

# Hydrological Summary for Great Britain

JANUARY 1994

## Rainfall

For most areas, January was a mild and very unsettled month; weather patterns were, like December, dominated by a continuing sequence of Atlantic frontal systems. Rainfall amounts decreased somewhat over the second fortnight and, overall, sunshine totals were notably high in parts of central England. January rainfall totals were above the 1961-90 mean - generally by a substantial margin. In the winter thus far, southern Britain has recorded remarkably few dry days but daily rainfall totals in January were moderate in most areas. Exceptions included the South Downs where in some localities totals reached 200 mm over the five weeks ending in mid-January, equivalent to around 40% of the annual average for some raingauges. For England and Wales as a whole, the combined Dec/Jan rainfall total is amongst the ten highest in the full series from 1767 (and closely comparable to 1989/90). In the English lowlands accumulated rainfalls are even more exceptional in the five-month timeframe. Provisional rainfall figures suggest that for many catchments the Sep-Jan rainfall total was the highest or second highest (after 1960/61) for at least 50 years. Equally notable for the Anglian region is the accumulated rainfall total over the last 19 months; the associated return period testifies to a remarkable transformation relative to the preceding sustained drought. Long term deficiencies in the English lowlands are now trivial at the regional scale. Importantly, the abundant lowland rainfall, 25-30% above average since June 1992, translates into much larger proportional increases in rates of runoff and aquifer recharge.

## River Flow

1994 began with widespread flood warnings and substantial floodplain inundations in southern Britain. Protracted sequences of near-bankfull flows typified large parts of southern Britain in January - spates were common but relatively minor in most of northern Britain. Many new monthly flow records were established in January but generally accumulated runoff totals were more outstanding than individual flood peaks which mostly had associated return periods of less than 5-10 years. However, with headwater springs flowing very strongly, the Lavant winterbourne in the South Downs, which was dry throughout the great majority of 1992, burst its banks on the 4th January heralding very persistent flooding in the Chichester area; transport disruption was severe. Provisional data suggest that

maximum January runoff totals were registered for around half the rivers in eastern and southern England. For a substantial number (mostly benefitting from heavy baseflow) including the Lud, Mimram and Kennet the monthly runoff was unprecedented; in others, January 1994 ranks second only to February 1990. Accumulated runoff totals for the period beginning in the autumn are also outstanding in the English lowlands and, given the magnitude of recent runoff, the limited flooding testifies to the moderating influence of the relatively even distribution of rainfall.

## Groundwater

Weather conditions have remained conducive to heavy groundwater recharge, in southern England particularly, over much of the last ten weeks. Late winter levels in the Chalk are indicative of recoveries, from last summer, of around twice the average annual range over wide areas. In some districts, parts of the South Downs in particular, percolation was limited only by the remarkably steep water-table rises which produced artesian conditions in mid-January. The Chilgrove well (north of Chichester) began overflowing in the 7th for the first time since 1960 and the extraordinary recent abundance of recharge is confirmed by the record maximum registered at nearby Compton - in a record from 1894. The Holt borehole in the Chilterns also surpassed its previous maximum and index well levels are near, or at, seasonal maxima throughout the great majority of the Chalk and some of the southern Permo-Triassic outcrops. Water levels in parts of the slow-responding confined Permo-Triassic sandstones in the Midlands are still below average but rising steadily. Very steep winter recoveries typify other aquifers also (see, for example, the Alstonfield and New Red Lion hydrographs) and there are few, if any, modern parallels to the transformation in overall groundwater resources since the summer of 1992.

## General

Overall water stocks are exceptionally healthy and hydrological stress may be expected to focus rather more on flood vulnerability over the remainder of the winter. Notwithstanding the saturated catchments however, the spring of 1990 provides a reminder that, on rare occasions, the water resources outlook can deteriorate surprisingly quickly.



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Hydrology

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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

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

Tel: 0344 856858

Fax: 0344 854024

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Maclean Building  
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Wallingford  
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OX10 8BB

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

Note: The monthly rainfall figures are the copyright of The Meteorological Office. These data may not be published or passed on to any unauthorised person or organisation.

		Jan 1993	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1994
England and Wales	mm	113	16	26	94	89	68	80	54	110	90	80	152	115
	%	128	25	36	157	139	105	129	71	143	106	88	162	131
<b>NRA REGIONS</b>														
North West	mm	162	18	38	123	128	57	109	75	86	51	64	248	162
	%	134	23	40	173	171	70	128	70	75	40	52	200	134
Northumbria	mm	107	16	25	123	119	39	59	76	108	90	64	135	129
	%	127	27	36	220	192	65	91	94	148	118	74	167	153
Severn-Trent	mm	82	9	16	79	80	72	79	44	96	73	66	137	87
	%	117	17	26	144	136	122	149	66	150	114	93	178	124
Yorkshire	mm	91	19	15	102	83	48	68	78	133	62	64	134	120
	%	115	33	22	173	138	80	115	105	196	85	80	161	152
Anglian	mm	57	17	17	71	52	49	69	46	105	90	70	85	69
	%	114	46	36	154	108	96	141	84	214	176	121	155	138
Thames	mm	86	7	25	83	61	57	55	33	102	111	47	104	91
	%	134	16	45	166	109	104	112	57	173	179	72	149	143
Southern	mm	95	9	31	91	58	53	62	37	123	134	62	154	116
	%	119	17	49	172	107	98	129	65	178	168	73	188	145
Wessex	mm	119	9	40	83	62	69	76	37	119	126	63	168	121
	%	137	14	57	157	102	121	146	56	165	159	76	182	139
South West	mm	172	23	33	99	131	108	128	39	168	119	106	264	171
	%	125	23	33	143	182	157	186	46	181	103	85	190	124
Welsh	mm	193	24	35	112	134	99	111	74	118	80	109	259	170
	%	135	25	33	140	163	125	144	73	103	58	77	169	119
Scotland	mm	306	67	120	116	111	75	112	74	76	117	96	212	236
	%	203	66	96	153	129	87	119	63	54	75	63	141	156
<b>RIVER PURIFICATION BOARDS</b>														
Highland	mm	397	120	156	85	93	83	142	86	53	137	69	266	254
	%	211	94	96	93	101	85	134	68	31	69	34	135	135
North-East	mm	159	33	55	69	108	59	79	72	87	165	45	113	146
	%	161	51	71	115	157	89	108	83	100	170	45	122	148
Tay	mm	343	25	114	134	128	58	90	60	102	132	74	157	221
	%	238	26	105	216	154	79	117	64	89	102	61	124	153
Forth	mm	261	20	90	109	120	72	73	50	79	107	73	187	184
	%	221	25	96	185	162	104	97	53	72	93	65	170	156
Tweed	mm	161	16	43	124	131	62	54	52	90	135	55	171	152
	%	161	24	54	218	185	95	74	59	101	142	59	184	152
Solway	mm	216	29	101	165	146	72	101	67	101	52	97	266	241
	%	138	29	86	214	172	86	112	56	71	33	67	180	154
Clyde	mm	350	69	158	159	117	77	137	84	75	66	112	300	326
	%	185	58	107	189	129	83	126	63	42	34	62	168	172

Note: The monthly rainfall figures for the NRA regions for January correspond to the MORECS areal assessments derived by The Meteorological Office. In northern Britain these initial assessments may have a wide error band associated with them. The figures for the RPB regions for January 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**

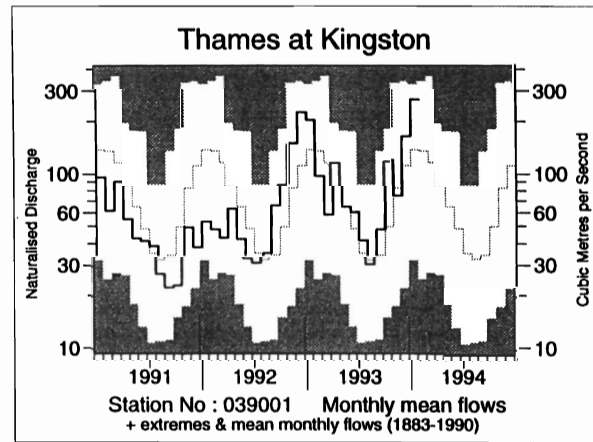
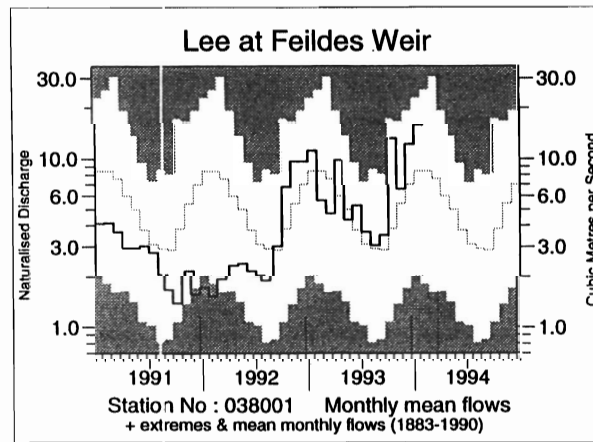
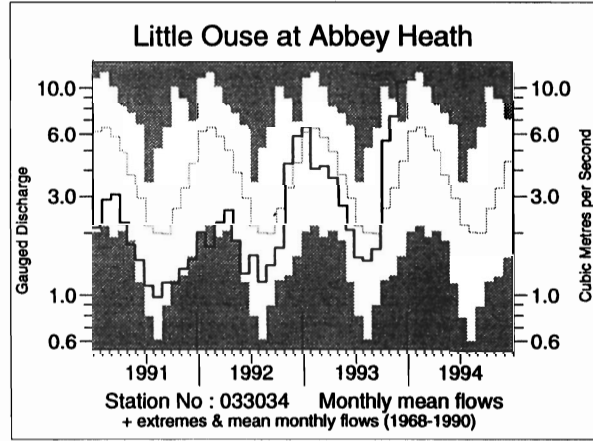
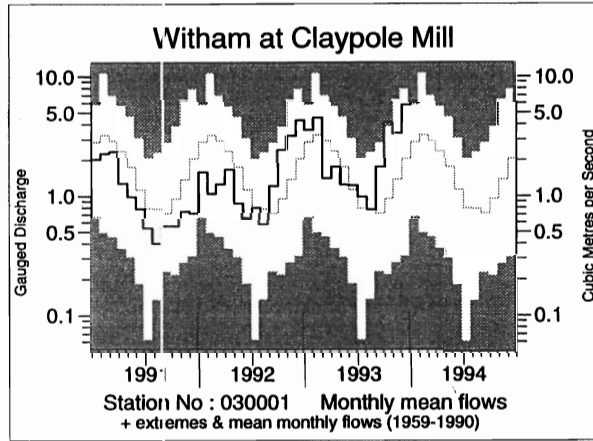
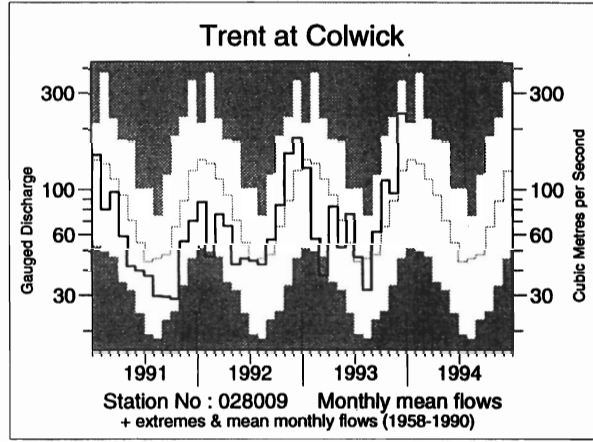
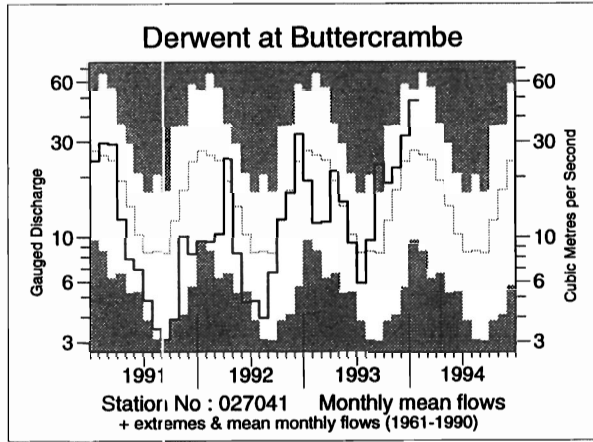
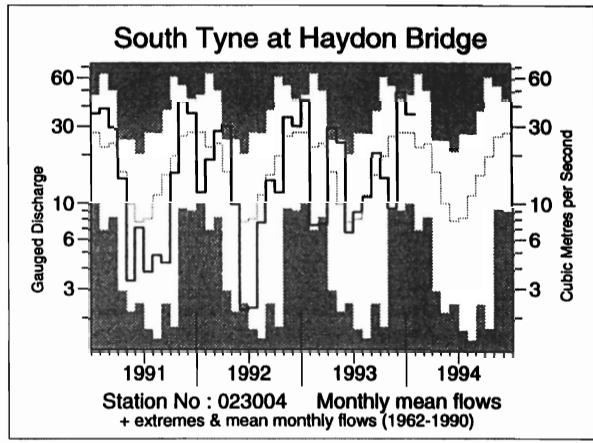
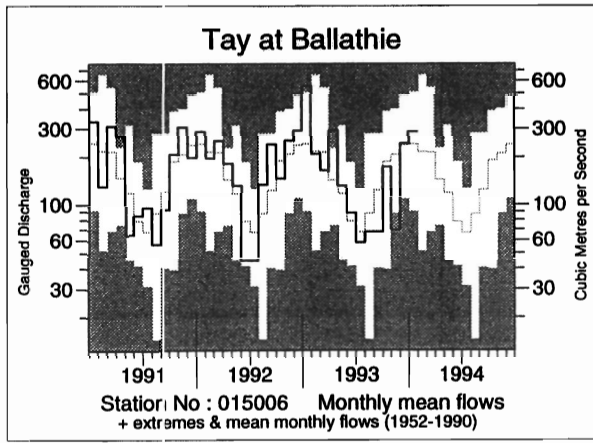
		Sept93-Jan94		Feb93-Jan94		Jul92-Jan94		Mar90-Jan94	
		Est Return Period, years		Est Return Period, years		Est Return Period, years		Est Return Period, years	
England and Wales	mm	547		974		1696		3389	
	% LTA	126	<u>5-15</u>	109	<u>2-5</u>	116	<u>10-20</u>	96	2-5
<b>NRA REGIONS</b>									
North West	mm	611		1159		2072		4536	
	% LTA	100	<2	96	2-5	103	<u>2-5</u>	96	2-5
Northumbria	mm	526		983		1599		3361	
	% LTA	131	<u>10-20</u>	115	<u>5-10</u>	114	<u>5-10</u>	100	<2
Severn-Trent	mm	459		838		1447		2885	
	% LTA	133	<u>10-20</u>	111	<u>2-5</u>	119	<u>10-20</u>	97	2-5
Yorkshire	mm	513		926		1542		3075	
	% LTA	134	<u>10-20</u>	113	<u>5-10</u>	115	<u>10-20</u>	95	2-5
Anglian	mm	419		740		1252		2317	
	% LTA	159	<u>130-180</u>	124	<u>15-25</u>	130	<u>140-200</u>	99	<2
Thames	mm	455		776		1388		2606	
	% LTA	142	<u>15-35</u>	113	<u>2-5</u>	124	<u>30-50</u>	96	2-5
Southern	mm	589		930		1577		2971	
	% LTA	149	<u>30-50</u>	119	<u>5-10</u>	123	<u>25-50</u>	97	2-5
Wessex	mm	598		974		1661		3168	
	% LTA	145	<u>20-40</u>	116	<u>5-10</u>	121	<u>20-30</u>	96	2-5
South West	mm	828		1389		2345		4521	
	% LTA	136	<u>10-20</u>	118	<u>5-10</u>	121	<u>20-40</u>	98	2-5
Welsh	mm	736		1325		2408		4973	
	% LTA	107	<u>2-5</u>	101	<u>2-5</u>	110	<u>5-10</u>	97	2-5
Scotland	mm	737		1412		2701		6296	
	% LTA	98	2-5	98	2-5	113	<u>10-20</u>	112	<u>40-60</u>
<b>RIVER PURIFICATION BOARDS</b>									
Highland	mm	779		1544		3179		7731	
	% LTA	81	5-10	88	5-10	108	<u>5</u>	112	<u>30-50</u>
North-East	mm	556		1031		1757		3900	
	% LTA	117	<u>5-10</u>	106	<u>2-5</u>	109	<u>5-10</u>	102	<u>2-5</u>
Tay	mm	686		1295		2422		5266	
	% LTA	108	<u>2-5</u>	105	<u>2-5</u>	119	<u>20-35</u>	109	<u>5-15</u>
Forth	mm	630		1164		2151		4758	
	% LTA	112	<u>2-5</u>	105	<u>2-5</u>	117	<u>15-25</u>	109	<u>10-15</u>
Tweed	mm	603		1085		1876		4069	
	% LTA	128	<u>10-20</u>	112	<u>5-10</u>	117	<u>10-20</u>	106	<u>5</u>
Solway	mm	757		1438		2577		5828	
	% LTA	101	<u>2-5</u>	101	<u>2-5</u>	108	<u>2-5</u>	104	<u>2-5</u>
Clyde	mm	879		1680		3189		7598	
	% LTA	96	2-5	99	<2	112	<u>5-10</u>	114	<u>50-80</u>

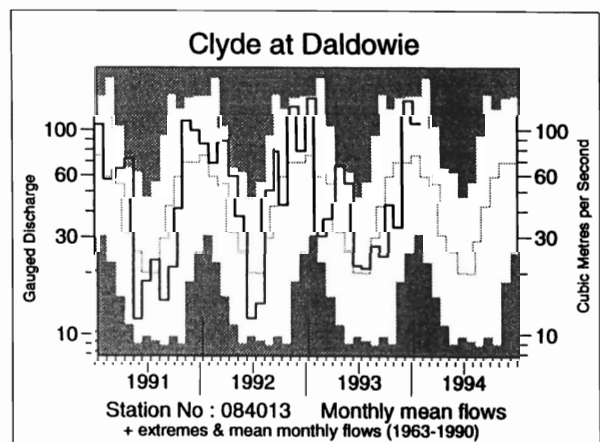
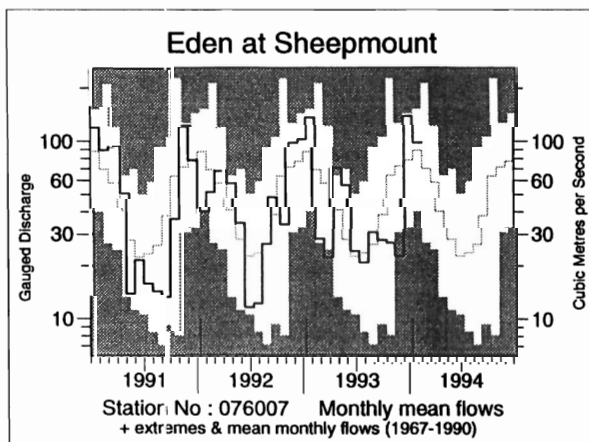
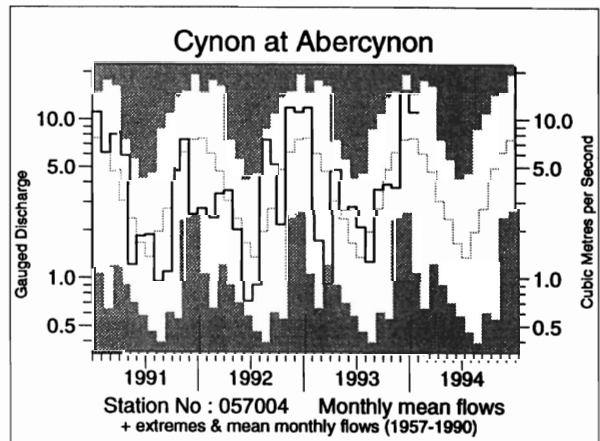
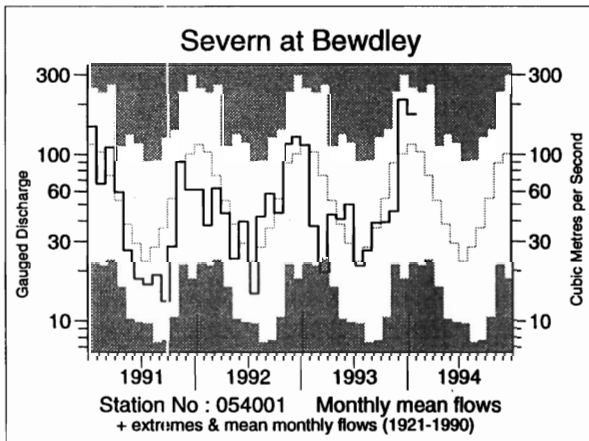
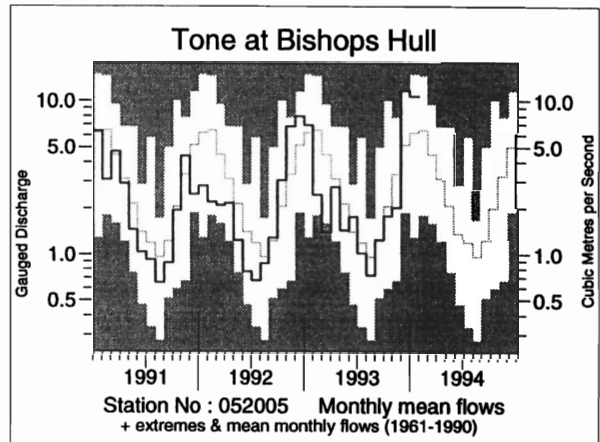
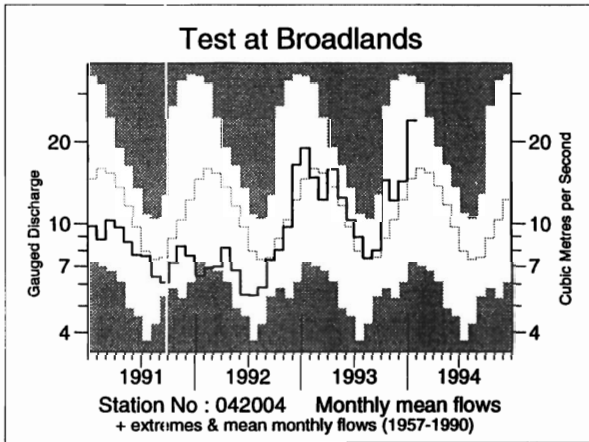
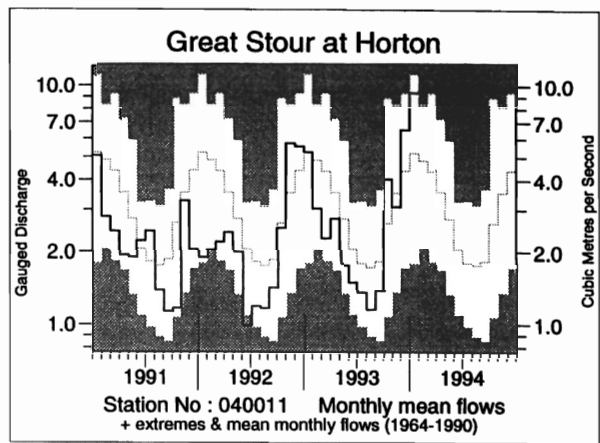
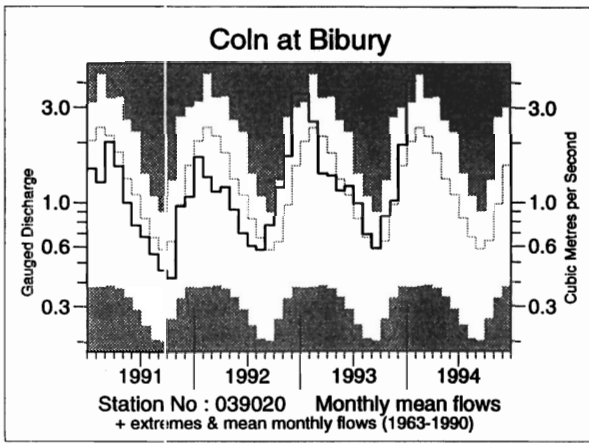
LTA refers to the period 1961-90.

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**





**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	Sep	Oct	Nov	Dec	Jan		9/93		1/93		5/90		11/88	
	1993				1994		to	to	to	to	to	to	to	to
	mm	mm	mm	mm	mm	rank	mm	rank	mm	rank	mm	rank	mm	rank
	%LT	%LT	%LT	%LT	%LT	/yrs	%LT	/yrs	%LT	/yrs	%LT	/yrs	%LT	/yrs
Dee at Park	50 123	172 218	33 43	80 93	122 138	19 /22	457 119	17 /21	1016 116	19 /21	2800 95	7 /18	3834 90	2 /17
Tay at Ballathie	38 54	104 93	40 33	144 102	169 117	28 /42	495 83	10 /41	1402 110	29 /41	4442 106	27 /38	6848 113	32 /37
Tweed at Boleside	31 62	100 140	30 34	168 175	149 144	25 /33	479 116	25 /32	996 115	27 /32	3175 113	28 /29	4467 111	27 /28
Whiteadder Water at Hutton Castle	13 82	73 267	21 56	98 217	113 194	24 /25	318 168	25 /25	559 124	18 /24	1493 103	10 /21	1838 85	6 /20
South Tyne at Haydon Bridge	73 146	51 75	33 35	176 178	126 131	24 /32	460 110	19 /30	954 111	23 /30	2833 99	11 /24	3944 95	5 /22
Wharfe at Flint Mill Weir	79 179	46 73	25 31	155 159	155 159	38 /39	460 119	31 /38	856 105	23 /38	2461 92	12 /35	3495 90	5 /34
Derwent at Buttercrambe	38 288	32 157	36 131	54 135	82 183	32 /33	242 164	31 /32	415 112	21 /32	1005 83	6 /29	1309 74	2 /28
Trent at Colwick	21 128	40 170	33 108	86 193	78 158	36 /36	258 156	33 /35	438 109	21 /35	1142 88	8 /32	1637 86	5 /31
Lud at Louth	11 104	32 277	32 229	48 248	74 262	26 /26	197 223	25 /26	334 119	17 /25	610 68	4 /22	845 63	1 /21
Witham at Claypole Mill	15 243	38 430	29 240	52 277	56 223	35 /35	190 255	34 /35	325 154	32 /34	656 100	16 /32	884 90	11 /30
Little Ouse at Abbey Heath	6 87	21 220	28 230	41 246	42 190	25 /26	139 196	25 /26	238 125	21 /25	462 76	3 /23	674 76	1 /21
Colne at Lexden	5 119	19 225	17 132	41 246	34 152	30 /35	115 173	31 /34	189 119	28 /34	403 83	8 /31	600 83	3 /30
Lee at Feildes Weir (natr.)	9 123	34 344	17 122	32 175	41 190	100 /109	132 187	101 /108	253 137	94 /107	491 83	26 /102	723 84	19 /99
Thames at Kingston (natr.)	13 140	32 242	19 90	44 147	72 195	109 /112	180 162	99 /111	358 127	91 /111	802 89	33 /108	1165 88	30 /106
Coln at Bibury	14 101	22 132	25 102	49 123	103 204	31 /31	213 144	27 /30	529 119	23 /30	1312 92	10 /27	1883 90	8 /26
Great Stour at Horton	10 76	32 157	23 86	51 151	71 180	29 /30	187 137	25 /29	332 100	15 /27	857 80	4 /22	1167 75	1 /18
Test at Broadlands	20 106	37 165	30 119	37 117	62 167	35 /37	186 136	34 /36	440 117	29 /35	1054 86	3 /29	1502 85	3 /27
Piddle at Baggs Mill	19 124	48 237	41 142	72 172	115 226	30 /30	294 183	29 /29	593 130	27 /28	1366 93	9 /23	1930 89	5 /20
Exe at Thorverton	40 105	87 118	47 48	270 205	209 163	37 /38	654 137	36 /38	1022 107	23 /37	2841 93	12 /35	4026 90	5 /33
Taw at Umberleigh	39 162	103 167	44 47	230 198	193 168	35 /36	608 146	33 /35	968 120	31 /35	2472 97	12 /32	3539 94	8 /31
Tone at Bishops Hull	16 103	23 86	25 58	150 225	138 176	31 /33	352 150	31 /33	586 107	21 /32	1479 86	4 /30	2225 86	1 /28
Severn at Bewdley	23 107	24 73	27 51	132 211	108 152	65 /73	314 129	61 /73	528 101	37 /72	1479 89	15 /70	2178 89	7 /68
Teme at Knightsford Bridge	9 106	29 152	33 101	103 191	91 141	19 /24	266 145	23 /24	434 102	13 /23	1103 84	3 /21	1663 84	1 /19
Cynon at Abercynon	88 131	98 82	91 58	375 199	281 148	28 /36	934 125	27 /34	1628 112	26 /34	4703 101	16 /28	6903 102	14 /27
Dee at New Inn	83 63	55 28	69 28	514 210	301 128	18 /25	1020 97	12 /25	1903 93	7 /24	6063 89	2 /21	8830 90	1 /20
Eden at Sheepmount	31 74	31 44	25 30	160 175	114 113	14 /24	362 94	10 /22	807 102	10 /22	2570 100	7 /16	3750 101	6 /13
Clyde at Daldowie	32 55	60 74	45 46	192 192	152 141	26 /31	481 107	18 /30	1026 115	26 /30	3420 117	25 /27	4885 117	25 /26
Carron at New Kelso	36 13	128 49	64 21	317 92	364 119	10 /16	909 62	1 /15	2511 87	4 /15	9738 101	7 /12	14909 108	9 /10
Ewe at Poolewe	41 21	87 39	71 26	264 95	258 98	11 /24	721 59	2 /23	2263 94	9 /23	8585 106	15 /20	12907 112	18 /19

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 as 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● (MI)	1993				1994		1993
			Sep	Oct	Nov	Dec	Jan	Feb	Feb
North West	Northern Command Zone <sup>1</sup>	(G) 133375	58	51	42	44	80	97	98
	Vyrnwy	(R) 55146	79	73	60	64	100	100	86
Northumbria	Teesdale <sup>2</sup>	(G) 87936	66	73	71	69	100	97	98
	Kielder	(R) 199175*	87*	84*	87*	80*	99*	98*	90*
Severn-Trent	Clywedog	(R) 44922	92	87	82	83	100	100	96
	Derwent Valley <sup>3</sup>	(G) 39525	76	84	83	79	100	100	99
Yorkshire	Washburn <sup>4</sup>	(G) 22035	63	67	68	59	92	100	99
	Bradford supply <sup>5</sup>	(G) 41407	74	90	86	76	97	99	100
Anglian	Grafham	(R) 58707	95	95	96	93	89	93	96
	Rutland	(R) 130061	90	86	88	88	95	96	93
Thames	London <sup>6</sup>	(G) 206232	87	86	92	88	87	87	96
	Farmoor <sup>7</sup>	(G) 13843	98	93	98	99	98	98	92
Southern	Bowl	(R) 28170	78	74	81	82	97	100	91
	Ardingly	(R) 4685	80	77	100	100	100	100	100
Wessex	Clatworthy	(R) 5364*	72	61	76	68	100	100	100
	Bristol W <sup>8</sup>	(G) 38666*	60*	48*	59*	60*	88*	88*	97*
South West	Colliford	(R) 28540	81	84	86	88	98	100	88
	Roadford	(R) 34500	74	76	81	78	92	98	92
	Wimbleball <sup>9</sup>	(R) 21320	76	74	80	82	100	100	100
	Stithians	(R) 5205	85	93	99	100	100	100	100
Welsh	Celyn + Brenig	(G) 131155	94	92	92	84	100	100	100
	Brianne	(R) 62140	92	91	91	95	100	100	100
	Big Five <sup>10</sup>	(G) 69762	78	80	80	84	98	99	99
	Elan Valley <sup>11</sup>	(G) 99106	97	97	95	99	100	100	100
Lothian	Edinburgh/Mid Lothian	(G) 97639	83	81	82	78 <sup>+</sup>	92	97	100
	West Lothian	(G) 5613	81	87	98	100	100	99	99
	East Lothian	(G) 10206	81	85	98	87	98	97	100

● Live or usable capacity (unless indicated otherwise)

+ Megget reservoir held at 75% capacity for repairs

\* Gross storage/percentage of gross storage

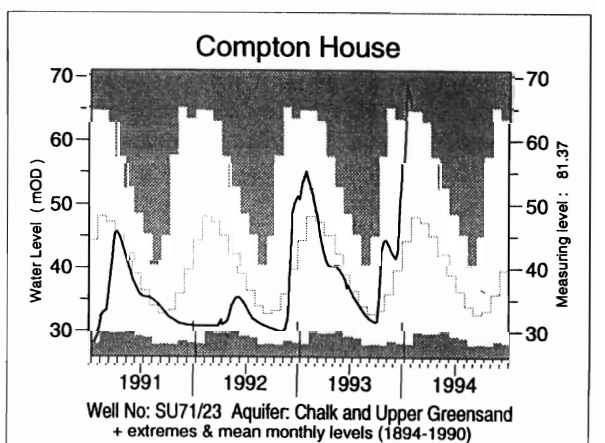
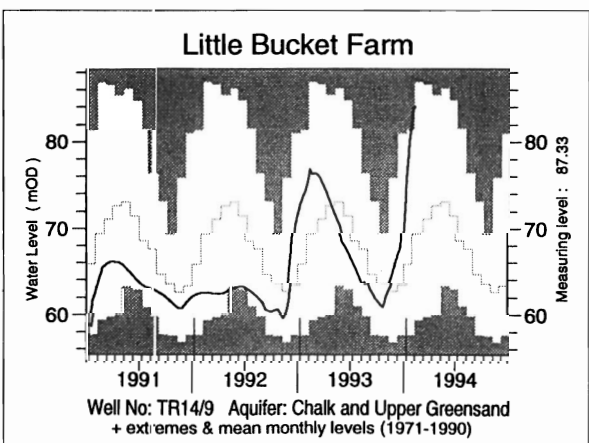
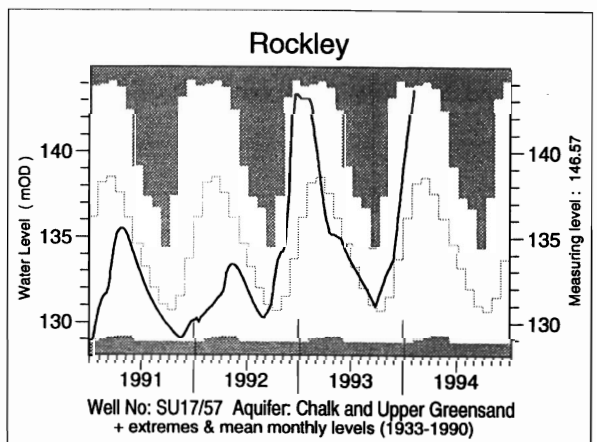
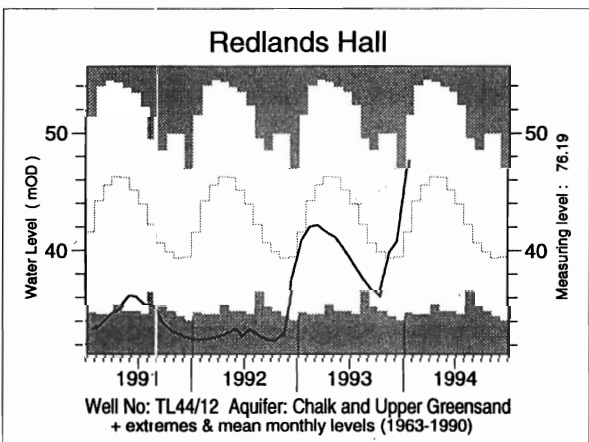
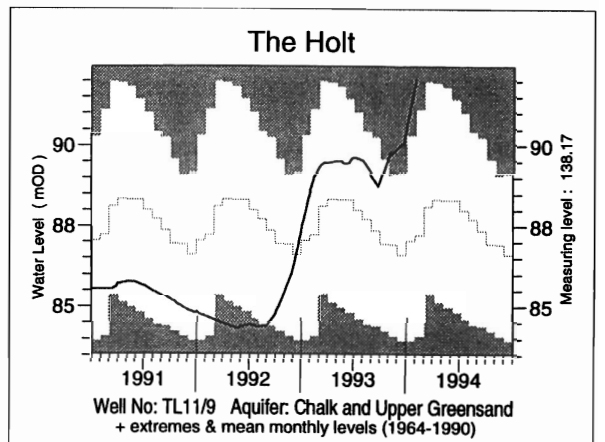
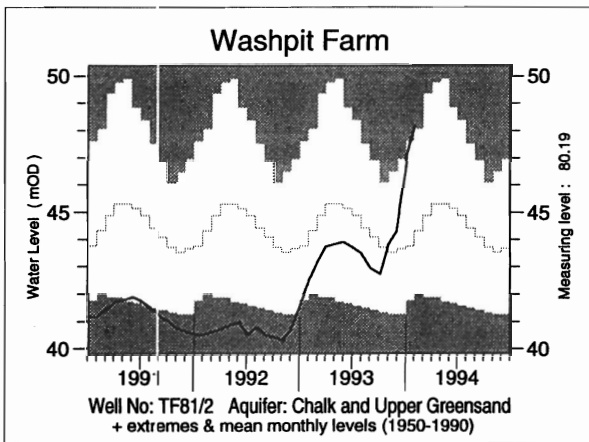
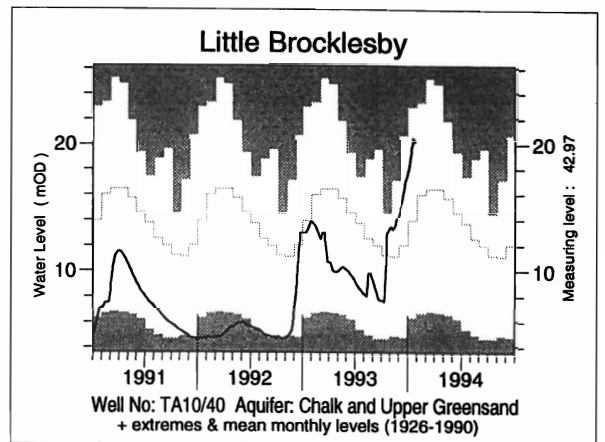
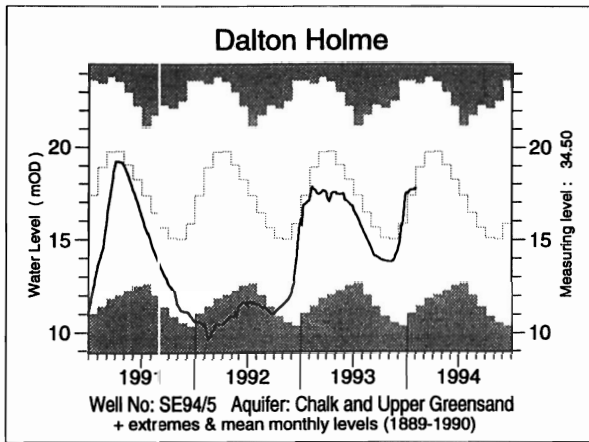
1. Includes Haweswater, Thirlmere, Stocks and Barnacre.
2. Cow Green, Selset, Grassholme, Balderhead, Blackton and Hury.
3. Howden, Derwent and Ladybower.
4. Swinsty, Fewston, Thruscross and Eccup.
5. The Nidd/Barden group (Scar House, Angram, Upper Barden, Lower Barden and Chelker) plus Grimwith.
6. 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.

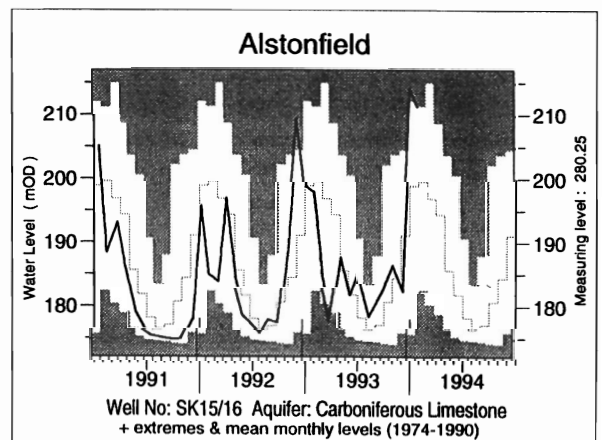
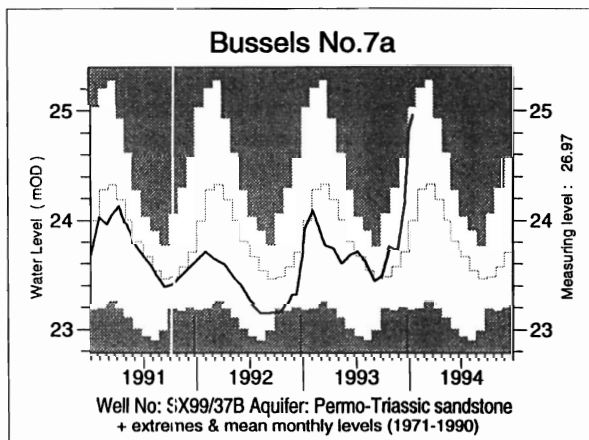
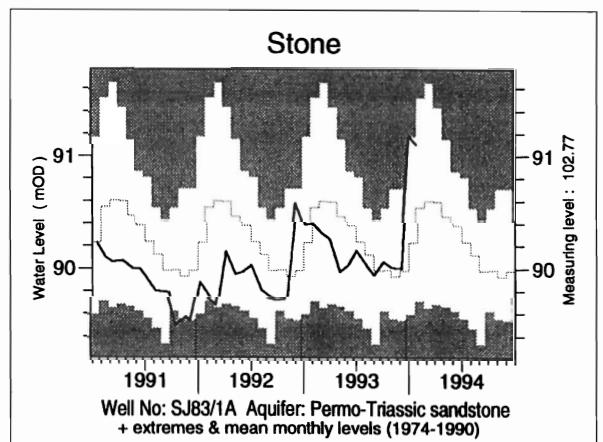
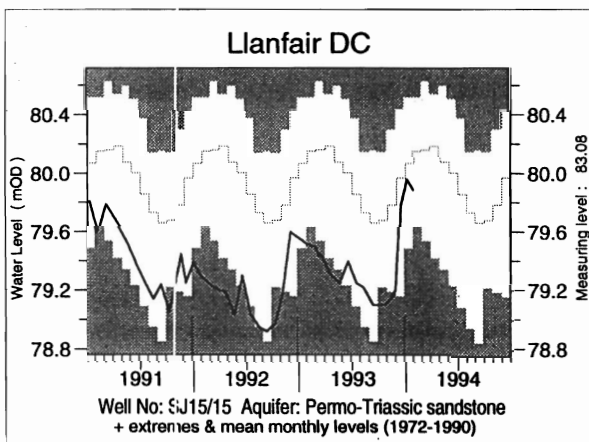
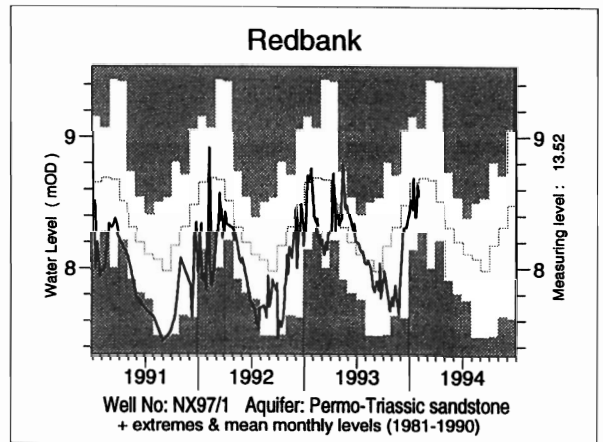
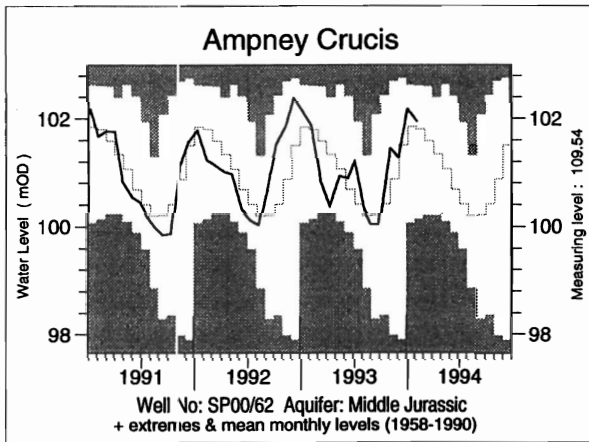
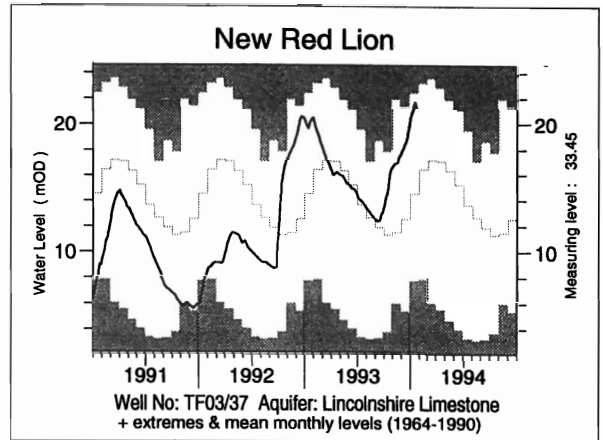
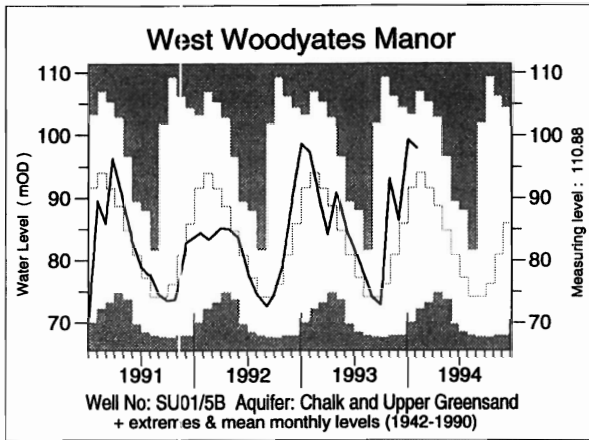
9. Shared between South West (river regulation for abstraction) and Wessex (direct supply).
10. Usk, Talybont, Llandegfedd (pumped storage), Taf Fechan, Taf Fawr.
11. Claerwen, Caban Coch, Pen y Garreg and Craig Goch.

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





**TABLE 5 A. COMPARISON OF JANUARY GROUNDWATER LEVELS: 1993 AND 1994**

Site	Aquifer	Records commence	Minimum	Average	Maximum	January 1993		January/February 1994	
			January level <1994	January level <1994	January level <1994	day	level	day	level
Dalton Holme	C & UGS	1889	10.47	17.34	23.64	29/01	17.12	30/01	17.49
Little Brocklesby	C & UGS	1926	4.53	13.11	22.91	27/01	13.82	25/01	20.17
Washpit Farm	C & UGS	1950	40.51	43.57	47.60	04/01	41.66	01/02	48.20
The Holt	C & UGS	1964	83.90	86.74	90.27	31/01	88.53	31/01	92.02
Therfield Rectory	C & UGS	1883	dry <71.6	76.65	96.05	24/01	76.14	31/01	82.18
Redlands Hall	C & UGS	1964	32.38	40.54	51.48	15/01	40.86	13/01	47.63
Rockley	C & UGS	1933	dry <128.9	136.04	143.75	31/01	143.01	31/01	143.54
Little Bucket Farm	C & UGS	1971	57.64	66.45	81.34	28/01	75.41	31/01	84.05
Compton House	C & UGS	1984	27.84	45.74	64.60	29/01	55.08	27/01	65.32
Chilgrove House	C & UGS	1836	33.46	55.74	75.90	20/01	68.30	23/01	77.18
West Dean No.3	C & UGS	1940	1.14	2.11	4.24	29/01	2.36	28.01	3.69
Lime Kiln Way	C & UGS	1969	124.16	125.01	125.89	28/01	124.25	27/01	125.40
Ashton Farm	C & UGS	1974	63.80	68.60	71.43	29/01	71.43	31/01	70.93
West Woodyates Manor	C & UGS	1942	70.08	90.57	103.40	29/01	97.35	31/01	98.04
New Red Lion	LLst	1964	6.06	14.21	22.58	26/01	20.54	26/01	21.44
Ampney Crucis	Mid Jur	1958	100.09	102.32	103.28	11/01	102.64	31/01	102.43
Dunmurry (NI)	PTS	1985	27.92	28.50	29.21	no level		25/01	27.60
Yew Tree Farm	PTS	1973	12.43	13.55	13.92	28/01	13.62	02/02	13.71
Llanfair D.C	PTS	1972	79.39	79.93	80.52	31/01	79.52	26/01	79.89
Morris Dancers	PTS	1969	31.78	32.52	33.56	13/01	31.84	11/01	32.09
Weeford Flats	PTS	1966	88.61	89.74	91.27	10/01	88.61	01/02	89.36
Stone	PTS	1974	89.60	90.28	91.18	04/01	90.39	01/02	91.11
Skirwith	PTS	1978	129.80	130.36	130.84	06/01	130.16	27/01	130.60
Redbank	PTS	1981	7.91	8.53	9.16	23/01	8.76	31/01	8.55
Bussels No.7A	PTS	1972	23.18	24.00	25.04	06/01	23.92	19/01	24.96
Rushyford NE	MgLst	1967	64.79	72.06	76.84	31/01	74.90	21/01	76.39
Peggy Ellerton	MgLst	1968	31.78	34.19	36.18	07/01	32.15	13/01	33.40
Alstonfield	CLst	1974	175.81	199.36	212.32	04/01	198.70	01/02	211.33

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**

