



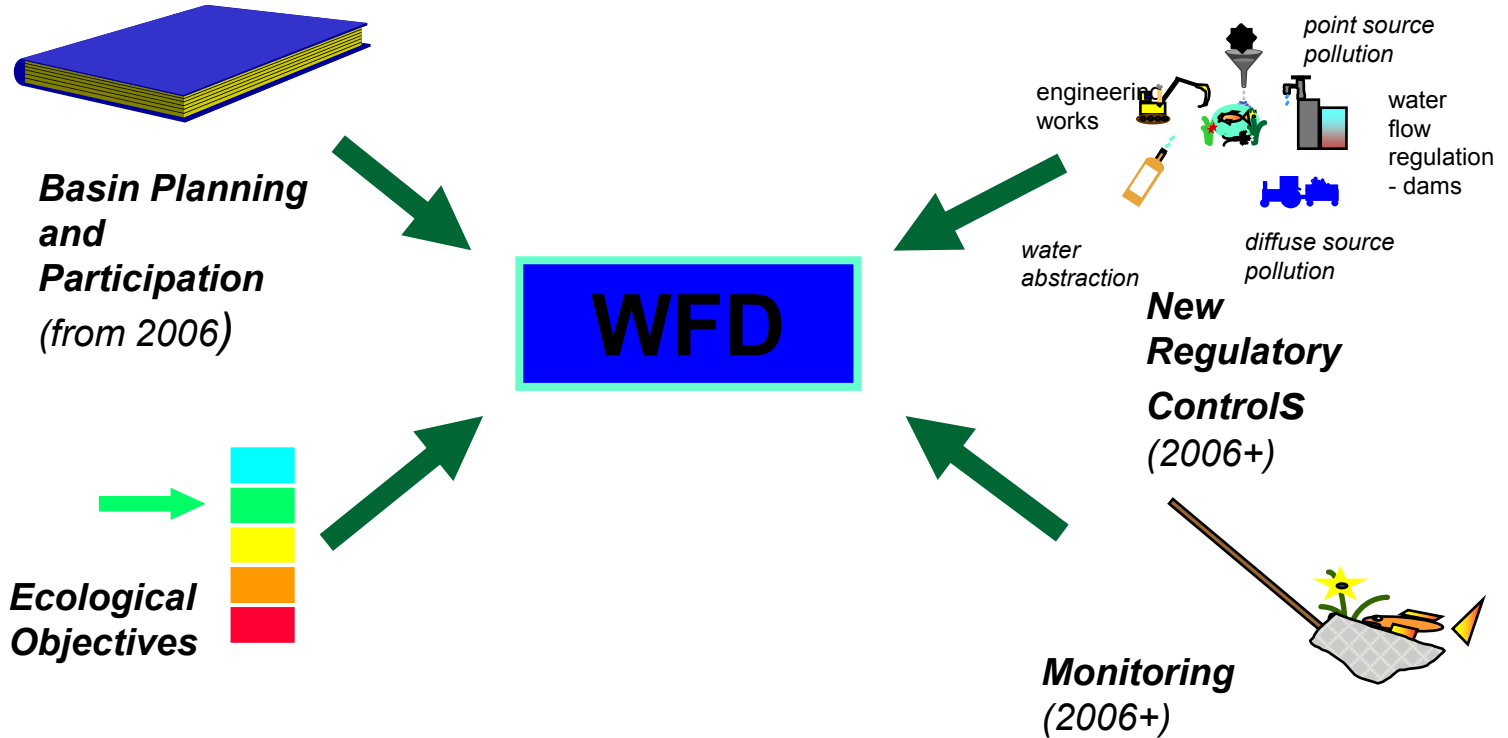
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Caroline Olbert, Water
Resources Team Leader,
Scottish Water

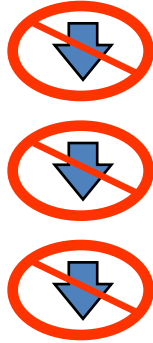
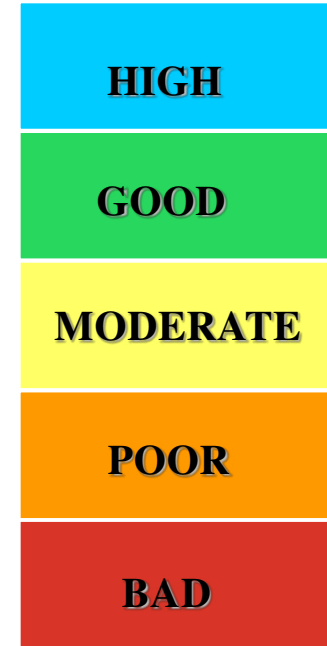
Regulator and Operator Collaboration: Scotland's Approach to WFD Implementation

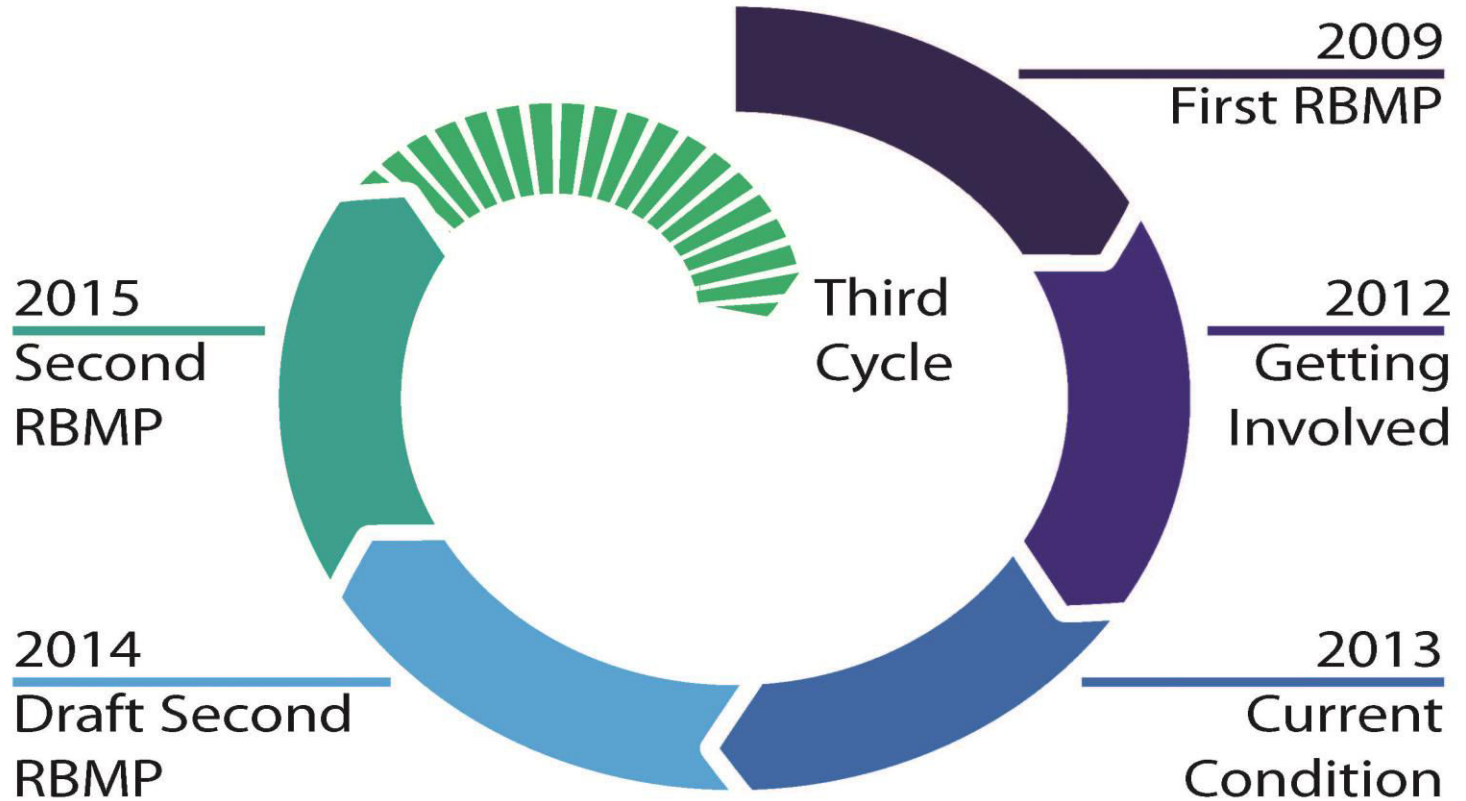
Marcia Banks, Water Resources
Specialist, SEPA

Water Framework Directive



River Basin Management Plans





Water resource features of Scotland

- Ecosystems in W & NW depend on high rainfall, high % designated & protected areas
- Rural public supplies often remote, little storage, vulnerable to short droughts
- Large hydro schemes aim to maximise abstraction/generation....some significant environmental impacts
- Dry areas in east also best for irrigated agriculture.....small over-licensed, over-abstracted catchments



Water Resources Provisions in 2006-2015 spending period

- For the first time, water resources funding to deliver
 - Compliance with WFD environmental standards for abstraction/ impoundment in 102 WRZs
 - Compliance with Birds and Habitats Directive (B&HD) for protected areas– 37 WRZs
 - Compliance with WFD environmental standards for fish passage at 12 locations

Water Resources Provisions in 2006-2015 spending period

- Collaborative process between Scottish Water and SEPA to agree best solutions
- Improvements delivered at 38 sites
- Improvements planned at a further 18 sites between 2015 – 2021.



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Regulator and Operator Collaboration: Scotland's Approach to WFD Implementation

Caroline Olbert
Water Resources Team Leader
Scottish Water



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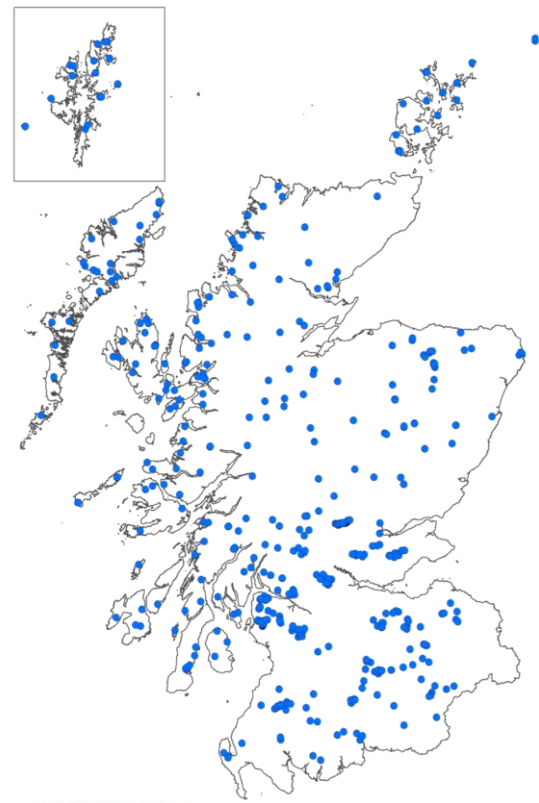
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Scotland's Water Resources

196 Water Resource Zones

238 Water Treatment Works

450 SOURCES!



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RIVERS



LOCHS



RESERVOIRS



BOREHOLES & SPRINGS



LOCHS



Case Studies

- Edinburgh and Lothians WRZ
 - Talla / Fruid compensation flows
 - South Medwyn Weir modification
- Davidston Burn Fish Passage



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Talla and Fruid Reservoirs – Compensation Flows



- Talla and Fruid Reservoirs supply the main Edinburgh Water Treatment Works, along with Megget Reservoir
- Original Licensed Compensation variable throughout the year
 - Talla - May – Sept only
 - Fruid – all year round but volume dependant on month
 - Freshets at both sites
- Fruid and Talla reservoirs spill 91% and 51% of the time respectively
- New WFD Standards required increase in compensation at Talla Reservoir
- Existing compensation release for Fruid already > Q95 for 9 months of year



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Talla and Fruid – Impact and Options

- To meet Q95 at Talla Reservoir all year round created a supply gap of 6.3 MI/d
 - Too large an impact of resilience of public water supply
- Options to restore this would have been high cost
 - Bringing redundant reservoirs into supply (c. £4m)
 - Pumping water at high cost from neighbouring areas
- Other alternatives were explored to achieve environmental benefit without impacting supplies



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The Outcome

- Adjusting the Talla-Fruid compensation and freshet regime was agreed to be the most appropriate way forward
- Sensible outcome as water available within the system already
- Management /operating plan to make the best use of water available was developed through working with SEPA, SNH and Tweed Foundation
- Talla compensation flow put in place all year and Fruid compensation flow reduced to Q95 to free up water for this
 - Also modifications to freshet regime



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South Medwyn – Variable Abstraction Limits



Old weir



New abstraction plate



Upgraded weir

- Under WFD; according to the typology of the South Medwyn Burn:
 - 25% of river flow may be abstracted when flows $>Q_{60}$,
 - 20% when flows between Q_{60} and Q_{70} ,
 - 15% when flows between Q_{95} and Q_{70}
 - 10% when flows less than Q_{95}
- New weir constructed to passively control abstraction to meet these requirements



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Davidston Burn Fish Passage

- In 2013 work was carried out to improve fish passage at the SW impoundment on Davidston Burn
- Fish passage/upstream migration by salmon and trout was impossible except in VERY high water conditions. During low/medium conditions in the autumn this was an obstacle to spawning fish, damaging fish populations of the River Isla



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Davidston Burn – post improvement

- The stepped pools with small channels are ideal for upstream migration of adult fish and allow smolts to pass downstream by providing a focal point
- Fish are now able to swim through without any hindrance. Even lower water levels will allow upstream migration



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Thank You



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