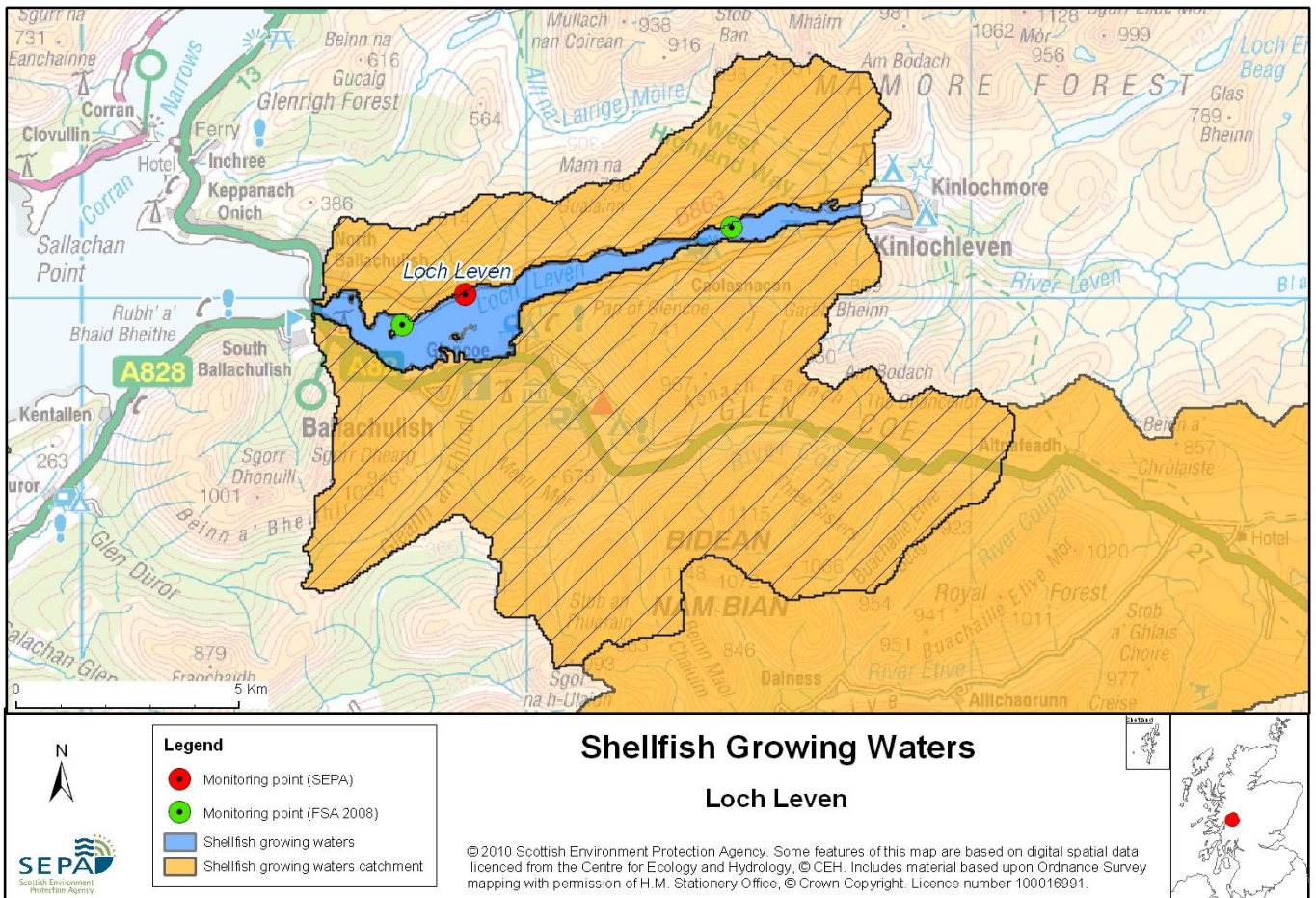


80 Loch Leven



Name	Loch Leven
Report Reference Number	80
WFD Code	UKS7992380
Local Information	An area bounded by lines drawn between NN0520059698 and NN0520059888 (Ballachulish Bridge) and between NN1750061863 and NN1750062138 and extending to MHS.
Designated Area (km ²)	8.27
Year of Designation	2002
Sampling Points	Loch Leven, Argyll at Cama a' Chnaip (Biota) - NN 08639 60078
Commencement of Monitoring	2003

80.1 Commercial Shellfish Interests

Loch Leven is also designated as a Shellfish Harvesting Area by the Food Standards Agency (FSA) for the production of Common mussels (*Mytilus edulis*). There are two designated areas (Loch Leven Upper and Lower).

Loch Leven: Lower (Common mussels)

2011 = A - April to July

B - August to December

2012 = A - January to March

Loch Leven: Upper (Common mussels)

2011 = B - April to December

2012 = B - January to March

Category A sites are of the highest standard and means that shellfish can go directly for human consumption however category B requires that shellfish must be depurated, heat-treated or re-laid prior to human consumption.

FSA have not carried out a sanitary survey for Loch Leven

For more information on Food Standards Agency Classification please visit:

<http://www.food.gov.uk/scotland/safetyhygienescot/shellmonitorscot/shellclassesscot/>

80.2 Bathymetric Information

This sea loch stretches from Ballachulish to Kinlochleven just south of Fort William. Sheltered from all but west winds, the loch is 13.4km in length and has a maximum depth of 62m. The catchment area is 339km² and the total flushing time is 3 days.

There are 5 sills in Loch Leven mostly concentrated at the west side. Sill number 4 is a dredged channel:

Sill No.	Length (m)	Depth (m)
1	1120	6
2	730	6
3	410	24
4	850	31
5	600	4

The fresh/tidal flow ratio of 41 and the salinity reduction value of 1.4ppt suggest moderately high freshwater influence in Loch Leven. There are no morphological pressures on the waters.

80.3 Conservation Designations

Special Protected Area (SPA) – [Glen Etive and Glen Fyne](#)

Designated 28/10/2010 for internationally important aggregations of breeding birds - Golden eagle (*Aquila chrysaetos*)

Special Area of conservation (SAC) – [Glen Coe](#)

Designated 17/03/2005 for internationally important habitat (Acidic scree, Alpine and subalpine calcareous grasslands, Alpine and subalpine heaths, Base-rich fens, Upland Fen, marsh and swamp, Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, upland Dry heaths, Montane acid grasslands, Mountain willow scrub, Plants in crevices on acid rocks)

This is also a **Water Dependent SAC** and a **Groundwater Dependent SAC**

Special Area of conservation (SAC) – [Onich to North Ballachulish Woods](#)

Designated 17/03/2005 for internationally important habitat (Base-rich fens, Mixed woodland on base-rich soils associated with rocky slopes, Western acidic oak woodland)

This is also a **Water Dependent SAC** and a **Groundwater Dependent SAC**

Sites of Special Scientific interest (SSSI) – [Glencoe](#)

Designated 21/03/1989 for Bryophyte assemblage, Igneous petrology (Caledonian Igneous), Geomorphology (Fluvial Geomorphology of Scotland and Mass movement), Mosaic Upland assemblage, Vascular plant assemblage, Wet woodland

Sites of Special Scientific interest (SSSI) – [Leven Valley](#)

Designated 30/03/1990 for Structural and metamorphic geology (Dalradian), Upland birch woodland

Sites of Special Scientific interest (SSSI) – [Kentallen](#)

Designated 01/02/1981 for Igneous petrology (Caledonian Igneous)

Sites of Special Scientific interest (SSSI) – [Carnach Wood](#)

Designated 27/09/1984 for species (flies) and Wet woodland

Sites of Special Scientific interest (SSSI) – [St John's Church](#)

Designated 16/12/1988 for Structural and metamorphic geology (Dalradian)

Sites of Special Scientific interest (SSSI) – [Callert](#)

Designated 16/12/1988 for Structural and metamorphic geology (Dalradian)

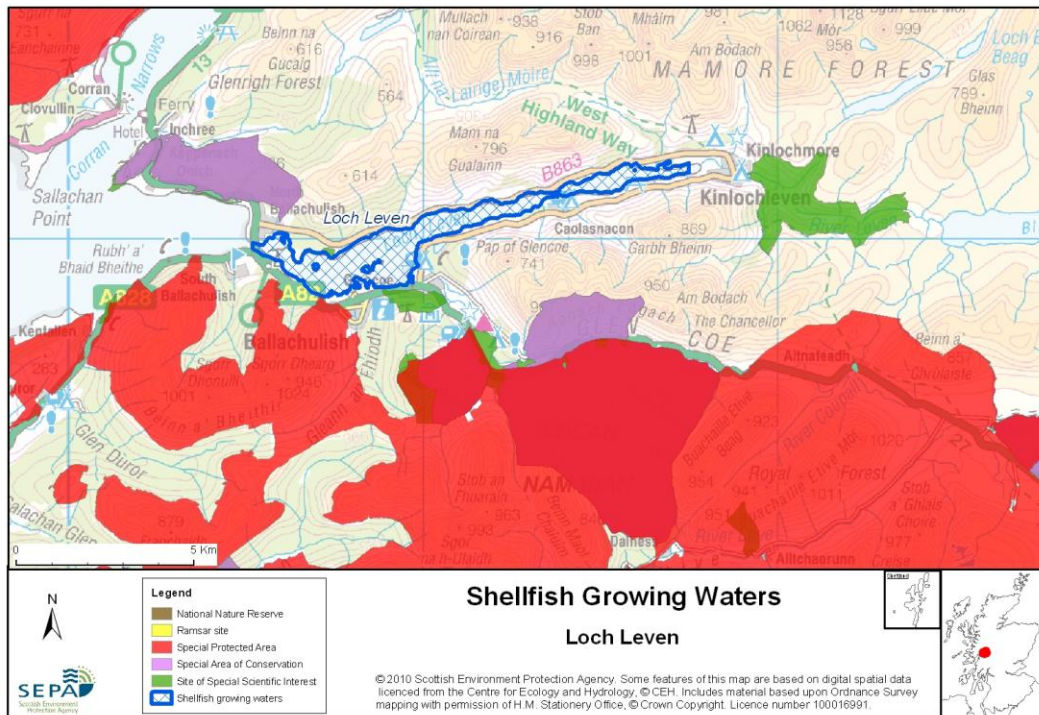
Sites of Special Scientific interest (SSSI) –

[Onich to North Ballachulish Woods and Shore](#)

Designated 18/04/2008 for Structural and metamorphic geology (Dalradian), Alkaline fen, Upland mixed ash woodland, Upland oak woodland

Sites of Special Scientific interest (SSSI) – [Rudha Cuil-cheanna](#)

Designated 01/02/1981



80.4 Topography and Land Use – Potential Diffuse Pollution Sources

Loch Leven sits in a steep sided valley which demonstrates a range of land use types including heather moorland, semi-natural grassland, semi-natural woodland, coniferous plantation, improved pasture, quarries and urban and industrial land use. The B863 road runs round both sides of the designated area to Kinlochleven at the head of the Loch. The settlements of Kinlochleven, Ballachulish, North Ballachulish and Glencoe lie on the shores of the designated area.

There are many freshwater inputs to the designated area, including four river systems with catchments greater than 10 sq km. The River Coe system is classified by SEPA as good quality at its outflow into Loch Leven. A 24km section of the river system upstream has, in previous years, been classified as of moderate quality. This is considered to be an aberration in the class estimation procedure, which has now been modified, and is expected to be upgraded in 2004. The River Leven is classified as good quality by SEPA. The River Laroch and Allt Nathrach, as well as all minor freshwater inputs, are considered to be of at least good quality, although none of these are monitored by SEPA.

80.5 Point Source Discharge

A significant programme of investment recently completed by Scottish Water has resulted in the previous discharges of sewage effluent from villages of Glencoe and South Ballachulish, which previously discharged directly into the designated area from two treatment facilities, being transferred to an enhanced sewage treatment facility at North Ballachulish. In addition the discharge outfall from the treatment works has been upgraded to fully meet SEPA design criteria and discharges at a point in Loch Linnhe, outside of the designated area. The previous treatment facilities

at South Ballachulish and Glencoe have been converted into wastewater pumping stations with overflow discharge design mitigation that is in accordance with SEPA requirements. A small number of intermittent discharges that potentially may arise from pumping stations and combined storm overflows remain within the new sewerage catchment area.

Investment has also been undertaken by Scottish Water to improve the fabric and efficiency of treatment at Kinlochleven Wastewater Treatment Works and to improve the operation of the main inlet waste water pumping station controlling flows to the treatment works. The works discharges to Loch Leven just out with the designated area. Further discharges from Scottish Water septic tanks are made to the upstream River Leven.

In addition, turbine water is released from a hydroelectric station to the River Leven at Kinlochleven

There are a number of private septic tank discharges along the north shoreline from ribbon housing development.

There is one fish farm within the designated area with a consented biomass of 1450 tonnes.

Type	Name	Treatment	Consent No.	NGR	PE	Additional Information
Scottish Water Assets	Kinlochleven wastewater treatment works	secondary biological	CAR/L/1002147	NN 1780 6190	530	Monitored by SEPA
	Kinlochmore septic tank No1	Septic Tank	CAR/L/1001630	NN 18329 62104	200	
	Kinlochmore septic tank No2	Septic Tank	CAR/L/1001636	NN 18832 62041	367	
Industrial	North Ballachulish Wastewater Treatment Works	Primary treatment & secondary biological	CAR/L1002004	NN 04721 60175	3101	
Category	Name		Consent No.	NGR	Biomass (t)	Additional Information
Fish farm	Callert, Loch Leven		CAR/L/1009962-VN1	NN 0830 5980	1450	-

* no CAR number as yet

80.6 Compliance Monitoring Regime

The following monitoring regime of the designated area was implemented in the second half of 2005.

Year	Monitoring Regime
2005	Quarterly for Sal, DO, pH, temperature, visible oil Tice Yearly for metals Annually for metals and organohalogens in mussels Quarterly for faecal coliforms in mussels

80.7 Compliance History

UKS7992380 - Loch Leven				
	Compliance history for Waters and Biota, excluding faecal coliforms data			Compliance history for faecal coliforms
Year	Overall Result	Imperative	Guideline	Guideline
2003	Pass	Pass	Pass	Fail
2004	Pass	Pass	Pass	Pass
2005	Pass	Pass	Pass	Fail
2006	Pass	Pass	Pass	Fail
2007	Pass	Pass	Pass	Pass
2008	Pass	Pass	Pass	Fail
2009	Pass	Pass	Pass	Pass
2010	Pass	Pass	Pass	Fail

Of the six samples analysed for Faecal Coliforms in 2003 and 2004, two gave results above the Guideline standard.

The sampling site was moved in February 2005 due to a lack of mussels at the original site. Of the four samples analysed in 2005 for Faecal Coliforms, two gave results above the Guideline standard.

The waters passed in 2007 and 2009 but failed in 2008 and 2010.

80.8 Future Monitoring

The monitoring regime (80.6 Compliance Monitoring Regime) will be followed. In the event of any chemistry parameter failing to meet any EQS, the site will be revisited and resampled for the failed parameter.

Samplers are asked to identify any evidence of visible harm to the shellfish population at the site.

80.9 Improvement Actions

As part of its infrastructure investment for the period 2007-2012, Scottish Water has completed work to collect the discharges from Glencoe, and South Ballachulish and wastewater treatment works and discharge them outside the shellfish waters. Improvement work has also been completed to Kinlochleven wastewater treatment works.

There are currently no further improvement actions planned for this designated Shellfish Water associated with any point source discharges. SEPA will undertake to monitor the performance of the new North Ballachulish treatment facility and continue with present monitoring arrangements for both the Kinlochleven Wastewater Treatment Works and the septic tanks in Kinlochleven.

SEPA will investigate any environmental complaint that may have an impact on water quality and will ensure appropriate corrective or remedial action is implemented

WFD Objectives

Under the Water Framework Directive, the target objectives expect this shellfish water to Pass by 2015 (first River Basin Management Plan Cycle) for Imperative Shellfish Growing Water Standards, with high confidence.

The Guideline Shellfish Growing Water Standards are not predicted to pass until the third River Basin Management Plan Cycle in 2027 with low confidence. This is due to past failures of the Guideline faecal coliform standards. Target objectives may be revised after the first River Basin Management Plan Cycle.

Objective	First Cycle 2015	Confidence	Second Cycle 2021	Confidence	Third Cycle 2027	Confidence
Imperative Shellfish Growing Waters Standard	Pass by 2015	High	Pass by 2021	High	Pass by 2027	High
Guideline Shellfish Growing Waters Standard	Fail by 2015	Low	Fail by 2021	Low	Pass by 2027	Low

80.10 Summary of Actions

Action	Deadline
Glenco and South Ballachulish Wastewater Treatment Works discharges to be relocated outside shellfish waters. Improvement to fabric and treatment efficiency of Kinlochleven Wastewater Treatment Works. No specific further improvement actions identified other than general ongoing monitoring of area in accordance with SEPA's statutory obligations	completed