

# monthly water situation report

## South East Region, North East Thames Area

### Summary – December 2012

Heavy rainfall falling on saturated ground caused high river flows, fluvial Flood Alerts and a Flood Warning to be issued during December. Groundwater levels continued to rise steeply, with the majority of our groundwater indicator sites at *above normal* or higher December levels.

#### Rainfall

December was another wet month, with over 160 % long term average (LTA) rainfall falling in the south (North London, Lower Lee and Roding) of North East Thames Area (the "Area"), and over 150 % LTA rainfall recorded in the north (Colne-Chilterns-Chalk and Lee Chalk) of the Area. Over two thirds of the rain fell after 18 December. Widespread rain on 19 December saw 13 raingauges recording over 20 mm of rainfall. The largest daily rainfall total of 25.4 mm was seen on 19 December at Hornsey pumping station, in the Lower Lee.

The Area received 151 % of its LTA rainfall for the winter so far (October – December). It was the second wettest nine months (April to December (the dry spell ended in April)) on record, as only 2000 was wetter.

#### Soil Moisture Deficit/Recharge

Soil Moisture Deficits (SMD) remained at zero across the entire Area, at a time of year when SMD would be continuing to fall from November. Heavy rainfall on saturated ground led to further significant effective rainfall during December, and the Area received 258 % of its monthly LTA. This rainfall supported increased river flows and groundwater recharge, but also caused surface water issues and fluvial flooding in many places.

#### River Flows

River flows across the Area increased from the wet end of November and all our indicator sites had flows *above normal* or higher. The River Mimram, River Colne, River Brent and River Lee recorded *notably high* monthly mean flows, while the River Ash, River Roding, River Ingrebourne and River Crane had *exceptionally high* monthly mean flows. Three indicator sites recorded their second highest ever monthly mean flows (River Roding at Redbridge, higher 1965; River Ingrebourne at Upminster and River Crane at Cranford, higher 2002) while the River Ash at Wareside recorded its highest December monthly mean flow (331 % of the December LTA).

In response to the rain on 19 December, eleven Flood Alerts and one Flood Warning were issued on 20 December. Widespread Flood Alerts were issued across the Area on 20, 22 and 25 December. A Flood Warning was issued for the River Roding at Abridge on 20 and 25 December.

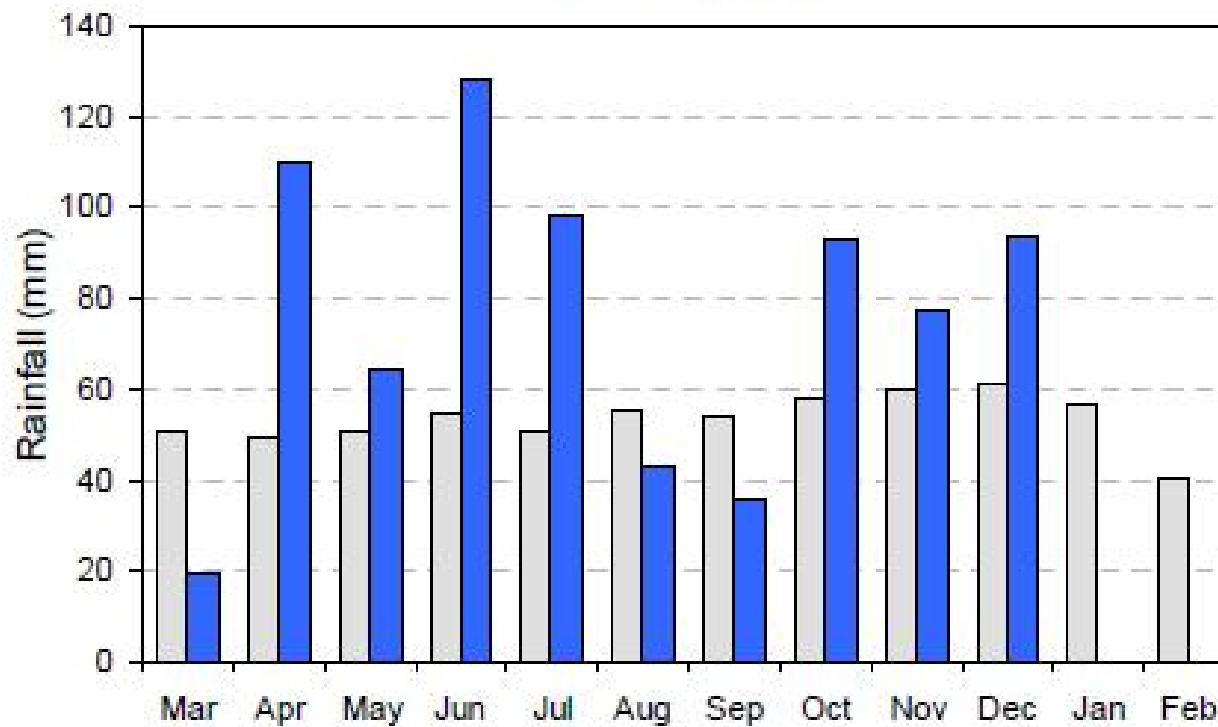
#### Groundwater Levels

Our groundwater indicator sites continued their steep rise in groundwater levels, and all were at *normal* levels or higher for December. Ashley Green in the Colne Chalk and Lilley Bottom, Crescent Cottages, Alswick Hall and Hixham Hall in the Lee Chalk were *above normal* for December. Ballingdon Farm in the Colne Chalk had *notably high* groundwater levels for December.

Long-term average rainfall (mm)

Monthly total rainfall (mm)

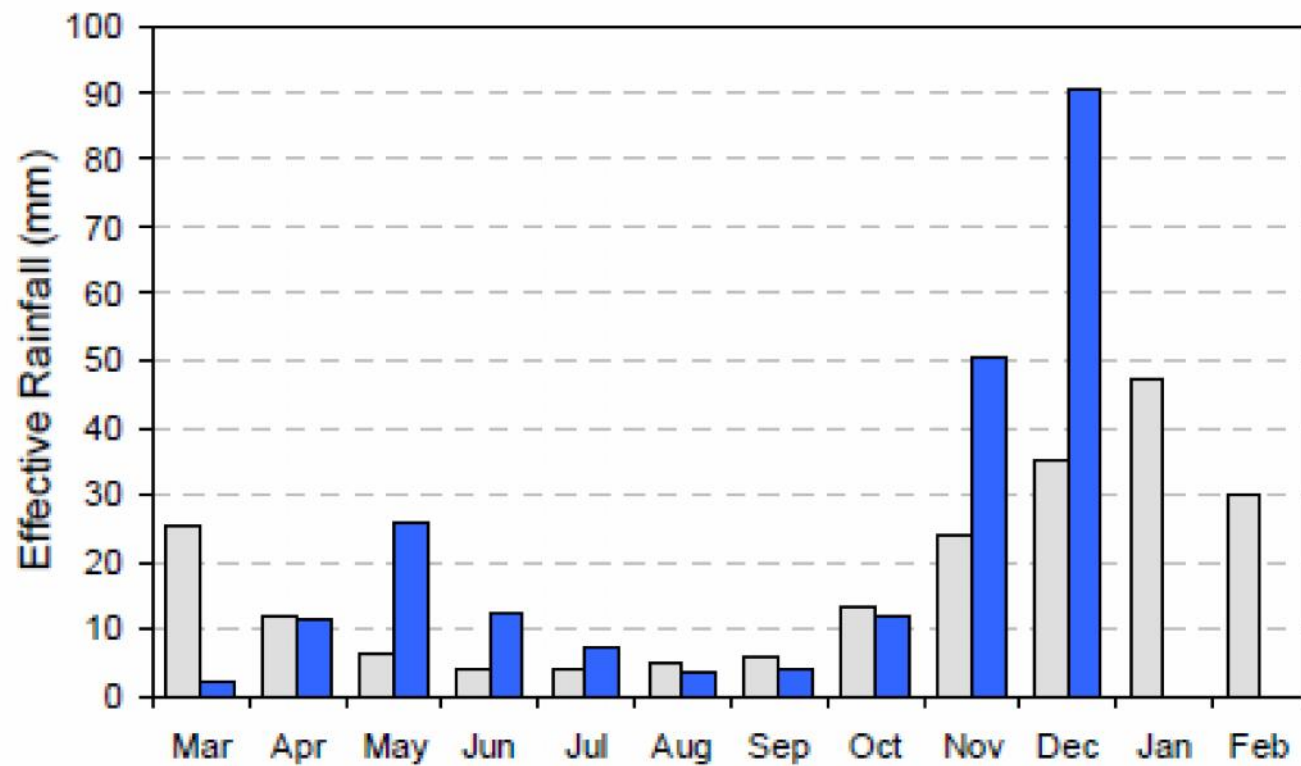
Lee Chalk - Rainfall



Monthly total rainfall (mm)

Long-term average rainfall (mm)

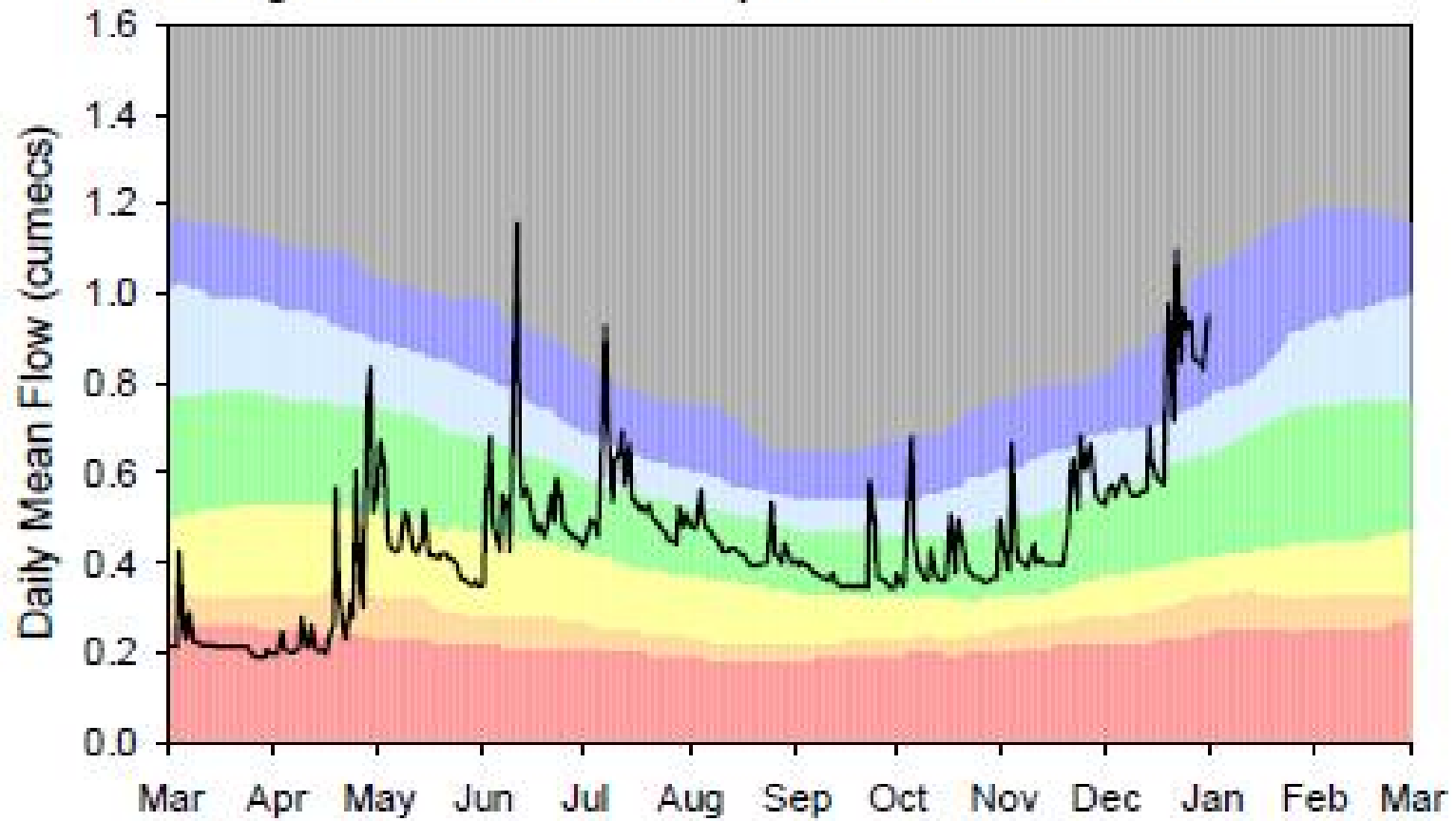
### Lee Chalk - Effective Rainfall



# Flow level

## PANSHANGER, MIMRAM

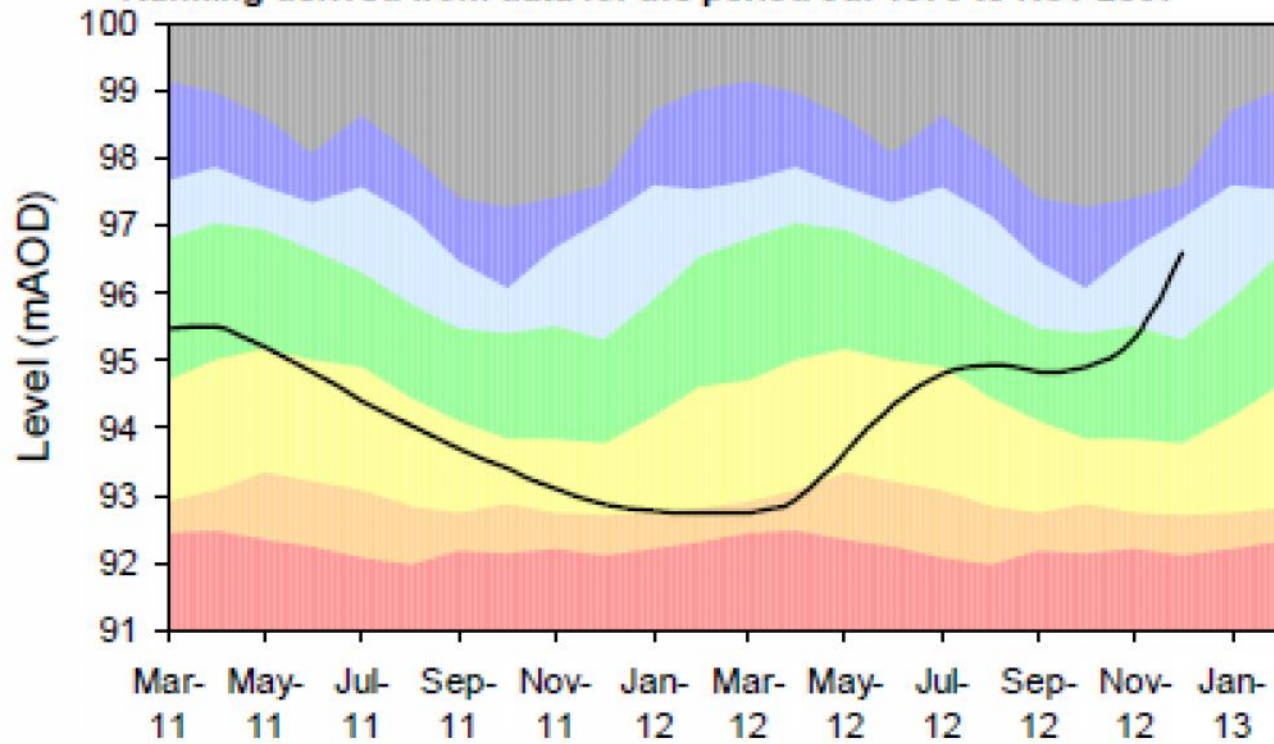
Ranking derived from data for the period 01/12/1952 to 31/12/2007



# Groundwater

## LILLEY BOTTOM

Ranking derived from data for the period Jul-1979 to Nov-2007



## Summary of rainfall, effective rainfall and soil moisture deficit

### Rainfall and Effective Rainfall – December 2012

Area	Rainfall (mm)			Effective Rainfall (mm)		
	Total (mm)	LTA (mm)	% of LTA	Total (mm)	LTA (mm)	% of LTA
Chilterns- East - Colne	114	72	158	110	51	215
Lee - Chalk	94	61	153	90	35	259
North London	101	62	162	97	34	282
Lower Lee	103	61	169	99	38	264
Roding Catchment	92	56	164	89	30	295
North East Thames Area Average	101	62	161	97	38	258

### Soil Moisture Deficit (SMD) - December 2012

Area	End of Month SMD (mm)	End of Month SMD LTA (mm)
Chilterns- East - Colne	0	3
Lee - Chalk	0	7
North London	0	8
Lower Lee	0	5
Roding Catchment	0	6
North East Thames Area Average	0	6