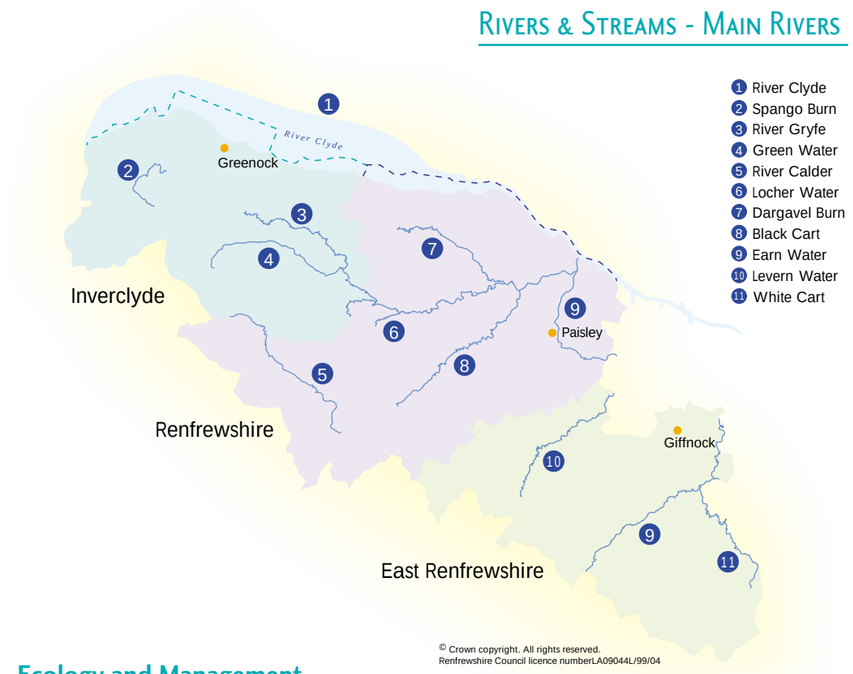
Current Status - UK and Local

A wide variety of riverine habitats occurs in the LBAP Partnership area, ranging from fast flowing upland streams to slow flowing deep sections of river. In this area the main rivers are the White Cart Water, Black Cart Water, Gryfe and Calder. They are relatively small rivers with the longest being the White Cart Water, which is 35km in length from its source south of Eaglesham to where it joins the Clyde Estuary at Renfrew. There are also a number of tributaries that feed these rivers such as the Levern Water, Kittoch Water, Earn Water, Green Water, Dargavel Burn and Locher Water and some smaller watercourses such as the Spango Burn. There is also a series of burns flowing down from the Clyde Muirshiel plateau. Land use in the area varies greatly - there is forest, moorland, agriculture, towns, villages, industrial areas, motorways and parks amongst others, and each type of land use presents different problems and challenges for biodiversity and those who manage it. Rural and urban influences still affect the Cart catchment even now in the 21st century, although there have been significant improvements in water quality in lower river areas due to the closure or upgrading of many sewage treatment works and the closure of polluting industries.

Based on invertebrate samples taken by SEPA the biological quality of the rivers in the LBAP Partnership area is generally good to fair, although short stretches of the Black Cart Water and the river Gryfe are classed as poor. Of the local rivers regularly monitored by SEPA, the Earn Water, the Locher Water and Dargavel Burn (both tributaries of the Gryfe) and the River Calder are classed as excellent quality.

Rivers & Streams - Main Rivers



Ecology and Management

The White Cart supports a good fishery throughout its length, with Perch, Eels, Flounders, Bullheads, Brown and Sea Trout and Atlantic Salmon present in river lengths appropriate to their biology. The quality of this river has improved over the last 40 years or so, partly as a result of older sewage treatment works closing down and existing ones being upgraded. Agricultural run-off has occasionally caused problems in the upper reaches.

One of the main tributaries of the White Cart, the Levern Water is also of fair to good quality. The closure of a number of industries in the catchment, and the rebuilding of Neilston Sewage Treatment Works (STW) has led to improvements in its water quality. There are however, aesthetic problems with litter in the lower stretches.

The Black Cart supports a healthy fishery and it is thought that Atlantic Salmon now spawn here. In the upper to middle reaches this river is of good to fair water quality, and is one of only a few rivers in Scotland to support a population of the rare Saucer Bug (*Aphelocheirus aestivalis*). Currently both Johnstone and Linwood STWs cause organic enrichment on the lower reaches, resulting in a decline in water quality. This will be improved when the sewage is transferred to the upgraded Erskine works. Work is expected to be completed by 2005.

The River Calder feeds Castle Semple Loch with smaller contributions coming from the overflows of the Kilbirnie and Barr Lochs. Barr Loch was once a meadow with the Dubbs Water draining Kilbirnie Loch into Castle Semple Loch. To preserve some of the marshy habitat in the area, the Dubbs Water, which drains from Kilbirnie Loch, is channelled around the outside of the Barr Loch. There is an opportunity to manage the area as seasonally flooded wetland (3 Lochs Project). To alleviate flooding in the vicinity of Calder Bridge, Lochwinnoch, excavation has recently been carried out. Other aspects of the catchment should however be examined to suggest alternative methods of flood management.

The Gryfe is an important source of water for the people of the area, with Scottish Water (SW) using the river water to fill two large reservoirs. This river is also an important spawning river for Sea Trout and Atlantic Salmon. The upper reaches of the Gryfe are occasionally subjected to diffuse agricultural pollution and were classified by SEPA as poor quality for 2001. This is a deterioration from previous results. Further downstream the quality remains good to fair, with the construction of the Gryfe Valley Sewer now intercepting sewage and trade effluent discharges for treatment at Linwood STW. The closure of the Royal Ordnance Factory in Bishopton has significantly improved the quality of the Dargavel Burn, one of the main tributaries of the Gryfe.

SEPA are currently writing a River Basin Characterisation Report to identify significant pressures on the water environment. This is to fulfil conditions under the Water Framework Directive and is being undertaken in conjunction with Local Authorities and other responsible authorities.

Factors Causing Loss or Decline

Rivers and streams are affected by reductions in water quality and quantity, changes in flow regime and degradation of the physical structure of banks and channels. More specifically these impacts include:

- **Physical habitat destruction and simplification**. Continued pressure for development in urban and rural areas along with high land values leads to the desire to minimise space taken by river corridors. This often results in culverting and 'hard' engineering methods being used to contain and minimise channel dimensions. This consequently reduces habitat diversity and potentially increases the risk of downstream flooding and bank erosion. The Cart catchment is particularly susceptible to flooding in its lower reaches and is monitored by SEPA 24 hours a day. In rural areas overgrazing can also lead to bank erosion. Man made structures such as weirs and locks can create barriers that prevent fish passage, thus reducing salmon and sea trout spawning areas. The Black Cart at Plum Weir and the River Calder at Lochwinnoch are both affected.

Inverclyde
Renfrewshire
East Renfrewshire
LBAP

Rivers & Streams

Habitat Definition

Rivers and streams play an important part in the recreation and amenity value of an area. They provide space for fishing, walking, cycling, canoeing and various other water and riverbank activities.

In their natural state, watercourses are dynamic environments, creating a range of aquatic, marginal, riparian (river edge) and floodplain habitats that are determined by factors such as slope, flow, water speed and substratum. Each natural river or stream therefore comprises a variety of physical habitats such as riffles, runs, islands, exposed sediments, gravel bars, eroding bankside cliffs, and silt deposits, and these in turn support a wide range of plants and animals. In general terms, the more diverse the range of physical habitats that exist, the greater the species diversity will be. Engineered rivers (in urban areas and industrial or intensively agricultural landscapes) generally have a smaller range of habitats and consequently a reduced biodiversity.

A particularly important feature of rivers and streams for diversity is their linear nature, which means they act as wildlife corridors to allow the dispersion and migration of species, and the interconnection of otherwise fragmented populations.

- **Poor water quality**. This falls within the statutory remit of SEPA. Most problems can be resolved given adequate resources both for identification of the problem and cost of rectification. Urban areas are traditionally difficult to deal with due to the complexity of drainage work, multiple sources of pollutants, and diffuse pollutant inputs from industrial areas and road drainage. SEPA predicts that by 2010 diffuse agricultural pollution will be the major cause of river water quality degradation in Scotland, as many sewage effluent problems are likely to have been addressed through water authority investment programmes

- **Non-native plant species**. Concern has been expressed that introduced plants that originally escaped from gardens are now replacing native flora along our river banks. A number of non-native plants are very visible along our rivers, eg Giant Hogweed, Japanese Knotweed and Himalayan Balsam, but their impact on the indigenous biodiversity has still to be determined

- **Non-native animal species**. Predation by American Mink can affect Water Vole populations, although to date there is no recorded evidence of this locally. Their ranges do not overlap to any significant extent within the Partnership areas, and Water Voles have seriously declined even when Mink appear to be absent

- **Public attitudes to river corridors**.Watercourses are sometimes perceived as a source of smells and nuisance species (eg weeds, midges) and are potentially viewed as 'waste ground' if not maintained as part of parkland or amenity open spaces.Consequently, river corridors are frequently used as dumping grounds and fly tipping is a major problem with stretches of the Black Cart, White Cart, Levern and Spango Burn all being affected. If these habitats were regarded as a valuable local asset, people may be more inclined to report such activities.This negative perception also stops people using rivers and streams for recreation

Opportunities and Current Action

Rivers and streams are offered better legal protection than most natural habitats through several pieces of legislation, both UK and European. Gross point-source pollution is largely under control in the area and attention is turning towards the control of diffuse pollution such as run-off from roads and agriculture. There is increasing recognition of the importance of river habitats as a key element of river quality. In addition:

- River management schemes such as the River Clyde Fisheries Management Trust and the Clyde River Foundation coordinate fisheries management in their areas

- Water quality monitoring and hydrological recording is undertaken by SEPA, with each of the larger rivers in the area having several monitoring sites. Targets are in place to improve 30% of poor and seriously polluted rivers to at least fair quality by 2010. SEPA and Scottish Water have statutory responsibilities for pollution control. These organisations reduce pollution in watercourses through the regulation of discharges and effective treatment of effluent respectively

- SEPA's culverting policy has a presumption against culverting in order to minimise impact on the environment. If culverting is not permitted this will help to reduce loss of habitat, and prevent flooding

- Sustainable urban drainage systems (SUDS), such as swales, infiltration basins, detention / retention ponds, wetlands and reedbeds are being installed at new developments. This offers potential solutions to many urban water quality problems, reducing flooding and preventing contaminated surface water run-off from polluting adjacent watercourses, whilst adding to the amenity and conservation value of the development

- SEPA's Habitat Enhancement Initiative (HEI) provides limited grant aid for groups or individuals to pay for aquatic habitat restoration at local sites

- SPA / SSSI designations have been applied to important river and stream habitats in the LBAP Partnership area such as the Black Cart Water at Barnsford Bridge and the Inner Clyde Estuary

- Local Plans currently identify Sites of Importance for Nature Conservation (SINCs) where a site has important habitats or species. These sites are subject to a number of protective policies as a result of their inclusion in the plan. Local Plans recognise the importance of wildlife corridors, such as rivers, to the biodiversity of the area

- Carts Greenspace currently helps to manage Local Nature Reserves and other wildlife sites along the White Cart Water, Brock Burn and River Clyde

- Carts and Lower Clyde Greenspace both contribute to improving access to and along rivers, making them more of a focus as a recreational resource

- The European Water Framework Directive could have positive implications for many waterways leading to the improvement of water quality and tighter controls on diffuse pollution. This directive will require the adoption of integrated catchment management for all river systems and will have implications for rural land use.

Action Plan

Rivers and streams within the LBAP Partnership area should be managed to maximise their potential as wildlife habitat and wildlife corridors, within the constraints imposed by the need for the protection of life and property. Their amenity and recreational value to the people of the area should also be a consideration.

Objectives and Targets

Objective 1	Maintain and improve habitat and water quality in rivers and streams.
Objective 2	Incorporate the protection and improvement of rivers and streams into routine public sector decision-making and operations.
Objective 3	Maintain and protect rivers and streams supporting natural and seminatural assemblages of animals and plants.
Objective 4	Increase public awareness of biodiversity, the wildlife value of rivers and streams and their importance as an asset to the community.
Objective 5	Review this plan on an annual basis, beginning in 2005.

We will achieve these objectives by:

Action	Actioned by	Timescale
Ensuring that all statutory water quality and discharge consent standards are maintained	SEPA SW	2004-07
Promoting the adoption of Sustainable Urban Drainage Systems (SUDS) principles	SEPA LAs SW	2004-07
Developing policies which promote management practices that enhance and restore riverine habitats	SEPA LAs SW RCFMT Landowners / managers	2004-07
Advocating the use of soft engineering techniques where intervention is unavoidable	SEPA SW LAs	2004-07
Encouraging and supporting local community projects	Greenspace Projects LAs LBAP Officer	2004-07
Monitoring and recording actions towards these objectives	LBAP Steering Group LBAP Officer Local Records Centre	Ongoing / annual

Links with Other Action Plans

Pipistrelle Bats, Otter, Atlantic Salmon, Water Vole, Standing Open Water, Unimproved Grassland, Broadleaved & Mixed Woodland.

Further Information can be obtained fromThe Biodiversity Officer 0141 842 5281