

Ecosystem services and WFD implementation in Scotland

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Regulatory Reform Scotland Act 2014

SEPA's purpose

1. Protect and improve the environment
- 2a. Improve health and wellbeing
- 2b. Achieve sustainable economic growth



Primacy to this part

(Statutory Guidance on the general purpose of SEPA 2014
Para 2.3)

Regulatory Reform Scotland Act 2014

SEPA's purpose

1. Protect and improve the environment
- 2a. Improve health and well being
- 2b. Achieve sustainable economic growth



Without undermining
natural capital and
ecosystem services (Statutory
guidance para 3.3)





River Basin Management Planning

- SEPA leads in Scotland
- First River Basin Management Plan published 2009
- Second Plans due December 2015
- 'Current Condition and Challenges for the Future' consultation published December 2013
 - Environmental characterisation
 - Economic characterisation – ecosystem services
- Draft plan for consultation December 2014



Ecosystem services

Regulating

- Pollution dilution and dispersal:
 - Distilleries
 - Fish farms
 - Waste water
- Natural flood management

Provisioning

- Hydro electricity
- Farmed shellfish
- Commercial fish
- Whisky
- Agriculture
- Drinking water

Cultural

- Contribution to valuable landscapes
- Historic environment
- Kayaking, sailing & boating
- Habitat for iconic wildlife
- Recreational fishing
- Spirituality
- Swimming, diving, surfing
- Walking & running

Supporting services



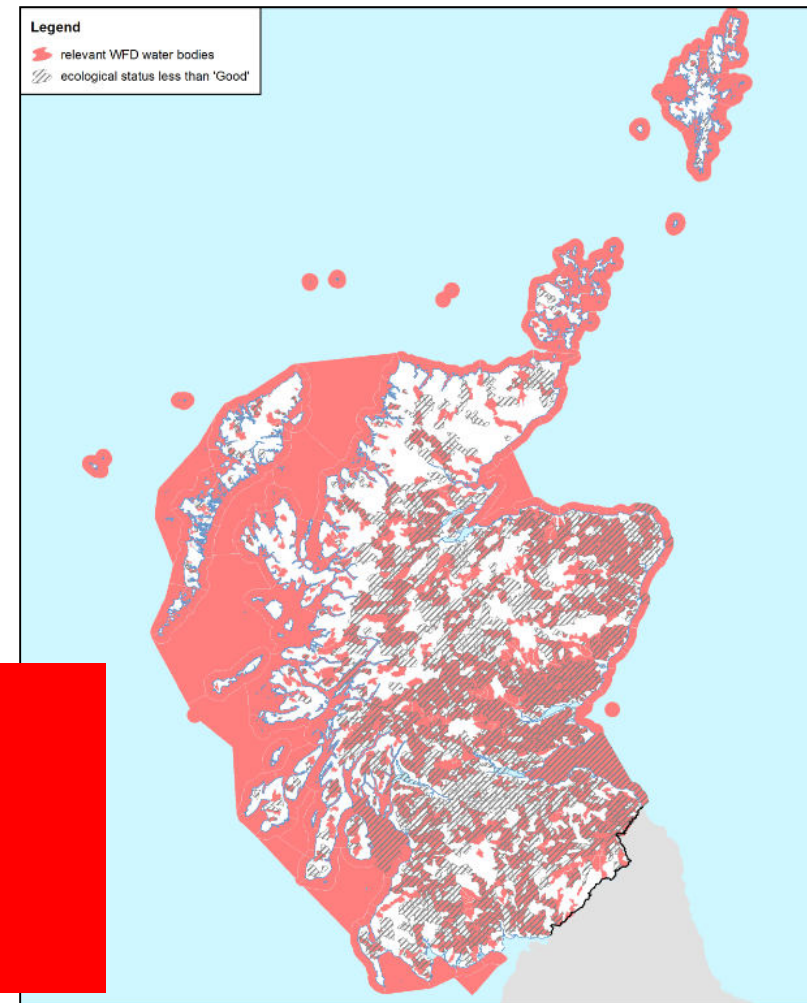
Information collated about
ecosystem services

- Water body level – *>3000 water bodies*
- Whether service is provided – *for all services*
- Level of service provided (relative terms) – *most provisioning and regulating services*
- Value derived from the service (relative terms) – *some services*
- Data available through Spotfire – SEPA and SE Web sites

Provisioning services

- Widely dispersed
- No obvious link with status downgrades

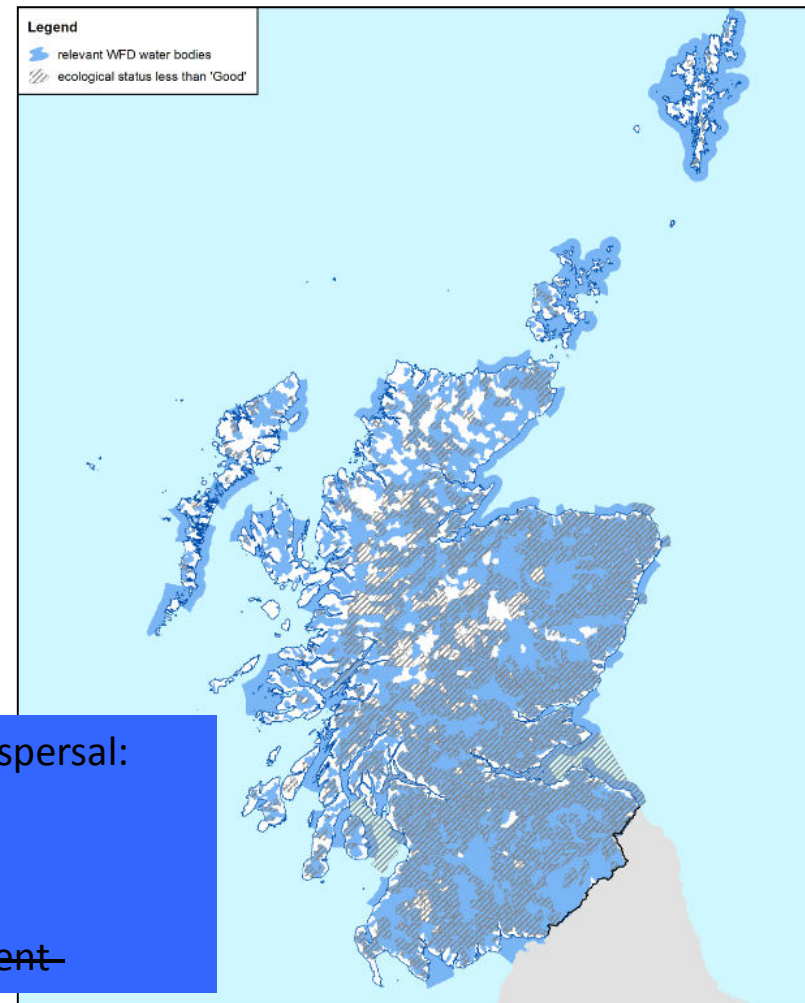
- Hydro electricity
- Farmed shellfish
- Commercial fish
- Whisky
- Agriculture
- Drinking water



Regulating services

- Very widely dispersed
- Provision linked with population density
- Only inshore coastal waters
- Possible link with status downgrade – not confirmed

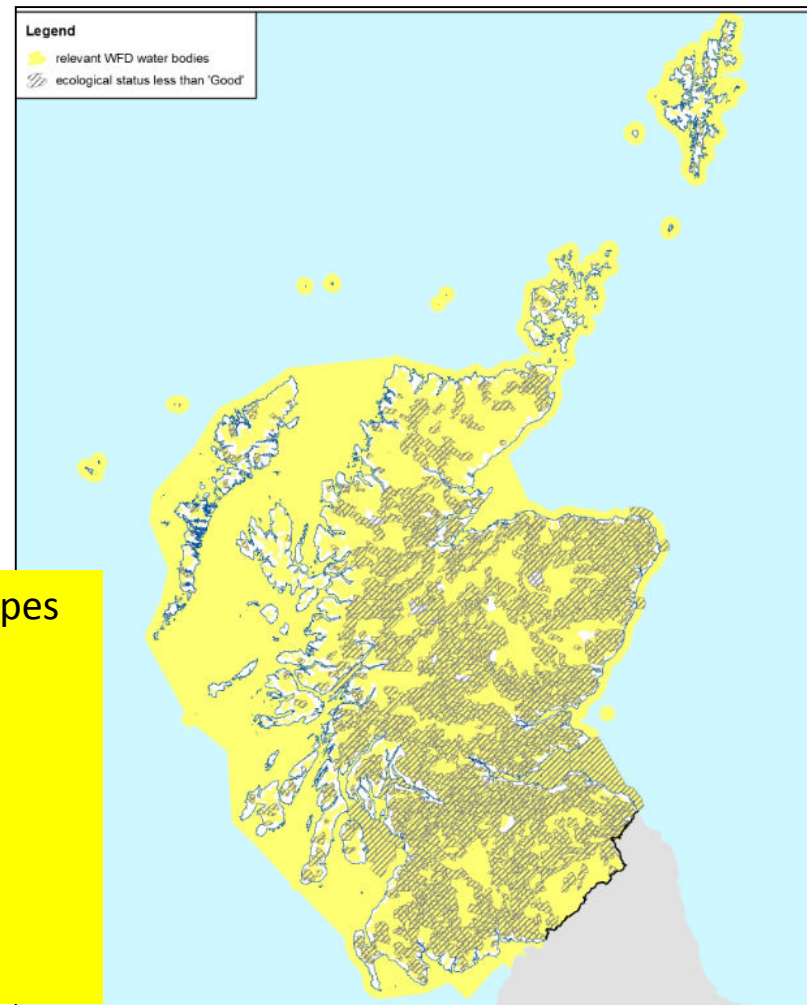
- Pollution dilution and dispersal:
 - Distilleries
 - Fish farms
 - Waste water
- ~~Natural flood management~~



Cultural services

- Almost all waterbodies
- Downgrade doesn't prevent provision
- Improved status might improve provision

- Contribution to valuable landscapes
- Historic environment
- Kayaking, sailing & boating
- Habitat for iconic wildlife
- Recreational fishing
- Spirituality
- Swimming, diving, surfing
- Walking & running



Current uses of the ecosystem services information

- Communicating about the water environment

making the case for the environment



- 1. Water is our life
- 2. What do we talk about when we talk about water?
- 3. Water makes the world go round
- 4. Keeping the balance
- 5. Where does SEPA fit in?
- 6. How can I help?

water

Current uses of the ecosystem services information

- Communicating about the water environment
- Predicting the impacts of improving the water environment on ecosystem services

Predicting impacts of improving the environment

- Anticipate relationship between ecosystem service provision and main pressure types:

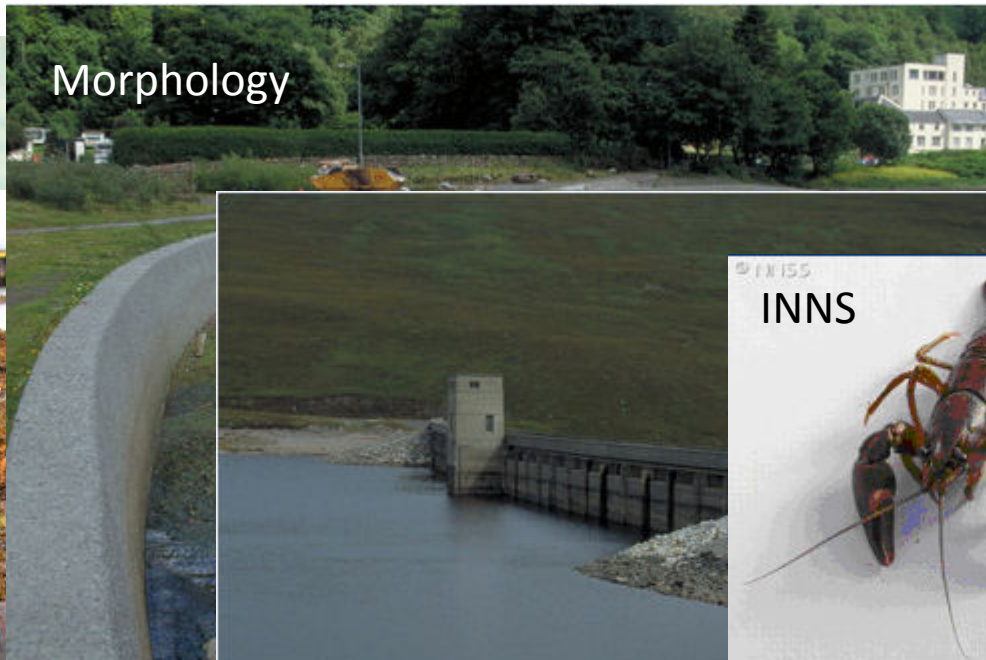
Main pressure types

Hydrology



Water quality

Morphology



Fish barriers

INNS



Predicting impacts of improving the environment

- Anticipate relationship between ecosystem service provision and main pressure types:

for all ecosystem services.
- Rules developed for:
 - Improvements in current ecosystem service provision
 - New ecosystem service provision

Sub basin district:

Type to search in list
(All) 1 values
Forth

Catchment:

Type to search in list
(All) 1 values
River Almond

Type to search in list

▼ Ecosystem service selection

Reset filters



Go to previous page

Type to search in list
(All) 1439 values
3000 : River Almond (Maitland ...
3001 : River Almond (Breich W...
3002 : River Almond (Foulshiel...
3003 : River Almond (Source to ...
3004 : Gogar Burn (Union Can...
3005 : Gogar Burn (Source to ...

Type to search in list
(All) 3 values
Diffuse or point source pollution
Morphological (fish barrier)
Morphological Alterations

**Diffuse or point source
pollution
Morphological (fish
barrier)
Morphological Alterations**

pressures to remove.

Then click on the [View ES potential](#) button to view the new ES potentials.

[View ES potential](#)

Pressure/status-adjusted improved ecosystem services potential

| Water body | Service Category | Ecosystem Service Type | Current presence of ecosystem service | Improved service | New service |
|--|-----------------------------|--|---------------------------------------|--------------------|-------------------------|
| 3000 : River Almond (Maitland Bridge to Cramond) | Culture and quality of life | Contribution to valuable landscape | No service | No current service | No potential |
| | | Historic environment | Service | No potential | Service already present |
| | | Kayaking, sailing and boating | Service | Potential | Service already present |
| | | Provision of habitat for iconic wildlife | No service | No current service | Potential |
| | | Recreational fishing | Service | Potential | Service already present |
| | | Spirituality | Service | Potential | Service already present |
| | | Swimming, diving and surfing | No service | No current service | Potential |
| | | Walking and running | Service | Potential | Service already present |
| | Functions and processes | Dilution and dispersal of regulated discharges from f... | No service | No current service | No potential |
| | | Dilution and dispersal of regulated discharges from... | No service | No current service | No potential |
| | | Dilution and dispersal of regulated sewage discharge | Service | No potential | Service already present |
| | | Potential contribution to natural flood management | Service | | |
| | Products | Agricultural production | No service | No current service | No potential |
| | | Contribution to commercial fishery | No service | No current service | No potential |
| Drinking water | | No service | No current service | No potential | |

Current uses of the ecosystem services information

- Communicating about the water environment
- Predicting the impacts of improving the water environment on ecosystem services
 - Prioritise improvements
 - Water Environment Fund allocation
 - Disproportionate cost decisions:
 - Cost benefit decisions
 - Disproportionate burden decisions
- Demonstration of what's possible and feasible

Developments and future applications of water ecosystem services information

- Automate information generation
- Supplement with information about other media and wider ecosystem services
- Community engagement and RBMP
- Multiple benefits projects – linking different work areas - Flooding, Land Use, Scottish Biodiversity Strategy etc

Statutory Guidance: How should SEPA achieve its general purpose?

PREVENTION:

Interconnected environment
Behavioural drivers
Root causes

Ecosystem services

PARTNERSHIP AND PLACE:

Focus on place: better partnerships
and local delivery
Broad range of evidence and analysis
Informing and encouraging voluntary
action
Promoting business benefits

TRANSPARENT:

Access to information and decision
making