



The Past, Present and Future of Managing Storm Water Overflows in the UK

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*The Environment Agency
(England)*

***National Water Event – Ireland
9th June 2016***

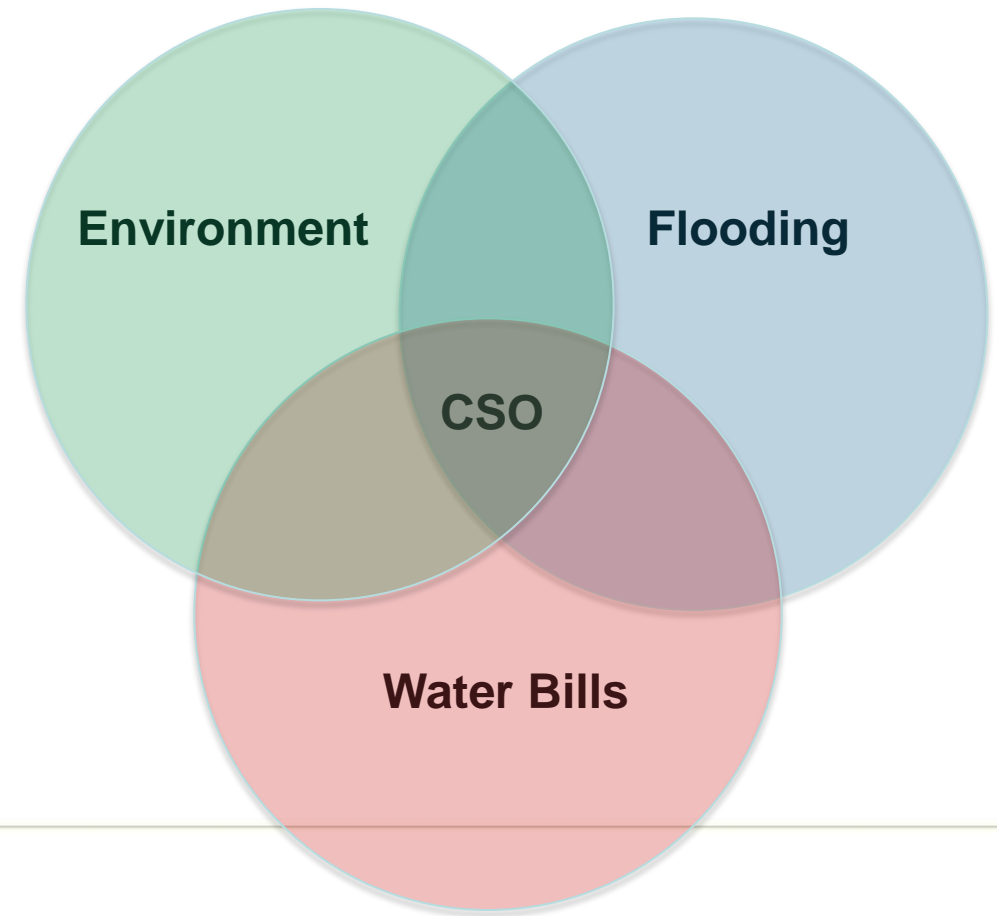
Environment Agency Objectives

- A cleaner, healthier environment which benefits people and the economy.
- A nation better protected against natural threats and hazards, with strong response and recovery capabilities.
- Higher visibility, stronger partnerships and local choices.



Combined Sewer Overflows

- ➔ Storm Water Overflow = Combined Sewer Overflow = CSO
- ➔ Essential feature of combined sewerage systems
- ➔ Combined sewerage typical of older urban areas
- ➔ New developments separately sewered
- ➔ CSO balance – is dynamic :
 - » Stakeholder expectations
 - » Customer willingness to pay



Past

Scale of the CSO issue



Over 15,000 permitted
CSOs
(in England)

Discharge to:

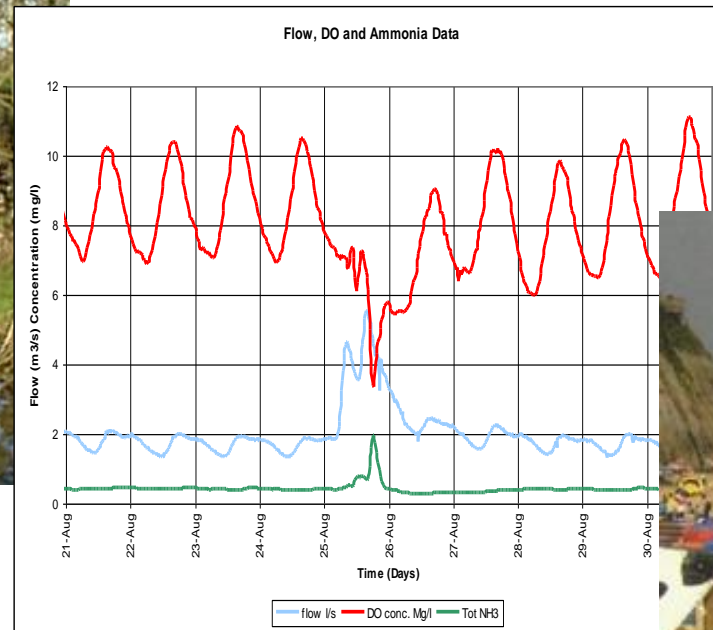
- 89% River
- 10% Coastal and Estuarine
- 1% Groundwater

“The UK water companies were privatised in 1989 and took over responsibility for a public water and wastewater industry that had suffered decades of under investment and struggled to deliver good service and meet quality standards”.

** Water in a longer-term context – **Water UK** – web pages*

Past

Environmental / Amenity Use Impacts – 1990's



Past Objectives

Outcomes

Amenity
and
Inland WQ



Shellfish
Waters



Bathing
Waters



Trigger

Environmentally Unsatisfactory CSOs

Criteria for unsatisfactory overflows:

1. causes significant visual or aesthetic impact due to solids, fungus;
2. causes or makes a significant contribution to a deterioration in river chemical or biological class;
3. causes or makes a significant contribution to a failure to comply with Bathing Water Quality Standards for identified bathing waters;
4. operates in dry weather conditions;
5. operates in breach of permit conditions provided that they are still appropriate;
6. causes a breach of water quality standards (EQS) and other EC Directives; and/or
7. causes unacceptable pollution of groundwater.

• **How to comply with your environmental permit** -
(EPR 7.01) - 2012 – Environment Agency.

Drivers

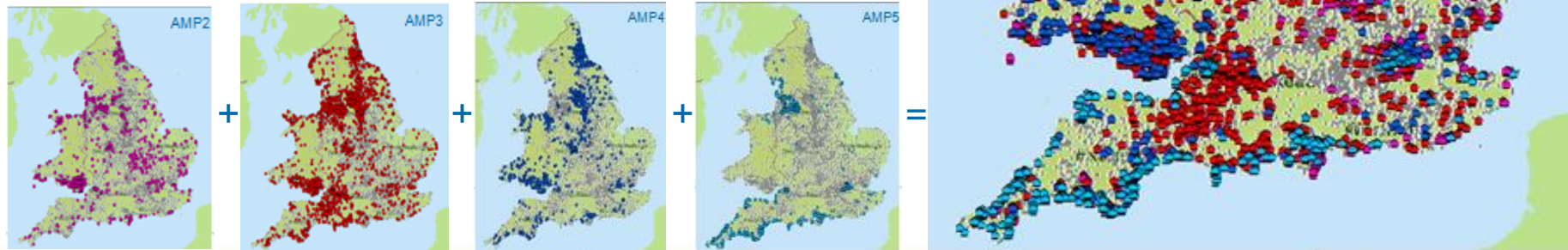
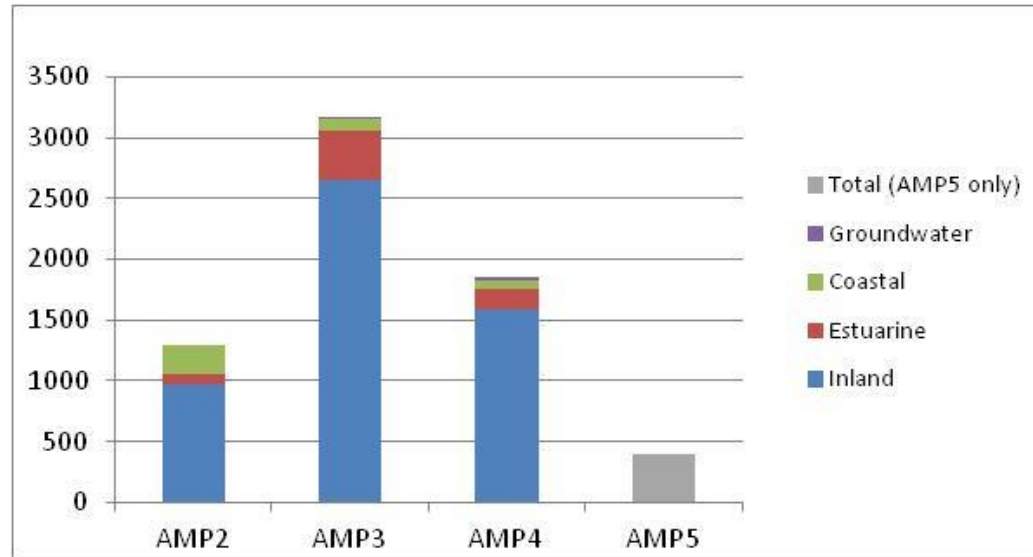
National Environment Programme (NEP)

- UWWTD Directive
 - Minimum Standard
 - = Formula A + Screen
- Quality Enhancement
 - UWWTD
 - FwF Directive
 - Bathing Water Directive
 - etc -----
- Water Quality Standards
 - Inland - UPM FIS & 99%iles
 - Coastal - Spill Frequency

Past

The Programme

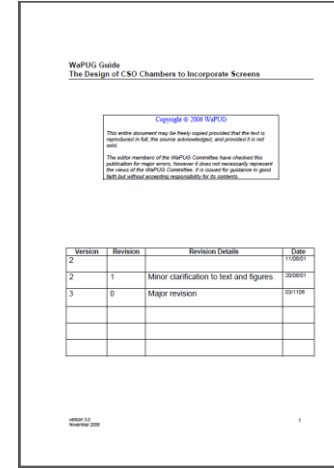
Over 7,000 overflows improved



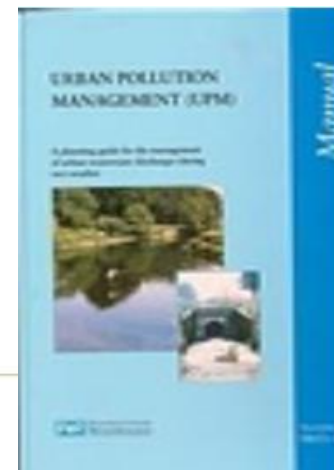
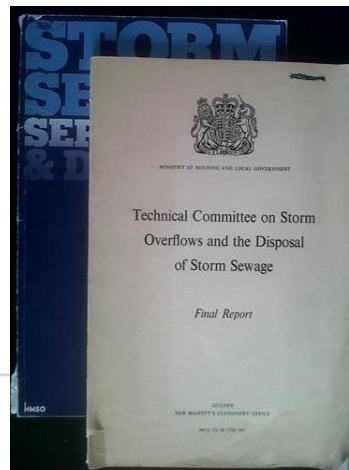
Past Innovation - (Technical)

For Example:

Aesthetics Control



**Linking Asset to
Environment**



Past

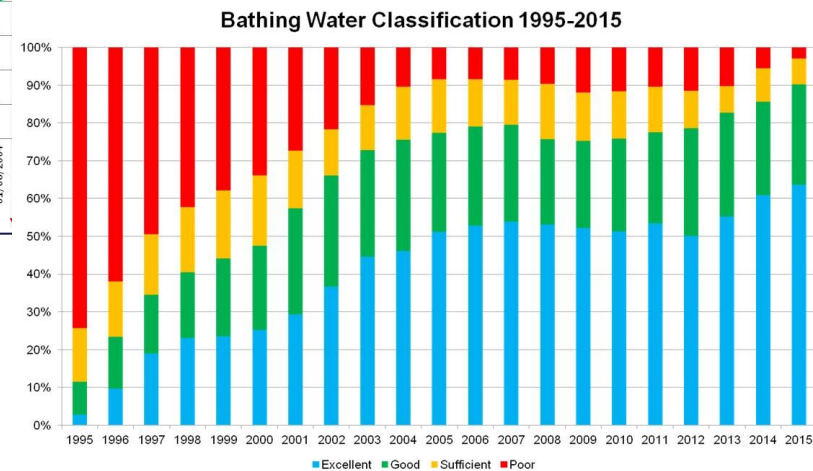
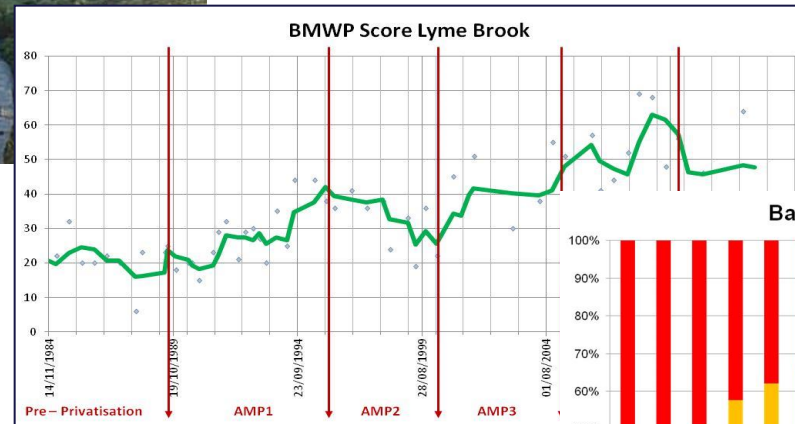
Innovation - (Behavioural)

- ➔ WaPUG (CIWEM UDG) has played a key role:
 - ➔ Working across organisational boundaries
 - ➔ Producing User Guidance
 - ➔ Sharing of experiences
 - ➔ Training
 - ➔ Identifying future needs

Past Outcomes



→ Half of all storm overflows improved



→ Have we got there yet?

1995 3% of sites were Excellent, in 2015 3% of sites are Poor

Protecting Current Position

➔ Updating Permits

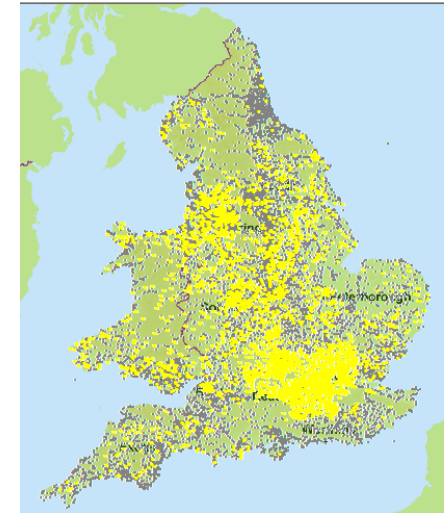
- ➔ Legacy of 4,550 temporary generic permits from privatisation modernised into bespoke permits.

➔ No New CSOs

- ➔ Presumption against new CSOs.
- ➔ Expectation to adequately deal with pressures on sewerage to prevent the need for new CSOs.

➔ Prevent Deterioration

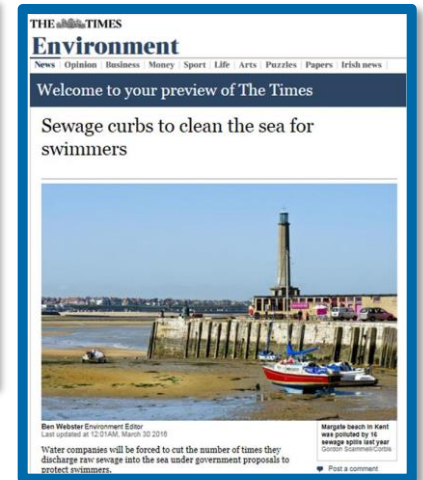
- ➔ Expectation is to prevent deterioration of permitted CSOs.
- ➔ Remedy problems as soon as reasonably practical through ongoing capital maintenance programme / budget



Present

The Public & Media

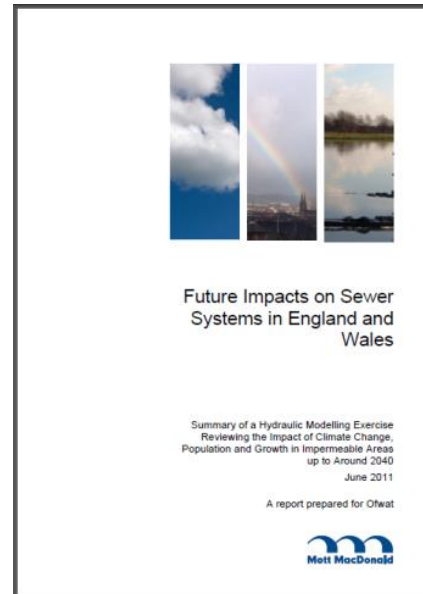
- ➔ Public, Media and NGO interest in CSOs is increasing. (public scrutiny).
- ➔ how often a CSO spills?
- ➔ what is the likely impact?
- ➔ what the mechanism is to resolve unsatisfactory performance?
- ➔ Water Company business plans are **outcome focused** (Customer Challenge Groups).
- ➔ Is a **proactive communication** strategy involving stakeholders now required?



Present

Future Pressures

- Climate Change
- Urban Creep
- Growth



Future Impacts on
Sewer Systems in
England and Wales
OFWAT - 2011



The combined effects of the three drivers lead to a median **increase** in 1:10 year sewer flood volumes of **51%** by about **2040** compared with current predicted flooding.



What is the level of risk to CSO performance?

Prevention or Cure

Cure

- ⇒ We previously looked to past to direct our actions on CSOs.
- ⇒ Significant improvements through **capital schemes**, delivered **step changes** in performance.

Protect and Prevent Deterioration

- ⇒ We now need to protect current performance by addressing future pressures and challenges.
- ⇒ Step changes provided by capital intensive schemes are not enough or appropriate on own.
- ⇒ More of :
 - Partnership working
 - Communication
 - Use of predictive tools
 - Innovative permitting

Innovation

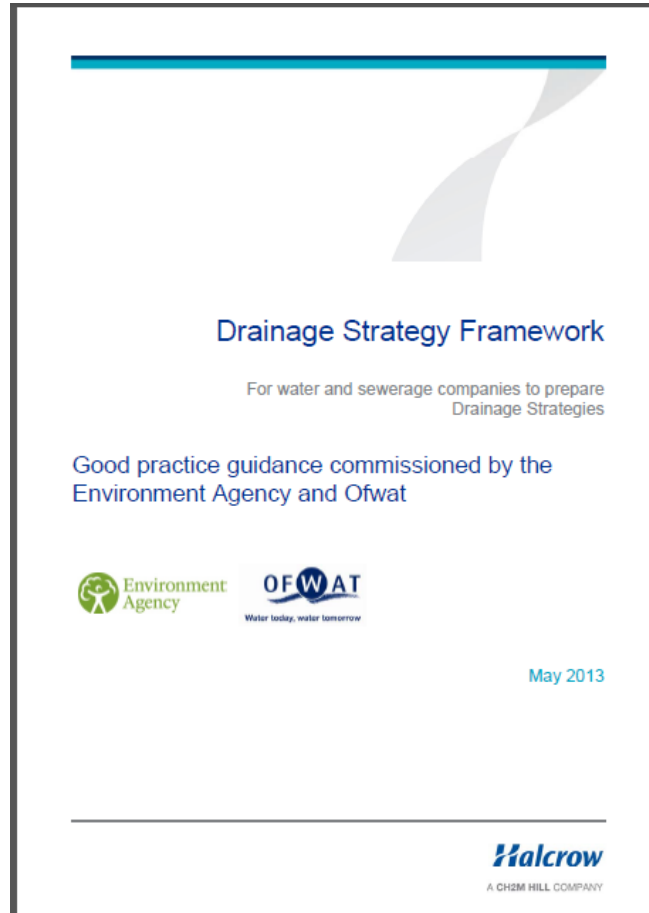
- ⇒ To manage future pressures and expectations we need to innovate:
- ⇒ **Plan** –
 - ⇒ Are we able to predict and plan to address future needs?
- ⇒ **Assess** –
 - ⇒ Do we understand CSO performance in a way we can communicate and prioritise at a strategic level?
- ⇒ **Investigate & Implement** –
 - ⇒ Are we able to trigger investigation or action if needed?

Innovation

- ⇒ The Agency's contributions:
- ⇒ **Plan –**
 - ⇒ The **Drainage Strategy Framework**
- ⇒ **Assess –**
 - ⇒ Regulatory driven **Event Duration Monitoring** and reporting
- ⇒ **Investigate & Implement –**
 - ⇒ **Spill Frequency Permitting**

Present

Plan – Drainage Strategy Framework



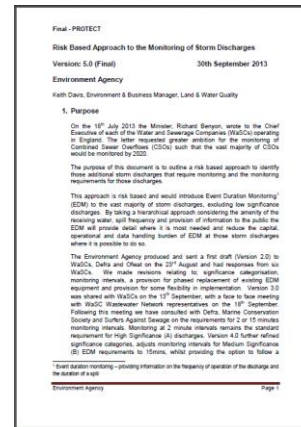
- Joint EA / Ofwat developed guidance
- For WaSCs to produce Catchment Strategies to address future pressures
- Partnership and Proactive Engagement
- Innovation

Present Assess – Event Duration Monitoring

Ministers letter to WaSCs
July 2013



Environment Agency
Risk Based Approach

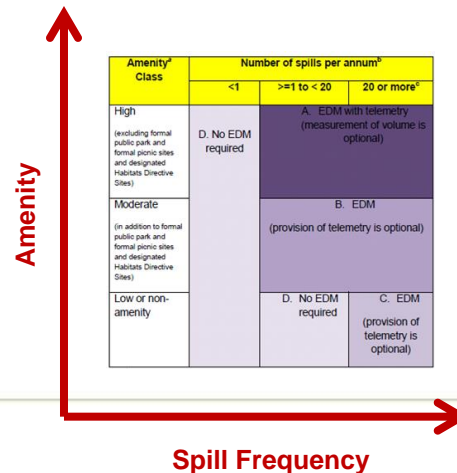


Benefits

- Engagement and communication
- Post Project Appraisal
- Assess measures success in dealing with future Pressures
- Real time informing beach / shellfish users
- Real time reactive network management
- Inform WaSCs strategy
- Inform other's strategy

“-- water company understanding where its CSO assets are and how they are performing is a basic element of sound sewerage management”

“I believe that water companies need to introduce monitoring for the vast majority of their CSOs by 2020.”



Present Investigate & Implement – Spill Frequency Permitting

- ➔ Pass forward flow & storage, does not always protect against potential deterioration.
- ➔ Introduce a permit spill frequency trigger to require investigation and action.
- ➔ Prompting immediate action for those discharges operating a long way above their original design.
- ➔ Exceeding the trigger spill frequency = Investigation (+ remedial action).
- ➔ Exceeding the trigger does not mean non-compliance with the permit. However, failure to undertake the investigation and necessary remedial works would.

The Future

- ➔ Move from “Find and Fix” to “Manage Risks”
- ➔ Understand & Communicate Current Performance
- ➔ Consider Customer and Stakeholder Needs
- ➔ Quantify and Plan for future risks
- ➔ Sustainably manage pressures
 - ➔ Increase supply or manage demand ?
- ➔ The Industry develops its Long Term Strategy

Future

21st Century Drainage Programme

- ➔ Industry led -inclusive membership
- ➔ A long term strategy for sewerage
- ➔ Inform PR19 (2020 – 2025) business plans and beyond
- ➔ Seven work streams driving progress, including;
 - Communications and engagement
 - Drainage capacity planning
 - Regulatory issues
 - Supporting evidence base
 - Sewer misuse
 - UKWIR –research delivery

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