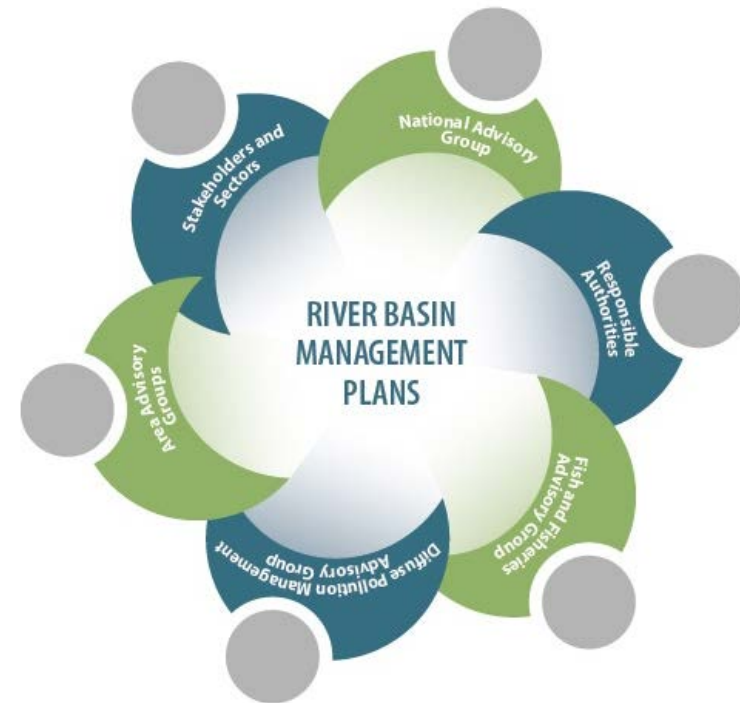


River Basin Management Plans

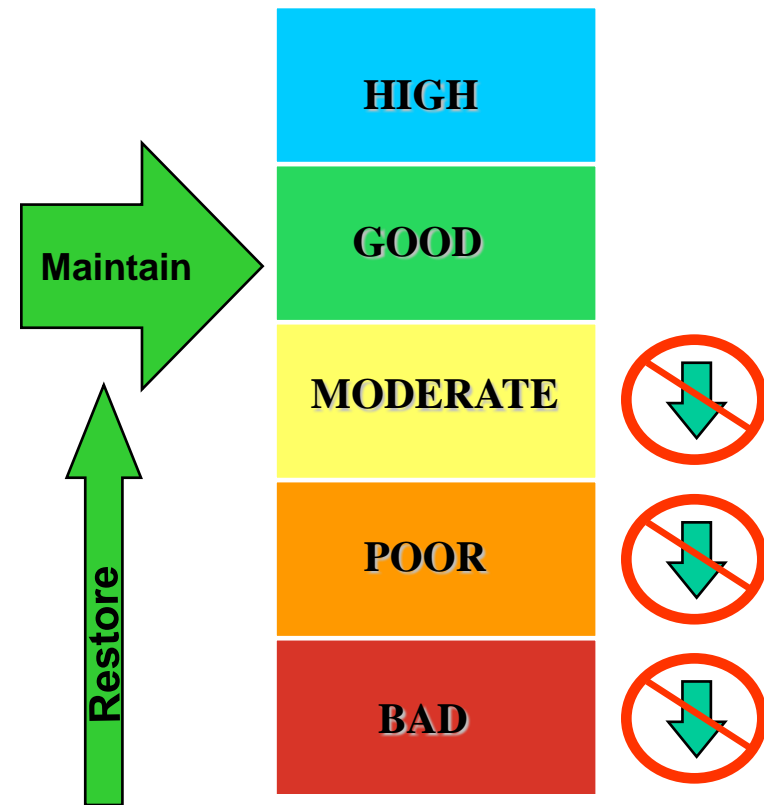
- 2 districts
- Protect and improve
- Balances costs and benefits to environment, economy and society
- Partnerships with responsible authorities, industries and stakeholders is key



What we have to do?

- SEPA monitors the quality of Scotland's waters
- European legislation requiring
 - restore to good status;
 - maintain good status; and
 - prevent deterioration
- Diffuse pollution is the largest pollution pressure affecting good status

2013 - 62% Scotland's rivers at High or Good status

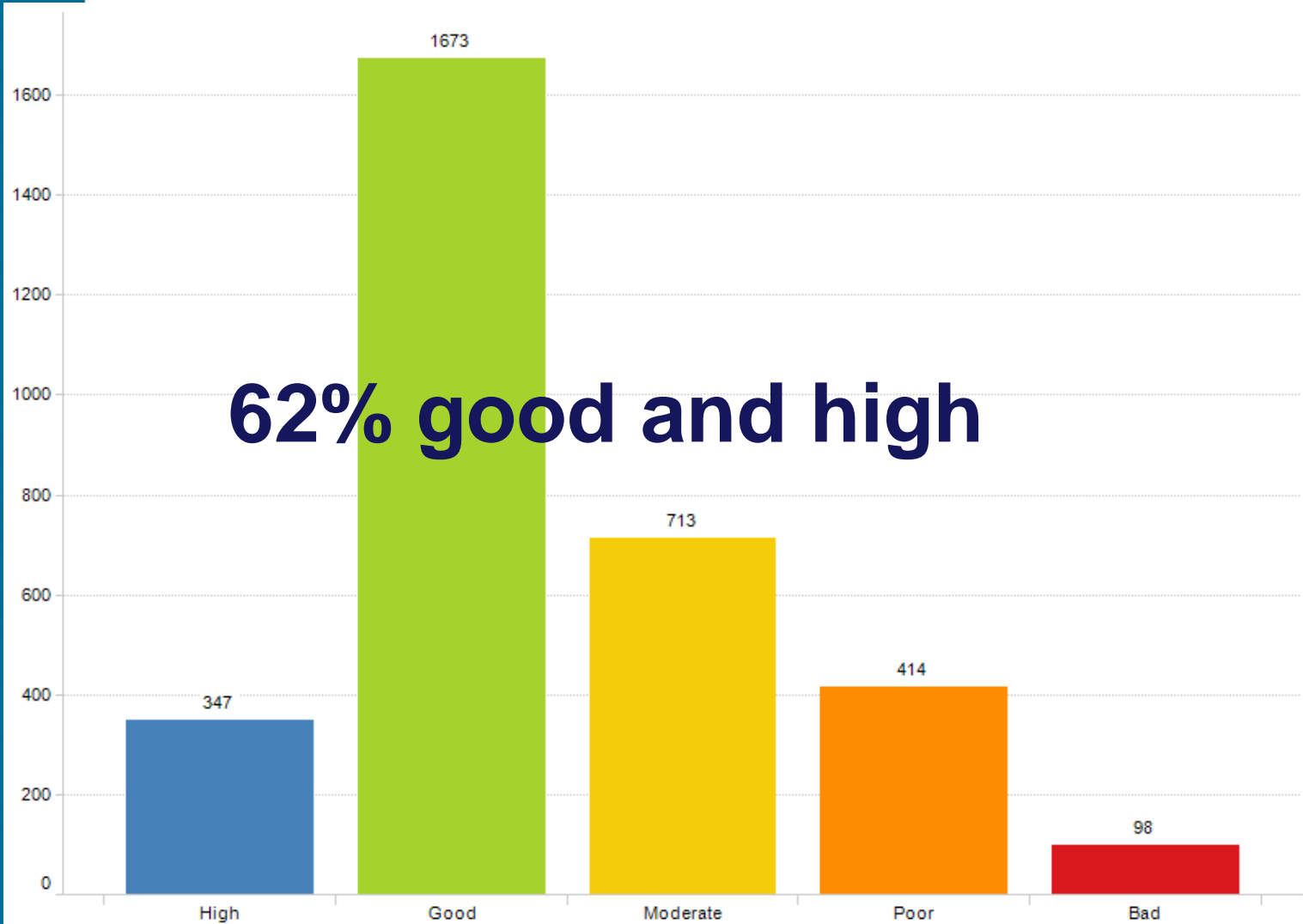


The pressures

- Water quality
 - Point source
 - Diffuse pollution
- Flows and levels
- Physical condition of the water environment
- Barriers to fish migration
- Invasive non-native species



Scotland

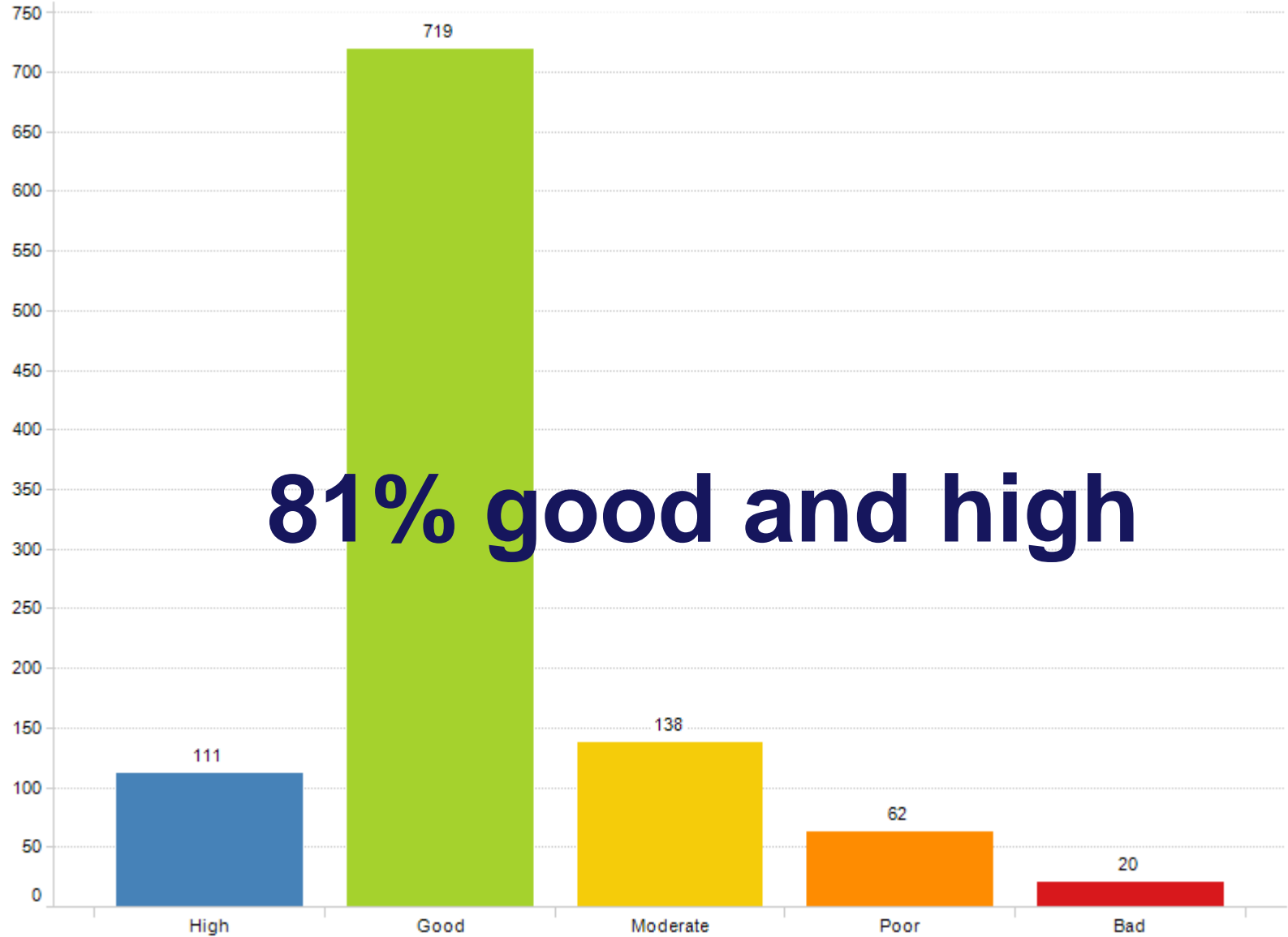




Difference between 2014 Final and 2013 Final				
	Rivers	Lochs	Transitional	Coastal
High	12	54	4	24
Good	-23	-48	-4	-16
Moderate	-29	-5	-1	-8
Poor	26	2	0	-1
Bad	21	0	0	0
HEP	0	0	0	0
GEP	-19	-1	0	1
MEP	-4	-2	1	0
PEP	0	3	0	0
BEP	17	-3	0	0
Total	1	0	0	0



North Highland



81% good and high



IF YOU SEE IT - REPORT IT



Number of water bodies in each area with forestry pressures - 2013

	Morphology	Fish barriers	Acidification	Diffuse pollution	TOTAL
South Scotland	12	3	13	34	62
Highlands & Islands	5	-	-	16	21
Central Scotland	-	-	-	4	4
Perth & Argyll	6	-	2	23	31
Grampian	4	2	-	18	24

Updated objectives will be published in the plan
Dec 2015



Measures to address pressures

- **Planning**
 - Development plans of certain threshold come through SEPA
- **Regulations**
 - CAR regulations licensing, registrations and GBRs
 - SEPA harms project – SW Scotland forestry project
- **Financial incentives**
 - Water Environment Fund
 - Subsidies – SRDP and woodland grants scheme
- **Policy alignment and integration**
- **Engagement and partnership working**
 - Consultation
 - Objective setting with conservancies, sectors and stakeholders
 - Sector and stakeholder engagement for training or run projects
 - Advisory group network
 - Pilot projects – morphology and flooding pressures



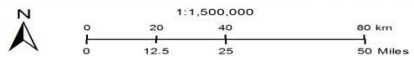
Harms project inspections

Dumfries and Galloway summary – March 2015

Total Inspections	219
Compliant	162 [74%]
Non Compliant	57 [26%]
Pollution Incidents	48
GBR20 – ground cultivation	32
GBR21 – surface waters	46
GBR22 – road construction	6

Sector liaison – John Gorman

- Improve Communication links with State and private forestry – liaison meetings
- Workshops, awareness days, training & site visits, shared learning
- Site inspections – clearfelling, restocking, drainage works, road construction, quarries, pesticide/herbicide/fertilisers applications
- Help develop Best Practice Guide for forestry activities via DPMAG



© 2015 Scottish Environment Protection Agency. Includes material based upon Ordnance Survey mapping with permission of H.M. Stationery Office, © Crown Copyright. Licence number 100016991.
 Helpdesk ref: F2013116. Produced by M Ross: 21/01/2015

Forestry HARMS roadshow

Training

- Pete Wright, water and land unit.
- Internal training – 80 SEPA staff from all directorates (mainly local ops) received training in basic forestry operations, terminology, H&S, GBRs and mitigation measures.
- External training – 42 member of FCS received a days training at Battleby on GBRs, mitigation measures and reporting back to SEPA.
- SEPAs forestry inspection forms and associated guidance documents are due to be updated following input from stakeholders

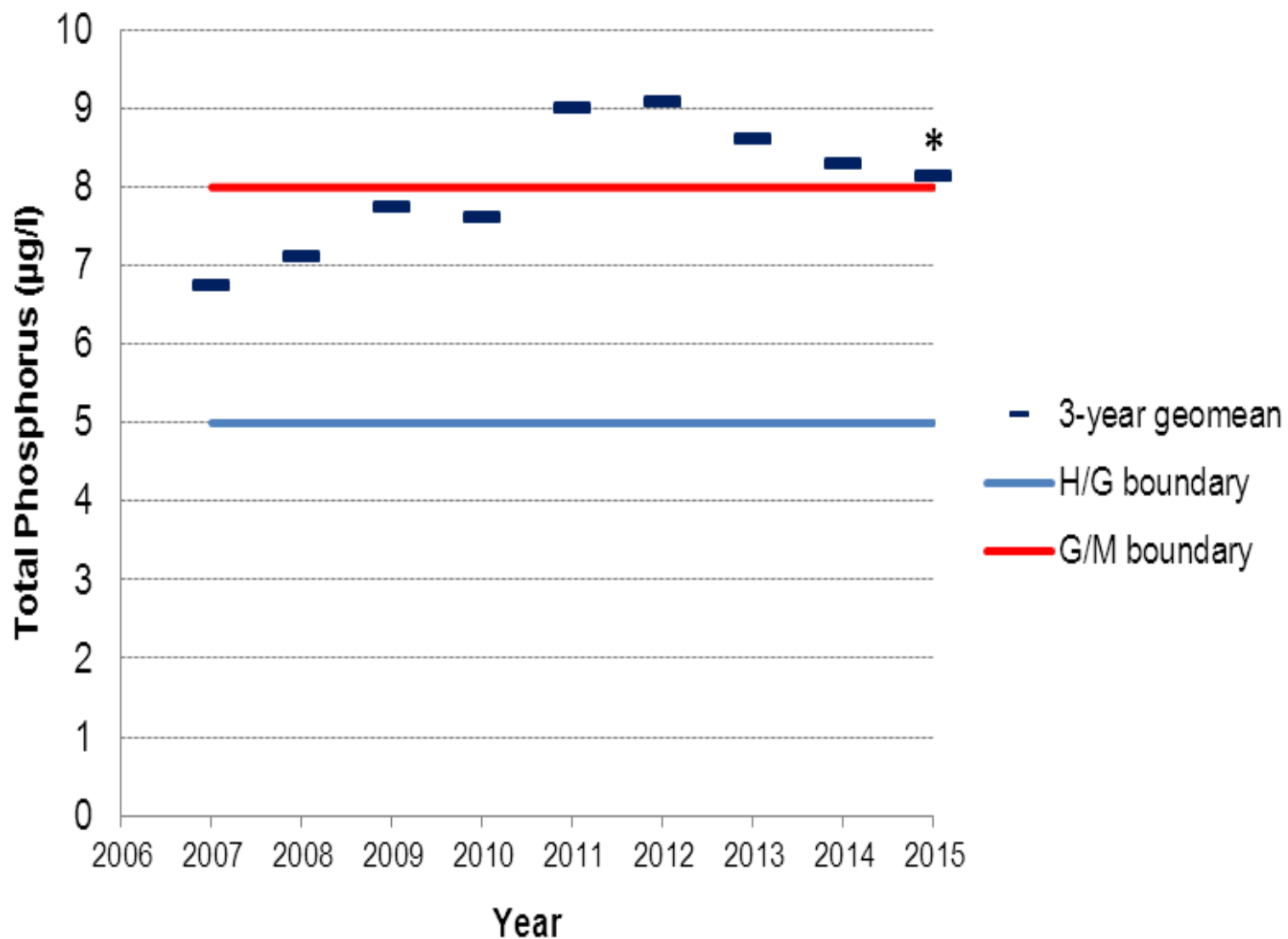


LOCH SHIN HARMS ACTION PLAN



Geraldine Wight
North Highland Operations Team

Loch Shin total phosphorus 3-year geometric means



* data to August 2015 only



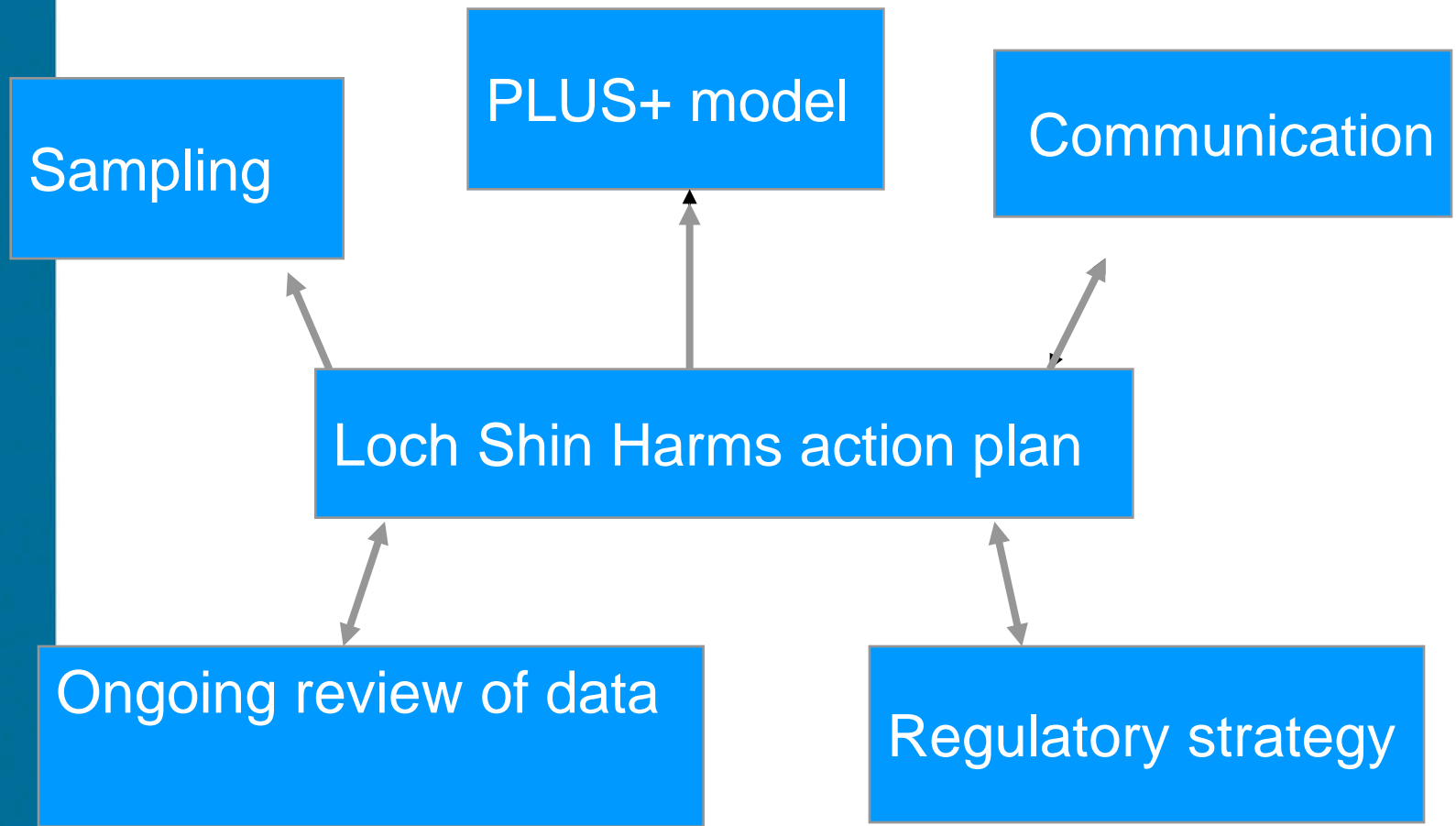
**Forestry
started
1959**

**Cage Fish
Farming
1980s**





Hydro Power 1950s



Ongoing catchment work

- Partnership/stakeholder involvement
- Promote best practice to minimise phosphorus input
- Refine model
- Aerial v's hand fertiliser application
- Ecological impact
- Paleolimnology sample

Diffuse pollution in Scotland

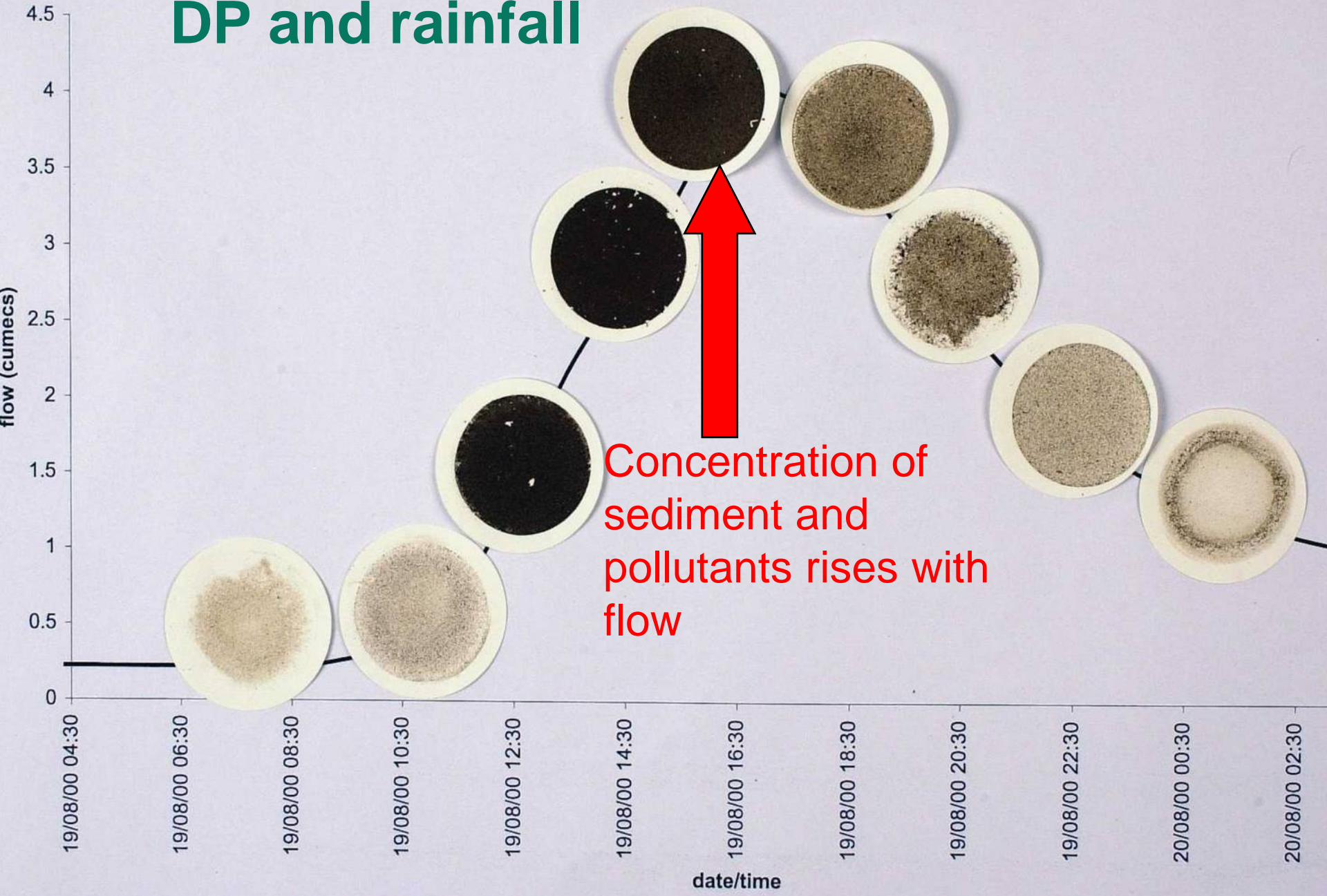
- Scotland's water quality is generally good!
- Rural Diffuse pollution now the largest pollution pressure



- Individually minor, but collectively significant
- Sources include sediment, nutrients, bacteria & pesticides
- Transported from land to burns and rivers
- Heavily influenced by rainfall



DP and rainfall





WHERE are the risks in forestry?

- Sediment delivery due to soil disturbance associated with road creation, planting and clear felling made worse during heavy rainfall events;
- Phosphate input to highly sensitive upland lochs;
- Potential pollution incidents associated with spillages of fuel or chemicals;
- Damage to the physical structure of rivers due to historic planting – right up to the bank, or poorly sited roads and drainage systems.
- Acidification



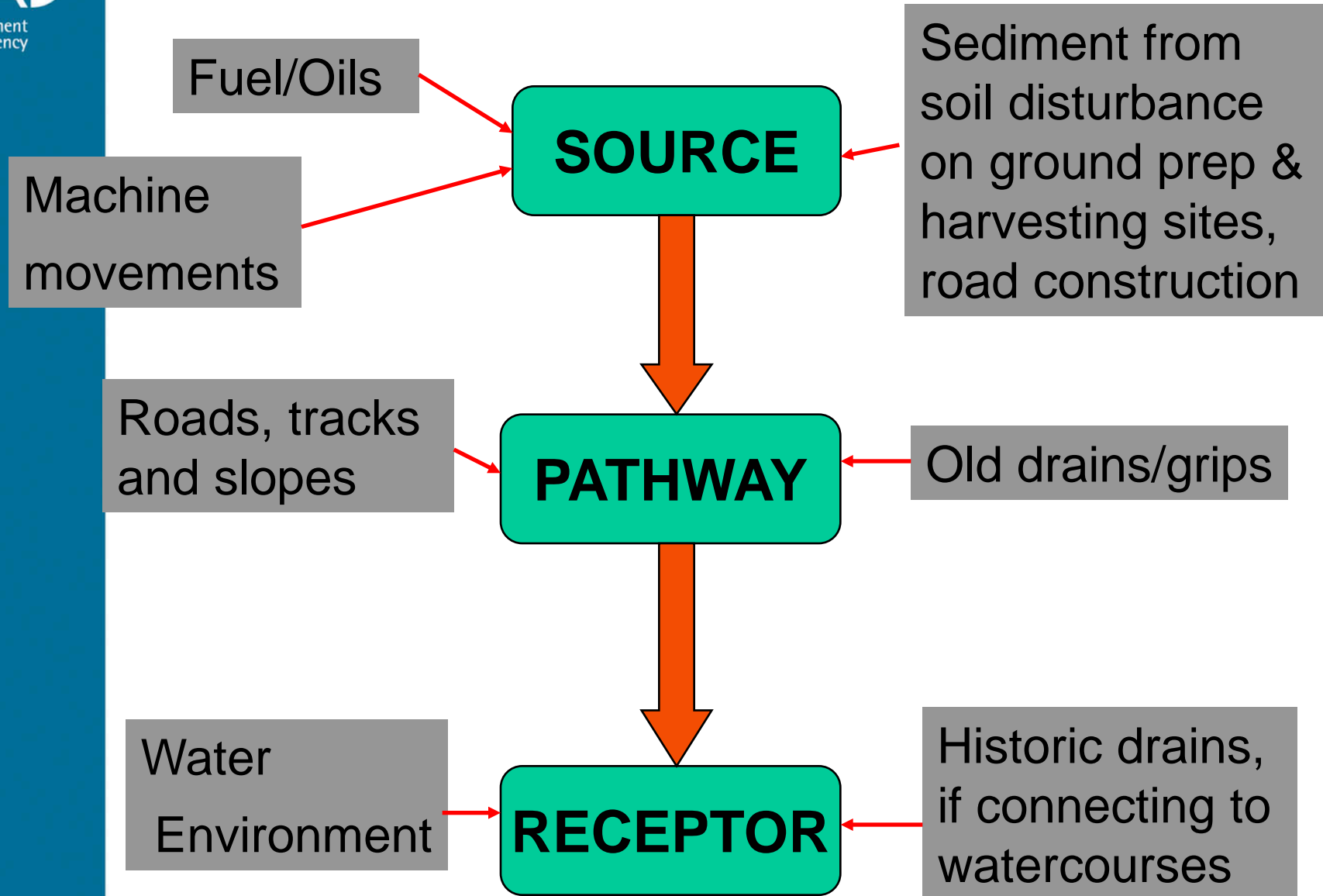


WHERE are the risks in forestry?



- Harvesting
- Ground preparation
- Planting
- Pesticide applications
- Thinning
- Road Construction

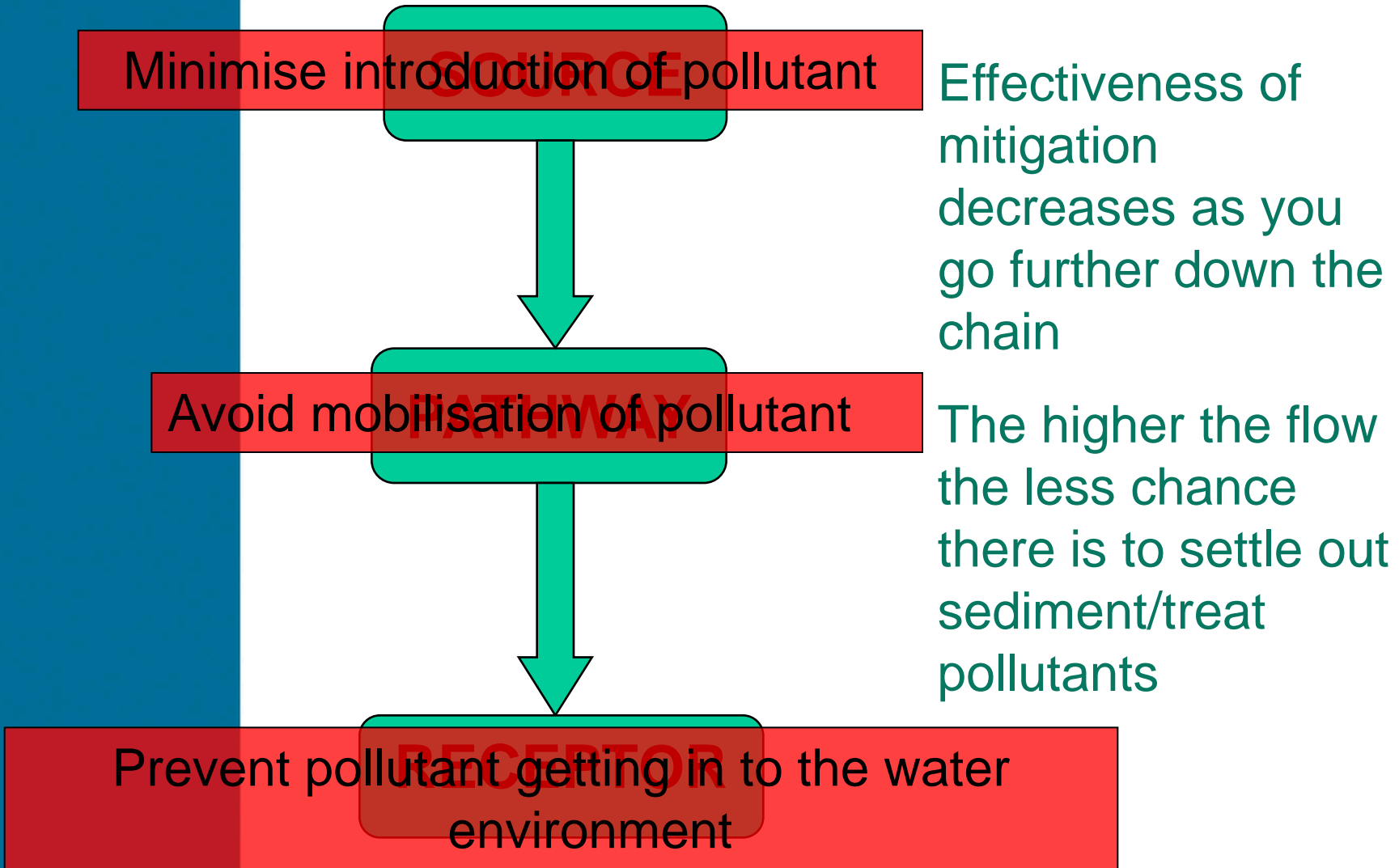
WHEN does diffuse pollution happen?



Think source-pathway-receptor!



HOW can we deal with it?



Breaking the Source/Pathway/Receptor



Drainage Management

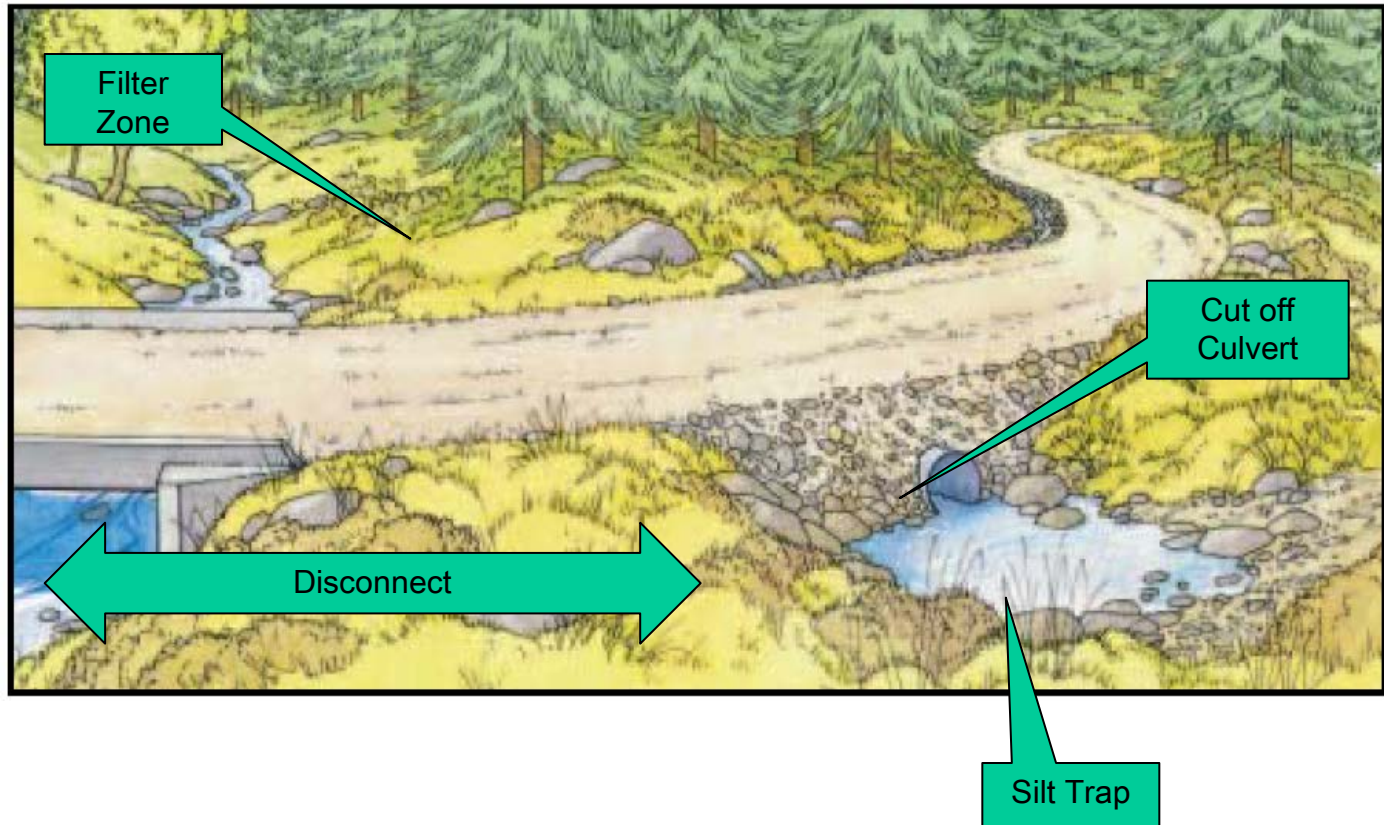


CHRONOLOGICAL DRAINAGE REVIEW

- **FWG2, 1991 [23 Years ago]** prevent roadside drains discharging direct to watercourses; where unavoidable provide silt traps and maintain them regularly.
- **FWG3, 1993 [21 Years ago]** Roadside drains carry high sediment load must not be allowed to directly connect to watercourses, re-direct to buffer areas
- **FWG4, 2003 [12 Years ago]** Old drain clearing presents high risk of pollution, drains should be realigned to ensure volume flows onto vegetated ground and NOT into watercourses. Existing drains should not drain directly into watercourses
- **FWG5, 2011 [3 Years ago]** Realign existing drains, avoid watercourse connections, redirect to buffer zones

Disconnection

FC Operations Note 25 - Roadside drain



Regulations

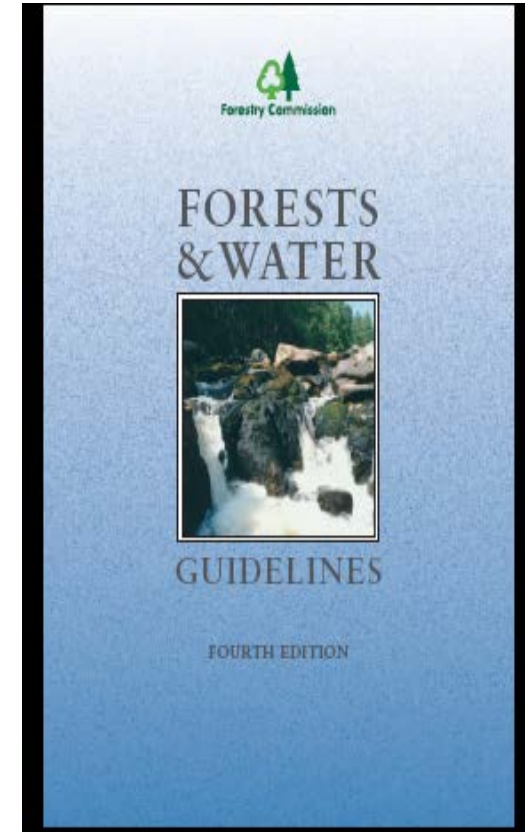
Diffuse Pollution General Binding Rules (DP GBRs)

Introduced in April 2008

Based on accepted standards
of good practice

Rules focused on **land** and
run-off management

Cover all land use activities





The Diffuse Pollution GBRs cover....



- Storage and application of fertiliser (Rule 18)
- Keeping of livestock (Rule 19)
- Cultivation of crops (Rule 20)
- Discharge of water from a surface water course, to the water environment for agricultural or forestry purposes (Rule 21)
- Construction and maintenance of water bound roads and tracks (Rule 22)
- The handling of sheep (Rule 23)
- Operating sheep dipping facilities (Rule 24)



Regulation – firm and fair

- SEPA's enforcement policy – polluter pays
- Regulations - licence, registration & GBRs
- Call from industry to tackle poor performers
- Harms project has identified there are issues. These resulted in final warning letters, procedure change and fish surveys needing carried out
- Regulatory reform act 2014 will help reward compliance and tackle the non compliance sites



Storage and Application of Fertiliser (Rule 18)

Fertiliser run off can result in algal blooms and increased plant growth

Rule 18 covers:

Safe minimum distances
watercourses; ponds;
wetland areas

Timing of applications

Location of site storage



Ground Cultivation (GBR 20)

Rule 20 covers

Safe minimum
distances
watercourses; ponds;
wetland areas

- No cultivation on waterlogged ground
- No direct connection of drains to watercourses
- Appropriate drain gradients
- Silt traps/pools where required



Surface Water Drainage (GBR 21)

Rule 21 covers:

- Forest drains should not connect directly to surface waters
- Surface water should **not** be allowed to concentrate up into large volumes
- Water should be shed onto vegetated ground or into silt traps/ponds
- Bad practice can result in serious erosion, pollution and flooding.



Road Construction (GBR 22)

Rule 22 covers:

- Appropriate materials should be used in construction
- Acid and sulphide rich material may result in poor water quality



Application of Pesticide (GBR 23)

Low levels of pesticide
can have adverse
effects on the water
environment

Rule 23 covers:

Pesticide equipment
and maintenance



HOW can you deal with it?

Timing

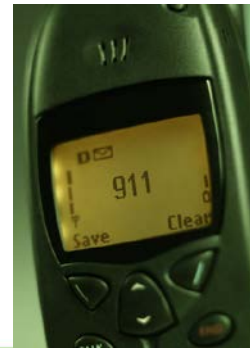
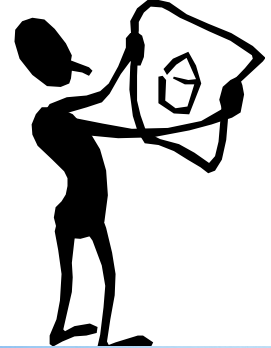
Identify potentially problematic historic drains

Divert clean water before it enters the site

Highlight any rough areas suitable for soakage

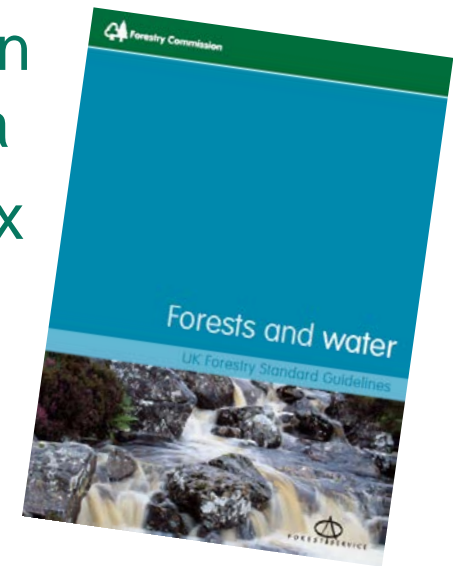
Consider contingency (machinery available?)

Speak to SEPA!



Next steps

- Establish DPMAG forestry subgroup
- Forestry and Water Scotland 'Know the rules' guidance
- Forestry & Water Scotland website
- Engage key organisations, industry reps and contractors
- SEPA to provide training to FCS on forestry pressures and RBMP data
- FCS to deliver training and 'toolbox talks' to FE and contractors?





Information



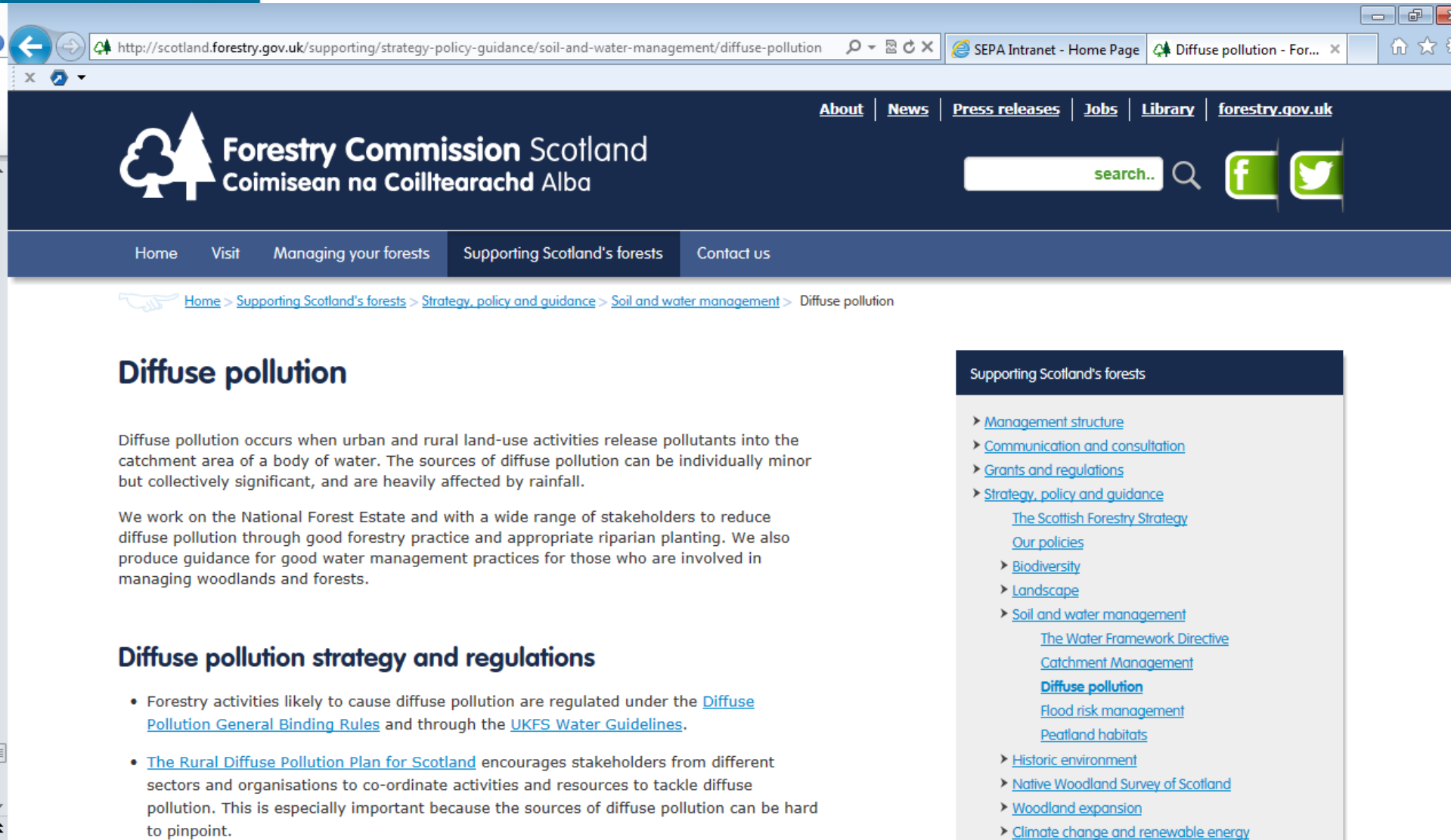
our water environment in order that all water bodies reach good status over successive RBMP cycles.

The following table shows our collated information on the pressures on this water body, their causes and the measures which could be introduced to mitigate their effects. We have also indicated the current funding status of the measure; with projected measures being potentially funded and agreed measures having funding in place. Finally, we have included information on the potential or actual owner of the measure, the date it will be effective and information on the justification for extending the deadlines or for setting an alternative objective, where appropriate.

Pressure	As a Result of	Assessment Parameter	Objective	Reasons for Failure
	Measure	Funding	Owner	Effective date
Morphological Alterations	Production of renewable electricity (NB nuclear and pumped hydro are not renewable forms of electricity generation) Impounding - weir / dam	Fish passage	Moderate by 2015	Implementation of the measure by an earlier deadline would impose disproportionate burdens
	Removal of barriers or provision of mechanisms to enable fish migration	Projected	Scottish and Southern Energy	31/12/2026

Footnote – These results show current classification but the measures, pressures and objectives shown may not yet align to these classification results. Please contact rbmp@sepa.org.uk if you require further information on this water body.

And there is more...



The screenshot shows a web browser window displaying the Forestry Commission Scotland website. The URL in the address bar is <http://scotland.forestry.gov.uk/supporting/strategy-policy-guidance/soil-and-water-management/diffuse-pollution>. The page header includes navigation links for [About](#), [News](#), [Press releases](#), [Jobs](#), [Library](#), and [forestry.gov.uk](#). The main header features the Forestry Commission Scotland logo and name in both English and Gaelic, a search bar, and social media icons for Facebook and Twitter. A breadcrumb trail reads: [Home](#) > [Supporting Scotland's forests](#) > [Strategy, policy and guidance](#) > [Soil and water management](#) > Diffuse pollution. The main content area is titled 'Diffuse pollution' and contains two paragraphs of text. A right-hand sidebar titled 'Supporting Scotland's forests' lists various sub-topics, with 'Soil and water management' expanded to show a list of related documents and policies.



Diffuse pollution

Diffuse pollution occurs when urban and rural land-use activities release pollutants into the catchment area of a body of water. The sources of diffuse pollution can be individually minor but collectively significant, and are heavily affected by rainfall.

We work on the National Forest Estate and with a wide range of stakeholders to reduce diffuse pollution through good forestry practice and appropriate riparian planting. We also produce guidance for good water management practices for those who are involved in managing woodlands and forests.

Diffuse pollution strategy and regulations

- Forestry activities likely to cause diffuse pollution are regulated under the [Diffuse Pollution General Binding Rules](#) and through the [UKFS Water Guidelines](#).
- [The Rural Diffuse Pollution Plan for Scotland](#) encourages stakeholders from different sectors and organisations to co-ordinate activities and resources to tackle diffuse pollution. This is especially important because the sources of diffuse pollution can be hard to pinpoint.

Supporting Scotland's forests

- > [Management structure](#)
- > [Communication and consultation](#)
- > [Grants and regulations](#)
- > [Strategy, policy and guidance](#)
 - [The Scottish Forestry Strategy](#)
 - [Our policies](#)
- > [Biodiversity](#)
- > [Landscape](#)
- > [Soil and water management](#)
 - [The Water Framework Directive](#)
 - [Catchment Management](#)
 - [Diffuse pollution](#)
 - [Flood risk management](#)
 - [Peatland habitats](#)
- > [Historic environment](#)
- > [Native Woodland Survey of Scotland](#)
- > [Woodland expansion](#)
- > [Climate change and renewable energy](#)