (Jul 1969 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.750	3.560	3.540	2.243	1.385	1.225	1.325	1.877	2.683	3.832	4.964	5.141	**3.043**
flows	Low	2.098	0.664	0.715	0.378	0.160	0.297	0.136	0.152	0.407	0.583	1.432	1.826	**2.134**
(m^3s^{-1})	High	9.552	7.706	8.472	5.638	4.062	3.569	4.147	6.044	7.556	7.107	8.037	10.330	**4.206**
Peak flow (m^3s^{-1})		76.49	77.34	69.24	67.16	74.71	52.84	44.93	61.42	85.10	96.25	95.85	93.11	**96.25**
Runoff (mm)		236	161	176	108	69	59	66	93	129	190	239	255	**1781**
Rainfall (mm)		221	148	172	118	102	109	108	141	155	207	221	239	**1941**

Factors affecting runoff: N
Station type: VA

1994 runoff is 119% of previous mean
rainfall 122%

068004 Wistaston Brook at Marshfield Bridge 1994

Measuring authority: NRA-NW
First year: 1957
Grid reference: 33 (SJ) 674 552
Level stn. (m OD): 30.10
Catchment area (sq km): 92.7
Max alt. (m OD): 221

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.096	1.017	1.101	1.084	0.419	0.305	0.274	0.264	0.520	0.567	0.898	1.895	**0.871**
(m^3s^{-1}):	Peak	8.33	4.24	4.83	5.39	1.02	1.00	9.02	1.72	4.34	2.46	2.70	16.13	**16.13**
Runoff (mm)		61	27	32	30	12	9	8	8	15	16	25	55	**296**
Rainfall (mm)		88	48	84	51	29	21	61	40	112	74	57	117	**782**

Monthly and yearly statistics for previous record (Oct 1957 to Dec 1993—incomplete or missing months total 5.5 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.617	1.399	1.083	1.015	0.790	0.683	0.610	0.630	0.640	0.872	1.210	1.429	**0.996**
flows	Low	0.538	0.510	0.400	0.462	0.317	0.331	0.235	0.194	0.221	0.277	0.487	0.650	**0.518**
(m^3s^{-1})	High	3.143	3.679	2.131	1.901	3.381	1.410	2.419	1.578	1.766	1.902	2.555	3.108	**1.681**
Peak flow (m^3s^{-1})		16.21	13.14	13.31	12.48	15.06	11.63	13.02	21.45	10.73	12.95	13.25	14.47	**21.45**
Runoff (mm)		47	37	31	28	23	19	18	18	18	25	34	41	**339**
Rainfall (mm)		65	44	50	54	60	62	60	68	67	69	72	68	**739**

Factors affecting runoff: PGEI
Station type: VA

1994 runoff is 87% of previous mean
rainfall 106%

069006 Bollin at Dunham Massey 1994

Measuring authority: NRA-NW
First year: 1955
Grid reference: 33 (SJ) 727 875
Level stn. (m OD): 12.80
Catchment area (sq km): 256.0
Max alt. (m OD): 483

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	9.754	5.070	7.408	7.800	2.184	2.001	2.388	1.941	3.842	7.304	8.809	9.185	**5.645**
(m^3s^{-1}):	Peak	31.71	16.27	24.83	26.90	4.70	6.77	16.42	8.67	32.39	38.42	33.93	28.37	**38.42**
Runoff (mm)		102	48	78	79	23	20	25	20	39	76	89	96	**695**
Rainfall (mm)		100	49	106	81	24	41	70	50	124	131	85	119	**980**

Monthly and yearly statistics for previous record (Oct 1955 to Dec 1993—incomplete or missing months total 1.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	6.414	5.240	4.524	3.644	2.841	2.543	2.415	2.932	3.053	4.096	5.401	6.618	**4.140**
flows	Low	1.639	1.686	1.694	1.742	1.286	0.707	0.875	0.464	0.651	1.300	1.804	2.296	**2.728**
(m^3s^{-1})	High	10.960	12.880	11.470	8.732	5.781	9.203	5.626	11.410	8.963	11.340	9.425	14.510	**6.307**
Peak flow (m^3s^{-1})		43.95	39.29	36.91	60.43	63.02	42.37	41.50	44.04	35.05	41.18	44.35	46.33	**63.02**
Runoff (mm)		67	50	47	37	30	26	25	31	31	43	55	69	**510**
Rainfall (mm)		79	53	63	56	62	71	75	87	80	83	83	89	**881**

Factors affecting runoff: S PGEI
Station type: VA

1994 runoff is 136% of previous mean
rainfall 111%

069007 Mersey at Ashton Weir 1994

Measuring authority: NRA-NW
First year: 1958
Grid reference: 33 (SJ) 772 936
Level stn. (m OD): 14.90
Catchment area (sq km): 660.0
Max alt. (m OD): 636

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	25.020	11.490	16.930	16.850	5.052	4.443	4.149	3.530	7.250	11.260	21.560	20.130	**12.310**
(m^3s^{-1}):	Peak	116.00	33.57	72.79	84.51	8.61	15.36	31.05	10.09	46.38	47.29	193.40	89.73	**193.40**
Runoff (mm)		102	42	69	66	21	17	17	14	28	46	85	82	**588**
Rainfall (mm)		147	64	136	104	35	64	70	59	131	137	123	148	**1218**

Monthly and yearly statistics for previous record (Jan 1981 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	18.730	11.550	14.450	9.978	5.901	6.476	5.028	6.424	7.294	10.920	14.180	20.300	**10.947**
flows	Low	8.297	6.048	3.886	4.698	3.479	3.847	2.447	2.760	2.574	4.403	5.757	8.686	**8.438**
(m^3s^{-1})	High	29.220	23.100	36.210	17.190	11.420	18.090	9.211	12.560	12.550	25.500	25.190	36.810	**15.876**
Peak flow (m^3s^{-1})		341.80	125.00	176.70	113.00	56.25	157.50	49.21	216.70	108.10	202.50	303.70	563.40	**563.40**
Runoff (mm)		76	43	59	39	24	25	20	26	29	44	56	82	**524**
Rainfall (mm)		115	61	103	76	61	84	73	99	91	119	114	130	**1126**

Factors affecting runoff: S PGEI
Station type: CB

1994 runoff is 112% of previous mean
rainfall 108%

070004 Yarrow at Croston Mill 1994

Measuring authority: NRA-NW
First year: 1976
Grid reference: 34 (SD) 498 180
Level stn. (m OD): 6.90
Catchment area (sq km): 74.4
Max alt. (m OD): 456

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	4.716	1.610	2.586	2.215	0.757	0.699	0.683	0.637	1.057	2.569	2.706	3.866	**2.015**
(m^3s^{-1}):	Peak	30.63	7.89	18.05	16.40	2.83	4.75	4.42	3.42	6.03	21.06	19.51	15.56	**30.63**
Runoff (mm)		170	52	93	77	27	24	25	23	37	92	94	139	**854**
Rainfall (mm)		130	59	116	80	29	49	72	64	101	147	100	163	**1110**

Monthly and yearly statistics for previous record (Jan 1976 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	3.171	2.122	2.397	1.360	1.031	0.930	0.814	1.151	1.162	2.368	2.669	3.356	**1.879**
flows	Low	1.491	0.846	0.643	0.586	0.508	0.405	0.494	0.379	0.536	0.854	1.181	1.756	**1.251**
(m^3s^{-1})	High	5.037	4.917	7.574	2.504	2.577	1.417	1.804	4.003	2.062	6.360	4.699	6.531	**2.830**
Peak flow (m^3s^{-1})		35.89	20.17	93.13	31.18	27.79	30.15	27.89	192.00	35.77	89.38	34.23	107.60	**192.00**
Runoff (mm)		114	70	86	47	37	32	29	41	40	85	93	121	**797**
Rainfall (mm)		100	59	92	59	62	80	64	93	90	119	104	116	**1038**

Factors affecting runoff: S PGEI
Station type: MIS

1994 runoff is 107% of previous mean
rainfall 107%

071001 Ribble at Samlesbury 1994

Measuring authority: NRA-NW
First year: 1960
Grid reference: 34 (SD) 589 304
Level stn. (m OD): 6.00
Catchment area (sq km): 1145.0
Max alt. (m OD): 680

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	77.080	31.090	58.450	39.030	6.789	8.207	6.045	12.090	32.790	41.810	63.280	84.160	**38.490**
(m^3s^{-1}):	Peak	486.40	137.80	381.60	296.40	26.39	66.68	29.45	80.99	167.20	294.40	425.60	444.90	**486.40**
Runoff (mm)		180	66	137	88	16	19	14	28	74	98	143	197	**1060**
Rainfall (mm)		196	77	184	108	28	73	69	104	134	146	155	234	**1508**

Monthly and yearly statistics for previous record (May 1960 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	51.560	37.290	34.640	26.100	17.680	14.020	16.240	23.530	28.550	40.520	51.370	57.230	**33.232**
flows	Low	10.610	9.565	6.994	5.601	4.048	5.031	2.638	2.958	4.263	5.716	15.300	15.190	**22.045**
(m^3s^{-1})	High	82.510	80.890	104.700	54.820	46.460	33.520	40.500	68.920	65.820	118.400	88.610	120.200	**45.022**
Peak flow (m^3s^{-1})		787.30	513.10	643.30	466.60	319.10	494.80	399.80	520.80	619.30	810.00	613.20	891.30	**891.30**
Runoff (mm)		121	79	81	59	41	32	38	55	65	95	116	134	**916**
Rainfall (mm)*		136	88	107	82	80	88	91	117	126	138	141	154	**1348**

*(1961-1993)

Factors affecting runoff: S E
Station type: MIS

1994 runoff is 116% of previous mean
rainfall 112%

Comment: Reprocessing of 1993 flow data has resulted in changes to previously published monthly average mean flows.

071004 Calder at Whalley Weir 1994

Measuring authority: NRA-NW
First year: 1963
Grid reference: 34 (SD) 729 360
Level stn. (m OD): 39.90
Catchment area (sq km): 316.0
Max alt. (m OD): 558

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	19.950	8.391	14.340	10.560	2.973	3.041	2.936	2.844	7.854	11.220	14.970	21.380	**10.062**
(m^3s^{-1}):	Peak	158.10	29.19	85.65	97.61	8.11	20.61	25.26	7.29	90.10	107.10	96.96	104.80	**158.10**
Runoff (mm)		169	64	122	87	25	25	25	24	64	95	123	181	**1004**
Rainfall (mm)		177	64	152	95	25	68	76	70	132	143	130	212	**1344**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993—incomplete or missing months total 2.6 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	13.200	9.491	9.093	6.649	4.955	4.247	3.894	5.759	6.980	10.470	12.620	14.100	**8.456**
flows	Low	5.766	3.320	2.773	2.272	2.053	1.888	1.773	1.564	1.921	2.397	4.488	4.886	**6.225**
(m^3s^{-1})	High	20.590	17.170	25.320	13.010	9.916	7.609	9.059	16.280	18.620	23.910	21.990	26.920	**11.485**
Peak flow (m^3s^{-1})		211.80	146.10	185.20	108.40	91.66	135.50	112.80	171.60	206.00	229.50	148.60	237.50	**237.50**
Runoff (mm)		112	73	77	55	42	35	33	49	57	89	103	120	**844**
Rainfall (mm)		125	79	101	73	74	85	81	107	113	128	128	135	**1229**

Factors affecting runoff: EI
Station type: FV

1994 runoff is 119% of previous mean
rainfall 109%

073005 Kent at Sedgwick 1994

Measuring authority: NRA-NW
First year: 1968
Grid reference: 34 (SD) 509 874
Level stn. (m OD): 18.90
Catchment area (sq km): 209.0
Max alt. (m OD): 817

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	17.500	10.760	22.430	13.280	3.961	4.141	2.446	7.142	7.991	6.252	19.350	20.610	**11.328**
(m^3s^{-1}):	Peak	63.36	94.30	130.30	68.93	26.83	57.15	9.67	43.62	35.90	36.81	154.80	124.30	**154.80**
Runoff (mm)		224	125	287	165	51	51	31	92	99	80	240	264	**1709**
Rainfall (mm)		250	115	309	164	50	134	84	181	126	143	224	312	**2092**

Monthly and yearly statistics for previous record (Nov 1968 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	13.150	10.360	10.030	6.744	4.236	3.609	3.879	5.553	7.632	10.410	13.440	13.780	**8.561**
flows	Low	5.998	3.094	3.348	2.038	1.222	0.872	0.658	0.740	1.753	1.396	3.749	5.466	**5.995**
(m^3s^{-1})	High	20.950	27.410	23.030	12.620	11.580	13.010	10.570	18.810	15.680	18.110	21.490	24.560	**10.316**
Peak flow (m^3s^{-1})		230.90	167.80	194.60	111.10	91.42	72.86	95.90	94.26	120.70	131.70	177.80	276.40	**276.40**
Runoff (mm)		168	121	128	84	54	45	50	71	95	133	167	177	**1293**
Rainfall (mm)		194	124	156	96	87	99	112	132	163	182	201	202	**1748**

Factors affecting runoff: N I
Station type: CBVA

1994 runoff is 132% of previous mean
rainfall 120%

074005 Ehen at Braystones 1994

Measuring authority: NRA-NW
First year: 1974
Grid reference: 35 (NY) 009 061
Level stn. (m OD): 10.10
Catchment area (sq km): 125.5
Max alt. (m OD): 899

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	7.906	5.239	7.942	6.252	2.794	2.402	3.941	3.809	5.305	4.459	8.868	11.620	**5.885**
(m^3s^{-1}):	Peak	39.05	43.02	27.70	52.61	14.58	12.64	41.23	26.60	47.80	21.66	49.28	73.04	**73.04**
Runoff (mm)		169	101	169	129	60	50	84	81	110	95	183	248	**1479**
Rainfall (mm)		217	111	217	153	53	127	150	135	118	139	163	272	**1855**

Monthly and yearly statistics for previous record (Jan 1974 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	7.584	5.825	5.894	3.716	2.248	1.953	2.295	3.988	4.981	7.520	7.711	7.929	**5.138**
flows	Low	2.220	1.856	2.225	0.993	0.771	0.779	0.789	0.661	1.644	1.799	3.121	2.448	**3.963**
(m^3s^{-1})	High	16.030	15.890	10.300	7.751	6.877	4.371	5.602	12.260	12.840	14.080	12.470	13.380	**6.328**
Peak flow (m^3s^{-1})		97.85	79.36	69.47	81.07	55.46	38.25	56.92	74.32	76.40	115.90	64.49	91.47	**115.90**
Runoff (mm)		162	113	126	77	48	40	49	85	103	160	159	169	**1292**
Rainfall (mm)		195	123	176	95	81	96	123	152	175	214	193	204	**1827**

Factors affecting runoff: S P
Station type: VA

1994 runoff is 114% of previous mean
rainfall 102%

075002 Derwent at Camerton 1994

Measuring authority: NRA-NW
First year: 1960

Grid reference: 35 (NY) 038 305
Level stn. (m OD): 16.70

Catchment area (sq km): 663.0
Max alt. (m OD): 950

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	42.730	30.430	51.500	34.560	12.570	9.719	8.570	10.580	18.270	16.390	45.550	57.500	**28.192**
(m^3s^{-1}):	Peak	90.39	121.70	97.84	128.90	33.38	26.51	20.30	23.05	51.05	63.39	130.30	146.50	**146.50**
Runoff (mm)		173	111	208	135	51	38	35	43	71	66	178	232	**1341**
Rainfall (mm)		234	111	263	152	61	125	91	136	118	149	197	339	**1976**

Monthly and yearly statistics for previous record (Sep 1960 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	38.950	29.470	27.000	20.570	12.760	9.861	11.130	17.790	24.360	34.310	40.390	41.780	**25.690**
flows	Low	9.587	4.837	7.466	4.359	2.753	2.041	2.503	2.384	2.885	2.755	14.210	14.740	**14.824**
(m^3s^{-1})	High	84.550	84.850	66.470	38.940	36.280	34.800	23.140	55.940	62.980	107.800	76.340	75.840	**34.235**
Peak flow (m^3s^{-1})		219.20	165.70	215.50	145.50	102.90	135.80	114.50	216.20	189.20	264.70	226.40	234.80	**264.70**
Runoff (mm)		157	108	109	80	52	39	45	72	95	139	158	169	**1223**
Rainfall (mm)*		185	117	150	101	99	105	116	148	174	199	191	196	**1781**

*(1961-1993)

Factors affecting runoff: S P
Station type: VA

1994 runoff is 110% of previous mean
rainfall 111%

076005 Eden at Temple Sowerby 1994

Measuring authority: NRA-NW
First year: 1964

Grid reference: 35 (NY) 605 283
Level stn. (m OD): 92.40

Catchment area (sq km): 616.4
Max alt. (m OD): 950

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	28.360	16.960	29.920	18.670	5.048	3.113	1.633	3.439	9.322	8.784	25.860	44.990	**16.360**
(m^3s^{-1}):	Peak	159.90	134.90	182.40	110.20	30.14	15.08	2.34	24.01	54.48	59.39	147.50	214.50	**214.50**
Runoff (mm)		123	67	130	78	22	13	7	15	39	38	109	196	**837**
Rainfall (mm)		162	72	181	103	26	55	38	105	102	85	134	254	**1317**

Monthly and yearly statistics for previous record (Nov 1964 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	24.480	19.340	16.620	10.880	7.359	5.093	5.182	7.507	10.690	15.770	21.150	25.880	**14.147**
flows	Low	9.871	5.430	4.469	2.923	2.196	1.553	1.176	1.613	1.593	1.975	4.240	9.403	**8.669**
(m^3s^{-1})	High	42.580	62.620	43.570	19.500	17.050	13.780	16.690	22.070	30.440	55.960	38.740	49.530	**18.912**
Peak flow (m^3s^{-1})		283.30	314.90	346.30	165.80	169.40	139.40	230.50	204.00	280.20	271.00	279.30	323.20	**346.30**
Runoff (mm)		106	77	72	46	32	21	23	33	45	69	89	112	**724**
Rainfall (mm)		127	86	98	64	70	68	77	93	104	115	124	134	**1160**

Factors affecting runoff: N
Station type: VA

1994 runoff is 116% of previous mean
rainfall 114%

076010 Petteril at Harraby Green 1994

Measuring authority: NRA-NW
First year: 1969

Grid reference: 35 (NY) 412 545
Level stn. (m OD): 20.10

Catchment area (sq km): 160.0
Max alt. (m OD): 366

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.009	2.575	4.587	2.914	0.758	0.469	0.323	0.431	0.753	0.988	3.714	6.504	**2.422**
(m^3s^{-1}):	Peak	17.83	18.04	23.08	11.86	1.60	0.99	1.27	1.69	3.26	6.60	19.28	22.58	**23.08**
Runoff (mm)		84	39	77	47	13	8	5	7	12	17	60	109	**477**
Rainfall (mm)		124	45	136	81	26	53	45	96	69	72	108	186	**1041**

Monthly and yearly statistics for previous record (Jan 1970 to Dec 1993—incomplete or missing months total 6.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.509	3.277	2.475	1.646	0.965	0.634	0.618	0.816	1.094	1.980	3.329	3.891	**2.099**
flows	Low	1.585	1.148	0.688	0.667	0.413	0.286	0.279	0.282	0.293	0.277	0.896	1.260	**1.065**
(m^3s^{-1})	High	7.125	9.440	4.355	3.007	3.898	1.469	1.944	2.699	4.975	5.669	7.146	6.439	**2.672**
Peak flow (m^3s^{-1})		38.27	38.88	47.18	15.71	18.64	9.80	22.39	24.04	42.15	29.77	47.03	44.86	**47.18**
Runoff (mm)		75	50	41	27	16	10	10	14	18	33	54	65	**414**
Rainfall (mm)		106	62	73	52	56	60	79	81	80	92	100	98	**939**

Factors affecting runoff: N
Station type: MIS

1994 runoff is 115% of previous mean
rainfall 111%

077003 Liddel Water at Rowanburnfoot 1994

Measuring authority: SRPB
First year: 1973

Grid reference: 35 (NY) 415 759
Level stn. (m OD): 27.10

Catchment area (sq km): 319.0
Max alt. (m OD): 608

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	18.450	13.970	20.700	11.210	3.441	2.863	3.037	8.680	4.153	7.013	20.900	28.080	**11.880**
(m^3s^{-1}):	Peak	101.70	307.70	209.90	74.99	24.51	30.49	47.71	284.40	26.35	86.62	223.20	241.10	**307.70**
Runoff (mm)		155	106	174	91	29	23	26	73	34	59	170	236	**1175**
Rainfall (mm)		191	100	202	120	24	90	83	129	61	112	181	290	**1583**

Monthly and yearly statistics for previous record (Oct 1973 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	17.090	12.620	13.080	7.280	5.098	4.069	4.832	6.126	8.554	11.780	14.430	16.900	**10.154**
flows	Low	8.344	4.126	5.391	1.538	1.118	1.083	0.879	0.869	1.757	4.057	3.421	4.819	**7.515**
(m^3s^{-1})	High	30.750	32.030	23.150	15.690	16.730	12.940	22.800	23.360	24.390	19.120	26.200	30.000	**13.059**
Peak flow (m^3s^{-1})		404.40	349.10	345.30	171.00	248.40	131.00	309.40	178.80	354.90	334.30	281.00	393.20	**404.40**
Runoff (mm)		144	97	110	59	43	33	41	51	70	99	117	142	**1004**
Rainfall (mm)		153	99	130	78	83	85	104	119	124	141	139	162	**1417**

Factors affecting runoff: N
Station type: VA

1994 runoff is 117% of previous mean
rainfall 112%

078003 Annan at Brydekirk 1994

Measuring authority: SRPB
First year: 1967
Grid reference: 35 (NY) 191 704
Level stn. (m OD): 10.00
Catchment area (sq km): 925.0
Max alt. (m OD): 821

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	59.450	40.030	62.550	37.150	13.100	6.747	10.460	19.330	17.590	15.320	63.950	75.830	**35.127**
(m^3s^{-1}):	Peak	140.50	212.70	207.10	147.30	56.72	35.34	57.27	191.00	53.64	93.68	279.70	321.40	**321.40**
Runoff (mm)		172	105	181	104	38	19	30	56	49	44	179	220	**1198**
Rainfall (mm)		187	104	194	114	28	82	107	133	70	91	177	236	**1523**

Monthly and yearly statistics for previous record (Oct 1967 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	47.610	36.410	33.770	22.550	15.450	11.230	10.960	17.890	24.330	35.930	41.540	45.900	**28.614**
flows	Low	17.820	12.820	8.402	6.124	3.519	2.937	1.944	2.007	3.362	3.592	11.490	19.530	**16.402**
(m^3s^{-1})	High	83.440	105.700	63.910	52.350	53.160	32.150	34.940	76.400	76.330	86.820	77.930	87.030	**36.425**
Peak flow (m^3s^{-1})		405.40	305.00	293.30	213.30	229.30	171.30	253.10	378.90	446.60	499.10	325.00	355.40	**499.10**
Runoff (mm)		138	96	98	63	45	31	32	52	68	104	116	133	**976**
Rainfall (mm)		148	98	122	75	84	81	94	112	129	144	134	146	**1367**

Factors affecting runoff: N
Station type: VA

1994 runoff is 123% of previous mean
rainfall 111%

078004 Kinnel Water at Redhall 1994

Measuring authority: SRPB
First year: 1963
Grid reference: 35 (NY) 077 868
Level stn. (m OD): 53.70
Catchment area (sq km): 76.1
Max alt. (m OD): 697

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	5.484	3.634	6.569	2.838	0.815	0.391	0.960	1.929	1.667	1.688	6.746	7.516	**3.356**
(m^3s^{-1}):	Peak	33.71	48.28	61.73	25.28	10.36	9.35	17.19	24.47	18.32	25.22	71.54	81.14	**81.14**
Runoff (mm)		193	116	231	97	29	13	34	68	57	59	230	265	**1391**
Rainfall (mm)		212	113	229	126	36	84	124	147	94	94	203	250	**1712**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993—incomplete or missing months total 1.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	4.382	3.165	3.008	1.843	1.491	1.026	1.014	1.715	2.610	3.545	3.937	4.305	**2.670**
flows	Low	1.296	0.590	0.552	0.251	0.122	0.112	0.048	0.049	0.099	0.207	0.740	1.081	**1.507**
(m^3s^{-1})	High	9.213	9.298	6.263	4.672	5.496	3.282	3.435	7.513	6.689	7.288	7.535	8.694	**3.517**
Peak flow (m^3s^{-1})		95.89	90.99	101.20	66.70	51.79	36.09	60.14	65.25	91.37	110.90	86.69	103.60	**110.90**
Runoff (mm)		154	102	106	63	52	35	36	60	89	125	134	152	**1107**
Rainfall (mm)		156	104	129	82	95	88	96	120	143	154	147	160	**1474**

Factors affecting runoff: N
Station type: VA

1994 runoff is 126% of previous mean
rainfall 116%

080001 Urr at Dalbeattie 1994

Measuring authority: SRPB
First year: 1963
Grid reference: 25 (NX) 822 610
Level stn. (m OD): 4.00
Catchment area (sq km): 199.0
Max alt. (m OD): 432

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	12.360	10.050	11.180	7.479	1.590	0.495	1.075	2.409	2.456	3.792	13.930	13.930	**6.708**
(m^3s^{-1}):	Peak	53.93	72.83	54.02	43.14	8.08	3.34	9.49	14.43	11.58	50.06	72.94	61.02	**72.94**
Runoff (mm)		166	122	150	97	21	6	14	32	32	51	181	187	**1063**
Rainfall (mm)		193	115	176	114	26	58	101	102	69	107	181	217	**1459**

Monthly and yearly statistics for previous record (Nov 1963 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.847	7.785	6.706	4.193	2.984	1.939	1.408	2.906	5.009	7.890	9.230	10.160	**5.831**
flows	Low	3.534	1.419	2.094	0.753	0.308	0.246	0.137	0.149	0.319	0.522	1.711	3.369	**3.109**
(m^3s^{-1})	High	19.080	19.340	12.570	11.550	10.880	6.833	5.081	13.310	17.160	19.400	19.420	19.200	**8.358**
Peak flow (m^3s^{-1})		133.70	100.10	95.03	69.39	69.92	59.18	68.42	104.60	129.40	162.20	129.70	164.30	**164.30**
Runoff (mm)		133	96	90	55	40	25	19	39	65	106	120	137	**925**
Rainfall (mm)		140	97	117	75	80	78	80	104	129	144	139	145	**1328**

Factors affecting runoff: N
Station type: VA

1994 runoff is 115% of previous mean
rainfall 110%

081002 Cree at Newton Stewart 1994

Measuring authority: SRPB
First year: 1963
Grid reference: 25 (NX) 412 653
Level stn. (m OD): 4.80
Catchment area (sq km): 368.0
Max alt. (m OD): 843

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	27.390	21.330	25.160	19.510	4.691	4.867	8.823	9.869	10.080	13.060	27.680	35.190	**17.290**
(m^3s^{-1}):	Peak	86.19	130.00	76.37	171.40	48.68	38.97	100.50	76.03	61.57	114.20	130.20	190.10	**190.10**
Runoff (mm)		199	140	183	137	34	34	64	72	71	95	195	256	**1482**
Rainfall (mm)		262	143	232	173	40	110	137	137	108	157	198	310	**2007**

Monthly and yearly statistics for previous record (Oct 1963 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	23.920	17.530	17.040	11.120	7.979	6.532	7.596	10.970	15.920	21.190	23.240	24.150	**15.599**
flows	Low	9.633	2.569	4.039	1.319	0.426	0.466	0.969	0.684	1.063	6.495	7.292	5.775	**9.965**
(m^3s^{-1})	High	45.820	42.490	33.060	25.030	22.960	15.620	19.710	36.030	43.320	36.720	43.910	48.050	**18.980**
Peak flow (m^3s^{-1})		272.50	253.10	347.20	207.10	345.10	195.10	223.10	230.90	312.70	318.00	199.10	322.30	**347.20**
Runoff (mm)		174	117	124	78	58	46	55	80	112	154	164	176	**1338**
Rainfall (mm)		197	128	161	104	98	100	112	140	167	195	199	196	**1797**

Factors affecting runoff: N
Station type: VA

1994 runoff is 111% of previous mean
rainfall 112%

081003 Luce at Airyhemming 1994

Measuring authority: SRPB
First year: 1967
Grid reference: 25 (NX) 180 599
Level stn. (m OD): 19.00
Catchment area (sq km): 171.0
Max alt. (m OD): 438

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	10.580	9.358	8.297	7.228	1.952	0.983	2.311	2.459	3.236	8.427	12.120	12.570	**6.612**
(m^3s^{-1}):	Peak	59.78	71.21	60.55	114.10	36.64	17.21	41.39	47.88	23.04	123.60	100.80	88.09	**123.60**
Runoff (mm)		166	132	130	110	31	15	36	39	49	132	184	197	**1219**
Rainfall (mm)		206	140	152	137	34	82	101	111	98	161	194	215	**1631**

Monthly and yearly statistics for previous record (Jan 1967 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	9.899	7.151	6.689	4.273	2.513	2.065	2.189	3.686	5.875	8.799	9.804	9.252	**6.013**
flows	Low	4.540	0.789	1.359	0.454	0.261	0.225	0.191	0.277	0.366	1.689	3.857	2.445	**3.691**
(m^3s^{-1})	High	15.600	14.810	12.860	11.400	7.597	5.360	6.445	14.290	17.670	16.750	15.940	17.090	**7.787**
Peak flow (m^3s^{-1})		177.10	146.10	216.70	197.60	159.30	190.30	156.80	283.60	192.40	231.80	191.00	204.00	**283.60**
Runoff (mm)		155	102	105	65	39	31	34	58	89	138	149	145	**1110**
Rainfall (mm)		162	103	126	87	77	85	97	119	144	164	164	153	**1481**

Factors affecting runoff: NS P
Station type: VA

1994 runoff is 110% of previous mean
rainfall 110%

082002 Doon at Auchendrane 1994

Measuring authority: CRPB
First year: 1974
Grid reference: 26 (NS) 338 160
Level stn. (m OD): 22.20
Catchment area (sq km): 323.8
Max alt. (m OD): 844

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	12.730	8.364	13.520	8.456	3.423	3.587	3.434	4.426	5.662	6.452	12.010	17.150	**8.276**
(m^3s^{-1}):	Peak	34.25	41.68	44.23	41.75	9.60	9.85	7.77	24.33	22.70	45.19	42.48	102.50	**102.50**
Runoff (mm)		105	62	112	68	28	29	28	37	45	53	96	142	**806**
Rainfall (mm)		254	118	264	142	28	102	95	133	96	125	192	314	**1863**

Monthly and yearly statistics for previous record (Jul 1974 to Dec 1993—incomplete or missing months total 0.1 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	10.880	8.153	8.632	5.468	4.225	3.696	4.064	5.263	7.371	9.662	10.500	11.010	**7.411**
flows	Low	5.203	3.685	4.270	3.157	2.390	2.265	2.397	2.557	3.613	4.732	4.785	6.247	**5.559**
(m^3s^{-1})	High	15.120	18.360	13.570	10.520	8.006	4.981	6.945	10.930	17.680	14.610	17.290	20.680	**8.698**
Peak flow (m^3s^{-1})		85.15	63.08	69.51	61.06	48.63	19.63	61.38	46.34	103.20	121.50	83.78	84.49	**121.50**
Runoff (mm)		90	62	71	44	35	30	34	44	59	80	84	91	**722**
Rainfall (mm)		199	116	156	80	79	78	101	129	166	188	185	195	**1672**

Factors affecting runoff: P
Station type: VA

1994 runoff is 112% of previous mean
rainfall 111%

083005 Irvine at Shewalton 1994

Measuring authority: CRPB
First year: 1972
Grid reference: 26 (NS) 345 369
Level stn. (m OD): 4.80
Catchment area (sq km): 380.7
Max alt. (m OD): 484

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	19.870	10.280	20.850	11.260	2.113	1.604	2.863	6.578	4.944	6.373	17.830	33.960	**11.583**
(m^3s^{-1}):	Peak	92.20	141.20	130.00	84.87	24.87	8.21	55.47	68.98	49.79	46.11	124.60	290.90	**290.90**
Runoff (mm)		140	65	147	77	15	11	20	46	34	45	121	239	**959**
Rainfall (mm)		177	65	180	106	21	78	110	118	73	79	138	269	**1414**

Monthly and yearly statistics for previous record (Feb 1972 to Dec 1993—incomplete or missing months total 0.2 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	17.380	10.580	11.640	6.212	3.716	2.908	3.341	6.162	11.170	12.620	15.920	15.210	**9.741**
flows	Low	4.527	1.874	3.182	1.138	0.789	0.536	0.367	0.328	1.608	4.298	3.754	3.829	**6.694**
(m^3s^{-1})	High	28.890	26.480	23.440	16.980	11.530	10.870	12.060	20.070	33.760	23.910	27.770	30.470	**12.406**
Peak flow (m^3s^{-1})		341.20	190.90	207.50	108.50	131.80	139.30	278.70	228.20	303.60	272.30	194.30	226.10	**341.20**
Runoff (mm)		122	68	82	42	26	20	24	43	76	89	108	107	**808**
Rainfall (mm)		134	78	113	66	65	74	86	106	136	130	138	135	**1261**

Factors affecting runoff: E
Station type: VA

1994 runoff is 119% of previous mean
rainfall 112%

Comment: July 1994 contains estimated daily flows.

084016 Luggie Water at Condorrat 1994

Measuring authority: CRPB
First year: 1966
Grid reference: 26 (NS) 739 725
Level stn. (m OD): 68.00
Catchment area (sq km): 33.9
Max alt. (m OD): 107

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	1.810	1.214	2.508	0.897	0.249	0.321	0.234	0.346	0.317	0.516	1.676	3.899	**1.169**
(m^3s^{-1}):	Peak	9.75	13.51	17.17		0.41	1.01	0.84	5.18	1.58	5.13	27.60	51.31	
Runoff (mm)		143	87	198	69	20	25	19	27	24	41	128	308	**1088**
Rainfall (mm)		180	86	215	70	22	75	76	86	57	86	139	273	**1365**

Monthly and yearly statistics for previous record (Jan 1967 to Dec 1993—incomplete or missing months total 1.3 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	1.542	1.064	1.059	0.615	0.449	0.313	0.309	0.512	0.790	1.051	1.329	1.402	**0.869**
flows	Low	0.680	0.415	0.370	0.287	0.166	0.138	0.147	0.123	0.125	0.129	0.367	0.652	**0.539**
(m^3s^{-1})	High	3.104	2.378	1.846	1.030	1.199	0.692	1.751	1.606	3.386	2.121	2.362	2.669	**1.121**
Peak flow (m^3s^{-1})		30.25	19.34	28.11	14.61	14.54	7.01	27.14	22.06	44.46	34.20	30.68	36.04	**44.46**
Runoff (mm)		122	77	84	47	35	24	24	40	60	83	102	111	**809**
Rainfall (mm)		118	74	97	55	66	65	75	93	110	116	115	112	**1096**

Factors affecting runoff: N
Station type: VA

1994 runoff is 134% of previous mean
rainfall 125%

085001 Leven at Linnbrane 1994

Measuring authority: CRPB
First year: 1963

Grid reference: 26 (NS) 394 803
Level stn. (m OD): 4.30

Catchment area (sq km): 784.3
Max alt. (m OD): 1130

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	77.730	70.790	94.330	80.810	30.190	15.770	19.590	25.300	24.000	25.800	67.670	94.270	**52.19**
(m^3s^{-1}):	Peak	100.80	112.30	124.20	112.40	59.61	48.13	46.29	64.57	58.89	53.90	93.86	138.40	**138.40**
Runoff (mm)		265	218	322	267	103	52	67	86	79	88	224	322	**2093**
Rainfall (mm)		339	126	457	183	40	173	101	197	108	150	241	432	**2547**

Monthly and yearly statistics for previous record (Jul 1963 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	67.760	56.240	50.980	37.100	25.220	19.100	18.750	24.700	36.550	53.460	59.320	61.970	**42.542**
flows	Low	27.910	18.610	16.630	10.540	10.620	8.518	7.303	4.556	8.736	10.830	13.250	17.580	**30.712**
(m^3s^{-1})	High	119.100	134.600	138.200	77.130	73.120	51.860	44.640	85.730	91.360	90.150	115.000	125.500	**54.062**
Peak flow (m^3s^{-1})		169.50	163.60	196.80	112.40	92.02	78.48	116.60	115.30	121.60	138.50	145.70	148.50	**196.80**
Runoff (mm)		231	175	174	123	86	63	64	84	121	183	196	212	**1712**
Rainfall (mm)		251	157	198	109	117	111	124	153	209	225	226	229	**2109**

Factors affecting runoff: S
Station type: VA

1994 runoff is 122% of previous mean
rainfall 121%

Comment: September and October 1994 monthly flows have been estimated.

090003 Nevis at Claggan 1994

Measuring authority: HRPB
First year: 1982

Grid reference: 27 (NN) 116 742
Level stn. (m OD): 3.60

Catchment area (sq km): 76.8
Max alt. (m OD): 1344

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	9.418	3.072	15.450	9.874	4.435	8.391	1.576	3.260	4.083	4.898	7.950	13.510	**7.189**
(m^3s^{-1}):	Peak	86.04	58.50	109.80	73.42	25.54	66.89	6.27	64.40	68.46	53.61	66.89	122.00	**122.00**
Runoff (mm)		328	97	539	333	155	283	55	114	138	171	268	471	**2952**
Rainfall (mm)		424	137	658	313	61	303	74	170	165	203	311	577	**3396**

Monthly and yearly statistics for previous record (Sep 1982 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	10.310	7.461	9.697	5.541	3.910	2.083	3.927	5.682	7.314	8.433	7.403	10.190	**6.839**
flows	Low	2.517	0.691	2.188	3.017	1.123	0.838	0.907	1.116	1.146	3.001	1.831	2.831	**5.186**
(m^3s^{-1})	High	17.790	17.990	25.920	10.030	12.600	3.211	8.607	10.720	11.010	16.380	15.360	15.480	**9.050**
Peak flow (m^3s^{-1})		197.70	172.00	143.10	101.70	67.50	69.35	105.00	130.50	219.00	146.50	110.30	189.00	**219.00**
Runoff (mm)		360	238	338	187	136	70	137	198	247	294	250	355	**2811**
Rainfall (mm)*		458	324	434	161	132	92	188	256	262	312	300	399	**3318**

*(1986-1993)

Factors affecting runoff: P
Station type: VA

1994 runoff is 105% of previous mean
rainfall 102%

094001 Ewe at Poolewe 1994

Measuring authority: HRPB
First year: 1970

Grid reference: 18 (NG) 859 803
Level stn. (m OD): 4.60

Catchment area (sq km): 441.1
Max alt. (m OD): 1014

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	42.730	28.680	55.360	43.590	18.780	19.740	10.870	9.059	22.720	36.070	34.770	56.720	**31.630**
(m^3s^{-1}):	Peak	84.33	89.11	92.15	72.99	59.70	33.25	24.09	32.87	114.90	109.20	53.00	110.50	**114.90**
Runoff (mm)		259	157	336	256	114	116	66	55	133	219	204	344	**2261**
Rainfall (mm)		307	51	476	246	33	193	60	146	220	175	207	416	**2530**

Monthly and yearly statistics for previous record (Jan 1971 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	44.540	33.860	32.990	23.560	16.140	12.440	14.880	19.000	32.260	35.410	44.820	46.630	**29.697**
flows	Low	13.820	10.660	8.842	4.537	3.862	3.725	7.884	6.240	7.016	13.160	12.000	15.740	**19.389**
(m^3s^{-1})	High	81.130	83.670	97.870	38.270	38.250	27.180	34.730	37.000	60.300	66.220	78.310	81.840	**41.411**
Peak flow (m^3s^{-1})		177.10	247.70	156.20	73.59	77.66	64.43	72.78	87.93	109.20	125.50	136.10	179.80	**247.70**
Runoff (mm)		270	187	200	138	98	73	90	115	190	215	263	283	**2125**
Rainfall (mm)		298	189	237	129	111	117	133	167	245	265	312	317	**2520**

Factors affecting runoff: N
Station type: VA

1994 runoff is 106% of previous mean
rainfall 100%

095001 Inver at Little Assynt 1994

Measuring authority: HRPB
First year: 1977

Grid reference: 29 (NC) 147 250
Level stn. (m OD): 60.30

Catchment area (sq km): 137.5
Max alt. (m OD): 988

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	10.730	5.816	13.590	9.831	4.093	5.220	3.393	2.776	7.737	10.600	8.777	14.410	**8.102**
(m^3s^{-1}):	Peak	23.12	17.68	22.84	16.06	11.97	13.33	6.09	6.33	57.02	39.28	16.89	24.75	**57.02**
Runoff (mm)		209	102	265	185	80	98	66	54	146	207	165	281	**1858**
Rainfall (mm)		242	66	328	207	34	174	69	122	228	131	180	371	**2152**

Monthly and yearly statistics for previous record (Aug 1977 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	11.180	8.993	10.230	5.958	4.213	3.502	5.473	6.588	10.070	12.420	12.470	11.120	**8.519**
flows	Low	4.082	2.397	4.179	3.453	1.660	1.812	2.432	3.394	4.048	6.227	3.181	4.631	**6.956**
(m^3s^{-1})	High	19.950	21.150	23.090	8.129	8.158	6.689	13.940	10.050	16.390	21.180	23.960	17.580	**10.896**
Peak flow (m^3s^{-1})		55.24	63.64	62.82	15.36	20.92	19.72	32.27	26.47	56.50	57.51	50.06	58.90	**63.64**
Runoff (mm)		218	160	199	112	82	66	107	128	190	242	235	217	**1955**
Rainfall (mm)*		246	155	227	101	86	108	140	169	236	246	263	253	**2230**

*(1978-1993)

Factors affecting runoff: N
Station type: VA

1994 runoff is 95% of previous mean
rainfall 97%

096001 Halladale at Halladale 1994

Measuring authority: HRPB
First year: 1976

Grid reference: 29 (NC) 891 561
Level stn. (m OD): 23.20

Catchment area (sq km): 204.6
Max alt. (m OD): 580

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	13.120	3.578	11.340	5.130	0.705	0.425	0.531	0.650	4.249	5.241	7.277	7.221	**4.974**
(m^3s^{-1}): Peak	83.96	27.32	57.87	42.92	3.72	1.36	0.98	5.54	69.74	35.12	64.98	31.99	**83.96**
Runoff (mm)	172	42	148	65	9	5	7	9	54	69	92	95	**767**
Rainfall (mm)	159	67	151	94	20	55	48	63	117	84	96	136	**1090**

Monthly and yearly statistics for previous record (Jan 1976 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	8.344	6.338	6.071	2.781	2.020	1.819	2.019	2.897	4.632	7.357	8.474	7.446	**5.013**
Low	4.478	1.555	2.907	0.624	0.279	0.271	0.215	0.186	0.447	1.351	1.807	3.004	**3.326**
(m^3s^{-1}) High	12.300	10.940	9.753	6.442	5.434	4.128	5.064	9.192	7.886	16.560	14.730	12.390	**6.418**
Peak flow (m^3s^{-1})	98.96	86.24	122.60	69.28	108.00	140.80	129.10	172.00	189.10	169.10	163.20	162.00	**189.10**
Runoff (mm)	109	76	79	35	26	23	26	38	59	96	107	97	**773**
Rainfall (mm)	127	77	105	63	60	65	67	85	111	129	132	117	**1138**

Factors affecting runoff: N
Station type: VA

1994 runoff is 99% of previous mean
rainfall 96%

101002 Medina at Upper Shide 1994

Measuring authority: NRA-S
First year: 1965

Grid reference: 40 (SZ) 503 874
Level stn. (m OD): 10.40

Catchment area (sq km): 29.8
Max alt. (m OD): 167

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	1.176	0.752	0.387	0.408	0.383	0.231	0.161	0.155	0.177	0.264	0.447	0.595	**0.427**
(m^3s^{-1}): Peak	6.51	6.29	1.87	3.22	3.26	0.62	0.19	0.26	0.80	3.19	1.93	4.83	**6.51**
Runoff (mm)	106	61	35	35	34	20	14	14	15	24	39	53	**451**
Rainfall (mm)	173	98	64	75	102	43	15	55	103	115	90	140	**1073**

Monthly and yearly statistics for previous record (Oct 1965 to Dec 1993—incomplete or missing months total 6.8 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	0.430	0.391	0.315	0.255	0.190	0.138	0.124	0.116	0.152	0.236	0.318	0.386	**0.254**
Low	0.132	0.159	0.121	0.104	0.094	0.068	0.073	0.044	0.077	0.093	0.088	0.116	**0.122**
(m^3s^{-1}) High	0.928	0.795	0.903	0.522	0.356	0.213	0.199	0.181	0.365	0.594	0.769	0.822	**0.335**
Peak flow (m^3s^{-1})	6.47	6.35	7.28		7.00	1.89	3.72	1.74	3.74	6.39	8.64	6.50	
Runoff (mm)	39	32	28	22	17	12	11	10	13	21	28	35	**269**
Rainfall (mm)*	91	65	83	54	52	52	53	55	64	107	82	105	**863**

*(1966-1993)

Factors affecting runoff: G I
Station type: FL

1994 runoff is 168% of previous mean
rainfall 124%

201007 Burn Dennet at Burndennet Bridge 1994

Measuring authority: DOEN
First year: 1975

Grid reference: *24* (IC) 372 047
Level stn. (m OD): 2.00

Catchment area (sq km): 145.3
Max alt. (m OD): 539

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	8.256	7.238	7.239	6.004	2.034	1.960	1.517	1.927	1.682	1.571	3.398	7.830	**4.207**
(m^3s^{-1}): Peak	71.34	66.69	55.31	36.48	8.50	26.45	10.42	26.45	11.53	8.80	36.80	44.22	**71.34**
Runoff (mm)	152	121	133	107	38	35	28	36	30	29	61	144	**913**
Rainfall (mm)	154	126	165	110	29	92	79	107	74	66	94	193	**1289**

Monthly and yearly statistics for previous record (Jun 1975 to Dec 1993—incomplete or missing months total 0.1 years)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	6.269	5.817	5.210	3.562	2.541	2.066	2.091	2.720	3.280	5.092	4.983	5.988	**4.129**
Low	0.418	2.244	2.441	1.687	0.925	0.843	0.832	0.579	0.664	2.033	1.689	3.203	**2.634**
(m^3s^{-1}) High	9.839	14.320	8.066	6.536	5.024	4.635	3.990	7.213	8.151	9.979	7.351	11.740	**6.211**
Peak flow (m^3s^{-1})	99.98	53.00	47.48	66.25	25.51	29.50	50.79	105.20	67.37	110.80	64.52	78.29	**110.80**
Runoff (mm)	116	98	96	64	47	37	39	50	59	94	89	110	**897**
Rainfall (mm)	134	83	112	71	67	74	88	95	103	127	109	121	**1184**

Factors affecting runoff: E
Station type: VA

1994 runoff is 102% of previous mean
rainfall 109%

203012 Ballinderry at Ballinderry Bridge 1994

Measuring authority: DOEN
First year: 1970

Grid reference: *23* (IH) 926 799
Level stn. (m OD): 16.00

Catchment area (sq km): 419.5
Max alt. (m OD): 476

Hydrometric statistics for 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows Avg.	24.640	24.540	14.540	11.680	3.114	2.139	1.861	2.852	4.366	2.112	11.090	15.070	**9.740**
(m^3s^{-1}): Peak	98.50	107.50	55.07	51.41	11.37	40.03	11.11	33.40	45.11	6.98	60.77	65.64	**107.50**
Runoff (mm)	157	142	93	72	20	13	12	18	27	13	69	96	**732**
Rainfall (mm)	160	140	138	95	37	77	71	92	73	46	87	135	**1151**

Monthly and yearly statistics for previous record (Jul 1970 to Dec 1993)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean flows Avg.	16.020	12.140	10.920	7.310	5.280	3.843	2.987	4.933	5.852	8.973	11.910	14.600	**8.721**
Low	9.339	4.805	5.502	3.515	2.454	1.627	1.518	1.060	1.236	2.331	5.122	4.946	**5.251**
(m^3s^{-1}) High	24.690	25.040	17.260	14.090	12.740	8.710	7.498	17.640	21.020	17.200	21.860	28.840	**11.532**
Peak flow (m^3s^{-1})	183.20	139.90	98.37	112.50	109.20	61.60	127.20	140.10	141.00	194.80	122.90	138.00	**194.80**
Runoff (mm)	102	71	70	45	34	24	19	31	36	57	74	93	**656**
Rainfall (mm)*	124	78	106	79	60	72	72	106	85	113	90	116	**1101**

*(1983-1993)

Factors affecting runoff: N
Station type: VA

1994 runoff is 112% of previous mean
rainfall 105%

203020 Moyola at Moyola New Bridge 1994

Measuring authority: DOEN
First year: 1971

Grid reference: *23* (IH) 955 905
Level stn. (m OD): 13.00

Catchment area (sq km): 306.5
Max alt. (m OD): 554

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	18.790	19.040	15.340	12.330	4.284	3.400	3.229	3.911	3.789	3.583	10.700	14.270	**9.330**
(m^3s^{-1}):	Peak	96.82	103.70	65.70	64.75	17.68	41.46	20.45	32.95	13.88	15.98	62.51	51.43	**103.70**
Runoff (mm)		164	150	134	104	37	29	28	34	32	31	91	125	**960**
Rainfall (mm)		179	148	164	110	37	87	70	96	69	54	114	159	**1287**

Monthly and yearly statistics for previous record (Feb 1971 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	15.080	11.390	10.550	6.812	4.788	3.652	2.976	4.529	5.702	9.101	11.240	13.490	**8.267**
flows	Low	7.707	3.696	3.776	2.238	1.335	1.015	0.952	0.748	1.366	2.000	4.563	5.088	**4.961**
(m^3s^{-1})	High	23.280	25.940	17.160	14.520	12.360	7.159	6.512	15.310	19.100	16.790	20.770	24.410	**10.654**
Peak flow (m^3s^{-1})		152.20	121.90	90.99	120.40	114.10	67.84	83.33	111.00	112.70	134.80	117.20	154.60	**154.60**
Runoff (mm)		132	91	92	58	42	31	26	40	48	80	95	118	**851**
Rainfall (mm)*		145	93	126	89	71	77	81	111	97	133	108	130	**1261**

*(1983-1993)

Factors affecting runoff: S PG I
Station type: VA

1994 runoff is 113% of previous mean
rainfall 102%

205004 Lagan at Newforge 1994

Measuring authority: DOEN
First year: 1972

Grid reference: *33* (IJ) 329 693
Level stn. (m OD): 2.00

Catchment area (sq km): 490.4
Max alt. (m OD): 532

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	20.860	24.240	14.230	8.969	2.907	1.614	1.619	2.304	3.338	5.934	14.290	14.600	**9.483**
(m^3s^{-1}):	Peak	76.84	90.99	57.14	32.93	6.84	3.39	6.77	12.20	20.36	36.79	45.38	34.66	**90.99**
Runoff (mm)		114	120	78	47	16	9	9	13	18	32	76	80	**610**
Rainfall (mm)		125	131	86	63	40	43	60	90	62	75	83	101	**959**

Monthly and yearly statistics for previous record (Aug 1972 to Dec 1993)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	16.480	11.870	10.860	7.587	4.788	3.407	2.641	4.214	5.621	10.600	11.840	16.210	**8.839**
flows	Low	8.508	4.569	2.820	2.064	1.208	0.944	0.789	0.615	0.850	1.075	3.061	3.843	**4.810**
(m^3s^{-1})	High	26.460	25.410	18.740	19.170	16.600	11.230	8.018	19.470	18.090	27.610	27.690	43.090	**12.235**
Peak flow (m^3s^{-1})		84.30	66.22	69.57	112.20	55.15	62.72	24.30	76.10	70.53	121.00	91.08	128.40	**128.40**
Runoff (mm)		90	59	59	40	26	18	14	23	30	58	63	89	**569**
Rainfall (mm)*		87	60	83	73	56	61	60	95	73	94	73	90	**905**

*(1983-1993)

Factors affecting runoff: GEI
Station type: VA

1994 runoff is 107% of previous mean
rainfall 106%

205005 Ravernet at Ravernet 1994

Measuring authority: DOEN
First year: 1972

Grid reference: *33* (IJ) 267 613
Level stn. (m OD): 31.00

Catchment area (sq km): 69.5
Max alt. (m OD): 163

Hydrometric statistics for 1994

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Flows	Avg.	2.939	3.188	2.040	1.092	0.261	0.084	0.087	0.106	0.182	0.561	2.195	2.143	**1.228**
(m^3s^{-1}):	Peak	12.03	14.46	5.45	4.47	0.64	0.15	0.31	0.45	0.79	6.60	8.36	5.18	**14.46**
Runoff (mm)		113	111	79	41	10	3	3	4	7	22	82	83	**557**
Rainfall (mm)		134	138	83	63	41	41	59	84	53	81	97	105	**979**

Monthly and yearly statistics for previous record (Aug 1972 to Dec 1993—incomplete or missing months total 2.0 years)

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
Mean	Avg.	2.066	1.475	1.167	0.917	0.529	0.314	0.138	0.368	0.606	1.254	1.251	1.911	**0.999**
flows	Low	0.689	0.502	0.313	0.195	0.054	0.040	0.006	0.008	0.013	0.066	0.260	0.573	**0.667**
(m^3s^{-1})	High	4.045	3.653	2.089	2.422	1.780	1.260	0.356	2.103	2.232	4.361	2.994	5.916	**1.278**
Peak flow (m^3s^{-1})		15.45	18.89	14.98	19.75	13.82	11.91	2.60	17.52	11.32	24.15	17.04	22.79	**24.15**
Runoff (mm)		80	52	45	34	20	12	5	14	23	48	47	74	**454**
Rainfall (mm)		95	57	78	56	65	60	60	82	88	90	79	96	**906**

Factors affecting runoff: N
Station type: FV

1994 runoff is 123% of previous mean
rainfall 108%

Comment: August 1994 contains estimated daily flows.

THE NATIONAL RIVER FLOW ARCHIVE DATA RETRIEVAL SERVICE

The National River Flow Archive comprises over 30,000 station-years of daily river flows and incorporates data from over 1400 gauging stations throughout the United Kingdom. In addition to gauged flow data, naturalised data (see page 39) have been derived from the records of a small number of gauging stations. Catchment areal rainfall and the highest instantaneous flow, when available, are also archived on a monthly basis.

In order that the contents of the archive may be readily accessible, a suite of programs has been developed to provide a selection of retrieval options. Descriptions of these options are listed on pages 137 and 138 and can also be found, together with examples of the computer output in the National River Flow Archive Data Retrieval Service Handbook which is intended for regular users of the Archive and is available free from the address opposite. The format of certain of the retrievals is currently under review. All data retrieval programs have been designed to allow flexibility in the presentation of the options, particularly those producing graphical output. Before finalising a data request it is recommended that the Concise Register of Gauging Stations on pages 139 to 145, be consulted, and that, where continuity of record is important, the availability of suitable data sets are checked by referring to the Summary of Archived Data in the Handbook. As an aid to data selection and to the interpretation of hydrological analyses the 1986-90 Hydrometric Register and Statistics (see page 174) is recommended as a source of indispensable reference material.

In response to user requirements the data retrieval facilities are being continually updated and extended. A wide range of specialist analyses and presentations is now available. Individuals having data requirements not catered for in the standard retrieval suite are invited to discuss their particular needs - address opposite.

Retrievals are normally available as A4 paper listings, diskette, or as hydrograph plots.

Cost of Service

To cover the computing and handling costs, a moderate charge will be made depending on the output options selected. Estimates of these charges may be obtained on request; the right to amend or waive charges is reserved.

Requests for Retrieval Options

Requests for retrieval options should include: the name and address to which output should be directed, the gauging stations for which data are required together with the period of record of interest and the title of the required options. Where possible, a daytime telephone number should be given.

Requests should be addressed to:

The National Water Archive Office
Institute of Hydrology
WALLINGFORD
OXFORDSHIRE OX10 8BB

Telephone: Wallingford (01491) 838800
Facsimile: (01491) 692424

Email: nwamail@ioh.ac.uk

The National Water Archive

As of April 1992, the River Flow Archive was incorporated into the National Water Archive (NWA) - one of NERC's seven Designated Data Centres. These Centres, located at NERC Institute sites, exist to hold data and provide information and advisory services to a wide range of users.

An introduction to the NWA's facilities is available on the World Wide Web:

http: //www.nwl.ac.uk:80/ih/

The National River Flow and National Groundwater Level Archives form the kernel of the National Water Archive but a very broad range of hydrological - and related - data sets are being assimilated into the co-ordinated management that the NWA provides. Data holdings range from the catchment scale (e.g. detailed climatological and hydrological data for a network of experimental catchments) to national (flood event data) and international coverage (European and southern African data held as part of the 'FRIEND' Project[1] of the International Hydrological Programme; World Floods Archive). Further details of the UK databases - and the associated facilities - are given overleaf. The utility of the archived time series data is enhanced by the availability of complementary spatial information (for example the digitised river network and UK soils hydrology map) and by the manipulative potential provided by modern data handling systems and analytical packages.

Staff at the NWA maintain close contacts with measuring authorities and keep under review developments in the field of network design, instrumentation and information technology. A continuing dialogue with both data suppliers and an active community of users ensures that the databases and retrieval facilities are reviewed continuously to provide an effective and responsive service across a broad range of applications.

The UK Flood Event Archive

Data describing flood events and associated rainfall have been formally gathered by the IH since 1969, the beginning of the Flood Studies Project (FSP[2]). Also associated with the Flood Event Archive are data collected from a network of Representative Basins. The present Archive holds over 4000 events, the majority of which are fairly simple short duration rainfall-runoff events of the type used for the FSP. The data most commonly collected are river flow, storm and antecedent rainfall and soil moisture deficit. These components are stored on a relational database allowing flexible access and data association. A variety of analyses have been developed to collate and manipulate the data. Examples include:

- Derivation of a catchment average rainfall profile for an event;
- A plot of a catchment map and rainfall hyetographs for an event;
- A plot of event rainfall and flow hydrographs;
- Event analysis using the FSP unit hydrograph and losses model;
- Plots of variation in unit hydrograph parameters and percentage runoff between events on a catchment.

Data are available as lists on hard copy or on floppy disk.

Peaks-Over-Threshold (POT) Floods Database[3]

This database comprises instantaneous peak flow data from river gauging stations throughout the UK. These peaks have been manually extracted from river records, generally from stage hydrographs, where the threshold was chosen to yield, on average, five peaks a year above the selected flow. There have been three main cycles of data collection and abstraction, first, for the FSP, second, at the Department of the Environment's Water Data Unit, beginning in 1978, and third, at the IH for a Ministry of Agriculture, Fisheries and Food Commission in 1985–91. Currently the database holds over 77,000 peaks for 857 gauging stations, with an average length of record of 20 years. Annual maxima have been derived automatically from these data and are held independently on the relational database. Annual maxima are also held for a further 116 stations where records proved unsuitable for POT extraction.

Data are available as lists on hard copy or on floppy disk.

Experimental Catchments Archive[4]

The data gathered from the nine major groups of the IH's experimental catchments are held in an independent archive within the NWA. The catchments have been highly instrumented and an intensive recording regime has been employed. Derived catchment data are stored for the main hydrological components of precipitation, evaporation and runoff as either hourly or daily values. Additionally, the component site-specific data used to generate the areal values are also stored, generally at finer time resolutions. Other, complementary datasets (such as soil moisture measurements) are available for some of the sites.

It is recommended that potential users of any of these additional datasets contact the NWA office to discuss their requirements.

The European Water Archive

The European Water Archive has been assembled as an integral part of the FRIEND - Flow Regimes from International Experimental and Network Data - research programme. This is an international collaborative study into regional hydrology in Europe and is a recognised contribution to Unesco's Fourth International Hydrological Programme.

The European Water Archive was developed by four regional coordination centres in Germany, the Netherlands, Norway and the United Kingdom collecting data from 17 European countries. The central archive is held at the Institute of Hydrology and includes summary information for some 3500 gauging stations, time series of annual maxima flood data and daily mean flows, and key flow statistics[5]. In addition, thematic, soil, climate, land use and catchment boundary information is held on a Geographical Information System.

For further details of the European Water Archive, contact the Flow Regimes and Environmental Management Section of the Institute of Hydrology.

References

1. Gustard, A.G., Roald, L.A., Pemuth, S., Lumadjeng, H.S. and Gross, R. 1989. Flow Regimes from Experimental and Network Data. Institute of Hydrology, Wallingford, 2 Vols.
2. Flood Studies Report 1975. Natural Environment Research Council (5 Vols., reprinted 1993).
3. Bayliss, A.C. and Jones, R.C. 1993. Peaks-Over-Threshold Floods Database: Summary Statistics and Seasonality. Institute of Hydrology, Report No. 121.
4. Roberts, A.M. 1989. The Catchment Research Database at the Institute of Hydrology. Institute of Hydrology, Report No. 106.
5. Gustard, A. (Ed.) 1993 Flow Regimes from International Experimental and Network Data (FRIEND). Institute of Hydrology, Wallingford, 3 Vols.

LIST OF SURFACE WATER RETRIEVAL OPTIONS

The standard retrievals have been grouped into Basic, Analytical and Station-based categories.

OPTION CODE	TITLE	NOTES
Basic time-series retrievals		
TDF	Table of daily mean gauged (or naturalised) discharges	Includes monthly and annual summary statistics. Flows in cubic metres per second.
TMF	Table of monthly mean gauged (or naturalised) discharges	Includes monthly and annual summary statistics. Flows in cubic metres per second.
TME	Table of monthly extreme flows	The lowest and highest daily mean flows, together with the highest instantaneous flow and date of occurrence (where available). Flows in cubic metres per second. Includes summary statistics.
TMR	Table of catchment monthly rainfall	Rainfall totals in millimetres and as a percentage of the 1941–70 catchment average (percentages based on the 1961–90 Standard Period will soon be available). Includes summary statistics.
TRR	Table of catchment monthly areal rainfall and runoff	Runoff is normally derived from the monthly mean gauged flow. An additional listing is provided for catchments with naturalised flow records. Includes summary statistics. Rainfall and runoff totals are in millimetres.
YBM	Yearbook data tabulation (monthly)	Monthly river flow and catchment rainfall data for a specified year together with comparative statistics derived from the historical record. Naturalised flows (where available) – and the corresponding runoff – may also be tabulated.
HDF	Hydrographs of daily mean flows	Choices of scale, units, truncation level and overlay grid pattern are available. The period of record maximum and minimum flows, or the mean flow, may be included. The plots may be based on single or n-day means, or on n-day running mean flows.
HMF	Hydrographs of monthly mean flows	Choices of scale, units and overlay grid pattern are available. The period of record maximum, minimum and mean flows may be included.

Analytical time-series retrievals

YBD	Yearbook data tabulation (daily)	River flow and catchment rainfall data for a specified year with basic gauging station and catchment details and flow statistics derived from the historical record.
FDS	Flow duration statistics	Tabulation of the 1-99 percentile flows with optional plot of the flow duration curve. The percentiles may be derived from daily flows or n-day averages and the analysis may be restricted to nominated periods within the year, e.g. April-September only. Choices of scales, grid marking and units are available and the percentiles may be expressed as a percentage of the average flow or of a nominated flow.
THS	Table of hydrometric statistics	Provides a comparison between summary statistics for a selected year, or a group of years, and the corresponding statistics for a nominated period of record (as featured in the Hydrometric Register and Statistics 1986-90).

Station-based retrievals

SCD	Gauging station summary sheet	Includes a daily flow hydrograph (with period of record extreme values) and flow duration curve together with summary statistics relating to river flow, catchment runoff and catchment rainfall. A description of the gauging station and catchment is also provided together with selected catchment characteristics and a concise summary of the archived data.
GSR	Table of gauging station reference information	Tabulation of selected gauging station details and catchment characteristics for nominated gauging stations.
A4S	Gauging station and catchment description	A brief summary of the gauging station, its history and major influences on the flow regime, together with catchment details.

Note: In line with Natural Environmental Research Council policy, the provision of its own experimental catchment data now lodged with the National River Flow Archive confers only a right to use the data. Ownership of the data, or the associated Intellectual Property Rights, will not normally be transferred. Data received from the NRFA must not be sold, or passed on to any third party, but reproduction is permitted for the purposes of any fair dealing in the course of study, research, public debate or instruction, provided the source is acknowledged. However, the bulk of the data held on the Archive is received from measuring authorities operating under Government legislation and is made available under the Access to Environmental Data Regulations.

Through the use of quality control procedures every effort is made to maintain and improve the quality of data on the NRFA. However, the data derive from a variety of sources and, for historical data sets especially, the provenance and precision may be uncertain. Therefore the NRFA cannot guarantee the validity or accuracy of the data and NERC accepts no liability for any loss or damage, cost or claims arising directly or indirectly from their use.

Concise Register of Gauging Stations

Station number	River and station name	Grid reference	Authority	Area (sq km)
002001	Helmsdale at Kilphedir	2997 9181	HRPB	551.4
003001 *	Shin at Lairg	2581 9062	SE	494.6
003002	Carron at Sgodachail	2490 8921	HRPB	241.1
003003	Oykel at Easter Turnaig	2403 9001	HRPB	330.7
003004	Cassley at Rosehall	2472 9022	HRPB	187.5
003005	Shin at Inveran	2574 8974	HRPB	575.0
004001	Conon at Moy Bridge	2482 8547	HRPB	961.8
004003	Alness at Alness	2654 8695	HRPB	201.0
004004	Blackwater at Contin	2455 8563	HRPB	336.7
004005	Meig at Glenmeannie	2288 8528	HRPB	120.5
004006	Bran at Dosmucheran	2205 8602	HRPB	116.1
005001 *	Beauly at Erchless	2426 8405	SE	849.5
005002	Farrar at Struy	2390 8405	HRPB	311.3
005003	Glass at Kerrow Wood	2354 8321	HRPB	481.8
005004	Glass at Fasnakyle	2315 8288	HRPB	277.5
006001 *	Ness at Ness Castle Farm	2639 8410	SE	1792.3
006003 *	Moriston at Invermoriston	2416 8169	SE	391.0
006006 *	Allt Bhlaraidh at Invermoriston	2377 8168	SE	27.5
006007	Ness at Ness Side	2645 8427	HRPB	1839.1
006008	Enrick at Mill of Tore	2450 8300	HRPB	105.9
007001	Findhorn at Shenachie	2826 8337	HRPB	415.6
007002	Findhorn at Forres	3018 8583	HRPB	781.9
007003	Lossie at Sheriffmills	3194 8626	NERPB	216.0
007004	Nairn at Firhall	2882 8551	HRPB	313.0
007005	Divie at Dunphail	3005 8480	HRPB	165.0
007006	Lossie at Torwinny	3135 8489	NERPB	20.0
007007	Black Burn at Monaughty	3155 8584	NERPB	44.0
008001 *	Spey at Aberlour	3278 8439	NERPB	2654.7
008002	Spey at Kinrara	2881 8082	NERPB	1011.7
008003 *	Spey at Ruthven Bridge	2759 7996	NERPB	533.8
008004	Avon at Delnashaugh	3186 8352	NERPB	542.8
008005	Spey at Boat of Garten	2946 8191	NERPB	1267.8
008006	Spey at Boat o Brig	3318 8518	NERPB	2861.2
008007	Spey at Invertruim	2687 7962	NERPB	400.4
008008	Tromie at Tromie Bridge	2789 7995	NERPB	130.3
008009	Dulnain at Balnaan Bridge	2977 8247	NERPB	272.2
008010	Spey at Grantown	3033 8268	NERPB	1748.8
008011	Livet at Minmore	3201 8291	NERPB	104.0
008013	Feshie at Feshie Bridge	2849 8047	NERPB	231.0
008015	Fiddich at Auchindoun	3355 8399	NERPB	44.5
008016	Conglass Water at Auchriachan	3175 8191	NERPB	40.8
008017	Burn of Carron at Dalkusine	3237 8415	NERPB	15.2
009001	Deveron at Avochie	3532 8464	NERPB	441.6
009002	Deveron at Muiresk	3705 8498	NERPB	954.9
009003	Isla at Grange	3494 8506	NERPB	176.1
009004	Bogie at Redcraig	3519 8373	NERPB	179.0
009005	Allt Deveron at Cabrach	3378 8291	GRWD	67.0
009006	Deskford Burn at Cullen	3504 8667	NERPB	46.5
009007	Forgue Burn at Inverkeithny	3627 8469	NERPB	88.3
010002	Ugie at Inverugie	4101 8485	NERPB	325.0
010003	Ythan at Ellon	3947 8303	NERPB	523.0
011001	Don at Parkhill	3887 8141	NERPB	1273.0
011002	Don at Haughton	3756 8201	NERPB	787.0
011003	Don at Bridge of Alford	3566 8170	NERPB	499.0
011004	Urie at Pitcaple	3721 8260	NERPB	198.0
011005	Don at Mill of Newe	3371 8121	NERPB	187.0
012001	Dee at Woodend	3635 7956	NERPB	1370.0
012002	Dee at Park	3798 7983	NERPB	1844.0
012003 *	Dee at Polhollick	3344 7965	NERPB	690.0
012004	Girnock Burn at Littlemill	3324 7956	SOAF	30.3
012005	Muick at Invermuick	3364 7947	NERPB	110.0
012006	Gairn at Invergairn	3353 7971	NERPB	150.0
012007	Dee at Mar Lodge	3098 7895	NERPB	289.0
012008	Feugh at Heugh Head	3687 7928	NERPB	229.0
012009	Water of Dye at Charr	3624 7834	NERPB	41.7
013001	Bervie at Inverbervie	3826 7733	NERPB	123.0
013002	Luther Water at Luther Bridge	3660 7668	TRPB	138.0
013003 *	South Esk at Stannochy Bridge	3583 7593	TRPB	487.0
013004	Prosen Water at Prosen Bridge	3396 7586	TRPB	104.0
013005	Lunan Water at Kirkton Mill	3655 7494	TRPB	124.0
013007	North Esk at Logie Mill	3699 7640	TRPB	730.0
013008	South Esk at Brechin	3600 7596	TRPB	490.0
013009	West Water at Dalhousie Bridge	3592 7680	TRPB	127.2
013010	Brothock Water at Arbroath	3640 7419	TRPB	50.0
013012	South Esk at Gella Bridge	3372 7653	TRPB	130.0
014001	Eden at Kemback	3415 7158	TRPB	307.4
014002	Dighty Water at Balmossie Mill	3477 7324	TRPB	126.9
014005	Motray Water at St Michaels	3441 7224	TRPB	52.0
014006	Monikie Burn at Panbride	3574 7361	TRPB	16.0
014007	Craigmill Burn at Craigmill	3575 7360	TRPB	29.0
014009	Eden at Strathmiglo	3226 7102	TRPB	26.0
014010	Motray Water at Kilmany	3387 7217	TRPB	33.0
015001 *	Isla at Forter	3187 7647	TRWS	70.7
015002 *	Newton Burn at Newton	3230 7605	TRWS	15.4
015003	Tay at Caputh	3082 7395	TRPB	3211.0
015004 *	Inzion at Loch of Lintrathen	3280 7559	TRWS	24.7
015005 *	Melgan at Loch of Lintrathen	3275 7558	TRWS	40.9
015006	Tay at Ballathie	3147 7367	TRPB	4587.1
015007	Tay at Pitnacree	2924 7534	TRPB	1149.4
015008	Dean Water at Cookston	3340 7479	TRPB	177.1
015010	Isla at Wester Cardean	3295 7466	TRPB	366.5
015011	Lyon at Comrie Bridge	2786 7486	TRPB	391.1
015012	Tummel at Port-na-craig	2940 7577	TRPB	1649.0
015013	Almond at Almondbank	3067 7258	TRPB	174.8
015014	Ardle at Kindrogan	3056 7631	TRPB	103.0
015015	Almond at Newton Bridge	2888 7316	TRPB	84.0
015016	Tay at Kenmore	2782 7467	TRPB	600.9
015017 *	Braan at Ballinloan	2979 7406	TRPB	197.0
015018 *	Lyon at Moar	2534 7448	SE	161.4
015021	Lunan Burn at Mill Bank	3182 7400	TRPB	94.0
015023	Braan at Hermitage	3014 7422	TRPB	210.0
015024	Dochart at Killin	2567 7320	TRPB	239.0
015025	Ericht at Craighall	3174 7472	TRPB	432.0
015027	Garry Burn at Loakmill	3075 7339	TRPB	20.0
015028	Ordie Burn at Luncarty	3093 7306	TRPB	54.0
015029	Alyth Burn at Pitcrocknie	3257 7485	TRPB	32.0
015030	Dean Water at Dean Bridge	3293 7458	TRPB	230.0
015032	Ordie Burn at Jackstone	3073 7337	TRPB	20.0
015034	Garry at Killiecrankie	2901 7637	TRPB	745.0
015035	Tummel at Kinloch Rannoch	2663 7588	TRPB	647.0
015038	Tummel at Bridge of Gaur	2497 7570	TRPB	247.0
015039	Tilt at Marble Lodge	2892 7717	TRPB	165.0
015041	Lyon at Camusvrachan	2620 7477	TRPB	237.0
016001	Earn at Kinkell Bridge	2933 7167	TRPB	590.5
016002 *	Earn at Aberuchill	2754 7216	TRPB	176.9
016003	Ruchill Water at Cultybraggan	2764 7204	TRPB	99.5
016004	Earn at Forteviot Bridge	3043 7184	TRPB	782.2
016006 *	Dunning Burn at Granco	3019 7147	TRPB	12.1
016007	Ruthven Water at Aberuthven	2975 7154	TRPB	49.0
016011	Allt Strath a'Ghlinne at Auchinner	2695 7158	TRPB	
017001	Carron at Headswood	2832 6820	FRPB	122.3
017002	Leven at Leven	3369 7006	FRPB	424.0
017003	Bonny Water at Bonnybridge	2824 6804	FRPB	50.5
017004	Ore at Balfour Mains	3330 6997	FRPB	162.0
017005	Avon at Polmonthill	2952 6797	FRPB	195.3
017008	South Queich at Kinross	3122 7015	FRPB	33.7
017012	Red Burn at Castlecary	2788 6780	FRPB	22.0
017016	Lochty Burn at Whinnyhall	3220 6985	FRPB	14.0
017017 *	Greens Burn at Killyford Bridge	3150 7053	FRPB	7.9
018001	Allan Water at Kinbuck	2792 7053	FRPB	161.0
018002	Devon at Glenochil	2858 6960	FRPB	181.0
018003	Teith at Bridge of Teith	2725 7011	FRPB	518.0
018005	Allan Water at Bridge of Allan	2786 6980	FRPB	210.0
018007	Devon at Fossoway Bridge	3011 7018	FRPB	69.5
018008	Leny at Anie	2585 7096	FRPB	190.0
018010 *	Forth at Gargunnock	2714 6953	FRPB	397.0
018011	Forth at Craigforth	2775 6955	FRPB	1036.0
018012 *	Ardoch Burn at Doune Castle	2729 7008	FRPB	48.0
018013	Black Devon at Fauld Mill	2914 6924	FRPB	67.0
018014	Bannock Burn at Bannockburn	2812 6908	FRPB	23.7
018016	Kelty Water at Clashmore	2468 6968	FRPB	2.8
018017 *	Monachyle Burn at Balquhidder	2475 7230	IH	7.7
018018	Kirkton Burn at Balquhidder	2532 7219	IH	6.8
018019 *	Comer Burn at Comer	2387 7042	FRPB	0.9
018020	Loch Ard Burn at Duchray	2468 6987	FRPB	0.9
018021	Loch Ard Burn at Elrig	2469 6987	FRPB	1.5
018022 *	Forth at Milton	2503 7135	FRPB	44.5
019001	Almond at Craigiehall	3165 6752	FRPB	369.0
019002	Almond at Almond Weir	3004 6652	FRPB	43.8
019003 *	Breich Water at Breich Weir	3014 6639	FRPB	51.8
019004	North Esk at Dalmore Weir	3252 6616	FRPB	81.6
019005	Almond at Almondell	3086 6686	FRPB	229.0
019006	Water of Leith at Murrayfield	3228 6732	FRPB	107.0
019007	Esk at Musselburgh	3339 6723	FRPB	330.0
019008 *	South Esk at Prestonholm	3325 6623	FRPB	112.0
019010	Braid Burn at Liberton	3273 6707	FRPB	16.2
019011	North Esk at Dalkeith Palace	3333 6678	FRPB	137.0
019012	Water of Leith at Colinton	3212 6688	FRPB	72.0
019014 *	Brox Burn at Newliston	3114 6732	FRPB	34.1
019017	Gogar Burn at Turnhouse	3161 6733	FRPB	38.8
020001	Tyne at East Linton	3591 6768	FRPB	307.0
020002	West Peffer Burn at Luffness	3489 6811	FRPB	26.2
020003	Tyne at Spilmersford	3456 6689	FRPB	161.0
020004	East Peffer Burn at Lochhouses	3610 6824	FRPB	31.1
020005	Birns Water at Saltoun Hall	3457 6688	FRPB	93.0
020006	Biel Water at Belton House	3645 6768	FRPB	51.8
020007	Gifford Water at Lennoxlove	3511 6717	FRPB	64.0
020008	Brox Burn at Broxmouth	3697 6776	FRPB	19.7
021001 *	Fruid Water at Fruid	3088 6205	LRWD	23.7
021002 *	Whiteadder Water at Hungry Snout	3663 6633	LRWD	45.6
021003	Tweed at Peebles	3257 6400	TWRPB	694.0
021004 *	Watch Water at Watch Water Reservoir	3664 6566	BRWD	10.7
021005	Tweed at Lyne Ford	3206 6397	TWRPB	373.0
021006	Tweed at Boleside	3498 6334	TWRPB	1500.0
021007	Ettrick Water at Lindean	3486 6315	TWRPB	499.0
021008	Teviot at Ormiston Mill	3702 6280	TWRPB	1110.0
021009	Tweed at Norham	3898 6477	TWRPB	4390.0
021010 *	Tweed at Dryburgh	3588 6320	TWRPB	2080.0
021011	Yarrow Water at Philiphaugh	3439 6277	TWRPB	231.0
021012	Teviot at Hawick	3522 6159	TWRPB	323.0
021013	Gala Water at Galashiels	3479 6374	TWRPB	207.0
021014	Tweed at Kingledores	3109 6285	TWRPB	139.0
021015	Leader Water at Earlston	3565 6388	TWRPB	239.0
021016	Eye Water at Eyemouth Mill	3942 6635	TWRPB	119.0
021017	Ettrick Water at Brockhoperig	3234 6132	TWRPB	37.5
021018	Lyne Water at Lyne Station	3209 6401	TWRPB	175.0
021019	Manor Water at Cademuir	3217 6369	TWRPB	61.6
021020	Yarrow Water at Gordon Arms	3309 6247	TWRPB	155.0
021021	Tweed at Sprouston	3752 6354	TWRPB	3330.0
021022	Whiteadder Water at Hutton Castle	3881 6550	TWRPB	503.0
021023	Leet Water at Coldstream	3839 6396	TWRPB	113.0
021024	Jed Water at Jedburgh	3655 6214	TWRPB	139.0
021025	Ale Water at Ancrum	3634 6244	TWRPB	174.0
021026	Tima Water at Deephope	3278 6138	TWRPB	31.0
021027	Blackadder Water at Mouth Bridge	3826 6530	TWRPB	159.0
021030	Megget Water at Henderland	3231 6232	TWRPB	56.2
021031 *	Till at Etal	3927 6396	NRA-NY	648.0
021032	Glen at Kirknewton	3919 6310	NRA-NY	198.9
021034	Yarrow Water at Craig Douglas	3288 6244	TWRPB	118.0
022001	Coquet at Morwick	4234 6044	NRA-NY	569.8
022002 *	Coquet at Bygate	3870 6083	NRA-NY	59.5
022003 *	Usway Burn at Shillmoor	3886 6077	NRA-NY	21.4
022004 *	Aln at Hawkhill	4211 6129	NRA-NY	205.0
022006	Blyth at Hartford Bridge	4243 5800	NRA-NY	269.4
022007	Wansbeck at Mitford	4175 5858	NRA-NY	287.3
022008 *	Alwin at Clennell	3925 6063	NRA-NY	27.7
022009	Coquet at Rothbury	4067 6016	NRA-NY	346.0
023001	Tyne at Bywell	4038 5617	NRA-NY	2175.6
023002	Derwent at Eddys Bridge	4041 5508	NRA-NY	118.0
023003	North Tyne at Reaverhill	3906 5732	NRA-NY	1007.5
023004	South Tyne at Haydon Bridge	3856 5647	NRA-NY	751.1
023005 *	North Tyne at Tarset	3776 5861	NRA-NY	284.9
023006	South Tyne at Featherstone	3672 5611	NRA-NY	321.9
023007	Derwent at Rowlands Gill	4168 5581	NRA-NY	242.1
023008	Rede at Rede Bridge	3868 5832	NRA-NY	343.8
023009 *	South Tyne at Alston	3716 5465	NRA-NY	118.5
023010 *	Tarset Burn at Greenhaugh	3789 5879	NRA-NY	96.0

Station number	River and station name	Grid reference	Authority	Area (sq km)
023011	Kielder Burn at Kielder	3644 5946	NRA-NY	58.8
023012 *	East Allen at Wide Eals	3802 5583	NRA-NY	88.0
023013 *	West Allen at Hindley Wrae	3791 5583	NRA-NY	75.1
023014 *	North Tyne at Kielder temporary	3631 5931	NRA-NY	27.0
023015 *	North Tyne at Barrasford	3924 5721	NEW	1043.8
023016	Ouse Burn at Crag Hall	4254 5674	NRA-NY	55.0
023017	Team at Team Valley	4249 5585	NRA-NY	61.9
023018	Ouseburn at Woolsington	4196 5700	NRA-NY	9.0
023022	North Tyne at Uglydub	3712 5875	NRA-NY	241.5
023023	Tyne at Riding Mill	4032 5617	NRA-NY	2174.5
024001	Wear at Sunderland Bridge	4264 5376	NRA-NY	657.8
024002 *	Gaunless at Bishop Auckland	4215 5306	NRA-NY	93.0
024003	Wear at Stanhope	3984 5391	NRA-NY	171.9
024004	Bedburn Beck at Bedburn	4118 5322	NRA-NY	74.9
024005	Browney at Burn Hall	4259 5387	NRA-NY	178.5
024006 *	Rookhope Burn at Eastgate	3952 5390	NRA-NY	36.5
024007 *	Browney at Lanchester	4165 5482	NRA-NY	44.6
024008	Wear at Witton Park	4174 5309	NRA-NY	455.0
024009	Wear at Chester le Street	4283 5512	NRA-NY	1008.3
024011	Wear at Burnhope Reservoir	3856 5395	NRA-NY	20.5
025001	Tees at Broken Scar	4259 5137	NRA-NY	818.4
025002 *	Tees at Dent Bank	3932 5260	NRA-NY	217.3
025003 *	Trout Beck at Moor House	3759 5336	NRA-NY	11.4
025004	Skerne at South Park	4284 5129	NRA-NY	250.1
025005	Leven at Leven Bridge	4445 5122	NRA-NY	196.3
025006	Greta at Rutherford Bridge	4034 5122	NRA-NY	86.1
025007 *	Clow Beck at Croft	4282 5101	NRA-NY	78.2
025008	Tees at Barnard Castle	4047 5166	NRA-NY	509.2
025009	Tees at Low Moor	4364 5105	NRA-NY	1264.0
025010 *	Baydale Beck at Mowden Bridge	4260 5156	NRA-NY	31.1
025011 *	Langdon Beck at Langdon	3852 5309	NRA-NY	13.0
025012	Harwood Beck at Harwood	3849 5309	NRA-NY	25.1
025013 *	Billingham Beck at Thorpe Thewles	4408 5237	NRA-NY	61.4
025014 *	Mordon Stell at Mordon School	4323 5274	NRA-NY	2.5
025015 *	Woodham Burn at South Farm	4285 5263	NRA-NY	29.1
025018	Tees at Middleton in Teesdale	3950 5250	NRA-NY	242.1
025019	Leven at Easby	4585 5087	NRA-NY	14.8
025020	Skerne at Preston le Skerne	4292 5238	NRA-NY	147.0
025021	Skerne at Bradbury	4318 5285	NRA-NY	70.1
025022 *	Balder at Balderhead Reservoir	3931 5182	NRA-NY	20.4
025024 *	Chapel Beck at Guisborough	4599 5163	NRA-NY	13.4
026001 *	West Beck at Wansford Bridge	5064 4580	YW	192.0
026002	Hull at Hempholme Lock	5080 4498	NRA-NY	378.1
026003	Foston Beck at Foston Mill	5093 4548	NRA-NY	57.2
026004 *	Gypsey Race at Bridlington	5165 4675	NRA-NY	253.8
026005	Gypsey Race at Boynton	5137 4677	NRA-NY	240.0
026006	Elmswell Beck at Little Driffield	5009 4575	NRA-NY	136.0
026007 *	Catchwater at Withernwick	5171 4403	NRA-NY	15.5
026008	Mires Beck at North Cave	4890 4316	NRA-NY	
026009	West Beck at Snakeholme Lock	5066 4555	NRA-NY	
026010	Driffield Canal at Snakeholme Lock	5066 4555	NRA-NY	
027001	Nidd at Hunsingore Weir	4428 4530	NRA-NY	484.3
027002	Wharfe at Flint Mill Weir	4422 4473	NRA-NY	758.9
027003	Aire at Beal Weir	4534 4255	NRA-NY	1932.1
027004 *	Calder at Newlands	4365 4220	NRA-NY	899.0
027006	Don at Hadfields Weir	4390 3910	NRA-NY	373.0
027007	Ure at Westwick Lock	4356 4671	NRA-NY	914.6
027008 *	Swale at Leckby Grange	4415 4748	NRA-NY	1345.6
027009	Ouse at Skelton	4568 4554	NRA-NY	3315.0
027010 *	Hodge Beck at Bransdale Weir	4627 4944	NRA-NY	18.9
027012 *	Hebden Water at High Greenwood	3973 4309	NRA-NY	36.0
027013 *	Ewden Beck at More Hall Reservoir	4289 3957	NRA-NY	26.4
027014 *	Rye at Little Habton	4743 4771	NRA-NY	679.0
027015 *	Derwent at Stamford Bridge	4714 4557	NRA-NY	1634.3
027018 *	Ryburn at Ryburn Reservoir	4025 4187	NRA-NY	10.7
027019 *	Booth Dean Clough at Booth Wood Mill	4033 4166	NRA-NY	15.9
027021 *	Don at Doncaster	4569 4040	NRA-NY	1256.2
027022 *	Don at Rotherham Weir	4427 3928	NRA-NY	826.0
027023	Dearne at Barnsley Weir	4350 4073	NRA-NY	118.9
027024 *	Swale at Richmond	4146 5006	NRA-NY	381.0
027025	Rother at Woodhouse Mill	4432 3857	NRA-NY	352.2
027026	Rother at Whittington	4394 3744	NRA-NY	165.0
027027 *	Wharfe at Ilkley	4112 4481	NRA-NY	443.0
027028	Aire at Armley	4281 4340	NRA-NY	691.5
027029	Calder at Elland	4124 4219	NRA-NY	341.9
027030	Dearne at Adwick	4477 4020	NRA-NY	310.8
027031	Colne at Colne Bridge	4174 4199	NRA-NY	245.0
027032	Hebden Beck at Hebden	4025 4643	NRA-NY	22.2
027033	Sea Cut at Scarborough	5028 4908	NRA-NY	33.2
027034	Ure at Kilgram Bridge	4190 4860	NRA-NY	510.2
027035	Aire at Kildwick Bridge	4013 4457	NRA-NY	282.3
027036 *	Derwent at Malton	4789 4715	NRA-NY	1421.0
027038	Costa Beck at Gatehouses	4774 4836	NRA-NY	7.8
027040	Doe Lea at Staveley	4443 3746	NRA-NY	67.9
027041	Derwent at Buttercrambe	4731 4587	NRA-NY	1586.0
027042	Dove at Kirkby Mills	4705 4855	NRA-NY	59.2
027043	Wharfe at Addingham	4092 4494	NRA-NY	427.0
027044	Blackfoss Beck at Sandhills Bridge	4725 4475	NRA-NY	47.0
027047	Snaizeholme Beck at Low Houses	3833 4883	NRA-NY	10.2
027048	Derwent at West Ayton	4989 4850	NRA-NY	127.0
027049	Rye at Ness	4696 4791	NRA-NY	238.7
027050	Esk at Sleights	4865 5081	NRA-NY	308.0
027051	Crimple at Burn Bridge	4284 4519	NRA-NY	8.1
027052	Whitting at Sheepbridge	4376 3747	NRA-NY	50.2
027053	Nidd at Birstwith	4230 4603	NRA-NY	217.6
027054	Hodge Beck at Cherry Farm	4652 4902	NRA-NY	37.1
027055	Rye at Broadway Foot	4560 4883	NRA-NY	131.7
027056	Pickering Beck at Ings Bridge	4791 4819	NRA-NY	68.6
027057	Seven at Normanby	4736 4821	NRA-NY	121.6
027058	Riccal at Crook House Farm	4661 4810	NRA-NY	57.8
027059	Laver at Ripon	4301 4710	NRA-NY	87.5
027061	Colne at Longroyd Bridge	4136 4161	NRA-NY	72.3
027062	Nidd at Skip Bridge	4482 4561	NRA-NY	516.0
027064	Went at Walden Stubbs	4551 4163	NRA-NY	83.7
027065	Holme at Queens Mill	4142 4157	NRA-NY	97.4
027066	Blackburn Brook at Ashlowes	4393 3914	NRA-NY	42.8
027067	Sheaf at Highfield Road	4357 3863	NRA-NY	49.1
027068	Ryburn at Ripponden	4035 4188	NRA-NY	33.0
027069	Wiske at Kirby Wiske	4375 4844	NRA-NY	215.5
027070	Eller Beck at Skipton	3984 4502	NRA-NY	35.3
027071	Swale at Crakehill	4425 4734	NRA-NY	1363.0
027072	Worth at Keighley	4064 4408	NRA-NY	71.7
027073	Brompton Beck at Snainton Ings	4938 4794	NRA-NY	12.9
027074	Spen Beck at Northorpe	4225 4210	NRA-NY	46.3
027075	Bedale Beck at Leeming	4306 4902	NRA-NY	160.3
027076	Bielby Beck at Thornton Lock	4760 4444	NRA-NY	103.1
027077	Bradford Beck at Shipley	4151 4375	NRA-NY	58.0
027080	Aire at Fleet Weir	4381 4285	NRA-NY	865.0
027081	Oulton Beck at Farrer Lane	4365 4281	NRA-NY	25.1
027082	Cundall Beck at Bat Bridge	4419 4724	NRA-NY	
027083	Foss at Huntington	4612 4543	NRA-NY	
027084	Eastburn Beck at Crosshills	4021 4452	NRA-NY	43.3
027085	Cod Beck at Dalton Bridge	4422 4766	NRA-NY	209.3
027086	Skell at Alma Weir	4316 4709	NRA-NY	
028001	Derwent at Yorkshire Bridge	4198 3851	NRA-ST	126.0
028002 *	Blithe at Hamstall Ridware	4109 3192	NRA-ST	163.0
028003	Tame at Water Orton	4169 2915	NRA-ST	408.0
028004 *	Tame at Lea Marston	4206 2935	NRA-ST	795.0
028005 *	Tame at Elford	4173 3105	NRA-ST	1475.0
028006 *	Trent at Great Haywood	3994 3231	NRA-ST	325.0
028007	Trent at Shardlow	4448 3299	NRA-ST	4400.0
028008	Dove at Rocester Weir	4112 3397	NRA-ST	399.0
028009	Trent at Colwick	4620 3399	NRA-ST	7486.0
028010	Derwent at Longbridge Weir/St.Mary's Bridge	4356 3363	NRA-ST	1054.0
028011	Derwent at Matlock Bath	4296 3586	NRA-ST	690.0
028012	Trent at Yoxall	4131 3177	NRA-ST	1229.0
028013 *	Soar at Zouch	4498 3240	NRA-ST	1289.8
028014	Sow at Milford	3975 3215	NRA-ST	591.0
028015	Idle at Mattersey	4690 3895	NRA-ST	529.0
028016 *	Ryton at Serlby Park	4641 3897	NRA-ST	231.0
028017 *	Devon at Cotham	4787 3476	NRA-ST	284.0
028018	Dove at Marston on Dove	4235 3288	NRA-ST	883.2
028019	Trent at Drakelow Park	4239 3204	NRA-ST	3072.0
028020 *	Churnet at Rocester	4103 3389	NRA-ST	236.0
028021 *	Derwent at Draycott	4443 3327	NRA-ST	1175.0
028022	Trent at North Muskham	4801 3601	NRA-ST	8231.0
028023	Wye at Ashford	4182 3696	NRA-ST	154.0
028024	Wreake at Syston Mill	4615 3124	NRA-ST	413.8
028025 *	Sence at Ratcliffe Culey	4321 2996	NRA-ST	169.4
028026	Anker at Polesworth	4263 3034	NRA-ST	368.0
028027	Erewash at Sandiacre	4482 3364	NRA-ST	182.2
028029 *	Kingston Brook at Kingston Hall	4503 3277	NRA-ST	57.0
028030 *	Black Brook at Onebarrow	4466 3171	NRA-ST	8.4
028031	Manifold at Ilam	4140 3507	NRA-ST	148.5
028032	Meden at Church Warsop	4558 3680	NRA-ST	62.8
028033 *	Dove at Hollinsclough	4063 3668	NRA-ST	8.0
028035	Leen at Triumph Road Nottingham	4549 3392	NRA-ST	111.0
028036 *	Poulter at Twyford Bridge	4700 3752	NRA-ST	128.2
028038 *	Manifold at Hulme End	4106 3595	NRA-ST	46.0
028039	Rea at Calthorpe Park	4071 2847	NRA-ST	74.0
028040	Trent at Stoke on Trent	3892 3467	NRA-ST	53.2
028041 *	Hamps at Waterhouses	4082 3502	NRA-ST	35.1
028043	Derwent at Chatsworth	4261 3683	NRA-ST	335.0
028044	Poulter at Cuckney	4570 3713	NRA-ST	32.2
028045 *	Meden/Maun at Bothamsall/Haughton	4681 3732	NRA-ST	262.6
028046	Dove at Izaak Walton	4146 3509	NRA-ST	83.0
028047	Oldcotes Dyke at Blyth	4615 3876	NRA-ST	85.2
028048	Amber at Wingfield Park	4376 3520	NRA-ST	139.0
028049	Ryton at Worksop	4575 3794	NRA-ST	77.0
028050	Torne at Auckley	4646 4012	NRA-ST	135.5
028052	Sow at Great Bridgford	3883 3270	NRA-ST	163.0
028053	Penk at Penkridge	3923 3144	NRA-ST	272.0
028054 *	Sence at Blaby	4566 2985	NRA-ST	133.0
028055	Ecclesbourne at Duffield	4320 3447	NRA-ST	50.4
028056	Rothley Brook at Rothley	4580 3121	NRA-ST	94.0
028058	Henmore Brook at Ashbourne	4178 3463	NRA-ST	42.0
028059 *	Maun at Mansfield	4548 3623	NRA-ST	28.8
028060	Dover Beck at Lowdham	4653 3479	NRA-ST	69.0
028061	Churnet at Basford Bridge	3983 3520	NRA-ST	139.0
028062 *	Trent at Fledborough	4815 3715	NRA-ST	8433.0
028065 *	Trent at Torksey	4827 3780	NRA-ST	8547.0
028066	Cole at Coleshill	4183 2874	NRA-ST	130.0
028067	Derwent at Church Wilne	4438 3316	NRA-ST	1177.5
028070 *	Burbage Brook at Burbage	4259 3804	NRA-ST	9.1
028072 *	Greet at Southwell	4711 3541	NRA-ST	46.2
028073 *	Ashop at Ashop diversion	4171 3896	NRA-ST	42.0
028074	Soar at Kegworth	4492 3263	NRA-ST	1292.0
028075 *	Derwent at Slippery Stones	4169 3951	NRA-ST	17.0
028079	Meece Brook at Shallowford	3874 3291	NRA-ST	86.3
028080	Tame at Lea Marston Lakes	4207 2937	NRA-ST	799.0
028081	Tame at Bescot	4012 2958	NRA-ST	169.0
028082	Soar at Littlethorpe	4542 2973	NRA-ST	183.9
028083	Trent at Darlaston	3885 3355	NRA-ST	195.2
028085	Derwent at St. Marys Bridge	4355 3368	NRA-ST	1054.0
028086	Sence at South Wigston	4588 2977	NRA-ST	113.0
028091	Ryton at Blyth	4631 3871	NRA-ST	231.0
028093	Soar at Pillings Lock	4565 3182	NRA-ST	1108.4
028094	Blythe at Castle Farm	4213 2888	NRA-ST	183.8
028095	Tame at Hopwas Bridge	4182 3052	NRA-ST	1421.7
028101	Tame at Sheepwash	3974 2918	NRA-ST	27.9
028102	Blythe at Whitacre	4212 2911	NRA-ST	194.3
029001	Waithe Beck at Brigsley	5253 4016	NRA-A	108.3
029002	Great Eau at Claythorpe Mill	5416 3793	NRA-A	77.4
029003	Lud at Louth	5337 3879	NRA-A	55.2
029004	Ancholme at Bishopbridge	5032 3911	NRA-A	54.7
029005	Rase at Bishopbridge	5032 3912	NRA-A	66.6
029009	Ancholme at Toft Newton	5033 3877	NRA-A	27.2
030001	Witham at Claypole Mill	4842 3480	NRA-A	297.9
030002 *	Barlings Eau at Langworth Bridge	5066 3766	NRA-A	210.1
030003	Bain at Fulsby Lock	5241 3611	NRA-A	197.1
030004	Partney Lymn at Partney Mill	5402 3676	NRA-A	61.6
030005 *	Witham at Saltersford total	4927 3335	NRA-A	126.1
030006	Slea at Leasingham Mill	5088 3485	NRA-A	48.4
030011	Bain at Goulceby Bridge	5246 3795	NRA-A	62.5
030012	Stainfield Beck at Stainfield	5127 3739	NRA-A	37.4
030013	Heighington Beck at Heighington	5042 3696	NRA-A	21.2
030014	Pointon Lode at Pointon	5128 3313	NRA-A	11.9
030015	Cringle Brook at Stoke Rochford	4925 3297	NRA-A	50.5
030017	Witham at Colsterworth	4929 3246	NRA-A	51.3
031001	Eye Brook at Eye Brook Reservoir	4853 2941	CDWC	60.1
031002	Glen at Kates Brdg and King St Brdg	5106 3149	NRA-A	341.9
031005	Welland at Tixover	4970 2997	NRA-A	417.0
031006	Gwash at Belmesthorpe	5038 3097	NRA-A	150.0
031007	Welland at Barrowden	4948 2999	NRA-A	411.6
031010	Chater at Fosters Bridge	4961 3030	NRA-A	68.9
031012 *	Tham at Little Bytham	5016 3179	NRA-A	24.9
031016	North Brook at Empingham	4957 3089	NRA-A	36.5
031021	Welland at Ashley	4819 2915	NRA-A	250.7
031023	West Glen at Easton Wood	4965 3258	NRA-A	4.4
031025	Gwash South Arm at Manton	4875 3051	NRA-A	24.5

Station number	River and station name	Grid reference	Authority	Area (sq km)
031026	Eglaton Brook at Eglaton	4878 3073	NRA-A	2.5
031028	Gwash at Church Bridge	4951 3082	NRA-A	76.5
032001 *	Nene at Orton	5166 2972	NRA-A	1634.3
032002	Willow Brook at Fotheringhay	5067 2933	NRA-A	89.6
032003	Harpers Brook at Old Mill Bridge	4983 2799	NRA-A	74.3
032004	Ise Brook at Harrowden Old Mill	4898 2715	NRA-A	194.0
032006	Nene/Kislingbury at Upton	4721 2592	NRA-A	223.0
032007	Nene Brampton at St Andrews	4747 2617	NRA-A	232.8
032008	Nene/Kislingbury at Dodford	4627 2607	NRA-A	107.0
032029 *	Flore at Experimental Catchment	4655 2604	NRA-A	7.0
032031	Wootton Brook at Wootton Park	4726 2577	NRA-A	73.8
033001 *	Bedford Ouse at Brownshill Staunch	5369 2727	NRA-A	3030.0
033002	Bedford Ouse at Bedford	5055 2495	NRA-A	1460.0
033003 *	Cam at Bottisham	5508 2657	NRA-A	803.0
033004 *	Lark at Isleham	5648 2760	NRA-A	466.2
033005	Bedford Ouse at Thornborough Mill	4736 2353	NRA-A	388.5
033006	Wissey at Northwold	5771 2965	NRA-A	274.5
033007	Nar at Marham	5723 3119	NRA-A	153.3
033008 *	Little Ouse at Thetford No1 Staunch	5860 2832	NRA-A	699.0
033009	Bedford Ouse at Harrold Mill	4951 2565	NRA-A	1320.0
033011	Little Ouse at County Bridge Euston	5892 2801	NRA-A	128.7
033012	Kym at Meagre Farm	5155 2631	NRA-A	137.5
033013	Sapiston at Rectory Bridge	5896 2791	NRA-A	205.9
033014	Lark at Temple	5758 2730	NRA-A	272.0
033015	Ouzel at Willen	4882 2408	NRA-A	277.1
033016 *	Cam at Jesus Lock	5450 2593	NRA-A	761.5
033018	Tove at Cappenham Bridge	4714 2488	NRA-A	138.1
033019	Thet at Melford Bridge	5880 2830	NRA-A	316.0
033020	Alconbury Brook at Brampton	5208 2717	NRA-A	201.5
033021	Rhee at Burnt Mill	5415 2523	NRA-A	303.0
033022	Ivel at Blunham	5153 2509	NRA-A	541.3
033023	Lea Brook at Beck Bridge	5662 2733	NRA-A	101.8
033024	Cam at Dernford	5466 2506	NRA-A	198.0
033025 *	Babingly at West Newton Mill	5696 3256	NRA-A	39.6
033026	Bedford Ouse at Offord	5216 2669	NRA-A	2570.0
033027	Rhee at Wimpole	5333 2485	NRA-A	119.1
033028	Flit at Shefford	5143 2393	NRA-A	119.6
033029	Stringside at White Bridge	5716 3006	NRA-A	98.8
033030 *	Clipstone Brook at Clipstone	4933 2255	NRA-A	40.2
033031	Broughton Brook at Broughton	4889 2408	NRA-A	66.6
033032	Heacham at Heacham	5685 3375	NRA-A	59.0
033033	Hiz at Arlesey	5190 2379	NRA-A	108.0
033034	Little Ouse at Abbey Heath	5851 2844	NRA-A	699.3
033035	Ely Ouse at Denver Complex	5588 3010	NRA-A	3430.0
033037	Bedford Ouse at Newp't Pagnell Wr	4877 2443	NRA-A	800.0
033039	Bedford Ouse at Roxton	5160 2535	NRA-A	1660.0
033040	Rhee at Ashwell	5267 2401	NRA-A	1.0
033044	Thet at Bridgham	5957 2855	NRA-A	277.8
033045	Wittle at Quidenham	6027 2878	NRA-A	28.3
033046	Thet at Red Bridge	5998 2923	NRA-A	145.3
033048	Larling Brook at Stonebridge	5928 2907	NRA-A	21.4
033049 *	Stanford Water at Buckenham Tofts	5834 2953	NRA-A	43.5
033050	Snail at Fordham	5631 2703	NRA-A	60.6
033051	Cam at Chesterford	5505 2426	NRA-A	141.0
033052	Swaffham Lode at Swaffham Bulbeck	5553 2628	NRA-A	36.4
033053 *	Granta at Stapleford	5471 2515	NRA-A	114.0
033054	Babingley at Castle Rising	5680 3252	NRA-A	47.7
033055	Granta at Babraham	5510 2504	NRA-A	98.7
033056	Quy Water at Lode	5531 2627	NRA-A	76.4
033057	Ouzel at Leighton Buzzard	4917 2241	NRA-A	119.0
033058	Ouzel at Bletchley	4883 2322	NRA-A	215.0
033059 *	Cut-off Channel at Tolgate	5729 2757	NRA-A	
033060	Kings Dike at Stanground	5208 2973	NRA-A	
033062	Guilden Brook at Fowlmere Two	5403 2457	NRA-A	
033063	Little Ouse at Knettishall	5955 2807	NRA-A	101.0
033064	Whaddon Brook at Whaddon	5359 2466	NRA-A	16.0
033065	Hiz at Hitchin	5185 2290	NRA-A	6.8
033066	Granta at Linton	5570 2464	NRA-A	59.8
033067	New River at Burwell	5608 2696	NRA-A	19.6
033068	Cheney Water at Gatley End	5296 2411	NRA-A	5.0
034001	Yare at Colney	6182 3082	NRA-A	231.8
034002	Tas at Shotesham	6226 2994	NRA-A	146.5
034003	Bure at Ingworth	6192 3296	NRA-A	164.7
034004	Wensum at Costessey Mill	6177 3128	NRA-A	570.9
034005	Tud at Costessey Park	6170 3113	NRA-A	73.2
034006	Waveney at Needham Mill	6229 2811	NRA-A	370.0
034007	Dove at Oakley Park	6174 2772	NRA-A	133.9
034008	Ant at Honing Lock	6331 3270	NRA-A	49.3
034010	Waveney at Billingford Bridge	6168 2782	NRA-A	149.4
034011	Wensum at Fakenham	5919 3294	NRA-A	161.9
034012	Burn at Burnham Overy	5842 3428	NRA-A	80.0
034013	Waveney at Ellingham Mill	6364 2917	NRA-A	670.0
034014	Wensum at Swanton Morley Total	6020 3184	NRA-A	397.8
034018	Stiffkey at Warham All Saints	5944 3414	NRA-A	87.8
034019	Bure at Horstead Mill	6267 3194	NRA-A	313.0
035001 *	Gipping at Constantine Weir	6154 2441	NRA-A	310.8
035002	Deben at Naunton Hall	6322 2534	NRA-A	163.1
035003	Alde at Farnham	6360 2601	NRA-A	63.9
035004	Ore at Beversham Bridge	6359 2583	NRA-A	54.9
035008	Gipping at Stowmarket	6058 2578	NRA-A	128.9
035010	Gipping at Bramford	6127 2465	NRA-A	298.0
035013	Blyth at Holton	6406 2769	NRA-A	92.9
036001	Stour at Stratford St Mary	6042 2340	EWC	844.3
036002	Glem at Glemsford	5846 2472	NRA-A	87.3
036003	Box at Polstead	5985 2378	NRA-A	53.9
036004	Chad Brook at Long Melford	5868 2459	NRA-A	47.4
036005	Brett at Hadleigh	6025 2429	NRA-A	156.0
036006	Stour at Langham	6020 2344	NRA-A	578.0
036007	Belchamp Brook at Bardfield Bridge	5848 2421	NRA-A	58.6
036008	Stour at Westmill	5827 2463	NRA-A	224.5
036009	Brett at Cockfield	5914 2525	NRA-A	25.7
036010	Bumpstead Brook at Broad Green	5689 2418	NRA-A	28.3
036011	Stour Brook at Sturmer	5696 2441	NRA-A	34.5
036012	Stour at Kedington	5708 2450	NRA-A	76.2
036013	Brett at Higham	6032 2354	NRA-A	195.0
036015	Stour at Lamarsh	5897 2358	NRA-A	480.7
036016 *	Ramsey at Great Oakley	6206 2288	NRA-A	13.9
036017	Ely Ouse Outfall at Kirtling Green	5681 2559	NRA-A	
037001	Roding at Redbridge	5415 1884	NRA-T	303.3
037002	Chelmer at Rushes Lock	5794 2090	NRA-A	533.9
037003	Ter at Crabbs Bridge	5786 2107	NRA-A	77.8
037004 *	Blackwater at Langford	5836 2092	NRA-A	337.0
037005	Colne at Lexden	5962 2261	NRA-A	238.2
037006	Can at Beach's Mill	5690 2072	NRA-A	228.4
037007	Wid at Writtle	5686 2060	NRA-A	136.3
037008	Chelmer at Springfield	5713 2071	NRA-A	190.3
037009	Brain at Guithavon Valley	5818 2147	NRA-A	60.7
037010	Blackwater at Appleford Bridge	5845 2158	NRA-A	247.3
037011	Chelmer at Churchend	5629 2233	NRA-A	72.6
037012	Colne at Poolstreet	5771 2364	NRA-A	65.1
037013	Sandon Brook at Sandon Bridge	5755 2055	NRA-A	60.6
037014	Roding at High Ongar	5561 2040	NRA-T	95.1
037015	Cripsey Brook at Chipping Ongar	5548 2035	NRA-T	62.2
037016	Pant at Copford Hall	5668 2313	NRA-A	62.5
037017	Blackwater at Stisted	5793 2243	NRA-A	139.2
037018	Ingrebourne at Gaynes Park	5553 1862	NRA-T	47.9
037019	Beam at Bretons Farm	5515 1853	NRA-T	49.7
037020	Chelmer at Felsted	5670 2193	NRA-A	132.1
037021	Roman at Bounstead Bridge	5985 2205	NRA-A	52.6
037022	Holland Brook at Thorpe le Soken	6179 2212	NRA-A	54.9
037024	Colne at Earls Colne	5855 2298	NRA-A	154.2
037025 *	Bourne Brook at Perces Bridge	5822 2276	NRA-A	32.1
037026 *	Tenpenny Brook at Tenpenny Bridge	6079 2207	NRA-A	29.0
037027 *	Sixpenny Brook at Ship House Bridge	6054 2214	NRA-A	5.1
037028 *	Bentley Brook at Saltwater Bridge	6109 2193	NRA-A	12.1
037029 *	St Osyth Brook at Main Road Bridge	6134 2159	NRA-A	8.0
037030 *	Holland Brook at Cradle Bridge	6171 2217	NRA-A	48.6
037031 *	Crouch at Wickford	5748 1934	NRA-A	71.8
037033	Eastwood Brook at Eastwood	5859 1888	NRA-A	10.4
037034	Mardyke at Stifford	5596 1804	NRA-A	90.7
037036	Ely Ouse Outfall at Great Sampford	5646 2351	NRA-A	
037037	Toppesfield Brook at Cornish Hall End	5675 2377	NRA-A	1.3
037038 *	Wid at Margaretting	5672 2000	NRA-A	98.6
037039	Blackwater at Langford (low flows)	5835 2090	NRA-A	337.0
038001	Lee at Feildes Weir	5390 2092	NRA-T	1036.0
038002	Ash at Mardock	5393 2148	NRA-T	78.7
038003	Mimram at Panshanger Park	5282 2133	NRA-T	133.9
038004	Rib at Wadesmill	5360 2174	NRA-T	136.5
038005 *	Ash at Easneye	5380 2138	NRA-T	85.2
038006 *	Rib at Herts Training School	5335 2158	NRA-T	148.1
038007	Canons Brook at Elizabeth Way	5431 2104	NRA-T	21.4
038011 *	Mimram at Fulling Mill	5225 2169	NRA-T	98.7
038012	Stevenage Brook at Bragbury Park	5274 2211	NRA-T	36.0
038013	Upper Lee at Luton Hoo	5118 2185	NRA-T	70.7
038014	Salmon Brook at Edmonton	5343 1937	NRA-T	20.5
038015 *	Intercepting Drain at Enfield	5355 1932	NRA-T	7.4
038016	Stansted Springs at Mountfitchet	5500 2246	NRA-T	20.5
038017	Mimram at Whitwell	5184 2212	NRA-T	39.1
038018	Upper Lee at Water Hall	5299 2099	NRA-T	150.0
038020	Cobbins Brook at Sewardstone Road	5387 1999	NRA-T	38.4
038021	Turkey Brook at Albany Park	5359 1985	NRA-T	42.2
038022	Pymmes Brook at Edmonton Silver Street	5340 1925	NRA-T	42.6
038024	Small River Lee at Ordnance Road	5370 1988	NRA-T	41.5
038026	Pincey Brook at Sheering Hall	5495 2126	NRA-T	54.6
038027	Stort at Glen Faba	5393 2093	NRA-T	280.2
038028	Stansted Brook at Gypsy Lane	5506 2241	NRA-T	25.9
038029	Quin at Griggs Bridge	5392 2248	NRA-T	50.4
038030	Beane at Hartham	5325 2131	NRA-T	175.1
038031	Lee at Rye Bridge	5385 2098	NRA-T	758.3
038032	Lee at Lee Bridge	5352 1872	NRA-T	
039001	Thames at Kingston	5177 1698	NRA-T	9948.0
039002	Thames at Days Weir	4568 1935	NRA-T	3444.7
039003	Wandle at Connollys Mill	5265 1705	NRA-T	176.1
039004	Wandle at Beddington Park	5296 1655	NRA-T	122.0
039005	Beverley Brook at Wimbledon Common	5216 1717	NRA-T	43.6
039006	Windrush at Newbridge	4402 2019	NRA-T	362.6
039007	Blackwater at Swallowfield	4731 1648	NRA-T	354.8
039008	Thames at Eynsham	4445 2087	NRA-T	1616.2
039010	Colne at Denham	5052 1864	NRA-T	743.0
039011	Wey at Tilford	4874 1433	NRA-T	396.3
039012	Hogsmill at Kingston upon Thames	5182 1688	NRA-T	69.1
039013	Colne at Berrygrove	5123 1982	NRA-T	352.2
039014	Ver at Hansteads	5151 2016	NRA-T	132.0
039015	Whitewater at Lodge Farm	4731 1523	NRA-T	44.5
039016	Kennet at Theale	4649 1708	NRA-T	1033.4
039017	Ray at Grendon Underwood	4680 2211	NRA-T	18.6
039019	Lambourn at Shaw	4470 1682	NRA-T	234.1
039020	Coln at Bibury	4122 2062	NRA-T	106.7
039021	Cherwell at Enslow Mill	4482 2183	NRA-T	551.7
039022	Loddon at Sheepbridge	4720 1652	NRA-T	164.5
039023	Wye at Hedsor	4896 1867	NRA-T	137.3
039025	Enborne at Brimpton	4568 1648	NRA-T	147.6
039026	Cherwell at Banbury	4458 2411	NRA-T	199.4
039027	Pang at Pangbourne	4634 1766	NRA-T	170.9
039028	Dun at Hungerford	4321 1685	NRA-T	101.3
039029	Tillingbourne at Shalford	5000 1478	NRA-T	59.0
039030	Gade at Croxley Green	5082 1952	NRA-T	184.0
039031 *	Lambourn at Welford	4411 1731	NRA-T	176.0
039032 *	Lambourn at East Shefford	4390 1745	NRA-T	154.0
039033	Winterbourne St at Bagnor	4453 1694	NRA-T	49.2
039034	Evenlode at Cassington Mill	4448 2099	NRA-T	430.0
039035	Churn at Cerney Wick	4076 1963	NRA-T	124.3
039036	Law Brook at Albury	5045 1468	NRA-T	16.0
039037	Kennet at Marlborough	4187 1686	NRA-T	142.0
039038	Thame at Shabbington	4670 2055	NRA-T	443.0
039040	Thames at West Mill Cricklade	4094 1942	NRA-T	185.0
039042	Leach at Priory Mill Lechlade	4227 1994	NRA-T	76.9
039043	Kennet at Knighton	4295 1710	NRA-T	295.0
039044	Hart at Bramshill House	4755 1593	NRA-T	84.0
039046	Thames at Sutton Courtenay	4516 1946	NRA-T	3414.0
039049	Silk Stream at Colindeep Lane	5217 1895	NRA-T	29.0
039051 *	Sor Brook at Adderbury	4475 2346	NRA-T	106.4
039052	The Cut at Binfield	4853 1713	NRA-T	50.2
039053	Mole at Horley	5271 1434	NRA-T	89.9
039054	Mole at Gatwick Airport	5260 1399	NRA-T	31.8
039055	Yeading Bk West at Yeading West	5083 1846	NRA-T	17.6
039056	Ravensbourne at Catford Hill	5372 1732	NRA-T	87.8
039057	Crane at Cranford Park	5103 1778	NRA-T	61.7
039058	Pool at Winsford Road	5371 1725	NRA-T	38.3
039061	Letcombe Brook at Letcombe Bassett	4375 1853	NRA-T	2.7
039065	Ewelme Brook at Ewelme	4642 1916	NRA-T	13.4
039068	Mole at Castle Mill	5179 1502	NRA-T	316.0
039069	Mole at Kinnersley Manor	5262 1462	NRA-T	142.0
039072	Thames at Royal Windsor Park	4982 1773	NRA-T	7046.0
039073	Churn at Cirencester	4020 2028	NRA-T	84.0
039074	Ampney Brook at Sheepen Bridge	4105 1950	NRA-T	74.4
039076	Windrush at Worsham	4299 2107	NRA-T	296.0
039077	Og at Marlborough Poulton Fm	4194 1697	NRA-T	59.2
039078	Wey(north) at Farnham	4838 1462	NRA-T	191.1
039079	Wey at Weybridge	5068 1648	NRA-T	1008.0

Station number	River and station name	Grid reference	Authority	Area (sq km)
039081	Ock at Abingdon	4481 1966	NRA-T	234.0
039082	Graveney at Longley Rd	5271 1709	NRA-T	16.7
039085 *	Wandle at Wandle Park	5266 1703	NRA-T	176.1
039086	Gatwick Stream at Gatwick Link	5285 1417	NRA-T	33.6
039087	Ray at Water Eaton	4121 1935	NRA-T	84.1
039088	Chess at Rickmansworth	5066 1947	NRA-T	105.0
039089	Gade at Bury Mill	5053 2077	NRA-T	48.2
039090	Cole at Inglesham	4208 1970	NRA-T	140.0
039091 *	Misbourne at Quarrendon Mill	4975 1963	NRA-T	66.3
039092	Dollis Brook at Hendon Lane Bridge	5240 1895	NRA-T	25.1
039093	Brent at Monks Park	5202 1850	NRA-T	117.6
039094	Crane at Marsh Farm	5154 1734	NRA-T	81.0
039095	Quaggy at Manor House Gardens	5394 1748	NRA-T	33.9
039096	Wealdstone Brook at Wembley	5192 1862	NRA-T	21.7
039097	Thames at Buscot	4230 1981	NRA-T	997.0
039098	Pinn at Uxbridge	5062 1826	NRA-T	33.3
039099	Ampney Brook at Ampney St. Peter	4076 2013	NRA-T	45.3
039100	Swill Brook at Oaksey	3997 1927	NRA-T	53.3
039101	Aldbourne at Ramsbury	4288 1717	NRA-T	53.1
039102	Misbourne at Denham Lodge	5046 1866	NRA-T	136.0
039103	Kennet at Newbury	4472 1672	NRA-T	548.1
039104	Mole at Esher	5130 1653	NRA-T	469.6
039105	Thame at Wheatley	4612 2050	NRA-T	533.8
039106	Mole at Leatherhead	5161 1564	NRA-T	371.4
039107	Hogsmill at Ewell	5216 1633	NRA-T	33.7
039108	Churn at Perrott's Brook	4022 2057	NRA-T	59.0
039109	Coln at Fossebridge	4080 2112	NRA-T	82.0
039110	Coln at Fairford	4151 2012	NRA-T	130.0
039111	Thames at Staines	5034 1713	NRA-T	8120.0
039112	Letcombe Brook at Arabellas Lake	4374 1852	NRA-T	3.1
039113	Manor Farm Brook at Letcombe Regis	4383 1861	NRA-T	1.4
039114	Pang at Frilsham	4537 1730	NRA-T	90.1
039115	Pang at Bucklebury	4556 1710	NRA-T	109.0
039116	Sulham Brook at Sulham	4642 1741	NRA-T	3.0
039117	Colnbrook at Hythe End	5019 1723	NRA-T	929.5
039118	Wey at Alton	4717 1395	NRA-T	44.6
039119	Wey at Kings Pond (Alton)	4724 1395	NRA-T	46.1
039120	Caker Stream at Alton	4729 1388	NRA-T	88.1
039121	Thames at Walton	4725 1385	NRA-T	9291.5
039122	Cranleigh Waters at Bramley	4999 1462	NRA-T	109.5
039125	Ver at Redbourn	5109 2118	NRA-T	62.6
039126	Red at Redbourn	5107 2119	NRA-T	
039127	Misbourne at Little Missenden	4934 1984	NRA-T	47.2
039128	Bourne at Addlestone	5061 1650	NRA-T	91.7
039129	Thames at Farmoor	4438 2068	NRA-T	1608.6
039130	Thames at Reading	4718 1741	NRA-T	4633.7
039131	Brent at Coston's Lane	5149 1823	NRA-T	146.2
039134	Ravensbourne (E) at Bromley	5406 1687	NRA-T	10.0
039135	Quaggy at Chinbrook Meadows	5410 1720	NRA-T	15.0
040001 *	Medway at Weir Wood Reservoir	5407 1353	SW	26.9
040002 *	Darwell at Darwell Reservoir	5722 1213	SW	9.6
040003	Medway at Teston	5708 1530	NRA-S	1256.1
040004	Rother at Udiam	5773 1245	NRA-S	206.0
040005	Beult at Stile Bridge	5758 1478	NRA-S	277.1
040006	Bourne at Hadlow	5632 1497	NRA-S	50.3
040007	Medway at Chafford Weir	5517 1405	NRA-S	255.1
040008	Great Stour at Wye	6049 1470	NRA-S	230.0
040009	Teise at Stone Bridge	5718 1399	NRA-S	136.2
040010	Eden at Penshurst	5520 1437	NRA-S	224.3
040011	Great Stour at Horton	6116 1554	NRA-S	345.0
040012	Darent at Hawley	5551 1718	NRA-S	191.4
040013	Darent at Otford	5525 1584	NRA-S	100.5
040014	Wingham at Durlock	6276 1576	NRA-S	37.7
040015	White Drain at Fairbrook Farm	6055 1606	NRA-S	31.8
040016	Cray at Crayford	5511 1746	NRA-S	119.7
040017	Dudwell at Burwash	5679 1240	NRA-S	27.5
040018	Darent at Lullingstone	5530 1643	NRA-S	118.4
040020	Eridge Stream at Hendal Bridge	5522 1367	NRA-S	53.7
040021	Hexden Channel at Hopemill Br Sandhurst	5813 1290	NRA-S	32.4
040023	East Stour at South Willesborough	6015 1407	NRA-S	58.8
040024 *	Bartley Mill St at Bartley Mill	5633 1357	NRA-S	25.1
040027	Sarre Penn at Calcott	6174 1625	NRA-S	19.4
040029	Len at Lenside	5765 1556	NRA-S	69.7
040032 *	Rother at Crowhurst Bridge	5683 1263	NRA-S	92.7
040033	Dour at Crabble Mill	6300 1430	NRA-S	49.5
041001	Nunningham Stream at Tilley Bridge	5662 1129	NRA-S	16.9
041002	Ash Bourne at Hammer Wood Bridge	5684 1141	NRA-S	18.4
041003	Cuckmere at Sherman Bridge	5533 1051	NRA-S	134.7
041004	Ouse at Barcombe Mills	5433 1148	NRA-S	395.7
041005	Ouse at Gold Bridge	5429 1214	NRA-S	180.9
041006	Uck at Isfield	5459 1190	NRA-S	87.8
041009 *	Rother at Hardham	5034 1178	NRA-S	345.8
041010	Adur W Branch at Hatterell Bridge	5178 1197	NRA-S	109.1
041011	Rother at Iping Mill	4852 1229	NRA-S	154.0
041012	Adur E Branch at Sakeham	5219 1190	NRA-S	93.3
041013	Huggletts Stream at Henley Bridge	5671 1138	NRA-S	14.2
041014	Arun at Pallingham Quay	5047 1229	NRA-S	379.0
041015	Ems at Westbourne	4755 1074	NRA-S	58.3
041016	Cuckmere at Cowbeech	5611 1150	NRA-S	18.7
041017	Combehaven at Crowhurst	5765 1102	NRA-S	30.5
041018	Kird at Tanyards	5044 1256	NRA-S	66.8
041019	Arun at Alfoldean	5117 1331	NRA-S	139.0
041020	Bevern Stream at Clappers Bridge	5423 1161	NRA-S	34.6
041021	Clayhill Stream at Old Ship	5448 1153	NRA-S	7.1
041022	Lod at Halfway Bridge	4931 1223	NRA-S	52.0
041023	Lavant at Graylingwell	4871 1064	NRA-S	87.2
041024	Shell Brook at Shell Brook P S	5335 1286	NRA-S	22.6
041025	Loxwood Stream at Drungewick	5060 1309	NRA-S	91.6
041026	Cockhaise Brook at Holywell	5376 1262	NRA-S	36.1
041027	Rother at Princes Marsh	4772 1270	NRA-S	37.2
041028	Chess Stream at Chess Bridge	5217 1173	NRA-S	24.0
041029	Bull at Lealands	5575 1131	NRA-S	40.8
041031	Fulking Stream at Fulking	5247 1113	NRA-S	
041033	Costers Brook at Cocking	4880 1174	NRA-S	2.7
041034 *	Ems at Walderton	4786 1104	NRA-S	41.5
041035	North River at Brookhurst	5130 1325	NRA-S	55.1
041037	Winterbourne Stream at Lewes	5403 1096	NRA-S	17.3
042001	Wallington at North Fareham	4587 1075	NRA-S	111.0
042003	Lymington at Brockenhurst Park	4318 1019	NRA-S	98.9
042004	Test at Broadlands	4354 1188	NRA-S	1040.0
042005	Wallop Brook at Broughton	4311 1330	NRA-S	53.6
042006	Meon at Mislingford	4589 1141	NRA-S	72.8
042007	Alre at Drove Lane Alresford	4574 1326	NRA-S	57.0
042008	Cheriton Stream at Sewards Bridge	4574 1323	NRA-S	75.1
042009	Candover Stream at Borough Bridge	4568 1323	NRA-S	71.2
042010	Itchen at Highbridge+Allbrook	4467 1213	NRA-S	360.0
042011	Hamble at Frog Mill	4523 1149	NRA-S	56.6
042012	Anton at Fullerton	4379 1393	NRA-S	185.0
042014	Blackwater at Ower	4328 1174	NRA-S	104.7
042015	Dever at Weston Colley	4496 1394	NRA-S	52.7
042016	Itchen at Easton	4512 1325	NRA-S	236.8
042017	Hermitage at Havant	4711 1067	NRA-S	17.0
042018	Monks Brook at Eastleigh	4443 1179	NRA-S	43.3
042020	Tadburn Lake at Romsey	4362 1212	NRA-S	19.0
042021 *	Branch of Test at Nursling	4355 1159	NRA-S	1050.0
042023	Itchen at Riverside Park	4445 1154	NRA-S	415.0
042024	Test at Chilbolton (Total)	4386 1394	NRA-S	453.0
042025	Lavant Stream at Leigh Park	4721 1072	NRA-S	54.5
043001 *	Avon at Ringwood	4142 1054	NRA-SW	1649.8
043003	Avon at East Mills	4158 1144	NRA-SW	1477.8
043004	Bourne at Laverstock Mill	4157 1304	NRA-SW	163.6
043005	Avon at Amesbury	4151 1413	NRA-SW	323.7
043006	Nadder at Wilton Park	4098 1308	NRA-SW	220.6
043007	Stour at Throop Mill	4113 0958	NRA-SW	1073.0
043008	Wylye at South Newton	4086 1343	NRA-SW	445.4
043009	Stour at Hammoon	3820 1147	NRA-SW	523.1
043010	Allen at Loverley Mill	4006 1085	NRA-SW	94.0
043011 *	Ebble at Bodenham	4162 1263	NRA-SW	109.0
043012	Wylye at Norton Bavant	3909 1428	NRA-SW	112.4
043013 *	Mude at Somerford	4184 0936	NRA-SW	12.4
043014	East Avon at Upavon	4133 1559	NRA-SW	86.2
043015 *	Wylye at Longbridge Deverill	3868 1413	NRA-SW	69.0
043017	West Avon at Upavon	4133 1559	NRA-SW	76.0
043018	Allen at Walford Mill	4008 1007	NRA-SW	176.5
043019	Shreen Water at Colesbrook	3807 1278	NRA-SW	29.1
043021	Avon at Knapp Mill	4155 0943	NRA-SW	1706.0
044001	Frome at East Stoke total	3866 0867	NRA-SW	414.4
044002	Piddle at Baggs Mill	3913 0876	NRA-SW	183.1
044003 *	Asker at Bridport	3470 0928	NRA-SW	49.1
044004	Frome at Dorchester total	3708 0903	NRA-SW	206.0
044006	Sydling Water at Sydling St Nicholas	3632 0997	NRA-SW	12.4
044008 *	Sth Winterbourne at W'bourne Steepleton	3629 0897	NRA-SW	19.9
044009	Wey at Broadwey	3666 0839	NRA-SW	7.0
045001	Exe at Thorverton	2936 1016	NRA-SW	600.9
045002	Exe at Stoodleigh	2943 1178	NRA-SW	421.7
045003	Culm at Wood Mill	3021 1058	NRA-SW	226.1
045004	Axe at Whitford	3262 0953	NRA-SW	288.5
045005	Otter at Dotton	3087 0885	NRA-SW	202.5
045006 *	Quarme at Enterwell	2919 1356	NRA-SW	20.4
045008	Otter at Fenny Bridges	3115 0986	NRA-SW	104.2
045009	Exe at Pixton	2935 1260	NRA-SW	147.6
045010 *	Haddeo at Hartford	2952 1294	NRA-SW	50.0
045011 *	Barle at Brushford	2927 1258	NRA-SW	128.0
045012	Creedy at Cowley	2901 0967	NRA-SW	261.6
045013 *	Tale at Fairmile	3088 0972	NRA-SW	34.4
046002	Teign at Preston	2856 0746	NRA-SW	380.0
046003	Dart at Austins Bridge	2751 0659	NRA-SW	247.6
046005	East Dart at Bellever	2657 0775	NRA-SW	21.5
046006	Erme at Ermington	2642 0532	NRA-SW	43.5
046007 *	West Dart at Dunnabridge	2643 0742	NRA-SW	47.9
046008 *	Avon at Loddiswell	2719 0476	NRA-SW	102.3
047001	Tamar at Gunnislake	2426 0725	NRA-SW	916.9
047003 *	Tavy at Lopwell	2475 0652	NRA-SW	205.9
047004	Lynher at Pillaton Mill	2369 0626	NRA-SW	135.5
047005 *	Ottery at Werrington Park	2337 0866	NRA-SW	120.7
047006 *	Lyd at Lifton Park	2389 0842	NRA-SW	218.1
047007	Yealm at Puslinch	2574 0511	NRA-SW	54.9
047008	Thrushel at Tinhay	2398 0856	NRA-SW	112.7
047009	Tiddy at Tideford	2344 0596	NRA-SW	37.2
047010	Tamar at Crowford Bridge	2290 0991	NRA-SW	76.7
047011 *	Plym at Carn Wood	2522 0613	NRA-SW	79.2
047013	Withey Brook at Bastreet	2244 0764	NRA-SW	16.2
047014	Walkham at Horrabridge	2513 0699	NRA-SW	43.2
047015	Tavy at Denham / Ludbrook	2476 0681	NRA-SW	197.3
047016	Lumburn at Lumburn Bridge	2459 0732	NRA-SW	20.5
047017 *	Wolf at Combe Park Farm	2419 0898	NRA-SW	31.1
048001	Fowey at Trekeivesteps	2227 0698	NRA-SW	36.8
048002 *	Fowey at Restormel one	2108 0613	NRA-SW	171.2
048003	Fal at Tregony	1921 0447	NRA-SW	87.0
048004	Warleggan at Trengoffe	2159 0674	NRA-SW	25.3
048005	Kenwyn at Truro	1820 0450	NRA-SW	19.1
048006 *	Cober at Helston	1654 0273	NRA-SW	40.1
048007	Kennall at Ponsanooth	1762 0377	NRA-SW	26.6
048009 *	St Neot at Craigshill Wood	2184 0662	NRA-SW	22.7
048010	Seaton at Trebrownbridge	2299 0595	NRA-SW	38.1
048011	Fowey at Restormel	2098 0624	NRA-SW	169.1
049001	Camel at Denby	2017 0682	NRA-SW	208.8
049002	Hayle at St Erth	1549 0341	NRA-SW	48.9
049003	De Lank at De Lank	2133 0765	NRA-SW	21.7
049004	Gannel at Gwills	1829 0593	NRA-SW	41.0
050001	Taw at Umberleigh	2608 1237	NRA-SW	826.2
050002	Torridge at Torrington	2500 1185	NRA-SW	663.0
050004 *	Hole Water at Muxworthy	2705 1373	NRA-SW	5.4
050005	West Okement at Vellake	2557 0903	NRA-SW	13.3
050006	Mole at Woodleigh	2660 1211	NRA-SW	327.5
050007	Taw at Taw Bridge	2673 1068	NRA-SW	71.4
050011 *	Okement at Jacobstowe	2592 1019	NRA-SW	82.1
050012 *	Yeo at Veraby	2775 1267	NRA-SW	53.7
050013	Bray at Leehamford Bridge	2677 1399	NRA-SW	17.6
051001	Doniford Stream at Swill Bridge	3088 1428	NRA-SW	75.8
051002	Horner Water at West Luccombe	2898 1458	NRA-SW	20.8
051003	Washford at Beggearn Huish	3040 1395	NRA-SW	36.3
052001 *	Axe at Wookey	3527 1458	NRA-SW	18.2
052002 *	Yeo at Sutton Bingham Res.	3558 1116	NRA-SW	30.3
052003	Halse Water at Bishops Hull	3206 1253	NRA-SW	87.8
052004	Isle at Ashford Mill	3361 1188	NRA-SW	90.1
052005	Tone at Bishops Hull	3206 1250	NRA-SW	202.0
052006	Yeo at Pen Mill	3573 1162	NRA-SW	213.1
052007	Parrett at Chiselborough	3461 1144	NRA-SW	74.8
052008 *	Tone at Clatworthy Reservoir	3044 1313	NRA-SW	18.1
052009	Sheppey at Fenny Castle	3498 1439	NRA-SW	59.6
052010	Brue at Lovington	3590 1318	NRA-SW	135.2
052011	Cary at Somerton	3498 1291	NRA-SW	82.4
052014	Tone at Greenham	3078 1202	NRA-SW	57.2
052015	Land Yeo at Wraxall Bridge	3483 1716	NRA-SW	23.3

Station number	River and station name	Grid reference	Authority	Area (sq km)
052016	Currypool Stream at Currypool Farm	3221 1382	NRA-SW	15.7
052017	Congresbury Yeo at Iwood	3452 1631	NRA-SW	66.8
052020 *	Gallica Stream at Gallica Bridge	3571 1100	NRA-SW	16.4
053001 *	Avon at Melksham	3903 1641	NRA-SW	665.6
053002	Semington Brook at Semington	3907 1605	NRA-SW	157.7
053003 *	Avon at Bath St James	3753 1645	NRA-SW	1595.0
053004	Chew at Compton Dando	3648 1647	NRA-SW	129.5
053005	Midford Brook at Midford	3763 1611	NRA-SW	147.4
053006	Frome(Bristol) at Frenchay	3637 1772	NRA-SW	148.9
053007	Frome(Somerset) at Tellisford	3805 1564	NRA-SW	261.6
053008	Avon at Great Somerford	3966 1832	NRA-SW	303.0
053009	Wellow Brook at Wellow	3741 1581	NRA-SW	72.6
053013	Marden at Stanley	3955 1729	NRA-SW	99.2
053017	Boyd at Bitton	3681 1698	NRA-SW	48.0
053018	Avon at Bathford	3786 1671	NRA-SW	1552.0
053019	Woodbridge Brook at Crab Mill	3949 1866	NRA-SW	46.6
053020	Gauze Brook at Rodbourne	3937 1840	NRA-SW	28.2
053022 *	Avon at Bath ultrasonic	3738 1651	NRA-SW	1605.0
053023	Sherston Avon at Fosseway	3891 1870	NRA-SW	89.7
053024	Tetbury Avon at Brokenborough	3914 1893	NRA-SW	73.6
053025	Mells at Vallis	3757 1491	NRA-SW	119.0
053026	Frome(Bristol) at Frampton Cotterell	3667 1822	NRA-SW	76.5
053028	By Brook at Middlehill	3815 1688	NRA-SW	102.0
053029	Biss at Trowbridge	3854 1579	NRA-SW	77.6
054001	Severn at Bewdley	3782 2762	NRA-ST	4325.0
054002	Avon at Evesham	4040 2438	NRA-ST	2210.0
054004	Sowe at Stoneleigh	4332 2731	NRA-ST	262.0
054005	Severn at Montford	3412 3144	NRA-ST	2025.0
054006	Stour at Callows Lane, Kidderminster	3829 2768	NRA-ST	324.0
054007	Arrow at Broom	4086 2536	NRA-ST	319.0
054008	Teme at Tenbury	3597 2686	NRA-ST	1134.4
054010 *	Stour at Alscot Park	4208 2507	NRA-ST	319.0
054011	Salwarpe at Harford Hill	3868 2618	NRA-ST	184.0
054012	Tern at Walcot	3592 3123	NRA-ST	852.0
054013 *	Clywedog at Cribynau	2944 2855	NRA-ST	57.0
054014	Severn at Abermule	3164 2958	NRA-ST	580.0
054015	Bow Brook at Besford Bridge	3927 2463	NRA-ST	156.0
054016	Roden at Rodington	3589 3141	NRA-ST	259.0
054017 *	Leadon at Wedderburn Bridge	3777 2234	NRA-ST	293.0
054018	Rea Brook at Hookagate	3466 3092	NRA-ST	178.0
054019	Avon at Stareton	4333 2715	NRA-ST	347.0
054020	Perry at Yeaton	3434 3192	NRA-ST	180.8
054022	Severn at Plynlimon Flume	2853 2872	IH	8.7
054023	Badsey Brook at Offenham	4063 2449	NRA-ST	95.8
054024	Worfe at Burcote	3747 2953	NRA-ST	258.0
054025	Dulas at Rhos-y-pentref	2950 2824	NRA-ST	52.7
054026 *	Chelt at Slate Mill	3892 2264	NRA-ST	34.5
054027	Frome at Ebley Mill	3831 2047	NRA-ST	198.0
054028	Vyrnwy at Llanymynech	3252 3195	NRA-ST	778.0
054029	Teme at Knightsford Bridge	3735 2557	NRA-ST	1480.0
054032	Severn at Saxons Lode	3863 2390	NRA-ST	6850.0
054034	Dowles Brook at Oak Cottage, Dowles	3768 2764	NRA-ST	40.8
054036	Isbourne at Hinton on the Green	4023 2408	NRA-ST	90.7
054038	Tanat at Llanyblodwel	3252 3225	NRA-ST	229.0
054040	Meese at Tibberton	3680 3205	NRA-ST	167.8
054041	Tern at Eaton On Tern	3649 3230	NRA-ST	192.0
054042 *	Clywedog at Clywedog Dm Lower Weir	2914 2867	NRA-ST	49.0
054043 *	Severn at Upton On Severn	3863 2399	NRA-ST	6850.0
054044	Tern at Ternhill	3629 3316	NRA-ST	92.6
054045 *	Perry at Perry Farm	3347 3303	NRA-ST	49.1
054046	Worfe at Cosford	3781 3046	NRA-ST	54.9
054047 *	Perry at Ruyton Bridge	3403 3223	NRA-ST	155.0
054048	Dene at Wellesbourne	4273 2556	NRA-ST	102.0
054049	Leam at Princes Drive Weir	4307 2654	NRA-ST	362.0
054050	Leam at Eathorpe	4388 2688	NRA-ST	300.0
054052	Bailey Brook at Ternhill	3629 3316	NRA-ST.	34.4
054055 *	Rea at Neen Sollars	3664 2724	NRA-ST	129.0
054056 *	Clun at Clungunford	3393 2786	NRA-ST	195.0
054057	Severn at Haw Bridge	3844 2279	NRA-ST	9895.0
054058 *	Stoke Park Brook at Stoke Park	3644 3260	NRA-ST	14.3
054059 *	Allford Brook at Allford	3654 3223	NRA-ST	10.2
054060	Potford Brook at Sandyford Bridge	3634 3220	NRA-ST	25.0
054061 *	Hodnet Brook at Hodnet	3628 3288	NRA-ST	5.1
054062 *	Stoke Brook at Stoke	3637 3280	NRA-ST	13.7
054063	Stour at Prestwood Hospital	3865 2858	NRA-ST	89.9
054065 *	Roden at Stanton	3565 3241	NRA-ST	210.0
054066 *	Platt Brook at Platt	3628 3229	NRA-ST	15.7
054067 *	Smestow Brook at Swindon	3861 2906	NRA-ST	81.3
054068 *	Tetchill Brook at Hordley	3379 3288	NRA-ST	21.2
054069 *	Springs Brook at Lower Hordley	3387 3297	NRA-ST	10.4
054070 *	War Brook at Walford	3432 3198	NRA-ST	22.5
054080 *	Severn at Dolwen	2996 2851	NRA-ST	187.0
054081	Clywedog at Bryntail	2913 2868	NRA-ST	49.0
054083 *	Crow Brook at Horton	3678 3141	NRA-ST	16.7
054084 *	Cannop Brook at Parkend	3616 2075	NRA-ST	31.5
054085 *	Cannop Brook at Cannop Cross	3609 2115	NRA-ST	10.4
054086	Cownwy Diversion at Cownwy Weir	2999 3179	NRA-ST	13.2
054087 *	Allford Brook at Childs Ercall	3667 3228	NRA-ST	4.7
054088	Little Avon at Berkeley Kennels	3683 1988	NRA-SW	134.0
054089	Avon at Bredon	3921 2374	NRA-ST	2674.0
054090	Tanllwyth at Tanllwyth Flume	2843 2876	IH	0.9
054091	Severn at Hafren Flume	2843 2878	IH	3.6
054092	Hore at Hore Flume	2846 2873	IH	3.2
054094	Strine at Crudgington	3640 3175	NRA-ST	134.0
054095	Severn at Buildwas	3644 3044	NRA-ST	3717.0
054096	Hadley Brook at Wards Bridge	3870 2631	NRA-ST	53.4
055002	Wye at Belmont	3485 2388	NRA-WEL	1895.9
055003 *	Lugg at Lugwardine	3548 2405	NRA-WEL	885.8
055004 *	Irfon at Abernant	2892 2460	NRA-WEL	72.8
055005 *	Wye at Rhayader	2969 2676	NRA-WEL	166.8
055006 *	Elan at Caban Coch Reservoir	2926 2645	NRA-WEL	184.0
055007	Wye at Erwood	3076 2445	NRA-WEL	1282.1
055008	Wye at Cefn Brwyn	2829 2838	IH	10.6
055009 *	Monnow at Kentchurch	3419 2251	NRA-WEL	357.4
055010 *	Wye at Pant Mawr	2843 2825	NRA-WEL	27.2
055011 *	Ithon at Llandewi	3105 2683	NRA-WEL	111.4
055012	Irfon at Cilmery	2995 2507	NRA-WEL	244.2
055013	Arrow at Titley Mill	3328 2585	NRA-WEL	126.4
055014	Lugg at Byton	3364 2647	NRA-WEL	203.3
055015 *	Honddu at Tafolog	3277 2294	NRA-WEL	25.1
055016	Ithon at Disserth	3024 2578	NRA-WEL	358.0
055017 *	Chwefru at Carreg-y-wen	2998 2531	NRA-WEL	29.0
055018	Frome at Yarkhill	3615 2428	NRA-WEL	144.0
055021	Lugg at Butts Bridge	3502 2589	NRA-WEL	371.0
055022 *	Trothy at Mitchel Troy	3503 2112	NRA-WEL	142.0
055023	Wye at Redbrook	3528 2110	NRA-WEL	4010.0
055025	Llynfi at Three Cocks	3166 2373	NRA-WEL	132.0
055026	Wye at Ddol Farm	2976 2676	NRA-WEL	174.0
055027 *	Rudhall Brook at Sandford Bridge	3641 2257	NRA-WEL	13.2
055028	Frome at Bishops Frome	3667 2489	NRA-WEL	77.7
055029	Monnow at Grosmont	3415 2249	NRA-WEL	354.0
055030 *	Claerwen at Dol-y-mynach	2910 2620	NRA-WEL	95.3
055031	Yazor Brook at Three Elms	3492 2415	NRA-WEL	42.3
055032	Elan at Elan Village	2934 2653	NRA-WEL	184.0
055033	Wye at Gwy Flume	2824 2853	IH	3.9
055034 *	Cyff at Cyff Flume	2824 2842	IH	3.1
055035 *	Iago at Iago Flume	2826 2854	IH	1.1
056001	Usk at Chain Bridge	3345 2056	NRA-WEL	911.7
056002	Ebbw at Rhiwderyn	3259 1889	NRA-WEL	216.5
056003 *	Honddu at The Forge Brecon	3051 2297	NRA-WEL	62.1
056004 *	Usk at Llandetty	3127 2203	NRA-WEL	543.9
056005	Lwyd at Ponthir	3330 1924	NRA-WEL	98.1
056006 *	Usk at Trallong	2947 2295	NRA-WEL	183.8
056007	Senni at Pont Hen Hafod	2928 2255	NRA-WEL	19.9
056008 *	Monks Ditch at Llanwern	3372 1885	NRA-WEL	15.4
056010	Usk at Trostrey Weir	3358 2042	NRA-WEL	927.2
056011 *	Sirhowy at Wattsville	3206 1912	NRA-WEL	76.1
056012 *	Grwyne at Millbrook	3241 2176	NRA-WEL	82.2
056013	Yscir at Pontaryscir	3003 2304	NRA-WEL	62.8
056014	Usk at Usk Reservoir	2840 2290	NRA-WEL	17.0
056015	Olway Brook at Olway Inn	3384 2010	NRA-WEL	105.1
056016 *	Caerfanell Outfall at Talybont Reservoir	3104 2206	NRA-WEL	32.4
057001 *	Taf Fechan at Taf Fechan Reservoir	3060 2117	NRA-WEL	33.7
057002 *	Taf Fawr at Llwynon Reservoir	3012 2111	NRA-WEL	43.0
057003 *	Taff at Tongwynlais	3132 1818	NRA-WEL	486.9
057004	Cynon at Abercynon	3079 1956	NRA-WEL	106.0
057005	Taff at Pontypridd	3079 1897	NRA-WEL	454.8
057006	Rhondda at Trehafod	3054 1909	NRA-WEL	100.5
057007	Taff at Fiddlers Elbow	3089 1951	NRA-WEL	194.5
057008	Rhymney at Llanedeyrn	3225 1821	NRA-WEL	178.7
057009	Ely at St Fagans	3121 1770	NRA-WEL	145.0
057010	Ely at Lanelay	3034 1827	NRA-WEL	39.4
057011 *	Blaen Taf Fawr at Beacons Reservoir	2987 2193	NRA-WEL	5.1
057012 *	Garwnant at Llwynon Reservoir	3004 2129	NRA-WEL	4.3
057015	Taff at Merthyr Tydfil	3043 2068	NRA-WEL	104.1
057016	Taf Fechan at Pontsticill	3060 2115	NRA-WEL	33.8
058001	Ogmore at Bridgend	2904 1794	NRA-WEL	158.0
058002	Neath at Resolven	2815 2017	NRA-WEL	190.9
058003 *	Ewenny at Ewenny Priory	2914 1780	NRA-WEL	62.9
058005	Ogmore at Brynmenyn	2904 1844	NRA-WEL	74.3
058006	Mellte at Pontneddfechan	2915 2082	NRA-WEL	65.8
058007	Llynfi at Coytrahen	2891 1855	NRA-WEL	50.2
058008	Dulais at Cilfrew	2778 2008	NRA-WEL	43.0
058009	Ewenny at Keepers Lodge	2920 1782	NRA-WEL	62.5
058010 *	Hepste at Esgair Carnau	2969 2134	NRA-WEL	11.0
058011	Thaw at Gigman Bridge	3017 1716	NRA-WEL	49.2
058012	Afan at Marcroft Weir	2771 1910	NRA-WEL	87.8
059001	Tawe at Ynystanglws	2685 1998	NRA-WEL	227.7
059002	Loughor at Tir-y-dail	2623 2127	NRA-WEL	46.4
060002	Cothi at Felin Mynachdy	2508 2225	NRA-WEL	297.8
060003	Taf at Clog-y-Fran	2238 2160	NRA-WEL	217.3
060004 *	Dewi Fawr at Glasfryn Ford	2290 2175	NRA-WEL	40.1
060005	Bran at Llandovery	2771 2343	NRA-WEL	66.8
060006	Gwili at Glangwili	2431 2220	NRA-WEL	129.5
060007	Tywi at Dolau Hirion	2762 2362	NRA-WEL	231.8
060008	Tywi at Ystradffin	2786 2472	NRA-WEL	89.8
060009	Sawdde at Felin-y-cwm	2712 2266	NRA-WEL	81.1
060010	Tywi at Nantgaredig	2485 2206	NRA-WEL	1090.4
060012 *	Twrch at Ddol Las	2650 2440	NRA-WEL	20.7
060013 *	Cothi at Pont Ynys Brechfa	2537 2301	NRA-WEL	261.6
061001	Western Cleddau at Prendergast Mill	1954 2177	NRA-WEL	197.6
061002	Eastern Cleddau at Canaston Bridge	2072 2153	NRA-WEL	183.1
061003	Gwaun at Cilrhedyn Bridge	2005 2349	NRA-WEL	31.3
061004 *	Western Cleddau at Redhill	1942 2184	NRA-WEL	197.6
062001	Teifi at Glan Teifi	2244 2416	NRA-WEL	893.6
062002 *	Teifi at Llanfair	2433 2406	NRA-WEL	510.0
063001	Ystwyth at Pont Llolwyn	2591 2774	NRA-WEL	169.6
063002 *	Rheidol at Llanbadarn Fawr	2601 2804	NRA-WEL	182.1
063003 *	Wyre at Llanrhystyd	2542 2698	NRA-WEL	40.6
063004	Ystwyth at Cwm Ystwyth	2791 2737	NRA-WEL	32.1
063005 *	Maesnant at Nant-y-Moch C	2778 2877	IH	0.6
063006 *	Maesnant Fach at Nant-y-Moch E	2765 2865	IH	0.8
064001	Dyfi at Dyfi Bridge	2745 3019	NRA-WEL	471.3
064002	Dysynni at Pont-y-Garth	2632 3066	NRA-WEL	75.1
064006	Leri at Dolybont	2635 2882	NRA-WEL	47.2
064007 *	Delyn at Llanbrynmair	2899 3062	IH	1.1
064008 *	Cwm at Llanbrynmair E	2916 3087	IH	3.0
065001	Glaslyn at Beddgelert	2592 3478	NRA-WEL	68.6
065002 *	Dwyryd at Maentwrog	2670 3415	NRA-WEL	78.2
065004	Gwyrfai at Bontnewydd	2484 3599	NRA-WEL	47.9
065005	Erch at Pencaenewydd	2400 3404	NRA-WEL	18.1
065006	Seiont at Peblig Mill	2493 3623	NRA-WEL	74.4
065007	Dwyfawr at Garndolbenmaen	2499 3429	NRA-WEL	52.4
066001	Clwyd at Pont-y-cambwll	3069 3709	NRA-WEL	404.0
066002 *	Elwy at Pant yr Onen	3021 3704	NRA-WEL	220.0
066003	Aled at Bryn Aled	2957 3703	NRA-WEL	70.0
066004 *	Wheeler at Bodfari	3105 3714	NRA-WEL	62.9
066005	Clwyd at Ruthin Weir	3122 3592	NRA-WEL	95.3
066006	Elwy at Pont-y-Gwyddel	2952 3718	NRA-WEL	194.0
066008	Aled at Aled Isaf Reservoir	2915 3598	NRA-WEL	11.6
066011	Conwy at Cwm Llanerch	2802 3581	NRA-WEL	344.5
067001	Dee at Bala	2942 3357	NRA-WEL	261.6
067002 *	Dee at Erbistock Rectory	3357 3413	NRA-WEL	1040.0
067003	Brenig at Llyn Brenig outflow	2974 3539	NRA-WEL	20.2
067005 *	Ceiriog at Brynkinalt Weir	3295 3373	NRA-WEL	113.7
067006	Alwen at Druid	3042 3436	NRA-WEL	184.7
067008	Alyn at Pont-y-Capel	3336 3541	NRA-WEL	227.1
067009	Alyn at Rhydymwyn	3206 3667	NRA-WEL	77.8
067010 *	Gelyn at Cynefail	2843 3420	NRA-WEL	13.1
067011 *	Nant Aberderfel at Nant Aberderfel	2851 3392	NRA-WEL	3.7
067012 *	Tryweryn at Upper Tryweryn	2838 3398	NRA-WEL	27.2
067013 *	Hirnant at Plas Rhiwedog	2946 3349	NRA-WEL	33.9
067015	Dee at Manley Hall	3348 3415	NRA-WEL	1019.3

Station number	River and station name	Grid reference	Authority	Area (sq km)
067016 *	Worthenbury Brook at Worthenbury	3418 3464	NRA-WEL	142.1
067017	Tryweryn at Llyn Celyn outflow	2880 3399	NRA-WEL	59.9
067018	Dee at New Inn	2874 3308	NRA-WEL	53.9
067020	Dee at Chester Weir	3408 3659	NRA-WEL	1816.8
067025	Clywedog at Bowling Bank	3396 3483	NRA-WEL	98.6
067026 *	Dee at Eccleston Ferry	3415 3612	NRA-WEL	1818.8
067028 *	Ceidiog at Llandrillo	3034 3371	NRA-WEL	36.5
067029 *	Trystion at Pen-y-felin Fawr	3066 3405	NRA-WEL	12.3
068001	Weaver at Ashbrook	3670 3633	NRA-NW	622.0
068002 *	Gowy at Picton	3443 3714	NRA-NW	156.2
068003	Dane at Rudheath	3668 3718	NRA-NW	407.1
068004	Wistaston Brook at Marshfield Bridge	3674 3552	NRA-NW	92.7
068005	Weaver at Audlem	3653 3431	NRA-NW	207.0
068006 *	Dane at Hulme Walfield	3845 3644	NRA-NW	150.0
068007	Wincham Brook at Lostock Gralam	3697 3757	NRA-NW	148.0
068010 *	Fender at Ford	3281 3880	NRA-NW	18.4
068015	Gowy at Huxley	3497 3624	NRA-NW	49.0
068018 *	Dane at Congleton Park	3861 3632	NRA-NW	145.0
068019	Weaver at Pickerings Cut	3574 3762	NRA-NW	1370.0
068020	Gowy at Bridge Trafford	3448 3711	NRA-NW	156.0
069001 *	Mersey at Irlam Weir	3728 3936	NRA-NW	679.0
069002	Irwell at Adelphi Weir	3824 3987	NRA-NW	559.4
069003	Irk at Scotland Weir	3841 3992	NRA-NW	72.5
069004 *	Etherow at Bottoms Reservoir	4023 3971	NRA-NW	78.2
069005 *	Glaze Brook at Little Woolden Hall	3685 3939	NRA-NW	152.0
069006	Bollin at Dunham Massey	3727 3875	NRA-NW	256.0
069007	Mersey at Ashton Weir	3772 3936	NRA-NW	660.0
069008	Dean at Stanneylands	3846 3830	NRA-NW	51.8
069011	Micker Brook at Cheadle	3855 3889	NRA-NW	67.3
069012	Bollin at Wilmslow	3850 3815	NRA-NW	72.5
069013	Sinderland Brook at Partington	3726 3905	NRA-NW	44.8
069015	Etherow at Compstall	3962 3908	NRA-NW	156.0
069017	Goyt at Marple Bridge	3964 3898	NRA-NW	183.0
069018 *	Newton Brook at Newton Le Willows	3585 3933	NRA-NW	32.8
069019 *	Worsley Brook at Eccles	3753 3980	NRA-NW	24.9
069020	Medlock at London Road	3849 3975	NRA-NW	57.5
069023	Roch at Blackford Bridge	3807 4077	NRA-NW	186.0
069024	Croal at Farnworth Weir	3743 4068	NRA-NW	145.0
069025	Irwell at Manchester Racecourse	3821 4004	NRA-NW	557.0
069027	Tame at Portwood	3906 3918	NRA-NW	150.0
069028	Mersey at Brinksway	3884 3900	NRA-NW	531.0
069030	Sankey Brook at Causey Bridge	3588 3922	NRA-NW	154.0
069031 *	Ditton Brook at Greens Bridge	3457 3865	NRA-NW	47.9
069032	Alt at Kirkby	3392 3983	NRA-NW	90.1
069034 *	Musbury Brook at Helmshore	3775 4213	NRA-NW	3.1
069035	Irwell at Bury Bridge	3797 4109	NRA-NW	155.0
069037 *	Mersey at Westy	3617 3877	NRA-NW	2030.0
069040	Irwell at Stubbins	3793 4188	NRA-NW	105.0
069041	Tame at Broomstair Bridge	3938 3953	NRA-NW	113.0
069042	Ding Brook at Naden Reservoir	3850 4175	NRA-NW	2.2
070002	Douglas at Wanes Blades Bridge	3476 4126	NRA-NW	198.0
070003	Douglas at Central Park Wigan	3587 4061	NRA-NW	55.3
070004	Yarrow at Croston Mill	3498 4180	NRA-NW	74.4
070005	Lostock at Littlewood Bridge	3497 4197	NRA-NW	56.0
071001	Ribble at Samlesbury	3589 4304	NRA-NW	1145.0
071003 *	Croasdale at Croasdale Flume	3706 4546	NWW	10.4
071004	Calder at Whalley Weir	3729 4360	NRA-NW	316.0
071005 *	Bottoms Beck at Bottoms Beck Flume	3745 4565	NWW	10.6
071006	Ribble at Henthorn	3722 4392	NRA-NW	456.0
071007 *	Ribble at Hodderfoot	3709 4379	NRA-NW	720.0
071008	Hodder at Hodder Place	3704 4399	NRA-NW	261.0
071009	Ribble at Jumbles Rock	3702 4376	NRA-NW	1053.0
071010	Pendle Water at Barden Lane	3837 4351	NRA-NW	108.0
071011	Ribble at Arnford	3839 4556	NRA-NW	204.0
071013	Darwen at Ewood Bridge	3677 4262	NRA-NW	39.5
071014	Darwen at Blue Bridge	3565 4278	NRA-NW	128.0
072001 *	Lune at Halton	3503 4647	NRA-NW	994.6
072002	Wyre at St Michaels	3463 4411	NRA-NW	275.0
072004	Lune at Caton	3529 4653	NRA-NW	983.0
072005	Lune at Killington New Bridge	3622 4907	NRA-NW	219.0
072006	Lune at Kirkby Lonsdale	3615 4778	NRA-NW	507.1
072007	Brock at U/S A6	3512 4405	NRA-NW	32.0
072008	Wyre at Garstang	3488 4447	NRA-NW	114.0
072009	Wenning at Wennington Road Bridge	3615 4701	NRA-NW	142.0
072011	Rawthey at Brigg Flatts	3639 4911	NRA-NW	200.0
072014	Conder at Galgate	3481 4554	NRA-NW	28.5
072015	Lune at Lunes Bridge	3612 5029	NRA-NW	141.5
072016	Wyre at Scorton Weir	3501 4500	NRA-NW	88.8
073001 *	Leven at Newby Bridge	3371 4863	NRA-NW	241.0
073002	Crake at Low Nibthwaite	3294 4882	NRA-NW	73.0
073003	Kent at Burneside	3507 4956	NRA-NW	73.6
073005	Kent at Sedgwick	3509 4874	NRA-NW	209.0
073006	Cunsey Beck at Eel House Bridge	3369 4940	NRA-NW	18.7
073008	Bela at Beetham	3496 4806	NRA-NW	131.0
073009	Sprint at Sprint Mill	3514 4961	NRA-NW	34.6
073010	Leven at Newby Bridge	3367 4863	NRA-NW	247.0
073011	Mint at Mint Bridge	3524 4944	NRA-NW	65.8
073013	Rothay at Miller Bridge House	3371 5042	NRA-NW	64.0
073014	Brathay at Jeffy Knotts	3360 5034	NRA-NW	57.4
074001	Duddon at Duddon Hall	3196 4896	NRA-NW	85.7
074002	Irt at Galesyke	3136 5038	NRA-NW	44.2
074003	Ehen at Ennerdale Weir	3084 5154	NRA-NW	44.2
074005	Ehen at Braystones	3009 5061	NRA-NW	125.5
074006	Calder at Calder Hall	3035 5045	NRA-NW	44.8
074007	Esk at Cropple How	3131 4978	NRA-NW	70.2
074008	Duddon at Ulpha	3209 4947	NRA-NW	47.9
075001	St Johns Beck at Thirlmere Reservoir	3313 5195	NRA-NW	42.1
075002	Derwent at Camerton	3038 5305	NRA-NW	663.0
075003	Derwent at Ouse Bridge	3199 5321	NRA-NW	363.0
075004	Cocker at Southwaite Bridge	3131 5281	NRA-NW	116.6
075005	Derwent at Portinscale	3251 5239	NRA-NW	235.0
075006 *	Newlands Beck at Braithwaite	3240 5239	NRA-NW	33.9
075007 *	Glenderamackin at Threlkeld	3323 5248	NRA-NW	64.5
075009	Greta at Low Briery	3286 5242	NRA-NW	145.6
075016	Cocker at Scalehill	3149 5214	NRA-NW	64.0
075017	Ellen at Bullgill	3096 5384	NRA-NW	96.0
076001	Haweswater Beck at Burnbanks	3508 5159	NRA-NW	33.0
076002	Eden at Warwick Bridge	3470 5567	NRA-NW	1366.7
076003	Eamont at Udford	3578 5306	NRA-NW	396.2
076004	Lowther at Eamont Bridge	3527 5287	NRA-NW	158.5
076005	Eden at Temple Sowerby	3605 5283	NRA-NW	616.4
076007	Eden at Sheepmount	3390 5571	NRA-NW	2286.5
076008	Irthing at Greenholme	3486 5581	NRA-NW	334.6
076009	Caldew at Holm Hill	3378 5469	NRA-NW	147.2
076010	Petteril at Harraby Green	3412 5545	NRA-NW	160.0
076011	Coal Burn at Coalburn	3693 5777	IH	1.5
076014	Eden at Kirkby Stephen	3773 5097	NRA-NW	69.4
076015	Eamont at Pooley Bridge	3472 5249	NRA-NW	145.0
077001	Esk at Netherby	3390 5718	NRA-NW	841.7
077002	Esk at Canonbie	3397 5751	SRPB	495.0
077003	Liddel Water at Rowanburnfoot	3415 5759	SRPB	319.0
077004	Kirtle Water at Mossknowe	3285 5693	SRPB	72.0
077005	Lyne at Cliff Bridge	3412 5662	NRA-NW	191.0
078001 *	Annan at St Mungos Manse	3125 5755	SRPB	730.3
078002 *	Ae at Elshieshields	3068 5852	SRPB	143.2
078003	Annan at Brydekirk	3191 5704	SRPB	925.0
078004	Kinnel Water at Redhall	3077 5868	SRPB	76.1
078005	Kinnel Water at Bridgemuir	3091 5845	SRPB	229.0
078006	Annan at Woodfoot	3099 6010	SRPB	217.0
079001 *	Afton Water at Afton Reservoir	2631 6050	SRPB	8.5
079002	Nith at Friars Carse	2923 5851	SRPB	799.0
079003	Nith at Hall Bridge	2684 6129	SRPB	155.0
079004	Scar Water at Capenoch	2845 5940	SRPB	142.0
079005	Cluden Water at Fiddlers Ford	2928 5795	SRPB	238.0
079006	Nith at Drumlanrig	2858 5994	SRPB	471.0
079007	Lochar Water at Kirkblain Bridge	3026 5695	SRPB	125.0
080001	Urr at Dalbeattie	2822 5610	SRPB	199.0
080002	Dee at Glenlochar	2733 5641	SRPB	809.0
080003	White Laggan Burn at Loch Dee	2468 5781	SRPB	5.7
080004	Greenburn at Loch Dee	2481 5791	SRPB	2.6
080005	Dargall Lane at Loch Dee	2451 5787	SRPB	2.1
080006	Blackwater at Loch Dee	2478 5797	SRPB	15.6
081001 *	Penwhirn Burn at Penwhirn Reservoir	2128 5694	DGRW	18.2
081002	Cree at Newton Stewart	2412 5653	SRPB	368.0
081003	Luce at Airyhemming	2180 5599	SRPB	171.0
081004	Bladnoch at Low Malzie	2382 5545	SRPB	334.0
081005	Piltanton Burn at Barsolus	2107 5564	SRPB	34.2
081006	Water of Minnoch at Minnoch Bridge	2363 5746	SRPB	141.0
081007	Water of Fleet at Rusko	2592 5590	SRPB	77.0
082001	Girvan at Robstone	2217 5997	CRPB	245.5
082002	Doon at Auchendrane	2338 6160	CRPB	323.8
082003	Stinchar at Balnowlart	2108 5832	CRPB	341.0
083001 *	Caaf Water at Knockendon Reservoir	2245 6514	SRCW	6.0
083002 *	Garnock at Dalry	2293 6488	CRPB	88.8
083003	Ayr at Catrine	2525 6259	CRPB	166.3
083004	Lugar at Langholm	2508 6217	CRPB	181.0
083005	Irvine at Shewalton	2345 6369	CRPB	380.7
083006	Ayr at Mainholm	2361 6216	CRPB	574.0
083007	Lugton Water at Eglinton	2315 6420	CRPB	54.6
083008	Annick Water at Dreghorn	2352 6384	CRPB	95.3
083009	Garnock at Kilwinning	2307 6424	CRPB	183.8
083010	Irvine at Newmilns	2532 6372	CRPB	72.8
084001	Kelvin at Killermont	2558 6705	CRPB	335.1
084002 *	Calder at Muirshiel	2309 6638	SRCW	12.4
084003	Clyde at Hazelbank	2835 6452	CRPB	1092.9
084004	Clyde at Sills	2927 6424	CRPB	741.8
084005	Clyde at Blairston	2704 6579	CRPB	1704.2
084006 *	Kelvin at Bridgend	2672 6749	CRPB	63.7
084007	South Calder Wtr at Forgewood	2751 6585	CRPB	93.0
084008	Rotten Calder Wtr at Redlees	2679 6604	CRPB	51.3
084009	Nethan at Kirkmuirhill	2809 6429	CRPB	66.0
084011	Gryfe at Craigend	2415 6664	CRPB	71.0
084012	White Cart Water at Hawkhead	2499 6629	CRPB	227.2
084013	Clyde at Daldowie	2672 6616	CRPB	1903.1
084014	Avon Water at Fairholm	2755 6518	CRPB	265.5
084015	Kelvin at Dryfield	2638 6739	CRPB	235.4
084016	Luggie Water at Condorrat	2739 6725	CRPB	33.9
084017	Black Cart Water at Milliken Park	2411 6620	CRPB	103.1
084018	Clyde at Tulliford Mill	2891 6404	CRPB	932.6
084019	North Calder Wtr at Calderpark	2681 6625	CRPB	129.8
084020	Glazert Water at Milton of Campsie	2656 6763	CRPB	51.9
084021 *	White Cart Water at Netherlee	2587 6597	CRPB	91.8
084022	Duneaton at Maidencots	2929 6259	CRPB	110.3
084023	Bothlin Burn at Auchengeich	2680 6717	CRPB	35.7
084024	North Calder Wtr at Hillend	2828 6678	CRPB	19.9
084025	Luggie Water at Oxgang	2666 6734	CRPB	87.7
084026	Allander Water at Milngavie	2558 6738	CRPB	32.8
084027	North Calder Wtr at Calderbank	2765 6624	CRPB	60.6
084028	Monkland Canal at Woodhall	2765 6626	CRPB	60.6
084029	Cander Water at Candermill	2765 6471	CRPB	24.5
084030	White Cart Water at Overlee	2579 6575	CRPB	111.8
085001	Leven at Linnbrane	2394 6803	CRPB	784.3
085002	Endrick Water at Gaidrew	2485 6866	CRPB	219.9
085003	Falloch at Glen Falloch	2321 7197	CRPB	80.3
085004	Luss Water at Luss	2356 6929	CRPB	35.3
086001	Little Eachaig at Dalinlongart	2143 6821	CRPB	30.8
086002	Eachaig at Eckford	2140 6843	CRPB	139.9
089008	Eas Daimh at Eas Daimh	2239 7276	CRPB	4.5
089009	Eas ÀGhaill at Succoth	2209 7265	CRPB	9.7
090003	Nevis at Claggan	2116 7742	HRPB	76.8
091002	Lochy at Camisky	2145 7805	HRPB	1252.0
093001	Carron at New Kelso	1942 8429	HRPB	137.8
094001	Ewe at Poolewe	1859 8803	HRPB	441.1
095001	Inver at Little Assynt	2147 9250	HRPB	137.5
095002	Broom at Inverbroom	2184 8842	HRPB	141.4
096001	Halladale at Halladale	2891 9561	HRPB	204.6
096002	Naver at Apigill	2713 9568	HRPB	477.0
096003	Strathy at Strathy Bridge	2836 9652	HRPB	111.8
096004	Strathmore at Allnabad	2453 9429	HRPB	105.0
097001 *	Calder Burn at Achavarn	3085 9598	HRCW	24.5
097002	Thurso at Halkirk	3131 9595	HRPB	412.8

Station number		River and station name	Grid reference	Authority	Area (sq km)
101001	*	Eastern Yar at Alverstone Mill	4577 0857	NRA-S	57.5
101002		Medina at Upper Shide	4503 0874	NRA-S	29.8
101003		Lukely Brook at Newport	4491 0886	NRA-S	16.2
101004		Eastern Yar at Burnt House	4583 0853	NRA-S	59.6
101005		Eastern Yar at Budbridge	4531 0835	NRA-S	22.5
101006		Wroxall Stream at Waightshale	4536 0839	NRA-S	15.8
101007		Scotchells Brook at Burnt House	4583 0852	NRA-S	9.2
102001		Cefni at Bodffordd	2429 3770	NRA-WEL	25.0
106001		Creed at Creed Bridge	1402 9325	HRPB	43.4
201002	*	Fairy Water at Dudgeon Bridge	*2406 3758*	DOEN	161.2
201005		Camowen at Camowen Terrace	*2460 3730*	DOEN	274.6
201006	*	Drumragh at Campsie Bridge	*2458 3722*	DOEN	324.6
201007		Burn Dennet at Burndennet Bridge	*2372 4047*	DOEN	145.3
201008		Derg at Castlederg	*2265 3842*	DOEN	337.3
201009	*	Owenkillew at Crosh	*2418 3866*	DOEN	442.4
201010	*	Mourne at Drumnabuoy House	*2347 3960*	DOEN	1844.5
202001	*	Roe at Ardnargle	*2674 4247*	DOEN	365.6
202002	*	Faughan at Drumahoe	*2464 4151*	DOEN	272.3
203010		Blackwater at Maydown Bridge	*2820 3519*	DOEN	951.4
203011	*	Main at Dromona	*3052 4086*	DOEN	228.8
203012		Ballinderry at Ballinderry Bridge	*2926 3799*	DOEN	419.5
203013	*	Main at Andraid	*3092 3973*	DOEN	646.8
203017	*	Upper Bann at Dynes Bridge	*3043 3509*	DOEN	335.6
203018	*	Six Mile Water at Antrim	*3146 3867*	DOEN	277.3
203019	*	Claudy at Glenone Bridge	*2962 4037*	DOEN	130.1
203020		Moyola at Moyola New Bridge	*2955 3905*	DOEN	306.5
203021	*	Kells Water at Currys Bridge	*3106 3971*	DOEN	127.0
203023	*	Torrent at The Moor Bridge	*2858 3649*	DOEN	59.9
203024	*	Cusher at Gambles Bridge	*3048 3471*	DOEN	176.7
203025	*	Callan at Callan New Bridge	*2893 3524*	DOEN	164.1
203026	*	Glenavy at Glenavy	*3149 3725*	DOEN	44.6
203027	*	Braid at Ballee	*3097 4014*	DOEN	177.2
203028		Agivey at White Hill	*2883 4193*	DOEN	98.9
203029	*	Six Mile Water at Ballyclare	*3282 3902*	DOEN	58.4
203033	*	Upper Bann at Bannfield	*3233 3341*	DOEN	100.9
203038	*	Rocky at Rocky Mountain	*3243 3265*	DOEN	6.7
203040	*	Lower Bann at Movanagher	*2931 4154*	DOEN	5209.8
203042	*	Crumlin at Cidercourt Bridge	*3135 3765*	DOEN	54.1
203092	*	Main at Dunminning Lower	*3051 4111*	DOEN	211.8
203093	*	Main at Shane's Viaduct	*3086 3896*	DOEN	704.2
204001	*	Bush at Seneirl	*2942 4362*	DOEN	306.1
205003	*	Lagan at Dunmurry	*3299 3679*	DOEN	444.7
205004		Lagan at Newforge	*3329 3693*	DOEN	490.4
205005		Ravernet at Ravernet	*3267 3613*	DOEN	69.5
205006	*	Lagan at Blaris	*3259 3628*	DOEN	315.9
205008	*	Lagan at Drummiller	*3236 3525*	DOEN	85.2
205010	*	Lagan at Banoge	*3123 3540*	DOEN	189.8
205020	*	Enler at Comber	*3459 3697*	DOEN	59.8
206001	*	Clanrye at Mount Mill Bridge	*3086 3309*	DOEN	132.7
206002	*	Jerretspass at Jerretspass	*3064 3332*	DOEN	41.7
236005	*	Colebrooke at Ballindarragh Bridge	*2331 3359*	DOEN	309.1
236007	*	Sillees at Drumrainy Bridge	*2205 3400*	DOEN	167.6

† Irish Grid references are italicised.

* = closed, or no data for post 1992 have been received.

Note: a significant proportion of the stations closed in the 1980s have subsequently been re-commissioned.

Refer to pages 172 and 173 for key to measuring authority codes.

Background

Groundwater may be obtained from almost any stratum in the sedimentary succession in the British Isles, as well as from igneous and metamorphic rocks. In many, such as clays and shales, volcanics and metamorphics, the permeable zone may well be limited to the depth to which weathering may reach, this is unlikely to be more than some 50 metres beneath the ground surface. In those strata which are not generally recognised to be aquifers, well-yields tend to be small (of the order of only a few cubic metres per day), uncertain as a continuous source (tending to fail in prolonged droughts), with an indifferent groundwater quality, and with the sources vulnerable to pollution.

The more generally recognised aquifers are listed in Table 6, with the Chalk and Upper Greensand, the Lincolnshire Limestone and the Permo-Triassic sandstones as the most important from the viewpoint of public supply. From such aquifers as these, yields of 3000 to 4500 cubic metres a day are not unusual. For the next category, including the Lower Greensand and the Magnesian Limestone, yields to individual wells of 1500 to 3000 cubic metres a day can generally be expected. In the other aquifers, whilst occasional sources sufficient for large supplies may be developed, they tend to be important only locally. The outcrop areas of the major aquifers are shown in Figure 10; throughout Wales, Scotland and Northern Ireland, aquifers are less extensively developed and tend to be only of relatively local importance.

The groundwater resources of an aquifer are naturally replenished from rainfall. During the summer months, when the potential evapotranspiration is high and soil moisture deficits are appreciable, little infiltration takes place. There is a notable exception to this rule in the Eden valley of Cumbria where, enclosed between the massifs of Cross Fell and the Lake District, sufficiently heavy and continuous summer rainfall occurs to maintain infiltration through part at least of most summers. The normal recharge of an aquifer takes place during the winter months when the potential evapotranspiration is low and soil moisture deficits are negligible.

Only the largest artificial reservoirs in the United Kingdom have sufficient capacity to support demands through the driest summers, assuming that they were full at the start of the summer, without some continuous contributions from river intakes. Prolonged dry spells lead, in many rivers, to reduced flow, particularly where the natural groundwater contribution (termed baseflow) is limited. Consequently, while surface water droughts may be in part due to the failure of runoff from winter rainfall to fill the reservoirs, they are more frequently caused by a decrease in the summer flows of streams and rivers. Surface water droughts do, however, lead to increased consumption of groundwater (where available). By way of contrast, a groundwater drought is caused by a lack of winter rainfall. Potentially, the most serious droughts occur when, as in 1975/76, a dry summer succeeds a notably dry winter, or as in 1988–92 in eastern England, recharge is significantly below average over two or three successive winters.

The Observation Borehole Network

Groundwater level observation wells (in this context, a well includes both shafts – constructed by hand digging – and boreholes – constructed by machinery) are generally used for one of two purposes: to monitor levels regionally and thus to estimate groundwater resource fluctuations, or to monitor the effects locally of groundwater abstractions. The number of observation wells required in different areas varies widely. Over the last two decades, a target density was sought of one well to 25 to 35 km^2.

The observation well network was reviewed in 1981 by the British Geological Survey (then the Institute of Geological Sciences) with the aim of selecting 200 to 300 sites from the existing national archive, to be used for periodical assessments of the national groundwater situation. The selection was based upon the hydrogeological units identified in an investigation of the groundwater resources of the United Kingdom[1]; one site was chosen for each aquifer present within each unit. For Scotland and for Northern Ireland this was not possible due to the very limited number of observation wells available. In England and Wales, the total number finally selected was 175[2].

Details of the wells in this national network are given in the Register of Selected Groundwater Observation Wells (see page 156).

Measurement and Recording of Groundwater Levels

The majority of observation wells are measured manually either weekly or monthly. The usual instrument is an electric probe suspended upon a graduated cable or tape, contact being made by the water to complete a circuit which gives either an audible or visual signal at the surface. Measurements are normally made to the nearest 10 millimetres, although instruments may be accurate to 1 mm.

Some observation wells are equipped with continuous water level recorders. These recorders measure level either by a float or with a pressure transducer. Data are recorded either on paper charts, punched tape (now rarely used) or by solid state data loggers. At several observation boreholes provision is made for the routine transmission – usually by telephone line – of groundwater levels to local, or regional, centres.

TABLE 6 GENERALISED LIST OF AQUIFERS IN THE UNITED KINGDOM

Era	System	Subsystem	Aquifer	Importance
CAINOZOIC	Quaternary	Holocene	Superficial deposits	*
		Pleistocene	Upper and Middle Pleistocene	*
			Crag	**
	Neogene	Pliocene	Coralline Crag	**
		Oligocene		
	Paleogene	Eocene	Bagshot Beds	
			Lower London Tertiaries	
			Blackheath & Oldhaven Beds	
			Woolwich & Reading Beds	*
			Thanet Beds	**
MESOZOIC	Cretaceous	Upper Cretaceous	Chalk and Upper Greensand	****
		Lower Cretaceous	Lower Greensand	***
			Hastings Beds	**
	Jurassic	Upper Jurassic	Portland & Purbeck Beds	*
			(with Spilsby Sandstone)	(**)
			Corallian	**
		Middle Jurassic	Great & Inferior Oolitic limestones	**
			(with Lincolnshire Limestone)	(****)
		Lower Jurassic	Bridport & Yeovil Sands	**
			Marlstone Rock	*
PALAEOZOIC	Triassic	Upper Triassic	Permo-Triassic sandstones	
		Lower Triassic		
	Permian			
			Magnesian Limestone	***
	Carboniferous	Upper Carboniferous	Coal Measures	**
			Millstone Grit	**
		Lower Carboniferous	Carboniferous Limestone	**
	Devonian		Devonian sandstone	*

Key to aquifer importance:
- * aquifer of minor importance only
- ** aquifer producing small, but useful, local supplies
- *** aquifer of local importance, often providing public supplies
- **** aquifer of major importance

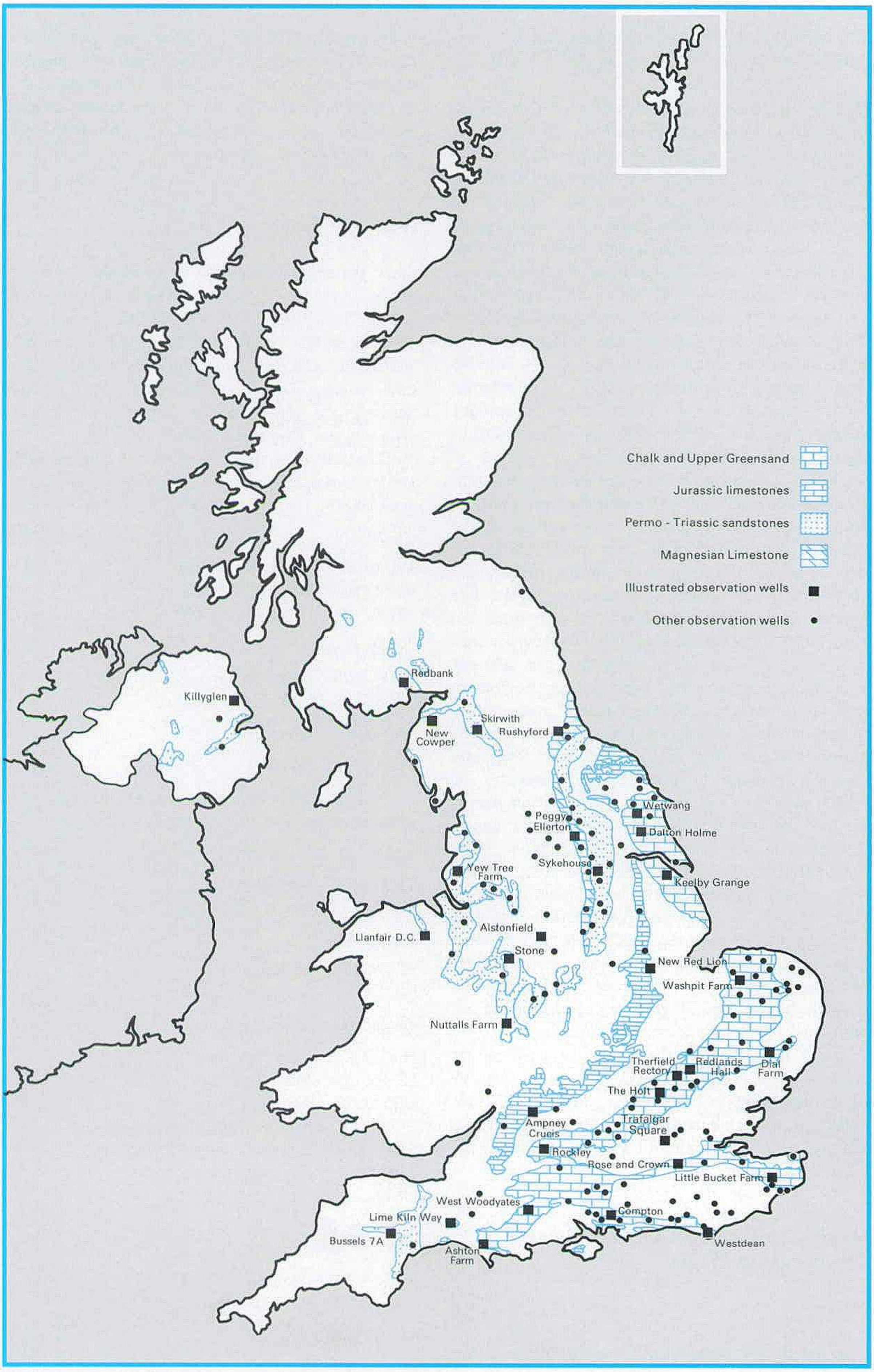


Figure 10 Principal aquifers and representative borehole locations

Observation Well Hydrographs 1990–94

Well hydrographs for 32 observation sites are shown in Figure 11. For each borehole the 1990 to 1994 groundwater hydrographs are illustrated, as a blue trace, together with the average and extreme monthly levels for the pre-1990 record. A break in the well hydrograph trace indicates an interruption in the record of greater than eight weeks. Five-year plots have been used both to illustrate the dramatic changes in groundwater levels over the recent past and because the volume of groundwater stored in aquifers can reflect not only the infiltration taking place during the winter months of 1993/94, but also that occurring in previous years. When comparing the hydrographs for a number of sites, account should be taken of the differing scales used to illustrate the water-table fluctuations.

For a few wells and boreholes the long-term monthly extremes and/or means have been omitted. In some cases this is due to the limited amount of historical data available. At other sites the historical data do not provide an appropriate basis for comparison with contemporary groundwater levels. For several of the featured wells and boreholes the earliest level records are of dubious accuracy and have been ignored when computing the relevant maximum, minimum and mean values. For others substantial changes in the pattern and/or magnitude of groundwater abstraction limit the representativeness of any segment in the groundwater level time series. The majority of observation boreholes for which data are held on the Groundwater Level Archive monitor the natural variation in levels. However, in parts of the United Kingdom levels have been influenced, sometimes over long periods, by pumping for water supply or other purposes which exceeds the natural rate of replenishment. As a consequence the regional water-table may become substantially depressed. For instance, the levels at a number of observation boreholes in the Permo-Triassic sandstones of the English Midlands are indicative of a significant regional decline. By contrast those in Northumbria, for example at Rushyford, now stand substantially higher than 15 years ago despite the recent downtrend. This reflects, in part, a rundown of the coal industry and the consequent cessation of continuous pumping for mine dewatering.

Register of Selected Groundwater Observation Wells

Scope

The listed sites were selected to give a reasonably representative cover for aquifers through-out England and Wales. The wells are grouped according to the aquifer to which the water level variations in the wells are attributed. A generalised list of aquifers is given on page 148, while the aquifers are tabulated in stratigraphical order, most of the local names for individual strata are omitted and the intervening aquicludes are not shown.

Network Changes

Since the original selection of boreholes for incorporation in the national network a number of changes have been made to the list of selected wells. At some locations, observations could no longer be continued, and new sites have been added from time to time. Details of the wells in the national network are given in the Register of Selected Groundwater Observation Wells.

The following sites, listed in the register in the 1993 yearbook, are no longer included in the network.

Chalk

TA10/40	Little Brocklesby
SU51/10	Hill Place Farm
TR35/49	Cross Manor Cottages

Upper Jurassic

SU49/40B	East Hanney
SE98/8	Seavagate Farm

Magnesian Limestone

SE28/28	Bedale

Nine new sites have been added to the register, in addition to one site that has been reinstated.

Chalk

TA11/158	Keelby Grange
SU51/1	Upper Hill Farm

Upper Jurassic

SU49/75B	Marcham
SE98/23	Seavagate Gill

Permo-Triassic sandstones

NY14/4	New Cowper
SD40/137	Moor Hall
SD53/25	Red Scar Wood
SJ59/147	Sandy Lane
SJ69/138	Kenyon Lane (reinstated)
SJ62/112	Heathlanes

The Register

The six columns of the Register are:

Well Number

The well numbering system is based on the National Grid. Each 100 kilometre square is designated by prefix characters, e.g. SE, and is divided into 100 squares of 10 kilometre sides designated by numbers 00 (in the south-west corner) to 99 (in the north-east corner). Thus, the site SE93/4, is located in the 10 kilometre square SE93, while the number after the solidus denotes that the site is the fourth accessed in this square in the National Well Record collection. A suffix such as A, B, etc., defines the particular well when there are several at the same site. For Northern Ireland, which is on the Irish Grid, the first of the prefix characters is always 'I'.

Two asterisks following the well number indicates a well or borehole for which hydrographs are shown on pages 152 to 155. The location of the index wells, and the outcrop areas of the principal aquifers, are shown on Figure 10.

Grid Reference

The six or eight figure references given in the Register relate to the 100 kilometre National (or Irish) Grid square designated by the preceding two-figure code; the corresponding two-letter code appears as the prefix characters in the Well Number. The Irish Grid References are italicised.

Site

The name by which the well or borehole is normally referenced. The location of all the sites listed in the Register are shown on Figure 10.

Measuring Authority

An abbreviation referencing the organisation responsible for groundwater level measurement. A full list of codes, together with the corresponding names and addresses appears on pages 172 and 173.

Records Commence

The first year for which records are held on the National Groundwater Level Archive.

Indicated % Annual Recharge

The difference between the level measured at the end of the summer recession of groundwater levels and that measured at the beginning of the summer recession of the following year reflects the amount of recharge received in that period. This method, detailed in the *Hydrometric Register and Statistics 1981-5* volume, is most suited to circumstances when a single peak is readily identifiable in each recharge season. Where recharge follows an uneven pattern resulting in poorly defined or multiple peaks, the percentage of the mean annual recharge is often unrepresentative. Consequently, the original method has been modified to produce more realistic values of recharge and to allow more accurate comparison between sites. First, the recharge period is arbitrarily defined as the first day of August to the end of the following July. Next, the water level at each site is estimated, by extrapolation where necessary, for the last day of each month. Finally, all the rises in successive months are summed over each recharge period. Prior to 1993 the calculation of recharge was made manually. The process has now been fully computerized. Recharge is only calculated for years where there is a continuous data series, with no more than 60 days between readings of level.

The summed rise for each year is called the 'annual fluctuation', and the mean of the annual fluctuations over the period of record is termed the 'mean annual recharge' (MAR). This also assumes that the natural discharge (via, for instance, springs and seepages) is constant; while this is not the case in view of the large differences of head that are recorded in some observation wells, there is insufficient information currently available to permit corrective factors to be determined. It is considered that for most wells the errors caused by this assumption will be small.

The annual infiltration is then expressed as a percentage of the MAR and thus represents the percentage of the mean annual recharge received for that year. Acknowledging the limited precision in the estimation procedure the percentages are rounded (to the nearest 5%) and are tabulated in the last column of the Register.

References

1. Monkhouse, R.A. and Richards, H.J. 1983. Groundwater resources of the United Kingdom. Commission of the European Communities, pub. Th. Schaeffer Druckerei GmbH, Hannover, 252 pages.
2. Monkhouse, R.A. and Murti, P.K. 1981. The rationalisation of groundwater observation well networks in England and Wales. Institute of Geological Sciences, Report No. WD/81/1, 18 pages.

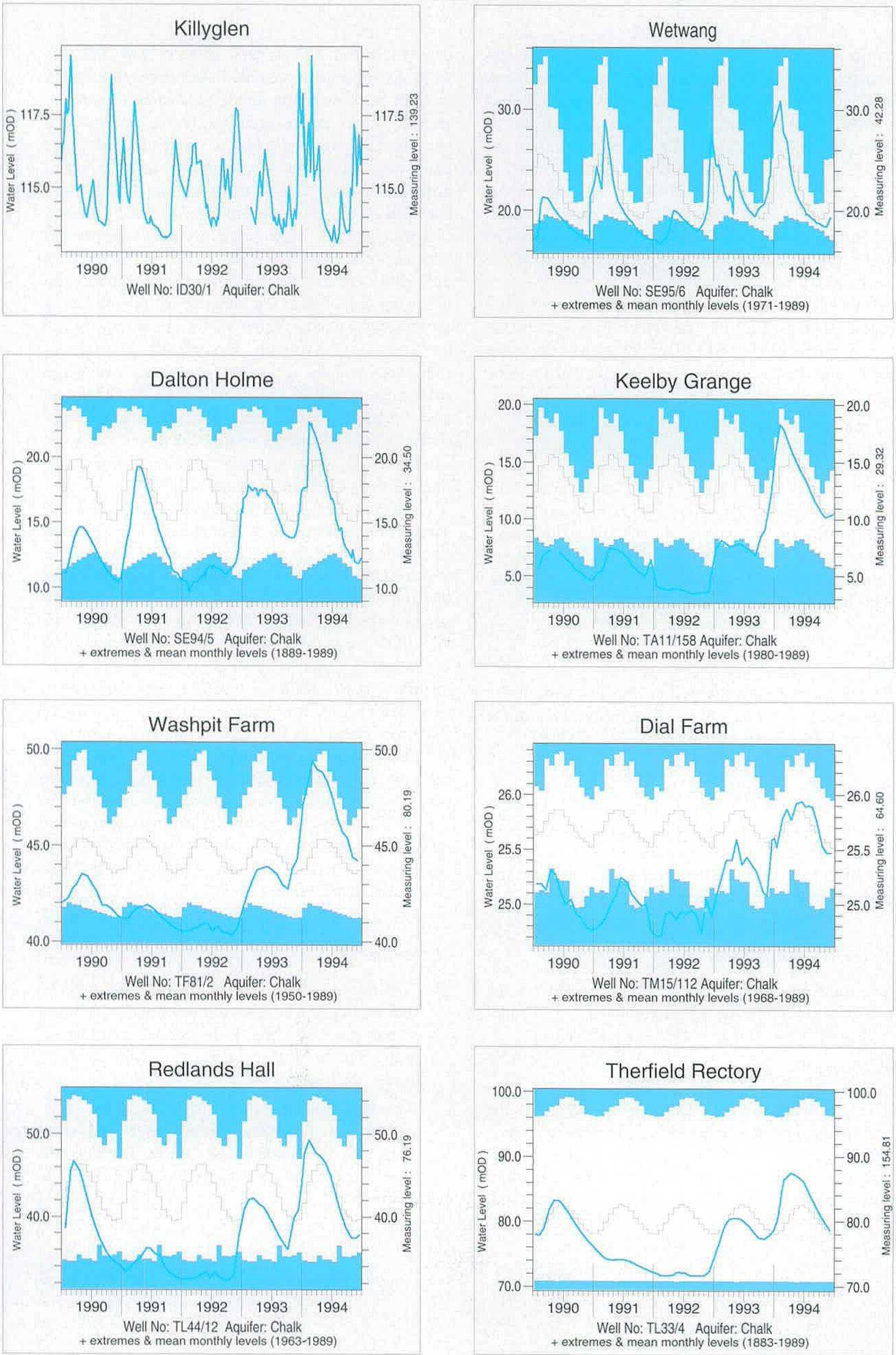


Figure 11 Hydrographs of groundwater level fluctuations 1990–94

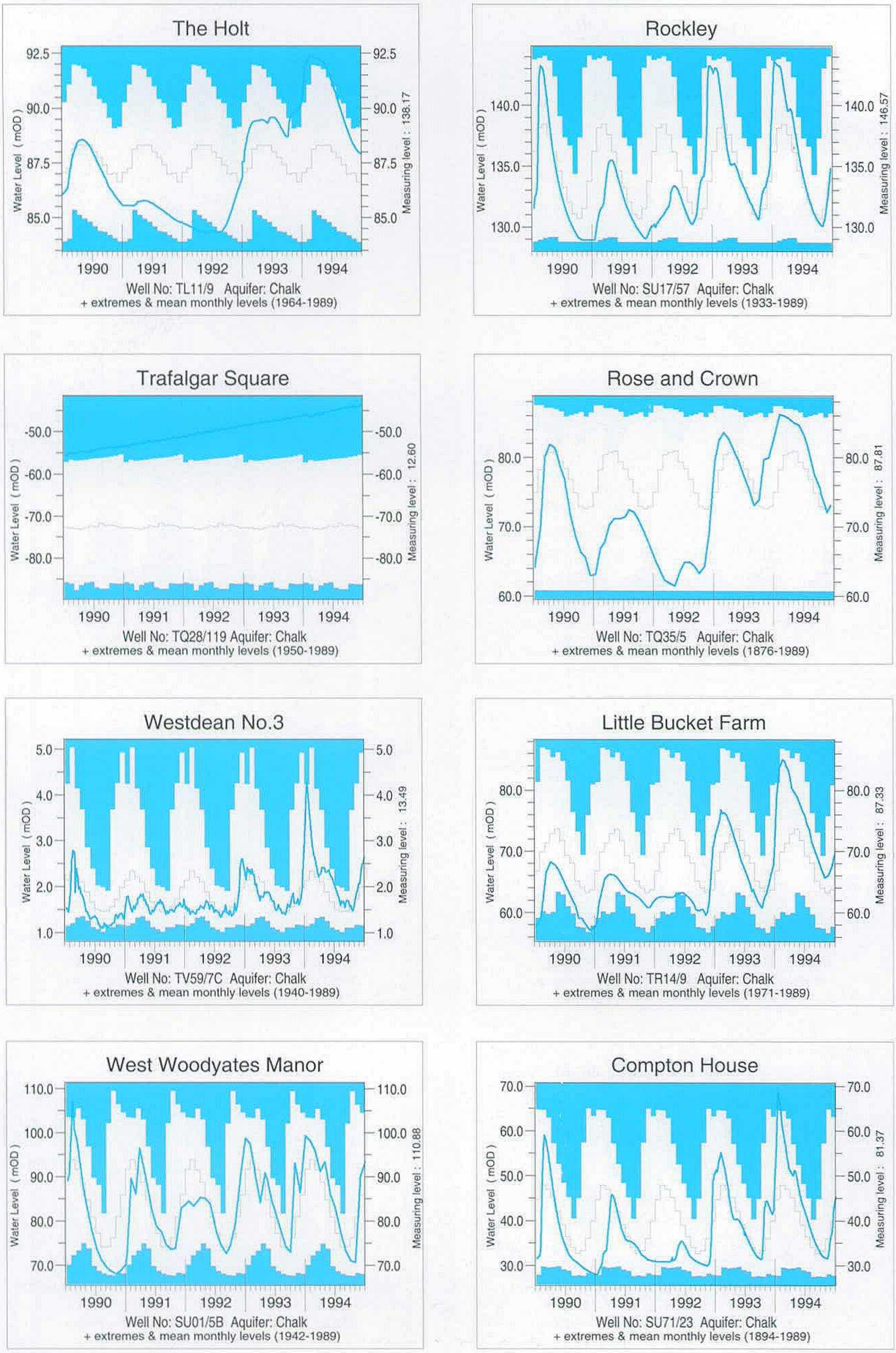
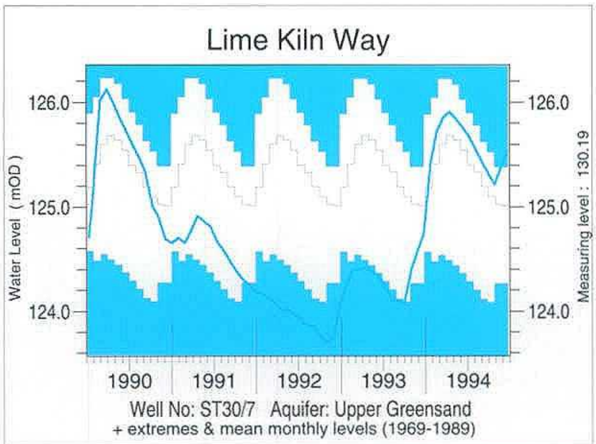
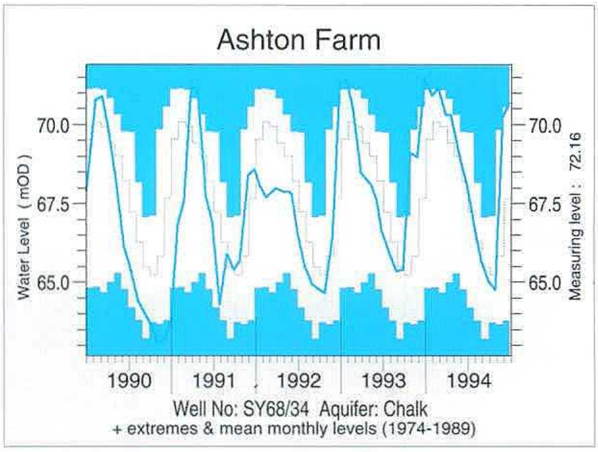
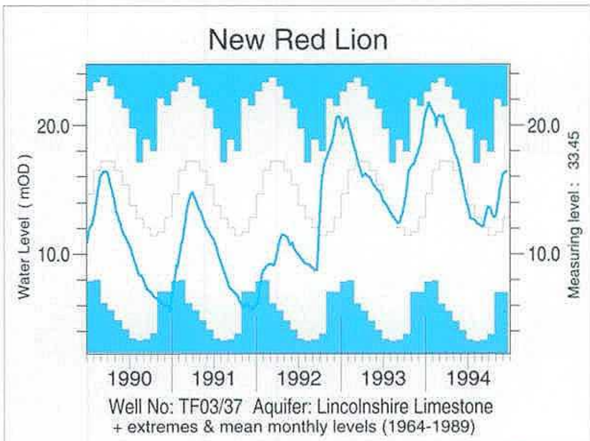
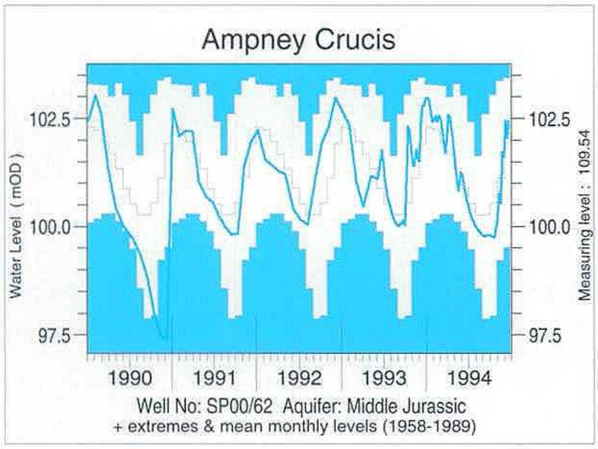


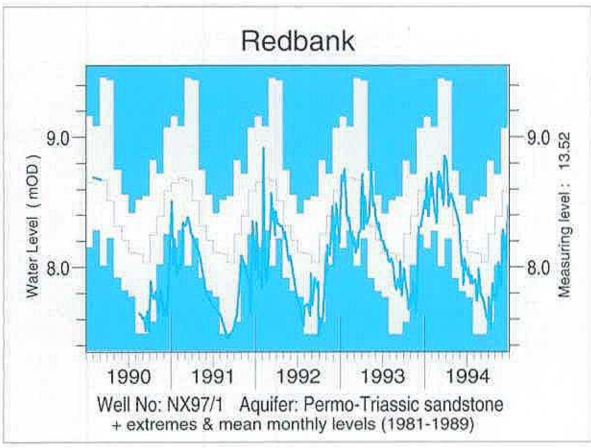
Figure 11—(continued)

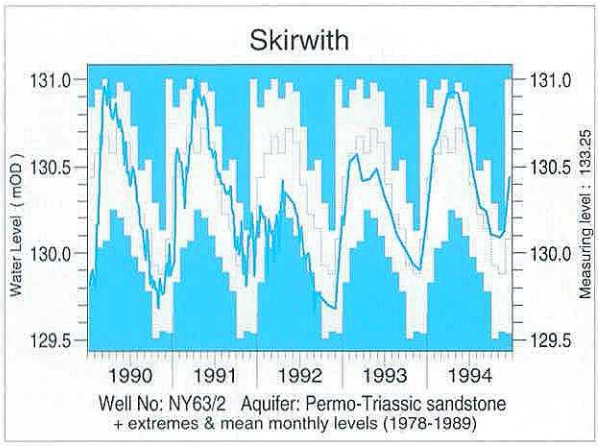


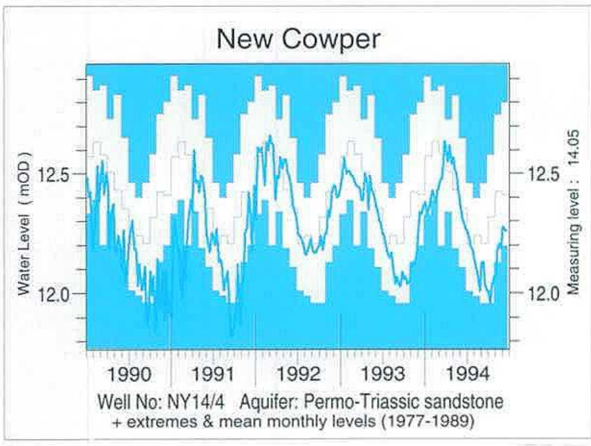












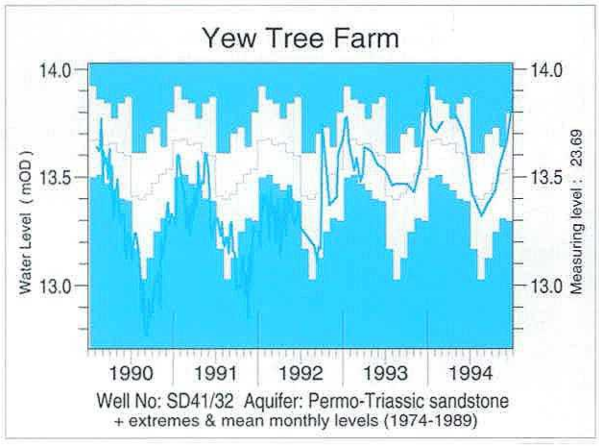
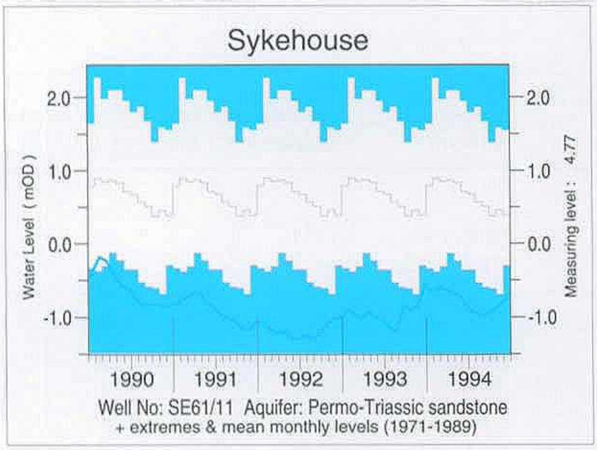
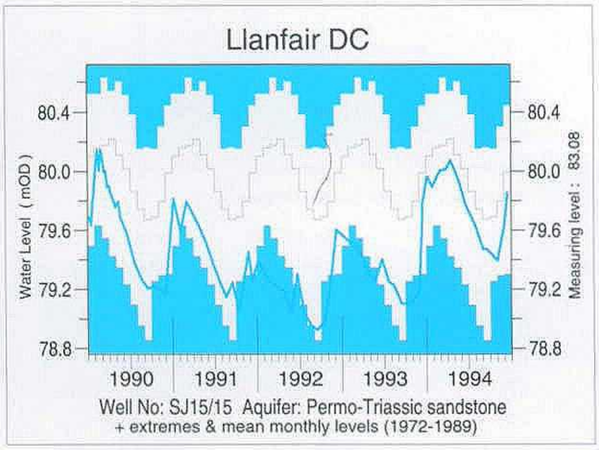
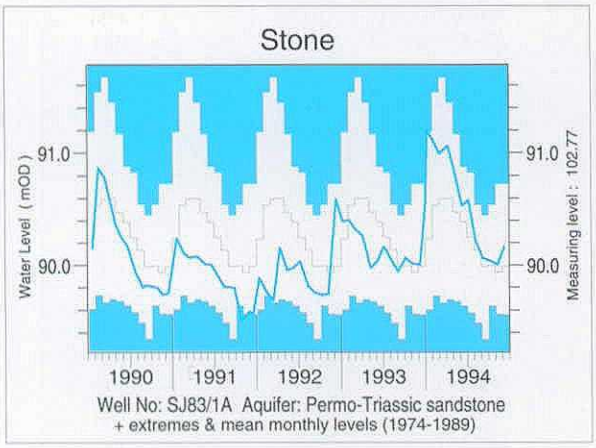
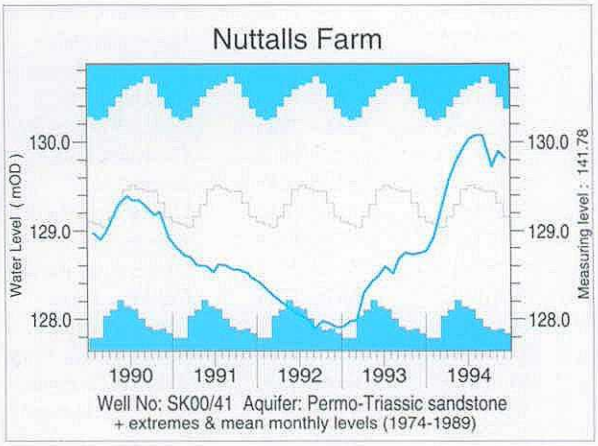


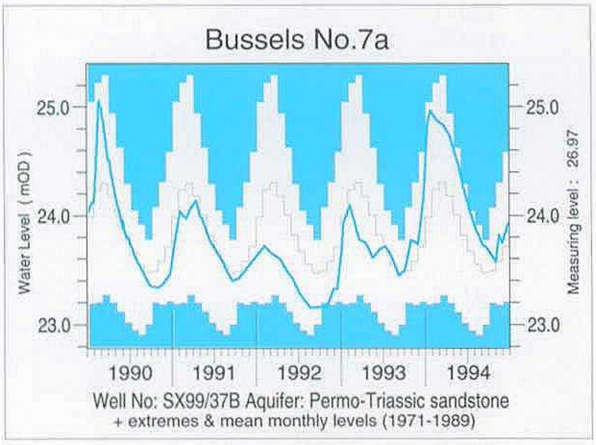
Figure 11—(continued)

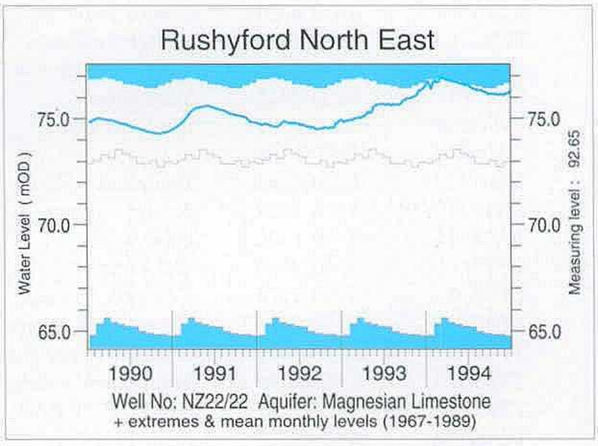


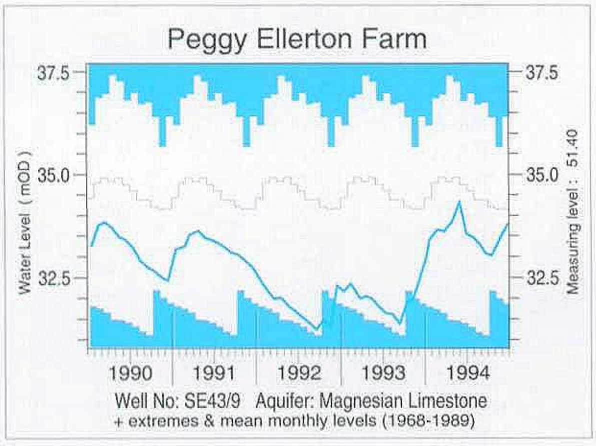












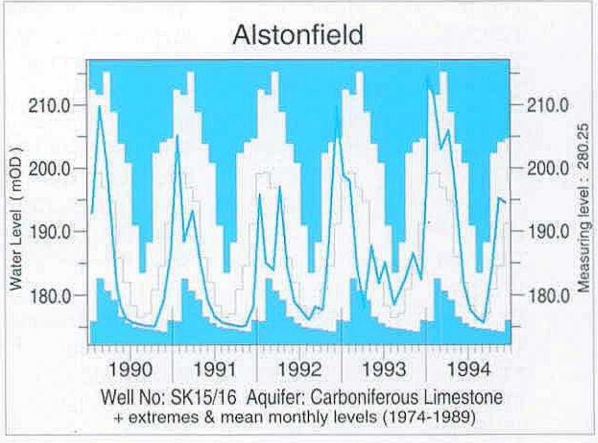


Figure 11—(continued)

The Register

Well Number	Grid Reference	Site	Measuring Authority	Records Commence	Indicated % Annual Recharge 1993/94
Aquifer: Superficial Deposits					
IJ28/1	2248 8620	Dunadry	DOEN	1985	60
SO44/4	4683 4253	Stretton Sugwas	NRA-WEL	1973	155
Aquifer: Chalk and Upper Greensand					
ID30/1**	3663 0310	Killyglen	DOEN	1985	90
SE94/5**	9651 4530	Dalton Holme	NRA-NY	1889	140
SE95/6**	9578 5939	Wetwang	NRA-NY	1971	110
SE97/31	9345 7079	Green Lane	NRA-NY	1971	125
SP90/26	9470 0875	Champneys	NRA-T	1962	180
SP91/59	9380 1570	Pitstone Green Farm	NRA-A	1970	180
ST30/7**	3763 0667	Lime Kiln Way	NRA-SW	1969	245
SU01/5B**	0160 1960	West Woodyates Manor	NRA-SW	1942	125
SU17/57**	1655 7174	Rockley	NRA-T	1933	130
SU32/3	3817 2743	Bailey's Down Farm	NRA-S	1964	170
SU34/8A	3215 4875	Clanville Lodge	NRA-S	1962	205
SU35/14	3315 5645	Woodside	NRA-S	1963	150
SU51/1	5910 1680	Upper Hill Farm	NRA-S	1965	255
SU53/94	5586 3498	Abbotstone	NRA-S	1976	115
SU57/159	5628 7530	Calversleys Farm	NRA-T	1974	190
SU61/32	6578 1775	Chidden Farm	NRA-S	1958	115
SU61/46	6890 1532	Hinton Manor	NRA-S	1953	200
SU64/28	6360 4049	Lower Wield Farm	NRA-S	1962	135
SU68/49	6442 8525	Well Place Farm	NRA-T	1976	105
SU71/23**	7755 1490	Compton House	NRA-S	1894	160
SU73/8	7048 3491	Faringdon Station	NRA-T	1966	140
SU76/46	7367 6251	Riseley Mill	NRA-T	1975	70
SU78/45A	7419 8924	Stonor Park	NRA-T	1961	155
SU81/1	8356 1440	Chilgrove House	NRA-S	1836	150
SU87/1	8336 7885	Folly Cottage, Coldharbour	NRA-T	1950	135
SU89/7	8103 9417	Piddington	NRA-T	1966	130
SY68/34**	6615 8805	Ashton Farm	NRA-SW	1974	115
TA06/16	0490 6120	Nafferton	NRA-NY	1964	115
TA07/28	0940 7740	Hunmanby Hall	NRA-NY	1976	150
TA11/158**	1493 1029	Keelby Grange	NRA-A	1980	305
TA21/14	2670 1890	Church Farm	NRA-NY	1971	---
TF72/11	7710 2330	Off Farm	NRA-A	1971	---
TF73/9	7790 3270	Coe Ltd, Bircham	NRA-A	1971	---
TF80/33	8730 0526	Houghton Common	NRA-A	1971	200
TF81/2**	8138 1960	Washpit Farm	NRA-A	1950	250
TF83/1	8578 3606	South Creake School	NRA-A	1952	180
TF92/5	9869 2183	Tower Hills P.S.	NRA-A	1974	---
TG00/92	0440 0020	High Elm Farm, Deopham	NRA-A	1971	210
TG03/25B	0382 3583	The Hall, Brinton	NRA-A	1952	260
TG11/5	1691 1101	The Spinney, Costessey	NRA-A	1952	---
TG12/7	1126 2722	Heydon Pumping Station	NRA-A	1974	220
TG21/9	2400 1657	Frettenham Depot	NRA-A	1952	---
TG21/10	2699 1140	Grange Farm	NRA-A	1952	---
TG23/21	2932 3101	Melbourne House	NRA-A	1974	210
TG31/20	3365 1606	Woodbastwick Hall	NRA-A	1974	---
TG32/16	3700 2682	Brumstead Hall	NRA-A	1978	---
TL11/4	1560 1555	Mackerye End House	NRA-T	1963	360
TL11/9**	1692 1965	The Holt	NRA-T	1964	195
TL13/24	1200 3026	West Hitchin	NRA-A	1970	190
TL22/10	2978 2433	Box Hall	NRA-T	1964	---
TL33/4**	3330 3720	Therfield Rectory	NRA-T	1883	180
TL42/6	4536 2676	Hixham Hall	NRA-T	1964	150
TL42/8	4669 2955	Berden Hall	NRA-T	1964	155
TL44/12**	4522 4182	Redlands Hall	NRA-A	1963	145
TL55/109	5925 5605	Lower Farm	NRA-A	1983	220
TL72/54	7982 2516	Rectory Road	NRA-A	1968	20
TL84/6	8465 4106	Smeetham Cottages, Bulmer	NRA-A	1963	200

Well Number	Grid Reference	Site	Measuring Authority	Records Commence	Indicated % Annual Recharge 1993/94
TL86/110	8850 6470	Cattishall Farm	NRA-A	1969	---
TL89/37	8131 9001	Grimes Graves	NRA-A	1971	180
TL92/1	9657 2562	Lexden Pumping Station	NRA-A	1961	---
TM15/112**	1201 5618	Dial Farm	NRA-A	1968	190
TM26/46	2461 6109	Fairfields	NRA-A	1974	170
TM26/95	2786 6397	Strawberry Hill	NRA-A	1974	95
TQ01/133	0850 1170	Chantry Post, Sullington	NRA-S	1977	---
TQ21/11	2850 1289	Old Rectory, Pyecombe	NRA-S	1958	---
TQ28/119B**	2996 8051	Trafalgar Square	NRA-T	1901	100
TQ31/50	3220 1180	North Bottom	NRA-S	1979	---
TQ35/5**	3363 5924	Rose & Crown	NRA-T	1974	115
TQ38/9	3509 8536	Hackney Public Baths	NRA-T	1953	220
TQ50/7	5592 0380	Old Rectory, Folkington	NRA-S	1965	75
TQ56/19	5648 6124	West Kingsdown	NRA-T	1961	---
TQ57/118	5880 7943	Thurrock A13	NRA-A	1979	100
TQ58/2B	5622 8408	Bush Pit Farm	NRA-T	1967	95
TQ86/44	8595 6092	Little Pett Farm	NRA-S	1982	130
TQ99/11	9470 9710	Burnham-on-Crouch	NRA-A	1975	75
TR14/9**	1225 4690	Little Bucket Farm	NRA-S	1971	230
TR14/50	1265 4167	Glebe Cottage	NRA-S	1970	135
TR24/26	2787 4003	Church House	NRA-S	1971	---
TR36/62	3208 6634	Alland Grange	NRA-S	1969	180
TV59/7C**	5290 9920	Westdean No. 3	NRA-S	1940	160
Aquifer : Lower Greensand					
SU82/57	8888 2505	Madam's Farm	NRA-S	1984	---
SU84/8A	8716 4087	Tilford Pumping Station	NRA-T	1971	155
TL45/19	4110 5204	River Farm	NRA-A	1973	---
TQ41/82	4370 1320	Lower Barn Cottages	NRA-S	1975	220
TR13/21	1132 3881	Ashley House	NRA-S	1972	120
TR23/32	2075 3650	Morehall Depot	NRA-S	1972	170
Aquifer : Hastings Beds					
TQ22/1	2348 2770	The Bungalow	NRA-S	1964	85
TQ42/80A	4725 2990	Kingstanding	NRA-S	1979	---
TQ61/44	6658 1803	Dallington Herrings	NRA-S	1964	---
TQ62/99	6199 2282	Whiteoaks	NRA-S	1978	310
TQ71/123	7969 1659	Red House	NRA-S	1974	140
Aquifer : Upper Jurassic					
SE68/16	6890 8590	Kirkbymoorside	NRA-NY	1975	---
SE77/76	7690 7300	Broughton	NRA-NY	1975	---
SE98/8	9910 8540	Seavegate Farm	NRA-NY	1971	100
SU49/75B	4651 9736	Marcham	NRA-T	1988	105
Aquifer : Middle Jurassic					
SP00/62**	0595 0190	Ampney Crucis	NRA-T	1958	90
SP20/113	2721 0634	Alvescot Road	NRA-T	1983	110
ST51/57	5931 1691	Over Compton	NRA-SW	1971	115
ST88/62A	8275 8743	Didmarton 1	NRA-SW	1977	80
Aquifer : Lincolnshire Limestone					
SK97/25	9800 7817	Grange de Lings	NRA-A	1975	70
TF03/37**	0885 3034	New Red Lion	NRA-A	1964	105
TF04/14	0429 4273	Silk Willoughby	NRA-A	1972	---
Aquifer : Permo-Triassic sandstones					
IJ26/1	2907 6943	Dunmurry	DOEN	1985	---
NX97/1**	9667 7432	Redbank	SRPB	1981	85
NY00/328	0511 0247	Brownbank Layby	NRA-NW	1974	95
NY14/4**	1246 4555	New Cowper	NRA-NW	1977	95
NY45/16	4947 5667	Corby Hill	NRA-NW	1977	---
NY63/2**	6130 3250	Skirwith	NRA-NW	1978	110

Well Number	Grid Reference	Site	Measuring Authority	Records Commence	Indicated % Annual Recharge 1993/94
NZ41/34	4861 1835	Northern Dairies	NRA-NY	1974	---
SD27/8	2172 7171	Furness Abbey	NRA-NW	1972	95
SD40/137	4128 5210	Moor Hall	NRA-NW	1983	130
SD41/32**	4400 1164	Yew Tree Farm	NRA-NW	1973	75
SD44/15	4396 4928	Moss Edge Farm	NRA-NW	1961	---
SD53/25	5260 3133	Red Scar Wood	NRA-NW	1973	120
SE36/47	3945 6575	Kelly's Cafe	NRA-NY	1977	220
SE39/20B	3004 9244	Scruton Village	NRA-NY	1969	225
SE45/3	4470 5580	Cattal Maltings	NRA-NY	1969	270
SE52/4	5473 2363	Southfield Lane	NRA-NY	1955	---
SE54/32A	5532 4646	Bilborough	NRA-NY	1984	---
SE60/76	6784 0709	Woodhouse Grange	NRA-ST	1980	---
SE61/11**	6270 1710	Sykehouse	NRA-NY	1971	125
SE72/3B	7047 2149	Rawcliffe Bridge	NRA-NY	1971	85
SE83/9	8040 3640	Holme-on-Spalding Moor	NRA-NY	1972	---
SJ15/15**	1374 5556	Llanfair D.C.	NRA-WEL	1972	125
SJ33/39	3814 3831	Eastwick Farm	NRA-WEL	1974	90
SJ56/45E	5042 6953	Ashton No. 4	NRA-NW	1969	45
SJ59/147	5950 9782	Sandy Lane	NRA-NW	1971	245
SJ62/112	6195 2105	Heathlanes	NRA-ST	1971	265
SJ69/138	6311 9620	Kenyon Lane	NRA-NW	1968	160
SJ83/1A**	8969 3474	Stone	NRA-ST	1974	130
SJ87/32	8969 7598	Dale Brow	NRA-NW	1973	145
SJ88/93	8611 8645	Bruntwood Hall	NRA-NW	1972	80
SK00/41**	0670 0120	Nuttalls Farm	NRA-ST	1974	330
SK10/9	1440 0464	Weeford Flats	NRA-ST	1966	---
SK21/111	2731 1419	Grange Wood	NRA-ST	1967	174
SK24/22	2539 4431	Burtonshuts Farm	NRA-ST	1972	280
SK56/53	5632 6440	Peafield Lane	NRA-ST	1969	---
SK67/17	6448 7257	Morris Dancers	NRA-ST	1969	310
SK68/21	6100 8374	Crossley Hill	NRA-ST	1969	230
SK73/50	7693 3228	Woodland Farm	NRA-ST	1980	40
SO71/18	7170 1970	Stores Cottage	NRA-ST	1973	---
SO87/28	8160 7970	Hillfields	NRA-ST	1961	---
SX99/37B**	9528 9872	Bussels No. 7A	NRA-SW	1971	140
SY09/21A	0666 9235	Heathlands	NRA-SW	1951	130
Aquifer : Magnesian Limestone					
NZ22/22**	2875 2896	Rushyford NE	NRA-NY	1967	115
NZ32/19	3575 2650	Heley House	NRA-NY	1969	435
NZ33/20	3349 3501	Garmondsway	NRA-NY	1974	125
SE35/4	3830 5830	Castle Farm	NRA-NY	1970	160
SE43/9**	4535 3964	Peggy Ellerton Farm	NRA-NY	1968	290
SE43/14	4660 3550	Coldhill Farm 35	NRA-NY	1971	115
SE51/2	5210 1530	Westfield Farm	NRA-NY	1971	145
SK46/71	4800 6030	Stanton Hill	NRA-ST	1973	---
SK58/43	5248 8018	Southards Lane	NRA-ST	1973	---
Aquifer : Coal Measures					
SE23/4	2850 3414	Trident House	NRA-NY	1971	80
Aquifer : Millstone Grit					
SE02/46	0771 2528	Thrum Hall	NRA-NY	1977	85
SE04/7	0295 4792	Lower Heights Farm	NRA-NY	1971	130
SE24/2B	2067 4053	Green Lane Dyeworks	NRA-NY	1971	155
SE27/8	2120 7380	Kirkby Moor Farm	NRA-NY	1971	80
Aquifer : Carboniferous Limestone					
NT95/21	9695 5055	Middle Ord	NRA-NY	1974	50
SE06/1	0241 6183	Jerry Laithe Farm	NRA-NY	1971	---
SK15/16**	1292 5547	Alstonfield	NRA-ST	1974	115
SK17/13	1778 7762	Hucklow South	NRA-ST	1969	100
ST64/33	6560 4790	Oakhill 1	NRA-SW	1974	125

Sites marked '**' are indicator wells; well hydrographs are shown in Figure 11. Where the annual percentage recharge cannot be estimated, the entry '---' is substituted.

THE NATIONAL GROUNDWATER LEVEL ARCHIVE DATA RETRIEVAL SERVICE

The National Groundwater Level Archive includes water level data for around 170 representative wells and boreholes in the United Kingdom; the average length of record is about 20 years. This archive is supplemented by historical water level data (up to 1974 generally) for approximately 3000 additional monitoring sites.

The data are stored on a computer database and water level records may be made available in various forms as specified by users. Retrievals are available for all of the sites listed in the Register of Selected Groundwater Observation Wells, although not all the data contained within the archive have been validated.

In addition five standard options are available for retrieving data. A description of each option is given overleaf. Options 1 to 4 give details of the well site, the period of record available, and maximum and minimum recorded levels in addition to the output specific to each option. Data may be retrieved for a specific well or for groups of wells by well reference numbers, by area (using National Grid References), by aquifer, by hydrometric area, by measuring authority, or by any combination of these parameters. Data may be output to paper or in digital form.

Cost of Service

To cover the computing and handling costs, a moderate charge will be made depending on the data requested. Estimates of these charges may be obtained on request; the right to amend or waive charges is reserved.

Requests for Retrieval Options

Requests for retrieval options should include: the name and address to which the output should be directed, the sites, or areas, for which data are required together with the period of record of interest (where appropriate). Where possible, a daytime telephone number should be given.

Requests should be addressed to:

The British Geological Survey
Maclean Building
WALLINGFORD
OXFORDSHIRE OX10 8BB

Telephone: Wallingford (01491) 838800
Facsimile: (01491) 692345

Email: bgsftp@ua.nwl.ac.uk.

The National Well Record Archive

The British Geological Survey also maintains the National Well Record Archive (NWRA) for England and Wales. Currently this archive includes hydrogeological details and reference information for over 150,000 shafts, boreholes and some springs - predominantly constructed or used for water supply or the monitoring of groundwater levels or quality. The archive is organised into paper files based upon the 10 kilometre squares of the National Grid. Each file includes a register which details the accession number, the depth, the national grid reference and certain other details. This material is an essential component in the hydrogeological enquiry service operated by BGS and the register details are in the process of being transferred to a digital format.

The Archive is located at the Wallingford Office of BGS (address above) and all the non-confidential records are open to inspection by the general public. Those wishing to avail themselves of this facility should contact the BGS Records Section in advance to discuss access procedures and costs.

National Geosciences Information Centre

The NWRA is associated with the National Geosciences Information Service (NGIS), one of a number of computer-based data centres established at NERC Institutes. The NGIS is located at the BGS Headquarters, Keyworth, near Nottingham (Telephone: 0115 9363100) and provides access to a broad range of geological information (for example, geophysical and hydrogeological logs, core samples and chemical analyses).

LIST OF GROUNDWATER RETRIEVAL OPTIONS

OPTION	TITLE	NOTES
1	Table of groundwater levels	All recorded observations of groundwater level in metres above Ordnance Datum, with dates of observation and maximum and minimum levels for each year. Specific years, or ranges of years, may be requested, otherwise the full period of record is given.
	Table of annual maximum and minimum groundwater levels	Annual maximum and minimum groundwater levels in metres above Ordnance Datum, with dates of occurrence. Specific years, or ranges of years, may be requested, otherwise the full period of record is given.
	Table of monthly maximum, minimum and mean groundwater levels	Monthly maximum, minimum and mean groundwater levels in metres above Ordnance Datum, together with the number of years contributing values to the calculation of each monthly mean. A specific period of years may be nominated, otherwise the full period of record is given.
	Hydrographs of groundwater levels	Provides a well hydrograph for a number of groundwater levels of specified years. Castellated annual plots of monthly maximum and mean groundwater levels calculated from a nominated period of years are superimposed upon the hydrograph, provided that the nominated period exceeds 10 years. Tabulations of the monthly maximum, minimum and mean values are also listed, together with the number of years of record used in the calculations, and the number of observations used for each month.
	Site details	The output comprises the well reference number of the British Geological Survey, the original (Water Data Unit) station number (where applicable), the hydrometric area, the aquifer name and code, the site name and location, the National Grid Reference, the depth of the well, the datum points (from which measurements are made), the altitude of the ground surface, the period of record and the measuring authority area in which the well or borehole is located.

The conditions applying to the use of data retrieved from the National Groundwater Level Archive are similar to those outlined on page 138 for the National River Flow Archive.

SURFACE WATER QUALITY DATA

Background

A national archive of water quality data is maintained by the Environmental Protection Statistics Division of the Department of the Environment to provide information concerning the quality of rivers throughout the United Kingdom and to satisfy certain international obligations including the estimation of riverborne inputs of selected contaminants (e.g. nutrients) to the sea. Data for this archive are collected as part of the Harmonised Monitoring programme which provides for the sampling and analysis of water quality on a national basis.

The Harmonised Monitoring Scheme was established, for England and Wales, in 1974; a similar scheme was instituted for Scotland in July 1975. In Scotland responsibility for the collection and analysis of the samples rests with the River Purification Boards; data acquisition is co-ordinated by The Scottish Office Environment Department. In England and Wales responsibility passed, on the 1st September 1989, from the former regional Water Authorities to the newly-created National Rivers Authority.

Measuring authorities send analytical results of routinely collected samples of river water from approximately 220 monitoring stations; sampling frequencies vary substantially but are, typically, in the range 6 to 52 per year. Most of the monitoring stations are located on major rivers at, or near, the tidal limit.

The monitoring programme can embrace a large number – over 80 – of physical and chemical attributes of river water but typically only 25 are measured at any given site. A number of determinands are measured as standard but a larger proportion are monitored only where it is considered necessary to do so.

Currently no data for Northern Ireland are held on the Harmonised Monitoring Archive. Water quality data are, however, routinely collected and archived by the Environmental Protection Division of the Department of the Environment (NI); data for two Northern Ireland monitoring sites are included in this publication.

The measuring authorities maintain major programmes of chemical and biological sampling of rivers for their own purposes; the monitoring networks involved provide a far more comprehensive coverage than the selected sites incorporated in the Harmonised Monitoring programme. From the 31st July 1985, the former Water Authorities were required, under the Control of Pollution Act, to maintain registers of the results of all samples of water and effluent taken for pollution control purposes together with details of all consented discharges. Following the enactment of the Water Bill 1989 this obligation passed to the National Rivers Authority. These registers are maintained at the regional headquarters of the NRA (see page 172) and are open for inspection by the public – free of charge. Persons wishing to consult the registers are advised to first contact the individual regional headquarters; a list of addresses is given on pages 172 and 173.

Data Retrieval

A comprehensive range of retrieval options has been developed by DoE to make available the water quality data held on the Harmonised Monitoring Archive and to provide statistical summaries based on that data. Requests for data, and guidance concerning its availability, should be addressed to:

Department of the Environment
Environmental Protection Statistics Division,
Room A105
Romney House
43 Marsham Street
LONDON SW1P 3PY

Telephone: 0171 276 8245

Data listings for monitoring sites in Northern Ireland may be obtained from the Environmental Protection Division of the DOE (NI).

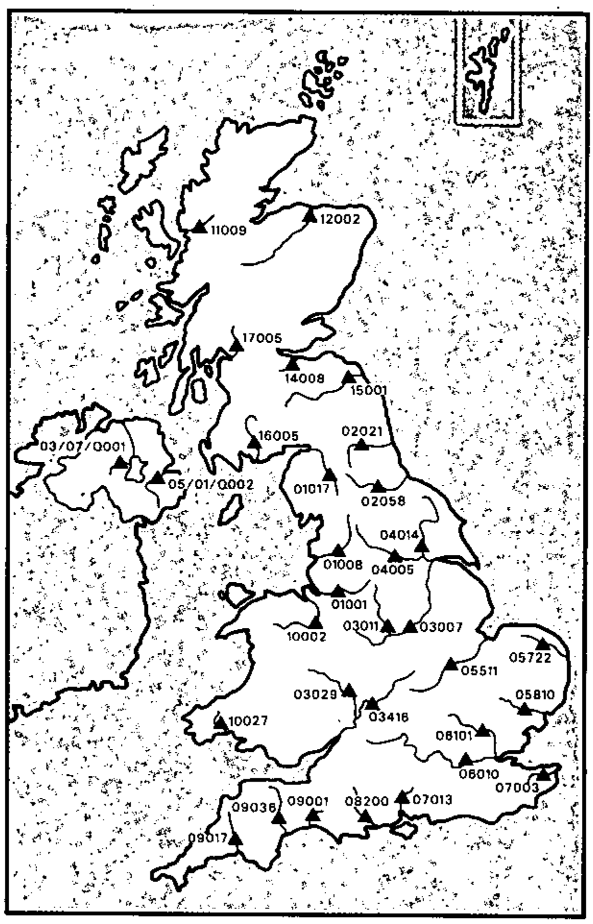


Figure 12 Water quality monitoring station location map

Scope of the Water Quality Data Tabulations

River water quality data are presented for 32 monitoring sites on rivers throughout the United Kingdom. The location of each monitoring site is given on Figure 12. For each site 1994, and period of record, data are given for a range of determinands; the determinands featured may differ between monitoring sites reflecting the character of the rivers themselves and differences in the sampling regimes between monitoring stations.

The following notes are provided to assist in the interpretation of particular data items.

Harmonised Monitoring Station Code

A reference number which serves as the primary identifier of the station. For stations on the Harmonised Monitoring Archive, the first two digits refer to the measuring authority, the remainder refer to individual sites within each measuring authority. For the Northern Ireland stations, the Department of the Environment (NI) reference code is given.

Measuring Authority

An abbreviation referencing the organisation responsible for the operation of the monitoring site. See pages 172 and 173 for a full list of the codes together with the corresponding authority names and addresses.

Grid Reference

The initial two-letter and two-figure codes each designate the relevant 100 kilometre National Grid square or Irish Grid square (see page 38); the standard six-figure map reference follows.

Associated Flow Measurement Station

For monitoring sites in Great Britain, the reference number, name, catchment area and grid reference of the gauging station which provides the discharge data stored on the Harmonised Monitoring Archive. At most sites the flow corresponding to the time the quality sample was taken is archived; at other locations the corresponding daily mean flow is utilised. Where the gauging station and water quality monitoring site are not coincident, some method of flow adjustment may have been employed to allow for the differing catchment areas.

For the Northern Ireland monitoring sites, reference details of the co-located gauging stations are given; the flow data for these stations are held on the National River Flow Archive.

With the exception of the River Aire, for which summary flow information appears with the water quality data, 1994 flow data for all of the relevant gauging stations in Great Britain may be found in the River Flow Data section. Where daily flows are required for gauging stations featured in the monthly flow tables the National River Flow Archive data retrieval service may be used.

Determinands

Inadequate or unrepresentative sampling frequencies, or the presence of a substantial number of samples with concentrations recorded at, or below, the limit of detection, will normally result in the omission of a particular determinand.

Notes:

i. Conductivity results are standardised to 20°C.

ii. The biochemical oxygen demand data normally relate to the inhibited analytical results – BOD(atu).

iii. Nitrate concentrations are normally derived by subtracting the nitrite concentration from the reported Total Oxidised Nitrogen (TON) concentration; if the nitrite determination is below the limit of detection, nitrate is recorded as equivalent to TON*.

Units

The standard units used to record and report each determinand. The number of significant figures given for each determinand corresponds to the way the data are stored on the Harmonised Monitoring or DOE (NI) Archives and reflects the uncertainty associated with the relevant analytical procedures.

1994 Data

Samples

The number of samples taken for each determinand during 1994. Where a proportion of analytical results were below the limit of detection (which may vary according to the analytical procedure used), the number of samples in this category is given in parentheses. Normally determinands are not featured when the number of samples in the year is less than about six. Exclusion may also result from a very uneven sampling pattern through the year.

The precision of the mean, maximum and minimum values computed on the basis of a limited number of samples will vary from determinand to determinand but statistics associated with sampling frequencies of lower than about once a month should be regarded as indicative only.

* Over recent years nitrate values for the featured Severn-Trent NRA sites have been reported as TON.

Mean

The average* of all the sample values for each determinand in 1994. Where concentrations below the limit of detection are held on the Harmonised Monitoring Archive, the threshold value itself is used to compute the mean.

Maximum / Date

The maximum determinand value recorded during 1994 together with its date of occurrence. Where the maximum value recurs the date refers to the initial occurrence.

Minimum / Date

The minimum determinand value together with its date of occurrence. Where the minimum value recurs the date refers to the initial occurrence. A '<' symbol indicates a value below the limit of detection.

Different limits of detection may apply throughout the year at certain monitoring sites, for further details contact the address given on page 161.

Period of Record Data

For half of the featured sites, the pre-1994 summary statistics are presented for the twenty-year period beginning in 1974; where individual stations were not incorporated into the Harmonised Monitoring network until after 1974, the appropriate first year of data is given. For certain stations the sampling frequency varies significantly from year to year and data for a few determinands may not extend over the full period of record; in particular the first year of data will normally be incomplete.

Where the pre-1994 data series includes values below the limit of detection, the threshold value has been used in the computation of the summary statistics.

For a number of the featured monitoring stations, a considerable amount of pre-1974 data, at least for certain determinands, may be stored on local, or regional, archives maintained by the measuring authorities. Also, for the period 1974–94, such archives may hold analytical results for substantially more samples than are represented on the Harmonised Monitoring Archive. Hence full equivalence between statistical summaries derived from national and regional databases cannot be expected for all monitoring sites.

Mean

The average* value of all the sample values for each determinand.

Percentiles

The 5, 50 and 95 percentile values for each determinand based on all the samples taken over the pre-1994 period.

Quarterly Averages

The mean quarterly average* for each of the three-monthly periods: January to March, April to June, July to September and October to December.

* In all cases this refers to the temporal mean rather than the flow-weighted average.

Mersey at Flixton 1994

Harmonised monitoring station number : 01 001
Measuring authority : NRA-NW NGR : 33 (SJ) 742 938

Flow measurement station : 069007 - Ashton Weir
C.A.(km²) : 660.0 NGR : 33 (SJ) 772 936

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	40	12.1	24.0	12/07	2.0	22/02	10.7	3.9	10.1	19.1	5.9	12.6	16.3	8.6
pH	pH units	49	7.4	7.8	12/04	6.9	05/04	7.3	6.9	7.3	7.6	7.3	7.3	7.3	7.3
Conductivity	μS/cm	49	382	558	19/07	219	04/01	482	284	465	744	460	499	510	449
Suspended solids	mg/l	49	21.6	149.0	26/01	2.0	11/10	38.2	3.7	19.3	109.7	41.8	28.8	27.5	51.9
Dissolved oxygen	mg/l O	46	8.67	11.70	04/01	5.12	26/07	8.05	4.59	7.98	11.29	9.92	7.25	6.21	8.73
BOD (inhibited)	mg/l O	48	4.4	23.0	21/06	1.5	11/10	6.1	2.5	5.1	12.6	6.2	6.3	5.2	6.3
Ammoniacal nitrogen	mg/l N	49 (1)	0.981	2.650	22/02	0.040	08/03	1.85	0.31	1.61	4.18	1.97	2.20	1.67	1.55
Nitrite	mg/l N	49	0.423	9.970	28/06	0.038	04/01	0.26	0.05	0.21	0.66	0.10	0.33	0.46	0.18
Nitrate	mg/l N	48 (1)	4.68	9.10	14/06	0.50	08/03	4.1	2.1	4.0	7.1	3.2	4.6	5.1	3.7
Chloride	mg/l Cl	49 (1)	40.2	64.0	19/07	5.0	08/03	52.7	26.8	48.9	86.0	59.1	51.2	53.2	46.7
Total alkalinity	mg/l $CaCO_3$	49	66.2	105.0	23/08	5.0	08/03	91.3	54.0	90.0	133.8	84.6	98.1	95.7	84.9
Orthophosphate	mg/l P	49	1.416	24.600	28/06	0.104	04/01	1.14	0.20	1.05	2.57	0.71	1.30	1.62	0.93
Silica	mg/l SiO_2	49	8.24	14.70	22/11	3.27	10/05	8.09	5.12	8.10	10.36	8.12	6.83	8.73	8.48
Calcium	mg/l Ca	49	34.3	41.7	09/08	22.7	04/01	32.8	25.6	33.2	38.3	33.0	34.2	32.7	31.3
Magnesium	mg/l Mg	49	7.07	9.20	19/07	4.21	04/01	7.2	4.8	7.2	9.1	7.0	7.8	7.4	6.7

Ribble at Samlesbury 1994

Harmonised monitoring station number : 01 008
Measuring authority : NRA-NW NGR : 34 (SD) 590 305

Flow measurement station : 071001 - Samlesbury
C.A.(km²) : 1145.0 NGR : 34 (SD) 589 304

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1974 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	52	10.7	21.0	21/07	1.0	17/02	9.8	1.0	9.9	18.1	4.3	11.8	15.1	7.5
pH	pH units	50	8.1	9.3	21/07	7.5	27/01	7.8	7.1	7.8	8.7	7.6	7.9	8.0	7.6
Conductivity	μS/cm	49	371	550	26/05	135	24/03	414	233	410	618	407	449	431	366
Suspended solids	mg/l	48 (3)	24.6	540.0	24/02	2.0	17/02	19.1	1.7	7.9	66.6	22.1	13.0	16.3	24.5
Dissolved oxygen	mg/l O	47	10.61	13.70	24/02	7.24	28/07	10.14	7.21	10.15	12.81	11.56	9.75	8.78	10.69
BOD (inhibited)	mg/l O	48	2.8	12.5	26/05	1.0	10/11	2.8	1.1	2.4	5.9	2.7	3.1	2.6	2.6
Ammoniacal nitrogen	mg/l N	49 (11)	0.181	1.070	03/03	0.040	28/04	0.26	0.03	0.16	0.83	0.50	0.18	0.14	0.25
Nitrite	mg/l N	49	0.072	0.261	28/07	0.017	04/08	0.08	0.02	0.06	0.20	0.06	0.11	0.09	0.06
Nitrate	mg/l N	49	5.36	17.60	18/08	0.80	22/03	4.2	1.3	3.3	10.0	3.4	5.2	4.9	3.3
Chloride	mg/l Cl	49	30.1	53.0	22/03	13.0	10/11	33.0	14.2	30.2	55.6	37.8	35.6	32.3	26.6
Total alkalinity	mg/l $CaCO_3$	49	106.4	139.0	20/10	41.0	24/03	116.2	67.2	120.5	153.3	109.9	122.4	120.6	111.3
Orthophosphate	mg/l P	49	0.647	1.840	02/06	0.090	22/03	0.43	0.07	0.31	1.30	0.25	0.60	0.60	0.31
Silica	mg/l SiO_2	41 (2)	2.88	6.28	17/02	0.05	12/05	3.24	0.13	3.46	5.78	4.16	1.82	2.49	4.55
Calcium	mg/l Ca	44	50.6	69.2	24/02	23.8	24/03	51.0	33.9	51.3	63.8	50.6	52.1	50.4	49.5
Magnesium	mg/l Mg	44	5.01	9.77	24/02	1.76	24/03	5.1	2.7	5.1	7.5	4.9	5.6	5.3	4.6
Potassium	mg/l K	44	4.31	9.08	14/07	1.93	24/03	4.0	2.0	3.8	6.9	3.5	4.5	4.5	3.4
Sodium	mg/l Na	44	31.6	68.0	18/08	7.9	24/03	30.5	9.4	25.9	63.4	28.2	35.2	34.5	21.7

Eden at Temple Sowerby 1994

Harmonised monitoring station number : 01 017
Measuring authority : NRA-NW NGR : 35 (NY) 604 281

Flow measurement station : 076005 - Temple Sowerby
C.A.(km²) : 616.4 NGR : 35 (NY) 605 283

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	11	10.9	19.0	13/07	5.0	07/02	10.2	2.9	9.4	18.5	4.9	12.0	15.5	7.6
pH	pH units	12	8.2	8.7	11/05	7.7	10/01	8.1	7.4	8.0	8.7	7.9	8.2	8.2	8.0
Conductivity	μS/cm	12	381	454	10/08	190	10/01	358	227	378	473	338	368	383	343
Suspended solids	mg/l	11 (1)	8.2	34.0	10/01	2.0	11/05	8.6	1.3	4.3	27.5	11.8	7.3	4.9	11.4
Dissolved oxygen	mg/l O	11	11.44	15.10	11/05	9.50	15/06	11.15	8.80	10.99	13.71	12.22	11.35	10.38	10.98
BOD (inhibited)	mg/l O	11	1.7	2.5	09/06	1.0	10/01	1.9	0.7	1.7	3.3	1.8	1.9	1.9	1.6
Chloride	mg/l Cl	11	19.2	28.0	10/08	12.0	10/01	18.9	11.0	17.8	29.0	19.7	19.9	21.1	15.7
Total alkalinity	mg/l $CaCO_3$	11	152.0	176.0	13/07	76.0	10/01	150.0	88.9	157.0	191.1	143.2	157.0	151.5	149.0
Orthophosphate	mg/l P	11 (2)	0.116	0.237	15/06	0.050	07/02	0.13	0.02	0.09	0.38	0.08	0.20	0.17	0.10
Silica	mg/l SiO_2	11	2.44	3.70	09/11	0.40	11/05	2.42	0.41	2.44	4.20	3.08	1.38	2.14	3.09
Calcium	mg/l Ca	11	61.6	70.8	10/08	35.7	10/01	56.8	35.9	58.6	72.7	56.8	58.0	58.2	56.0
Magnesium	mg/l Mg	11	9.43	13.50	15/06	4.16	10/01	9.2	4.2	8.9	14.5	8.3	10.3	10.5	7.9
Potassium	mg/l K	11	2.96	4.57	10/08	1.77	10/01	2.8	1.5	2.5	4.9	2.2	3.0	3.5	2.6
Sodium	mg/l Na	11	10.9	16.1	10/08	7.4	14/09	10.2	5.2	9.3	17.0	9.9	10.6	11.8	8.3

South Tyne at Warden Bridge 1994

Harmonised monitoring station number : 02 021
Measuring authority : NRA-N NGR : 35 (NY) 910 660

Flow measurement station : 023004 - Haydon Bridge
C.A.(km²) : 751.1 NGR : 35 (NY) 856 647

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	4	8.9	16.0	22/08	0.1	22/02	9.3	2.0	8.4	19.0	4.1	11.3	15.0	6.4
pH	pH units	4	8.1	8.5	11/05	7.7	22/02	7.8	7.2	7.8	8.5	7.6	8.0	7.9	7.6
Suspended solids	mg/l	4 (1)	1.5	2.0	22/08	1.0	22/02	10.9	1.3	4.4	26.2	10.9	10.8	13.0	8.9
Dissolved oxygen	mg/l O	4	13.12	15.20	22/02	11.30	29/11	11.32	9.03	11.41	13.78	12.33	11.03	10.11	11.71
BOD (inhibited)	mg/l O	4	1.3	1.6	22/02	0.9	29/11	1.7	0.6	1.5	3.0	1.5	1.8	1.8	1.6
Chloride	mg/l Cl	4	18.6	27.9	22/02	12.8	29/11	13.9	7.9	12.9	24.1	16.8	14.4	12.2	12.3

Tees at Broken Scar — 1994

Harmonised monitoring station number : 02 058
Measuring authority : NRA-N NGR : 45 (NZ) 265 131

Flow measurement station : 025001 - Broken Scar
C.A.(km²) : 818.4 NGR : 45 (NZ) 259 137

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	4	10.5	17.0	27/10	5.0	02/11	9.3	1.6	8.4	18.1	3.8	11.9	15.3	6.1
pH	pH units	4	7.6	7.8	06/06	7.4	02/11	7.6	6.9	7.7	8.2	7.6	7.6	7.6	7.6
Suspended solids	mg/l	4	10.5	27.0	24/03	2.0	06/06	13.7	1.4	6.2	46.9	14.6	9.2	14.0	16.4
Dissolved oxygen	mg/l O	4	11.24	12.50	24/03	10.66	27/10	10.93	8.31	11.01	13.24	12.39	10.39	9.37	11.48
BOD (inhibited)	mg/l O	4 (1)	1.7	2.0	02/11	1.4	24/03	1.8	0.9	1.6	3.2	1.9	1.8	1.8	1.7
Nitrate	mg/l N	3	0.65	0.81	27/10	0.48	02/11	1.4	0.2	1.0	3.7	1.9	1.2	0.8	1.8
Chloride	mg/l Cl	4	12.1	13.9	27/10	9.3	24/03	15.8	6.4	14.0	26.7	19.6	14.2	11.8	18.8
Total alkalinity	mg/l $CaCO_3$	4	36.2	63.0	27/10	19.0	02/11	67.2	33.4	61.2	102.9	76.8	68.2	61.5	65.4

Trent at Nottingham — 1994

Harmonised monitoring station number : 03 007
Measuring authority : NRA-ST NGR 43 (SK) 581 383

Flow measurement station : 028009 - Colwick
C.A.(km²) : 7486.0 NGR : 43 (SK) 620 399

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	57	11.7	24.0	12/07	1.0	15/02	12.6	5.0	11.9	21.0	7.6	15.0	18.4	10.4
pH	pH units	57	8.0	8.7	03/05	7.7	14/11	7.8	7.4	7.8	8.3	7.7	7.8	7.9	7.7
Conductivity	µS/cm	57	866	1180	31/08	510	29/12	884	602	904	1118	815	909	957	864
Suspended solids	mg/l	57	16.9	132.0	13/01	3.0	15/10	24.6	6.1	15.0	75.9	28.2	20.7	18.4	29.6
Dissolved oxygen	mg/l O	57	11.11	15.00	15/02	8.00	14/07	9.95	7.81	10.11	12.32	10.92	9.79	8.95	10.13
BOD (inhibited)	mg/l O	54	2.9	5.5	14/11	1.5	11/10	3.5	1.6	3.2	5.9	3.1	4.0	3.6	3.2
Tot. diss. org. carbon*	mg/l O	26	7.0	10.2	29/12	4.7	10/02	8.0	4.5	6.6	18.1	7.1	8.1	8.7	8.4
Ammoniacal nitrogen	mg/l N	57 (8)	0.178	0.947	24/02	0.040	03/05	0.38	0.03	0.28	0.90	0.60	0.27	0.21	0.36
Nitrate	mg/l N	57	8.17	10.50	20/10	5.79	04/01	8.6	6.2	8.7	11.2	8.8	8.8	8.4	8.7
Chloride	mg/l Cl	57	98.8	183.0	31/08	44.0	29/12	99.1	54.1	99.5	149.2	88.4	100.6	117.3	94.6
Total alkalinity	mg/l $CaCO_3$	57	164.4	190.0	18/10	116.0	29/12	159.3	118.9	162.7	186.6	157.5	165.6	161.5	153.5
Orthophosphate	mg/l P	13	1.054	1.840	22/06	0.404	08/01	1.51	0.52	1.50	2.79	1.00	1.60	2.04	1.49
Silica	mg/l SiO_2	12	8.38	10.30	15/02	6.00	22/06	7.24	2.68	7.63	11.06	8.57	4.42	6.76	8.48
Sulphate	mg/l SO_4	13	143.28	190.00	18/10	76.70	29/12	168.1	106.0	69.3	222.42	156.9	178.6	173.9	160.6
Calcium	mg/l Ca	13	93.7	109.0	01/06	67.7	29/12	105.0	72.5	98.6	113.1	95.8	108.0	90.1	92.1
Magnesium	mg/l Mg	13	21.19	26.40	22/06	13.50	29/12	22.0	13.7	22.5	29.1	22.3	23.4	21.7	19.7
Potassium	mg/l K	13	9.16	12.30	22/06	6.20	13/04	9.9	6.6	9.8	15.4	8.0	10.3	11.7	10.3
Sodium	mg/l Na	13	63.9	96.3	22/06	24.8	29/12	73.4	31.2	74.6	126.1	64.2	74.2	87.0	70.2

Derwent at Wilne — 1994

Harmonised monitoring station number : 03 011
Measuring authority : NRA-ST NGR : 43 (SK) 452 315

Flow measurement station : 028067 - Church Wilne
C.A.(km²) : 1177.5 NGR : 43 (SK) 438 316

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	43	12.0	23.0	14/07	4.0	25/02	11.9	4.0	11.1	21.0	6.5	14.2	17.8	9.3
pH	pH units	41	8.0	8.5	11/05	7.7	10/11	7.8	7.5	7.8	8.2	7.8	7.9	7.9	7.7
Conductivity	µS/cm	41	635	1650	30/06	410	27/01	658	430	660	888	564	671	760	639
Suspended solids	mg/l	43	13.3	78.0	10/11	2.0	19/12	14.8	2.0	8.0	47.9	20.2	9.6	10.1	19.3
Dissolved oxygen	mg/l O	42	10.79	13.60	27/01	7.40	31/08	10.06	6.98	10.24	12.92	11.67	10.11	8.54	10.37
BOD (inhibited)	mg/l O	42	2.7	6.5	01/08	1.5	31/01	2.6	1.2	2.5	4.3	2.4	2.7	2.6	2.6
Tot. diss. org. carbon	mg/l O	42	5.0	9.1	10/11	2.4	18/01	4.9	2.4	4.4	9.1	3.9	5.0	5.7	5.1
Ammoniacal nitrogen	mg/l N	43 (1)	0.229	0.958	25/02	0.040	30/06	0.32	0.07	0.27	0.74	0.40	0.29	0.23	0.35
Nitrate	mg/l N	43	4.68	6.72	07/09	3.22	12/04	4.4	3.2	4.5	5.8	4.4	4.4	4.5	4.4
Chloride	mg/l Cl	43	54.1	147.0	25/02	30.0	10/11	67.2	35.0	66.1	109.3	56.3	66.8	83.4	64.1
Total alkalinity	mg/l $CaCO_3$	43	148.7	217.0	29/07	83.0	10/11	155.4	110.7	159.3	189.0	140.4	161.4	172.2	149.2
Orthophosphate	mg/l P	43	0.664	1.650	01/08	0.120	06/01	0.88	0.22	0.81	1.90	0.52	0.90	1.34	0.80
Silica	mg/l SiO_2	11	6.41	7.80	25/02	2.80	14/07	5.39	0.59	5.73	8.54	6.12	3.43	4.61	6.72
Sulphate	mg/l SO_4	14	92.67	160.00	07/09	55.60	10/11	102.2	60.0	98.4	167.90	82.1	107.8	123.7	93.7
Calcium	mg/l Ca	14	72.4	86.3	14/07	58.1	10/11	72.6	55.4	74.1	85.6	68.9	75.9	76.4	67.6
Magnesium	mg/l Mg	14	15.50	25.50	07/09	9.11	10/11	16.8	9.0	15.8	24.8	14.3	17.9	19.9	15.2
Potassium	mg/l K	14	5.00	8.04	07/09	2.97	28/03	5.3	3.0	5.1	7.7	4.6	5.5	6.2	5.0
Sodium	mg/l Na	14	43.4	94.9	25/02	20.2	10/11	50.1	18.6	47.7	80.2	37.0	49.8	66.5	43.0

Teme at Powick — 1994

Harmonised monitoring station number : 03 029
Measuring authority : NRA-ST NGR : 32 (SO) 836 525

Flow measurement station : 054029 - Knightsford Br.
C.A.(km²) : 1480.0 NGR : 32 (SO) 735 557

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	17	10.2	21.0	14/07	5.0	17/01	10.6	3.0	9.9	19.1	5.3	12.7	16.4	7.8
pH	pH units	15	8.1	8.5	14/07	7.6	16/09	8.0	7.5	8.0	8.5	7.9	8.1	8.2	7.9
Conductivity	µS/cm	15	393	490	10/08	260	16/09	424	271	410	519	370	421	442	400
Suspended solids	mg/l	17	44.4	198.0	16/09	5.0	27/04	39.3	1.9	11.4	188.9	66.9	33.1	12.1	46.4
Dissolved oxygen	mg/l O	17	11.25	14.50	17/01	9.70	30/09	10.89	8.49	11.03	13.31	11.91	10.71	9.91	11.19
BOD (inhibited)	mg/l O	17 (3)	1.6	5.0	16/09	1.0	20/01	1.9	0.8	1.6	4.1	1.7	2.2	1.8	1.9
Tot. diss. org. carbon	mg/l O	16	4.4	13.9	16/09	1.9	20/01	4.8	1.9	3.5	12.4	4.4	4.9	4.6	5.1
Nitrate	mg/l N	16	5.35	6.83	16/09	4.08	28/07	4.3	2.3	4.3	6.5	5.4	4.5	3.4	4.2
Chloride	mg/l Cl	16	30.5	94.0	12/12	21.0	15/11	23.4	15.3	23.0	31.5	23.1	22.7	25.6	22.4
Total alkalinity	mg/l $CaCO_3$	15	124.4	172.0	28/07	10.0	16/09	138.3	77.0	141.3	189.7	118.5	148.9	164.3	123.9
Orthophosphate	mg/l P	17 (2)	0.129	0.249	16/09	0.050	04/03	0.19	0.03	0.15	0.40	0.13	0.10	0.24	0.27

Avon at Evesham Road Bridge 1994

Harmonised monitoring station number : 03 416
Measuring authority : NRA-ST NGR : 42 (SP) 034 431

Flow measurement station : 054002 - Evesham
C.A.(km²) : 2210.0 NGR : 42 (SP) 040 438

		1994						Period of record: 1977 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	44	10.4	21.0	20/07	1.0	14/02	11.2	3.4	11.0	19.9	5.4	13.4	17.0	8.6
pH	pH units	29	8.1	8.6	11/05	7.8	06/01	8.0	7.6	8.0	8.6	7.9	8.2	8.0	7.8
Conductivity	µS/cm	29	842	1060	19/07	480	06/01	927	605	943	1197	847	914	1021	926
Suspended solids	mg/l	38	33.6	220.0	06/01	3.0	18/10	27.5	5.1	15.5	90.4	40.9	26.1	16.7	25.2
Dissolved oxygen	mg/l O	44	10.22	14.20	16/02	2.64	11/11	10.63	7.95	10.92	13.32	11.94	10.83	9.00	10.78
BOD (inhibited)	mg/l O	40 (1)	3.0	5.0	11/05	1.0	08/08	3.2	1.5	2.7	6.6	2.8	4.6	2.9	2.5
Tot. diss. org. carbon	mg/l O	22	7.4	14.2	07/11	5.3	07/03	8.7	5.2	7.1	18.6	8.6	8.7	8.8	9.0
Ammoniacal nitrogen	mg/l N	30 (9)	0.130	0.594	19/05	0.040	22/04	0.24	0.02	0.16	0.66	0.45	0.14	0.13	0.26
Nitrate	mg/l N	30	9.81	11.30	07/11	7.17	06/01	10.6	7.7	10.5	14.5	11.6	9.9	9.9	11.0
Chloride	mg/l Cl	30	62.0	93.0	12/09	35.0	06/01	77.5	38.9	75.1	137.0	68.3	71.2	92.5	78.4
Total alkalinity	mg/l $CaCO_3$	30	187.4	216.0	07/06	109.0	28/02	195.5	145.1	198.8	229.3	192.8	201.7	195.3	191.6
Orthophosphate	mg/l P	21	1.363	2.660	19/07	0.470	09/12	1.78	0.52	1.62	3.90	1.09	1.60	2.55	1.93
Silica	mg/l SiO_2	11	10.55	14.80	13/10	5.30	16/05	10.78	3.83	1.41	15.48	10.31	6.59	11.76	13.04
Sulphate	mg/l SO_4	11	175.45	242.00	19/07	103.00	07/04	195.0	100.0	97.5	265.85	170.0	198.4	217.2	187.3
Calcium	mg/l Ca	11	115.8	134.0	16/06	93.6	07/11	119.4	87.2	122.4	140.3	119.7	116.7	121.1	118.3
Magnesium	mg/l Mg	11	26.31	33.20	19/07	17.20	07/11	28.4	16.4	27.8	39.2	24.9	30.0	31.2	27.5
Potassium	mg/l K	11	9.30	12.20	12/09	5.96	07/04	9.9	6.4	9.2	14.6	7.5	10.2	12.0	10.2
Sodium	mg/l Na	11	45.7	69.2	12/09	22.3	07/04	57.1	21.9	55.4	99.6	44.1	56.8	71.2	58.0

Aire at Fleet Weir 1994

Harmonised monitoring station number : 04 005
Measuring authority : NRA-Y NGR : 44 (SE) 381 285

Flow measurement station : 027080 - Fleet Weir
C.A.(km²) : 865.0 NGR : 44 (SE) 381 295

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Flow	m^3s^{-1}	365	21.2	101.5	28/12	4.6	14/08								
Temperature	°C	44	11.6	20.0	13/07	3.7	14/02	12.4	4.9	12.1	20.2	7.2	14.2	17.5	10.0
pH	pH units	44	7.5	7.6	09/02	7.2	05/01	7.5	7.2	7.5	7.8	7.6	7.5	7.4	7.5
Conductivity	µS/cm	44	744	1195	20/07	384	15/11	708	398	679	1071	678	710	782	648
Suspended solids	mg/l	44	14.4	62.0	15/11	4.0	06/09	26.6	3.3	17.5	75.8	29.9	24.4	23.0	30.8
Dissolved oxygen	mg/l O	44	8.32	12.30	17/01	1.82	20/07	7.65	2.67	7.96	11.66	10.23	6.98	5.33	8.59
BOD (inhibited)	mg/l O	44	5.9	11.0	21/10	2.5	03/06	7.9	3.5	7.1	13.7	7.7	8.3	8.3	7.5
Ammoniacal nitrogen	mg/l N	44	0.904	2.490	13/06	0.280	15/11	2.16	0.43	1.55	4.81	1.93	2.17	2.36	1.76
Nitrite	mg/l N	44 (1)	0.198	0.600	21/10	0.010	05/01	0.33	0.05	0.24	0.82	0.15	0.39	0.50	0.24
Nitrate	mg/l N	44	6.07	12.80	13/06	2.93	15/11	5.2	2.6	4.9	8.7	4.4	5.6	5.9	4.8
Chloride	mg/l Cl	44	89.5	165.0	20/07	32.7	15/11	83.4	36.6	77.0	153.4	84.0	84.2	90.8	73.8
Total alkalinity	mg/l $CaCO_3$	44	122.9	156.0	01/10	97.0	25/10	123.4	77.6	126.0	164.9	115.4	124.3	134.0	119.2
Orthophosphate	mg/l P	44	0.786	2.160	13/06	0.170	05/01	1.32	0.16	1.11	3.19	0.83	1.50	1.89	1.02
Calcium	mg/l Ca	44	60.4	84.7	08/10	49.3	11/04	60.7	45.8	60.3	73.6	59.5	60.7	60.4	61.0
Magnesium	mg/l Mg	44	12.22	21.10	08/10	5.72	15/11	12.6	4.9	11.8	20.2	12.1	12.9	14.1	11.2

Derwent at Loftsome Bridge 1994

Harmonised monitoring station number : 04 014
Measuring authority : NRA-Y NGR : 44 (SE) 707 302

Flow measurement station : 027041 - Buttercrambe
C.A.(km²) : 1586.0 NGR : 44 (SE) 731 587

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	33	9.3	19.0	08/07	2.4	23/02	10.5	3.1	10.1	19.3	5.3	12.9	16.7	7.7
pH	pH units	33	7.7	8.3	12/05	7.2	06/01	7.9	7.4	7.9	8.3	7.8	8.0	7.9	7.8
Conductivity	µS/cm	25	599	700	31/03	468	28/10	535	383	535	660	541	527	539	531
Suspended solids	mg/l	33 (1)	15.7	56.0	06/01	1.0	08/07	24.3	2.1	11.5	77.0	31.2	18.2	9.9	28.5
Dissolved oxygen	mg/l O	33	10.40	13.00	23/02	6.58	02/08	10.48	8.13	10.62	12.66	11.92	10.32	9.18	10.51
BOD (inhibited)	mg/l O	33 (1)	1.3	2.6	28/02	0.5	23/02	1.7	0.7	1.5	3.1	1.7	2.0	1.4	1.7
Ammoniacal nitrogen	mg/l N	33 (10)	0.088	0.290	28/02	0.050	11/03	0.11	0.02	0.08	0.27	0.14	0.09	0.08	0.11
Nitrate	mg/l N	25	5.35	7.23	17/01	3.07	11/10	4.2	2.3	4.0	7.1	5.3	4.3	3.2	4.2
Chloride	mg/l Cl	33	38.0	45.6	16/05	30.6	28/10	32.5	22.9	31.3	44.0	35.8	30.9	31.1	32.5
Total alkalinity	mg/l $CaCO_3$	25	152.3	181.0	08/07	107.0	10/01	149.2	103.5	154.2	181.1	147.4	154.0	152.7	142.0
Orthophosphate	mg/l P	33 (4)	0.092	0.200	15/09	0.030	10/02	0.09	0.02	0.08	0.24	0.07	0.10	0.13	0.10
Silica	mg/l SiO_2	17	6.58	8.40	17/01	2.80	16/05	6.30	2.78	6.44	9.00	7.20	4.92	6.15	7.10
Sulphate	mg/l SO_4	17	83.75	98.00	16/05	49.70	28/02	81.2	44.9	81.0	106.02	79.3	82.2	82.6	80.0
Calcium	mg/l Ca	24	90.7	109.0	10/02	10.7	12/12	92.0	66.4	92.4	110.2	100.2	91.0	87.3	90.3
Magnesium	mg/l Mg	24	8.78	10.70	10/02	3.39	12/12	9.7	4.0	8.9	17.3	11.4	9.3	9.2	9.4

Nene at Wansford 1994

Harmonised monitoring station number : 05 511
Measuring authority : NRA-A NGR : 52 (TL) 082 996

Flow measurement station : 032001 - Orton
C.A.(km²) : 1634.3 NGR : 52 (TL) 166 972

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	50	11.9	22.0	04/07	3.0	21/02	11.5	2.9	11.0	20.4	5.5	13.9	17.8	8.3
pH	pH units	48	8.1	8.7	03/05	7.8	06/01	8.1	7.7	8.0	8.8	8.0	8.3	8.2	7.9
Conductivity	µS/cm	46	923	1540	21/07	589	06/01	958	725	956	1194	933	937	989	975
Suspended solids	mg/l	24 (2)	15.8	97.2	10/01	3.0	19/07	22.9	4.3	13.8	66.2	29.7	22.3	16.0	20.2
Dissolved oxygen	mg/l O	47	11.22	18.20	03/02	7.70	05/07	10.54	7.72	10.52	13.07	11.87	10.66	8.98	10.80
BOD (inhibited)	mg/l O	47 (23)	2.7	20.0	06/01	1.0	18/10	3.6	1.1	2.8	8.4	3.1	5.8	3.0	2.5
Ammoniacal nitrogen	mg/l N	48 (17)	0.098	0.300	24/05	0.050	08/02	0.32	0.02	0.14	0.98	0.61	0.16	0.10	0.47
Nitrite	mg/l N	24 (3)	0.081	0.160	24/05	0.030	17/08	0.10	0.03	0.10	0.20	0.09	0.12	0.08	0.13
Nitrate	mg/l N	48	9.34	12.70	14/03	5.20	09/08	9.6	5.5	9.4	15.0	12.2	9.2	7.0	10.2
Chloride	mg/l Cl	48	74.5	145.0	17/08	46.0	21/02	75.4	43.8	75.7	111.0	69.5	71.7	84.8	76.7
Total alkalinity	mg/l $CaCO_3$	24	200.8	268.0	08/02	135.0	20/09	204.2	166.1	209.6	235.5	202.8	206.7	204.7	202.7
Silica	mg/l SiO_2	24 (1)	5.79	10.10	10/11	0.20	12/05	5.80	0.25	6.22	9.51	6.90	2.61	5.09	8.18
Calcium	mg/l Ca	12	129.8	143.0	29/11	112.0	10/01	128.5	93.1	138.3	154.6	129.2	139.4	129.4	130.1
Magnesium	mg/l Mg	12	10.99	13.40	04/07	8.00	10/01	10.9	7.7	11.3	13.2	10.4	11.1	11.7	10.5
Sulphate	mg/l SO_4	24	157.58	213.00	19/07	117.00	13/04	167.6	105.5	68.1	228.16	157.4	167.3	189.7	174.7
Potassium	mg/l K	12	8.98	14.00	05/09	5.40	10/01	10.4	5.4	9.9	18.9	7.9	10.5	12.7	10.8
Sodium	mg/l Na	12	47.5	77.0	05/09	28.0	10/01	53.8	23.1	50.7	93.8	43.5	52.3	65.3	57.6

Bure at Horstead Mill 1994

Harmonised monitoring station number : 05 722
Measuring authority : NRA-A NGR : 63 (TG) 267 198

Flow measurement station : 034003 - Ingworth
C.A.(km²) : 164.7 NGR : 63 (TG) 192 296

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	47	11.4	23.5	11/07	2.7	21/02	10.7	4.0	10.4	19.9	6.1	12.9	16.8	8.3
pH	pH units	48	8.0	8.3	14/03	7.7	21/02	7.8	7.4	7.9	8.3	7.7	7.9	8.0	7.7
Conductivity	µS/cm	47	771	830	28/11	682	04/01	747	659	757	877	768	720	730	767
BOD (inhibited)	mg/l O	46 (25)	1.9	4.4	11/07	1.0	01/08	1.7	0.9	1.6	3.0	1.7	2.1	1.6	1.3
Ammoniacal nitrogen	mg/l N	48 (31)	0.075	0.210	09/05	0.030	27/06	0.13	0.02	0.06	0.35	0.20	0.09	0.08	0.13
Nitrite	mg/l N	24 (12)	0.048	0.072	27/06	0.020	18/04	0.06	0.02	0.05	0.11	0.08	0.05	0.07	0.07
Nitrate	mg/l N	49	6.41	11.80	24/01	0.10	28/11	5.8	3.5	5.5	8.6	7.5	5.7	4.5	5.9
Chloride	mg/l Cl	48	61.4	71.0	24/10	15.0	28/11	58.8	49.1	58.9	71.3	61.4	56.6	56.8	60.9
Total alkalinity	mg/l $CaCO_3$	24	214.6	286.0	01/02	90.0	16/05	217.0	180.0	211.4	252.7	218.2	206.0	214.5	230.6
Silica	mg/l SiO_2	24	8.79	12.60	07/11	1.20	28/02	7.54	2.94	8.17	12.45	8.96	4.87	6.63	10.71
Sulphate	mg/l SO_4	24	93.44	109.00	01/02	67.00	18/04	91.2	58.5	83.2	127.69	91.4	85.8	84.8	92.5
Calcium	mg/l Ca	12	126.1	131.0	05/12	116.0	12/09	119.4	96.8	117.9	142.3	123.1	117.5	114.6	124.0
Magnesium	mg/l Mg	12	8.14	8.60	08/08	7.70	07/11	7.6	5.1	7.6	9.3	7.8	7.8	7.3	7.4
Potassium	mg/l K	12	3.82	4.20	12/09	3.50	16/05	4.0	2.5	4.0	5.6	4.1	3.6	4.0	4.5
Sodium	mg/l Na	12	27.7	29.0	11/07	26.0	05/12	30.5	20.4	27.8	47.0	29.5	29.2	29.2	29.1

Stour at Langham 1994

Harmonised monitoring station number : 05 810
Measuring authority : NRA-A NGR : 62 (TM) 026 345

Flow measurement station : 036006 - Langham
C.A.(km²) : 578.0 NGR : 62 (TM) 020 344

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1974 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	49	12.8	24.0	28/06	2.0	14/02	11.3	2.9	11.1	20.0	5.3	13.8	17.1	8.3
pH	pH units	48	8.3	8.8	14/07	7.8	03/01	8.2	7.8	8.2	8.8	8.1	8.5	8.3	8.1
Conductivity	µS/cm	47	917	1360	28/06	613	08/08	918	730	911	1084	936	880	889	979
Suspended solids	mg/l	25 (5)	9.8	43.6	05/01	1.0	19/09	16.3	2.5	9.9	47.9	16.1	20.5	10.9	17.4
Dissolved oxygen	mg/l O	48	11.42	18.80	14/07	7.70	20/06	10.81	7.58	10.82	14.00	12.31	11.32	9.34	10.51
BOD (inhibited)	mg/l O	48 (25)	2.0	6.1	07/06	1.0	31/01	3.1	1.1	2.1	9.3	2.3	5.4	2.4	2.1
Tot. diss. org. carbon	mg/l O	25	7.0	18.1	04/10	4.3	02/02	6.5	4.4	6.2	10.4	6.5	7.4	6.5	6.4
Ammoniacal nitrogen	mg/l N	48 (30)	0.075	0.400	22/03	0.023	28/06	0.11	0.02	0.07	0.36	0.17	0.08	0.07	0.13
Nitrite	mg/l N	25 (6)	0.065	0.140	14/11	0.020	17/10	0.07	0.02	0.06	0.15	0.07	0.09	0.04	0.08
Nitrate	mg/l N	48	7.96	18.49	01/11	2.65	02/08	7.8	2.4	7.2	15.6	11.8	7.4	4.2	8.5
Chloride	mg/l Cl	48	81.1	192.0	28/06	37.0	07/04	69.9	39.6	67.5	102.0	61.8	64.9	77.4	74.6
Total alkalinity	mg/l $CaCO_3$	25	259.7	294.0	05/07	105.0	02/02	246.5	195.2	250.2	281.9	245.6	243.9	249.5	250.1
Silica	mg/l SiO_2	25 (1)	6.90	14.20	14/11	1.00	19/09	7.75	0.28	8.03	13.26	7.77	4.30	8.33	10.29
Sulphate	mg/l SO_4	25	96.24	129.00	20/06	72.00	07/04	103.4	70.1	96.1	139.56	111.6	109.7	94.1	101.3
Calcium	mg/l Ca	12	139.5	156.0	31/01	118.0	06/09	134.6	95.5	136.4	165.8	147.3	133.8	119.9	138.7
Magnesium	mg/l Mg	12	7.87	10.60	05/07	5.00	03/01	8.7	5.3	8.3	18.9	7.8	8.6	9.5	8.4
Potassium	mg/l K	12	7.07	9.50	05/07	3.50	03/01	7.6	3.7	7.5	12.1	6.1	7.2	8.0	8.9
Sodium	mg/l Na	12	42.0	68.0	05/07	21.0	03/01	43.6	21.1	43.6	69.5	34.5	40.6	50.5	47.6

Thames at Teddington Weir 1994

Harmonised monitoring station number : 06 010
Measuring authority : NRA-T NGR : 51 (TQ) 171 714

Flow measurement station : 039001 - Kingston
C.A.(km²) : 9948.0 NGR : 51 (TQ) 177 698

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1974 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	16	12.7	21.7	13/07	5.9	22/01	12.2	3.9	12.1	21.0	6.2	14.2	18.4	9.7
pH	pH units	16	8.0	9.0	16/05	7.5	05/01	8.0	7.5	7.9	8.7	7.9	8.3	7.9	7.8
Conductivity	ms/cm	12	616	695	23/08	556	08/11	616	484	587	717	622	599	632	617
Suspended solids	mg/l	14	11.1	27.6	16/05	4.0	14/09	19.6	4.1	13.1	66.3	25.3	21.3	11.7	21.3
Dissolved oxygen	mg/l O	15	10.33	19.90	13/06	4.90	14/09	9.97	6.68	9.98	13.01	11.35	10.37	8.55	9.74
BOD (inhibited)	mg/l O	16 (4)	2.6	7.5	16/05	1.0	17/11	2.9	1.2	2.3	6.3	2.2	4.2	2.8	2.2
Ammoniacal nitrogen	mg/l N	16 (1)	0.245	0.590	14/09	0.050	16/05	0.34	0.03	0.23	1.01	0.35	0.22	0.36	0.42
Nitrite	mg/l N	14	0.133	0.250	14/04	0.070	16/05	0.12	0.05	0.10	0.23	0.12	0.11	0.11	0.13
Nitrate	mg/l N	12	7.32	11.40	14/04	5.20	16/05	7.4	5.4	7.1	10.0	8.4	6.6	6.5	7.8
Chloride	mg/l Cl	14	56.6	147.0	14/04	37.0	05/01	45.0	30.0	42.3	65.1	42.7	41.6	48.7	46.1
Total alkalinity	mg/l $CaCO_3$	11	187.0	213.0	14/04	135.0	08/11	187.3	146.4	190.0	214.5	185.1	196.8	191.0	180.8
Orthophosphate	mg/l P	14	0.984	1.830	12/10	0.420	05/01	1.47	0.39	1.19	3.71	0.88	1.20	2.12	1.61
Sulphate	mg/l SO_2	12	71.33	85.00	24/11	59.00	14/04	70.4	49.5	65.2	85.16	68.3	66.7	65.5	72.2
Calcium	mg/l Ca	11	95.8	104.0	22/01	81.0	08/11	99.0	77.4	100.0	116.6	103.7	102.9	95.8	96.6
Potassium	mg/l K	11	6.76	9.20	12/10	4.30	22/01	7.2	4.3	6.5	10.5	6.3	6.3	8.2	7.4
Sodium	mg/l Na	11	32.5	48.0	12/10	23.0	22/01	34.6	19.8	30.8	55.6	28.5	30.6	41.6	35.9

Lee at Waterhall 1994

Harmonised monitoring station number : 06 101
Measuring authority : NRA-T NGR : 52 (TL) 299 099

Flow measurement station : 038018 - Water Hall
C.A.(km²) : 150.0 NGR : 52 (TL) 299 099

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	15	11.1	18.0	24/06	4.0	15/02	12.0	5.0	11.9	20.0	7.0	13.8	17.0	9.3
pH	pH units	15	8.0	8.3	28/04	7.4	07/01	8.0	7.5	8.0	8.4	7.9	8.1	8.1	7.8
Conductivity	µS/cm	11	794	888	06/10	626	08/12	820	628	817	1109	878	814	779	850
Suspended solids	mg/l	12	60.4	499.0	08/12	8.0	06/10	14.4	2.9	9.8	46.7	15.9	13.1	16.1	14.3
Dissolved oxygen	mg/l O	14	11.21	13.00	04/03	10.00	27/05	10.12	7.44	10.11	12.66	11.18	10.03	9.30	10.16
Tot. diss. org. carbon	mg/l O	12	16.4	38.4	11/11	10.1	10/02	17.9	3.5	13.3	48.1	17.2	16.9	10.6	19.9
Nitrite	mg/l N	12 (2)	0.072	0.130	08/12	0.050	10/02	0.16	0.05	0.11	0.28	0.11	0.11	0.27	0.17
Nitrate	mg/l N	12	10.01	14.60	12/09	7.10	10/02	12.1	7.4	11.1	16.2	12.4	11.6	11.4	13.2
Chloride	mg/l Cl	15	82.2	97.0	15/02	68.0	27/05	80.3	47.7	73.2	121.3	90.2	71.9	79.9	81.1
Total alkalinity	mg/l $CaCO_3$	11	212.8	257.0	24/06	101.0	27/05	212.2	139.0	224.0	255.4	208.2	218.7	211.8	205.2
Orthophosphate	mg/l P	15	2.003	3.600	06/10	0.980	07/01	2.58	1.19	2.47	4.65	2.39	2.50	2.73	2.78
Sulphate	mg/l SO_4	12	95.67	149.00	07/01	67.00	20/07	83.7	59.3	86.0	126.72	85.2	84.7	78.7	88.3
Calcium	mg/l Ca	11	119.8	129.0	10/02	104.0	08/12	119.4	94.0	119.0	140.0	123.2	120.8	114.1	116.3
Magnesium	mg/l Mg	11	4.35	5.50	08/12	3.90	19/08	4.2	3.1	4.0	5.0	4.6	4.0	4.2	4.0
Potassium	mg/l K	11	9.00	12.50	06/10	6.50	10/02	9.2	5.9	8.8	15.6	8.6	8.4	9.3	10.5
Sodium	mg/l Na	11	61.4	78.0	12/09	48.0	27/05	68.9	37.5	67.2	124.8	70.7	70.3	69.0	67.3

Great Stour at Bretts Bailey Bridge 1994

Harmonised monitoring station number : 07 003
Measuring authority : NRA-S NGR : 61 (TR) 187 603

Flow measurement station : 040011 - Horton
C.A.(km²) : 345.0 NGR : 61 (TR) 116 554

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	59	11.8	21.0	11/07	2.0	15/02	12.0	4.2	12.1	18.7	7.1	13.6	16.8	9.8
pH	pH units	59	7.9	8.3	11/07	7.6	18/05	7.9	7.4	7.9	8.3	7.8	8.0	7.9	7.8
Suspended solids	mg/l	54 (6)	20.1	108.0	04/01	3.0	04/03	13.0	1.0	7.0	47.0	21.9	7.6	6.7	16.3
BOD (inhibited)	mg/l O	54 (4)	2.1	7.4	08/12	1.0	04/01	2.5	1.1	2.3	4.9	2.9	2.8	2.1	2.4
Tot. diss. org. carbon	mg/l O	53	6.1	14.4	31/10	2.8	07/03	10.8	3.0	8.8	21.8	7.7	14.2	8.4	10.7
Ammoniacal nitrogen	mg/l N	57 (7)	0.153	0.620	08/12	0.050	03/06	0.29	0.02	0.12	1.11	0.45	0.29	0.11	0.35
Nitrite	mg/l N	58	0.075	0.330	13/12	0.020	19/07	0.12	0.03	0.08	0.28	0.10	0.11	0.11	0.13
Nitrate	mg/l N	58	6.92	9.30	02/02	4.80	08/12	6.2	4.0	6.0	9.6	7.3	5.8	5.2	6.8
Chloride	mg/l Cl	54	58.2	125.0	22/06	37.0	18/05	55.2	37.8	52.5	84.9	57.4	53.0	54.2	58.1
Total alkalinity	mg/l $CaCO_3$	53	207.2	252.0	19/07	89.0	04/01	215.5	155.5	223.8	244.6	201.2	221.8	224.3	209.9
Orthophosphate	mg/l P	58	0.718	1.240	08/08	0.300	14/04	1.05	0.35	0.96	1.95	0.76	1.00	1.30	1.11

Itchen at Gatersmill 1994

Harmonised monitoring station number : 07 013
Measuring authority : NRA-S NGR : 41 (SU) 434 156

Flow measurement station : 042010 - Highbridge
C.A.(km²) : 360.0 NGR : 41 (SU) 467 213

		1994						Period of record: 1980 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	50	11.5	18.0	20/07	4.0	15/02	11.4	5.1	11.1	18.0	7.7	13.0	15.9	9.8
pH	pH units	53	8.1	8.3	15/06	7.8	05/01	8.1	7.8	8.1	8.3	8.0	8.1	8.2	8.0
Suspended solids	mg/l	51 (3)	13.8	45.0	05/01	3.0	07/10	11.4		2.3	7.2	33.6	26.2	9.7	4.610.4
BOD (inhibited)	mg/l O	52 (4)	1.8	4.0	04/05	1.0	10/01	1.9	1.0	1.8	3.3	2.1	2.2	1.5	1.8
Tot. diss. org. carbon	mg/l O	51	3.3	12.5	31/10	1.5	08/03	7.3	4.1	6.8	13.3	6.9	7.0	7.1	8.1
Ammoniacal nitrogen	mg/l N	54 (11)	0.086	0.190	31/10	0.050	17/03	0.10	0.01	0.09	0.24	0.14	0.08	0.07	0.12
Nitrite	mg/l N	54	0.045	0.080	15/11	0.010	17/03	0.06	0.03	0.05	0.11	0.05	0.05	0.06	0.07
Nitrate	mg/l N	53	5.60	6.60	15/02	4.00	31/10	5.1	3.9	5.2	6.2	5.5	5.2	4.6	5.1
Chloride	mg/l Cl	54	23.7	38.0	22/12	21.0	19/05	21.8	17.9	21.7	26.9	22.5	21.1	21.0	22.5
Total alkalinity	mg/l $CaCO_3$	51	233.8	260.0	22/12	102.0	13/04	235.5	199.7	236.9	255.1	239.6	231.9	234.6	232.1
Orthophosphate	mg/l P	54	0.262	0.420	04/10	0.150	12/01	0.39	0.16	0.36	0.71	0.35	0.40	0.43	0.46
Silica	mg/l SiO_2	48	10.98	13.30	15/11	6.20	04/05	10.28	5.68	0.77	12.46	10.39	7.70	10.95	11.68

Stour at Bridge at Iford 1994

Harmonised monitoring station number : 08 200
Measuring authority : NRA-W NGR : 40 (SZ) 122 955

Flow measurement station : 043007 - Throop Mill
C.A.(km²) : 1073.0 NGR : 40 (SZ) 113 958

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	55	11.9	22.0	20/07	4.1	15/02	11.1	4.6	10.8	19.0	6.9	12.9	16.8	8.6
pH	pH units	56	7.9	8.6	29/04	7.7	06/01	7.9	7.5	8.0	8.4	7.9	8.1	8.0	7.8
Suspended solids	mg/l	56	19.0	147.0	04/02	2.9	09/09	15.8	3.3	9.2	47.2	18.3	10.9	9.1	20.6
Dissolved oxygen	mg/l O	55	10.23	14.02	29/04	6.10	02/08	10.32	7.53	9.92	12.98	10.68	10.87	9.12	10.50
BOD (inhibited)	mg/l O	56	2.7	6.9	04/05	1.1	01/12	2.8	1.2	2.2	6.0	2.4	3.9	2.0	2.7
Ammoniacal nitrogen	mg/l N	56 (6)	0.109	0.430	07/12	0.020	16/03	0.17	0.02	0.11	0.41	0.21	0.15	0.12	0.19
Nitrite	mg/l N	56	0.062	0.146	17/05	0.024	23/08	0.09	0.03	0.07	0.17	0.06	0.10	0.10	0.09
Nitrate	mg/l N	56	6.45	8.49	27/10	4.23	06/01	5.6	3.4	5.8	8.9	6.7	5.3	4.6	6.2
Chloride	mg/l Cl	56	30.7	40.0	16/08	21.0	06/01	27.9	21.0	30.1	39.3	26.8	26.7	29.9	30.2
Orthophosphate	mg/l P	56	0.546	1.300	14/09	0.200	19/01	0.42	0.11	0.38	0.98	0.26	0.30	0.70	0.50
Magnesium	mg/l Mg	23	3.35	4.50	07/12	2.70	02/08	3.9	2.7	3.5	5.6	3.9	3.8	3.4	4.0
Potassium	mg/l K	23	4.70	7.90	26/10	3.10	29/04	5.2	3.0	4.8	8.1	4.5	4.2	5.2	6.3

Axe at Whitford Road Bridge 1994

Harmonised monitoring station number : 09 001
Measuring authority : NRA-SW NGR : 30 (SY) 262 953

Flow measurement station : 045004 - Whitford
C.A.(km²) : 288.5 NGR : 30 (SY) 262 953

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	26	12.2	19.6	19/07	6.0	18/02	10.7	3.9	10.1	18.1	6.0	12.2	16.0	8.8
pH	pH units	26	8.1	8.6	25/08	7.7	03/02	8.0	7.4	8.0	8.5	7.9	8.1	8.0	7.8
Conductivity	µS/cm	26	373	445	30/06	180	03/02	385	303	394	453	375	387	412	376
Suspended solids	mg/l	26 (4)	24.9	256.0	05/12	2.0	19/04	14.7	1.6	5.6	59.5	16.3	10.7	6.7	24.1
Dissolved oxygen	mg/l O	26	10.79	12.80	25/08	9.39	16/08	10.94	8.31	10.90	13.62	12.07	11.16	9.82	10.76
BOD (inhibited)	mg/l O	26 (2)	1.7	5.9	03/02	1.0	07/11	2.1	0.9	1.7	4.3	2.1	2.3	1.8	2.1
Tot. diss. org. carbon	mg/l O	26	12.0	35.2	03/02	6.1	30/06	12.7	4.0	10.8	25.2	10.8	12.5	11.5	15.4
Ammoniacal nitrogen	mg/l N	26 (6)	0.074	0.370	18/02	0.020	30/03	0.10	0.01	0.06	0.31	0.15	0.08	0.05	0.12
Nitrite	mg/l N	26	0.037	0.068	05/12	0.016	19/04	0.05	0.02	0.04	0.10	0.04	0.05	0.03	0.05
Nitrate	mg/l N	26	4.37	6.44	01/11	1.94	03/02	3.9	2.2	3.5	5.9	4.5	3.5	3.1	4.6
Chloride	mg/l Cl	26	24.1	32.0	19/07	16.0	03/02	24.2	19.2	23.0	32.1	25.4	22.0	24.1	25.1
Total alkalinity	mg/l $CaCO_3$	26	137.5	169.0	16/08	57.0	03/02	135.9	90.2	139.8	167.9	122.0	142.9	154.1	126.9
Orthophosphate	mg/l P	26	0.246	0.530	19/10	0.130	19/04	0.26	0.12	0.24	0.47	0.22	0.30	0.34	0.24
Silica	mg/l SiO_2	26	9.25	11.70	28/09	4.80	26/04	9.49	4.65	9.95	12.70	9.20	7.61	10.18	10.85
Sulphate	mg/l SO_4	26	27.77	36.00	14/10	18.00	03/02	33.6	22.1	34.2	42.90	32.7	32.1	35.2	34.1
Calcium	mg/l Ca	26	63.2	78.0	16/08	22.0	03/02	62.6	44.4	63.5	77.4	58.2	63.6	70.1	59.6
Magnesium	mg/l Mg	26	6.07	7.60	05/12	4.30	03/02	6.1	4.8	6.1	7.4	6.2	6.1	6.2	6.2
Potassium	mg/l K	26	3.72	5.90	03/02	2.70	19/04	4.2	3.0	3.8	6.5	4.1	3.8	4.1	4.6
Sodium	mg/l Na	26	14.2	20.0	19/07	9.0	03/02	13.5	10.5	13.0	18.2	13.7	13.0	14.3	13.3

Tamar at Gunnislake Newbridge 1994

Harmonised monitoring station number : 09 017
Measuring authority : NRA-SW NGR : 20 (SX) 433 722

Flow measurement station : 047001 - Gunnislake
C.A.(km²) : 916.9 NGR : 20 (SX) 426 725

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	26	11.3	19.2	21/07	3.4	15/02	11.2	4.9	10.8	18.6	7.0	12.6	16.2	9.4
pH	pH units	26	7.7	8.4	21/07	7.1	17/03	7.4	6.8	7.4	8.1	7.2	7.5	7.5	7.3
Conductivity	µS/cm	26	171	190	08/06	115	31/10	182	141	180	231	171	185	196	179
Suspended solids	mg/l	26 (1)	27.3	167.0	28/01	2.0	17/10	24.3	1.1	7.6	111.6	29.6	12.9	14.5	38.3
Dissolved oxygen	mg/l O	26	10.62	13.60	15/02	8.52	31/10	10.66	8.69	10.71	12.48	11.72	10.47	9.55	10.89
BOD (inhibited)	mg/l O	26 (5)	1.6	4.3	07/12	1.0	17/01	2.1	0.9	1.9	4.8	2.0	2.1	1.9	2.4
Tot. diss. org. carbon	mg/l O	26	9.2	27.7	31/10	4.0	19/04	10.5	3.1	8.5	24.2	8.3	10.1	10.8	12.2
Ammoniacal nitrogen	mg/l N	26 (11)	0.048	0.190	07/12	0.020	07/03	0.08	0.01	0.05	0.24	0.10	0.06	0.06	0.09
Nitrite	mg/l N	26	0.019	0.051	18/11	0.006	07/10	0.03	0.01	0.02	0.06	0.03	0.02	0.02	0.03
Nitrate	mg/l N	26	2.34	3.29	15/12	1.49	09/08	2.7	1.5	2.5	4.1	3.2	2.6	2.1	2.9
Chloride	mg/l Cl	26	21.5	26.0	28/01	16.0	31/10	22.9	18.0	22.2	28.9	23.6	22.0	22.8	23.7
Total alkalinity	mg/l $CaCO_3$	26	37.0	48.0	05/07	20.0	31/10	36.3	23.2	35.2	51.7	30.6	39.4	42.2	33.7
Orthophosphate	mg/l P	26	0.052	0.090	05/07	0.020	07/04	0.08	0.03	0.07	0.15	0.06	0.10	0.11	0.08
Silica	mg/l SiO_2	26	4.22	5.80	07/10	1.10	12/05	4.79	1.69	5.11	6.54	5.06	3.95	4.54	5.56
Sulphate	mg/l SO_4	26	13.15	17.00	12/09	7.00	31/10	15.4	11.1	15.2	20.96	14.7	16.3	16.7	15.1
Calcium	mg/l Ca	26	15.8	18.0	05/07	10.0	31/10	17.3	14.0	17.3	21.9	16.8	17.3	18.2	17.0
Magnesium	mg/l Mg	26	4.47	5.70	05/07	2.70	31/10	4.8	3.4	4.8	6.6	4.3	5.0	5.3	4.6
Potassium	mg/l K	26	2.79	4.50	31/10	2.00	15/02	3.2	1.9	3.0	5.2	2.7	2.9	3.9	3.4
Sodium	mg/l Na	26	12.8	18.0	05/07	9.0	31/10	12.6	9.6	12.3	15.8	12.3	12.5	13.3	12.5

Exe at Thorverton Road Bridge 1994

Harmonised monitoring station number : 09 036
Measuring authority : NRA-SW NGR : 21 (SS) 936 016

Flow measurement station : 045001 - Thorverton
C.A.(km²) : 600.9 NGR : 21 (SS) 936 016

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	25	11.3	18.2	14/07	5.2	18/01	10.9	4.4	10.3	18.6	6.2	12.5	16.3	9.0
pH	pH units	25	7.8	8.0	09/03	7.6	12/04	7.5	7.0	7.5	8.1	7.4	7.7	7.6	7.4
Conductivity	µS/cm	25	157	199	30/06	112	21/09	171	124	163	240	162	183	185	160
Suspended solids	mg/l	25 (4)	6.5	21.0	10/01	2.0	26/04	12.6	1.4	5.1	45.8	16.0	7.9	7.1	14.5
Dissolved oxygen	mg/l O	25	10.94	12.90	06/10	8.46	14/07	11.05	8.67	11.19	13.29	12.31	10.85	9.70	11.30
BOD (inhibited)	mg/l O	25 (2)	1.5	2.3	06/10	1.0	19/04	1.8	0.8	1.6	3.4	1.8	2.0	1.6	1.6
Tot. diss. org. carbon	mg/l O	25	5.1	12.5	26/10	2.9	19/04	7.1	2.6	6.6	13.6	5.5	7.3	7.8	7.1
Ammoniacal nitrogen	mg/l N	25 (4)	0.033	0.080	21/06	0.020	19/04	0.06	0.01	0.05	0.17	0.08	0.06	0.05	0.05
Nitrite	mg/l N	25	0.017	0.032	30/06	0.010	12/04	0.03	0.01	0.02	0.05	0.02	0.04	0.03	0.02
Nitrate	mg/l N	25	2.33	3.09	18/01	1.19	21/09	2.5	1.4	2.3	3.6	2.9	2.5	2.0	2.4
Chloride	mg/l Cl	25	15.4	19.0	17/08	12.0	21/09	17.8	13.2	17.1	26.4	17.9	17.9	18.8	16.6
Total alkalinity	mg/l $CaCO_3$	25	40.3	55.0	26/04	27.0	24/03	40.2	23.5	38.0	63.9	34.3	45.5	46.6	36.1
Orthophosphate	mg/l P	25	0.089	0.240	14/07	0.030	24/03	0.11	0.03	0.08	0.29	0.07	0.10	0.18	0.08
Silica	mg/l SiO_2	25	3.61	5.00	12/12	2.10	20/05	4.00	1.71	4.19	5.30	4.46	3.17	3.54	4.62
Sulphate	mg/l SO_4	25	11.64	24.00	31/08	5.00	14/11	13.7	8.8	12.8	23.47	12.7	14.9	15.0	13.0
Calcium	mg/l Ca	25	16.5	22.0	14/07	10.0	21/09	16.6	11.9	16.2	23.7	16.1	18.3	17.5	15.1
Magnesium	mg/l Mg	25	3.93	5.10	14/07	2.60	21/09	4.1	2.9	4.0	5.3	3.9	4.4	4.3	3.8
Potassium	mg/l K	25	1.78	2.50	26/10	1.30	09/03	2.0	1.3	1.9	3.5	1.9	2.0	2.3	1.9
Sodium	mg/l Na	25	10.8	17.0	31/08	7.0	24/03	10.9	7.2	9.8	19.0	9.9	11.5	13.0	9.9

Dee at Overton 1994

Harmonised monitoring station number : 10 002
Measuring authority : NRA-WEL NGR : 33 (SJ) 354 427

Flow measurement station : 067015 - Manley Hall
C.A.(km²) : 1019.3 NGR : 33 (SJ) 348 415

		1994						Period of record: 1974 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	13	10.4	18.8	21/07	4.0	16/02	10.1	3.1	9.7	17.5	5.2	11.7	15.4	8.1
pH	pH units	13	7.2	7.4	11/01	6.9	12/12	7.3	6.5	7.2	7.8	7.2	7.4	7.3	7.2
Conductivity	µS/cm	13	144	188	10/10	97	16/03	172	98	164	269	160	207	177	146
Suspended solids	mg/l	13 (2)	12.2	60.0	11/01	3.0	21/07	9.3	0.5	3.5	35.8	10.7	7.2	6.3	13.2
Dissolved oxygen	mg/l O	12	11.34	12.20	10/10	10.00	09/06	11.10	9.13	11.11	13.19	12.39	10.69	9.76	11.57
BOD (inhibited)	mg/l O	13 (3)	0.9	1.8	09/06	0.5	11/01	1.3	0.5	1.1	2.5	1.2	1.5	1.2	1.2
Ammoniacal nitrogen	mg/l N	13 (3)	0.059	0.390	28/09	0.010	16/03	0.05	0.01	0.03	0.14	0.06	0.05	0.05	0.05
Nitrite	mg/l N	13	0.009	0.026	09/06	0.004	16/03	0.02	0.01	0.01	0.05	0.02	0.02	0.02	0.01

Taf at Clog-y-fran Bridge 1994

Harmonised monitoring station number : 10 027
Measuring authority : NRA-WEL NGR : 22 (SN) 238 161

Flow measurement station : 060003 - Clog-y-fran
C.A.(km²) : 217.3 NGR : 22 (SN) 238 160

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	23	10.9	16.0	20/06	4.0	15/02	10.4	4.0	9.9	17.3	6.6	11.9	14.9	8.4
pH	pH units	25	7.4	8.3	22/08	6.9	12/12	7.4	6.9	7.4	7.9	7.3	7.5	7.5	7.2
Conductivity	µS/cm	14	167	236	26/08	136	20/09	169	117	160	247	148	178	198	151
Suspended solids	mg/l	16	12.2	28.0	07/02	4.0	12/05	16.5	1.6	7.6	58.5	24.7	9.3	10.1	22.3
Dissolved oxygen	mg/l O	25	11.26	12.90	21/03	9.60	07/07	10.31	7.98	10.45	12.47	10.88	10.59	9.34	10.32
BOD (inhibited)	mg/l O	25 (3)	1.1	2.8	07/07	0.5	26/01	1.8	0.6	1.5	3.6	1.9	1.9	1.5	1.7
Ammoniacal nitrogen	mg/l N	26 (3)	0.054	0.160	26/01	0.010	10/03	0.11	0.01	0.08	0.33	0.17	0.12	0.08	0.11
Nitrite	mg/l N	19	0.021	0.045	07/07	0.007	14/10	0.03	0.01	0.02	0.06	0.03	0.03	0.04	0.03
Orthophosphate	mg/l P	12 (2)	0.071	0.190	07/07	0.020	10/03	0.13	0.03	0.08	0.41	0.07	0.20	0.23	0.07

Carron at A890 Road Bridge 1994

Harmonised monitoring station number : 11 009
Measuring authority : HRPB NGR : 18 (NG) 938 425

Flow measurement station : 093001 - New Kelso
C.A.(km²) : 137.8 NGR : 18 (NG) 942 429

		1994						Period of record: 1979 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	11	8.2	14.3	01/07	3.0	18/02	8.3	2.4	7.7	15.5	3.8	10.8	12.9	6.7
Conductivity	μS/cm	11	41	57	18/02	28	24/10	44	28	43	65	50	46	40	39
Dissolved oxygen	mg/l O	11	11.38	12.60	18/02	9.86	18/08	11.26	9.41	11.30	13.18	12.51	10.90	10.06	11.42
BOD (inhibited)	mg/l O	11	1.5	5.5	18/08	0.1	24/10	0.9	0.3	0.9	1.7	1.0	0.8	0.8	1.1
Ammoniacal nitrogen	mg/l N	11(2)	0.007	0.016	21/01	0.002	15/09	0.01	<0.00	0.01	0.03	0.01	0.01	0.01	0.01
Nitrate	mg/l N	11	0.06	0.21	21/01	0.01	15/09	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Chloride	mg/l Cl	11	9.5	13.9	15/03	6.2	24/10	10.3	5.9	9.5	18.1	13.6	10.4	7.9	9.3

Spey at Fochabers 1994

Harmonised monitoring station number : 12 002
Measuring authority : NERPB NGR : 38 (NJ) 341 596

Flow measurement station : 008006 - Boat o Brig
C.A.(km²) : 2861.2 NGR : 38 (NJ) 318 518

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	13	8.3	15.5	05/07	1.0	16/02	9.9	2.4	11.1	18.0	3.6	10.4	14.7	6.1
pH	pH units	13	7.4	8.3	11/08	6.7	15/11	7.0	6.0	7.1	7.8	6.8	7.1	7.3	6.9
Conductivity	μS/cm	13	73	116	16/02	48	15/11	78	50	77	109	82	73	86	73
Suspended solids	mg/l	13 (3)	8.6	43.0	15/11	0.4	16/02	3.7	0.2	1.8	13.9	3.1	3.8	3.4	3.5
Dissolved oxygen	mg/l O	13	11.74	14.20	16/02	9.28	05/07	11.46	9.28	11.40	13.61	12.76	11.13	10.10	11.84
BOD (inhibited)	mg/l O	13	0.9	1.6	15/11	0.3	16/02	0.9	0.3	0.9	1.4	0.8	1.0	0.9	0.9
Ammoniacal nitrogen	mg/l N	13	0.023	0.061	27/10	0.007	06/09	0.03	0.00	0.02	0.11	0.02	0.03	0.04	0.03
Nitrite	mg/l N	13 (2)	0.007	0.010	15/11	0.005	18/05	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Nitrate	mg/l N	13	0.30	0.73	16/02	0.15	27/06	0.3	0.2	0.3	0.6	0.4	0.3	0.3	0.3
Chloride	mg/l Cl	13	10.2	18.0	16/02	6.0	15/11	10.4	6.0	9.9	15.9	12.1	9.9	10.3	9.3
Total alkalinity	mg/l $CaCO_3$	13	15.8	26.0	11/08	6.0	09/03	24.3	11.2	25.0	35.2	21.7	23.4	28.4	24.4
Orthophosphate	mg/l P	13 (4)	0.009	0.019	27/10	0.003	09/03	0.02	0.00	0.01	0.08	0.01	0.00	0.03	0.02
Silica	mg/l SiO_2	13	4.66	7.98	16/02	3.04	09/03	5.79	3.69	5.64	7.78	5.78	4.77	5.52	6.11

Almond at Craigiehall 1994

Harmonised monitoring station number : 14 008
Measuring authority : FRPB NGR : 36 (NT) 165 752

Flow measurement station : 019001 - Craigiehall
C.A.(km²) : 369.0 NGR : 36 (NT) 165 752

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
pH	pH units	12	7.9	8.3	10/05	7.7	15/03	7.6	7.1	7.6	8.0	7.5	7.8	7.6	7.5
Conductivity	μS/cm	12	637	920	08/06	395	15/03	597	291	588	898	538	692	632	500
Suspended solids	mg/l	12	9.9	37.0	07/12	1.0	09/08	19.8	2.1	9.9	60.8	31.0	10.1	12.7	26.2
Dissolved oxygen	mg/l O	11	10.30	13.10	10/05	6.90	12/07	9.27	5.37	9.59	12.22	11.10	9.27	7.41	9.72
BOD (inhibited)	mg/l O	12	3.8	12.3	09/08	1.8	08/11	3.5	1.4	2.9	7.1	3.3	3.7	3.1	3.8
Ammoniacal nitrogen	mg/l N	12	1.181	4.100	08/06	0.390	09/08	1.23	0.21	0.96	3.12	1.30	1.51	1.08	0.90
Nitrite	mg/l N	12	0.265	0.790	12/07	0.030	15/03	0.26	0.02	0.14	0.78	0.13	0.34	0.44	0.14
Nitrate	mg/l N	12	3.70	5.34	09/08	2.47	15/03	3.8	2.2	3.7	6.0	3.5	4.1	4.0	3.8
Total alkalinity	mg/l $CaCO_3$	12	110.5	164.0	08/06	68.0	15/03	118.8	50.8	120.3	180.7	101.2	139.4	124.9	101.6
Orthophosphate	mg/l P	12	0.715	1.960	08/06	0.130	15/03	0.74	0.08	0.45	2.08	0.28	0.90	1.24	0.42
Sulphate	mg/l SO_4	12	122.76	174.00	08/06	75.40	15/03	122.4	25.0	26.7	201.49	107.4	139.9	132.4	109.8

Tweed at Norham 1994

Harmonised monitoring station number : 15 001
Measuring authority : TWRPB NGR : 36 (NT) 898 477

Flow measurement station : 021009 - Norham
C.A.(km²) : 4390.0 NGR : 36 (NT) 898 477

		1994						Period of record: 1975 - 1993							
Determinand	Units	Samples	Mean	Max.	Date	Min.	Date	Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	12	10.0	19.0	28/06	4.0	09/02	10.1	2.6	9.1	19.9	4.7	13.2	16.0	6.2
pH	pH units	12	8.0	9.3	16/08	7.2	16/03	8.0	7.1	7.8	9.3	7.6	8.3	8.5	7.7
Conductivity	μS/cm	12	223	266	16/08	170	13/09	233	165	227	292	232	232	226	229
Suspended solids	mg/l	12	2.0	3.0	25/01	1.0	19/04	9.3	1.3	4.6	31.8	14.9	5.1	6.9	9.4
Dissolved oxygen	mg/l O	12	11.23	12.50	09/02	8.30	13/09	11.61	9.09	11.46	14.72	11.94	11.47	11.60	11.48
BOD (inhibited)	mg/l O	12	3.0	6.8	09/02	1.0	08/11	2.3	1.0	2.2	4.2	2.2	2.5	2.6	2.0
Ammoniacal nitrogen	mg/l N	12	0.064	0.120	25/01	0.020	17/05	0.08	0.02	0.08	0.16	0.10	0.07	0.07	0.09
Nitrite	mg/l N	12	0.014	0.030	25/01	0.000	12/07	0.02	0.01	0.01	0.04	0.02	0.02	0.02	0.02
Nitrate	mg/l N	12	1.54	2.30	14/12	0.94	13/09	1.8	0.8	1.7	3.3	2.5	1.7	1.1	1.8
Chloride	mg/l Cl	12	16.4	23.0	16/08	12.5	16/03	16.1	10.4	15.5	22.1	17.4	16.2	15.6	15.1
Orthophosphate	mg/l P	12	0.044	0.110	28/06	0.020	09/02	0.14	0.02	0.07	0.40	0.13	0.10	0.14	0.14

Dee at Glenlochar 1994

Harmonised monitoring station number : 16 005
Measuring authority : SRPB NGR : 25 (NX) 733 642

Flow measurement station : 080002 - Glenlochar
C.A.(km^2) : 809.0 NGR : 25 (NX) 733 641

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	7	7.9	19.0	01/07	1.0	05/01	10.0	1.9	9.1	20.0	3.6	11.4	16.9	8.3
pH	pH units	12	6.8	7.2	01/08	6.4	05/01	6.7	6.2	6.7	7.3	6.6	6.7	6.9	6.6
Conductivity	µS/cm	12	57	63	01/11	52	01/07	61	40	55	78	56	58	64	60
Suspended solids	mg/l	12	2.8	15.0	04/02	1.0	01/06	3.3	1.1	1.9	6.9	4.6	3.4	2.4	2.6
Dissolved oxygen	mg/l O	12	10.26	12.50	01/03	6.10	03/10	10.84	8.69	10.78	13.09	12.38	11.03	9.45	10.65
BOD (inhibited)	mg/l O	12	2.1	2.9	04/02	1.4	01/06	1.9	0.8	1.9	3.1	2.1	2.0	1.6	1.9
Ammoniacal nitrogen	mg/l N	12	0.130	1.040	01/11	0.010	03/05	0.06	0.01	0.04	0.14	0.06	0.05	0.07	0.05
Nitrate	mg/l N	12	0.22	0.37	04/02	0.06	01/08	0.3	0.1	0.3	0.7	0.5	0.3	0.2	0.3
Chloride	mg/l Cl	12	8.5	10.1	05/04	6.7	01/12	9.1	5.1	8.7	13.7	9.9	9.4	8.6	8.5
Orthophosphate	mg/l P	12	0.009	0.026	01/11	0.001	03/05	0.01	0.00	0.01	0.04	0.01	0.00	0.02	0.01
Silica	mg/l SiO_2	12	1.71	2.80	01/11	0.50	01/08	2.22	0.32	2.29	4.31	3.20	1.68	1.18	2.84
Sulphate	mg/l SO_4	12	4.30	4.96	01/11	3.80	01/06	5.4	3.5	5.1	9.25	5.3	5.2	5.6	6.2
Calcium	mg/l Ca	12	3.3	4.0	01/12	2.6	05/01	3.8	2.3	3.3	5.8	3.4	3.4	4.5	3.8
Magnesium	mg/l Mg	12	1.35	1.58	01/11	1.17	01/03	1.5	0.7	1.4	2.2	1.4	1.4	1.5	1.5
Potassium	mg/l K	12	0.58	0.87	01/03	0.45	01/09	0.6	0.3	0.5	0.8	0.6	0.5	0.5	0.6
Sodium	mg/l Na	12	5.2	6.7	01/11	4.0	01/12	5.1	3.4	5.1	7.0	5.6	5.2	4.8	4.9

Leven at Renton Footbridge 1994

Harmonised monitoring station number : 17 005
Measuring authority : CRPB NGR : 26 (NS) 389 783

Flow measurement station : 085001 - Linnbrane
C.A.(km^2) : 784.3 NGR : 26 (NS) 394 803

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1975 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	12	9.2	16.0	19/08	2.0	18/02	9.5	2.9	9.0	16.9	4.1	11.0	14.9	8.1
pH	pH units	12	7.0	7.2	27/10	6.6	03/06	7.1	6.6	7.1	7.5	7.0	7.1	7.1	7.0
Conductivity	µS/cm	12	63	75	28/01	43	27/10	71	57	68	94	71	72	69	70
Suspended solids	mg/l	13 (1)	2.6	8.0	03/06	1.0	18/02	4.6	1.1	3.2	12.1	6.6	3.6	3.6	4.1
Dissolved oxygen	mg/l O	12	11.02	12.90	28/01	9.20	09/09	10.95	9.29	11.01	12.60	12.25	11.28	9.66	10.73
BOD (inhibited)	mg/l O	12	2.1	3.6	28/01	1.2	29/11	1.8	0.9	1.8	3.2	2.2	2.2	1.5	1.7
Ammoniacal nitrogen	mg/l N	12 (3)	0.026	0.060	29/04	0.010	18/02	0.05	0.01	0.02	0.20	0.05	0.05	0.05	0.04
Nitrate	mg/l N	12 (3)	0.30	0.98	29/04	0.10	03/06	0.3	0.1	0.3	0.5	0.3	0.3	0.2	0.3
Total alkalinity	mg/l $CaCO_3$	12	12.3	14.0	22/07	11.0	29/04	15.7	10.0	15.2	22.0	14.4	15.9	16.2	16.1
Orthophosphate	mg/l P	14 (6)	0.007	0.020	21/04	0.003	11/11	0.02	0.00	0.01	0.05	0.01	0.00	0.03	0.02

Ballinderry at Ballinderry Bridge 1994

DOE Northern Ireland station number : 03/07/Q100
Measuring authority : DOEN NGR : *23 (IH) 927 798*

Flow measurement station : 203012 - Ballinderry Br.
C.A.(km^2) : 419.5 NGR : *23 (IH) 926 799*

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1974 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	24	9.54	16.0	28/07	3.0	06/01	9.9	3.0	10.0	17.0	5.2	11.9	14.8	7.9
pH	pH units	24	8.0	8.3	17/06	7.6	06/04	7.8	7.3	7.8	8.3	7.7	7.9	7.8	7.7
Conductivity	µS/cm	24	318	373	28/07	211	04/02	308	216	306	374	284	326	334	295
Suspended solids	mg/l	24	13.5	40.0	20/01	3.0	22/08	10.2	2.0	6.0	32.0	12.6	6.9	9.1	10.7
Dissolved oxygen	mg/l O	24	10.45	12.30	20/01	8.40	22/08	10.13	6.80	10.20	12.60	11.30	10.00	8.80	10.40
BOD (inhibited)	mg/l O	24	2.6	6.5	08/12	1.5	08/08	2.5	1.0	2.0	4.9	2.6	2.7	2.3	2.2
Ammoniacal nitrogen	mg/l N	24	0.220	0.850	08/12	0.040	08/08	0.25	0.04	0.20	0.53	0.34	0.26	0.17	0.24
Nitrite	mg/l N	24	0.056	0.100	14/07	0.020	06/01	0.05	0.02	0.04	0.12	0.04	0.06	0.06	0.05
Chloride	mg/l Cl	24	18.9	27.0	08/12	16.0	06/01	18.9	12.0	19.0	26.0	19.5	18.9	19.3	18.0
Orthophosphate	mg/l P	24	0.139	0.260	08/08	0.050	07/03	0.20	0.07	0.17	0.43	0.13	0.17	0.32	0.18

Lagan at Shaws Bridge 1994

DOE Northern Ireland station number : 05/01/Q200
Measuring authority : DOEN NGR : *33 (IJ) 325 690*

Flow measurement station : 205004 - Newforge
C.A.(km^2) : 490.4 NGR : *33 (IJ) 329 693*

Determinand	Units	1994 Samples	Mean	Max.	Date	Min.	Date	Period of record: 1973 - 1993 Mean	Percentiles 5%	50%	95%	Quarterly averages J-M	A-J	J-S	O-D
Temperature	°C	24	8.9	14.0	28/06	4.0	13/01	10.1	4.0	9.5	16.5	5.3	12.5	15.2	8.0
pH	pH units	24	7.9	8.3	10/05	7.6	01/03	7.7	7.2	7.7	8.0	7.6	7.7	7.5	7.6
Conductivity	µS/cm	24	445	651	21/10	216	01/03	429	286	414	606	384	442	516	389
Suspended solids	mg/l	24	9.5	26.0	11/02	2.0	07/10	11.5	2.0	6.0	35.0	14.5	8.2	6.8	15.5
Dissolved oxygen	mg/l O	24	8.90	13.80	13/01	5.10	24/08	11.20	4.00	10.70	21.80	13.30	10.40	7.20	11.60
BOD (inhibited)	mg/l O	24	2.7	5.2	28/03	1.3	10/08	3.2	1.3	2.9	6.3	2.9	4.0	3.3	3.0
Ammoniacal nitrogen	mg/l N	24	0.178	0.420	11/07	0.040	22/04	0.71	0.08	0.44	2.03	0.64	0.88	1.41	0.81
Nitrite	mg/l N	24	0.046	0.110	11/07	0.020	11/02	0.15	0.02	0.07	0.44	0.09	0.21	0.30	0.09
Chloride	mg/l Cl	24	41.9	81.0	21/10	18.0	28/03	41.2	22.0	37.0	70.0	36.7	41.4	44.9	34.3
Orthophosphate	mg/l P	24	0.705	1.670	25/07	0.140	11/02	0.81	0.15	0.56	2.23	0.37	0.99	1.25	0.59

DIRECTORY OF MEASURING AUTHORITIES

	Address	Code
National Rivers Authority	Rivers House, Waterside Drive, Aztec West, Almondsbury, BRISTOL BS12 4UD	NRA

NRA Regional Headquarters

Anglian	Kingfisher House, Goldhay Way, Orton Goldhay, PETERBOROUGH PE2 5ZR	NRA-A
Northumbria and Yorkshire*	Rivers House, 21 Park Square South, LEEDS LS1 2QG	NRA-NY
North West	Richard Fairclough House, PO Box 12, Knutsford Road, WARRINGTON WA4 1HG	NRA-NW
Severn-Trent	Sapphire East, 550 Streetsbrook Road, SOLIHULL B91 1QT	NRA-ST
Southern	Guildbourne House, Chatsworth Road, WORTHING BN11 1LD	NRA-S
South Western*	Manley House, Kestrel Way, Sowton Industrial Estate, EXETER EX2 7LQ	NRA-SW
Thames	Kings Meadow House, Kings Meadow Road, READING RG1 8DQ	NRA-T
Welsh	Rivers House/Plas-yr-Afon, St Mellons Business Park, St Mellons, CARDIFF CF3 0LT	NRA-WEL

River Purification Boards

Clyde River Purification Board	Rivers House, Murray Road, EAST KILBRIDE, Glasgow G75 0LA	CRPB
Forth River Purification Board	Clearwater House, Heriot Watt Research Park, Avenue North, Riccarton, EDINBURGH EH14 4AP	FRPB
Highland River Purification Board	Graesser House, Fodderty Way, DINGWALL IV15 9XB	HRPB
North East River Purification Board	Greyhope House, Greyhope Road, Torry, ABERDEEN AB1 3RD	NERPB
Solway River Purification Board	Rivers House, Irongray Road, DUMFRIES DG2 0JE	SRPB
Tay River Purification Board	1, South Street, PERTH PH2 8NJ	TRPB

* In 1993, the Northumbria and Yorkshire and South-West and Wessex regions of the National Rivers Authority were amalgamated.

Tweed River Purification Board	Burnbrae, Mossilee Road, GALASHIELS TD1 1NF	TWRP

Other measuring authorities

Borders Regional Council (Directorate of Water and Drainage Services)	West Grove, Waverley Road, MELROSE TD6 9SJ	BRWD
British Waterways	Willow Grange, Church Road, WATFORD WD1 3QA	BW
Department of the Environment for Northern Ireland	Water Executive, Northland House, 3 Frederick Street, BELFAST BT1 2NS	DOEN
(Environment Service)	Calvert House, 23 Castle Place, BELFAST BT1 1FY	
Dumfries and Galloway Regional Council (Department of Water and Sewerage)	Marchmount House, Marchmount, DUMFRIES DG1 1PW	DGRW
Essex Water Company	Hall Street, CHELMSFORD CM2 0HH	EWC
Geological Survey of Northern Ireland	20 College Gardens, BELFAST BT9 6BS	GSNI
Grampian Regional Council (Water Services Department)	Woodhill House, Westburn Road, ABERDEEN AB9 2LU	GRWD
Highland Regional Council (Water Department)	Regional Buildings, Glenurquhart Road, INVERNESS IV3 5NX	HRCW
Institute of Hydrology	Maclean Building, Crowmarsh Gifford, WALLINGFORD OX10 8BB	IH
Lothian Regional Council (Department of Water and Drainage)	55 Buckstone Crescent, EDINBURGH EH10 6XH	LRWD
North East Water Plc	PO Box 10, Allendale Road, NEWCASTLE-UPON-TYNE NE6 2SW	NEW
North West Water Plc	Dawson House, Liverpool Road, Great Sankey, WARRINGTON WA5 3LW	NWW
Scottish Hydro-Electric Plc	16 Rothesay Terrace, EDINBURGH EH3 7SE	SE
Scottish Office Agriculture and Fisheries Dept.	Pentland House, Robs Loan, EDINBURGH EH14 1TY	SOAF
Southern Water	Southern House, Yeoman Road, WORTHING BN13 3NX	SW
Strathclyde Regional Council (Water Department)	419 Balmore Road, GLASGOW G22 6NU	SRCW
Tayside Regional Council (Water Services Department)	Bullion House, Invergowrie, DUNDEE DD2 5BB	TRWS
Wessex Water	Wessex House, Passage St., Bristol BS2 0JQ	WW
Yorkshire Water Services Ltd	West Riding House, 67 Albion House, LEEDS LS1 5AA	YW

Note: The measuring authorities listed in this directory provide (or have provided) daily flow data to the national archive for primary flow measurement stations. In recent years a number of valuable long records for additional sites have been identified. Most of these will be incorporated into the National River Flow Archive when appraisals of the gauging stations and flow records are complete (see page 35).

PUBLICATIONS - in the Hydrological data UK series

Title	*Published*	*Price* (inclusive of second class postage within the UK) *Loose-Leaf**	*Bound*
Yearbooks:			
Yearbook 1981	1985	£10	£12
Yearbook 1982	1985	£10	£12
Yearbook 1983	1986	out of print	
Yearbook 1984	1986	out of print	
Yearbook 1985	1987	£12	£15
Yearbook 1986	1988	£12	£15
Yearbook 1987	1989	£12	£15
Yearbook 1988	1989	£12	£15
Yearbook 1989	1990	£15	£18
Yearbook 1990	1991	£15	£18
Yearbook 1991	1992	*	£20
Yearbook 1992	1993	*	£20
Yearbook 1993	1994		£20
Yearbook 1994	1995		£20
Reports:			
Hydrometric Register and Statistics 1981-5	1988	£12	£15
Hydrometric Register and Statistics 1986-90[1]	1992		£20
The 1984 Drought[2]	1985		£12
The 1988-92 Drought[3]	1993		£20

Concessionary rates apply to the purchase of two or more of the pre-1989 Yearbooks.

All the Hydrological data UK publications may be obtained from:-

Institute of Hydrology
Maclean Building
WALLINGFORD
Oxfordshire OX10 8BB

Telephone: Wallingford (01491) 838800

Facsimile: (01491) 692424

Enquiries or comments regarding the series, or individual publications are welcomed and should be directed to the National Water Archive Office at the above address.

1. Hydrometric Register and Statistics 1986-90

This reference volume includes maps, tables and statistics for over 1000 river basins and 150 representative observation boreholes throughout the United Kingdom. The principal objective of the publication is to assist data users in the selection of monitoring sites for particular investigations and to allow more effective interpretation of analyses based upon the raw data. To this end, concise gauging station and catchment descriptions are given for the featured flow measurement stations - particular emphasis is placed on hydrometric performance, especially in the high and low flow ranges, and on the net effect of artificial influences on the natural flow regime.

Summary hydrometric statistics, for each of the years 1986-90, are provided alongside the corresponding long term averages, or extremes, to allow the recent variability in surface and groundwater resources to be considered in a suitable historical context.

2. The 1984 Drought

This first, occasional report in the Hydrological data UK series concerns the 1984 drought. The structure of the report follows the hydrological cycle with chapters devoted to rainfall, evaporation, runoff and water storage in surface reservoirs and aquifers. The report documents the drought in a water resources framework and its development, duration and severity are examined with particular reference to regional variations in intensity.

3. The 1988-92 Drought Report

The objective of this report is to provide comprehensive documentation of the 1988-92 drought within a hydrological framework and to establish a benchmark against which future periods of severe rainfall deficiency may be compared. The spatial and temporal variations in the drought's intensity are examined and its severity assessed within the perspective provided by long-term rainfall and hydrometric records. An introductory hydrological overview of the United Kingdom is given to help place the volatile climatic conditions experienced in 1988-92 in a suitable context. The synoptic backcloth to the drought's development is also reviewed and the European perspective is examined using selected rainfall and river flow records to index drought severity. Additionally, a short review of water resource variability in Great Britain over the featured five years - and the water industry's response to the actual and protracted deficiencies - is included to help appreciate the, often complex, linkages between hydrological stress and water supply impacts on the community.

*Loose-leaf versions of the Hydrological data UK publications have been discontinued.

Associated Publications

Hydrological Summaries for Great Britain

Since the winter of 1988/89 these monthly reports have been prepared jointly by the Institute of Hydrology and the British Geological Survey on behalf of the Department of the Environment and the National Rivers Authority. Each report includes areal rainfall data - both recent and, where significant, longer term accumulations for the major administrative divisions in the water industry. Also featured are representative hydrographs of river flow and groundwater levels with supporting summary statistics and a tabulation of current stocks for a selection of major reservoirs. A commentary is provided on the cover page detailing notable hydrological events and summarising both the national hydrological status and the water resources outlook. Probability values are estimated for many of the events covered.

Subscription to the Hydrological Summaries - £48 per year - may be arranged through the National Water Archive Office. The summaries are normally published within ten working days of the close of the month to which they refer.

Representative Basin Catalogue

Data collection for the National Flood Event Archive, sponsored by the Ministry of Agriculture, Fisheries and Food and maintained by the Institute of Hydrology, concentrates on a selection of basins that form a representative sample of UK catchments. A catalogue providing comprehensive hydrological and reference information for 200 representative basins has been prepared and is available as national (five volumes) or regional sets; user-selected groups of catchments can be provided for particular investigations. Enquiries concerning the cost and availability of the catalogue should be directed to the address opposite.

Groundwater Level Hydrographs

In 1990 the British Geological Survey launched a series of wallcharts depicting long term variations in groundwater levels. The following are currently available:

i. Long term hydrograph of groundwater levels in the Chilgrove House well in the Chalk of southern England
ii. Long term hydrograph of groundwater levels in the Dalton Holme well in the Chalk of Yorkshire.

Copies may be obtained from:

British Geological Survey
WALLINGFORD
Oxfordshire
OX10 8BB

Telephone: Wallingford (01491) 838800

Facsimile: (01491) 692345

ABBREVIATIONS

Note: The following abbreviations do not purport to represent any standardised usage; they have been developed for use in the Hydrological data UK series of publications only. Where space constraints have required alternative forms of these conventional abbreviations to be used, the meaning should be evident from the context.

aOD	Above Ordnance Datum
Bk	Beck
Blk	Black
Br	Bridge
Brk or B	Brook
Brn	Burn
Ch	Channel
C/m	Current meter(ing)
Com	Common
Dk	Dike
Dr or D	Drain
D/s	Downstream
DWF	Dry weather flow
E	East
Frm	Farm
G/s	Gauging station
Gw	Groundwater
HEP	Hydro-electric power
Ho	House
Hosp	Hospital
L	Loch or lake
Lb	Left hand river bank (looking downstream)
Ln	Lane
Lst	Limestone
Ltl	Little
MAF	Mean annual flood
Mkt	Market
Ml/d	Megalitres per day
Mnr	Manor
N	North
Ntch	Notch
NW	North-West
O/f	Outfall or outflow
ORS	Old Red Sandstone
Pk	Park
Pop	Population
POR	Period of record
PS	Pumping station
Pt	Point
PWS	Public water supply
Rb	Right hand river bank (looking downstream)
R/c	Racecourse
RCS	Regional communications system
Rd	Road
Res	Reservoir
Rh	Right hand
S	South
SAGS	Stour Augmentation Groundwater Scheme
Sch	School
S-D	Stage-discharge relation
SE	South-East
Sl	Sluice
SOE	The Scottish Office Environment Department (previously SDD)
Sp	Spring
St	Stream
STW	Sewage treatment works
SW	South-West
TS	Transfer scheme
US	Ultrasonic gauging station
U/s	Upstream
W	West
W'course	Watercourse
Wd	Wood
Wht	White
Wr	Weir
WRW	Water reclamation works
Wtr	Water
WTW	Water treatment works

Natural
Environment
Research
Council