monthly water situation report

Thames Region, North East Area

Summary – August 2010

August was a wet month across Thames NE Area with most of the catchments receiving over double the long term average rainfall. The Lee Chalk and the Chilterns East catchments had the wettest August since records began in 1920. Effective rainfall was also high and SMDs dropped below average for the time of year. River flows responded to the rainfall and flows at some of the key sites were in the above *normal* or *notably high range* for the time of year. Groundwater levels remain in the *normal* range.

Rainfall

In contrast to the previous six months, August was a very wet month. On average, the NE Area received 213% of the long term average (LTA) rainfall for August. The volumes of rainfall received ranged from 95mm in North London to 143mm in Chilterns East Colne. There were particularly wet days on the 17th, 22nd and 25th of the month. The highest daily total was received at Lilley Manor on 25th with 48mm. Effective rainfall in the Chalk catchments was also well above the LTA with the Lee Chalk receiving 13mm and Chilterns East 16mm.

Soil Moisture Deficit, Recharge and Groundwater Levels

Following the wet month, Soil Moisture Deficits ended the month below the August LTA. This is the first time the SMD has been below the end of month average since March. Groundwater levels continued their seasonal decline and all sites remained in the *normal* range for the time of year.

River Flows

River flows at the majority of the indicator sites showed a clear response to the heavy rainfall events during August. Flows in the Brent and Crane are *notably high* for the time of year and flows in the Ingrebourne, Lee at Feildes Weir and Colne at Denham are *above normal* for the time of year. Little change was observed in the upper reaches of the Chalk streams during August. The following flood watches were issued in August:

Date	Type	Catchment
17/08/2010	Flood Watch	Mimmshall Brook
22/08/2010	Flood Watch	Brent Brooks, River Pinn & Woodridings Stream, Lower Lee Tribs, Yeading Brooks.

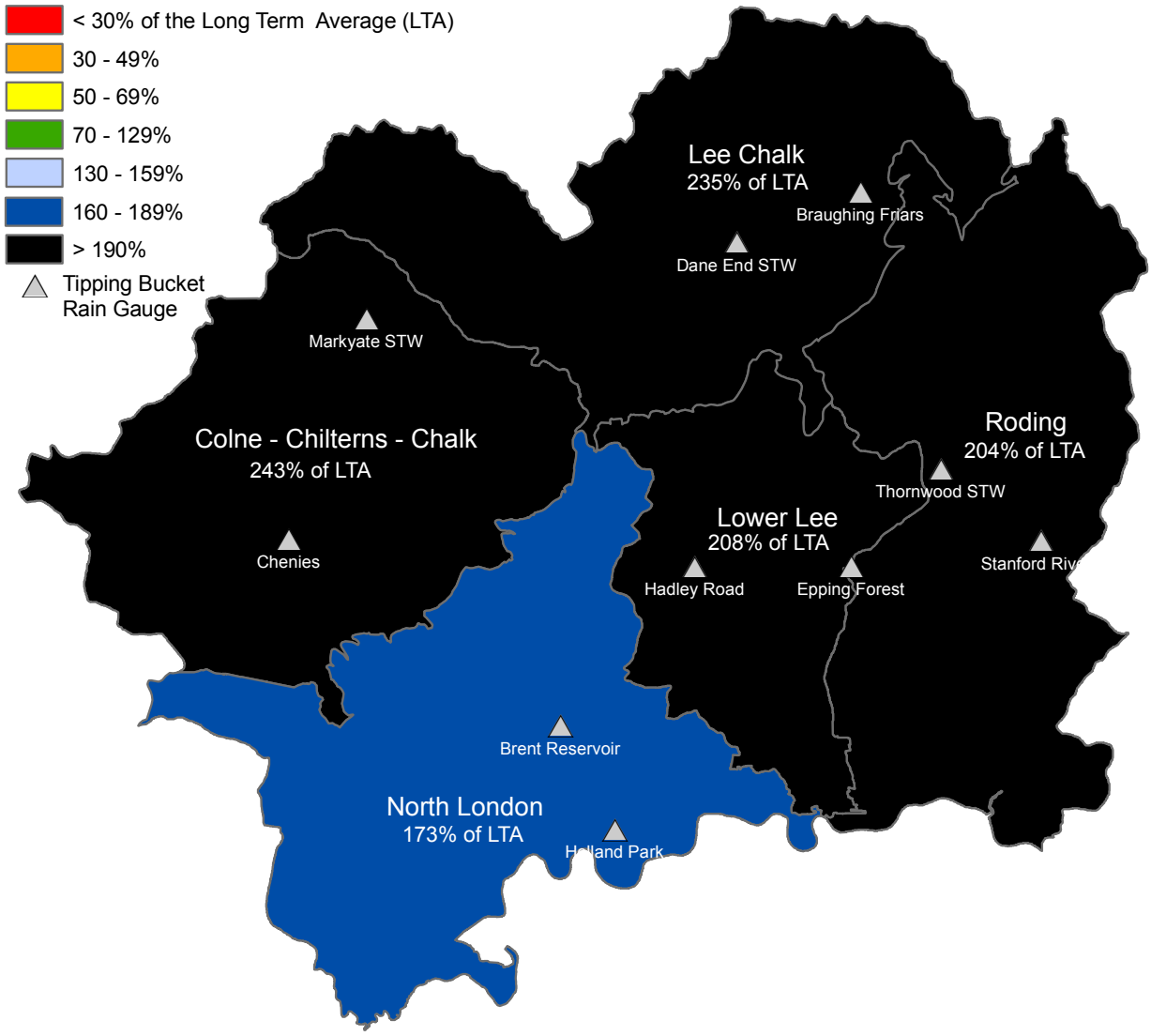
Environmental Impact

The table below shows the abstraction licence flow constraints that were in force in August, out of a summer maximum of 30:

Week Ending	8th Aug	15th Aug	22nd Aug	29th Aug	5th Sept
Number of Constraints	4	3	6	3	8

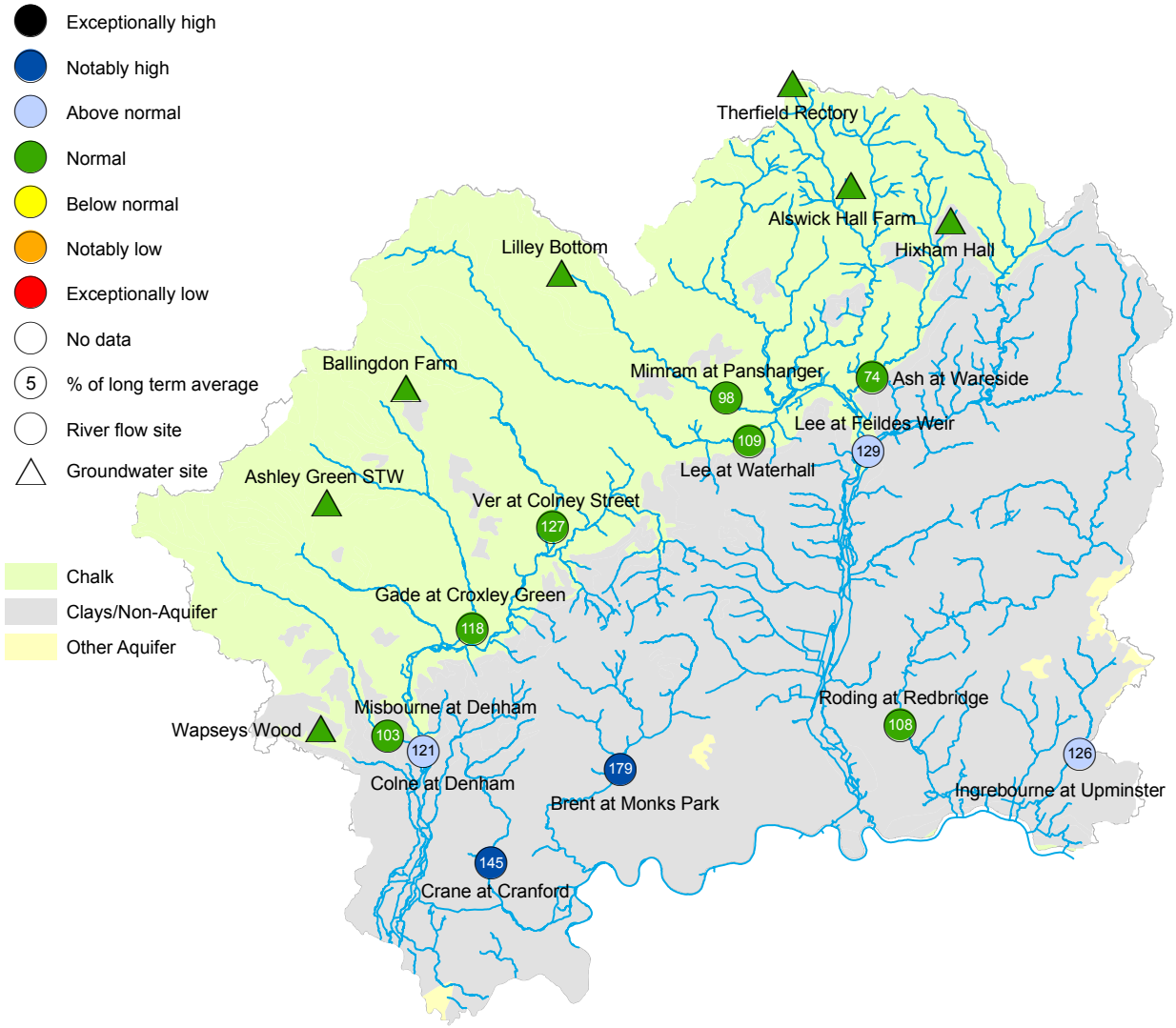
Author: Helen Stafford Contact details: 01707 632633

Rainfall Map



Data source: Rainfall calculated using Thames Soil Moisture Model.

River Flow and Groundwater Map

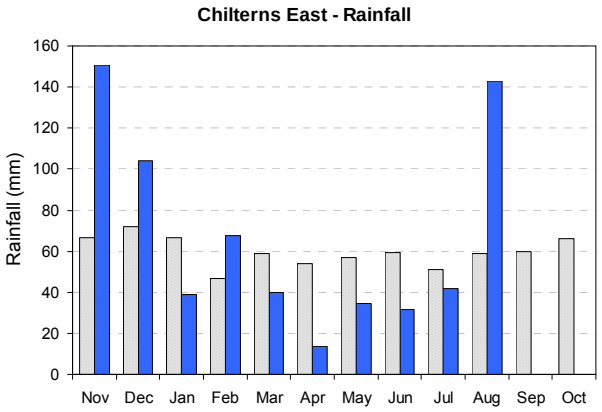


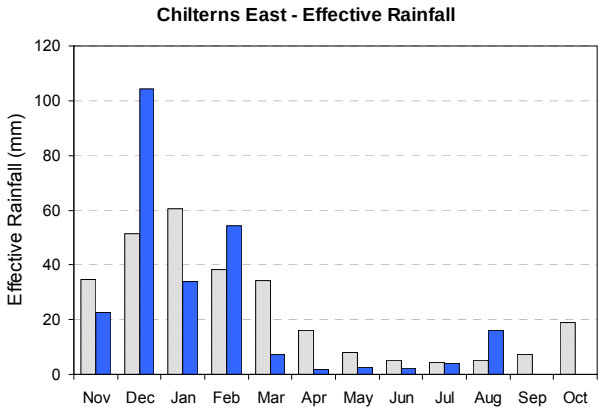
Groundwater site status based on end of month level. Surface water site status based on mean monthly flow.

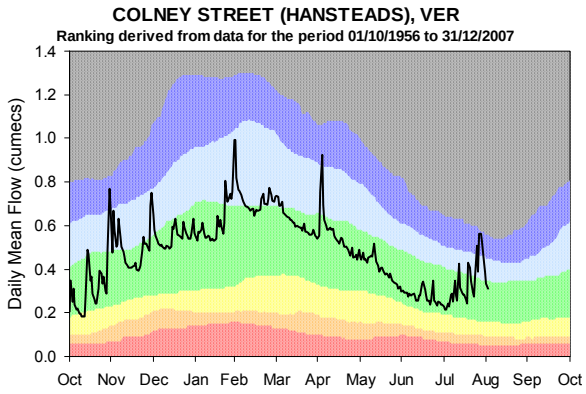
Colne

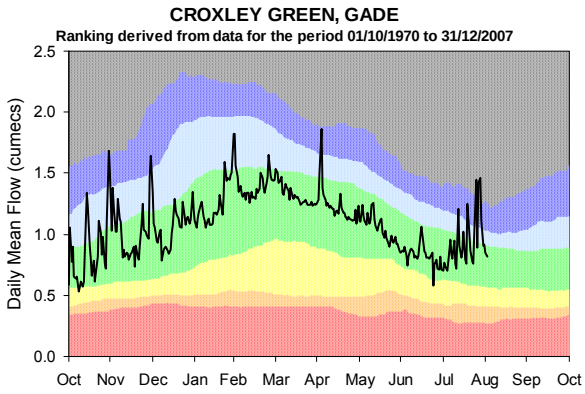
Monthly total rainfall (mm)

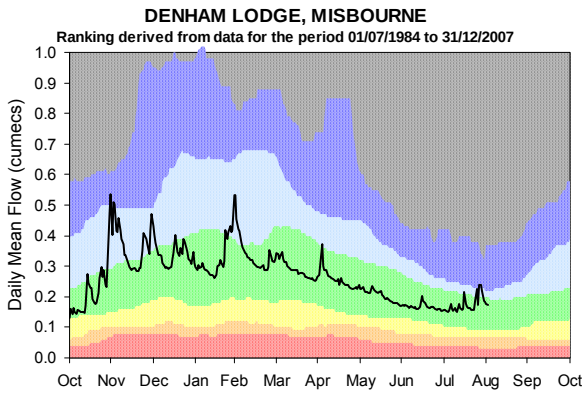
Long-term average rainfall (mm)

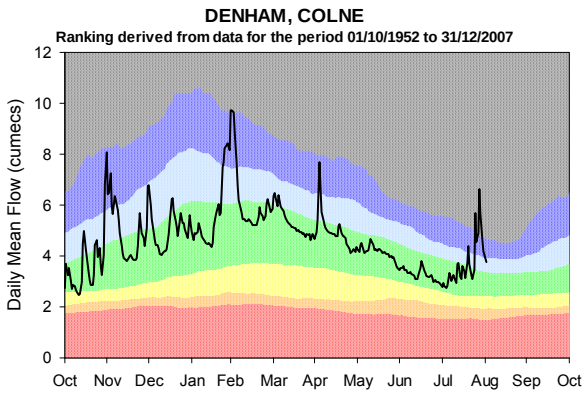






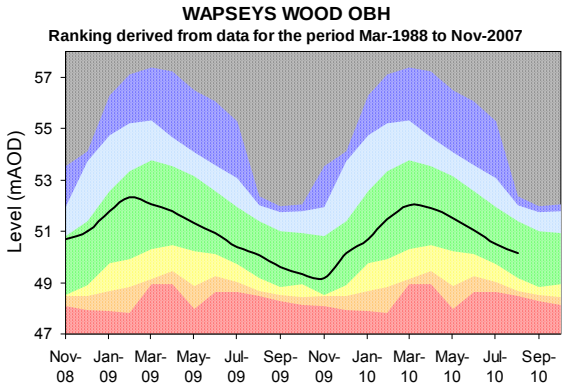


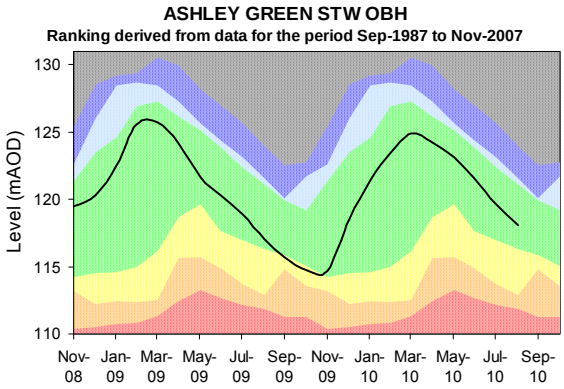


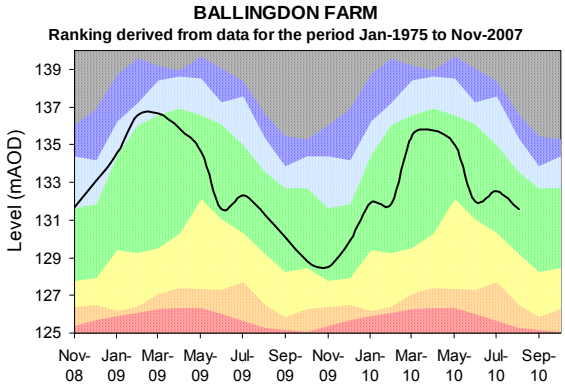


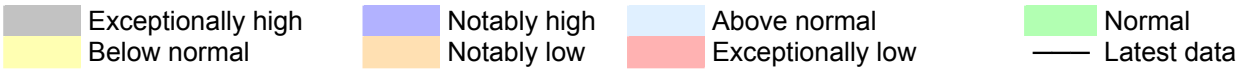
Exceptionally high
Notably high
Above normal
Normal
Below normal
Notably low
Exceptionally low
Latest data

Colne Groundwater







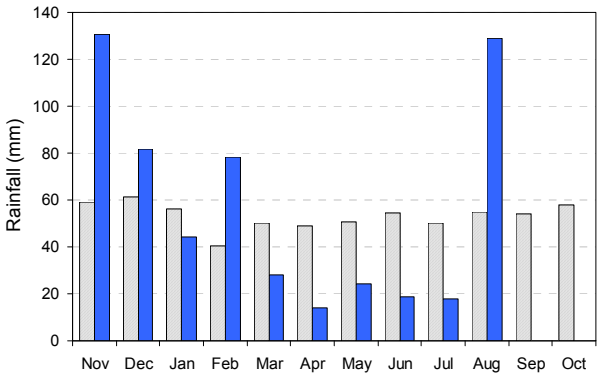


Upper Lee

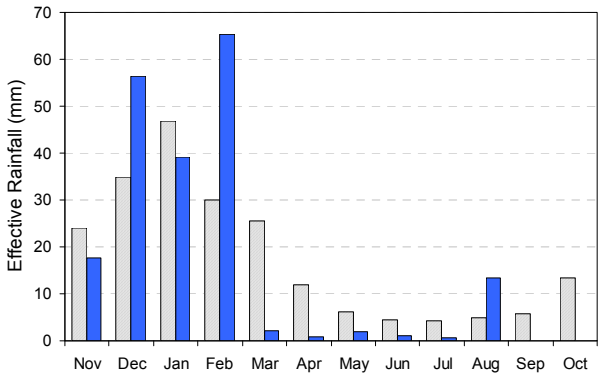
Monthly total rainfall (mm)

Long-term average rainfall (mm)

Lee Chalk - Rainfall

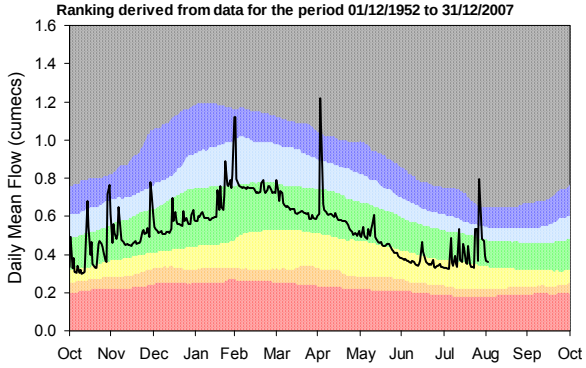


Lee Chalk - Effective Rainfall



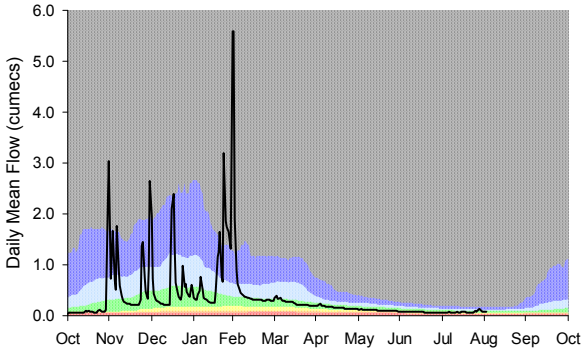
PANSHANGER, MIMRAM

Ranking derived from data for the period 01/12/1952 to 31/12/2007



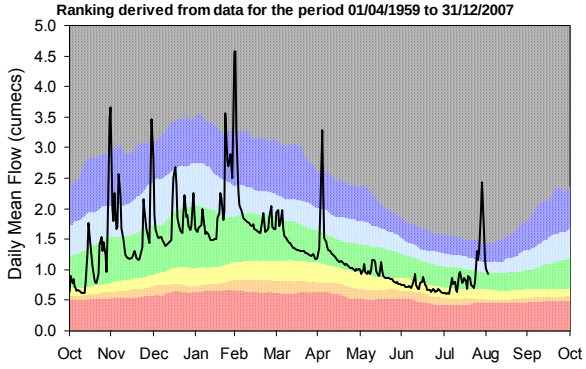
WARESIDE(MARDOCK), ASH (HERTS)

Ranking derived from data for the period 09/07/1980 to 31/12/2007



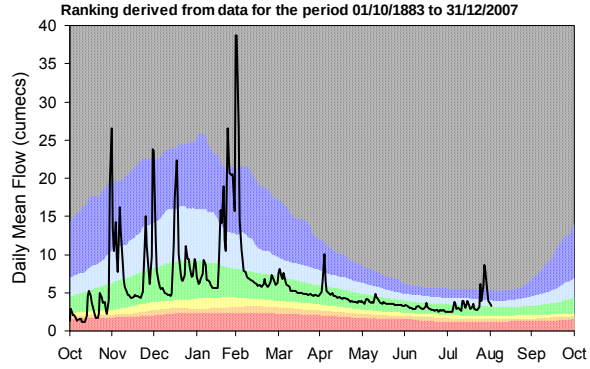
HOWE GREEN(WATER HALL), LEE

Ranking derived from data for the period 01/04/1959 to 31/12/2007



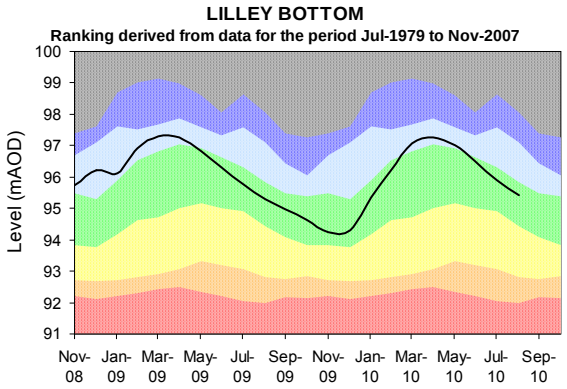
FEILDES WEIR, LEE (Naturalised)

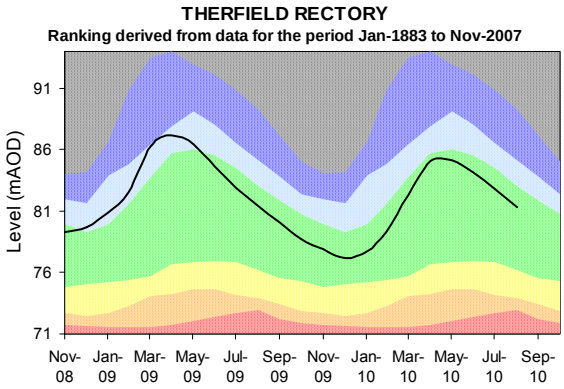
Ranking derived from data for the period 01/10/1883 to 31/12/2007

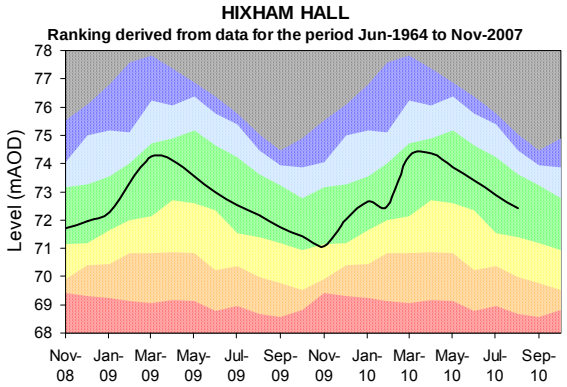


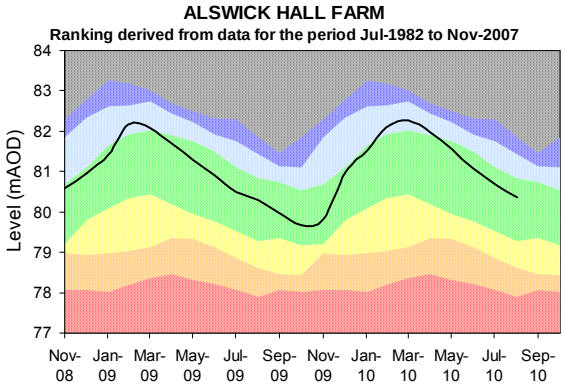
Exceptionally high
Notably high
Above normal
Normal
Below normal
Notably low
Exceptionally low
Latest data

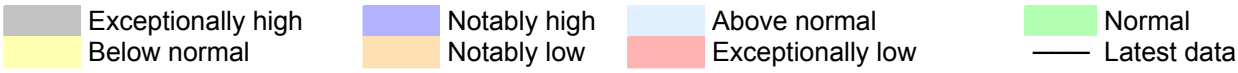
Upper Lee Groundwater









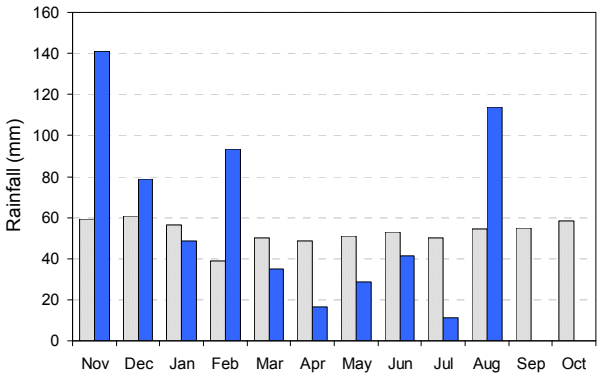


Lower Lee

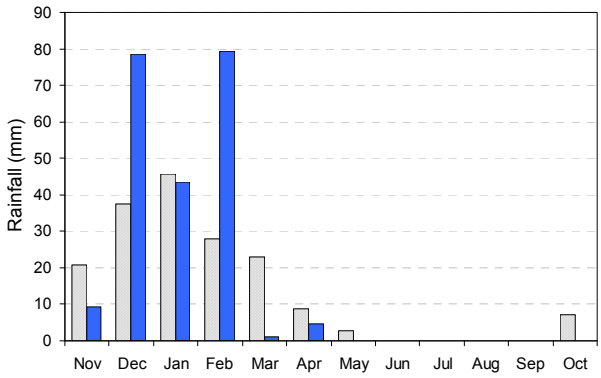
Monthly total rainfall (mm)

Long-term average rainfall (mm)

Lower Lee - Rainfall

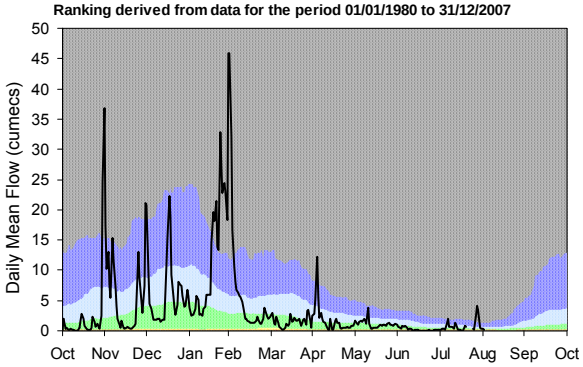


Lower Lee - Effective Rainfall



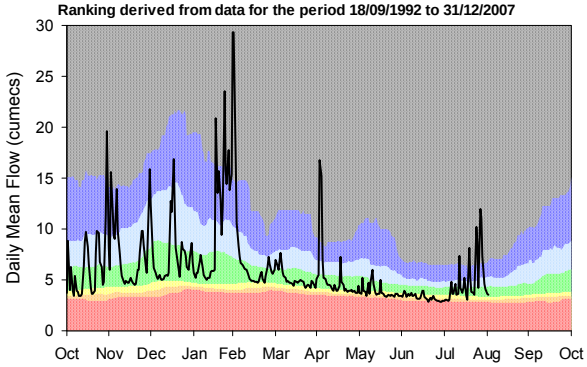
LEE FLOOD CHANNEL (LOW HALL)

Ranking derived from data for the period 01/01/1980 to 31/12/2007



LEA BRIDGE, LEE

Ranking derived from data for the period 18/09/1992 to 31/12/2007



Exceptionally high

Notably high

Above normal

Normal

Below normal

Notably low

Exceptionally low

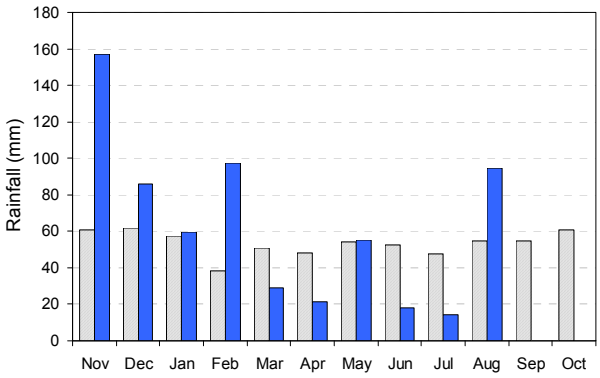
Latest data

North London

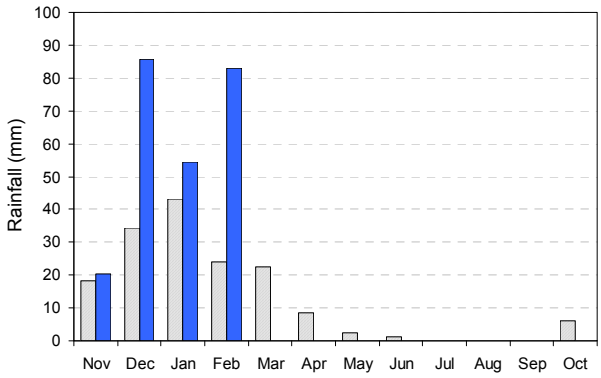
Monthly total rainfall (mm)

Long-term average rainfall (mm)

North London - Rainfall

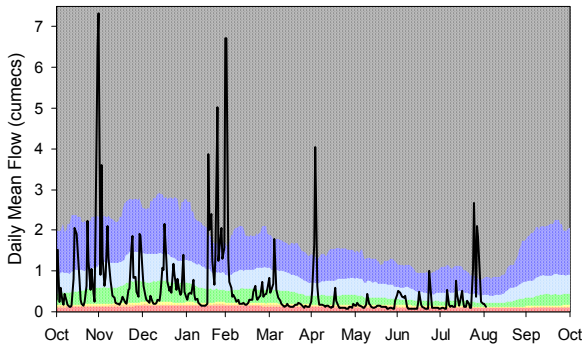


North London - Effective Rainfall



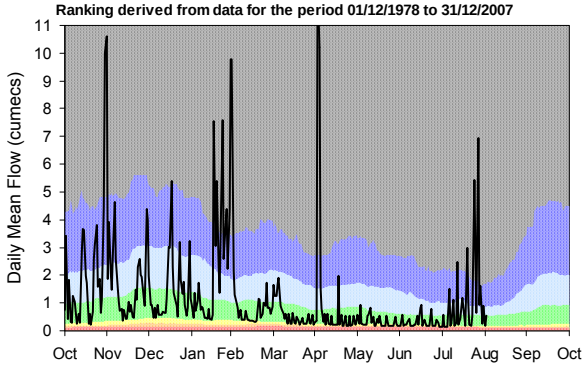
CRANFORD(CRANFORD PARK), CRANE [TH]

Ranking derived from data for the period 03/04/1978 to 31/12/2007



BRENT(MONKS PARK), BRENT

Ranking derived from data for the period 01/12/1978 to 31/12/2007



Exceptionally high

Notably high

Above normal

Normal

Below normal

Notably low

Exceptionally low

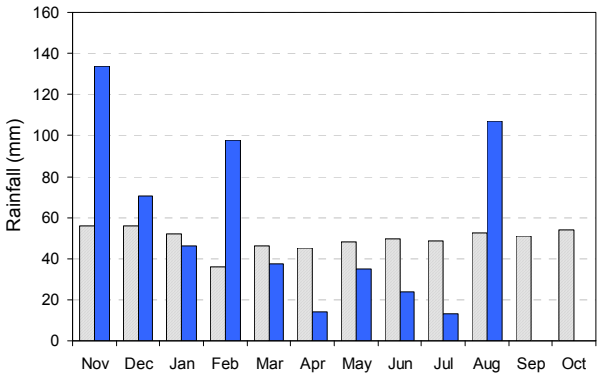
Latest data

Roding

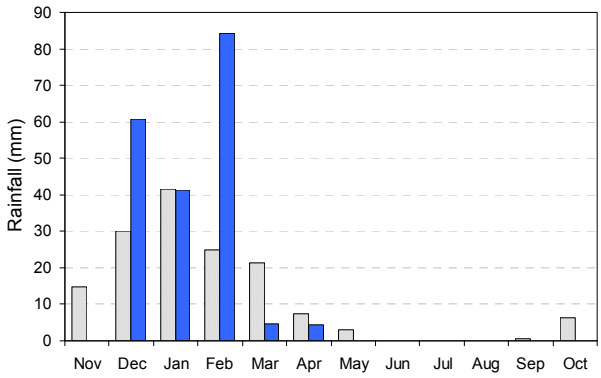
Monthly total rainfall (mm)

Long-term average rainfall (mm)

Roding - Rainfall

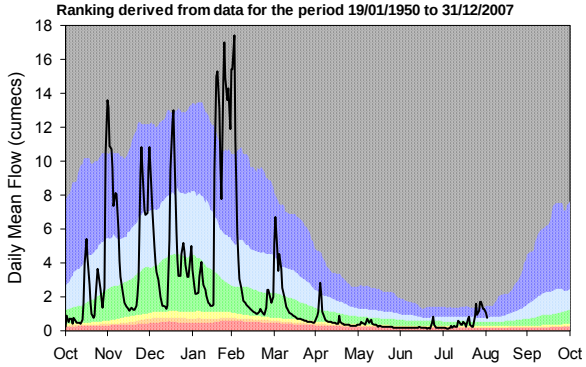


Roding - Effective Rainfall



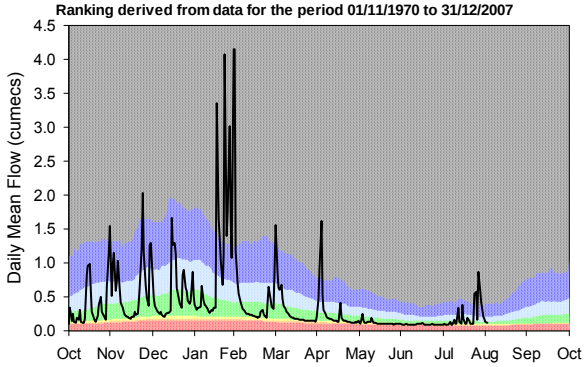
REDBRIDGE, RODING

Ranking derived from data for the period 19/01/1950 to 31/12/2007



UPMINSTER(GAYNES PARK), INGREBOURNE

Ranking derived from data for the period 01/11/1970 to 31/12/2007



Exceptionally high

Notably high

Above normal

Normal

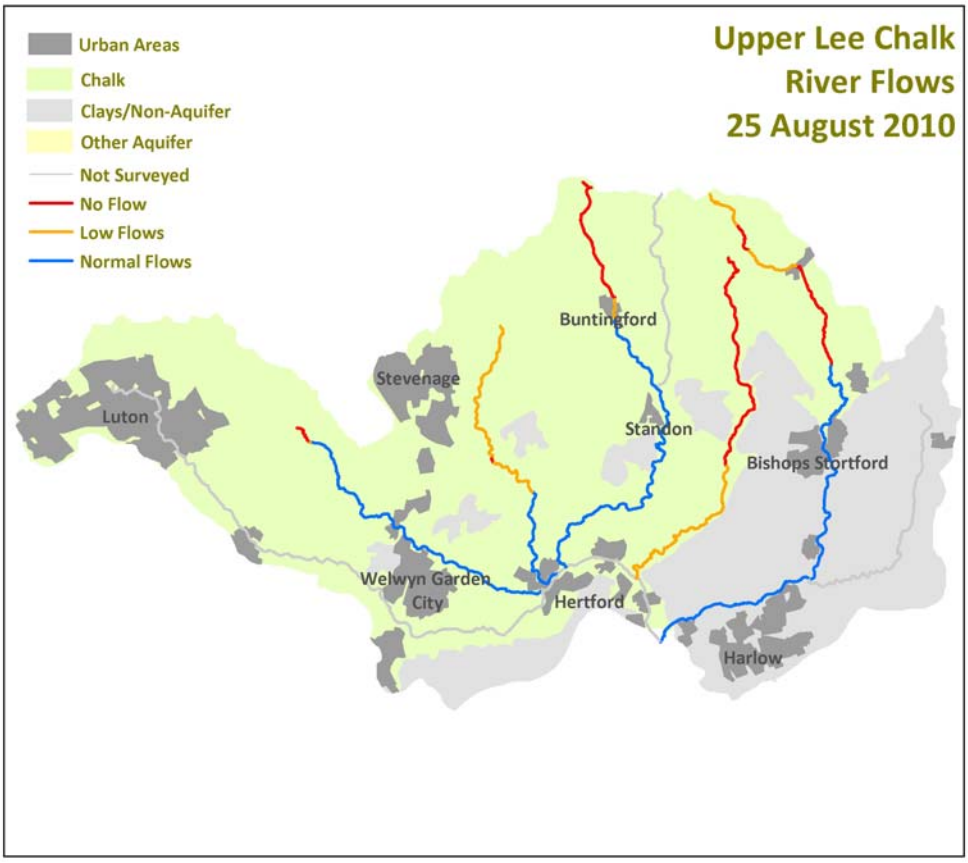
Below normal

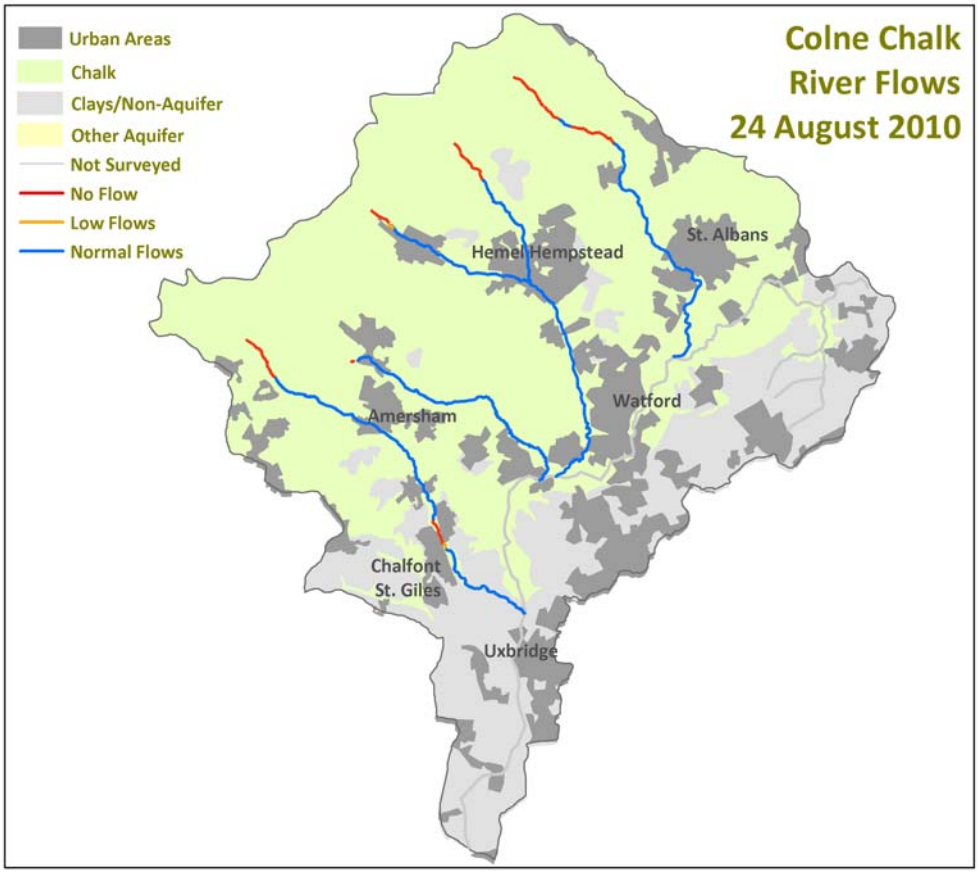
Notably low

Exceptionally low

Latest data

Flows in the chalk fed rivers - August 2010





Summary of rainfall, effective rainfall and soil moisture deficit

Rainfall and Effective Rainfall – August 2010

	Rainfall (mm)			Effective Rainfall (mm)		
Area	Total (mm)	LTA (mm)	% of LTA	Total (mm)	LTA (mm)	% of LTA
Chilterns- East - Colne	143	59	243	16	5	320
Lee - Chalk	129	55	235	13	5	260
North London	95	55	173	0	0	-
Lower Lee	114	55	208	0	0	-
Roding Catchment	107	53	204	0	0	-
North East Area Average	117	55	213	6	2	300

Soil Moisture Deficit (SMD) - August 2010

Area	End of Month SMD (mm)	End of Month SMD LTA (mm)
Chilterns- East - Colne	68	104
Lee - Chalk	95	107
North London	111	113
Lower Lee	93	111
Roding Catchment	98	108
North East Area Average	93	109

Rainfall and Effective Rainfall - Summer total for period 1 April 2010 to 31 August 2010

	Rainfall (mm)			Effective Rainfall (mm)		
Area	Total (mm)	LTA (mm)	% of LTA	Total (mm)	LTA (mm)	% of LTA
Chilterns- East - Colne	265	280	95	27	39	69
Lee - Chalk	204	260	78	18	32	56
North London	204	257	79	0	12	0
Lower Lee	211	257	82	5	11	45
Roding Catchment	194	244	80	4	10	40
North East Area Average	216	260	83	11	21	52

Glossary

Term	Definition
Aquifer	A geological formation able to store and transmit water.
Areal average rainfall	The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).
Effective rainfall	The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).
Groundwater	The water found in an aquifer
Recharge	The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).
Reservoir live capacity	The reservoir capacity normally usable for storage to meet established reservoir operating requirements. It is the total capacity less that not available because of operating agreements or physical restrictions. Only under abnormal conditions, such as a severe water shortage might this additional water be extracted.
Soil moisture deficit (SMD)	The difference between the amount of water actually in the soil and the amount of water that the soil can hold. Expressed in depth of water (mm).

Categories

Exceptionally high	Value likely to fall within this band 5% of the time
Notably high	Value likely to fall within this band 8% of the time
Above normal	Value likely to fall within this band 15% of the time
Normal	Value likely to fall within this band 44% of the time
Below normal	Value likely to fall within this band 15% of the time
Notably low	Value likely to fall within this band 8% of the time
Exceptionally low	Value likely to fall within this band 5% of the time

Units

cumecs	Cubic metres per second ($m^3 s^{-1}$)
mAOD	Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).