

LANGAVAT SPECIAL AREA OF CONSERVATION (SAC)

CONSERVATION ADVICE PACKAGE



Atlantic salmon © Lorne Gill/SNH

Site Details

Site name:	Langavat
Site map:	https://sitelink.nature.scot/site/8269
Location:	Highlands and Islands
Site code:	UK0030255
Area (ha):	1471.42
Date designated:	17 March 2005

Qualifying feature

Qualifying feature	SCM assessed condition	SCM visit date	UK overall Conservation Status (2019)
Atlantic salmon (<i>Salmo salar</i>) [S1106]	Unfavourable Recovering	August 2011	Unfavourable- Inadequate

Notes:

Assessed condition refers to the condition of the SAC feature assessed at a site level as part of NatureScot's [Site Condition Monitoring \(SCM\)](#) programme.

Conservation status is the overall condition of the feature throughout its range within the UK as reported to the European Commission under Article 17 of the Habitats Directive in 2019.

Overlapping Protected Areas

[Lewis Peatlands Special Protection Area \(SPA\)](#), [Lewis Peatland RAMSAR](#), [North Harris Mountains SPA](#), [North Harris Special Area of Conservation \(SAC\)](#) and [North Harris SSSI](#).

Key factors affecting the qualifying feature

Atlantic salmon

Atlantic salmon live in both freshwater and marine environments as part of their lifecycle. They hatch and live in freshwater as juveniles and then migrate to sea as adults. After one year or more at sea the adults return to their natal river to spawn. This homing behaviour has resulted in the development of genetically distinct populations of Atlantic salmon between Scottish rivers and several populations may exist within the same river.

Atlantic salmon numbers have declined throughout their geographic range, including in Scottish rivers. They may be impacted by a range of pressures in the freshwater and marine phases of their lifecycle. In the freshwater environment these pressures may include, amongst others: over exploitation, loss of habitat connectivity, habitat degradation, climate change-related changes to surface water temperature and hydrology, built development (such as hydropower), invasive non-native species, direct and diffuse pollution, predation and the inappropriate stocking of conspecifics.

In Scotland Atlantic salmon SACs extend to the tidal limit of rivers only. Marine mortality is however one of the key issues facing Atlantic salmon in Scotland and elsewhere.

Environmental factors, climate change, marine developments, enhanced sea lice burdens associated with aquaculture, by-catch in pelagic fisheries, over-exploitation, prey availability, pollution and predation are all key factors that could affect this species. However, the exact nature of these interactions is not fully understood.

Climate change may impact on salmon both at sea and on land. At sea, high levels of mortality are found where temperature uplift occurs. On land, water temperatures may impact on salmon, especially juvenile fish. Marine Scotland has been monitoring water temperature and the results show the importance of shade from riverbank trees.

The feature has been assessed through NatureScot's site condition monitoring programme as being in unfavourable condition at this SAC due to low juvenile population densities. Marine mortality of adult fish and the exploitation of post-smolts in commercial marine fisheries by-catch may be contributing to the status of the Atlantic salmon population at this site but are outwith the control of this plan. Whilst the feature of interest (Atlantic salmon) is in unfavourable condition at Langavat, there has been no deterioration in freshwater habitat and indications are that management (of agricultural and riparian management operations) is leading to an improving situation and therefore the overall assessment is unfavourable recovering.

Further information about Atlantic salmon can be found on the [JNCC website](#).

Conservation Priorities

The Langavat SAC partly overlaps with North Harris SAC, a multi-interest site designated for upland and freshwater habitats, otter and freshwater pearl mussel, in addition to Atlantic salmon. Broadly similar management is likely to be suitable for the features of both sites. Careful consideration would be needed so that riparian planting to benefit freshwater features of both sites, including Atlantic salmon, does not adversely impact on upland features.

Any pro-active management for Langavat SAC or assessment of plans or projects will need to take account of the interests of all of the overlapping designations.

Conservation Objectives for Atlantic salmon (*Salmo salar*)

1. To ensure that the qualifying feature of the Langavat SAC is in favourable condition and makes an appropriate contribution to achieving favourable conservation status

Favourable Conservation Status (FCS) is considered at a European biogeographic level. When determining whether management measures may be required to ensure that the conservation objectives for this site are achieved, the focus should be on maintaining or restoring the contribution that this site makes to FCS.

When carrying out appraisals of plans and projects against these conservation objectives, it is not necessary to understand the status of the feature in other SACs in this biogeographic region. The purpose of the appraisal should be to understand whether the integrity of the site (see objective 2) would be maintained. If this is the case then its contribution to FCS across the Atlantic Biogeographic Region will continue to be met. Further details on how these appraisal should be carried out in relation to maintaining site integrity is provided by objective 2 (including parts a, b and c). If broader information on the feature is available then it should be used to provide context to the site-based appraisal.

Note that “appropriate” within this part of the conservation objectives is included to indicate that the contribution to FCS varies from site to site and feature to feature.

2. To ensure that the integrity of the Langavat SAC is restored by meeting objectives 2a, 2b and 2c for the qualifying feature

The aim at this SAC is to restore Atlantic salmon to favourable condition as a contribution to its wider conservation status. Therefore any impacts to the objectives shown in 2a, 2b, or 2c below must not persist so that they prevent the achievement of this overall aim.

When carrying out appraisals of plans or projects the focus should be on restoring site integrity, specifically by meeting the objectives outlined in 2a, 2b and 2c. If these are met then site integrity will be restored. Note that not all of these will be relevant for every activity being considered. Any impacts on the objectives shown in 2a, 2b or 2c below must not persist so that they prevent the restoration of site integrity. Temporary impacts on these objectives resulting from plans or projects can only be permitted where they do not prevent the ability of a feature to recover, and there is certainty that the features will be able to quickly recover.

This objective recognises that the qualifying species is exposed to a wide range of drivers of change. Some of these are natural (e.g. population fluctuations/ shifts or habitat changes resulting from natural processes) and are not a direct result of human influences. Such changes in the qualifying species’ distribution and use of the site, which are brought about by natural processes, directly or indirectly, are normally considered compatible with the site’s conservation objectives. An assessment of whether a change is natural or anthropogenic, or a combination of both, will need to be looked at on a case by case basis.

2a. Restore the population of Atlantic salmon, including range of genetic types, as a viable component of the site

The conditions for the species’ long-term existence at Langavat SAC should be restored. This includes encouraging the number of Atlantic salmon to increase.

This conservation objective is considered to be met if the conditions for the species’ long-term existence are in place. These conditions include:

- avoiding effects that could lead to a permanent reduction in the Atlantic salmon population, or that prevent the population recovering, through mortality, genetic introgression, injury, disease, parasitism or impacts caused by disturbance or displacement. This may include for example the effects caused by:
 - the construction of in-stream barriers to migration,
 - interbreeding and competition with escaped farmed Atlantic salmon.
 - elevated sea lice burdens in smolts and returning adult fish
 - the introduction of invasive non-native species e.g. American mink
 - afforestation
 - fisheries management
 - pollution
 - abstraction.
 - wildlife crime (poaching)

Observed densities therefore need to be assessed in relation to the expectation for the Langavat overall and for each river reach, based on productivity and natural habitat character of the system. However, these should not differ significantly from those expected for the system type/reach under conditions of high physical and chemical quality.

- The numbers of returning Atlantic salmon should be sufficient to maintain the long-term viability of each life history type. All returning adults and emigrating smolts must have unhindered access between freshwater and marine habitats (see conservation objective 2b). All supporting freshwater habitats must be of sufficient quality and quantity to support both adult and juvenile fish (see conservation objective 2c). Multi-sea winter fish have been a small but important component of the Langavat system and the spring stock component has declined considerably in recent years. Restoration of the feature to favourable condition should therefore include not just the main runs of grilse in the summer, but also of multi sea-winter fish at either end of the season.

Atlantic salmon are considered to be in unfavourable condition at this site and any impacts resulting from plans and projects should not prevent the ability of the feature to recover. Site recovery will necessitate an increase in the number of salmon parr in the system, which will be achieved through increasing the number of adult salmon able to spawn, and maintaining access to quality spawning grounds. Sea lice burdens have recently been a problem for neighbouring catchments that drain into Loch Roag, especially in combination with prolonged low water and high temperatures. The system should not be stocked with young salmon, as they could compete with wild fish for food and be less adapted to life in this catchment, resulting in an overall reduction in the number of smolts able to go to sea. No such stocking has taken place since 2005 and there are no plans to recommence such work. The non-stocking policy currently operated by Grimersta Estate should be supported. Similarly, efforts to improve conditions and habitat for parr should focus on natural processes and maximising habitat quality, working in tandem with the natural factors that ultimately limit the carrying capacity of the system.

When assessing the effects of any plan or project consideration should be given to whether impacts outwith the SAC could affect achievement of this conservation objective. The appraisal should also consider the life history traits of the species, including maintaining all genetic types of Atlantic salmon, and the scale and duration of the impact being assessed. Impacts resulting in the loss of genetically distinct populations of Atlantic salmon would not be considered temporary in nature as these adaptive traits may have evolved over generations and could not be recovered if lost.

2b. Restore the distribution of Atlantic salmon throughout the site

Conditions within the site should allow for the distribution of Atlantic salmon to be expanded or at least restored to their previous known extent.

Atlantic salmon distribution within the site should not be restricted by pollution or human activities.

Access to spawning sites, juvenile rearing sites and areas where adult Atlantic salmon may rest prior to spawning (some may be present within the system for a year prior to spawning), should all be maintained. Juvenile Atlantic salmon should be present in all areas of the catchment to which they, and adult fish, have natural access. This does not include areas above naturally impassable barriers, but areas where access has been limited by man-made obstructions.

There are no man made weirs, dams or impoundments known to be preventing or partially preventing the passage of Atlantic salmon to their natural range at Langavat SAC. There may be benefits to undoing or removing instream works which modify the natural habitat. The distribution of Atlantic salmon within the site may be affected by disturbance originating both within and outwith the site (including estuarine and coastal areas). Plans and projects that cause displacement and barrier effects to the species, for example by impeding access to spawning areas or downstream passage of smolts to the sea, can also affect species

distribution. Examples may include: the provision of compensation flows which are inadequate to allow adult Atlantic salmon to reach known spawning areas; the presence of physical in-stream structures such as flow deflectors, coffer dams etc. which may increase flow velocity to that which is beyond the swimming capacity of migrating fish or sustained noise generation (such as that caused by piling) in places that cannot be avoided by migrating Atlantic salmon.

2c. Maintain the habitats supporting Atlantic salmon within the site and availability of food

The distribution and extent of Atlantic salmon habitat within the site, together with the structure, function and supporting processes of the habitat should be maintained.

Sufficiently high water quality and natural flow conditions should be in place to provide the necessary conditions for Atlantic salmon. SCM of Lanagavat SAC in 2011 found sufficient, good quality spawning gravels present throughout the site with no specific issues identified. The targets for water quality, water flow and river morphology were met.

Atlantic salmon spawn in late autumn and early winter, depositing their eggs in redds which they excavate in gravel and pebble beds. Eggs are often deposited in areas of accelerating flow, such as the tail end of pools and glides, upstream from riffles. However, in upland streams eggs may be deposited in any areas of gravel that can be physically moved by the fish. There is evidence to suggest that salmon in the Langavat SAC may also utilise spawning grounds in lochs. A good supply of oxygen is essential for eggs to develop and this is facilitated by a flow of water through the gravel. Therefore, clogging these fine sediments with silt and fine sand can reduce the water and oxygen flow resulting in egg mortality. Egg survival is also affected by redd 'washout' during winter spates, resulting in the physical scouring out of eggs from the gravel. Substrate stability, the dynamics of water flow and the weather all influence the extent of siltation and scale of washouts.

After hatching, the young fry remain in the gravel until March to early May, when they disperse and set up territories. Atlantic salmon fry prefer fast flows (>30 cm/s) and favour areas with surface turbulence (riffle habitat). They require a rough bed of pebble, cobble and gravel and water <20 cm deep. Good cover is essential for maintaining high fry densities, such as cover from stones, plants or debris.

Atlantic salmon that have survived their first winter (parr) prefer deeper water than fry (typically 20-40 cm) and a coarser substrate of pebbles, cobbles and boulders. Cover remains important for adult Atlantic salmon particularly in smaller streams and rivers. In larger rivers and lochs this type of cover may be less important.

Favoured habitat used by adult fish include areas with cover from features such as undercut banks, submerged vegetation, submerged objects and even surface turbulence. Spawning habitat is defined as stable coarse substrate without an armoured layer, in the pebble to cobble size range (16-256 mm) but with the majority being <150 mm. Water depth during the spawning and incubation periods should be 15-75 cm.

Juvenile Atlantic salmon (fry and parr) maintain feeding stations and defend these aggressively. The invertebrates which they feed upon are intercepted by juvenile fish as they drift downstream, and may be of aquatic or terrestrial origin.

At sea, adult Atlantic salmon feed on range of prey items, including marine amphipods, shrimps and squid and fish, such as sand eels, capelin and herring. Adults do not feed once they return to freshwater.

As a result of their life history Atlantic salmon stocks can be impacted in both freshwater and marine habitats. In freshwater, both water quality and water quantity are key issues. Salmonids require access to rivers and lochs with, unpolluted and well-oxygenated water with a habitat mosaic which comprises suitable spawning gravels, cobbles and boulders. In terms of water quality, these fish also require enough water to ensure access to and from spawning areas, as well as enough water to maintain an adequate level of juvenile habitat.

Riparian land management operations (such as those which can be related to forestry and agriculture), in-stream engineering, lack of catchment-wide management planning, invasive non-native species (American mink and escapes originating from marine aquaculture developments), physical barriers to migration (such as historic caulds and lades), pollution (e.g. from fish farms, direct and diffuse) and direct damage to spawning habitat (e.g. through mineral or gravel extraction) can all impact the quality of freshwater environments and their value to Atlantic salmon. The Outer Hebrides Fishery Trust suggest that fish farms (escapes/disease/parasites) have the largest negative impact upon Atlantic salmon within the Langavat catchment, but there have been improvements in their management. Further improvement in management of sea lice burdens in particular would be beneficial – this is relevant to both the smolt run, and the main run of adult summer fish. Climate change, and the rises in surface water temperatures during summer, may also be a factor in determining the suitability of some waterbodies for Atlantic salmon.

Water quality, hydrology, and habitat standards for Good Ecological Status (GES) under the Water Framework Directive should be met. These targets are intended to support a healthy, naturally functioning freshwater ecosystem which protects the whole biological community and individual species to a degree characteristic of the system. A total of seven WFD water bodies representing a river length of 14km are recognised within the Langavat SAC. All of these are classified as being at good ecological status and will be protected from deterioration from that class.

Conservation Measures

The site overlaps the North Harris SSSI and management changes described on the SSSI list of Operations Requiring Consent must have prior consent from SNH (NatureScot).

Current and recommended management for Atlantic salmon

Issue	Measure	Responsible party
Ongoing species protection	Legislation is in place to manage and protect Atlantic salmon in freshwater and at sea. This includes a statutory close season and catch & release period.	All
	Voluntary catch and release policy for anglers.	All
	Renew Langavat SAC Management Plan, which is now out of date.	Marine Scotland Science, Fishery managers, NatureScot, SEPA, Outer Hebrides Fisheries Trust (OHFT)

Sediment load in river from un-forested land – may affect salmon spawning areas	Ensure minimal poaching, tracking, or trampling by red deer, livestock, visitors and vehicles to prevent an unnatural sediment load from being washed into the system.	Land managers, NatureScot, SGRPID (GEAC)
Water quality	Implement and maintain monitoring of key water quality parameters.	NatureScot/SEPA
	Any development proposals in the catchment should include appropriate measures to minimise sediment run-off and prevent pollutants from entering the system.	Planning authority (Comhairle nan Eilean Siar)
Beneficial habitat management	Evaluation of diffuse pollution and morphological pressures through the river basin planning process and the implementation of restoration measures to maintain or improve habitat for Atlantic salmon.	SEPA
	Promotion of measures to increase resilience to climate change, particularly the creation of native riparian woodland. Measures to promote coordinated, catchment-scale activity are particularly important. Native tree planting in appropriate locations would help improve the riparian habitat for Atlantic salmon.	All, Fishery Board, OHFT, landowners, fishery managers, crofting tenants
	Restore riparian and catchment peatlands to reduce fine sediment concentrations and restore more natural hydrological regime to benefit Atlantic salmon.	All
Population size	Encourage the natural processes of system flow and morphology through a policy of non-intervention and thereby improve salmonid recruitment and survival.	All
Research - Low numbers of adult and/or juvenile Atlantic salmon	Development and introduction of long-term monitoring protocols for juvenile Atlantic salmon in SACs, in a way that allows for sites such as Langavat which are comprised mainly of standing water habitat.	Marine Scotland Science
	Develop and implement monitoring protocol to allow robust, catch independent, assessment of adult population size.	Marine Scotland Science, OHFT
	Monitor the presence and distribution of aquatic non-native species which may adversely impact Atlantic salmon.	SEPA
Marine survival	(A) Monitoring of post-smolt Atlantic salmon to determine their behaviour at sea and better understand the impact of enhanced sea lice burdens - this is especially important in view of the elevated levels in Loch Roag in recent years.	Marine Scotland (Marine Scotland Science and Farmed Fish Health Inspectorate)
	(B) Applications for new or amended aquaculture discharge, planning or marine	SEPA, Marine Scotland, Comhairle nan Eilean Siar,

	<p>licensing consents in Loch Roag may require an appropriate assessment in relation to the site's conservation objectives, especially in relation to sea lice management.</p> <p>(C) Implement the measures within the agreed Emergency Action Plan at times of elevated risk to mitigate negative impacts within Langavat SAC (link to be added once published). Risk is associated with a combination of high water temperatures, low water flow and elevated seal lice levels in Loch Roag.</p>	<p>Nature Scot</p> <p>The Scottish Salmon Company, OHFT, Nature Scot, Marine Scotland, SEPA, Comhairle nan Eilean Siar</p>
Invasive species	All anglers and other water users (such as canoeists or researchers) should follow the Check, Clean, Dry biosecurity procedures to help prevent the spread of problem non-native species.	All
	Complete eradication of American mink from Lewis and Harris	NatureScot

Community aspirations

This section will be completed in the future following discussions with communities that come through the [MarPAMM project](#) in the Outer Hebrides

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