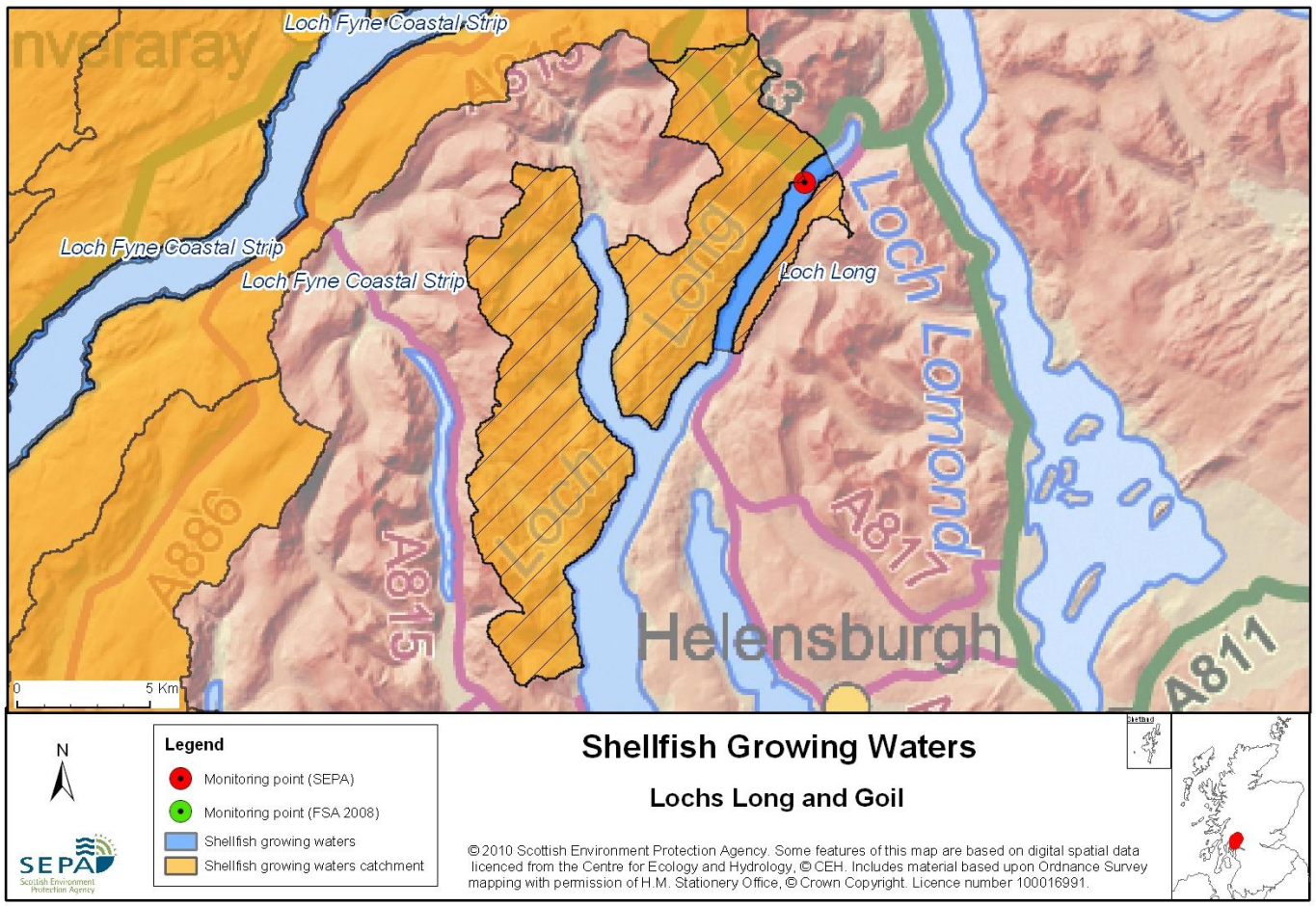
10 Loch Long



This designated Shellfish water was formerly Lochs Long and Goil. It was re-designated to just Loch Long in 2009.

Name	Loch Long
Report Reference Number	10
WFD Code	UKS7992310
Local Information	An area inshore of lines drawn between NN 28520 03858 and NN 28816 03178 and between NS 24909 96386 and NS 24244 96494 extending to MHWS..
Designated Area (km^2)	6.24
Year of Designation	2002
Sampling Points	Loch Long at Ardentinny Mussel Site - NS 19041 88170 Loch Long at Ardgartan Mussel Site - NN 27733 02754
Commencement of Monitoring	2002

10.1 Commercial Shellfish Interests

No Crown Estates Commission (CEC) leases have been granted, although there are some natural populations of mussels in the area. The production area has been declassified by the Food Standards Agency due to lack of commercial harvesting.

For more information on Food Standards Agency Classification please visit:
http://www.food.gov.uk/scotland/safetyhygienescot/shellmonitorscot/shellclassesscot/

10.2 Bathymetric Information

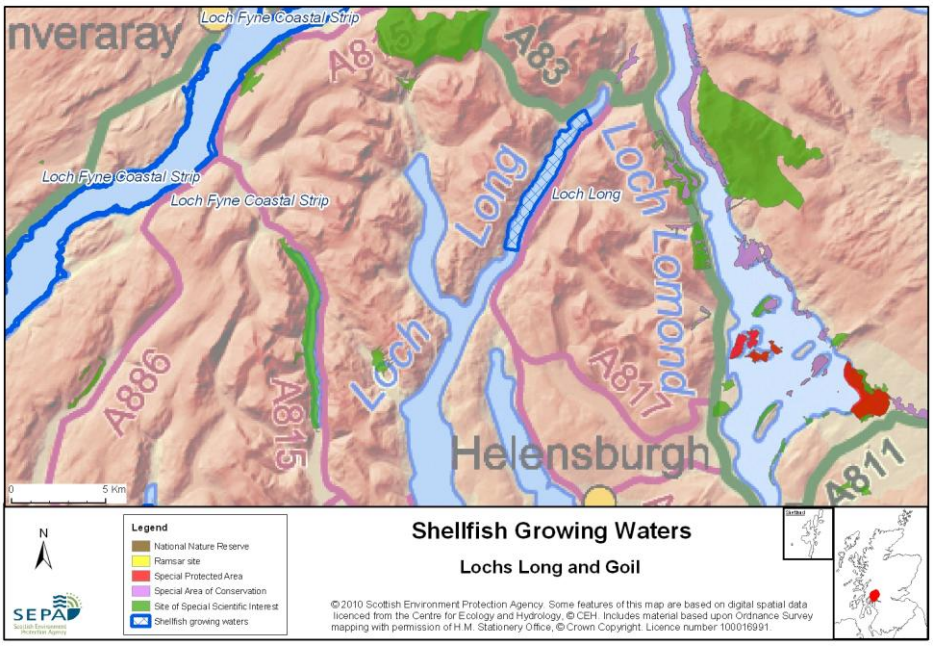
Loch Long has a total length of 26.9 km and a catchment area of 166 km². Two sills divide Loch Long into two water areas or basins. One is located at the loch entrance (near Blairmore) and the other just northwest of Portincaple. The basins have a maximum water depth of 60 and 92 m. Maximum water depth for the loch is 97 m.

As a whole, the loch takes on average 6 days to flush, although each basin will have its own flushing characteristics. Fresh/tidal flow ratio which reflects the influence of fresh water on the loch is 0.2, which is low for the size and volume of this loch, implying generally high salinity.

10.3 Conservation Designations

Special Area of Conservation (SAC) – Loch Lomond Woods
Designated 17/03/2005 for internationally important species (Otter (*Lutra lutra*)) and habitat (Western acidic oak woodland).

Sites of Scientific Interest (SSSI) – Glen Loin
Designated 20/05/1983 for habitats (Upland mixed ash woodland and upland oak woodland)



10.4 Topography and Land Use – Potential Diffuse Pollution Sources

Most of the shoreline is extensively afforested. Forestry within this area is actively managed, a significant area is reaching maturity and some has already been harvested. The Argyll Forest Park and the surrounding Arrochar hills are very popular with walkers.

The two freshwater inputs to head of Loch Long are of excellent quality. The hills on the eastern side of Loch Long form the headwaters for many rivers flowing east to Loch Lomond.

The small town of Arrochar sits at the head of Loch Long on the A83 road. The A814 and railway run the full length of Loch Long's eastern coast and join Arrochar at the head of the Loch to Garelochhead.

10.5 Point Source Discharge

Type	Name	Treatment	Consent No.	NGR	PE	Additional Information
Other	Ardgartan Youth Hostel ST	Septic Tank	WPC/W/11246 – CD11044 *	NN 272 028	100	-

* There are no CAR authorisations for these sites at present.

There are no marine cage fish farms within the designated shellfish water.

10.6 Compliance Monitoring Regime

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

Year	Monitoring Regime
2005 -	• Quarterly for Sal, DO, pH, temperature, visible oil • Annually for metals and organohalogens in mussels • Twice yearly for metals in water • Quarterly for faecal coliforms in mussels

10.7 Compliance History

UKS7992310 - Lochs Long and Goil				
	Compliance history for Waters and Biota, excluding faecal coliforms data			Compliance history for faecal coliforms
Year	Overall Result	Imperative	Guideline	Guideline
1999	Pass	Pass	Pass	Fail
2000	Fail	Fail1	Fail	Fail
2001	Pass	Pass	Fail[2,3]	Fail
2002	Fail	Fail[4]	Fail	Fail
2003	Pass	Pass	Pass	Fail
2004	Pass	Pass	Pass	Fail
2005	Fail	Fail[5]	Fail[6]	Fail
2006	Pass	Pass	Pass	Fail
2007	Pass	Pass	Fail[7]	Fail
2008	Pass	Pass	Pass	Fail

It should be noted that compliance results prior to 2009 were for Lochs Long and Goil. From 2009 data is only for Long Long.

UKS7992310 - Loch Long				
	Compliance history for Waters and Biota, excluding faecal coliforms data			Compliance history for faecal coliforms
Year	Overall Result	Imperative	Guideline	Guideline
2009	Pass	Pass	Pass	Fail
2010	Pass	Pass	Pass	Fail

[1]Failure applies to a result of 39 mg/kg Cu in mussels taken at Loch Goil (Cuilimuich) in 2000 which fails the Imperative standard of 30 mg/kg. All sites at Loch Long passed for both Imperative and Guideline values for copper.

[2]Failure applies to a result of 6.5 mg/kg Cr in mussels taken at Loch Long (Ardgartan) in 2001 which marginally fails the Guideline standard of 6 mg/kg but passes the Imperative value of 20 mg/kg. The other Loch Long site passed for all Guideline and Imperative values.

[3]Failure applies to a result of 5.4‰ for salinity of a single sample taken at Loch Goil (Cuilimuich) in March 2001, which fails the Guideline standard of 12-38 ‰. This result, was probably due to heavy rainfall or increased fresh water input to the loch at the time.

[4]Failure applies to a result of 6.91 for pH which marginally fails the Imperative standard of 7-9 taken at Loch Long (Ardentinny) in March 2002. This result is most likely due to heavy rainfall or increased fresh water input to the loch at the time.

[5]Failure applies to zinc results for Ardgarten in August 2005 (16.1 µg/l) and Loch Goil in January 2005 (12.5 µg/l) which fails the Imperative standard of 10.0 µg/l.

[6]Failure applies to a result of 8.04 mg/kg Cr in mussels taken at Loch Long (Ardentinny) in 2005 which fails the Guideline standard of 6 µg/l but passes the Imperative standard of 20 mg/kg.

[7]Failure applies to a breach of the Guideline standard for dissolved oxygen saturation.

The waters have consistently failed to comply with the Guideline standard for faecal coliforms since 1999 and this was the case again in 2009 and 2010.

10.8 Future Monitoring

Biannual sampling is continuing for metals and organochlorines in waters along with annual sampling of mussels for organohalogens and metals. This area will also be monitored monthly for T, Sal, DO and pH in water.

In the event of any chemistry parameter failing to meet any EQS, the site will be revisited and re-sampled for the failed parameter. Samplers are asked to identify any evidence of visible harm to the shellfish population at the site.

Loch Long and Loch Goil ECSGW will be monitored quarterly for faecal coliforms in mussels.

10.9 Improvement Actions

Ardenfield septic tank was upgraded and Carrick Castle Sewerage Scheme was installed to replace the various septic tanks in the area as part of Scottish Water's Q&SII improvements programme.

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 2027 (third River Basin Management Plan Cycle). 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

10.10 Summary of Actions

Action	Deadline
Ardenfield septic tank upgraded, Carrick Castle Sewerage Scheme installed under Q&SII.	Done
No further improvement actions currently scheduled	N/A