Hydrological Summary for Great Britain

MARCH 1994

Rainfall

March was a generally mild and wet month - extremely so in Scotland - with weather conditions dominated by the passage of a sequence of Atlantic frontal systems. The normal west-to-east rainfall gradient across Great Britain was accentuated and rain-shadow effects were clearly identifiable in the lee of some western hills. On a regional basis, March rainfall totals were close to or above average throughout England and Wales, western areas were especially wet. In England, short-lived, occasionally heavy, showers were common in the lowlands and made for considerable spatial variability in monthly totals - a few districts in central southern England recorded only around 60% of the March average. Rainfall totals in Scotland were remarkable: some locations recorded more than three times the March average. Inveruglas (Loch Lomond) reported over 620 mm and Eskdalemuir (Dumfries and Galloway) recorded its second wettest March in an 84-year record. New maximum monthly rainfall totals were registered for many raingauges and despite below average rainfall in some eastern coastal districts, preliminary estimates - based on mainland raingauges only - suggest that March may eclipse February 1990 as the wettest month in the Scottish rainfall series which extends back to 1869. The recent past has been characterised by a very high frequency of low pressure systems and notably few dry days. Provisional data indicate that the Sept'93 to Mar'94 period is the 4th wettest for England and Wales in the last 50 years. A similar ranking applies to a rainfall over the last 12 months; large areas south-east of a line from the Severn to the Humber registered at least 10 months with above average rainfall over the last year and the accumulated rainfall totals for the South-West and Anglian regions are associated with very lengthy return periods.

River Flow

Flow patterns during March displayed considerable regional variation and also reflected differences in catchment geology. Spate conditions were very common in Scotland but flooding was generally modest and had little impact on centres of population; the relatively even distribution of the rainfall through the month, and the absence of any major snowmelt contribution to runoff, were important mitigating factors. March runoff totals were more than twice the long term average in many Scottish catchments and close to, or above, the monthly maximum over wide areas. More sustained flow recessions characterised the English lowlands where several rivers draining impermeable catchments registered well below average flows prior to a recovery over the Easter period. However, bankfull was exceeded on a few occasions (e.g. on the Soar) and several spring-fed rivers in the English lowlands (most notably the Mimram) established new March maxima. More generally, runoff totals were well within the normal range. Runoff totals for the winter half-year (October-March) were impressively high throughout most of the country - unprecedented winter totals were established on, for example, the Tweed, Kennet, Piddle and Mimram and were well above average in all index catchments with the exception of those in north-western Scotland. The same obtains for runoff totals over the last year. A measure of the post-drought recovery in lowland river flows is provided by runoff accumulations over the 24 months to March - commonly they are two to three times greater than for the preceding two years.

Groundwater

Soils remained close to saturation throughout March and recharge - which was modest in some eastern aquifers - continued beyond month-end. Groundwater recessions in the Chalk have been relatively steep since the January peaks but the wet beginning to April has ensured that the 1993/94 recharge season will be exceptionally protracted. This is especially true of the Chalk where the onset of recharge was triggered by a wet September and has continued, albeit unevenly, for over six months; for some eastern districts six weeks or less has been more characteristic in the recent past. Groundwater levels remain at or close to the seasonal maxima throughout much of the Chalk aquifer. Levels in the Permo-Triassic sandstones present a more varied picture - steep recoveries were reported in Scotland - but are mostly close to or above average; a pattern replicated in other aquifers. The outlook for groundwater levels during the summer is very favourable and will further improve if wet spring weather continues to moderate the current recessions. The seasonally high groundwater levels will ensure a substantial baseflow contribution to lowland rivers over the coming months.

General

The water resources outlook for the coming summer and autumn is very healthy throughout Great Britain. Persistently saturated soil conditions have created considerable difficulties for agriculture but have encouraged heavy and sustained replenishment to reservoirs and aquifers alike.

Institute of Hydrology

British Geological Survey

Data for this report have been provided principally by the regional divisions of the National Rivers Authority* in England and Wales, the River Purification Boards in Scotland and by the Meteorological Office. Reservoir contents information has been supplied by the Water Services Companies, the NRA or, in Scotland, the Lothians Regional Council. The most recent areal rainfall figures are derived from a restricted network of raingauges and a proportion of the river flow data is of a provisional nature.

A map (Figure 3) is provided to assist in the location of the principal monitoring sites.

Financial support towards the production of the Hydrological Summaries is given by the Department of the Environment and the National Rivers Authority.

The Hydrological Summaries are available on annual subscription at a current cost of £48 per year - enquiries should be directed to the National Water Archive Office at the address below. No charge is made to those organisations providing data for the Summaries.

* For reasons of consistency and to provide greater spatial discrimination, the original ten regional divisions of the NRA have been retained for use in the Hydrological Summaries.

MORECS

Most of the recent monthly regional rainfall data featured in the Hydrological Summaries are MORECS assessments. MORECS is the generic name for The Meteorological Office services involving the calculation of evaporation and soil moisture routinely for Great Britain. Products include a weekly issue of maps and tables of potential and actual evaporation, soil moisture deficits, effective rainfall and the hydrometeorological variables used to calculate them. The data are used to provide values for 40 km squares - or larger areas - and various sets of maps and tables are available according to user requirements. Options include a day-by-day retrospective calculation of soil moisture at any of 4000 rain-gauge sites.

Further information about MORECS services may be obtained from: The Meteorological Office, Sutton House, London Road, Bracknell, RG12 2SY

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TABLE 1 1993/94 RAINFALL AS A PERCENTAGE OF THE 1961-90 AVERAGE

		Mar 1993	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1994	Feb	Mar
England and Wales	mm	26	94	89	68	80	54	110	90	80	152	115	82	93
	%	36	157	139	105	129	71	143	106	88	162	131	130	129
NRA REGIONS														
North West	mm	38	123	128	57	109	80	86	51	64	248	145	77	140
	%	40	173	171	70	128	75	75	40	52	200	120	99	147
Northumbria	mm	25	123	119	39	59	77	108	90	64	135	108	72	68
	%	36	220	192	65	91	95	148	118	74	167	129	122	97
Severn-Trent	mm	16	79	80	72	79	43	96	73	66	137	94	66	77
	%	26	144	136	122	149	64	150	114	93	178	134	123	126
Yorkshire	mm	15	102	83	48	68	78	133	62	64	134	117	69	64
	%	22	173	138	80	115	105	196	85	80	161	148	119	94
Anglian	mm	17	71	52	49	69	45	105	90	70	85	73	41	55
	%	36	154	108	96	141	82	214	176	121	155	146	110	118
Thames	mm	25	83	61	57	55	33	102	111	47	104	97	52	51
	%	45	166	109	104	112	57	173	179	72	149	152	116	91
Southern	mm	31	91	58	53	62	37	123	134	62	154	124	60	55
	%	49	172	107	98	129	65	178	168	73	188	155	111	87
Wessex	mm	40	83	62	69	76	36	119	126	63	169	126	97	74
	%	57	157	102	121	146	55	165	159	76	182	145	150	106
South West	mm	33	99	131	108	128	39	168	119	106	264	186	166	145
	%	33	143	182	157	186	46	181	103	85	190	135	164	146
Welsh	mm	35	112	134	99	111	75	118	80	109	259	183	128	175
	%	33	140	163	125	144	74	103	58	77	169	128	132	164
Scotland	mm	120	116	111	75	112	74	76	117	96	212	215	97	340
	%	96	153	129	87	119	63	54	75	63	141	142	95	272
RIVER PURIFICATION BOARDS														
Highland	mm	156	85	93	83	142	89	53	137	69	266	257	72	458
	%	96	93	101	85	134	70	31	69	34	135	137	57	283
North-East	mm	55	69	108	59	79	69	87	165	45	113	132	97	152
	%	71	115	157	89	108	79	100	170	45	122	133	149	195
Tay	mm	114	134	128	58	90	58	102	132	74	157	200	125	299
	%	105	216	154	79	117	62	89	102	61	124	139	132	274
Forth	mm	90	109	120	72	73	50	79	107	73	187	160	87	266
	%	96	185	162	104	97	53	72	93	65	170	136	110	283
Tweed	mm	43	124	131	62	54	52	90	135	55	171	140	81	160
	%	54	218	185	95	74	59	101	142	59	184	140	121	203
Solway	mm	101	165	146	72	101	65	101	52	97	266	197	127	268
	%	86	214	172	86	112	55	71	33	67	180	126	126	229
Clyde	mm	158	159	117	77	137	89	75	66	112	300	269	115	434
	%	107	189	129	83	126	66	42	34	62	168	142	97	295

Note: The monthly rainfall figures for the NRA regions for February and March correspond to the MORECS areal assessments derived by The Meteorological Office. In northern England these initial assessments may have a particularly wide error band associated with them. The figures for the RPB regions from February 1994 were derived by IH in collaboration with the RPBs. The provisional figures for England and Wales and for Scotland are derived using a different raingauge network. Regional areal rainfall figures are regularly updated (normally one or two months in arrears) using figures derived from a far denser raingauge network.

TABLE 2 RAINFALL RETURN PERIOD ESTIMATES

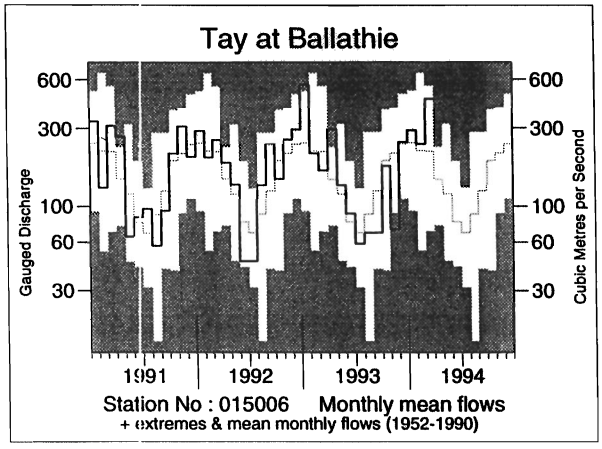
		Jan94-Mar94		Oct93-Mar94		Apr93-Mar94		Jul92-Mar94	
		Est Return Period, years		Est Return Period, years		Est Return Period, years		Est Return Period, years	
England and Wales	mm	290		612		1107		1871	
	% LTA	130	5-10	124	10-20	124	20-35	117	15-25
NRA REGIONS									
North West	mm	362		725		1308		2277	
	% LTA	123	5-10	108	2-5	109	2-5	105	2-5
Northumbria	mm	248		537		1062		1719	
	% LTA	116	2-5	118	5-10	125	20-30	113	5-10
Severn-Trent	mm	237		513		962		1596	
	% LTA	128	5-10	129	10-20	128	30-45	120	20-30
Yorkshire	mm	250		510		1022		1672	
	% LTA	122	2-5	116	2-5	125	20-30	114	5-15
Anglian	mm	169		414		805		1351	
	% LTA	126	5-10	139	30-45	135	80-120	129	160-200
Thames	mm	200		462		853		1497	
	% LTA	121	2-5	128	5-10	124	10-20	123	30-45
Southern	mm	239		589		1013		1700	
	% LTA	122	2-5	133	10-20	130	30-50	122	20-40
Wessex	mm	298		656		1101		1837	
	% LTA	134	5-10	137	15-25	131	30-50	122	20-40
South West	mm	497		986		1659		2671	
	% LTA	147	10-20	137	20-35	141	>200	125	40-80
Welsh	mm	486		934		1583		2725	
	% LTA	140	10-20	120	5-10	121	10-20	114	5-15
Scotland	mm	652		1077		1641		3117	
	% LTA	173	>200	129	30-60	114	10-20	119	60-90
RIVER PURIFICATION BOARDS									
Highland	mm	787		1259		1804		3715	
	% LTA	165	>200	117	5-10	103	2-5	115	10-30
North-East	mm	381		704		1175		1989	
	% LTA	157	70-100	133	20-50	121	10-35	114	10-20
Tay	mm	624		987		1557		2823	
	% LTA	179	>200	136	20-50	127	30-50	126	30-170
Forth	mm	513		880		1383		2480	
	% LTA	176	>200	140	60-90	125	30-50	123	80-140
Tweed	mm	381		742		1255		2105	
	% LTA	155	30-60	141	50-70	129	50-85	121	30-60
Solway	mm	592		1007		1657		2926	
	% LTA	158	10-20	122	5-10	117	5-15	113	5-15
Clyde	mm	818		1296		1950		3686	
	% LTA	180	>200	129	20-30	115	5-15	118	30-60

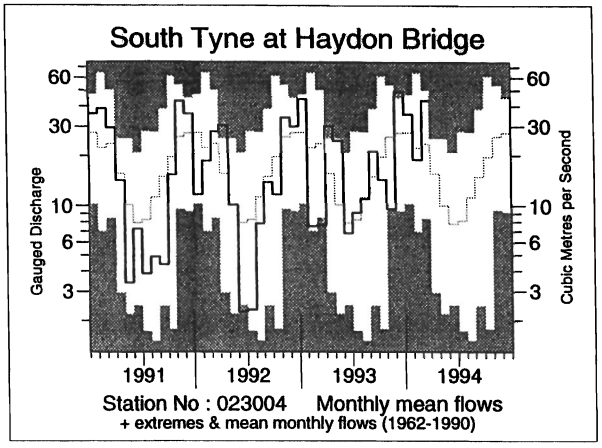
LTA refers to the period 1961-90.

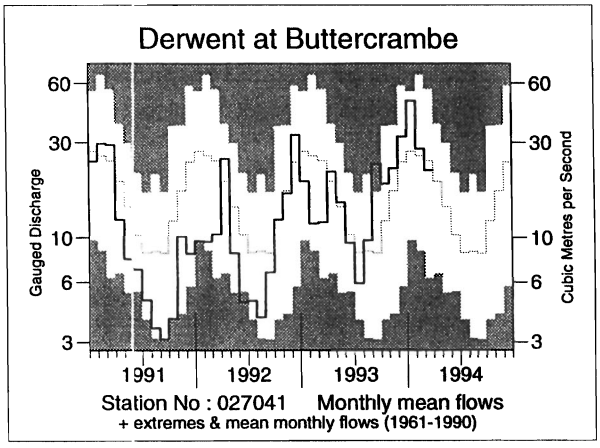
Return period assessments are based on tables provided by the Meteorological Office*. The tables reflect rainfall totals over the period 1911-70 only and the estimate assumes a sensibly stable climate. They assume a start in a specified month; return periods for a start in any month may be expected to be an order of magnitude less - for the longest durations the return period estimates converge. "Wet" return periods underlined.

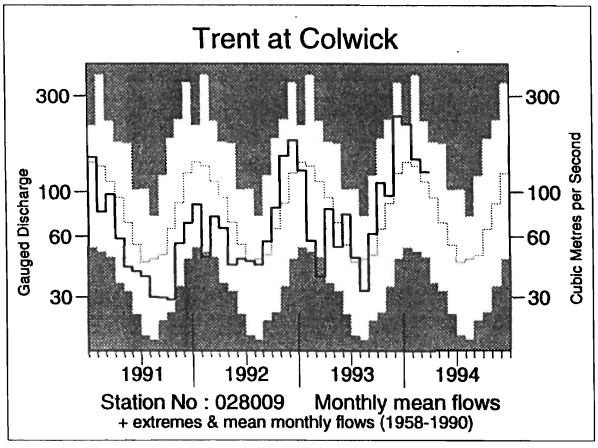
* Tabony, R.C., 1977, The Variability of long duration rainfall over Great Britain, Scientific Paper No. 37, Meteorological Office.

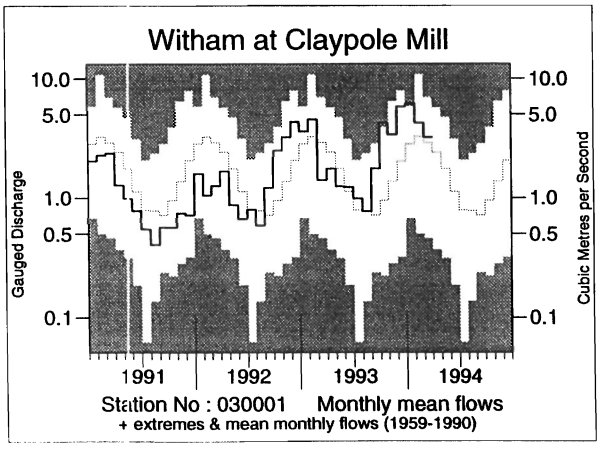
FIGURE 1 MONTHLY RIVER FLOW HYDROGRAPHS

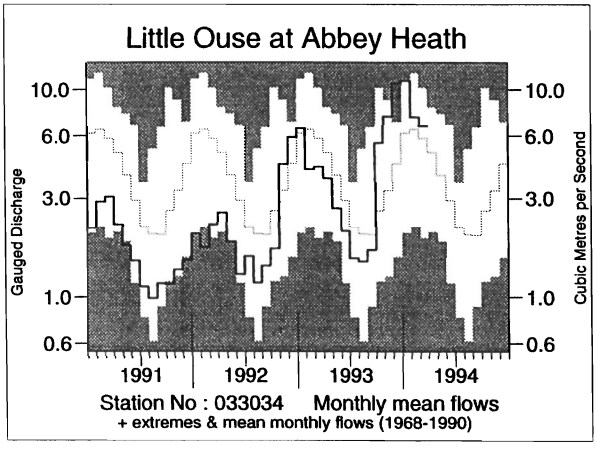


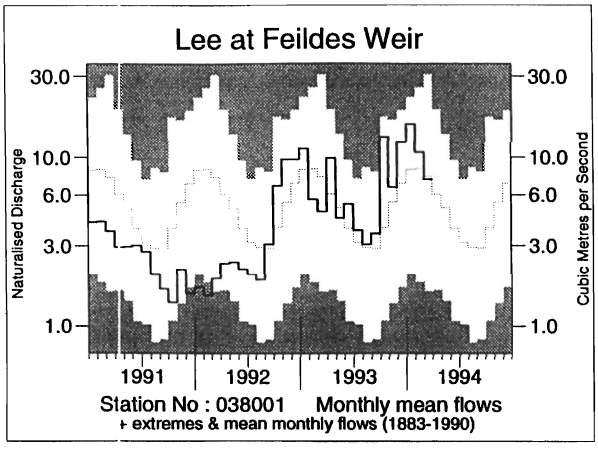


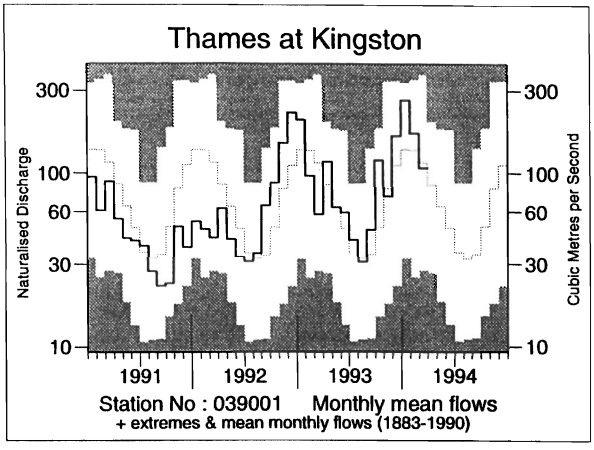


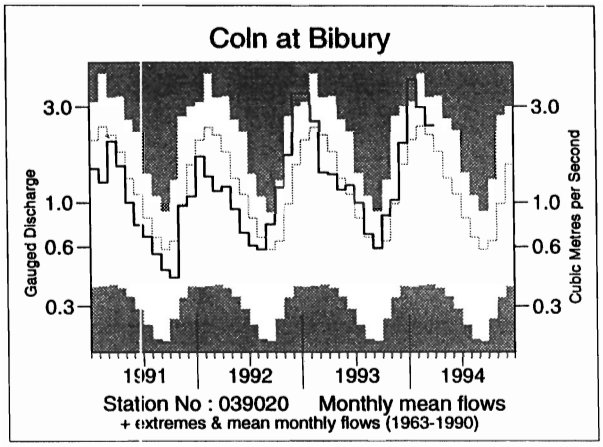


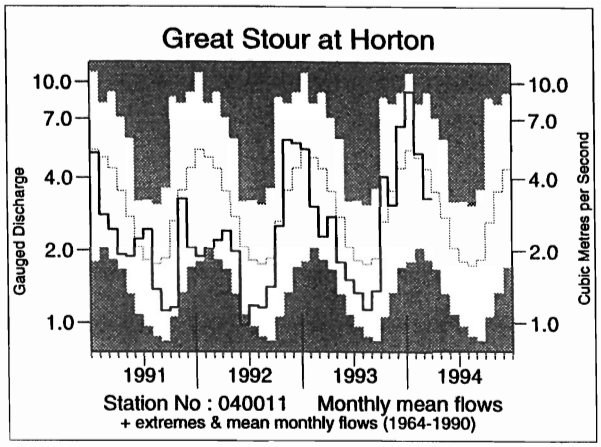


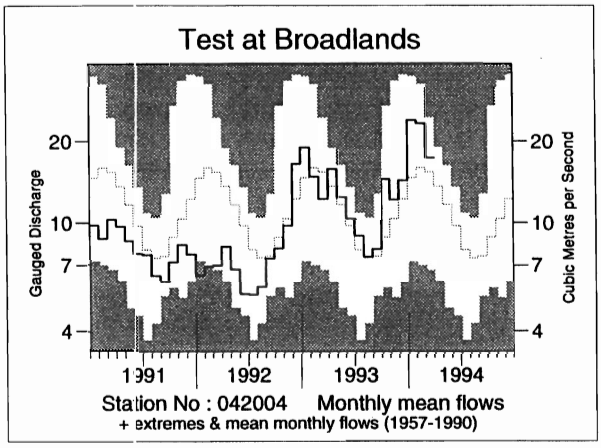


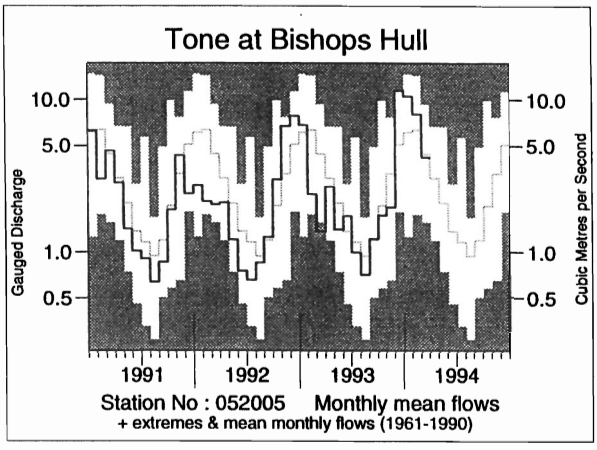


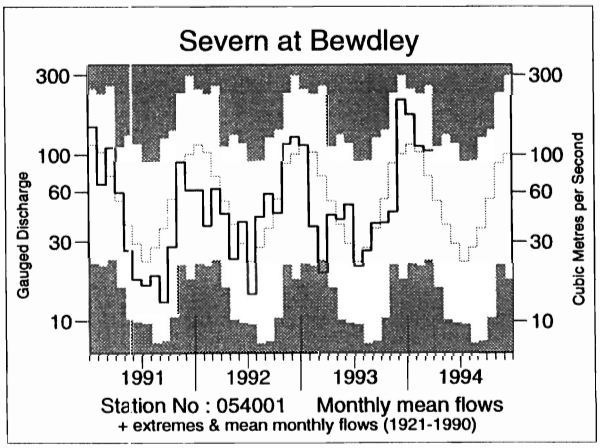


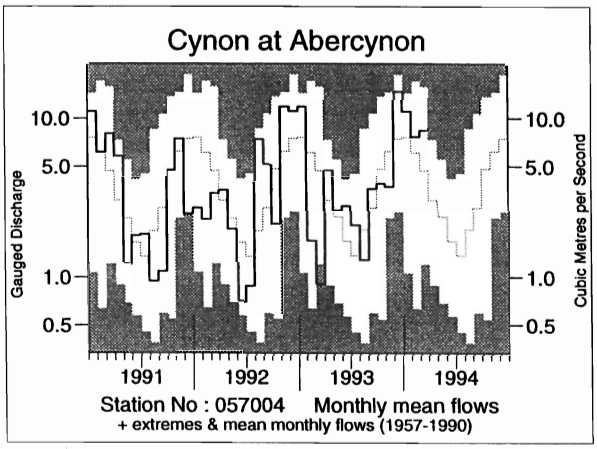

Coln at Bibury
3.0
1.0
0.6
0.3
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 039020 Monthly mean flows
+ extremes & mean monthly flows (1963-1990)

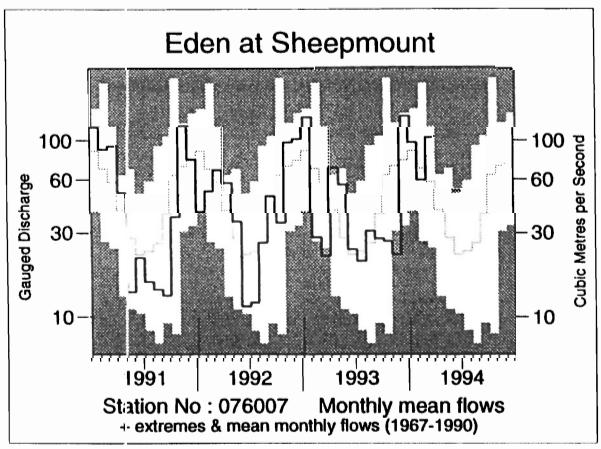

Great Stour at Horton
10.0
7.0
4.0
2.0
1.0
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 040011 Monthly mean flows
+ extremes & mean monthly flows (1964-1990)


Test at Broadlands
20
10
7
4
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 042004 Monthly mean flows
+ extremes & mean monthly flows (1957-1990)


Tone at Bishops Hull
10.0
5.0
1.0
0.5
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 052005 Monthly mean flows
+ extremes & mean monthly flows (1961-1990)


Severn at Bewdley
300
100
60
30
10
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 054001 Monthly mean flows
+ extremes & mean monthly flows (1921-1990)


Cynon at Abercynon
10.0
5.0
1.0
0.5
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 057004 Monthly mean flows
+ extremes & mean monthly flows (1957-1990)


Eden at Sheepmount
100
60
30
10
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 076007 Monthly mean flows
+ extremes & mean monthly flows (1967-1990)

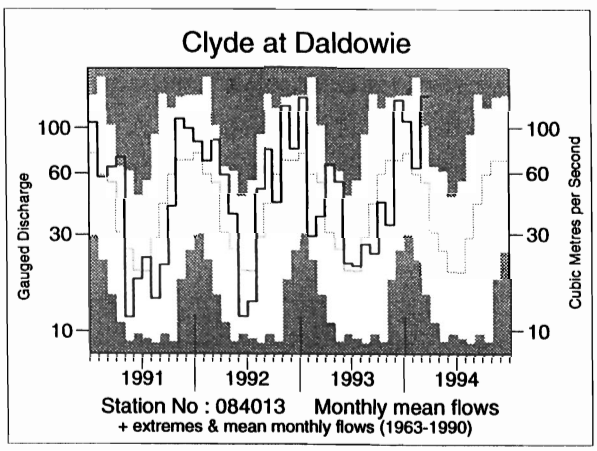

Clyde at Daldowie
100
60
30
10
Gauged Discharge
Cubic Metres per Second
1991
1992
1993
1994
Station No : 084013 Monthly mean flows
+ extremes & mean monthly flows (1963-1990)

TABLE 3 RUNOFF AS MM. AND AS A PERCENTAGE OF THE PERIOD OF RECORD AVERAGE WITH SELECTED PERIODS RANKED IN THE RECORD

River/ Station name	Nov 1993	Dec	Jan	Feb	Mar 1994		10/93 to 3/94		4/93 to 3/94		9/92 to 3/94		5/90 to 3/94	
	mm %LT	mm %LT	mm %LT	mm %LT	mm %LT	rank /yrs	mm %LT	rank /yrs	mm %LT	rank /yrs	mm %LT	rank /yrs	mm %LT	rank /yrs
Dee at Park	33 43	80 93	122 138	64 89	167 178	22 /22	638 124	19 /21	952 120	18 /21	1533 114	16 /20	3030 97	8 /18
Tay at Ballathie	40 33	144 102	169 117	126 110	268 209	41 /42	851 111	33 /42	1261 111	31 /41	2335 118	36 /40	4836 109	28 /38
Tweed at Boleside	30 34	168 175	149 145	78 100	165 205	33 /34	690 132	33 /33	1004 132	32 /33	1635 123	32 /32	3418 115	29 /30
Whiteadder Water at Hutton Castle	21 56	98 217	113 194	55 114	51 101	16 /25	411 152	24 /25	578 146	23 /24	810 120	18 /24	1598 103	10 /21
South Tyne at Haydon Bridge	33 35	176 178	126 131	61 83	155 182	30 /32	602 117	26 /32	962 126	29 /30	1483 110	22 /28	3049 100	12 /24
Wharfe at Flint Mill Weir	25 31	155 159	155 159	64 84	117 152	35 /39	561 114	30 /39	858 119	32 /38	1327 105	23 /37	2641 93	13 /35
Derwent at Buttercrambe	36 131	54 135	82 183	43 109	37 90	16 /33	283 133	27 /33	424 130	29 /32	609 111	22 /31	1085 84	7 /29
Trent at Colwick	33 108	86 193	78 158	47 111	45 113	25 /36	328 142	34 /36	452 128	31 /35	6978 116	28 /34	1233 89	10 /32
Lud at Louth	32 229	48 248	74 262	48 148	42 123	20 /26	276 192	25 /26	359 143	22 /25	480 120	17 /25	700 73	5 /22
Witham at Claypole Mill	29 240	52 277	56 223	34 133	29 112	24 /35	238 199	34 /35	306 264	34 /34	488 158	33 /34	719 101	17 /32
Little Ouse at Abbey Heath	28 230	41 246	42 190	26 121	26 120	20 /26	184 173	24 /26	234 137	24 /26	340 123	22 /25	514 80	4 /23
Colne at Lexden	17 132	41 246	34 152	23 128	13 71	16 /35	146 151	32 /35	180 131	31 /34	303 130	30 /33	439 85	7 /31
Lee at Feildes Weir (natr.)	17 122	32 175	41 190	25 126	19 98	64 /108	167 162	98 /108	242 149	97 /106	371 136	95 /105	535 85	29 /101
Thames at Kingston (natr.)	19 90	44 146	71 193	41 125	29 94	60 /112	237 143	94 /111	333 136	98 /111	568 135	101 /110	871 91	38 /108
Coln at Bibury	25 102	49 123	103 204	67 127	61 114	19 /31	327 135	28 /31	476 121	25 /30	835 128	29 /29	1440 94	10 /27
Great Stour at Horton	23 86	51 151	71 180	36 108	26 78	9 /30	238 126	25 /29	313 108	20 /27	509 104	16 /26	919 81	4 /22
Test at Broadlands	30 119	37 117	62 167	54 149	45 116	27 /37	265 137	35 /37	424 125	32 /35	645 118	29 /34	1153 89	4 /29
Piddle at Baggs Mill	41 142	72 172	115 226	79 138	73 132	24 /31	428 165	30 /30	571 141	29 /29	8855 130	25 /27	1518 96	10 /23
Exe at Thorverton	47 48	270 205	209 163	137 132	125 148	32 /38	876 140	37 /38	1078 130	36 /37	1724 116	31 /37	3103 96	13 /35
Taw at Umberleigh	44 47	230 198	193 168	124 146	112 165	33 /36	805 148	35 /36	1030 148	34 /35	1588 126	33 /34	2708 100	16 /32
Tone at Bishops Hull	25 58	150 225	138 176	96 131	55 97	20 /34	488 141	31 /33	600 128	30 /33	981 118	27 /32	1629 88	5 /30
Severn at Bewdley	27 51	132 211	108 152	63 109	65 141	59 /73	419 129	64 /73	553 123	64 /73	867 109	47 /72	1607 91	17 /70
Teme at Knightsford Bridge	33 101	103 191	91 141	65 125	33 68	11 /24	355 131	23 /24	450 124	21 /24	709 111	18 /23	1201 85	4 /21
Cynon at Abercynon	91 58	375 199	281 148	175 128	213 178	31 /36	1233 134	34 /36	1656 131	34 /34	2766 122	31 /32	5091 103	18 /28
Dee at New Inn	69 28	514 210	301 128	176 106	319 175	22 /25	1434 113	19 /25	2059 114	20 /24	3212 101	14 /24	6558 92	5 /21
Eden at Sheepmount	25 30	160 175	114 113	63 85	122 173	21 /24	516 105	15 /23	780 113	18 /22	1316 109	14 /20	2756 102	9 /16
Clyde at Daldowie	45 46	192 192	152 141	81 106	199 259	31 /31	729 133	29 /31	1021 130	30 /30	1759 126	29 /29	3700 120	27 /27
Carron at New Kelso	64 21	317 92	364 119	84 40	451 158	15 /16	1409 82	5 /15	2046 79	2 /15	4338 94	5 /14	10274 100	6 /12
Ewe at Poolewe	71 26	264 95	258 98	159 86	326 163	21 /24	1165 81	5 /23	1841 86	5 /23	4060 107	16 /22	9070 107	15 /20

Notes:
(i) Values based on gauged flow data unless flagged (natr.), when naturalised data have been used.
(ii) Values are ranked so that lowest runoff is rank 1.
(iii) %LT means percentage of long term average from the start of the record to 1992. For the long periods (at the right of this table), the end date for the long term is 1993.

TABLE 4 START-MONTH RESERVOIR STORAGES UP TO FEBRUARY 1994

Area	Reservoir (R)/ Group (G)		Capacity● (Ml)	1993 Nov	Dec	1994 Jan	Feb	Mar	Apr	1993 Apr
North West	Northern Command Zone[1]	(G)	133375	42	44	80	97	93	100	77
	Vyrnwy	(R)	55146	60	64	100	100	100	100	78
Northumbria	Teesdale[2]	(G)	87936	71	69	100	97	96	100	83
	Kielder	(R)	199175*	87*	80*	99*	98*	91*	96*	81*
Severn-Trent	Clywedog	(R)	44922	82	83	100	100	98	99	87
	Derwent Valley[3]	(G)	39525	83	79	100	100	99	100	73
Yorkshire	Washburn[4]	(G)	22035	68	59	92	100	98	100	83
	Bradford supply[5]	(G)	41407	86	76	97	99	98	98	76
Anglian	Grafham	(R)	58707	96	93	89	93	98	91	92
	Rutland	(R)	130061	88	88	95	96	97	96	88
Thames	London[6]	(G)	207569	92	88	87	87	87	89	91
	Farmoor [7]	(G)	13843	98	99	98	98	99	98	95
Southern	Bewl	(R)	28170	81	82	97	100	92	100	91
	Ardingly	(R)	4685	100	100	100	100	100	100	100
Wessex	Clatworthy	(R)	5364*	76	68	100	100	100	100	83
	Bristol W [8]	(G)	38666*	59*	60*	88*	88*	99*	99*	85*
South West	Colliford	(R)	28540	86	88	98	100	100	100	83
	Roadford	(R)	34500	81	78	92	98	97	100	80
	Wimbleball[9]	(R)	21320	80	82	100	100	100	100	91
	Stithians	(R)	5205	99	100	100	100	100	100	88
Welsh	Celyn + Brenig	(G)	131155	92	84	100	100	100	100	90
	Brianne	(R)	62140	91	95	100	100	100	100	90
	Big Five[10]	(G)	69762	80	84	98	99	99	100	78
	Elan Valley[11]	(G)	99106	95	99	100	100	100	100	89
Lothian	Edinburgh/Mid Lothian	(G)	97639	82	78+	92	97	94	99	93
	West Lothian	(G)	5613	98	100	100	99	96	99	92
	East Lothian	(G)	10206	98	87	98	97	99	98	97

● Live or usable capacity (unless indicated otherwise)

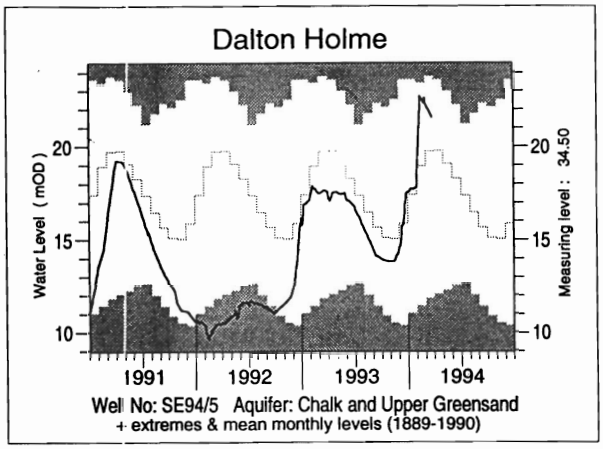
* Gross storage/percentage of gross storage

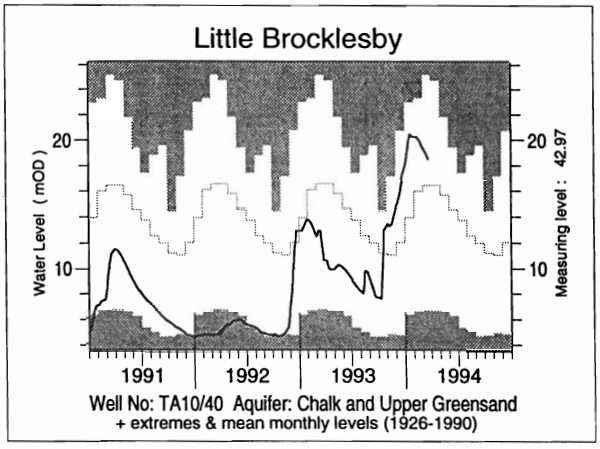
\+ Megget reservoir held at 75% capacity for repairs

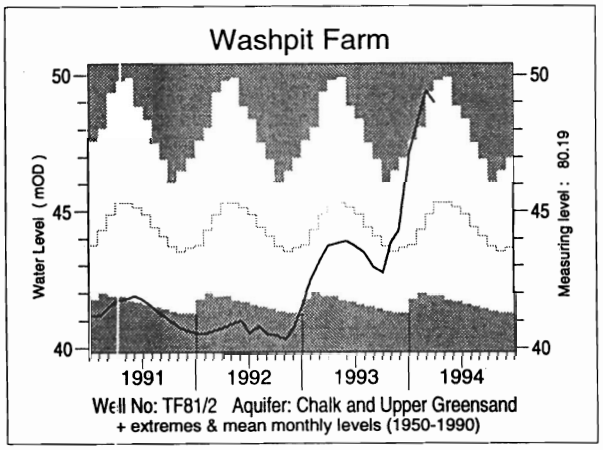
1. Includes Haweswater, Thirlmere, Stocks and Barnacre.
2. Cow Green, Selset, Grassholme, Balderhead, Blackton and Hury.
3. Howden, Derwent and Ladybower.
4. Swinsty, Fewston, Thruscross and Eccup.
5. The Nidd/Barden group (Scar House, Angram, Upper Barden, Lower Barden and Chelker) plus Grimwith.
6. Lower Thames (includes Queen Mother, Wraysbury, Queen Mary, King George VI and Queen Elizabeth II) and Lee Valley (includes King George and William Girling) groups - pumped storages.
7. Farmoor 1 and 2 - pumped storages.
8. Blagdon, Chew Valley and others.
9. Shared between South West (river regulation for abstraction) and Wessex (direct supply).
10. Usk, Talybont, Llandegfedd (pumped storage), Taf Fechan, Taf Fawr.
11. Claerwen, Caban Coch, Pen y Garreg and Craig Goch.

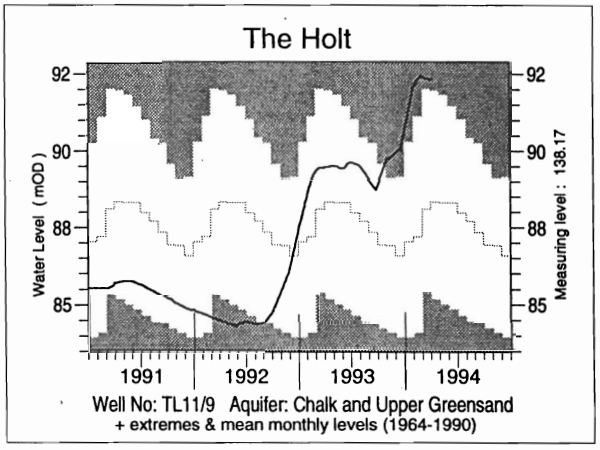
Note: Variations in storage depend on the balance between inputs (from catchment rainfall and any pumping) and outputs (to supply, compensation flow, HEP, amenity). There will be additional losses due to evaporation, especially in the summer months. Operational strategies for making the most efficient use of water stocks will further affect reservoir storages. Table 4 provides a link between the hydrological conditions described elsewhere in the report and the water resources situation.

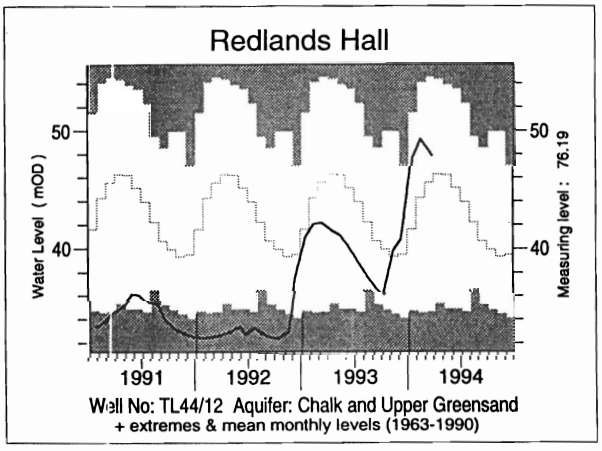
FIGURE 2 GROUNDWATER LEVEL HYDROGRAPHS

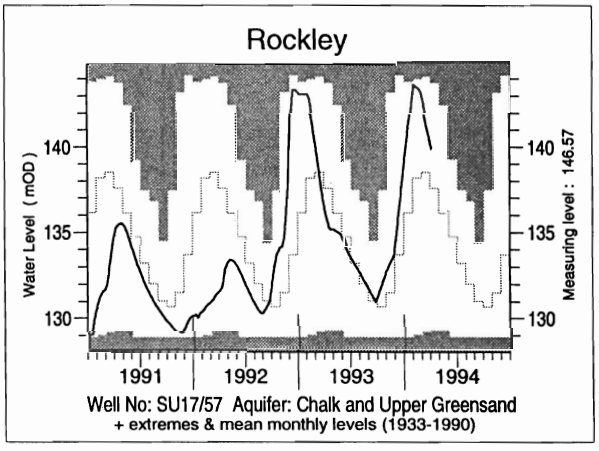


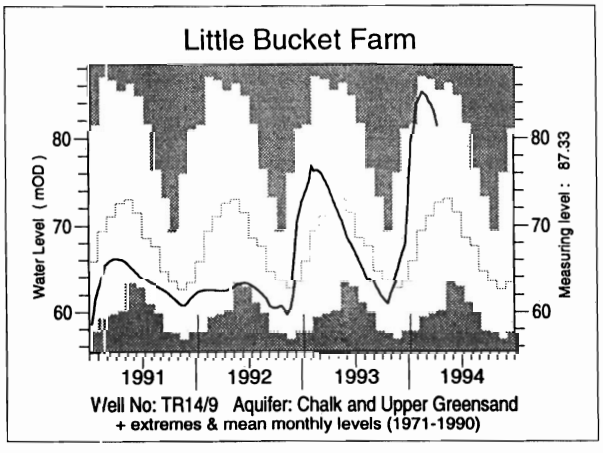


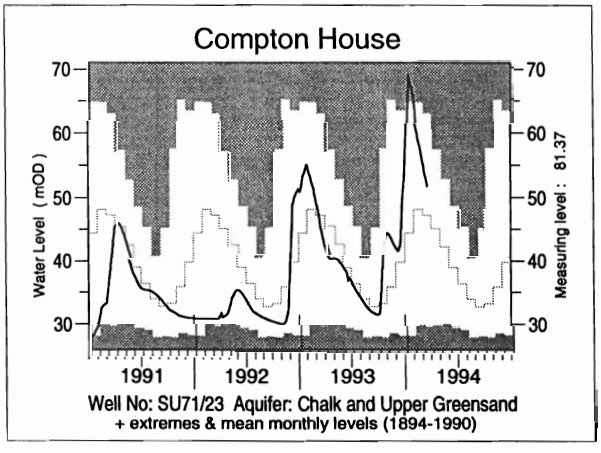


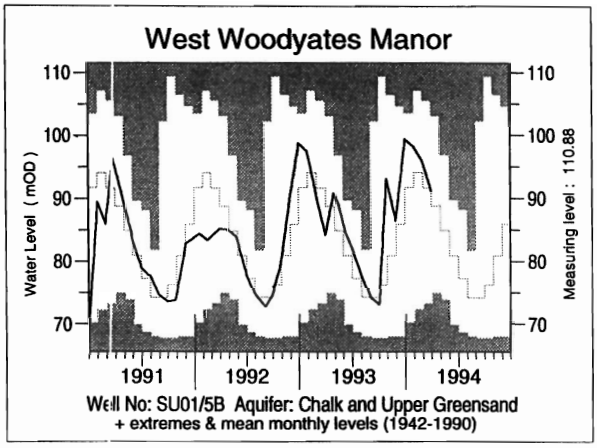


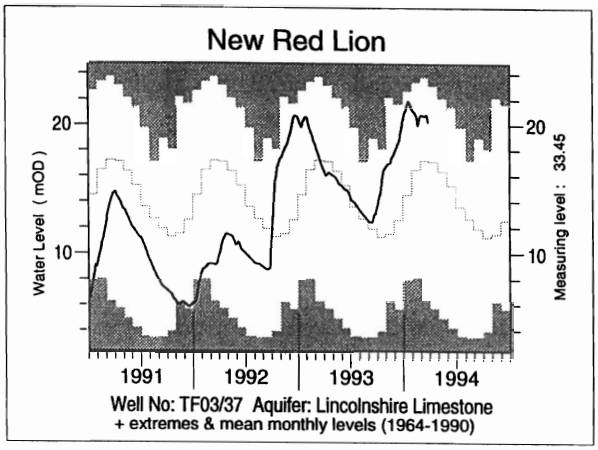


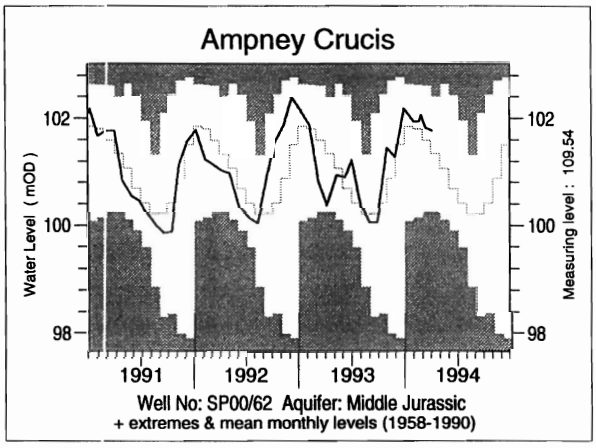


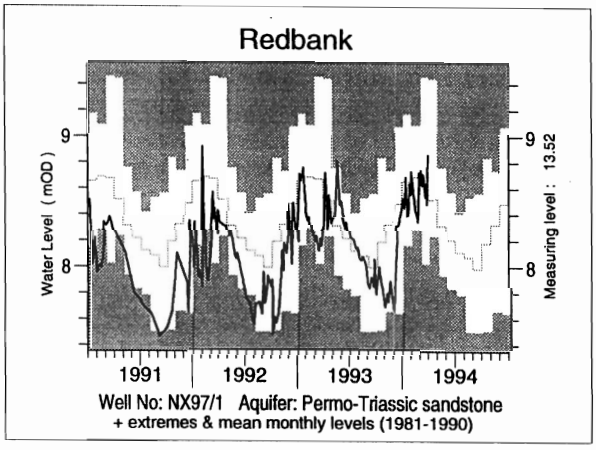


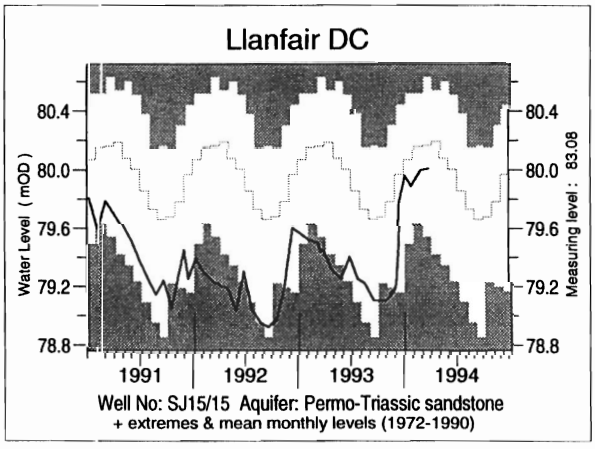


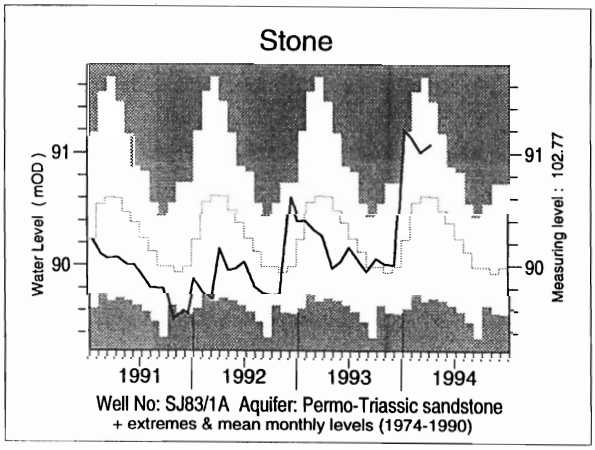

West Woodyates Manor
Water Level (mOD)
Measuring level : 110.88
1991
1992
1993
1994
Well No: SU01/5B Aquifer: Chalk and Upper Greensand
+ extremes & mean monthly levels (1942-1990)

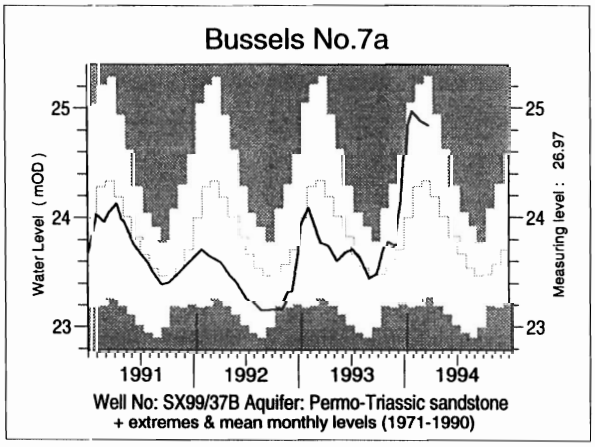

New Red Lion
Water Level (mOD)
Measuring level : 33.45
1991
1992
1993
1994
Well No: TF03/37 Aquifer: Lincolnshire Limestone
+ extremes & mean monthly levels (1964-1990)


Ampney Crucis
Water Level (mOD)
Measuring level : 109.54
1991
1992
1993
1994
Well No: SP00/62 Aquifer: Middle Jurassic
+ extremes & mean monthly levels (1958-1990)


Redbank
Water Level (mOD)
Measuring level : 13.52
1991
1992
1993
1994
Well No: NX97/1 Aquifer: Permo-Triassic sandstone
+ extremes & mean monthly levels (1981-1990)


Llanfair DC
Water Level (mOD)
Measuring level : 83.08
1991
1992
1993
1994
Well No: SJ15/15 Aquifer: Permo-Triassic sandstone
+ extremes & mean monthly levels (1972-1990)


Stone
Water Level (mOD)
Measuring level : 102.77
1991
1992
1993
1994
Well No: SJ83/1A Aquifer: Permo-Triassic sandstone
+ extremes & mean monthly levels (1974-1990)


Bussels No.7a
Water Level (mOD)
Measuring level : 26.97
1991
1992
1993
1994
Well No: SX99/37B Aquifer: Permo-Triassic sandstone
+ extremes & mean monthly levels (1971-1990)

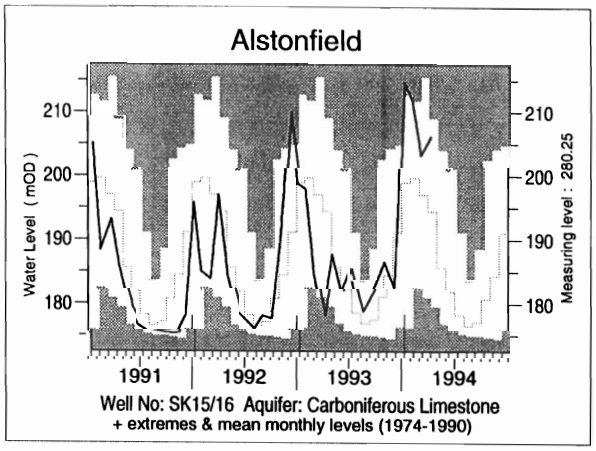

Alstonfield
Water Level (mOD)
Measuring level : 280.25
1991
1992
1993
1994
Well No: SK15/16 Aquifer: Carboniferous Limestone
+ extremes & mean monthly levels (1974-1990)

TABLE 5 A COMPARISON OF MARCH GROUNDWATER LEVELS: 1993 AND 1994

Site	Aquifer	Records commence	Minimum March level	Average March level	Maximum March level	March 1993		March/April 1994	
			<1994	<1994	<1994	day	level	day	level
Dalton Holme	C & UGS	1889	10.34	19.71	23.82	30/03	17.56	25/03	21.53
Little Brocklesby	C & UGS	1926	4.69	15.46	25.15	26/03	10.70	22/03	18.40
Washpit Farm	C & UGS	1950	40.61	44.82	49.37	01/03	43.11	31/03	48.97
The Holt	C & UGS	1964	84.47	87.61	91.97	29/03	89.40	06/04	92.26
Therfield Rectory	C & UGS	1883	dry <71.6	79.03	96.83	26/03	80.13	06/04	87.46
Redlands Hall	C & UGS	1964	32.62	44.07	54.50	12/03	42.17	23/03	47.77
Rockley	C & UGS	1933	dry <128.9	138.33	144.06	29/03	136.99	05/04	139.90
Little Bucket Farm	C & UGS	1971	59.67	71.18	86.58	26/03	74.83	07/04	81.22
Compton House	C & UGS	1984	29.40	46.67	62.80	30/03	42.70	18/03	51.70
Chilgrove House	C & UGS	1836	35.97	55.63	74.68	30/03	50.53	18/03	60.31
West Dean No.3	C & UGS	1940	1.31	2.17	4.14	26/03	1.82	31/03	2.26
Lime Kiln Way	C & UGS	1969	124.07	125.42	126.23	25/03	124.40	24/03	125.86
Ashton Farm	C & UGS	1974	64.67	69.47	71.10	31/03	68.50	31/03	70.32
West Woodyates Manor	C & UGS	1942	73.18	90.59	105.44	31/03	84.16	31/03	91.13
New Red Lion	LLst	1964	6.14	16.49	23.69	29/03	16.61	28/03	20.24
Ampney Crucis	Mid Jur	1958	100.29	102.03	103.26	08/03	101.04	05/04	102.21
Dunmurry (NI)	PTS	1985	28.04	28.53	29.26	24/03	28.60	27/03	27.72
Yew Tree Farm	PTS	1973	12.75	13.55	13.84	31/03	13.64	07/04	13.84
Llanfair D.C	PTS	1972	79.24	86.03	80.63	28/03	79.42	28/03	80.01
Morris Dancers	PTS	1969	31.78	32.51	33.51	08/03	31.87	08/04	32.26
Weeford Flats	PTS	1966	dry <88.61	89.85	91.61	04/03	dry <88.61	05/04	89.71
Stone	PTS	1974	89.66	90.54	91.66	01/03	90.32	07/04	91.06
Skirwith	PTS	1978	129.95	130.68	131.67	26/03	130.42	31/03	130.92
Redbank	PTS	1981	8.01	8.56	9.45	30/03	8.28	31/03	8.86
Bussels No.7A	PTS	1972	23.26	24.27	25.28	16/03	23.77	16/03	24.83
Rushyford NE	MgLst	1967	65.59	72.37	76.90	31/03	75.06	29/03	76.78
Peggy Ellerton	MgLst	1968	31.64	34.55	36.93	18/03	31.98	17/03	33.60
Alstonfield	CLst	1974	180.54	195.15	215.15	01/03	184.63	05/04	205.85

groundwater levels are in metres above Ordnance Datum

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

Note: Table 5 has been redesigned to include both monthly minimum and monthly maximum levels.

FIGURE 3 LOCATION MAP OF GAUGING STATIONS AND GROUNDWATER INDEX WELLS