

North Solway area management plan 2010–2015

**Supplementary to the river basin management plan for the Solway
Tweed river basin district**



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The North Solway area management plan

This plan has been prepared by the SEPA and the members of the Solway Area Advisory Group who are in the Scottish part of the Solway Tweed river basin district.

A copy of this plan and the area management plan for the south (English) part of the Solway area can be found at:

www.sepa.org.uk/water/river_basin_planning/area_advisory_groups/solway.aspx

These pages also list the members of the Solway area advisory group.

SEPA would like to thank these group members and the other organisations who have worked to prepare this first area management plan for the water environment of the North Solway area.

More information on the Solway Tweed river basin district can be found at:

www.sepa.org.uk/water/river_basin_planning.aspx

Introduction

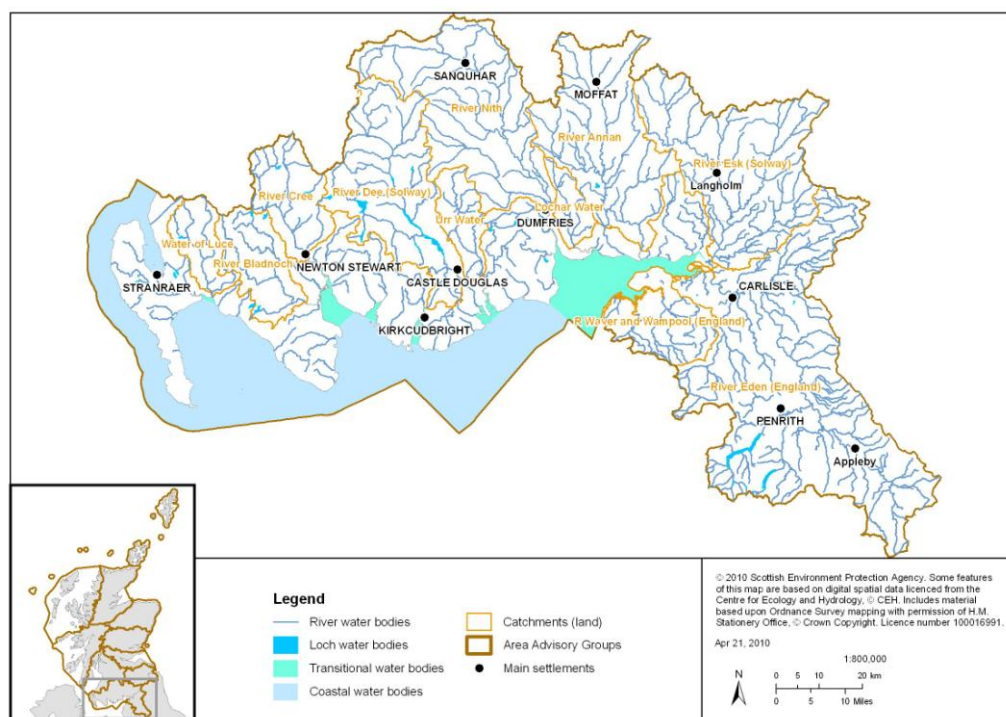
This plan has been produced to help focus our attention on the condition of the water environment in the North Solway area, and on what we need to do to maintain and improve it.

It is important that the water environment in the North Solway is in good condition. We can then enjoy clean bathing beaches, healthy salmon rivers, fresh water for us to drink and ample water for industry and farming to use. Not all of the water environment in the area currently meets these requirements. This plan describes how it will be improved.

There are three parts to this plan:

- the area management plan (this document);
- catchment summaries, which provide more detail on the pressures and condition of each catchment;
- the action plan, which contains information on the area advisory group, projects and individual actions that will help deliver this plan.

Everyone has a part to play in helping to protect and improve the water environment and we will all share in the benefits. If you would like to contribute to this plan and help our water environment then we would like to hear from you at: rbmp@sepa.org.uk



Map 1: The Solway area

The current condition of the water environment

The water environment includes all rivers, lochs, estuaries, coastal waters and groundwater (the water within the underground soils and rocks). It also includes all the wetlands that depend on surface waters or groundwater for their water needs. Heavily modified waters, such as reservoirs, are included in this plan as part of the surface waters.

There is great variation in the water environment of the North Solway. For example the coast changes from the sand dunes at Southernness and Torrs Warren to the 85 metre-high cliffs at the Mull of Galloway. To reflect these variations the surface and groundwaters have been split into smaller water bodies.

The condition of these water bodies is determined by monitoring and assessing:

- the quality of the water (for example, whether pollutants are present);
- the amount of water present;
- the condition of the beds, banks and shores of the water body (this includes assessing whether migratory fish can successfully reach and return from spawning grounds);
- the presence of invasive non-native species (such as North American signal crayfish).

Once all of this information has been analysed, the water body is classified as high, good, moderate, poor or bad. High status water bodies are at almost natural condition, while water bodies in moderate, poor or bad condition are showing increasingly more severe impacts from human activities. The aim is for all water bodies to be in at least good condition.

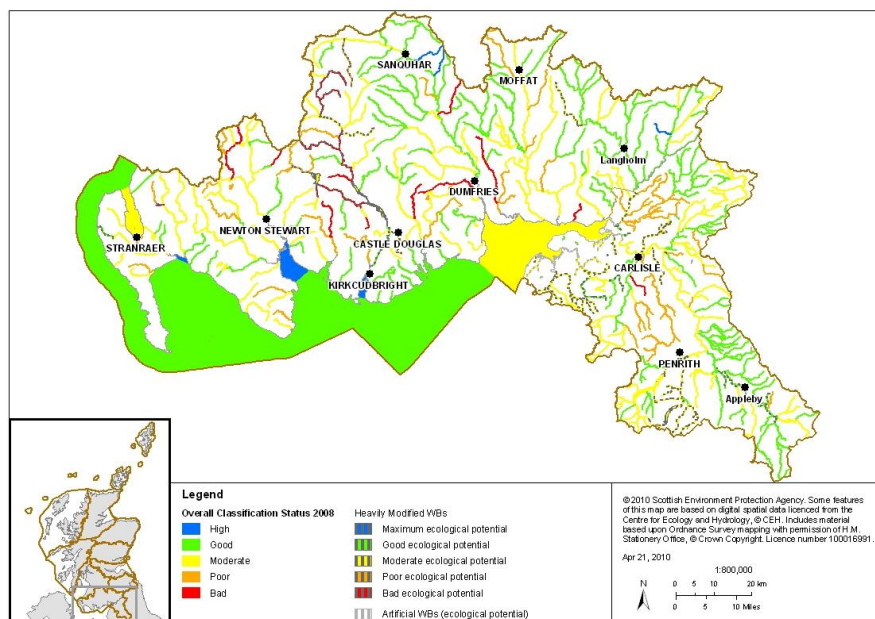
There are 313 water bodies in the North Solway area. This comprehensive assessment of the water environment has revealed that 47% of all water bodies in the North Solway area are in good condition (using 2008 information).

Table 1: Condition of surface waters and groundwater in the North Solway area in 2008

2008 condition	Number of water bodies			
	All water bodies	Surface waters		Groundwater ¹
		Natural	Heavily modified	
High/Maximum	8	8	0	
Good	138	106	3	29
Moderate	101	94	7	
Poor	44	34	2	8
Bad	22	12	10	
Totals	313	254	22	37

Map 2 shows the condition of surface waters in the North Solway area. On this map it is clear that the coast and estuaries are generally in good condition and are mostly showing as blue (high) or green (good).

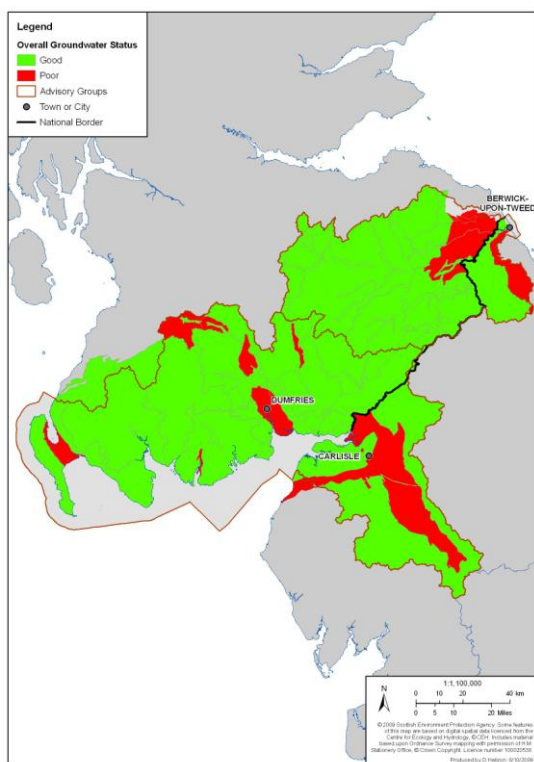
¹ Bodies of groundwater are classed as either of good status or poor status.



Map 2: The current condition of surface waters in the North Solway area

Eight water bodies have been classified as high, which means that they are in nearly natural condition, with little impact from people, land use or development. Of these, five are estuaries and three are river water bodies. Only a relatively small number of water bodies (22 or 7%) are in bad condition.

Map 3 shows the condition of the groundwaters, 78% of which are in good condition.



Map 3: The current condition of groundwaters in the North Solway area

Information on the condition of individual water bodies can be accessed through the web based interactive map on SEPA's website at:
www.sepa.org.uk/water/river_basin_planning.aspx

Catchment approach

Assessing the condition of individual water bodies is important because it allows resources to be targeted more effectively, but it is important to take a broader overview and look at impacts on a catchment scale. This will also influence how we tackle some of the issues. For example, where there are obstructions to fish migration, it makes sense to tackle the lower barriers first.

To help us better understand what needs to be done on a catchment basis, this document is supported by short catchment summaries that can also be found on the RBMP webpages at:

www.sepa.org.uk/water/river_basin_planning/area_advisory_groups/solway.aspx

Cross border water bodies: the Esk catchment

The area covered by the Solway area advisory group includes the Esk catchment, which has its upper sections in Scotland and its lower sections in England. Members of the Solway Area Advisory Group include both Scottish and English representatives, which helps ensure that the people involved in the management of this catchment consider what is happening upstream and downstream and does not stop at the border.

This management plan is part of that process. For completeness, it includes the Esk English water bodies and the South Solway area management plan includes the Scottish Esk water bodies

Protected areas

A large proportion of the water environment in the North Solway area has been identified as requiring special protection because of sensitivity to pollution or particular economic, social or environmental importance. These areas are water bodies or parts of water bodies that:

- are used for the abstraction of water intended for human consumption;
- support economically significant shellfish or freshwater fish stocks;
- are designated as bathing waters;
- support habitats or species of international biodiversity conservation importance;
- are sensitive to nutrient enrichment.

These areas represent some of North Solway's most valued natural assets. By protecting them we will help safeguard biodiversity, sustain employment in our rural communities and protect our drinking water sources from pollution. Many of the Solway Tweed river basin district's protected areas are already achieving the goals for which they were established

Cross border water bodies: the Solway

As with other cross-border sites in the Solway Tweed river basin district, SEPA and the Environment Agency share information and have an agreed monitoring programme for this site.

In addition, the Solway estuary is an internationally protected area – The Solway Firth European Marine Site. Scottish Natural Heritage and Natural England also provide information which can help determine the best management options for this water body.

Other valuable sources of information on the Solway include the work of the Solway Firth Partnership.

Why are some water bodies not in good condition?

There are several reasons why the water environment in the North Solway is not in good condition. The most common causes are:

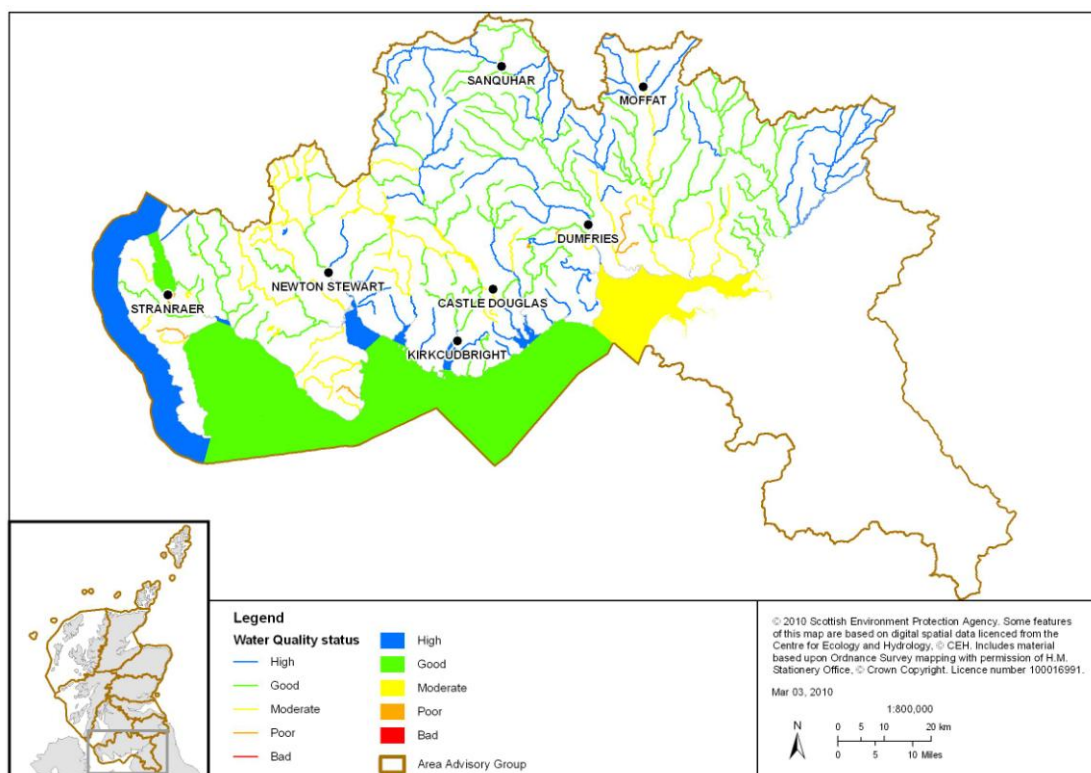
- pollution from multiple rural sources (diffuse pollution);
- changes to beds, banks or shores;
- man-made barriers preventing migratory fish reaching all parts of the river;
- acidified rivers and lochs, which affects their ecology;
- the presence of invasive non-native species.

Water quality

Map 4 shows the general quality of the water environment. Water bodies coloured yellow (moderate condition) orange (poor condition) or red (bad condition) are showing the effects of pollution.

There are two main water quality issues in the North Solway area:

- diffuse pollution from rural sources;
- acidification of water bodies.



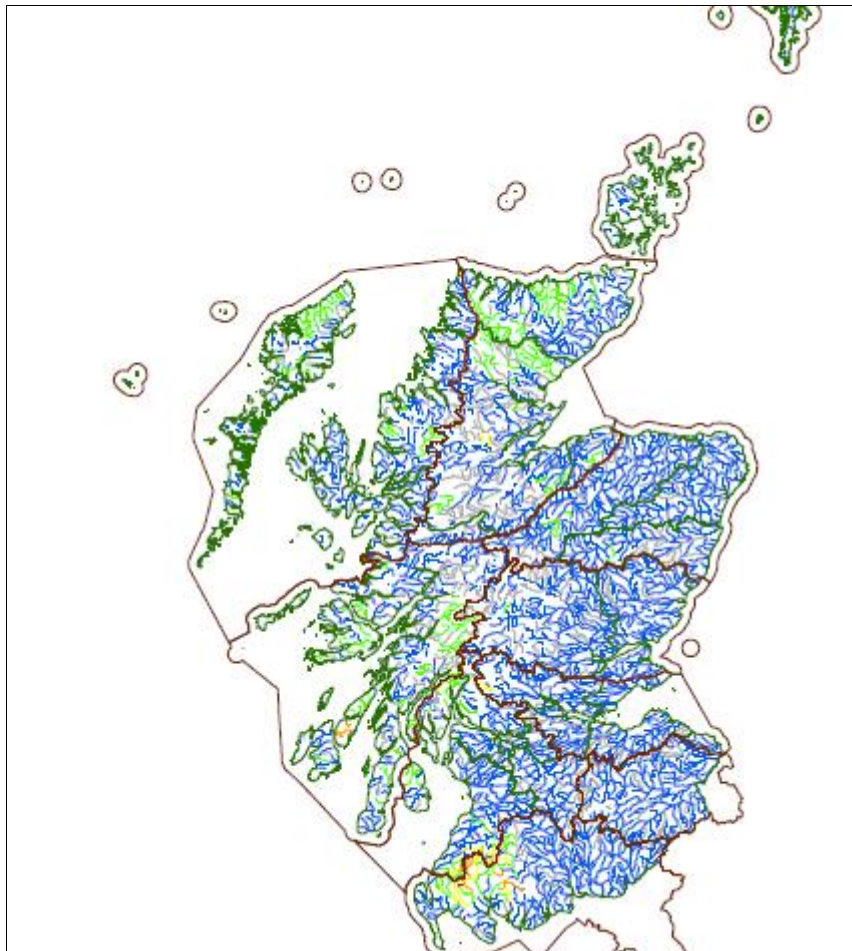
Map 4: The water quality condition of surface waters

Diffuse pollution from rural activities

Diffuse pollution is pollution that enters a water course from many, often small, sources. These sources include run-off from ploughing or bare soil, farmyard drainage, or pesticides and herbicides washed or draining into the water environment. Each source may only have a small effect on the life in the water environment or water quality, but the combined effects of a large number of sources can be significant.

Acidified water bodies

The combination of poor air quality due to atmospheric pollutants, an acidic (non-buffering) geology and extensive planting of conifer forests has caused some of the water bodies in the North Solway to acidify. Acidic waters causes a reduction in the types of aquatic insects present and some types of fish have died out as their eggs and young have been unable to survive in the low pH waters. Map 5 shows that the majority of acidified waters in Scotland are found in the Galloway.



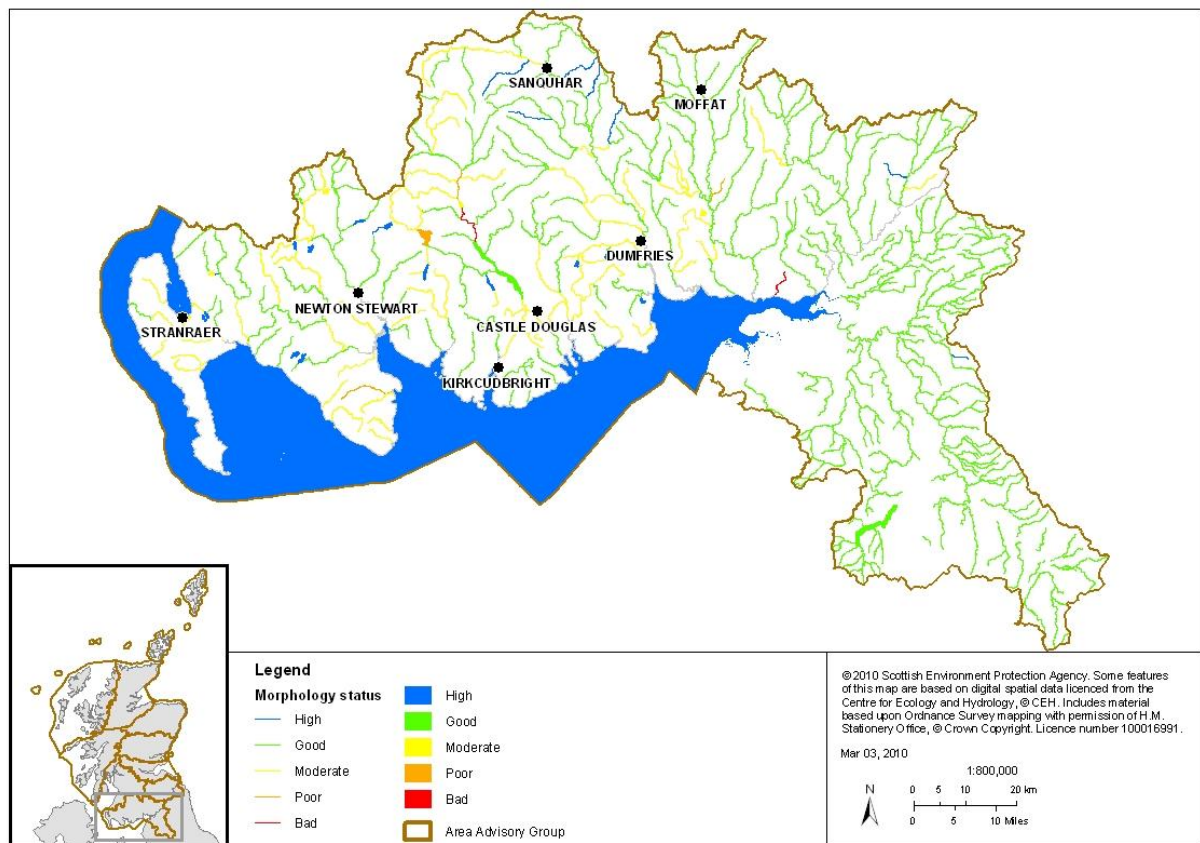
Map 5: The condition of acidified waters in Scotland

Changes to beds, banks and shoreline habitats

Many of the river banks and beds have been altered over time for agricultural or forestry improvement. This includes straightening, widening and ditching sections. This will also influence the way that sediment is moved and deposited in the catchment.

Farming right up to the edge of the burns means that the natural vegetation has been changed or lost. In some areas forestry has been planted up to the edge of watercourses, with the result that shading from the conifers has prevented any natural vegetation from growing. Map 6 shows the water bodies affected by this kind of change.

Water bodies that have been changed significantly by man can be designated as heavily modified water bodies. In the North Solway this includes water bodies modified to create reservoirs for storing drinking water, as part of the Galloway hydro scheme and for flood control.

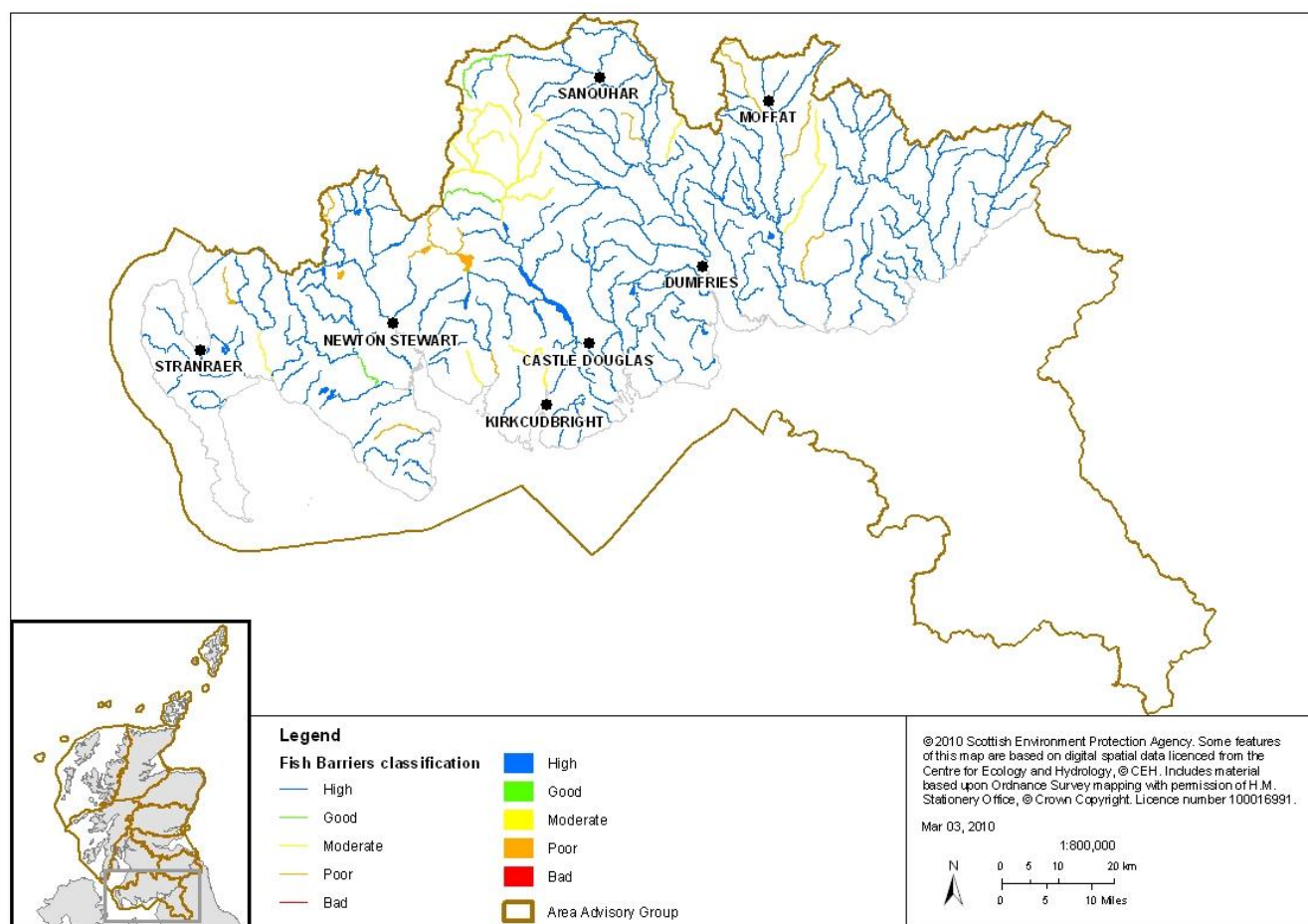


Map 6: Changes to beds banks and shoreline habitats

Barriers to fish migration

Man-made barriers to fish migration, such as weirs and dams, prevent species such as salmon and sea trout from reaching parts of the catchments where there may be suitable spawning habitats. As these barriers have been introduced and effectively cut off the fish from their breeding sites the ecology of the catchment is diminished.

Information on barriers to fish migration is required as part of the Water Framework Directive classification scheme and consequently it is data that SEPA has only recently started to collect. To help improve our dataset SEPA has set up a series of meeting with fishery boards and trusts. Map 7 below is based on the most recent information available, but will be updated as more information becomes available.



Map 7: Barriers to fish migration

Invasive non-native species

Invasive non-native species are plants and animals from other parts of the world that have successfully established themselves in areas where they would not naturally occur. Away from their normal water environment and often free from their usual predators, these species can thrive at the expense of our own native wildlife.

There are four water bodies in the North Solway classified as moderate due to the presence of North American signal crayfish. Three are within the Dee-Ken system, which contains the largest population of North American signal crayfish in Scotland.

SEPA is now beginning to take into account the impact of invasive non-native plant species on bank side vegetation and the harm it can have on water bodies' condition.

Targets for the water environment

The overall target is for 85% of the water environment in the North Solway area to be in good condition or better by 2027. This long-term planning allows us to take into account the potential cost and feasibility of the work that needs to happen.

There are two broad aims:

- to protect from deterioration those water bodies currently at good or high;
- to improve and restore those currently in moderate, poor or bad condition.

Phasing the improvements over three six year cycles also allows us time to monitor progress and adapt the plan. This means that we can respond to uncertainties about climate change, for example.

Table 2: Phased improvements to the condition of water bodies the North Solway area

	Proportion of water bodies in a good or better condition (%)			
	2008	2015	2021	2027
All water bodies	47	53	60	85

Protected areas

The good condition of protected areas must also be maintained. By 2015 actions will have been taken to ensure that most protected areas will meet the required assessment criteria. One Special Protection Area (the Solway Firth) will take longer to improve due to the presence of invasive non-native species, which are difficult to eradicate.

Wetlands

The Water Framework Directive also requires targets to be set for wetland areas that are dependent either on groundwater or surface water. The current groundwater body classification included an assessment of the groundwater quantity pressures on wetlands. Groundwater quality pressures and interactions between wetlands and surface water classification are under development and will be included in subsequent river basin cycles. Work has begun to develop a Scotland Wetland Inventory and wetland chemical and quantity triggers, which will enable us to set targets for wetlands over subsequent river basin cycles.

Maps 9 on page 15, shows the planned improvement in surface water expected by 2015 and map 10 on page 16 shows the planned improvement in groundwater.

Delivering the plan

There are a wide range of people and organisations in the North Solway area who already have a successful track record in managing and delivering projects that improve the water environment. We now need to build on this expertise, history of co-operation and joint working to help deliver the aims of this plan.

The actions required to deliver this plan vary considerably in scale, from installing a fish-pass to upgrading sewage treatment works. The rate and quality of the improvements is best achieved if they are delivered at a catchment scale, which is why this plan focuses on catchments. The section below shows the range and scope of some of these projects. A more detailed breakdown of actions and work programme for the North Solway advisory group will be available on the website. For more information on actions on an individual water body, please consult the interactive map at: www.sepa.org.uk/water/river_basin_planning.aspx

There is still work to be done. We welcome the opportunity to learn about your projects and potentially develop projects together that help achieve the aims of this plan. Currently SEPA has a restoration fund that might assist project development. For more information please visit: www.sepa.org.uk/water/restoration_fund.aspx

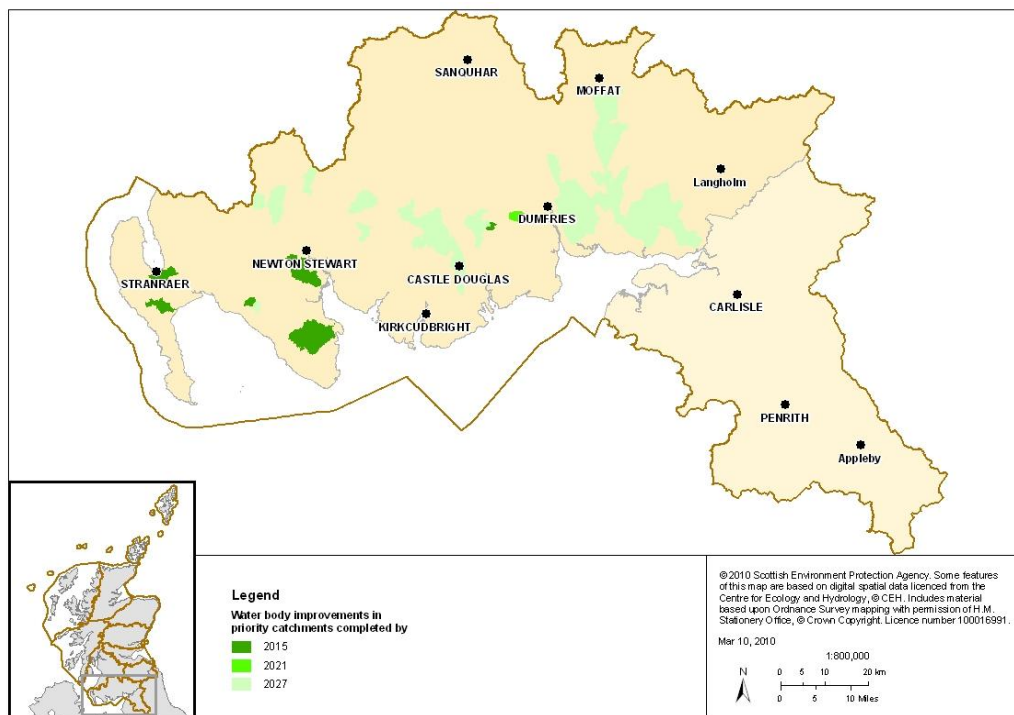
The actions listed here are aimed at maintaining and improving the water environment, but they may have other potential benefits, such as improving the image of the region and increasing tourism. They may also help to ensure that the water environment is able to adapt to future climate change. The cyclical nature of river basin planning allows us to take into account any new or improved evidence as to the impact of climate change, providing opportunities to review the actions.

Water quality: diffuse pollution from farming

Actions include:

- national initiatives to raise awareness and understanding of General Binding Rules;
- priority catchment focusing effort on catchments where the diffuse pollution may cause a risk to human health;
- uptake of Scotland Rural Development Programme incentives.

This cycle (to 2015), as part of the priority catchment work, SEPA will focus on vulnerable water bodies within the Galloway and Stewartry coastal catchments. These water bodies, along with the potential targets for future cycles, are shown in Map 8.



Map 8: River catchments prioritised for action to reduce diffuse pollution from rural sources

Alteration to beds, banks and shores

Actions include:

- Forestry Commission forest design plans will promote changes to forest structure to allow for better, more natural bank vegetation;
- private forestry design plans;
- uptake of SRDP incentives to fence off water courses.

Barriers to fish migration

Actions include:

- a national project to identify barriers;
- fitting fish passes to ease fish access past barriers, and removing of obstructions.

Acidification

Actions include:

- a forestry design plan to address acidified water bodies;
- improving compliance with the Forest and Water Guidelines and producing supplementary advice on risk areas;
- reduce forest cover in sensitive catchments.

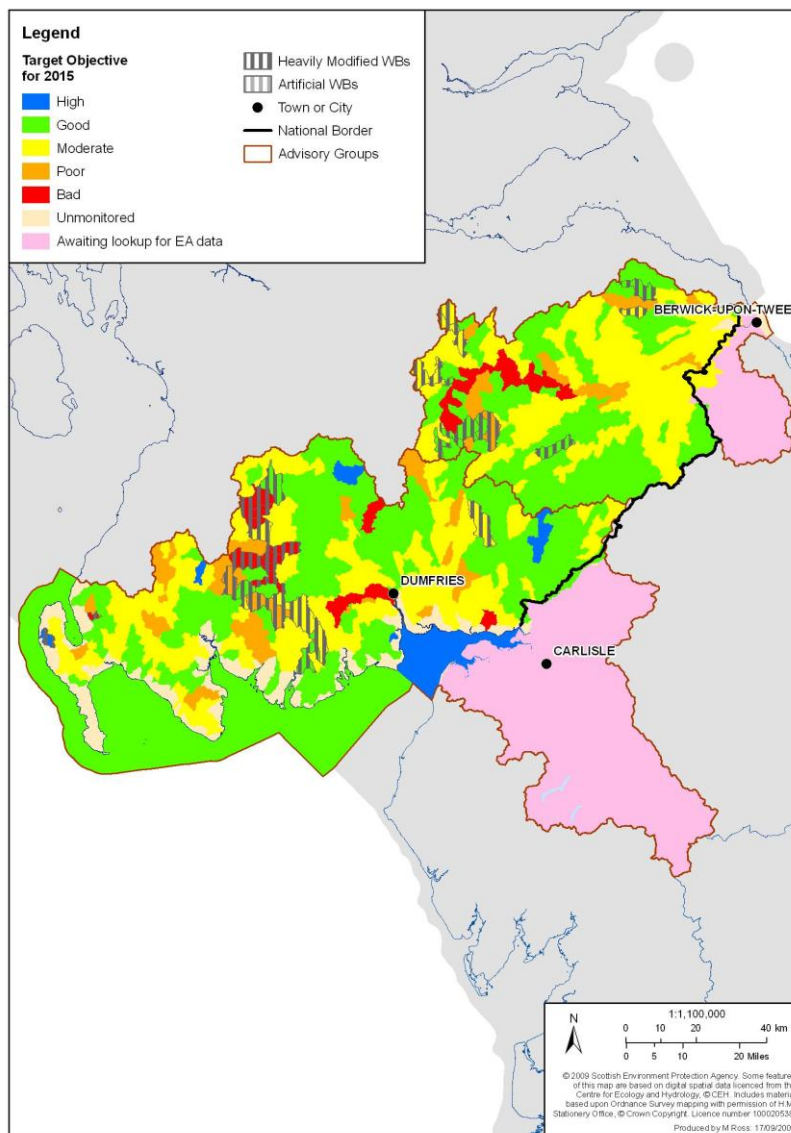
Invasive non-native species

Actions include:

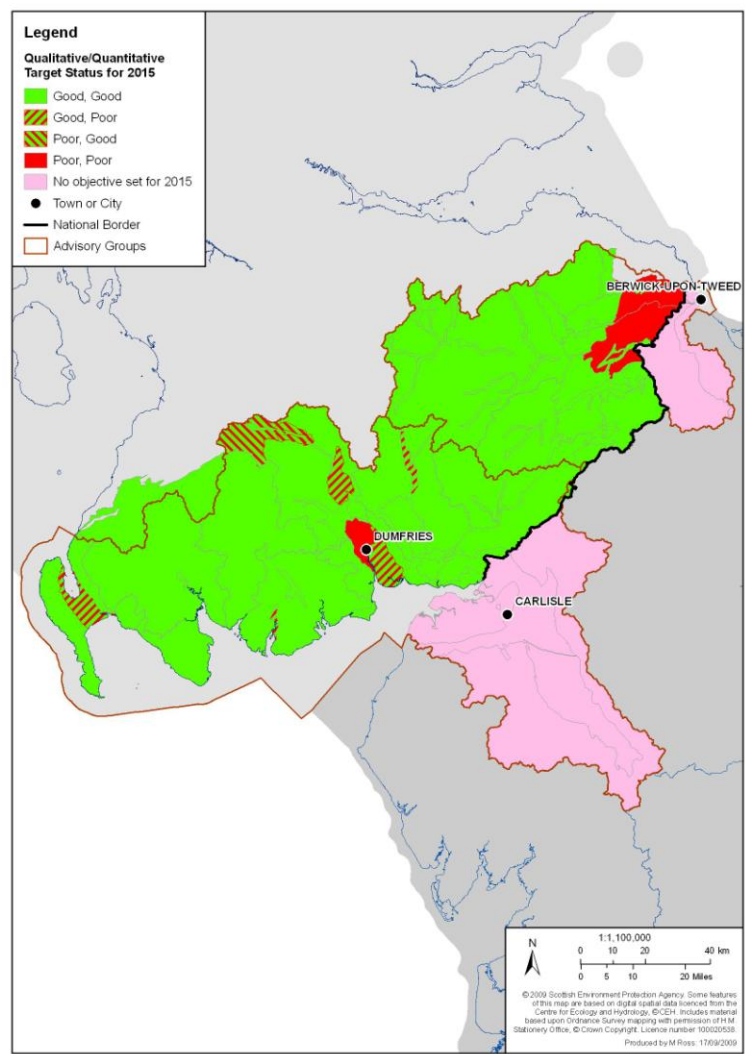
- controlling riparian invasive non-native plant species across all main river catchments in Dumfries and Galloway;
- producing biosecurity plans for river catchments in Dumfries and Galloway;
- raising awareness.

Planned improvement maps

Map 9 shows the planned improvements in the surface water catchments. Map 10 shows the planned improvement in groundwater.



Map 9: The planned improvement in surface waters by 2015



Map 10: The planned improvement in groundwater by 2015