

# Water Quality Regulation in England & Wales



Marcus Rink

Drinking Water Inspectorate

# Overview

Presentation covers :-

- History
- Who are the DWI
- What we Regulate
- The Regulations
- The Standards
- How we Apply Regulations & Standards
- The Offences and Available Actions
- Outcomes of Regulation

# Why regulate drinking water – the history ?

- **1945 Water Act** – Only 70% population had access to piped supply of mains water, grant provision aiming to extend to 98% population.
- **1973 Water Act** – after droughts, floods and service failures, regional water authorities and water resource planning introduced, about 98% of population with piped supply but droughts and service failures ongoing.
- **1980 EU Drinking Water Directive** – before then drinking water was required to be wholesome but not defined.

# The position 30 years ago

## Why regulate drinking water – the history?

### **1989 Water Act:**

- after further droughts, several serious water quality incidents and threatened EU infringement, regional water authorities were privatised to enable capital investment through access to financial markets establishing water companies.
- legally enforceable water quality and environmental standards in regulations and independent regulators with duties and powers to publish, enforce improvements and prosecute.

# Drinking Water Inspectorate

- Established January 1990
  - Section 60 of the 1989 Water Act established the Drinking Water Inspectorate following privatisation.
- ~40 staff - 30 professionally qualified Inspectors, all based in Westminster
- Part of the Department for the Environment, Food and Rural Affairs (DEFRA)
- Chief Inspector acts autonomously in respect of regulatory power. (Water Act 2003)
- Independent of Water Companies, Environment Agency Ofwat and CCWater

# Powers

- DWI has powers to
  - Make regulations & directions
  - Appoint technical assessors
  - Enter premises and gather information.
  - Duty to enforce when breach of regulations
  - Prosecute for the supply of water unfit for human consumption
    - Determined in the courts
    - Criminal offence
- Water Companies' duty to:
  - Supply Wholesome Water, Monitor, Record, Use Approved Materials, Provide Information
  - It is illegal for a company or person to obstruct, withhold or provide false information

# Vision

To protect public health and maintain public confidence by securing sufficient, safe clean drinking water, now and for future generations

We will do this through proportionate risk based regulation with a social purpose to aspire beyond compliance.

# Objectives

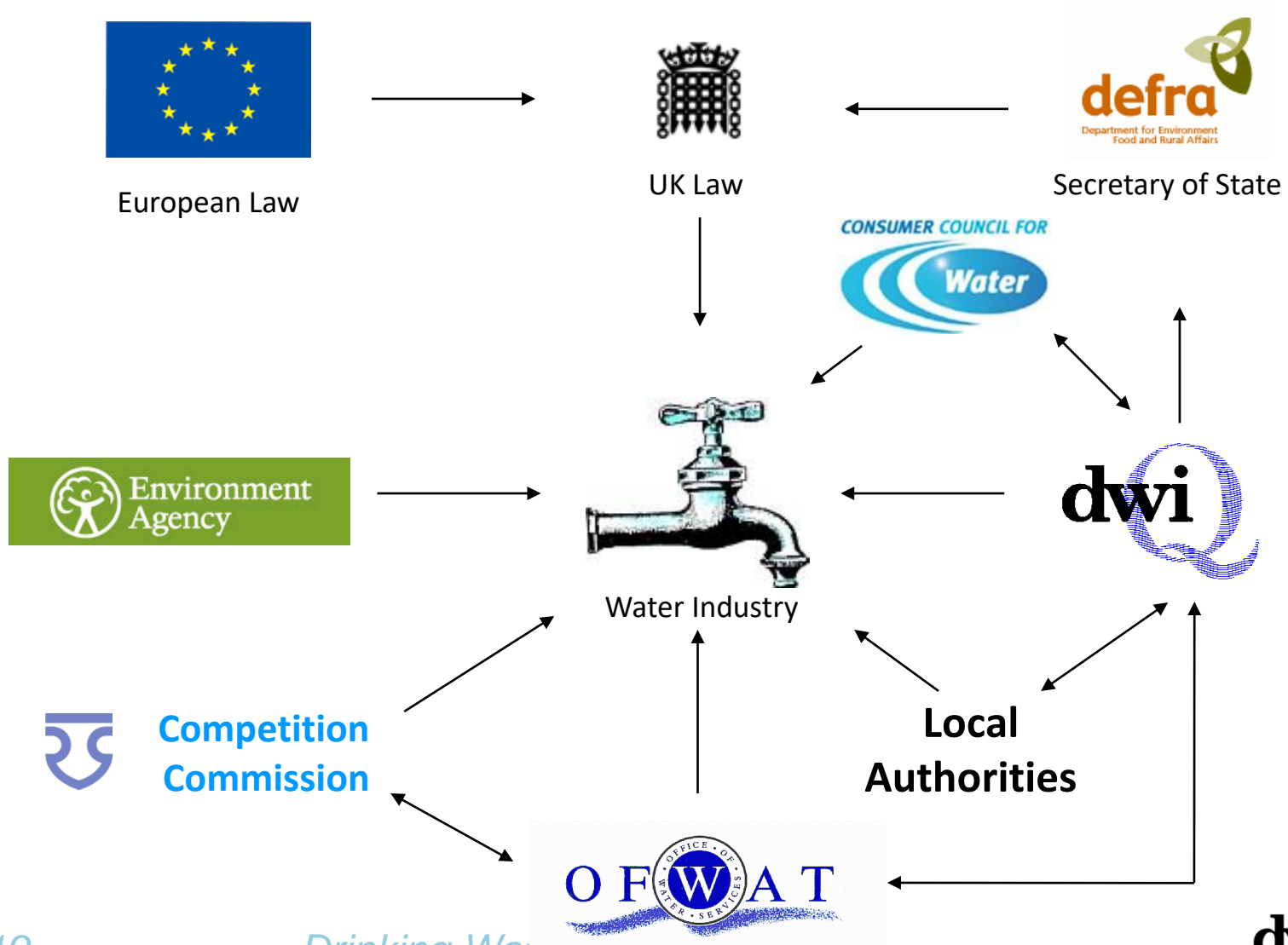
- To improve the quality and sufficiency of drinking water supplies in England and Wales
- To protect public health and maintain public confidence in drinking water
- To promote strategic planning for water quality and sufficiency now, and for future generations

And, for,

- Water Companies strategically plan to achieve these objectives.



# Drinking Water Regulation



# There are two types of supply

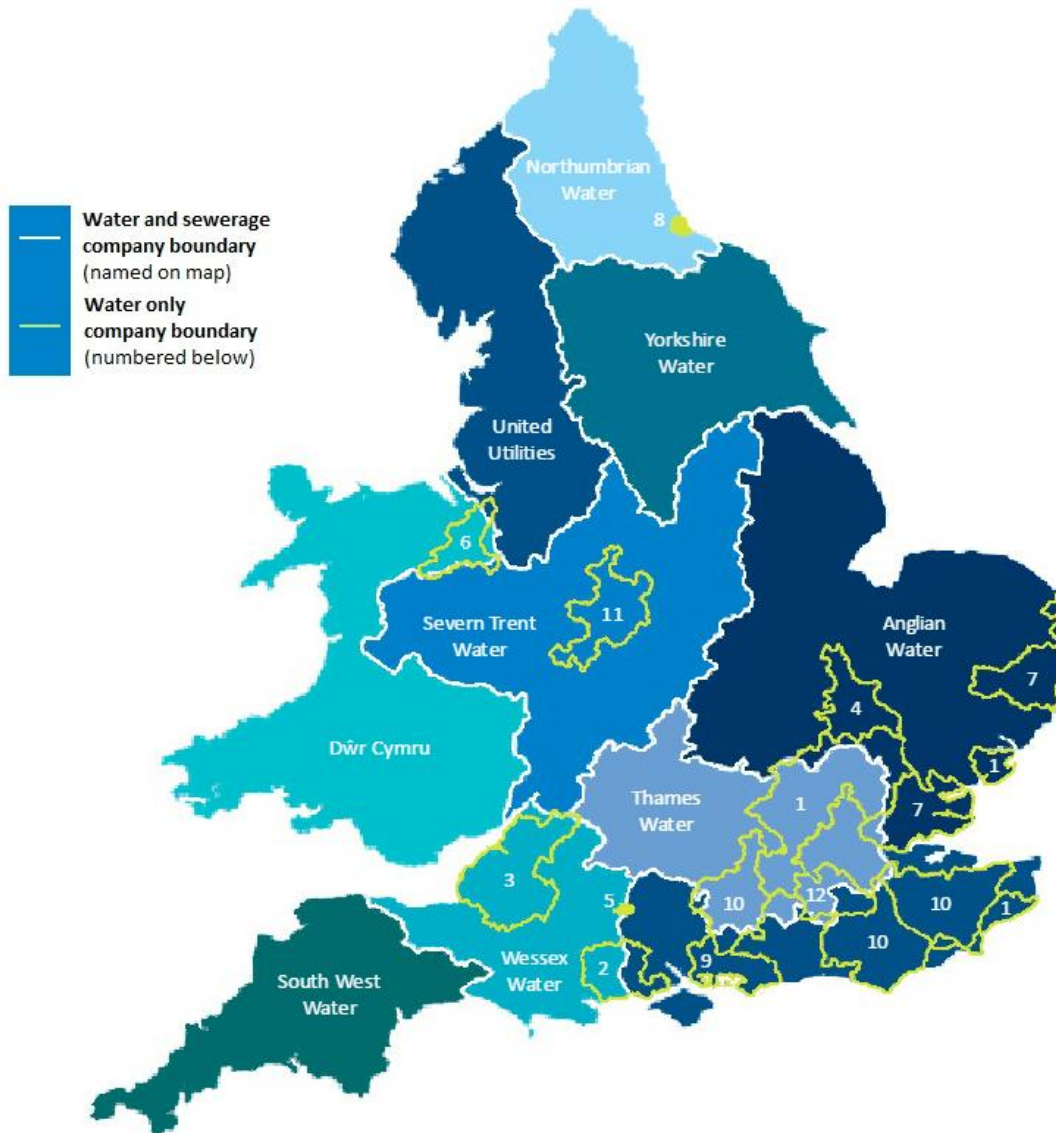
Public  
(Large)  
Supplies

Private  
(Small)  
Supplies

# Public Water Supply in UK

- 22 Water Supply Companies in England and Wales
- 7 other licensed companies in England
- Supply 13,707 MI/d in England, 826 MI/d in Wales
- 54 million people in England, 3 in Wales
- 1,129 water treatment works in England and 78 in Wales
- 3,512 service reservoirs in England, 459 in Wales
- 313,673 km of water mains in England 31,364 in Wales
- 1,505 water supply zones in England, 97 in Wales

# The Water Industry in the UK



## Water only companies

1. [Affinity Water](#)
2. [Bournemouth Water](#)
3. [Bristol Water](#)
4. [Cambridge Water \(South Staffs\)](#)
5. [Cholderton and District Water](#)
6. [Hafren Dyfrdwy](#)
7. [Essex & Suffolk Water \(Northumbrian\)](#)
8. [Hartlepool Water \(Anglian\)](#)
9. [Portsmouth Water](#)
10. [South East Water](#)
11. [South Staffs Water](#)
12. [Sutton and East Surrey Water](#)

## Local water and wastewater companies

- [Albion Water](#)
- [Independent Water Networks](#)
- [Leap Utilities](#)
- [Severn Trent Services](#)
- [SSE Water](#)
- [Veolia Water](#)
- [Icosa Water](#)

# Private Water Supply in UK

- 37,717 private supplies in England & 14,396 in Wales
- 576,261(E) & 80,000 (W) people lived or worked in premises that relied on a private supply.
- almost 61,000 people living in 25,270 single domestic dwellings served by a private supply that is exempt from regulatory monitoring in England, with a further 30,000 people in 12,236 single domestic dwellings in Wales
- 1,400,000 (E) and 400,000 (W) people will have attended festivals, shows and other events served by a temporary supply of water.
- For England as a whole, in 2015, (1%) of the total population (56 million) was served by a private supply, whereas public supplies served the majority of the population (99%). And for Wales, (3%) of the total population (3 million) was served by a private supply, whereas public supplies served the majority of the population (97%).

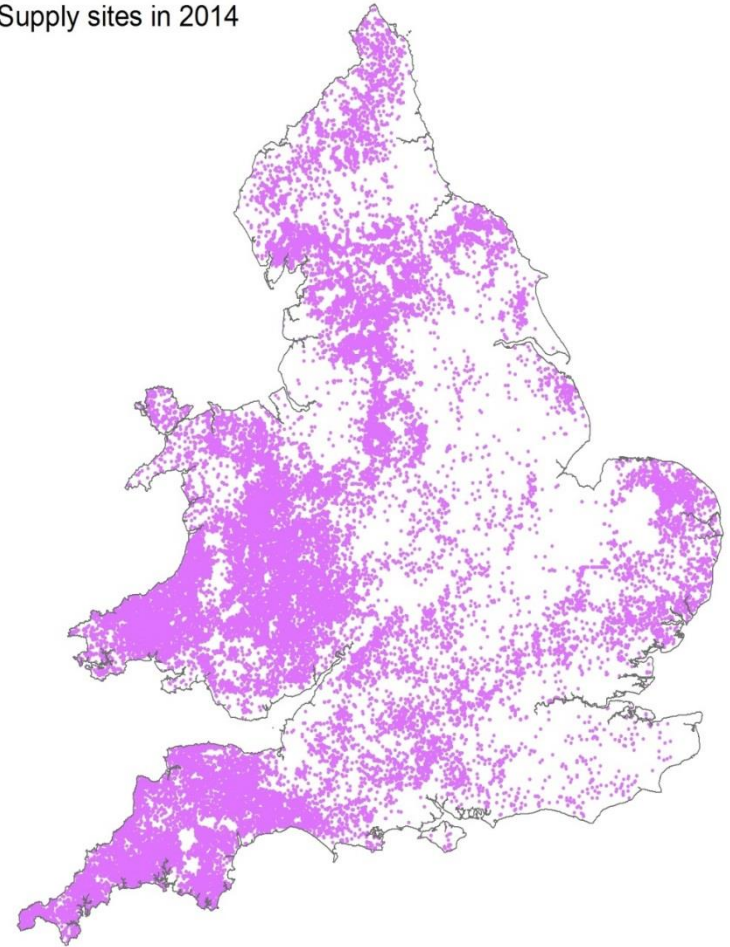
# Local authority regions & Locations



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Private Water Supply sites in 2014

51,236 sites



# Drinking Water Quality Regulations

- World Health Organisation (WHO) Guideline Values
  - Guidelines based on health impacts - not legally binding
- EC Directives
  - 80/778 & then 98/83 on the quality of water intended for human consumption
- UK Primary Legislation
  - Water Act 1989
  - Water Industry Act 1991
  - Water Act 2003
- UK Secondary Legislation
  - Water Supply (Water Quality) Regulations 2016, (Amended 2018), 2018 in Wales
  - Private Water Supplies Regulations 2016, (Amended 2018), 2017 in Wales
  - Water Fittings Regulations 1999
- UK Direction
  - Water Industry (Suppliers' Information Direction) 2017

# DWI Activities

- Technical audit of Water Companies
  - Audit & Inspection
  - Incident Investigation
  - Compliance Data
  - Consumer Complaints
- Technical advisors to Government on drinking water quality issues & regulations
- Advise Local Authorities on the Private Water Supplies Regulations
- Collection of data for EU submission
- Notify (water quality & public health issues) to:
  - other Government departments
  - non-Government organisations
- Products & Processes for use in drinking water
- Programmes of work
- Drinking Water Research
- Promotion of good practice



# Technical Audit

- Interim checks
  - Unannounced responsive audits
- Scheduled audits based upon compliance data
  - Based on information provided by the water companies on the quality of water leaving water treatment works, in service reservoirs and in each water supply zone; sampling requirements; and progress with programmes of work
- Themed Inspection
  - Programme of inspection looking at working practices for each water company based on risk either from accumulated data or specific information
- Programmes of Work
  - Inspection of capital schemes for water quality



# Events

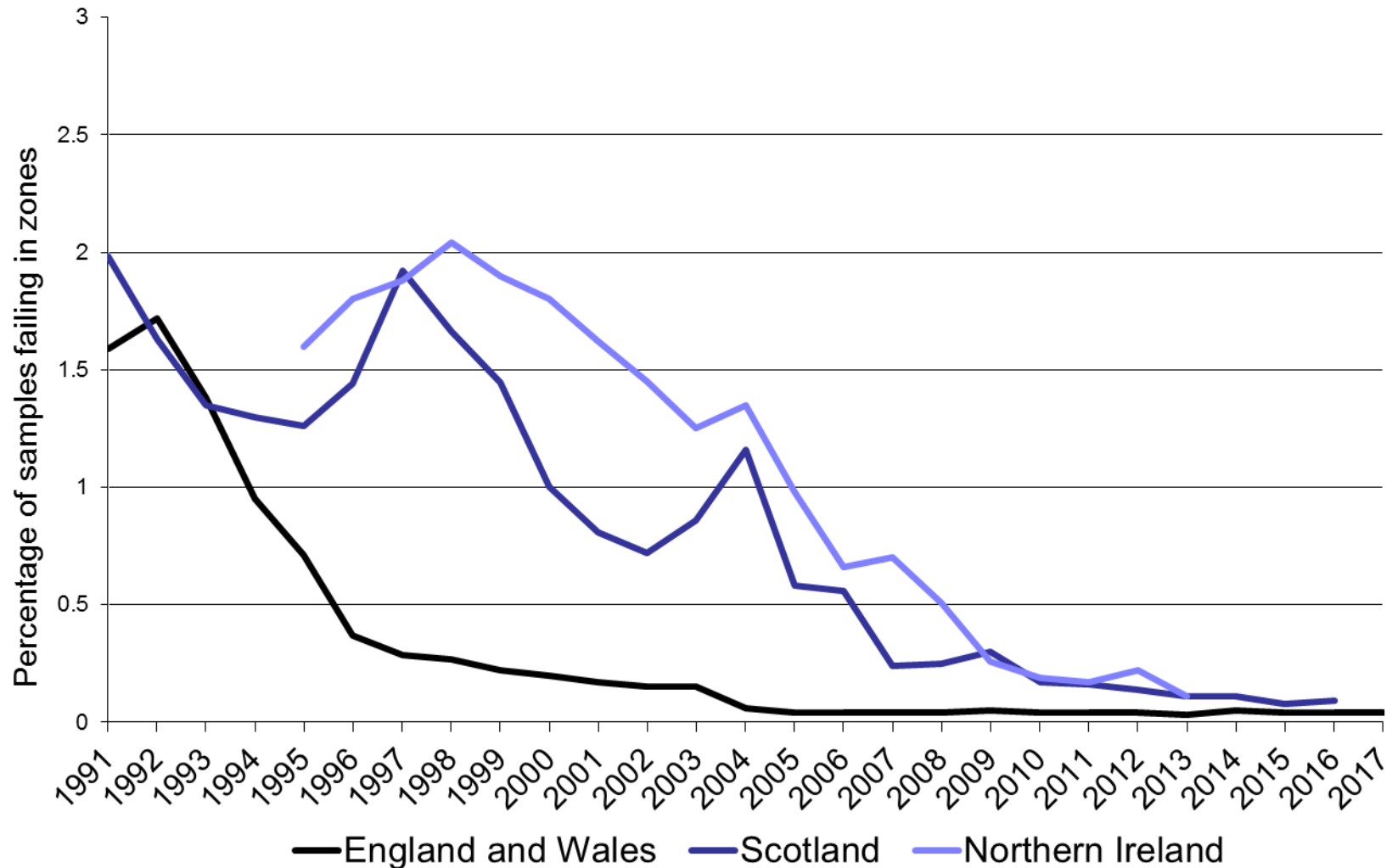
“An event or sequence of events, as a result of which the quality of the water entering or in public supply has demonstrably deteriorated or in which - regardless of the actual effect on water quality - the event caused concern to consumers or the company”

- DWI will investigate these and produce a report, the outcome of which may result in:
  - No action when a contravention is deemed trivial or unlikely to recur.
  - Undertaking, Enforcement or Notices
- Criminal Investigation – Leading to:
  - Warning
  - Caution (Simple or Conditional)
  - Prosecution

# The position today – 30 Years Later

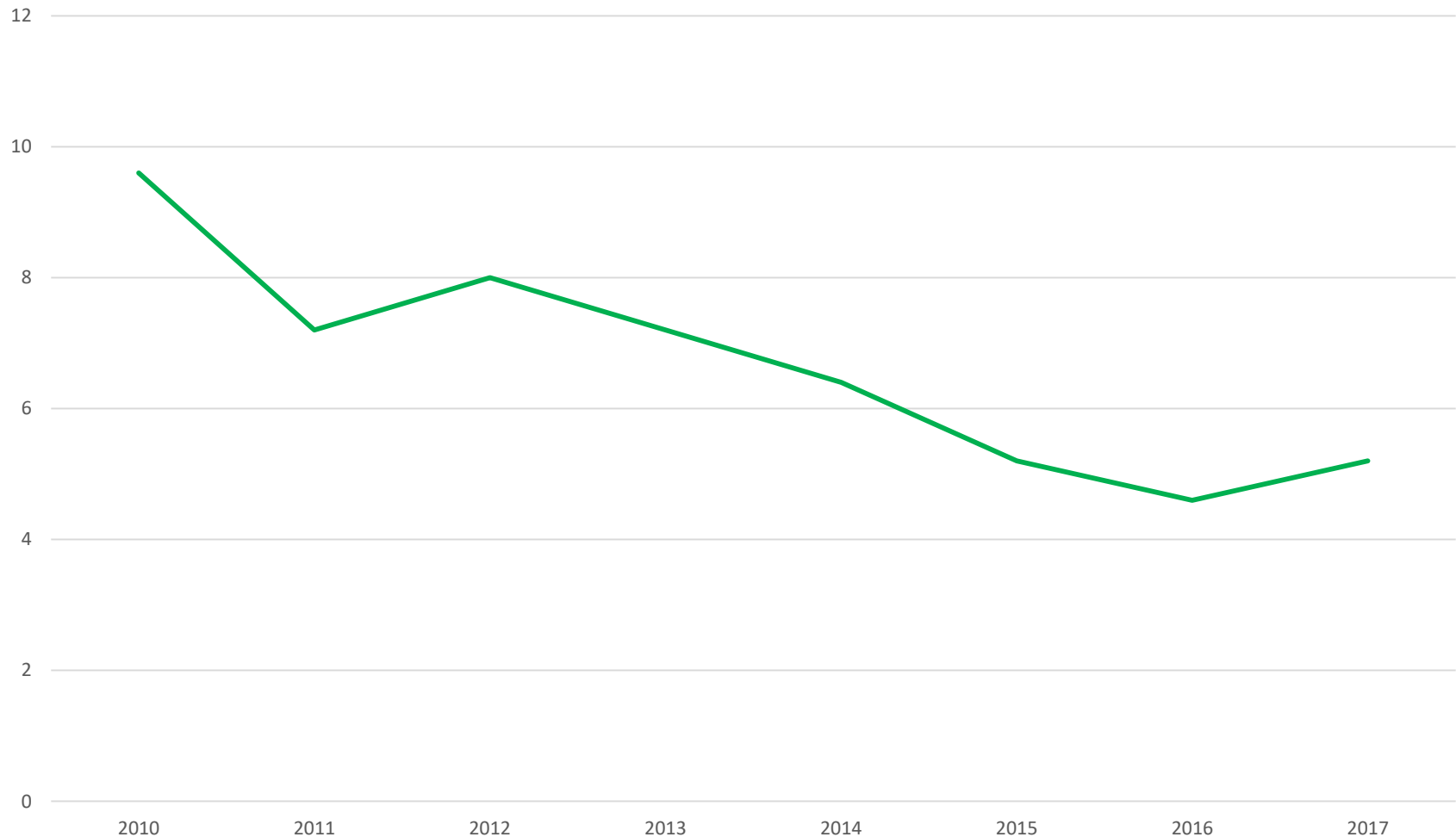
- Public supplies
  - Both Wales and England at 99.96%, compared to 1.6% in 1991.
- Private supplies – ongoing concern about quality and safety but some early signs of improvement.
  - 9.6% of tests not meeting standards in 2010 compared to 5.2% in 2017.

# Did regulation work – Public Supplies



# Did regulation work – Private Supplies

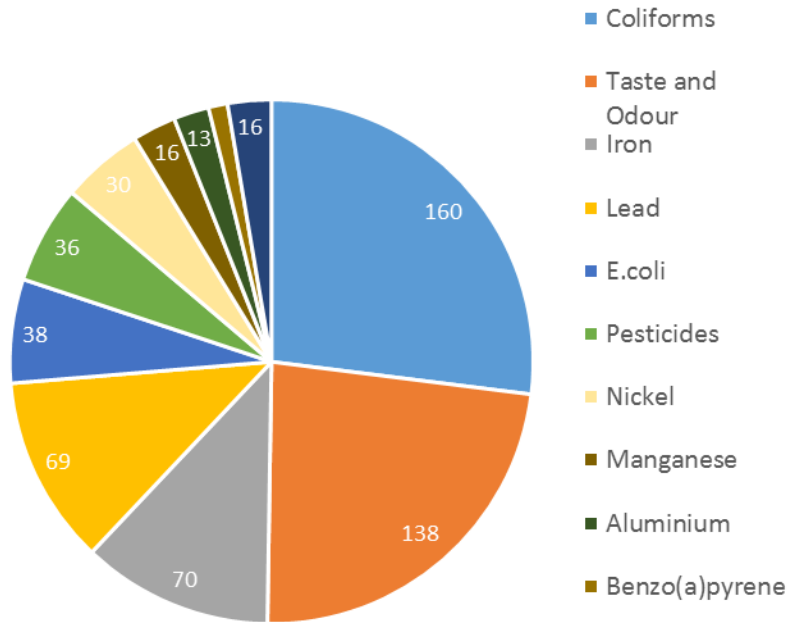
Private water supplies - England and Wales



# Key Outcomes in 2017

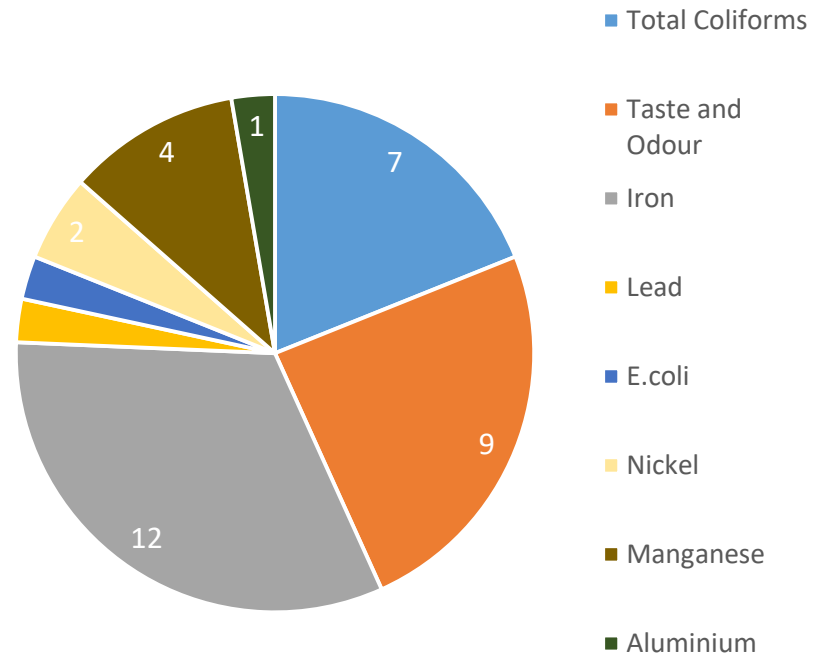
- Lead -
  - 1991 - 2,121 tests failed standard of 50µg/l.
  - 2017 – 70 tests failed the standard of 10µg/l
- THMs
  - 987 in 1991 compared with 0 in 2017
- Pesticides
  - 1292 in 1995 compared with 36 in 2017
- Iron and Manganese
  - 2,226 and 708 failures in 1991 compared to 82 and 20
- *E. coli* at Treatment Works
  - 283 in 1991 and 1 in 2017

# All Failures in 2017

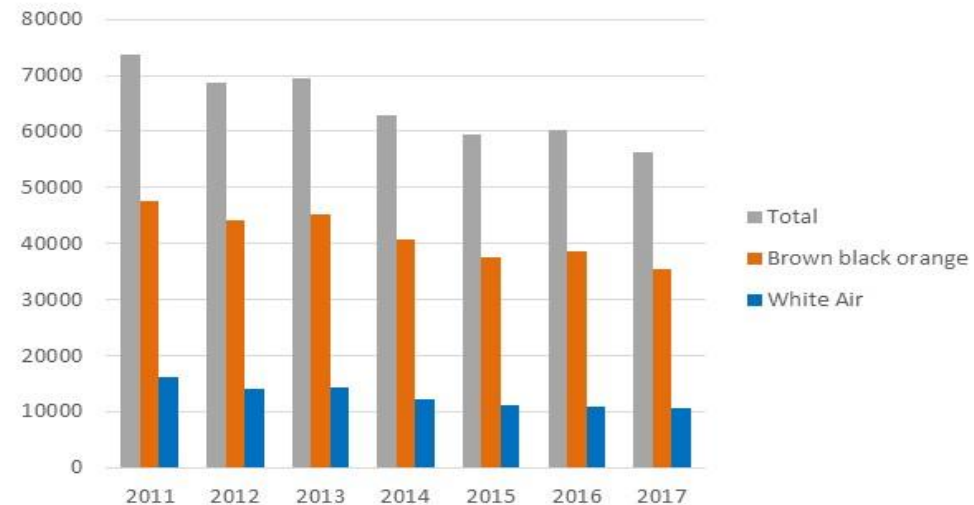
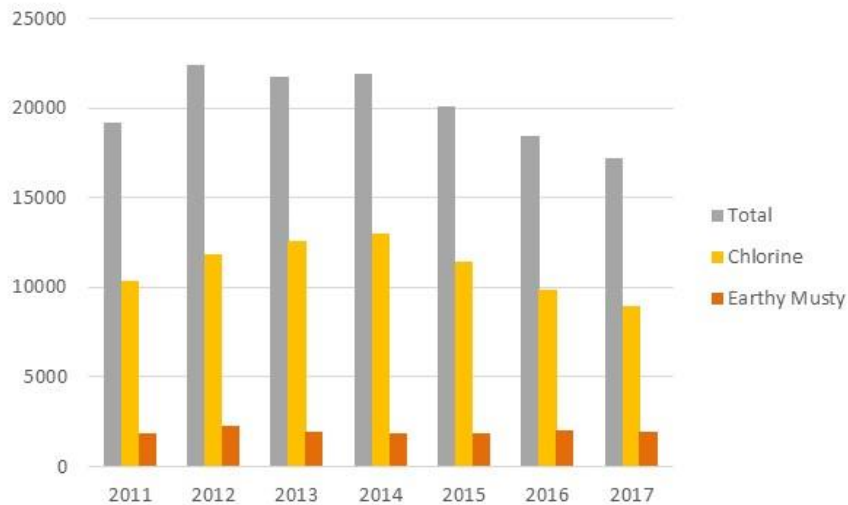


England

Wales



# WQ Contacts to companies 2011 – 2017 (England)



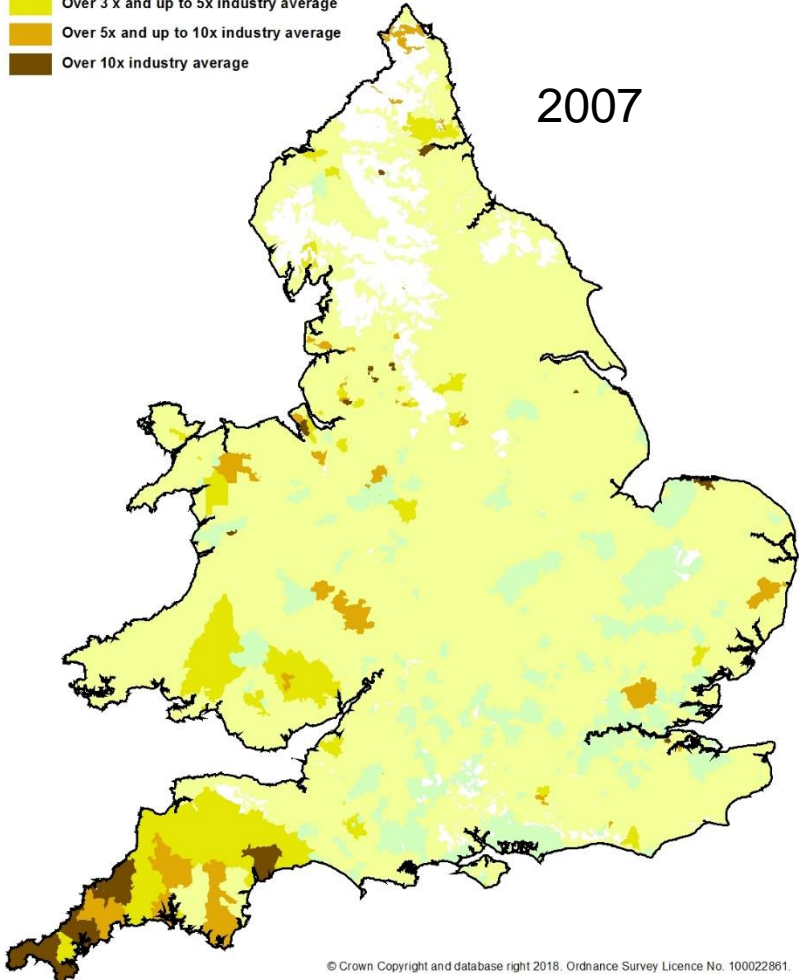


# Brown, black and orange water 2007 and 2017

## Key

- Up to Industry Year Average
- Up to 3 x over industry average
- Over 3 x and up to 5x industry average
- Over 5x and up to 10x industry average
- Over 10x industry average

2007

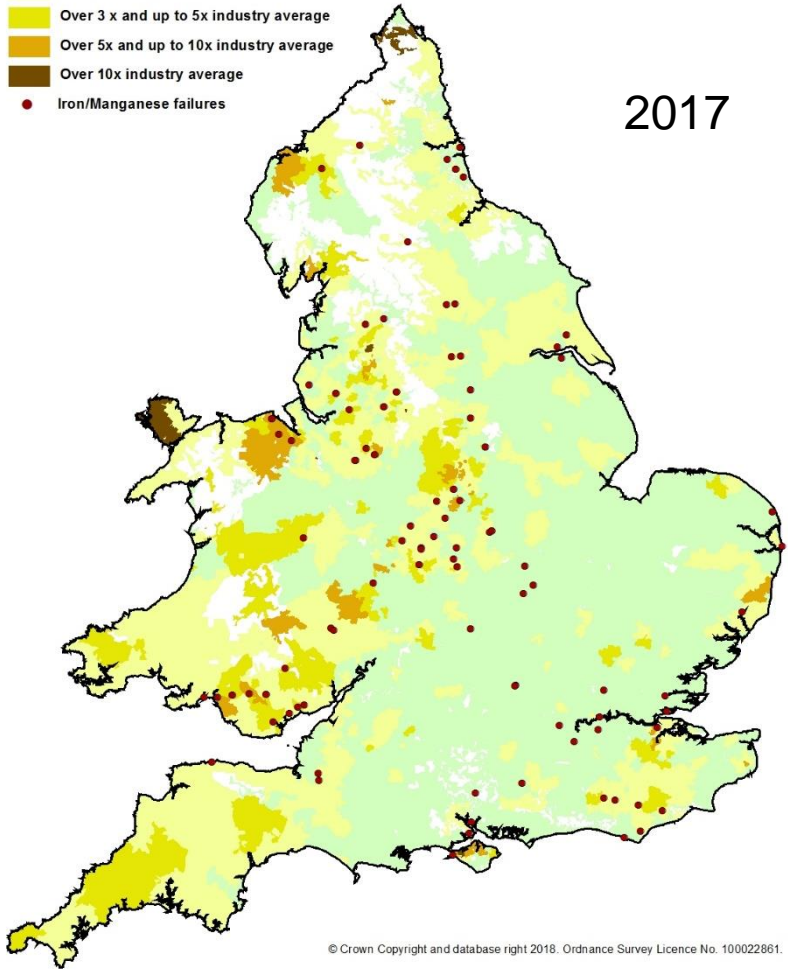


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## Key

- Up to Industry Year Average
- Up to 3 x over industry average
- Over 3 x and up to 5x industry average
- Over 5x and up to 10x industry average
- Over 10x industry average
- Iron/Manganese failures

2017



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# Things Do Go Wrong

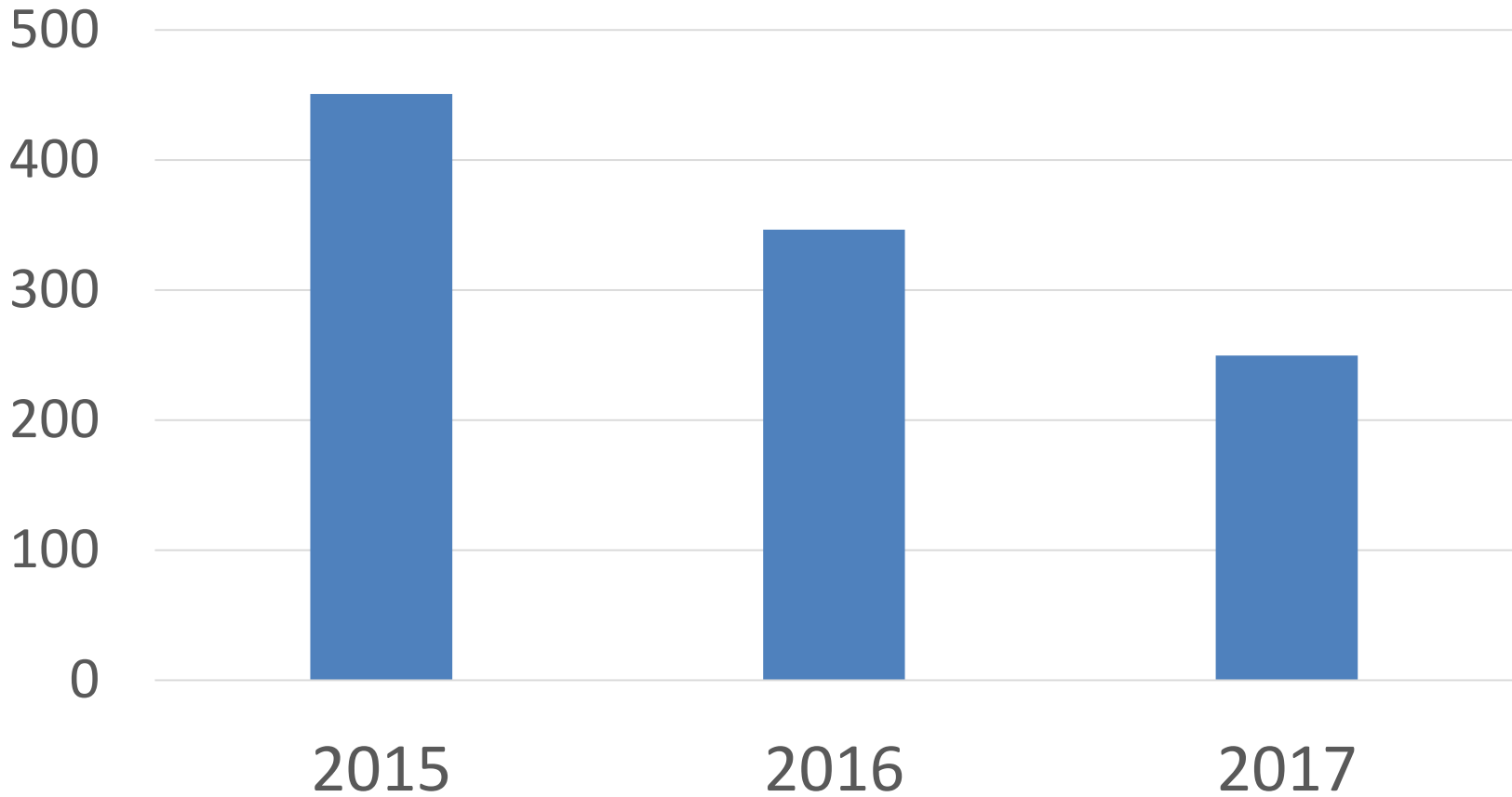




# Work to Do



# Event Risk Index



# Looking Forward

- Developing Regulation Focused on Risk
- Catchment Protection
- Long term Asset & Maintenance Strategy
- Resilience & Scarcity
- Domestic Systems
  
- Seek Multiple Advantages
  - E.g. - Leakage, metering, replacing aging infrastructure – lead

# Final Thought

The primary objective of  
Water Quality  
is to maintain public health.

This is not a compromise!