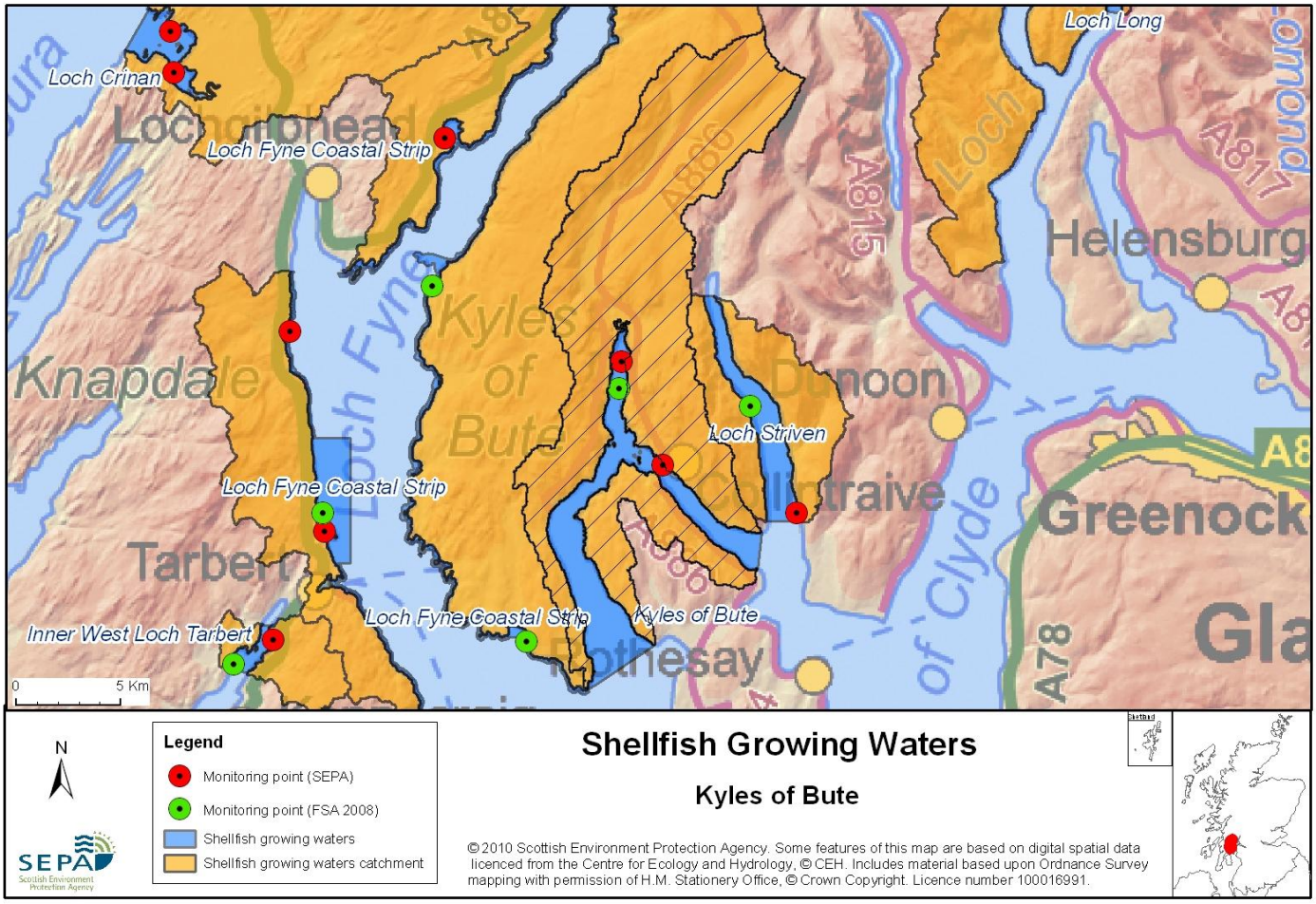
8 Kyles of Bute



Name	Kyles of Bute
Report Reference Number	8
WFD Code	UKS799238
Local Information	An area comprising the waters lying generally north of the Isle of Bute, bounded on the west by a line from NR9937363899 (Ardlamont Point) to NS0254966033 (Kildavanan Point) and in the east by a line from NS0749969693 (Ardmaleish Point) to NS0769771477 (Strone Point) and extending to MHWS.
Designated Area (km²)	30.86
Year of Designation	1998
Sampling Points	Loch Riddon at Ardachuple Mussel Site - NS 01014 79688 East Kyle at Colintraive Mussel Site - NS 02991 74718
Commencement of Monitoring	1982

8.1 Commercial Shellfish Interests

A small area of the Shellfish Water near Salthouse point (in Loch Riddon – formally all a Shellfish Harvesting Area) is also designated as Shellfish Harvesting Area by Food Standards Agency (FSA), for the production of Pacific oysters (*Crassostrea gigas*).

Loch Riddon: Salthouse Point (Pacific oysters)
2011 = B - April & May, October to December
C - June to September
2012 = B - January to March

Category A sites are of the highest standard and means that shellfish can go directly for human consumption.

Category B requires that shellfish must be depurated, heat-treated or re-laid prior to human consumption.

Category C requires that shellfish must be relayed for 2 months to meet category A or B prior to human consumption. Shellfish can also be heat treated by approved method.

FSA have carried out a sanitary survey for Loch Riddon and Ettrick Bay.

In 2010/2011 The FSA had a Shellfish Harvesting Area at Ettrick Bay for the production of Razors (*Ensis arcuatus*), this area was declassified for 2011/2012.

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

8.2 Bathymetric Information

Kyles of Bute contains the water bodies of Loch Riddon, East and West Kyle. Loch Riddon has a total length of 5.3 km. There are no basins in this loch. Maximum water depth is 44 m and it has a moderate flushing time of 3 days. Loch Riddon catchment area is 110 km^2. Fresh/tidal flow ratio, which reflects the degree of possible influence of fresh water on the overall salinity, is very high (2.1) due the small size of this loch.

The Kyles embrace the northern end of the island of Bute. A generally east to west current flow is recorded through the Kyles. There are no morphological pressures on the area.

8.3 Conservation Designations

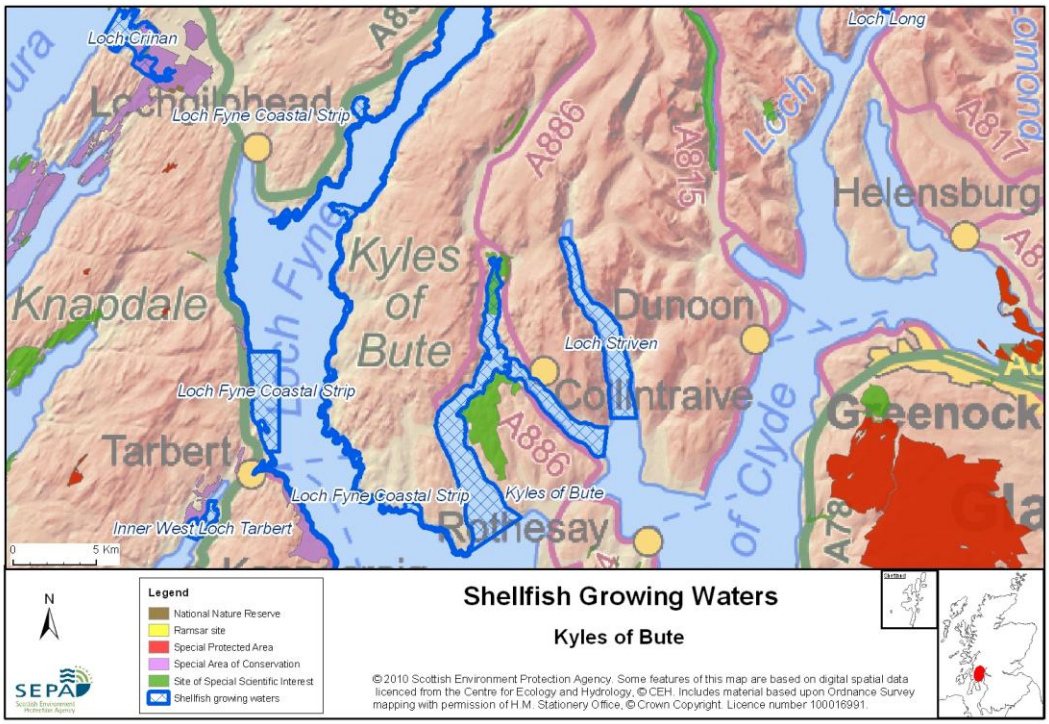
A small area of the Shellfish Water near Salthouse point (in Loch Riddon – formally all a Shellfish Harvesting Area) is also designated as Shellfish Harvesting Area by Food Standards Agency (FSA)

To the east of the Kyles is Loch Striven Shellfish Water (UKS7992389), part of which is a FSA designated Shellfish Harvesting Area.

To the west of the Kyles is Loch Fyne. This is a large area that is designated as a shellfish water all along the coast line (Loch Fyne Coastal Strip – UKS799239). Within this large shellfish water there are four designated Shellfish Harvesting Areas.

Sites of Special Scientific Interest (SSSI) – Ruel Estuary
Designated 30/09/1986 for habitat (Fen meadow, Flood-plain fen, Saltmarsh, Upland oak woodland)

Sites of Special Scientific Interest (SSSI) – North End of Bute
Designated 29/06/1990 for habitat (Upland oak woodland) and breeding bird assemblage



8.4 Topography and Land Use – Potential Diffuse Pollution Sources

Both shores of Loch Riddon are afforested with a variety of coniferous or broadleaved species. The hills surrounding the Loch are largely covered by heather or blanket bog.

The River Ruel drains a considerable catchment and discharges directly to the head of Loch Riddon. The river receives no significant inputs, and is of consistently excellent or good quality.

The shoreline continues to be afforested as Loch Riddon opens out to form the Kyles around Isle of Bute. On northern Bute itself, there are a few farms but the land is sparsely populated. The small settlements of Tighnabruaich and Kames lie off the western Kyles of Bute. The biggest settlement off the eastern Kyles is Colintraive.

The Drumachloy Burn runs from the north of the island and discharges to Ettrick Bay, south of the Shellfish designated area. Both the St. Colmac Burn and the

Drumachloy Burn, which flow into Ettrick Bay, have suffered from diffuse pollution episodes in the recent past.

As work has already been carried out on the known point source pressures affecting this shellfish water, the most likely cause of guidelines failures is from diffuse source pollution, from sewage disposal and/or livestock farming. Bacterial source tracking may be required to verify the origin of the diffuse source pollution.

8.5 Point Source Discharge

There are two marine cage fish farms within the designated shellfish water, one in Loch Riddon and one in the Kyles of Bute. These sites have a total consented biomass of 1000 tonnes of salmon.

Type	Name	Treatment	Consent No.	NGR	PE	Additional Information
Scottish Water Asset	Kames & Tighnabruaich STW	Secondary	CAR/L/1003717	NR 9824 7012	760	Scheme completed June 2003
	Colintraive ST	Septic Tank	WPC/W/11331* (CD7179)	NS 044 436	80	upgraded as part of Q&SII
Other	Individual ST	Septic Tank	Various	Various	20 - 30	-
Category	**Name**		**Consent No.**	**NGR**	**Biomass (t)**	**Additional Information**
Fish Farm	West Kyles/Caladh		CAR/L/1015866	NS00307530	500	-
	Riddon		CD 8363*	NS00307750	500	-

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

8.6 Compliance Monitoring Regime

The following monitoring regime was implemented in July 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

8.7 Compliance History

UKS799238 - Kyles of Bute				
	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	Pass	Pass	Fail[1]	Fail
2001	Pass	Pass	Pass	Fail
2002	Pass	Pass	Pass	Fail
2003	Pass	Pass	Pass	Fail
2004	Pass	Pass	Pass	Fail
2005	Pass	Pass	Pass	Fail
2006	Pass	Pass	Pass	Fail
2007	Pass	Pass	Pass	Fail
2008	Pass	Pass	Pass	Fail
2009	Pass	Pass	Pass	Fail
2010	Pass	Pass	Pass	Fail

[1]Failure applies to the guideline standard of >80% for dissolved oxygen in single samples from Loch Riddon and Colintraive in March 2000. The sites passed for all Imperative values. There did not appear to be any harm to local mussel populations and subsequent sampling has indicated no further failures for DO in water.

The shellfish waters have failed to comply with the Guideline standard for faecal coliforms 1999 – 2010.

8.8 Future Monitoring

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

In the event of any chemistry parameters failing to meet 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.

The Kyles of Bute will be monitored quarterly for faecal coliforms in mussels. Future monitoring will reflect improvements arising from the new treatment installed in 2003.

8.9 Improvement Actions

The Kames and Tighnabruaich STW scheme was completed in June 2003, and should have brought about water quality improvements which are yet to be reported. Colintraive ST was upgraded in 2005/06 as part of Scottish Water's Q&SII capital investments plan.

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 first River Basin Management Plan Cycle), with low confidence.

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	Pass by 2015	High	Pass by 2021	High	Pass by 2027	High

8.10 Summary of Actions

Action	Deadline
Q&SII improvements for Colintraive ST	Done under Q&SII