Atlantic Coast (Wester Ross) Project

Topic Paper:

Key Issues

1. Introduction

This paper is one of a series which have been prepared to help inform the future use and development of the coast and inshore waters of Loch Broom, Little Loch Broom, the Summer Isles and Gruinard Bay. The paper represents the results of basic survey and evaluation work and should not be regarded as a policy document. It is however intended to help in the formulation of policy and to promote discussion. The Atlantic Coast project aims to develop and test an integrated coastal zone plan for this area which can help in the evaluation of development proposals, guide investment, and minimise conflicts of interest. It aims to promote a balanced approach: one that can safeguard the area's core natural assets and sustain or enhance its productivity over the longer term.

The issues that have been set out here have been formulated in response to concerns raised in the project area. Some have scientific backing, while others are based on mainly anecdotal evidence from those directly involved in activities such as fisheries, fish farming, natural history and angling.

Integrated Coastal Zone Management is a means for ensuring that coastal resources are used rationally and sustainably. The sea, its products and its seemingly endless productivity underpin many activities in the project area, providing local communities with income from fisheries and the farming of fish and shellfish, recreational opportunities, and a safe disposal facility for waste such as sewage. However, excessive pressure on the ecosystem by any one activity could affect not only the future of that activity, but the resilience of the ecosystem as a whole.

Over recent decades the project area has seen considerable changes in patterns of human activity: the decline of the herring fishery followed by the rise of klondyking and its associated pollution issues; the subsequent decline of klondyking and the growth of inshore fisheries following the removal of the three-mile-limit on mobile fishing gear; and the establishment and growth of the aquaculture industry. These changes have been accompanied by changes in the local marine environment. Sea-anglers have reported serious declines in abundance and diversity of fish species. There are reports that lobster catches have declined. Prawns are still caught in good numbers, but their average size is decreasing. There have been problems with algal blooms and toxic shellfish poisoning. Salmon and sea trout populations are in serious decline and show evidence of severe parasitisation by sea-lice.

It is difficult to know the extent to which the changes in human activities have caused the observed environmental changes, as there are other, wider factors to take into account. These include climate change, fluctuations in currents and sea temperatures, and human impacts beyond the boundaries of the project area. However it is clear

that changes are occurring which are affecting both the sustainability of human activities in the area, and the ability of the marine ecosystem to recover.

2. Key issues

Concerns raised during the investigation stage of this project focus mainly on fisheries, aquaculture, and water quality. The potential development of a subsea cable link with the Western Isles, which would cross the project area and possibly make a landfall at Ardmair, is also seen as a key issue locally. However there are also opportunities in the project area: to put fishing and aquaculture on more of a sustainable footing, to increase the value of the local fishery, and to enhance the attractiveness of the area for certain types of recreation.

Fisheries issues include the sustainability of current fishing practices: the effects of the current levels of effort and fishing methods on the target stocks; and the effects of fishing on the wider environment, both from a purely conservation perspective and from the point of view of ecosystem function and resilience. Concern has also been raised over the difficulties of enforcing existing fisheries management measures. New management measures are being developed for inshore fisheries that will create opportunities for cooperation. An important development opportunity in relation to fishing is the potential for lobster stock enhancement.

Concern over aquaculture centres on two issues. One is the interaction between farmed and wild salmon, in particular the exchange of disease and parasites, and the genetic effects of fish farm escapes on wild populations. The other is the benthic and water quality impacts of fish farm feeds, medicines and other discharges. Much of the project area is high in scenic value and it has fine coastal landscapes, including areas of wild coastline which are increasingly rare in a UK context. These are attractive to walkers, recreational sailors, kayakers, and wildlife watchers. The expansion of aquaculture could conflict with these interests unless sites for this activity are chosen with care and the sizes of installations are kept within appropriate limits.

The new plan however gives the opportunity to appraise, in a systematic way, the project area's potential for further development of aquaculture – both finfish and shellfish – and to identify the more suitable sites for this. The key development opportunities in this field are likely to be shellfish farming, possibly as an alternative to finfish farming on some sites, and the cultivation of new species. The plan could help to identify some sites in the outer loch areas which, would allow finfish farms in the inner lochs to relocate their production, provided they can access the appropriate technology.

Water quality in the project area is generally good. The main concerns for water quality are sewage discharges, in particular their impacts on shellfish for human consumption, and the risks of pollution from marine traffic including accidental spills and ship groundings. There is also some public concern about the water quality impacts of fish farming, although current research shows these to be small and discharges from fish farms are closely regulated by SEPA.

Concerns have also been raised over the effects of human activities and developments on the dramatic landscapes of the project area, which are a significant part of the area's appeal for many visitors. At the same time there are opportunities to enhance the landscape along some stretches of coast by appropriate tree planting and repair of drystane dykes. These measures could improve the setting and the shelter of some coastal settlements.

Measures to provide more public moorings and facilities for recreational boating enthusiasts, divers, and kayakers, would help to resolve some conflicts of interest and build up the area's capacity to tap into some of the niche tourist markets and the recreational demand from the fast-developing Inverness area.

Many of the concerns raised here are not unique to this project area, and powers to tackle them effectively are not always devolved to the local level.

Table 1 (below) details the main issues associated with the sustainable use and management of marine and coastal resources, and suggests potential approaches to tackling them. It should be borne in mind that while these issues have all been raised many times by different groups and individuals, they are not universally agreed upon within the project area.

In addition to the above, concerns have been raised which do not relate to the sustainability of human activities or the health of the marine ecosystem. These centred mainly around poor public access to the sea and the lack of facilities for recreational use of the sea by visitors and locals. There is also a lack of clear locational guidance for the development of aquaculture in the area which may have an impact on the ability to ensure sustainability within this sector.

Future, as yet unidentified demands may be placed on the coastal parts of the project area, such as may arise from renewable energy developments. This is a sector which is being rapidly developed. Consultants are preparing a report for the Highland Council (due in August 2005) which will examine the potential for renewable energy developments out to 12 miles offshore and the links and infrastructure that will be needed onshore. This report should provide some data that will cover the project area, including possible locational guidance for installations.

In fact, many of these could be seen less as problems needing solutions, and more as opportunities for improvement. Table 2 shows these in more detail.

3. Conclusions

This paper identifies the concerns which have been raised over the use of the sea and coast in the project area. The project provides an opportunity to develop approaches for tackling these issues where this is possible at the local level. The plan will also highlight the need to build in the principle of review and monitoring of any approaches taken or promoted by the plan. Improved information flow would help to raise the awareness of the value of the marine environment.

The project will identify where new research is needed (a) to fill some of the information gaps which have been identified and (b) to investigate development opportunities and possible sources of funding for taking these further.

Despite the various concerns mentioned here, the big picture is largely a positive one. The project area, although used by humans for thousands of years, is still in good condition compared with many other coastal areas in the UK. Water quality is excellent, and seafood caught and produced here is of the highest quality. On a day-to-day basis there is little significant conflict between the main resource users – fishermen, fish farmers, and tourism interests. The landscapes are a great asset. There is a wide range of leisure activities, and good road links and proximity to the rapidly-expanding city of Inverness draw large numbers of visitors to the area every year.

While there are many problems to be tackled, this project is not working in isolation. Initiatives such as the proposed Highland Shellfish Management Order and the Scottish Executive's Strategic Review of Inshore Fisheries are working towards a greater degree of local involvement in inshore fisheries management. The Tripartite Working Group and the Executive's working group on fish farm location/relocation are developing agreements and joint approaches between the aquaculture industry and wild fisheries interests. Bodies such as SEPA, SNH and FRS, and at the local level Wester Ross Fisheries Trust and the Wester Ross Marine Reserve Partnership, are working to improve our understanding of the marine environment and our impacts on it.

The Atlantic Coast Project should complement these other projects and provide some answers and direction and indicate how future beneficial links and communications can be developed. These developments take time, but they are crucial steps on the road to sustainable use of the marine and coastal environment.

4. Comments and additional information

Information in the paper was gathered from published documents, agency records, companies working in the area, and local individuals. If any of the information in the paper appears incorrect, or if there are significant elements missing, please contact the Atlantic Coast Project Officer at the address below:

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Table 1: Key issues concerning sustainable use and management of marine resources

ISSUE	BACKGROUND	POSSIBLE APPROACHES	DEPENDENCIES
Sustainable use of natural resources			
1. Possible impacts of trawling on target species	There are anecdotal reports that the size of prawns caught is declining, which could be a sign of unsustainable fishing, and although catches have not shown signs of serious decline, 2004 was a poor year	• A system promoting a more collaborative approach to the development of area-based inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, would encourage more stakeholder involvement at the local level.	• Should be tackled in conjunction with 2 and 3
2. Possible overfishing with creels	Due to competition for fishing grounds, both between creel fishermen and between creelers and mobile gear, creel grounds are rarely left empty. Traditionally creel areas were rotated giving them time to 'recover' before being fished again. Economic factors also encourage the deployment of increasing numbers of creels. Anecdotally lobster numbers are said to have declined in the project area.	• A system promoting a more collaborative approach to the development of area-based inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, would encourage more stakeholder involvement at the local level. • Measures to reduce fishing effort could include escape panels, return of berried females to the sea, limits on creel numbers or a rotation of fishing areas. Any of these should be combined with efforts to develop a premium-price market for sustainably-caught prawns. • The PhD project on which SNH is a funding partner (studying the Nephrops Creel fishery in Loch Torridon) will help inform these issues. Early indications about the benefits of escape panels and other measures are very promising.	• Should be tackled in conjunction with 1 and 3 • Would require grants to cover costs, for example that of fitting escape panels to entire fleets of creels These and other measures are likely to qualify for support under the successor to FIFG, the European Fisheries Fund, due to come into effect in 2007. • The HSMO Regulating Order, if granted, will enable some measures to be taken at the local level relating to creel fisheries (however, this will not cover Nephrops).

3. Impacts of trawling and dredging on seabed and on non-target species	Non-selective fishing methods may have significant impacts on non-target species: locals link the decline in sea-angling catches to the lifting of the three-mile limit on mobile fishing gear. Damage to habitats such as maerl, which provides an important nursery habitat for juvenile fishery species, may also occur.	• A system promoting a more collaborative approach to the development of area-based inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, would encourage more stakeholder involvement at the local level. • Measures could include restrictions on areas open to mobile gear.	• Should be tackled in conjunction with 1 and 2.
4. Ghost fishing	Lost creels and nets can continue fishing for many years after their loss if they are made from robust, non-biodegradable materials.	• Fit biodegradable catches on creels. Escape panels may also mitigate ghost-fishing impacts.	• Would require grants to cover costs of fitting catches to entire fleets of creels.
5. Lack of compliance with existing fisheries legislation	It is common for fishermen to catch and land more than their quota of *Nephrops*. Many believe that they cannot make ends meet if they do not do so. This appears to be a widespread problem. Insufficient resources are available for effective enforcement of current legislation, and stocks in the project area are likely to be affected by actions (or lack of action) elsewhere.	• A system promoting more local involvement in inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, would provide a means of understanding the issues at the root of this complex situation.	• Proper enforcement of fisheries legislation is a national and international responsibility. The regionalisation of fisheries policy may help to engage fishermen in the development of more appropriate legislation, involve them in stock recovery programmes, bring more resources into enforcement, and reduce the temptation to infringe.

Water Quality			
6. Impacts of nutrient enrichment, medicines and discharges from fish farms	Although each fish farm application is assessed individually to ensure minimal impacts, there is no good understanding of the cumulative impacts over time, or of several farms operating in the same area.	• Relocate finfish farms away from less well flushed sites, and direct new finfish farms to areas with good water circulation • Designate some stretches of the west	• Availability of suitable sites to which finfish farms could relocate and where they could expand production to achieve economies of scale.

		coast as fish-farm-free zones • In the longer term, fish farm consents should take into account models of carrying capacity for sea loch systems.	• The economics of servicing more remote and possibly more exposed sites • SEPA is currently engaged in developing a model for estimating the carrying capacity of sea loch systems.
7. Sewage outfalls	Water quality in the area is mainly good. However, shellfish cannot be grown or harvested near sewage outfalls.	• Identify appropriate buffer zones around sewage outfalls, based on modelling of local conditions • Direct shellfish farm development away from sewage outfall areas • Advise against new development in areas sensitive to sewage pollution	• Improvement in sewage treatment facilities could expand the area available for shellfish farming.
8. Oil/ cargo spills	Minor oil spills from vessels are frequent but relatively undamaging. However, spills associated with vessels running aground could be more serious.	Shipping within the project area and immediately adjacent to it is important and passes close to environmentally sensitive areas. • Contingency measures are already in place. Exact measures depend on the nature of the event. In some cases little can be done once a spill has occurred	Input to discussions on designating new MEHRAs (Marine Environmental High-Risk Areas) for NW Scotland.
9. Plastics and other non-biodegradable waste from coastal and marine users.	Waste washes up on beaches where it is unsightly. Items such as plastic bags can be mistaken for prey and ingested by marine wildlife. Marine litter and flotsam may cause a hazard to boat traffic and it accumulates on beaches	• This problem should be tackled at source, and might be approached through an awareness-raising programme based on tracking marine debris and targeting fishing, cargo and pleasure boats. A local measure would be to encourage local suppliers to supply goods in biodegradable packaging. • The Marine Stewardship Council's 'adopt a beach' campaign has been successful	• Provision of adequate waste disposal facilities for users of the marine area and beaches and for coastal communities with effective advertising of these facilities. • Possible use of the Marine Conservation Society's "Adopt a Beach Campaign".

		in reducing coastal litter in some areas.	
Allocation of marine resources between competing interests			
10. Competition for sea space between users of mobile fishing gear and users of static gear	There is a general informal understanding in the project area that some parts are for creeling and other parts for trawling. The boundaries however are not fixed. Any 'retreat' by one activity is mirrored by an 'advance' by the other, thus an area is rarely left unfished for any length of time. Despite the understanding, some conflict does occur, especially involving trawlers from outside the project area.	• In general this informal system maintains a steady state; however there are concerns that it leads to over-intensive use of the area which is detrimental to stocks over the long term, and that the system breaks down when outsider boats fish in the area. • Formalising some zones as creel-only and others for fishing only with mobile gear could help to 'rest' these areas when they are not the focus of a bout of fishing activity by the designated means. • A system promoting more local involvement in inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, might provide a means of tackling this at the local level.	• Should be tackled in conjunction with 1, 2 and 3.
11. Conflict over use of the project area for trawling during good weather	There is an informal understanding among most trawlers that trawling inside the project area (and especially in sheltered areas like Annat Bay) is reserved for bad weather when it is not possible to work out into the Minch. This understanding is not respected by all. There is a formal closure of Little Loch Broom and Gruinard Bay under the Inshore Fishing Act from October to March.	• A system promoting more local involvement in inshore fisheries management, as proposed in the recent Strategic Review of Inshore Fisheries, might provide a means of tackling this at the local level..	
12. Competition for	Finfish and shellfish farms, fishing	• This project can identify areas in which	Investigate possibility of establishing

use of sheltered areas.	activities and anchoring yachts all require sheltered areas to some extent. Such areas are in limited supply and conflicts of interest can sometimes arise – both between these sectors and with terrestrial interests. Other spatial conflicts may occur with increased recreational activity eg boat cruises with fishing	fish farm development would be feasible and acceptable, and identify key areas to be safeguarded for other uses.	a moorings association for the wider project area.
Introduced species and disease			
13. Impacts of salmon farming on wild salmonids	Disease transfer to/from wild stock, increased local abundance of sea lice, and loss of genetic integrity of local populations through interbreeding with escaped fish farm stock.	• In the short term, direct salmon farm development away from areas near rivers, obvious salmonid migration routes and old netting station sites; and encourage synchronisation of production cycles. • Identification of the patterns of movement of salmon and sea trout, and the dispersal patterns of sea lice, might enable finfish farms to be located in a way that minimises contact between lice and wild fish. • Ideally, some stretches of the west coast should be designated as fish-farm-free zones.	• Availability and commercial viability of alternative sites. • Progress with negotiations to establish an Area Management Agreement between fish farming interests and the proprietors of local river fishings. At the time of writing these have foundered over the issue of synchronisation. • The research and modelling involved is time-consuming and expensive. However, some of this work is being done by the Fisheries Research Service and the Fisheries Trusts.
14. Algal blooms and shellfish poisoning	Shellfish have been farmed in the area in the past, but have faced some problems with algal blooms and shellfish poisoning	• Careful segregation of potential shellfish growing areas away from sewage discharges. • Improvements in sewage treatment facilities and/or tighter control of discharges in areas with good shellfish farming potential.	• Legislative requirements on water quality, eg under the Water Framework Directive.

15. Impacts of increasing mink numbers on ground nesting birds.	Mink have already been seen in the area, and will almost certainly spread.	• It is very difficult to eradicate mink, but they might be controlled through seasonal trapping at targeted sites.	
16. Impacts of rats on ground nesting birds.	Rats are present in many areas but are not present on Priest Island. This is a site of European importance for its storm petrel population. The introduction of rats would be disastrous for the breeding storm petrel population as well as for other ground-nesting species.	• Monitoring and trapping as necessary.	
Information/knowledge gaps: there is currently insufficient data in some fields to make sound, defensible management decisions at the local scale			
17. Lack of baseline data on abundance, distribution and status of marine species and habitats.	All the current marine habitat and species data relates to point locations only, and there are large gaps in the information. There is a lack of data to show trends and the likely direction of change.	• ROV (Remotely Operated Vehicle) and side-scan sonar surveys, backed up by targeted dive surveys.	• Detailed research of this nature is very expensive. • Local dive clubs can contribute to surveys e.g. through Seasearch type activities. • JNCC project (MESH) to map seabed habitats may be useful at broad scale
18. Lack of data on the state of local fishery stocks and impacts of fishing activity.	Insufficient survey work has been carried out in the area to provide a good indication of the status of local stocks or the effectiveness of local seasonal closures.	• Establishment of a local fisheries monitoring programme, possibly through a mechanism similar to the fisheries trusts, combined with data gathering by the fishermen themselves, by-catch analysis, etc. • Use the area as a pilot for collaborative research with other bodies which have a shared interest in the health of local fish stocks, eg marine nature conservation interests, fish processors, sea anglers, divers.	• In the present political climate, fishermen are unlikely to support research which may identify problems they would rather not address. • The economic case for having better-researched and more carefully managed local fisheries needs to be made. • Evolution of national and international legislation to protect biodiversity and ensure the

			sustainable use of marine resources should bring more resources to bear on inshore fisheries research in the long term. Local fishermen need to make the case for their area to receive some of these resources. To improve knowledge of the state of local stocks in the short term, new funding sources will need to be found.
19. Lack of information on the location, state and significance of local coastal and marine archaeological sites	Insufficient survey work has been carried out in the area to catalogue all sites. Maritime sites in particular are very poorly recorded.	• Targeted dive surveys to record details of maritime archaeological sites, alongside coastal surveys to provide more complete information on coastal sites.	• Detailed research of this nature is likely to be expensive
20. Poor understanding of the carrying capacity of inshore areas	The cumulative effects of human activities (aquaculture, fishing, pollution, etc) on ecosystem function in semi-confined water bodies are poorly understood	• This is highly complex, and very location-specific. However, SEPA is working on a model which may assist with this in the longer term.	•
Poor information exchange			
21. Communication gaps between local resource users with first hand experience of the local situation and the central bodies which carry out research, set priorities and policies, and make management decisions.	At present, the systems are not in place to support local information gathering, or to allow local information and priorities to feed into national policy/management decisions. Nor are there tools to facilitate research, management initiatives or effective enforcement at the local level. Lack of involvement leaves locals with little faith in the process. Participation in research and management can be a good way of raising awareness of local issues.	• Devolution of some responsibility for management of coastal and inshore resources to the local level, backed up by relevant research and the power to enforce any regulations, works successfully in other countries. • The system of local management, as proposed in the recent Strategic Review of Inshore Fisheries, or by the Highland Shellfish Management Organisation, represents a positive step in this direction.	

		• Encourage data holders to make information freely and easily available to the public eg via the Internet	
Visual impacts			
22. Visual impacts of new and existing developments	Developments such as those associated with new buildings or aquaculture sometimes threaten the sense of remoteness and wild land qualities that attract many people to the area. Most of the project area is highly regarded for its landscape value and a large proportion of it is designated as National Scenic Area. This inherent quality requires careful decisions on both the location of new development and the design of structures to avoid adverse impacts.	• Identify landscape areas in which certain types and scales of development would be acceptable and areas where they would not. Apply best practice guidance on landscape design for fish farms and new development in the countryside to minimise the visual impacts of installations	• SNH has developed design guidelines for aquaculture installations. • Current SNH research on landscape/seascape capacity for aquaculture

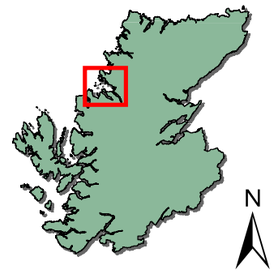
Table 2: Key issues concerning access and facilities

ISSUES	BACKGROUND	POSSIBLE APPROACHES	DEPENDENCIES
Planning for aquaculture			
1. Lack of security and guidance for the local aquaculture industry	Some of the early leases for aquaculture in the project area were granted without the benefit of Environmental Impact Assessment or public consultation. However, the regulatory regime is now stricter and there is recognition at national level that some fish farms may need to be relocated though these are yet to be identified. Fish farming is a significant source of local employment but at present companies cannot be sure that they will be able to continue operating some of their existing sites, or obtain new ones, making long-term business planning difficult.	• Preparation of integrated coastal zone plans and Aquaculture Framework Plans at local level can help to clarify the situation through identification of appropriate locations for new or relocated sites, and through development of policy for existing sites.	• Some of the issues related to this are being tackled at the national level, for example through the Relocation Working Group convened by the Scottish Executive, and through SNH's work on minimising the visual impacts of fish farm installations. • The Government announced in 1997 its intention to bring marine aquaculture installations within the scope of the statutory planning system and legislation is likely to come forward for this under the Water Environment and Water Services Act. The details of this transfer process are still being worked out. One of the key issues is how to deal with existing fish farms which have not had a proper planning or sustainability appraisal.
Provision and maintenance of facilities			
2. Shortage of good public access points to the sea around the project area, including sites where it is possible to	The project area is increasingly popular for sailing, kayaking, diving and other water-based activities, and public sea-access is important to the tourism industry as well as to local fishing interests. However, many of the existing access points are in a poor state of repair	• Identify priority areas for upgrading. • Assist local groups in establishing mechanisms for maintenance of facilities, and in identifying sources of funding.	• Availability of funding.

launch small boats. Funds to repair upgrade and maintain access points are very limited.	and need considerable long-term investment to restore and maintain them. It is becoming increasingly difficult to find funding for piers and slipways, due to concerns over how they will be maintained in the future.		
3. There are no public moorings in the project area, and there is no organisation with responsibility for managing or controlling moorings locally.	Current moorings are unregulated, and there is no provision for visiting boats	• A local Moorings Association is due to be formed in 2005, with input from the Crown Estate. • Suggested approach would be the uplift of all existing moorings in Ullapool harbour, to be re-laid in a grid pattern with provision for both local users and visiting boats.	• The costs of uplifting and re-laying moorings will be high
4. There are few facilities in Ullapool for visiting yachts or for local recreational use.	Suggested developments include provision of changing rooms, toilets, showers, fresh water supply points, winter storage for boats, etc.	• Identify appropriate locations. • Assist in identifying funding sources	
5. Increasing costs of insurance and upgrading of boats to meet health and safety requirements.	Rising costs have led to a decline in boat charters and pleasure boat hire.	Discuss the parameters of viability and the cost/technical barriers with existing, recent, and potential charter boat operators. Investigate potential sources of financial assistance and means of stimulating customer demand for boat charters.	

Atlantic Coast (Wester Ross) Project

Project Area



Alltan Dubh
Eilean Mullagrach
ISLE RISTOL
Glas-leac Mòr
Achiltibuie
Eilean Fada Mòr
Tanera Beg
TANERA MORE
Glas-leac Beag
Horse Island
Eilean Dubh
PRIEST ISLAND
Stac Pollaidh
Ben More Coigach
River Ruaive
River Canaird
ISLE MARTIN
Ullapool River
Ullapool
Beinn Ghobhlach
GRUINARD ISLAND
Badcaul
Laide
Meall Dubh
Sail Mhòr
Little Gruinard River
River Ewe
Gruinard River
Dundonnell River
An Teallach

Legend

Topic:
Project Area

- Project Area Seaward Boundary

Topic:
Map Base

- Settlement
- Main Peak
- Trunk Road
- A Road
- B Road
- Other

Intertidal | 0m - 10m | 10m - 20m | 20m - 30m | 30m - 50m | 50m - 100m | 100m +

Bathymetry

0 1 2 3 4 5 miles
0 2 4 6 8 km