



Future challenges in protecting our water environment

Tricia Henton

Director of Environment and Business

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Groundwater – why do we care?

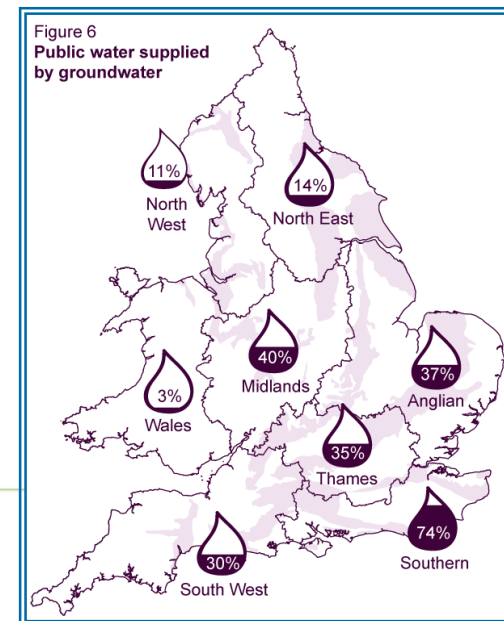
- ➔ It's a vitally important resource
 - ➔ Provides a third of our drinking water
 - ➔ Supports rivers and wetlands

The Environment Agency's role/aims

- ➔ Duty to secure and manage water resources
- ➔ To raise the profile of groundwater
- ➔ Give priority to GW protection and management

Current State - Groundwater Resources

- ⇒ Average annual recharge to main aquifers is 7 billion m³
- ⇒ Around 30% of this is abstracted – 7 million m³ per day
- ⇒ Water Companies abstract 78%, industry 12%, agriculture 4%
- ⇒ GW use varies around the country –
over 70% of PWS in SE comes from groundwater

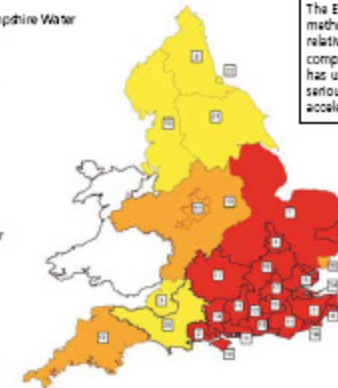


Groundwater Abstraction Pressures

➔ Water availability from CAMS/'Future Water'

Figure 4: Areas of relative water stress

1. Anglian Water
2. Bournemouth and West Hampshire Water
3. Bristol Water
4. Cambridge Water
5. Essex and Suffolk Water
6. Folkestone and Dover Water
7. Mid Kent Water
8. Northumbrian Water
9. Portsmouth Water
10. Severn Trent Water
11. South East Water
12. South Staffordshire Water
13. South West Water
14. Southern Water
15. Sutton and East Surrey Water
16. Tendring Hundred Water
17. Thames Water
18. Three Valleys Water
19. United Utilities
20. Wessex Water
21. Yorkshire Water
22. Anglian Water (formerly Hartlepool Water)

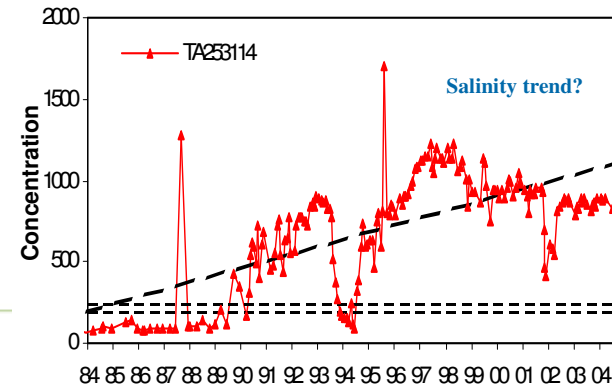
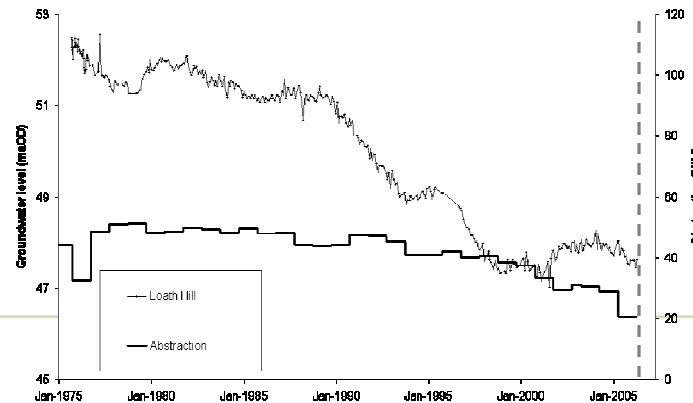


The Environment Agency has developed a methodology for identifying and classifying relative levels of water stress in water company areas in England. The Government has used this map to designate areas of serious water stress for the purpose of accelerating water metering.



Source: Environment Agency, 2007

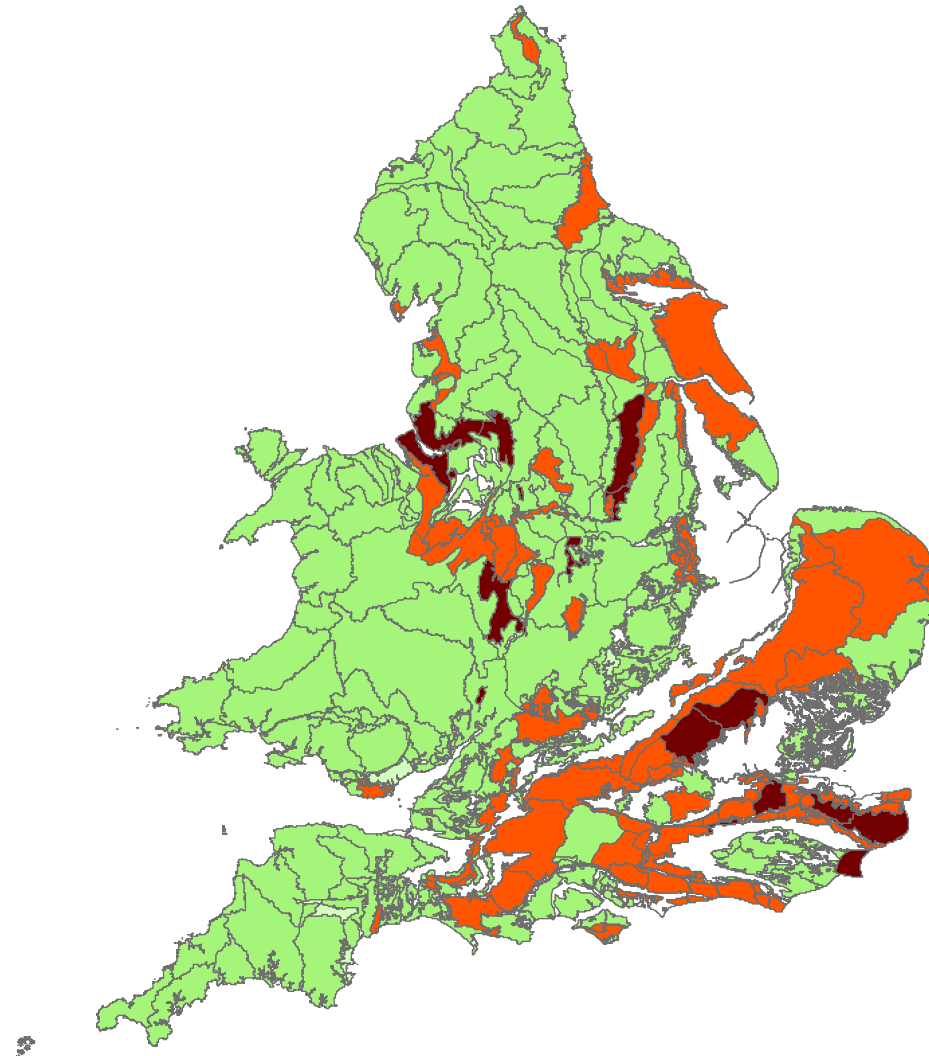
➔ Impacts – falling GW levels, saline intrusion



WFD - Groundwater Body Quantitative Status

- Unproductive strata (not assessed)
- POOR, HIGH
- POOR, LOW
- GOOD, LOW
- GOOD, HIGH

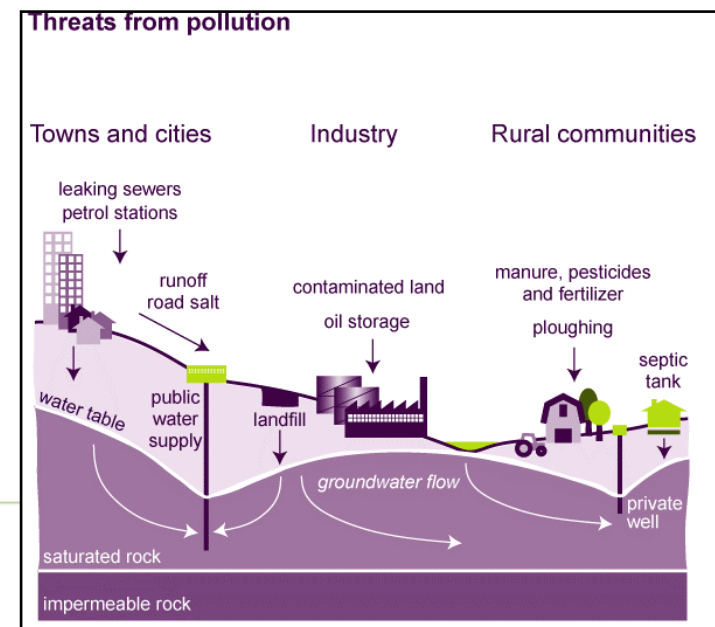
Status		Confidence	
POOR	107	17	HIGH
		90	LOW
GOOD	197	191	LOW
		6	HIGH



Current State - Groundwater Quality

- ⇒ GW used to be promoted as good quality and needing little treatment
- ⇒ But water quality has deteriorated in the last 50 years
- ⇒ UKWIR study (2004)
 - ⇒ Almost half our GW supply is now blended, treated or has been replaced
 - ⇒ 146 GW sources closed since 1975 due to quality issues
 - ⇒ 425 MI/d of licensed output has been lost
 - ⇒ Quality problems cost water industry
£754 million from 1975-2004

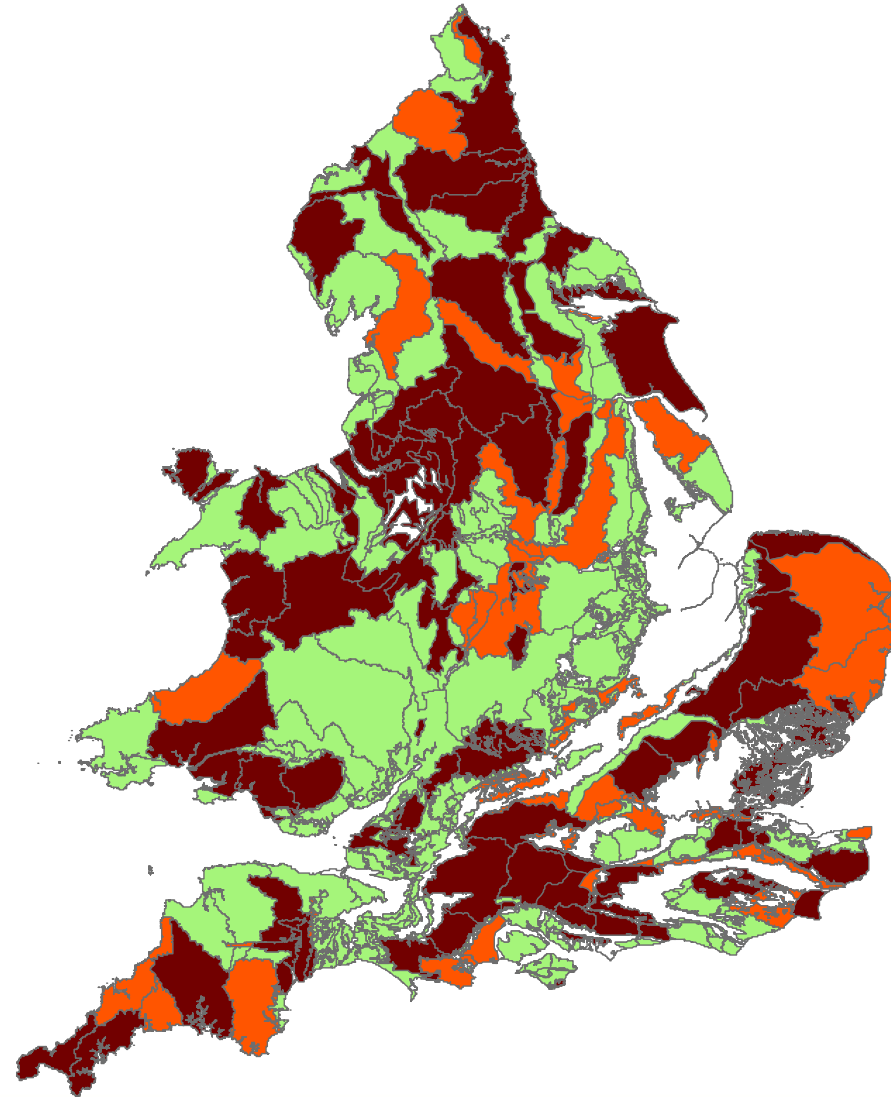
- ⇒ Pollution threats – nitrates, pesticides, solvents, hydrocarbons,



WFD - Groundwater Body Chemical Status

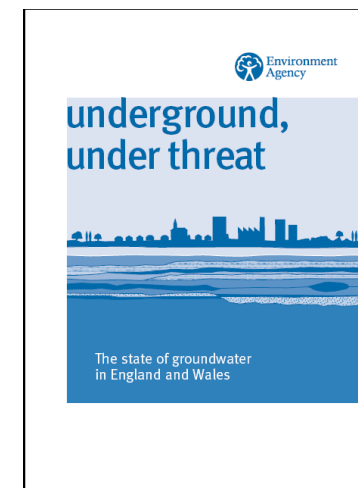
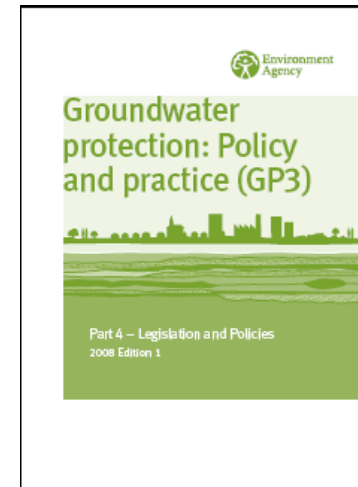
- Unproductive strata (not assessed)
- POOR, HIGH
- POOR, LOW
- GOOD, LOW
- GOOD, HIGH

Status		Confidence	
POOR	124	77	HIGH
		47	LOW
GOOD	180	180	LOW
		0	HIGH



How we look after groundwater

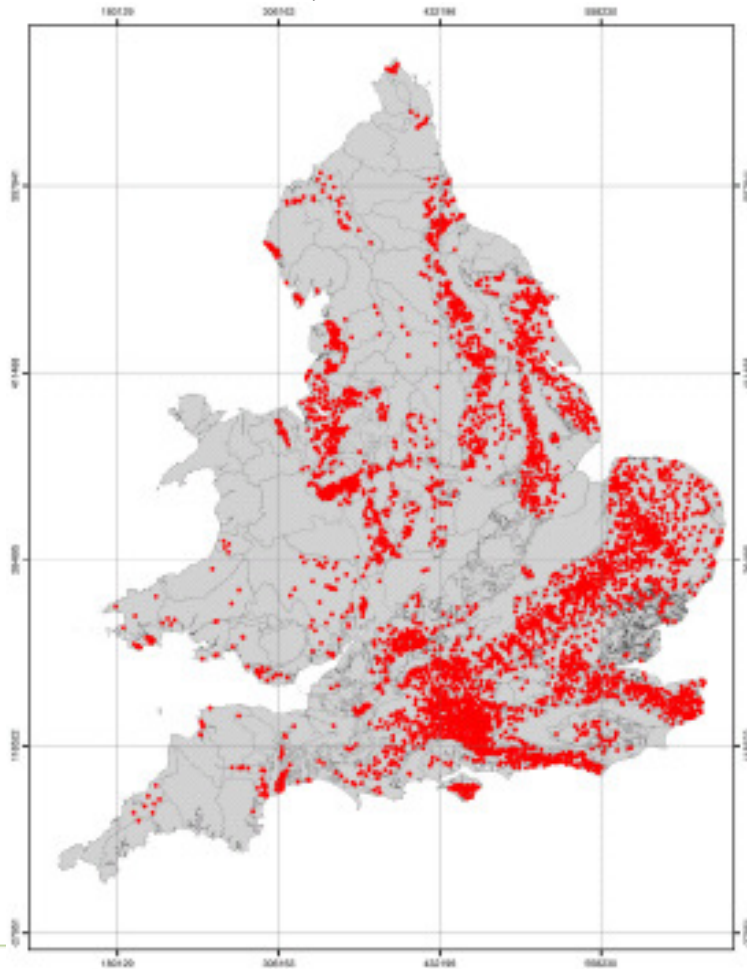
- ⇒ Our 'Groundwater protection: policy and practice' publication (GP3) sets out the legal and technical framework within which we work
- ⇒ In our regulatory role we issue permits for abstractions and discharges, adopting a risk-based approach
- ⇒ Use of Source Protection Zones and NVZs
- ⇒ We compiled a 'State of Groundwater' report in 2006
- ⇒ We routinely monitor GW levels and quality to understand the current condition of GW and to identify potential problems



Our monitoring networks

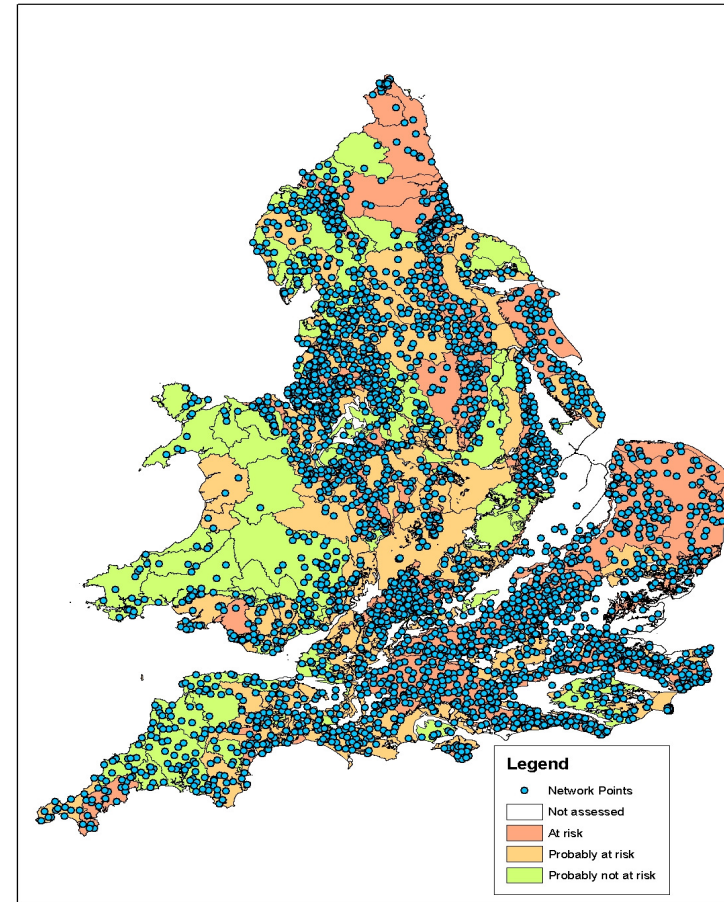
Groundwater Level Monitoring Network

6,200 sites



Groundwater Quality Monitoring Network

3,500 sites



Future Pressures

➔ Climate Change

- ➔ Impacts on recharge and GW levels
- ➔ Threats to wetlands
- ➔ Rising sea levels affecting coastal aquifers



➔ Increased GW Flooding?

➔ Land use impacts on recharge and quality

➔ Costs of remediation/treatment for PWS

- ➔ £15-36 million/yr to maintain drinking water quality

Future Pressures (cont'd)

➔ European

- ➔ WFD, Groundwater and Habitats Directives
- ➔ WFD provides a more integrated way to manage the water environment (RBMPs)
- ➔ Are the target dates realistic? – there are no quick fixes for groundwater
- ➔ Influence of CAP on agricultural practices

➔ Domestic

- ➔ Economic climate
- ➔ Intensive and new land uses
- ➔ New pollutants e.g. perfluorinated compounds
- ➔ Ground Source Heat Pumps

water for life and livelihoods

A consultation on the
Draft River Basin Management Plan
Humber River Basin District

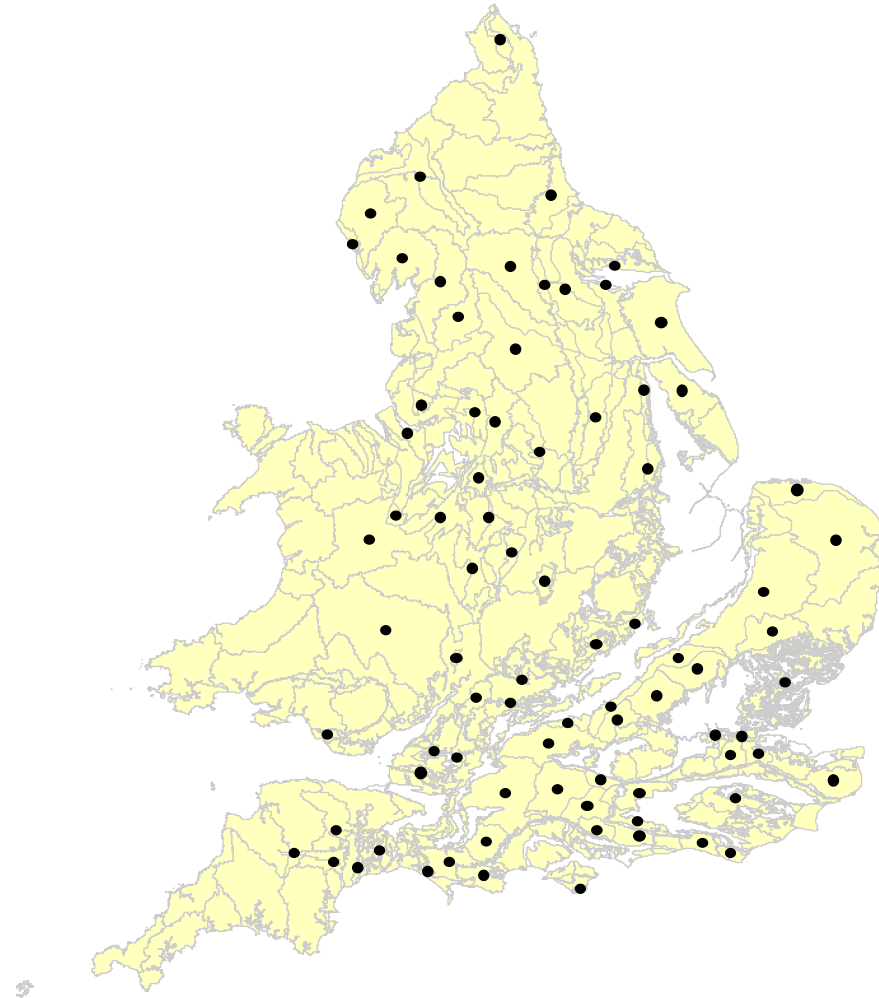


December 2008
completed – February 2009

Groundwater Bodies subject to a rising trend in pollutant concentrations

- GW body has significant rising trend
- Trends which have been reversed
- Unproductive strata (not assessed)

Trend Objective	
FAIL	81
PASS	223



Our Response

- ➔ Get a better handle on dealing with diffuse pollution
- ➔ Identify Safeguard Zones and Water Protection Zones
- ➔ Reduce opportunities for contaminants to enter groundwater
- ➔ Tackle pressures from physical disturbance to aquifers
- ➔ Make efficient use of everyone's evidence
- ➔ Manage expectations
- ➔ Improve communication of groundwater issues

Our Vision for Groundwater

A sustainable regime – quantity and quality

This means:

- ⇒ Long term plans to secure the health of groundwater
- ⇒ Meeting the needs of both the environment and public supply
- ⇒ Recognising groundwater's key role in the bigger picture
- ⇒ Working in partnership with others

