

Improving the quality of Scotland's water environment

Clyde area management plan 2010–2015

**Supplementary to the river basin management plan for the
Scotland river basin district**

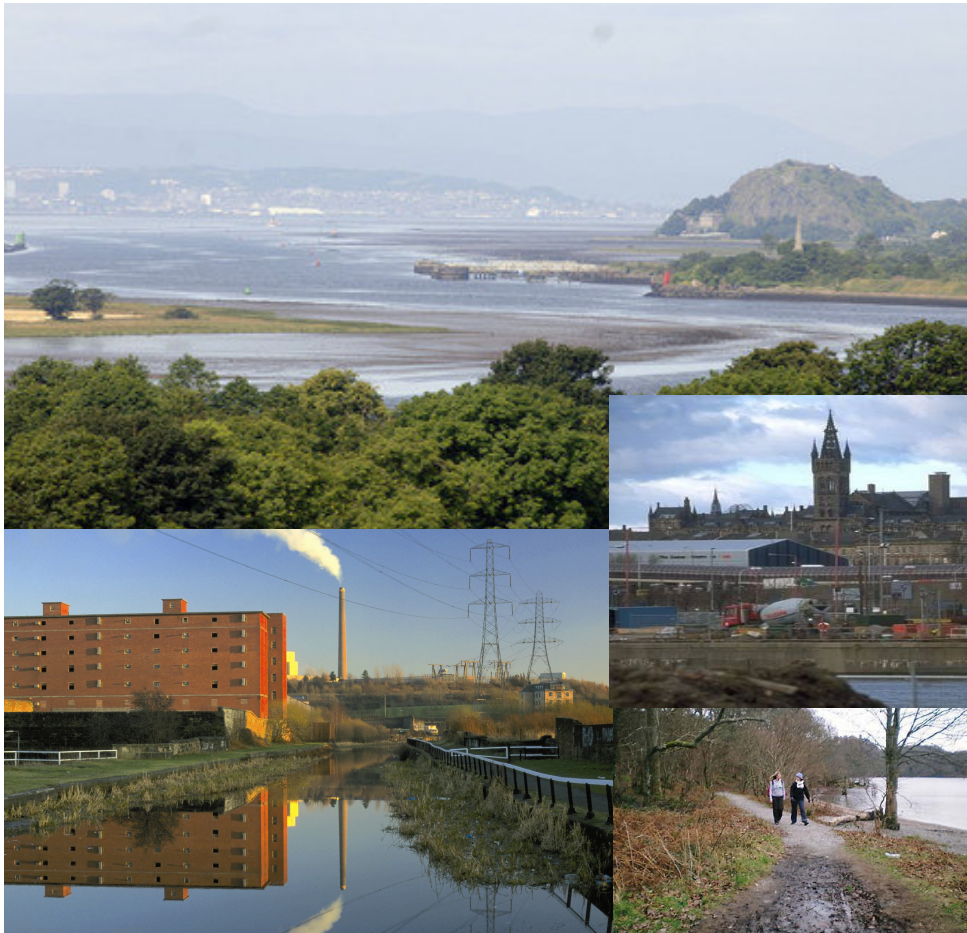


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Introduction to the Clyde area management plan

Purpose

The purpose of the Clyde area management plan is to maintain and improve the quality of the rivers, lochs, estuaries, coastal waters and groundwaters in the area (shown on map 1). This plan supplements the river basin management plan (RBMP) for the Scotland river basin district, and will help to deliver Water Framework Directive requirements. The plan focuses on local actions and highlights the opportunities for partnership working to ensure that we all benefit from improvements to the water environment.

Delivering improvements will require actions from many partners. The Area Advisory Group will ensure the appropriate networks and stakeholders are involved in this process. The group will also oversee the development of new actions and monitor progress. How this will work is outlined in the 'putting the plan into action' section.

The work of the Clyde advisory group can be found on SEPA's website at:
www.sepa.org.uk/water/river_basin_planning/area_advisory_groups/clyde.aspx

The plan has been produced in partnership with members of the Clyde Area Advisory Group. The group expect river basin planning to maintain the water quality of the area and improve the natural function of water habitats, including more native plants and animals living in natural habitats along water edges.

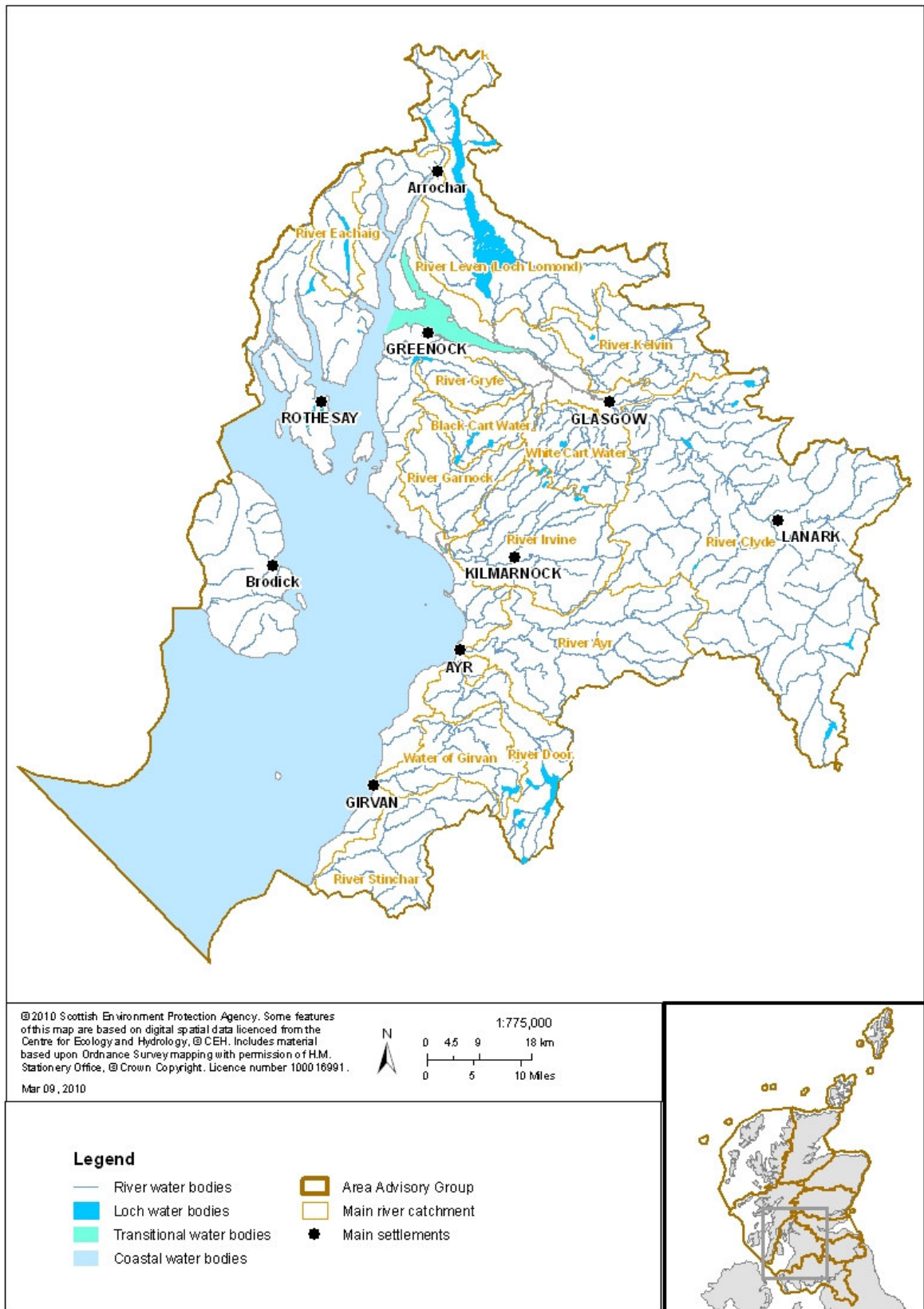
This plan will run from 2009 to 2015, after which it will be reviewed and the next six year cycle of planning will begin. In 2008, just under half of water bodies in the Clyde advisory group area were classified as being at good or high ecological status. This plan aims to maintain their good status and to secure continuous improvement in the ecological status of water bodies that are currently less than good status. The planned improvement targets until 2027 are set out in Table 1.

Table 1: Overview of planned improvements in the Clyde advisory group area, 2010–2027

	2008	2015	2021	2027
% of surface water bodies at good (or high) ecological status	44%	49%	61%	96%
% of groundwaters at good status	57%	66%	71%	80%

What area does this plan cover?

The Clyde advisory group area includes all of the land that drains into several large rivers, including the River Clyde, Ayr, Irvine, Leven, White and Black Cart Waters and the River Kelvin. The area covers over 11,139km² and is one of contrasting landscapes: the north includes a large proportion of Loch Lomond and The Trossachs National Park, while the south includes Ayrshire and Lanarkshire. The area also includes the large population centre of the City of Glasgow, where approximately 600,000 people live, and the vast coastline out into the Firth of Clyde which includes sea lochs, the Cowal peninsula and the islands of Bute and Arran. It also includes groundwater, which provides flow in many rivers.



Map 1: Clyde advisory group area (showing main catchments)

How to use the Clyde area management plan

This plan is for the Clyde Area Advisory Group and others who manage or use the water environment, those managing activities on land that interacts with the water environment and those who want to know more about how our water environment is being protected. The plan is designed to provide a co-ordinated approach to the delivery of protection and improvements to the water environment in this area.

This plan is to co-ordinate the delivery of the [river basin management plan for the Scotland river basin district](#) within the Clyde advisory group area. You may find it helpful to see how the aims and objectives of this area management plan will contribute to what we are trying to achieve on a larger, national scale. The Scotland river basin district plan also includes a number of chapters that explain the different parts of the river basin planning process.

This plan has three key components:

1. **Area management plan summary** (this document) is an overview of the Clyde advisory group area including classification, objectives, key measures and an outline of the work plan for the Clyde advisory group for the next year.
2. **Catchment profiles** provide information on classification, pressures, measures and objectives for each catchment. Catchment profiles will be produced over the next 6 months to a year and will be developed and kept as live documents during this first river basin planning cycle.
3. **Action plan** with information about how the advisory group will work together to deliver the district plan and a record of where new actions are being developed. This will also be kept relevant as a live document during the first river basin planning cycle.

The environmental quality and natural characteristics of surface waters and groundwater vary widely. To reflect this variation SEPA has subdivided the water environment into water bodies. Detailed information for individual water bodies (whether they are part of the coast, groundwater, rivers, lochs or estuaries) is held in the web-based interactive map available on the SEPA website at www.sepa.org.uk/water/river_basin_planning.aspx

The organisations that are part of the Clyde Area Advisory Group helped to develop this plan. This group is responsible for sharing the information contained in the plan with a wider range of stakeholders, to encourage them to implement the actions where required in the Clyde advisory group area. SEPA's role in the development of the plan has been to provide information, particularly with regard to classification, and to co-ordinate information and input from others. In this document 'we' refers to all those involved in the production of this report, not just SEPA.

A wider forum has also been established. The forum is open to the public and provides an opportunity for a wider group of stakeholders to be involved in planning developments.

The water environment and achieving the environmental improvements

This section summarises the condition of the water environment in the Clyde advisory group area, the improvements we plan to achieve and the key pressures and impacts that we need to address. Catchment level summaries of the condition of the water environment, the improvements we plan to achieve and the key pressures and impacts that we need to address are included in **catchment profiles**. The catchment profiles will be produced over the next 6 to 12 months and will be available on the website.

Information on 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.

Information on the classification, objectives and measures for the Scotland river basin district, as well as detailed supplementary information on how we classify and how objectives have been set, can be found in the district plan.

The current condition of the water environment

The water environment includes all rivers, lochs, estuaries, coastal waters, artificial waters (such as canals and reservoirs) and groundwater. It also includes all the wetlands that depend on surface waters or groundwater for their water needs.

Classifying the condition of each water body provides a picture of where the water environment is in good condition and where improvements need to be made. SEPA has subdivided waters in the Clyde advisory group area into 322 surface water bodies (264 river and canal water bodies, 27 loch water bodies, 22 coastal and 9 estuarine water bodies) and 44 groundwater bodies in the Clyde area.

In general, the classification of surface water bodies describes by how much their condition ("status"), differs from near natural conditions. Water bodies in a near natural condition are at high status while those whose ecological quality has been severely damaged are at bad status. The results show that we have a lot of work to do as the majority of water bodies are currently at less than good status. 44% of water bodies are in a good or better condition and almost a third are moderate status (see Table 2 and Maps 2a and 2b below):

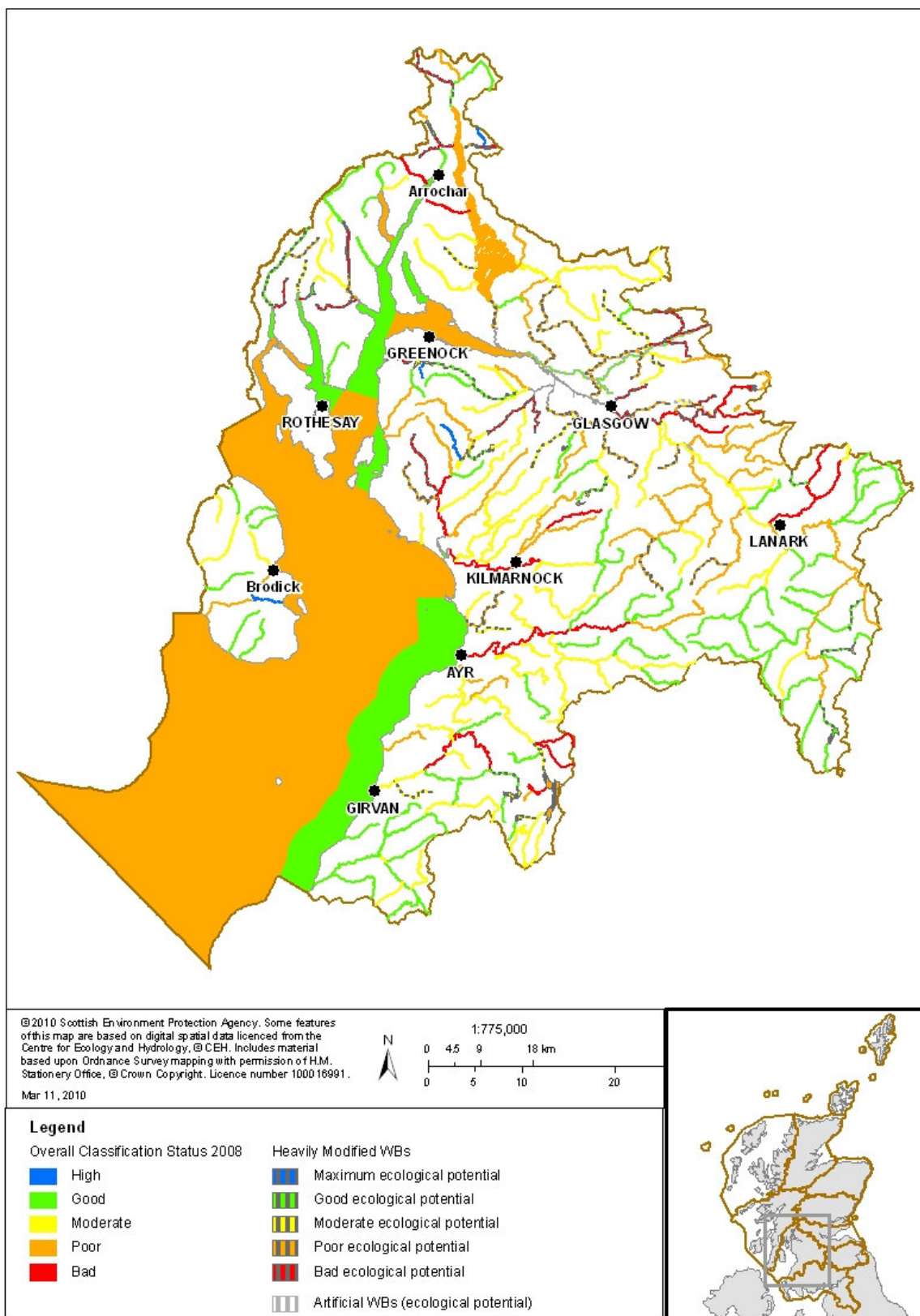
In the Clyde area almost a quarter of our surface water bodies have been substantially changed in character for important social and economic purposes such as flood protection, hydropower generation, navigation, land drainage or water storage for drinking water supply. These are known as heavily modified water bodies. Another 3% of surface waters are artificial; most of these are the Forth and Clyde canal. The classification of heavily modified and artificial water bodies describes their ecological potential. This is a measure of the extent to which water bodies' ecological quality has been maximised, given the limits imposed by the physical modifications necessary for the bodies' uses.

The classification of bodies of groundwater describes whether or not they are polluted and whether or not the volume of any water being abstracted from them is sustainable without significant impacts on rivers or wetlands that depend on the groundwater. Unlike the five status classes applying to surface waters, two classes are used to describe the status of groundwater, good and poor.

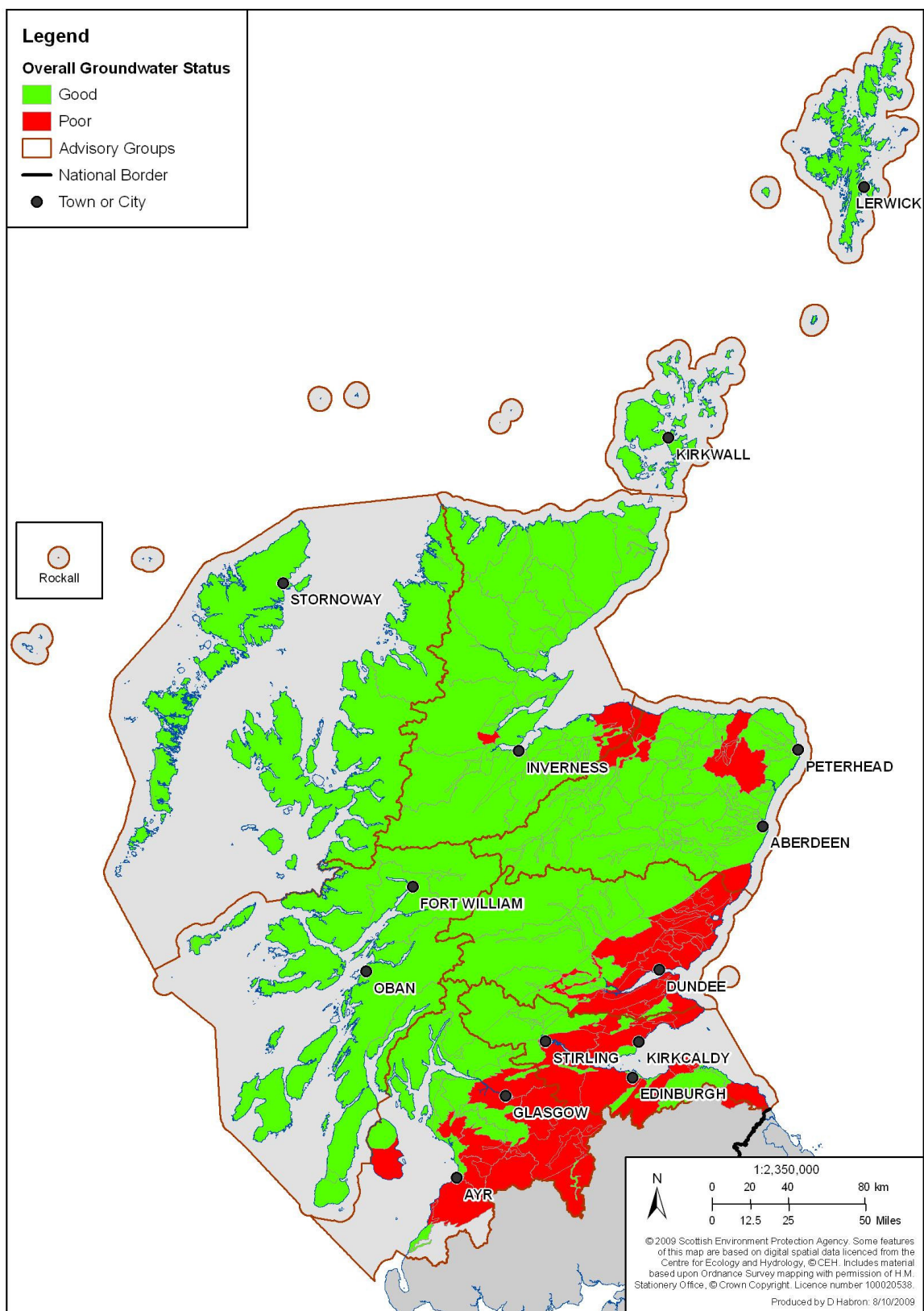
Table 2: Condition of surface waters and groundwater in the Clyde advisory group area in 2008

2008 condition	Number of water bodies				
	All water bodies	Surface waters			Groundwater ¹
		Natural	Heavily modified	Artificial	
High/Maximum	8	8			
Good	135	88	15	7	25
Moderate	98	79	18	1	
Poor	85	42	23	1	19
Bad	40	20	20		
Totals	366	237	76	9	44
Proportion good or better (%)	39%	41%	20%	78%	57%

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



Map 2a: Overall surface water classification for Clyde advisory group area 2008



Map 2b: Overall groundwater classification for Scotland river basin district 2008

Pressures and risks

A wide variety of impacts on the water environment has been identified. Key impacts that the Clyde advisory group have identified as of particular interest are:

- urban drainage;
- diffuse pollution from rural sources;
- managing the impacts from our industrial past.

This does not include all impacts and there are other issues that will also need to be addressed through river basin management planning. Recording the presence of invasive non native species and implementing the national work, outlined in the invasive non native species implantation plan, at a local level will be a key focus of the group. The impacts of abstraction from public water supply, for example, are also an issue that the Clyde Area Advisory Group might undertake in the future. Detailed information on impacts in each catchment are included in the catchment profiles and in the water body information files, both available on SEPA's website at www.sepa.org.uk/water/river_basin_planning.aspx.

SEPA has identified over 100 catchments in Scotland that are currently failing to meet environmental standards outlined in the Water Framework Directive. Fourteen diffuse pollution priority catchments, containing some of Scotland's most important waters (for drinking bathing, conservation and fishing) have been selected using a risk based approach for action in the first river basin planning cycle. The rivers Ayr, Doon, Garnock and Irvine and North Ayrshire coastal burns are included in the first cycle.

Whilst focusing on these catchments for diffuse pollution the mitigation of other impacts on the water environment will be considered, such as changes to beds and banks, abstractions, flooding and invasive non native species.

SEPA has appointed dedicated priority catchment coordinators to investigate the issues within each catchment and liaise with land managers. More information is available on SEPA's website at www.sepa.org.uk/water/river_basin_planning/dp_priority_catchments.aspx

Objectives for the water environment

The Clyde advisory group area has improved significantly over the past twenty or so years. The task now is to build on this achievement: the overall goal of the Scotland river basin district is for 97% of water bodies to be in good or better condition by 2027. In the Clyde area we aim to improve 91% of water bodies by 2027. To achieve that, water bodies currently at good or high status will be protected from deterioration, and action will be taken to enhance and restore others. Protecting the status of a water body does not just mean preventing deterioration of their overall status. The overall status depends on the condition of the different elements (eg plant community, fish populations, water quality etc).

Restoring waters to good status will take time, so improvements have been prioritised over the three river basin planning cycles until 2027. For the small proportion of waters for which achieving good status by 2027 is not feasible², all reasonably achievable improvements will be made. Comprehensive reviews of

² These waters include groundwater that is recovering from the affects of past mining activity.

progress will be undertaken during each period and will be reported in updates of this plan.

Table 3 describes how improvements to the water environment will be phased (illustrated in Maps 3a and 3b). The phasing has been designed so that the pace of improvement provides the time needed to develop and implement the necessary technical solutions and to make the required investments and adjustments without creating disproportionate burdens.

At present the Clyde estuary has an ambitious objective to meet good status by 2027. In a complex situation such as the Clyde, further detailed work is required to determine if measures are able to achieve good status by 2027. The Glasgow Strategic Study is currently underway investigating the preferred solution for the integrated and sustainable strategy for wastewater treatment and networks in the Glasgow area. It is anticipated that Water Framework Directive objectives can be delivered in a phased manner with the ongoing improvements in both sewer networks and sewage treatment.

Table 3: Phased improvements to the condition of water bodies the Clyde Area Advisory Group				
	Proportion of water bodies in a good or better condition			
	2008	2015	2021	2027
All surface water bodies	44%	49%	61%	96%
Rivers	37%	50%	61%	95%
Lochs	11%	22%	44%	100%
Estuaries	78%	89%	89%	100%
Coastal waters	55%	55%	68%	95%
Groundwater	57%	66%	71%	80%

Lower (less stringent) objectives than good status

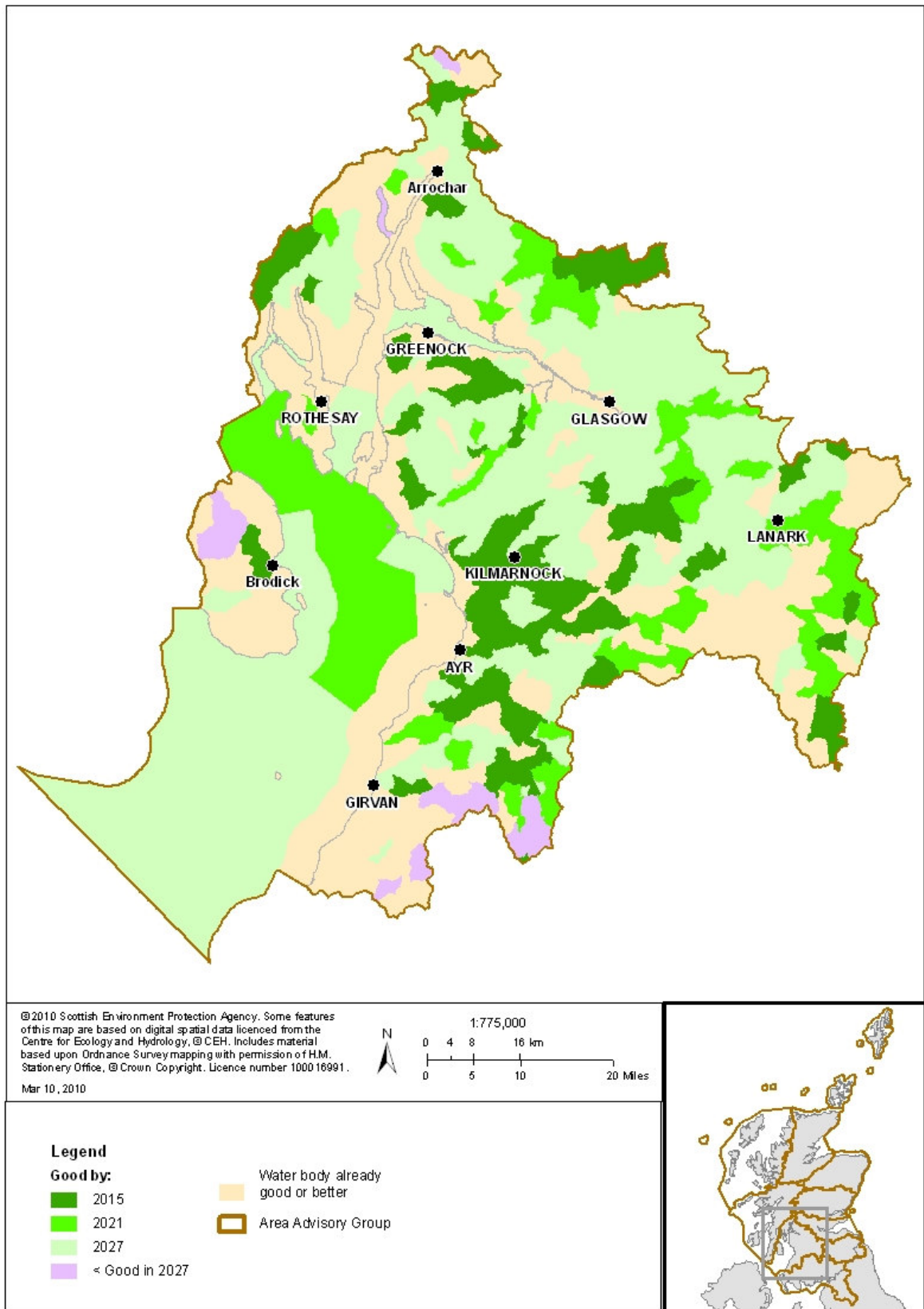
For 22 water bodies in the Clyde advisory group area, we believe that good status cannot be achieved even by 2027. For these water bodies, we have set a lower (less stringent) objective than good status.

In the Clyde area nine groundwater bodies have lower (less stringent) objectives; their water quality is adversely affected by pollution arising from past mining activities. Eleven water bodies have lower (less stringent) objectives because their water quality is affected by acid deposition. The time needed for water bodies affected by acid deposition to recover is difficult to predict and, because of natural conditions (natural recovery time), is likely to be beyond 2027. One water body has lower (less stringent) objectives because of hydropower generation (Alt Fionn/ Sput Burn/ Alt Oss) and one because of nutrient enrichment (Loch Goil).

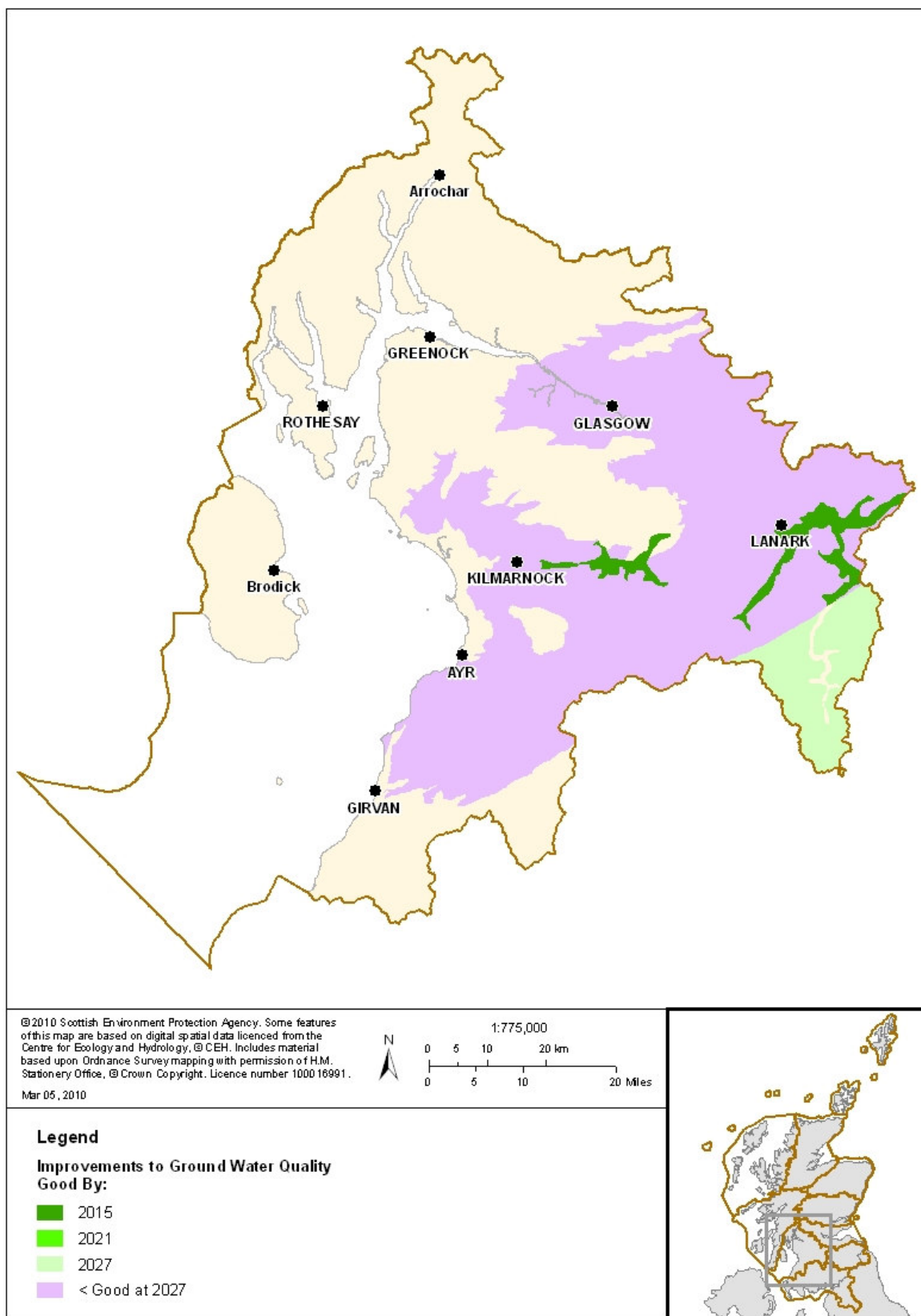
Water bodies where deterioration of status has been permitted

We have allowed exemptions from the objective of preventing deterioration in status for three water bodies in the Clyde advisory group area: two water bodies in the Douglas water for abstraction and impoundment for hydropower to benefit

sustainable development, and the Capelrig/ Auldhouse burn for modification to beds and banks for flood protection purposes.



Map 3a: Phased improvements in surface water quality over the three cycles



Map 3b: Phased improvements in groundwater quality over the three cycles

Protected area objectives

Many water bodies are also part of protected areas. The objectives for these include any additional protection needed to achieve the purposes for which the protected area was established. Protected areas include waters that:

- support economically important shellfish;
- have been designated as bathing waters;
- provide water for human consumption;
- support species or habitats identified as requiring special protection under European legislation.

The three water dependant special areas of conservation (Loch Lomond woods, Endrick Water and Merrick Kells) and the four water dependant Special Protection Areas (Inner Clyde, Black Cart, Ailsa Craig and Arran Moors) in the Clyde advisory group area all meet favourable conditions.

Many protected areas are already achieving the goals for which they were established. The objective for these areas is to protect them from deterioration. Further environmental improvements are needed for other areas that are currently not meeting their objectives. Planned improvements to these protected areas are summarised in below.

Table 4: Planned improvements to protected areas in the Clyde advisory group area				
Protected area	Proportion of protected areas achieving the goals for which they were established (%)			
	2008	2015	2021	2027
Economically important shellfish	33%	50%	50%	100%
Bathing waters	20%	100%	100%	100%
Note to Table 4 The projected improvements in protected areas for economically important shellfish refer to objectives for bacteria that can contaminate shellfish flesh and prevent harvested shellfish being marketed unless first treated in a purification centre. All the water quality conditions required to support shellfish life and growth are already being achieved. Bathing waters also have an overall aim to increase the proportion attaining good or excellent classification rather than sufficient status.				

In addition one drinking water protection area is at risk of deterioration due to impacts relating to pesticide use for agriculture. There are also 17 nutrient sensitive protected areas established under the Urban Waste Water Treatment Directive. These are not assessed against an environmental standard. Instead, compliance is measured in terms of measures taken, such as improvements to sewage treatment works. There are 15 protected areas for economically important freshwater fish, 14 for salmonid catchments and one cyprinid catchment (Forth & Clyde canal).

Actions planned to achieve our objectives

River basin management planning requires us to establish a programme of measures to protect water bodies currently at good or better status and restore water bodies that are not at good status. The programme for Scotland includes the latest investment planning work for Scottish Water, work with landowners to reduce pollution and ways to tackle pressures from drinking water supply, hydropower generation and flood protection.

The measures in the Scotland river basin district plan automatically feed into this area management plan, but the action plan which accompanies this document also contains information on a range of measures which will be delivered by local partners. Some of these local partner measures will contribute to water body status in a less direct way, through awareness raising and education, while others involve long-term projects and multiple partners.

The Clyde plan will deliver improvements through a combination of regulation, investment, awareness raising and guidance. A list of measures for Clyde advisory group is available [on website], and further background information on measures is included in the Scotland river basin district plan.

Some key measures to achieve the priorities for the Clyde area and how they link to national processes are described below. Information on the key measures that the Clyde advisory group will take forward are included in the action plan on the website. These will be kept as live documents during the planning cycle and updated as more measures are developed and implemented.

Pollution

	Pressure identified as reason for not achieving good status		
	Rural diffuse pollution	Urban drainage and diffuse Pollution	Point source pollution
National process	National implementation plan for diffuse pollution. Development of priority catchments process and guidance for targeted awareness raising.	National Sustainable Urban Drainage (SUDs) working party.	Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR).
Advisory group activity	Link to priority catchment work and assist with communication.	Promotion of SUDs and drainage plans. Link with Metropolitan Glasgow Strategic Drainage Partnership (www.mgsdp.org/), Potential case studies from Clyde Integrated Habitat Networks pilot project. Focus of sub group work.	Awareness raising for disposal. Education campaigns Measures delivery plans.
Lead authorities/groups responsible	Scotland's Environmental and Rural Services (SEARS), National	Scottish Environment Protection Agency (SEPA), Scottish Water, Local	SEPA, Scottish Water, Coal Authority and Local authorities.

ble for ensuring action is taken	Farmers Union Scotland (NFUS), Diffuse pollution management advisory group (DPMAG), Scottish Rural Property and Business Association (SRPBA) Focus of AAG task group	Authorities Focus of AAG task group.	
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Abstraction and impoundment

	Pressure identified as reason for not achieving good status		
	Water resource, agricultural irrigation	Water resource, drinking water supply	Hydropower
National process	Water Environment (Controlled Activities) (Scotland) Regulations 2005.	Water Environment (Controlled Activities) (Scotland) Regulations 2005, Scottish Water.	Water Environment (Controlled Activities) (Scotland) Regulations 2005.
Advisory group activity	Targeted education on best practice, priority catchment work in Ayrshire.	Review water bodies where this pressure is identified to assess any possible contribution.	Review water bodies where this pressure is identified to assess any possible contribution.
Lead authorities responsible for ensuring action is taken	SEPA, Scottish Water, SEARS.	SEPA, Scottish Water.	SEPA

Alteration to beds, banks and shores

	Pressure identified as reason for not achieving good status		
	Urban land uses and urban flood protection	Invasive Non Native Species (INNS)	Fish barrier removal.
National process	HMWB assessments and workshops, Flooding implementation.	National INNS group.	National projects to assess priority barriers.
Advisory group activity	Links to flooding groups and work of the MGSDP,	Ayrshire Biosecurity plan. Review water	Review water bodies where this pressure is

	identify areas for natural flood plain management.	bodies where this pressure is identified to identify future projects to eradicate INNS.	identified and encourage restoration fund applications.
Lead authorities responsible for ensuring action is taken	Local authorities, National park authorities, SEPA.	SEPA, SNH, Ayrshire Fisheries Trust, Clyde River foundation.	Local authorities, SEPA, SNH.

Clyde advisory group members have also identified a range of ongoing and future projects which can secure additional improvements in water body status. Examples include research and awareness raising work and the Clyde pilot project looking at multiple benefits of delivering integrated habitat networks and river basin planning objectives.

Existing catchment management planning and integrated drainage partnerships, like the Metropolitan Glasgow Strategic Drainage Partnership, are also well established in the area. The Clyde area management plan must link closely with these without trying to replicate them. It is hoped that river basin management planning can offer information and data and an overarching framework.

Putting the plan into action: 2010

This section outlines the work plan for the Clyde advisory group during 2010. The work plan will be updated annually and links to work of other groups, updates and more information will be added as they become available.

The work plan for the Clyde advisory group can be found on SEPA's website at www.sepa.org.uk/water/river_basin_planning/area_advisory_groups/clyde.aspx

Detailed information about measures can be found through the web based interactive map at www.sepa.org.uk/water/river_basin_planning.aspx.

The Clyde advisory group will have a number of roles in taking forward the actions required to deliver river basin management planning at an area level. The group will help to identify actions needed in the Clyde advisory group area and to translate nationally agreed actions into work on the ground. The group will co-ordinate action, identify gaps, where key pressures have been identified, but no action yet agreed, and consider how best to tackle these gaps.

The Clyde are advisory group proposes to use task groups to take actions forward or where there is an existing group, to work with them to deliver river basin management planning objectives. An overview of the task groups and existing groups which the Clyde advisory group will work with to deliver river basin management planning are included in the work plan. The advisory group will retain an overview role and progress of the work with these groups will report back to the full group on 10 June 2010 and 9 December 2010.

One of the key tasks is to produce the catchment profiles between now and December 2010. The first ten catchment profiles will be produced by June 2010, starting with the Kelvin Catchment. A schedule of development of catchment summaries can be found in the work plan and once produced they will be available

on SEPA's website at

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

This approach is designed to ensure that:

- the Scotland river basin district plan and national strategies are followed;
- actions carried out at an area level are focused on pressures in that area;
- leads and partners identified;
- timing of actions with each cycle is efficient and coordinated;
- the role of the AAG identified to help formulate a work programme for the AAG (and coordinator);
- there is flexibility to develop new measures throughout the cycle whilst ensuring the main aims are followed;
- allows for annual monitoring of progress against an annually agreed work programme as well as against main aims of the area management plan.