

Loch Nevis Loch Nibheis



AQUACULTURE FRAMEWORK PLAN PLANA UISGE-ÀITEACHAIS

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FOREWORD

SAN TOISEACH

Aquaculture framework plans were introduced by the former Highland Regional Council in the late 1980's as a key part of its development and control strategy for aquaculture. Their purpose is to guide aquaculture development to appropriate locations and to help minimise conflicts of interest. This updated plan for Loch Nevis replaces the version prepared in July 1988 and is one of a second generation of plans which began to be introduced in 2000. The guidance here is intended to supplement that which is provided for the terrestrial area in the Lochaber Local Plan, which is in the process of being superseded by the West Highlands and Islands Local Plan. It will be used to inform the Council's evaluation of planning applications for finfish and shellfish farms and the Scottish Government's review of development consents which were granted by the Crown Estate.

One of the key changes since the original Loch Nevis Framework Plan was produced has been the introduction of the EU's Environmental Assessment (EA) regulations. Since March 1999 these embrace aquaculture developments to a much greater extent than before and they now apply to most proposals for new or expanded finfish farms. The framework plan can help guide prospective developers who are required to submit EAs as to the specific issues which their EAs should address. Although at the time of writing shellfish farming was exempt from EA regulations, large-scale installations may come within the scope of the legislation within the lifetime of the plan.

Various improvements on the framework plan format have been introduced with the current series of documents. The visual presentation has been upgraded to include a coloured policy map, diagrams and photographs. More information on the area below low water mark has been included where it has been available, e.g. on the hydrography and marine nature conservation interest. There is more attention to the issues associated with shellfish farming and alternative finfish species together with references to other uses and potential developments in the coastal zone.

As the drive towards sustainable use of inshore waters gathers momentum, aquaculture framework plans should be seen as one component of an increasingly comprehensive and integrated coastal planning system. This system will ultimately also embrace area access agreements for inshore fishing and seabed harvesting, management plans for marine nature reserves, the coastal policy elements of Local Plans and coastal zone management (CZM) strategies at sub-regional level and above.

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Cover photo: Inverie Bay, looking south-west (picture courtesy of Dale Wright)

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Introduction

Ro-ràdh

1. Loch Nevis is probably best known for its association with the Rough Bounds of Knoydart – one of Scotland’s core areas of wild land - and its rugged coastal scenery. Its special landscape value is reflected in its designation as part of the Knoydart National Scenic Area and in the steady flow of visitors who arrive by boat or traverse the area on foot. The rugged landscape at the entrance to Loch Nevis and its remote upper basin epitomise the wild qualities for which this area is renowned. However, the middle reaches of the loch are more open and the land adjacent to them is gentler and they support a range of economic activities which use both the marine and terrestrial area. Here and at the western extremity of the Knoydart peninsula small communities forge a livelihood at a significant distance from the infrastructure and public services which most people take for granted.

Figure 1: Location of Framework Plan Area



2. The public ferry for this area plies between Mallaig and the isolated communities in Inverie, and Tarbet. There is also finfish and shellfish farming on the sheltered south side of the loch at various points between Earnsaig and Tarbet. Some of the loch is fished by creel and in its lower reaches also sometimes by trawl. Tourist accommodation is an increasing feature in this area - some of it built to a very high standard using innovative designs. Settlement is mostly concentrated in Inverie and the area between Ardintigh and Kylesmorar.

3. Within the Knoydart area Loch Nevis has the benefit of easier access than Loch Hourn. This gives it somewhat more development potential but also puts the area under more pressure. The degree of enterprise and innovation shown by the Knoydart Foundation and neighbouring estates makes this an area to watch in terms of rural development - a possible model for other areas of Highland – but care is also needed to ensure that the area’s natural assets and essential character are safeguarded.

4. There has been aquaculture activity in Loch Nevis since at least the mid-1980s. At the time of writing three sites are leased from the Crown Estate for finfish farming and four are leased for shellfish. There are no areas leased for aquaculture within the upper loch due to its restricted water circulation and policy constraints on development in this core wild land area.

5. The boundaries of this framework plan remain largely the same as those used for the earlier 1988 version. These embrace the whole coastline of Loch Nevis and its seaward approaches - from Mallaig harbour on the south side to the northern fringes of Airor on the Knoydart peninsula. The boundary there meets the southern boundary of the 2001 Loch Hourn plan.

Planning Policy Context

Co-theacsa Poileasaidh Dealbhachaidh

National guidance

6. The policy guidance relevant to aquaculture at national level currently has four main strands:

- i. the Strategic Framework for Scottish Aquaculture (SFSA) - a broad-based strategy which sets out a vision, general working principles and objectives for the industry, which, at the time of writing is being reviewed;
- ii. locational guidelines for the siting of marine fish farms and supporting general advice on marine fish farming and the environment;
- iii. the National Planning Policy Guideline for Coastal Planning (NPPG 13) – this sets out how the coast should be classified for planning purposes and the main policy thrust which should apply in each category;
- iv. the Scottish Planning Policy on Planning for Fish Farming (SPP22) - this provides guidance on the factors to be taken into account when considering proposals for new fish farms or modifications to existing operations and also establishes the national planning context for guiding the location of future fish farms.

7. The SFSA document, NPPG 13 and SPP22 all identify sustainability (economic, environmental and social) as the overarching guiding principle for aquaculture development in Scotland. They also advise local authorities to develop local planning guidance for aquaculture in appropriate areas in consultation with the relevant interests and they encourage community

engagement. In addition, SPP22 provides detailed information on factors to consider in new and existing developments, in relation to developing local fish farming framework plans.

STRATEGIC FRAMEWORK FOR SCOTTISH AQUACULTURE (SFSA)

8. The original framework was published in 2003 and at the time of writing the draft of a revised version has recently been the subject of consultation. This new document, ‘Scottish Aquaculture – A Fresh Start’ will tie in closely with the Scottish Governments’ five strategic objectives whilst addressing the key challenges facing the aquaculture industry:

- Health
- Planning, Consents and Sites
- Containment
- Markets, Marketing and Image
- Finance

LOCATIONAL GUIDELINES

9. The Locational Guidelines introduced by SEERAD in 1999 indicate – essentially on a whole-sea-loch basis - where the expansion of fin fish farming would be more (or less) likely to be acceptable in terms of water quality and benthic impact. This pattern of opportunity and constraint, which is regularly updated, reflects the level of existing fish farm development and the natural flushing characteristics of the different sea lochs. The guidelines categorise sea lochs into three categories:

- Category 1: where the development of new or the expansion of existing marine fish farms will only be acceptable in exceptional circumstances;
- Category 2: where new development or expansion of existing sites would not result in the area being re-categorised as category 1;
- Category 3: where there appear to be better prospects of satisfying nutrient loading and benthic impact requirements, although the detailed

circumstances will always need to be examined carefully.

10. At the time of writing, Loch Nevis is classified as Category 3. The categories are based on the environmental sensitivity of the sea lochs as determined by predictive modelling carried out by FRS (Fisheries Research Services), based at the Marine Laboratory, Aberdeen. The classification of the sea loch may change during the lifetime of the plan and maps depicting the current classifications can be found on the Marine Laboratory web site www.marlab.ac.uk.

NPPG 13 – COASTAL PLANNING

11. NPPG 13 was published by the Scottish Office Development Department in 1997. It advises local authorities to classify their coastlines as “Developed”, “Undeveloped” or “Isolated” within development plans to inform future planning decisions. It also states what the policy priorities should be in each of these 3 categories. A supporting advice note (PAN 53) sets out in more detail the criteria to be used in classifying the coast this way. At the time of writing, the Council is in the process of categorising the Highland coastline as suggested. The area policies in the Loch Nevis plan each include an indication of the relevant coastal classification. In practice, much of Loch Nevis falls within the category of “Isolated” coast with the exception being the Inverie Bay and Mallaig.

SPP22 – PLANNING FOR FISH FARMING

12. SPP 22 was published in April 2007; it sets out guidance on the factors which planning authorities should take into account when preparing development plans and assessing development proposals for fish farming. It also provides guidance on the type of information fish farmers should supply when seeking to alter existing sites or establish new ones.

Highland Council Development Plan

13. The Highland Structure Plan (2001), together with the Local Plans for constituent parts of Highland, form the Council’s Development Plan. This focuses mainly on terrestrial developments but it contains some policies which refer to the marine environment in general and to aquaculture specifically. These policies have been taken into account in the preparation of this Framework Plan and will continue to inform the consideration of applications for development consent.

14. Relevant strategic policies in the Highland Structure Plan are G1 (conformity with strategy), G2 (design for sustainability), G3 (impact assessments), G6 (conservation and promotion of the Highland heritage), FA5 (Aquaculture Framework Plans), FA6 (Fish Farming Developments), L4 (Landscape Character). Further details of these policies are contained in Appendix 5.

15. In relation to fish farming, the Lochaber Local Plan (Para. 3.3.4, 1999) states;

“In assessing development proposals, or where consulted by the Crown Estates Commissioners, the Council will consider the suitability of aquaculture and related activity against a range of criteria covering protection of existing water users, recreation and nature conservation; design, amenity and site servicing; management and pollution safeguards; and the provisions of its approved Fish Farm Framework Plans....”

“The Council will encourage fish farm related interpretive material and roadside facilities at suitable viewpoints where consistent with amenity and wildlife interests.”

In addition, the West Highland and Islands Local Plan Deposit Draft (2008) acknowledges that the aquaculture framework plans will provide supplementary framework guidance.



Photo 1 - Inverie Bay and the mouth of the Inverie River

Objectives

16. The objectives of the Loch Nevis framework plan are to:

- promote the operation and development of aquaculture which is environmentally sustainable and in harmony with other interests;
- raise awareness of the resource value of Loch Nevis and its coastal areas and guide prospective aquaculture developers as to the various interests they should take into account;
- safeguard the natural heritage interest of the area, its scenic qualities, and key wildlife habitats and species, including native wild fish stocks;
- safeguard the key tourism and recreation assets of the loch;
- identify infrastructure investment priorities to support aquaculture in appropriate locations and to maximise the general economic and recreational value of the inshore area;
- provide guidance as to the issues which should be considered within an Environmental Impact Assessment, if one is necessary, in support of an aquaculture application;

Main features of the area

Terrain and hydrography

17. Loch Nevis is one of the most fjord-like sea lochs in Highland, opening onto the Sound of Sleat to the west and penetrating deep into the mountains of Lochaber in its upper reaches to the east. In plan view, the loch has two distinct dog-legs suggesting three main subdivisions:

- an exposed outer area at the mouth of the loch – steep and rocky hill slopes on the south side, gently sloping on the north side;
- a more sheltered middle zone whose southern side is well sheltered from the prevailing westerly and southwesterly winds;
- the upper basin – closely hemmed in by high hills but its east-west orientation tends to funnel the westerly wind up the loch

18. Loch Nevis forms the southern boundary of the Knoydart peninsula – an area which, together with the rugged hills around the head of the loch, is often referred to as the “Rough Bounds” on account of its difficult terrain. The steep contours of this area relent in only a few localities – at the head of the loch where the Carnach and Finiskaig rivers reach the sea, around the narrows at Kylesmorar, at the eastern end of Inverie, and at the western tip of the Knoydart peninsula around Sandaig and Airor.

19. Although lying in close physical proximity to the major freshwater body of Loch Morar to the south, a rugged hill ridge intervenes between the two lochs and their respective communities. The only easy access between the two lochs is at Tarbet. However, because Loch Morar is largely unroaded, this does not as yet provide a link between Loch Nevis and the main road network.

20. Loch Nevis occupies two basins, both of which reach depths of more than 100m. These are separated from the main body of the sea by a sill with mean depth of 9m near the mouth of the loch (near Sròn Raineach).

They are separated from each other by the shallow sill and narrows at Kylesmorar. Nevis is one of the deepest sea lochs in Highland – at a maximum of 161m it is second only to Loch Hourn – and it has the 5th slowest flushing time (9 days).

21. The loch is wide near the outer sill which substantially increases the water exchange capacity of this area of loch. The innermost basin on the other hand is long and fairly narrow and constricted to a width of only 200 metres and a mean depth of only 2 metres at the intervening narrows. This severely restricts the tidal flushing of the inner loch.

22. Between the outer sill and the Sound of Sleat exposure is the main constraint on aquaculture development. Exposed sites can suffer damage to equipment and subsequent escape of stocks. Storm damage may also result in debris being released into the marine environment which can be a hazard for other marine users and which eventually litters shorelines.

Settlements and access

23. The main settlement on Loch Nevis is Inverie (population c.100) which is linked by ferry to Mallaig (population 850) - the main regional service centre. Tarbet is the only other significant concentration of houses on the loch but it has more restricted accessibility. There are also various individual properties scattered around the shores of the loch – mainly in the vicinity of Tarbet and the narrows. A single-track road runs from Inverie to Airor on the Sound of Sleat and thereafter a track runs to the isolated dwellings at Samadalan and Inverguseran (both in the Loch Hourn AFP area). The road runs for approximately 10 kms although it is isolated from the national road network. Cars and small vans are transported to the peninsula by boat from Mallaig.

Scale of Aquaculture Development and Potential



Photo 2 – Salmon farm in Loch Nevis

Historic and present level of development

24. Aquaculture has been present in the Loch Nevis framework plan area for more than two decades. A number of the leases which were operational or applied for when the previous plan was being prepared in 1988 are still present today. Only one additional finfish installation has been consented within the loch since then.

25. At the time of writing, three sites are leased for salmon farming - all located along the southern shore of the middle reaches of the loch – at Earnsaig, about 1 km NW of Stoul Bay, and in Ardintigh Bay. These are currently leased by two operators and are serviced from Mallaig. Four sites are leased for shellfish farming – two in Ardintigh Bay, one east of Ardintigh Point, and one on the north side of the loch at Braomisaig. Three of these sites are for mussel cultivation and one for clams. [*See Appendix 1 for further details.*] At the time of writing, all the Crown Estate aquaculture consents which were in place at the beginning of April 2007, are being reviewed by the Scottish Government with a view to converting these into planning consents with appropriate conditions

Future Prospects for Aquaculture Development

26. Some further development of shellfish farming in Loch Nevis is possible but the opportunities for new fin fish farms of commercial size within the Loch Nevis system are very limited. The present sites are relatively closely spaced and other locations within the loch have either physical or policy constraints which militate against the siting of new finfish installations. The main limiting factors for aquaculture generally are exposure, the need for adequate separation between farms, the high landscape sensitivity in this area, and the need to safeguard navigation to and from the main anchorages.

27. In recent years most salmon farm operators in Scotland have embarked on restructuring/consolidation programmes to sustain their competitiveness. This has generally involved concentration of production on their best-performing sites (sometimes with expansion of these sites) whilst sites which have performed less satisfactorily have been relinquished, scaled down, or put to alternative use (e.g. shellfish farming). Any such consolidation proposal in Loch Nevis will be judged on its individual merits. Both finfish and shellfish development will have to take into account the need for reasonable separation and they should be compatible with the area's natural heritage and tourism interests.

28. Concerns have been raised from time to time regarding sites which have been leased but not developed. Given the limited number of suitable sites for aquaculture, it is important that any unused (or under-used) leases should be fully developed. Otherwise they should be relinquished to give others the opportunity to use them.

29. The salmon farming industry is increasingly looking towards diversification into new species and there has been interest in the potential for cultivation of cod and halibut in recent years. In the near future it is expected

that haddock juveniles will also be available for on-growing in sea cages. Whilst it may be possible to on-grow cod in reasonably exposed sites, including those currently used for salmon, halibut require much more sheltered, inner loch sites. Their cultivation also may require a much greater cage surface area for a given biomass of stock compared to a salmon farm, or alternatively, deeper nets with multiple floors in them.

30. Given improving technology, it may become possible in the future to put fish farm cages on more exposed sites than are currently viable. It will be important however to maintain safe navigational access in these areas. Equipment installed in exposed locations can be prone to storm damage, which can result in floating debris that represents a hazard to vessels over a wide area and ultimately washes up on the shoreline. It may also result in sunken wreckage which forms a more localised hazard to vessels, swimmers or divers. Development in locations considered too harsh for the specified equipment will therefore be discouraged.

31. Improvements in technology have also allowed increasing automation of fish farming operations, particularly in relation to feeding systems. Such installations facilitate feed supply by sea and can accommodate improved technology to reduce waste fish feed. This has additional benefits in relation to reduced sea bed impacts. Although these installations may have an increased visual and noise impact on their surroundings, this can be mitigated by careful design and management practices, choice of appropriate colour schemes, and muffling of generators etc.

32. With regard to shellfish developments there are a limited number of sites within the plan area which may be suitable for the longline or raft culture of mussels. These locations are identified in the area policies.

33. Proposals for new finfish farm sites or significant modifications to existing ones are likely to require an Environmental Impact Assessment. The Council (or the Scottish Government in the case of review sites) will screen the applications

accordingly and in doing so consult the relevant statutory authorities as to whether or not an EIA is required, and if so, what it should cover.

34. The Crown Estate produced indicative guidance in the late 1980's as to the minimum separation which should exist between finfish and shellfish farm sites, and between these and certain other interests. This guidance recommended a minimum distance between finfish farms of 8 kms but this is less relevant today with the advent of single-year-class stocking. Between a finfish farm and a shellfish farm the recommended separation is 3 kms and between two shellfish farms 1.5 kms. However, it is acknowledged that closer siting may be possible between small-scale farms and in large loch systems or open water. The 1980's guidance was based on a range of factors including amenity considerations and was subsequently included in the Scottish Executive's 'Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters' published in 1999.

35. The Government's revised locational guidelines published in 2003 put greater emphasis on the hydrographic separation between fish farming management areas and the maintenance of firebreaks between adjacent management areas as a mechanism for preventing the spread of disease.

In addition, reasonable separation is still a relevant consideration to avoid adverse interactions between finfish and shellfish farming operations, to secure reasonable navigational access and to control visual impact. Since the separation between many of the finfish and shellfish sites within Loch Nevis is much less than the recommended minimum distances, the opportunity should be taken, when the existing consents are reviewed, to increase these distances whenever possible. It will also help to reduce visual and landscape impacts.

36. In the future it may become economically viable to farm other marine

species within Highland sea lochs. The Highland Council has been involved as funding partner in a number of projects aimed at determining the feasibility of farming new species and the techniques which would be required for their culture. Species include haddock and lumpsucker as well as abalone and the green sea urchin *Psammechinus miliaris*. A continental and far eastern market exists for the mature roe of this species and it has the potential to be cultivated in trays or lantern nets suspended on subsurface longlines or even below the walkways of finfish farms as part of a polyculture approach. The use of subsurface longlines would also result in reduced surface gear and therefore less visual impact.

37. Interest is also increasing in the potential for polyculture. This could involve growing a species such as mussels and/or certain types of seaweed on the same site as finfish. The main argument for this type of aquaculture is that one species can use some of the waste nutrients produced by the other, leading to less dissolved organic matter entering the water column. Research in this field is continuing and the Council has recently contributed towards this. The introduction of polyculture techniques on a commercial scale may in some cases require changes in legislation to allow more than one species to be grown on one site. It would also necessitate a review of the indicative separation distances, and care will need to be taken in relation to the possible introduction of non-native species.

Planning and development considerations

Economic Development

38. Due to its remoteness from the main road network the prospects for employment in the Knoydart area are fairly limited. This puts a premium on exploiting the area's natural resources and seclusion to best effect, nurturing the community's self-sufficiency, attracting visitors to the area, and teleworking. The natural resources of the area provide direct employment in

aquaculture, farming, forestry, estate work (including game fisheries) and inshore creel fishing. In terms of scenery and opportunities for outdoor recreation they form the basis for tourism - now the mainstay of the local economy - and this provides a range of work, including accommodation provision, providing specific recreational activities, and other services. Advances in telecommunications offer the opportunity for some to work remotely from home using the internet for business communications. It is likely that this kind of enterprise will become increasingly prevalent in areas such as Knoydart.

39. At the time of writing, 16 people are employed in finfish farming activities in Loch Nevis, 13 of them full time. Over the last two decades finfish production techniques have advanced significantly. This is exemplified by the fact that productivity per person employed on fish farms in Scotland increased from 28 tonnes to 142 tonnes per staff member over the 15-year period 1992-2007. The sites have become increasingly automated and this has resulted in reductions in staffing levels. Whilst loss of employment is not desirable, operational efficiency is essential for the firms to remain competitive and automation can improve the quality of jobs involved. The key is to maintain efficiency whilst delivering tangible net benefits to the communities nearby. The same principle applies to shellfish aquaculture but thus far it has operated in a more traditional fashion and owners and staff are more likely to be individuals who are residents of the communities around the shores of the loch.

40. Planning policies (and ultimately decisions on individual development proposals) need to nurture economic activity which is sustainable in environmental and social terms as well as financially viable. This may mean having to strike a judicious balance between capital-intensive forms of aquaculture operating at a large scale and more

traditional systems which favour the smaller-scale operator.

Landscape and Visual Amenity

41. In both its form and scale Loch Nevis is one of the Highland sea lochs which most resembles the classic model of a fjord. It is also relatively well differentiated over its length with the uppermost basin of the loch, the middle reaches, Inverie Bay, and the mouth of the loch all having distinct characteristics. Because it is visually separated from Mallaig and Loch Hourne by high intervening hills and because there is no direct road access, Loch Nevis represents something of a hidden enclave. This is a key part of its appeal.

42. It is one of only a few sea lochs in Scotland where the mouth of the loch is the most accessible and visited part and the head of the loch is the most remote. This is because the loch penetrates into a remote and unroaded area of rugged hills – more remote even than the head of Loch Hourne. The way it twists through the hills also means that it only fully reveals itself to those prepared to travel most of its length. For the vast majority of people this means relatively slow access by boat and foot and ample time to view the landscape en route.

43. Key coastal landscape (landmark) features are:

- the sentinel peak of Sgurr an Eilein Ghiubhais whose rugged slopes descend steeply to the loch near its mouth;
- the rocky headland of Rubha Raonuill and Creagan Dearga which guard the entrance to Inverie Bay on the north side of the loch;
- the steep nose of A' Chruach – the other sentinel peak which guards the entrance to the tapering section of the middle reaches of the loch;
- the narrows at Kylesknoydart/Kylesmorar

44. The landscape of Loch Nevis has both an overall grandeur and a variety of scenic experiences along its length, with the upper

basin being the most intimate and sensitive to development. The enveloping National Scenic Area designation reflects this and helps to safeguard the area's essential landscape characteristics. However it has not been 100% successful in that small-scale incremental development (both on land and sea) has reduced some of the sense of remoteness in the years since the NSA was designated. It requires a delicate balance to sustain viable communities in this remote area *and* safeguard the sense of an unspoilt, wild coastal landscape.

45. SPP22 states that: "*Planning authorities should ensure that development is located and designed in a sensitive and unobtrusive manner, particularly in areas recognized for their landscape value.*" Appropriate steps should therefore be taken to minimise the visual impact of man-made structures in the landscape. As far as aquaculture is concerned, this can be achieved in a number of ways. Cages should be sited as close as possible to the shores of the loch and orientated with the line of the coast as far as possible. Operators should take advantage of natural screening and the landscape contours. Surface equipment including feed barges, cage top nets and walkways should be low in profile and muted in colour in keeping with the surroundings. Equipment not immediately required on the site should be stored within the confines of a shore base.

46. Sites which are overviewed at close quarters from recognized tourist routes or viewpoints are particularly sensitive and where possible should be avoided. Close liaison between the aquaculture operators, the local planning authority, and Scottish Natural Heritage, coupled with the use of professional landscape design expertise, can help to make the most of the opportunities which exist. SNH's publication "Marine Aquaculture and the Landscape" provides specific guidance in relation to fish farm location and design and is a key reference for developers.

47. Detailed descriptions of the landscape character types in this area, the main forces of change affecting them, and general design guidance can be found in the Lochaber Landscape Character Assessment, also published by SNH.

Navigation

48. Because of the area's isolation from the main road network, the communities in the Loch Nevis area are all boat dependent to some degree. The regular ferry service from Mallaig to Inverie and Tarbet carries passengers, mail and provisions. It also sometimes extends its journey for the benefit of tourists by entering the western part of the innermost basin via the narrows. The Adventure School at Ardentigh is also supplied by sea, as are the houses and sporting interests at Kylesmorar. Anchorages are recognised at Eiliean na Glaschoille and Inverie (which are complementary to each other in terms of the shelter they afford) and the inlet at Tarbet provides good shelter in most conditions. There are also minor anchorages at Sandaig, Stoul, and the head of the loch.

49. The mouth of Loch Nevis opens onto the Sound of Sleat which affords a sheltered passage between the Isle of Skye and the mainland for larger vessels such as coastal tankers and freighters. In addition, naval forces exercise in these areas.

50. Mallaig Harbour Authority has jurisdiction over the coast of the outer mouth of the loch and down into the 57° Latitude line where it crosses the loch. Powers were granted to the Authority over this extensive area to carry out works, control moorings and other aspects of navigation.

51. It is important that finfish or shellfish installations are located where they will not impinge on commercial traffic. In addition, naval forces exercise in these areas. There is thus a need to ensure that access and navigation channels are not unduly hampered. They should be appropriately marked and lit so that they remain visible in poor weather or at night. Section 34 of the

Coast Protection Act (1949) requires that any works within Scottish tidal waters should not interfere with or obstruct navigation. An application must therefore be made to the Scottish Ministers for their approval of the proposed works under the aforesaid Act.

52. A compromise often has to be struck between the need for subtle colouring for surface equipment to mitigate any visual intrusion and the need for visibility to avoid an installation being a hazard to navigation. The Northern Lighthouse Board advises developers and regulators of the requirements for the latter.

Infrastructure

53. Mallaig is the main infrastructure link between Inverie and the rest of the mainland. It is a busy port, which has all the associated services, including 24-hour fuel, deep-water berthing, fresh water on all piers and facilities to help service existing and potential new aquaculture developments. There are also piers at Inverie, Airor, and Torr Cruinn near the head of Loch Nevis (see Appendix 3). Inverie's recently built public jetty allows roll-on-roll-off traffic and is accessible at all states of the tide. It was funded by a partnership between the Highland Council, the Scottish Government and the European Regional Development Fund.



Photo 3 - The new pier at Inverie

54. Apart from access by boat, only hill tracks and rough mountain paths link the settlements and isolated houses on Loch

Nevis and the Knoydart peninsula with the outside world. These run from Inverie to Barrisdale and Kinloch Hourn; from Tarbet and Stoul to Swordland and Bracorina on Loch Morar; and from the head of Loch Nevis east to Glen Dessary and Loch Arkaig. The key internal axis for vehicular traffic is the metalled stretch of single-track road which runs for about 11 kms between Inverie House and Airor. Subsidiary tracks and paths link this road to the isolated coastal settlements at Sandaig and Doune near the tip of the Knoydart peninsula.

Water Quality

55. All aquaculture activities rely on good water quality to support the growth of the species concerned. However aquaculture itself can sometimes have an adverse effect on surrounding waters. In the case of shellfish farming the inputs into the water column are minimal since no additional feed is required to grow shellfish. Farmed shellfish are net consumers of nutrients from the water column. In some instances though, at high stocking densities, this may lead to less nutrients being available for other marine life in the vicinity.

56. Finfish farming on the other hand requires the regular input of feed. Veterinary medicines and antifoulant chemicals may also on occasion be used at cage installations. These result in discharges to the environment along with the faeces of the fish being farmed. This level of discharge needs to be kept within reasonable limits. It is the responsibility of SEPA to determine through computer modelling the maximum biomass of fish which may be stocked at a finfish site, the types of medicines which are permissible, and in what quantities they may be used.

57. One of the main reasons why medicines might be used on a salmon farm is the control of sea lice. These naturally occurring planktonic animals are ubiquitous in the marine environment around the coast of Scotland. However, the potentially large quantities of sea lice associated with large concentrations of caged salmonids have been implicated as one factor in the decline

in wild salmon and sea trout on the west coast. Game fishing interests recognise the importance of using the appropriate medicine to control sea lice. However, such medicines also have the potential to adversely impact non-target organisms such as crustacean larvae and shellfish. These potential impacts are taken into consideration when the medicines are licensed for use on fish farms.

58. Anti-foulant chemicals based on copper or zinc compounds could be used to treat cage nets and walkways to slow the growth of unwanted marine organisms. Although the actions of these chemicals on farmed shellfish are not fully understood there are fears that they may retard the growth of shellfish and lead to higher mortalities. The Council strongly supports alternative methods such as regular swim-through net changes which reduce the need for chemical antifouling on cage nets.

59. Live shellfish put on the market must by law meet strict criteria in terms of hygiene. Shellfish production areas are classified for this purpose according to the presence in water and shellfish samples of certain types of bacteria. Harvesting classifications are species and area-specific and may be seasonal. In Highland harvesting areas are normally classified as category 'A' or 'B'. Shellfish landed from areas classed as category 'A' can go direct to market for human consumption provided they meet the specified end-product standards - there is no legal requirement for any processing other than washing. End-product standards are listed on the Food Standards Agency web site (www.food.gov.uk). When the classification is 'B', mussels must be either depurated, heat treated, or re-laid in an area having an 'A' classification to meet the category 'A' requirements and the end-product standards. These classifications are subject to ongoing monitoring carried out by the Food Standards Agency (Scotland) (FSAS) and they are published annually.

60. Loch Nevis is afforded additional protection from deteriorating water quality by virtue of being designated as 'shellfish growing water' under the European Community Shellfish Waters Directive (79/923/EEC). Its waters must be protected to ensure the quality and productivity of shellfish and must meet the minimum environmental quality standards laid out in the Directive. Water quality monitoring is carried out by SEPA and further information can be found on its web site www.sepa.gov.uk.

61. In the siting of shellfish farms in particular, it is important that developments are not close to any significant effluent discharges, including the discharge from septic tanks. The Council therefore consults SEPA and Scottish Water on all applications relating to the siting of marine fish farms.

62. Shellfish production can sometimes be affected by the presence in the water column of certain harmful but naturally occurring algae. When these algae occur in high concentrations they can cause the accumulation of toxic compounds within filter-feeding bivalves. This can lead to fisheries and aquaculture operations being temporarily suspended on public health grounds. Closures of this nature for Paralytic Shellfish Poisoning (PSP), Amnesic Shellfish Poisoning (ASP) and Diarrhetic Shellfish Poisoning (DSP) are not uncommon in Scottish waters during the summer months. Monitoring for toxins in shellfish and for the specific algae causing them is the responsibility of the Food Standards Agency which subcontracts this work to an accredited laboratory. If a temporary closure is necessary, FSAS contacts the Highland Council Environmental Health Officer for the area. The officer must then inform the grower or harvester, and put up notices to inform the general public not to gather shellfish from the area.

63. Finfish production may also be adversely effected by algal blooms. Some species of algae, if present in sufficiently large numbers, can damage the gills of farmed fish. This may result in mortality in the worst cases. Fish are also susceptible to

blooms of zooplankton, such as juvenile jellyfish.

Feed Barges, Automatic Feeders and Undersea Lighting

64. Modern fish farms increasingly use automatic feeding systems and feed storage barges. These devices offer a number of advantages for both the operator and the environment. The ability to store larger quantities of feed on site can make it economically viable to transport feed to the site by sea reducing heavy lorry movements on rural roads. A reduction in the amount of manual handling and feeding required on site can lead to improved workforce health although ultimately automation may mean that less personnel are required on site. There is also the potential through the use of underwater cameras and feedback loop technology to reduce the quantity of uneaten food pellets reaching the seabed, thereby reducing discharges from the site and conserving resources.

65. Large feed storage barges can sometimes be intrusive in the landscape – more noticeable than the cage systems themselves - because the feed barges are solid objects with a higher profile above the water. They also usually involve substantial amounts of pipe on the water surface (visible from above sea level) which link the barge with the cages. Generators in use on site, if they are not muffled properly, have the further potential for adverse noise impacts. These systems should therefore be designed, located, and managed with care and use colour schemes and noise control measures which are sympathetic to the surroundings. In some areas, eg close to roadside viewpoints, dwellings, or tourist routes, the use of high-capacity feed barges may not be appropriate due to the adverse landscape or amenity impact.

66. The use of underwater lighting to reduce the rate at which fish mature may also be practiced by some operators. In the event that underwater lighting is

required, it should be used with great sensitivity.

Predator control arrangements and interactions with other species

Finfish

67. Finfish farmers may lose some of their stock due to several naturally occurring predatory species. These include birds such as herons and cormorants and mammals - in particular seals and on occasions, American mink. Perhaps the most significant impact of predators, in particular seals, is damage to the cage nets which leads to large-scale fish escapes.

68. The impacts of predators on farmed fish can be reduced in several ways. Top nets can prevent birds from gaining access to the cages from above. Seals may be deterred by the use of Acoustic Deterrent Devices (ADD's) or Seal Scarers which emit a high pitched noise underwater. Most modern devices of this type can be adjusted so that the sound signal can be continuous, intermittent, or activated automatically in the event of a seal attack (the preferred mode of operation). Seals can however become used to the noise over time and this can limit the deterrent effect. There are also concerns that ADD's may adversely impact on non-target species such as porpoises and the various types of dolphin which may be seen on Scotland's west coast. All cetaceans are protected species under European legislation. Any activity which may cause them harm or lead to them being displaced from their natural range, such as the use of seal scarers, should only be carried out with a licence from the Scottish Government Licence Team. This role will pass to Marine Scotland in due course.

69. Good fish husbandry and tensioned nets are first line of defence as the main ways of reducing the impact of seals on farmed salmon stocks. In addition, outer predator nets can be used, although they can entangle wildlife. These prevent losses by not allowing seals any slack net to push against to access the fish in the cages.

70. Sometimes particular seals may be so persistent in their attacks on marine fish farms that the operator finds it necessary to destroy the seal concerned. Fish farmers are permitted to shoot persistent seals outwith the closed season although this should always be seen as a last resort. The Conservation of Seals Act 1970 sets out the closed seasons. For common seals it is 1st June to 31st of August inclusive and for grey seals it is 1st September to 31st December inclusive.

71. Whilst it is accepted that industry losses may result from seal attacks, in many cases seals were present in the sea loch prior to fish farms being introduced and increasingly provide opportunities for ecotourism. The Council's preferred option is for non-destructive methods of predator control to be used in all cases.

Shellfish

72. Shellfish farms do not normally suffer from attacks by mammals but mussel farms in particular may be susceptible to losses from predatory birds such as eider ducks. These diving ducks can strip large quantities of mussels from the dropper ropes suspended below longlines or rafts. Again predator deterrents may be required to reduce losses to the farmer. These may take the form of anti-predator nets placed around rafts or groups of longlines but this can be expensive and may sometimes result in entrapment of diving birds. Alternative methods involve the use of scarecrows or gas cannon to scare off the birds but these may have adverse landscape or noise impacts. One of the most effective methods of controlling eider duck impacts is to ensure a regular human presence on the site. As in the case of finfish farms, the Council favours non-destructive and low-impact methods of predator control.

73. Starfish may also be predators on shellfish farms since they will feed on any mussels dislodged from the lines which settle on the seabed. Losses can be minimised by ensuring that the dropper ropes cannot make contact with

the seabed. Lines should therefore be located in sufficient depth of water and have sufficient buoyancy to keep the shellfish farm afloat.



Photo 4 - Shellfish farming in Loch Nevis (© John Haynes)

Industry Codes of Practice

74. Many of the adverse impacts which may result from aquaculture operations can be avoided or reduced by operating sites to recognised standards of best practice. As an action point for the Strategic Framework for Scottish Aquaculture a “Code of Good Practice for Scottish Fin Fish Aquaculture” has been developed by the industry in consultation with key regulators. A similar document “The ASSG Code of Good Practice” has been prepared by the Association of Scottish Shellfish Growers in relation to shellfish farming.

75. These “Industry Codes” set standards for the operation of sites including maintaining site integrity, predator and disease control, and staff training requirements. They also reiterate many of the statutory requirements which aquaculture operators are obliged to meet.

76. The CoGP is a welcome step forward and does set out some guidance on fish containment and the prevention of escapes. The containment elements of the CoGP are backed up by mandatory reporting of escapes and in the near future fish health inspectors from the FRS marine labs will be given the powers to inspect cage and net infrastructure on farms under the Aquaculture and Fisheries (Scotland) Act

2007. This should help to ensure that the highest standards of containment are maintained through out the Scottish aquaculture industry. It cannot, however guarantee that escapes will not occur.

Inshore Fishing

77. Loch Nevis is fished with static gear for a range of crustacean species including crab, lobster and velvet crab on rocky ground close inshore and prawns on softer ground such as in the deeper mud basins of the loch. Prawn trawling and scallop dredging also takes place towards the mouth of the loch in areas of softer ground. Spratt (*Sprattus sprattus*) are also fished from time to time.

78. The proximity of Mallaig close to Loch Nevis, with its good harbour, handling and processing facilities adds to the fishing value of Loch Nevis. The relatively sheltered waters of Loch Nevis, when compared to areas such as the Minch, also make the loch an important fishing ground during periods of inclement weather. Unlike many of the West Coast sea lochs there are no seasonal closures to the use of mobile gear.

79. Inshore fishing activities may be seen as a constraint to the development of aquaculture. For example, fishermen may complain about loss of fishing grounds as a result of a fish farm. However, in practice fish farms exclude fishing activities from a relatively small area and it is not unusual to see fishing boats operating in close proximity to fish farms.

80. The main fishing areas in the loch, based on general information provided by the Scottish Fisheries Protection Agency, are shown in the thematic map Inshore Fishing (see Map on page 23). However, it should be noted that, especially in the winter months, trawlers may fish as far up the loch at Tarbet.



Photo 5 – Fishing and tourist boats in Loch Nevis

Nature Conservation

AREA DESIGNATIONS AND PRIORITY HABITATS

81. Thus far there is only one formal area designation for nature conservation in the marine and coastal area of Loch Nevis – a geological Site of Special Scientific Interest at the mouth of the loch on the south side. This site runs along the coast from Sgurr an Eilein Ghiubhais west to Mallaig. The marine area of the loch however supports a number of habitats and species relevant to the UK Biodiversity Action Plan (BAP). The priority habitats are:

- SEAGRASS BEDS - *Zostera marina* beds are present in Inverie Bay
- MUD HABITATS IN DEEP WATER [‘Sea pen and burrowing megafauna’ habitats are also listed by OSPAR on the ‘List of Threatened and/or Declining Species and Habitats’]

82. The available sub-littoral survey information for Loch Nevis is limited and consists of two surveys which took place as part of the Marine Nature Conservation Review (MNCR) in 1988 and 1990 and one by Breen, Connor and McKenzie in 1984. These surveys encompassed a total of 13 sites, data which are summarised in the Marine Nature Conservation Review (MNCR) summary for sea lochs in north-west Scotland (Dipper *et al*, 2005).

83. There are areas of coastal saltmarsh scattered around the shores of Loch Nevis in

small pockets. As saltmarsh is important in the context of the UK Biodiversity Action Plan the plan should consider potential impacts of shore-based developments on this habitat.

84. The shore of the north coast of Loch Nevis between Sandaig and Inverie is considered to be of interest for its molluscan fauna. There is however little detailed information available on the shores of Loch Nevis at present.

CETACEANS

85. Whales and dolphins are common in the Sound of Sleat and may therefore occasionally enter Loch Nevis. The Joint Nature Conservancy Council's (JNCC) 'Atlas of Cetacean distribution in north-west European waters' provides a snapshot of species distribution and can be found at <http://www.jncc.gov.uk/page-2713>. The Hebridean Whale & Dolphin Trust holds a sightings database for the West coast of Scotland.

86. In recent years Acoustic Deterrent Devices (ADD's) have been used as an effective method of reducing seal predation on fin fish farms (see section on predator interactions above). However, they have the potential to disturb other marine mammals particularly cetaceans. Operators should consult with Scottish Natural Heritage prior to their use within Loch Nevis.

OTHER SPECIES

87. Areas of the tall sea pen *Funiculina quadrangularis* are found in the loch in sediments below about 25m. This species has its own species statement and is linked with the BAP priority habitat 'Mud Habitats in Deep Water'. The deep waters of Loch Nevis also support soft muds that are dominated by a community of calcareous zooplankton (foraminiferans) and hatchett shells *Thyasira spp.* with polychaete worms. This biotope is only known in one other location in Scottish waters. The bivalve mollusc *Arctica islandica* has also been

identified here. This species is listed on OSPAR's 'List of Threatened and/or Declining Species and Habitats'. The narrows at Kylesknoydart contain good examples of tide-swept animal and plant communities, with the eastern end of the narrows being covered by dense beds of the brittlestar *Ophiocomina nigra*.

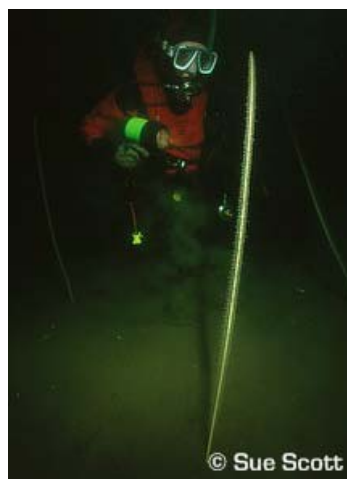


Photo 6 Tall Sea Pen

88. Surveys by the Sea Mammal Research Unit identify haul-out sites for grey and harbour seals within the mouth of Loch Nevis and smaller haul-outs for harbour seals around the Kylesknoydart narrows. No breeding sites have been identified. Local experts have reported that Sandaig Bay is home to a colony of approximately 80 Common seals *Phoca vitulina*. Loch Nevis is an important location for otters, although there is no known survey information.

Recreation

89. Loch Nevis mainly draws visitors for its rugged coastal landscape, the Munros on the north side and at the head of the loch, and the opportunities for long-distance cross-country walking here. However, the area's remoteness and tranquility because there are hardly any roads here), and the challenge presented by its difficult access are attractions in themselves. The loch also offers opportunities for sailing, kayaking, and diving.

90. Inverie forms the hub, being the main landfall for the ferry and the main centre for visitor accommodation in the area. It is also at one end of the popular long-distance walking route between Loch Nevis and Barrisdale on Loch Hourn. In addition to guesthouse and bunkhouse accommodation, there is a small official campsite by the shore at the eastern end of Inverie Bay, near the mouth of the Inverie River. Outwith Inverie, there are holiday cottages at Sandaig and Kylesmorar, and private outdoor activity centres at Doune and Ardintigh.

91. Numbers of recreational boats have increased on the West Coast over recent years and it is anticipated that this trend will continue. The principle reasons for this are likely to be the overcrowded conditions of the main sailing areas of the south coast of England and the associated cost of moorings in these areas. Also in times when air fares are relatively cheap, it may be viable for owners to keep their vessels further away from home.

92. Some swinging moorings are provided near the pier at Inverie in the outer loch. There is a mooring association and they have been consulted during the production of this plan. Where sheltered sites for anchorage and fish farms are in short supply, aquaculture and recreational sailing sometimes compete for space. For example, there have been shellfish farming applications in Inverie Bay which have been refused or amended by the Crown Estate to protect recreational/navigation interests. The area policies in this plan generally presume in favour of safeguarding the recognised anchorages in the interests of navigational safety and amenity.

93. Concerns have been expressed in some quarters about the impacts of effluent discharges from yachts within the loch. Although the quantity of this discharge is small it is usually untreated and could add to the nutrient loading of the environment in certain localities. Currently the numbers of visiting vessels are very low relative to the size of the

water body and tidal flushing of the area ensures that effluent is sufficiently dispersed for there not be any significant health risk. However, should vessel numbers increase substantially over the coming years the impact of this may need to be assessed further. Over recent years many vessels have had holding tanks fitted which can store effluent for an extended period of time. Best practice states that these tanks should not be discharged in coastal waters within 3 miles of the shore.

Archaeology

94. There are no Scheduled Ancient Monuments in the Loch Nevis area. However, there are many coastal sites where some archaeological interest has been recorded, most of them above MHWS. The sites relate to former settlement and associated features including a burial site at Eilean Tioram and scattered evidence of the earliest occupation of this part of Scotland. A few sites may extend into the intertidal zone including jetties and cleared landing sites etc. Aquaculture installations are not expected to impact on these directly but indirect impacts on the wider setting of archaeological sites may be an issue. Any specific development proposals can be checked against the Highland Council's Sites & Monuments Record.

95. Further sites of archaeological interest may be present in the area. Areas of more gentle slopes along burn courses and in the coastal fringe are more likely to hold these. The potential for unrecorded wrecks on the seabed within the loch is high. It may therefore be prudent to undertake examination of the seabed to determine whether or not local reports of surviving wrecks are accurate prior to any new development.

If operators identify any archaeological sites or remains during routine inspection or operations they should report them immediately to the Council's Archaeological Unit. The Unit can then advise on appropriate action. The Planning and Development Service also keeps the Unit informed of planned operations so that

possible impacts on known or potential sites can be specifically assessed.

Game Fisheries

96. As well as being important species in their own right, the salmon and sea trout of Loch Nevis have economic value as game fish. Relatively sheltered in its lower reaches, the Inverie River is considered the best of the three rivers on Knoydart Estate for wild fishing. Its headwaters drain into a substantial freshwater loch (Dubh-Lochain) which lies four kms upstream from the main river mouth and this acts as a reservoir giving good water levels for extended periods of time. In the past the Inverie supported a substantial sea trout fishery but unfortunately these fish are now scarce. As with many Scottish rivers the native stocks of wild salmon and sea trout have declined over recent years. Kilchoan Estate has made an effort to reverse this on the Inverie and Guiserein rivers by a restocking programme.

97. The River Carnach flows through more barren and exposed country into the head of Loch Nevis. An early text by Mills & Grassner (1981) described this river as having little or no fish present. This was attributed to heavy seal predation. However the present-day lack of woodland cover in this remote catchment probably also limits its capacity to support fish.

98. Highland salmon rivers have historically supported significant sport fisheries for salmon and sea trout. These fisheries have traditionally provided some employment and benefit to the local economy as well as amenity for local people. In the coastal zone commercial and subsistence netting were once of significant economic value to the area. However, fisheries which were in existence for hundreds of years no longer operate as wild stocks of salmon and sea trout have declined below levels at which these netting stations would remain economically viable.

99. Current information shows that salmon and sea trout stocks were in general decline for a long time prior to the development of salmon farming. However, it is generally accepted that intensive salmon aquaculture, along with other factors, can under certain circumstances pose a significant risk to wild salmonid populations. These may include:

- i) the transfer of parasites, most notably sea lice, from the farmed stock to wild stock;
- ii) damage to benthic flora and fauna caused by waste feed and medicines;
- iii) disruption of genetic integrity and local adaptations of wild stocks due to escapes from salmon farms.

100. Other factors which may have played a part in the decline of wild salmonid stocks include: loss of breeding redds due to poor river management and small-scale hydroelectric power schemes, global warming, increasing populations of predators such as seals, overfishing, and poaching.

101. In order to reconcile differences between the wild fisheries and fish farming sectors and to help safeguard and rebuild wild salmonid stocks the Tripartite Working Group (TWG) was formed. This consists of representatives of the Scottish Government, finfish aquaculture industry and wild fisheries interests. The TWG has recommended that area management groups should be formed to draw up and operate area management agreements (AMA's) between all the fish farm operators and freshwater fisheries interests relevant to a given sea loch system. The aims of the AMA should be to mitigate or eliminate threats to wild salmonids through:

- a target of zero egg-bearing sea lice on farms;
- improved fallowing strategies;
- effective single bay management;
- robust escapes contingency plans;
- free exchange of relevant information

Whilst the Loch Nevis AMA is established and active, it must be noted that this operates on a voluntary basis.

102. The TWG and the Joint Government Industry Working Group on ISA (Infectious Salmon Anaemia) have recommended specific areas for which area management agreements should be produced. Loch Nevis is included in Management Area 14c and an Area Management Agreement has been completed.

103. The Council recognises the important role which has been played by the Area Management Groups in improving communications between wild fisheries and fish farming interests. Given the positive contribution being made where such groups have been formed, it is unfortunate there has not been a universal uptake of the recommendations of the TWG in all areas. The Council is therefore of the view that Area Management Agreements should be compulsory, in the public domain and have input from local communities and other stake holders in the marine environment.

Strategy and Area Policies

104. In light of the various considerations above, the framework plan strategy for Loch Nevis:

- supports continued finfish and shellfish farming activity in the areas currently used for this purpose between Earnsaig and Stoul and at Braomisaig, provided operators give due regard to the environmental sensitivity of the plan area and the needs of other users of the coast and inshore waters;
- identifies opportunities for new aquaculture development in less constrained parts of the plan area - eg there may be scope for development with suitably robust gear on the section of coast between Airor and Doune. There may also be scope for small-scale shellfish farming with trestles in the intertidal area at Sandaig Bay;
- identifies Inverie Bay, the narrows, the innermost basin of the loch, Tarbet bay, and the mouth of the loch as areas where development should be avoided to safeguard residential or recreational amenity, wild salmonid stocks, landscape character or navigation routes;
- supports the progress that has been made towards the establishment of the Loch Nevis Area Management Agreement;
- encourages the use of existing shellfish leases which are currently inactive or undeveloped

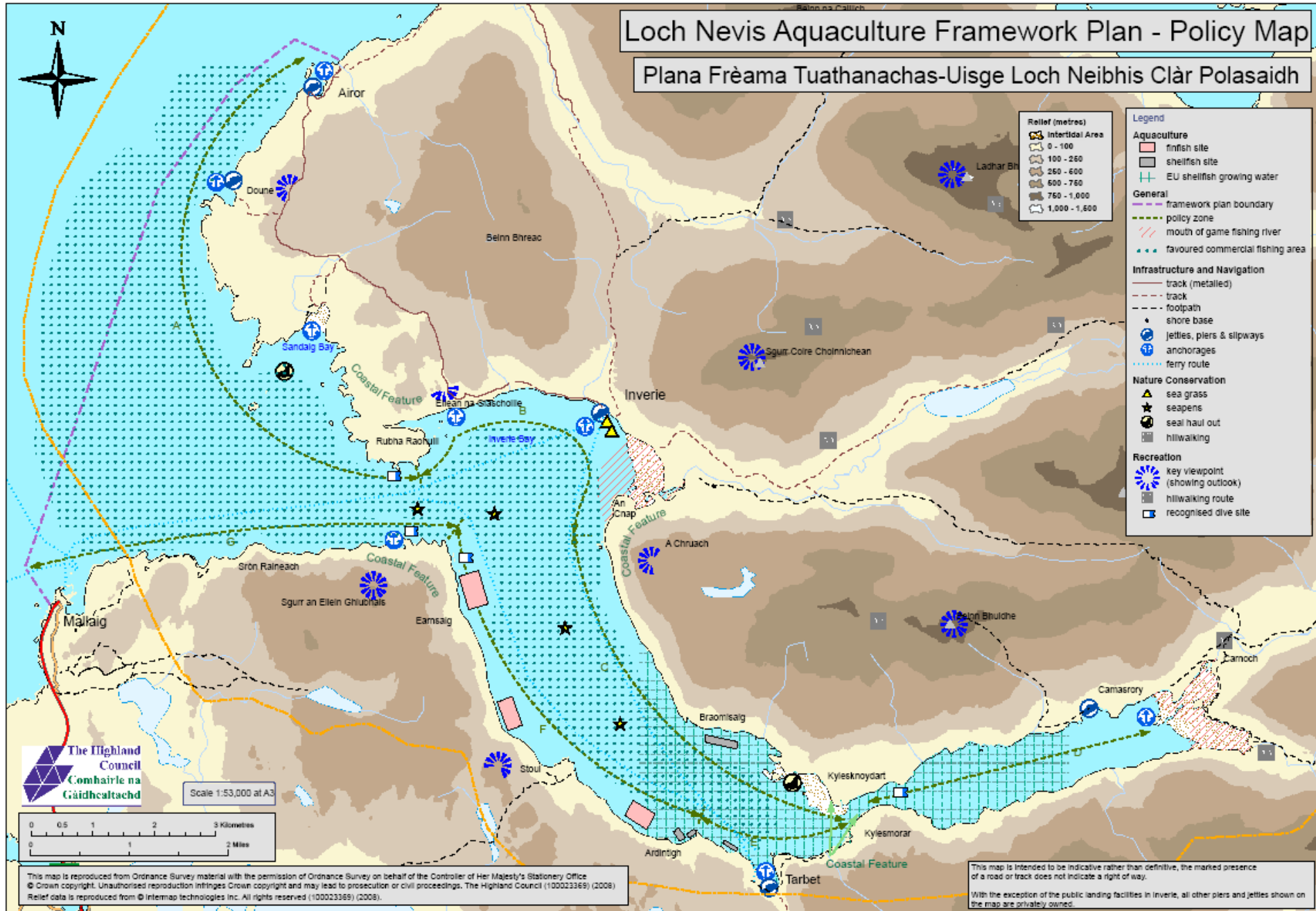
105. To provide more detailed guidance, the loch has been divided into 7 policy zones labelled 'A' to 'G' respectively which are indicated in the fold-out map at the back of this document. Each policy zone has a corresponding section in the following table where a brief description of its key characteristics and constraints are given along with the resultant area policy is given. The policy map also gives a range of other information on infrastructure and other interests within the loch which are relevant to policy and will be taken into account when aquaculture development proposals are assessed.

106. Some of the area policies refer to "small" and "medium" scale installations. These are relative terms. However, as a guide for the purposes of this plan, and to maintain consistency with other plans in the series, the Council regards a finfish farm of up to about 2000 sq.m. cage area as "small" and one of up to 4000 sq.m. as "medium". A "small" shellfish farm using the longline system would employ lines of up to 200m length to a maximum of 4 lines. A "medium" shellfish farm would employ up to 8 lines of 200m length each, up to 5 lines 300m each, or up to 4 lines 400m each. All other things being equal, the longer lengths of lines are harder to accommodate successfully in the landscape. A "small" shellfish farm using rafts would employ up to 4 rafts each 10m square and a "medium" one would have up to 4 rafts each 20m square.

107. When determining planning applications for aquaculture operations the Council will consider each application in its own right against the policy provisions of the development plan and within the context of the policies set out below. In addition to this the Council will consider current and future policy and technical guidance issued by the Scottish Government, the Crown Estate and other relevant authorities. A list of the currently available guidance used in the preparation of this plan is given in appendix 2 of this report.

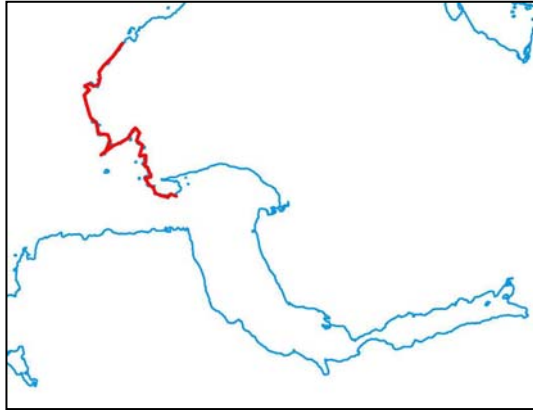
Loch Nevis Aquaculture Framework Plan - Policy Map

Plana Frèama Tuathanachas-Uisge Loch Neibhis Clàr Polasaidh



Area Policies

Area A – Northwestern approaches to Loch Nevis (Aior to Rubha Raonuill)



Characteristics/constraints

108. This area of rocky coast and skerries is generally exposed to west and southwesterly swells with a long fetch to the southwest in particular. However, it has a number of attractive shallow bays, some of which contain isolated houses or small settlements. The most intimate of these bays is at the small hamlet and harbour of Aior and the largest is Sandaig Bay. Both Aior and the next anchorage to the south (Doune) have fine views across the Sound of Sleat to Skye and the Cuillins. Despite its exposure and remoteness this coastline is frequented by locals and the more adventurous visitor. Sandaig Bay is home to a significant colony of Common seals *Phoca vitulina*.

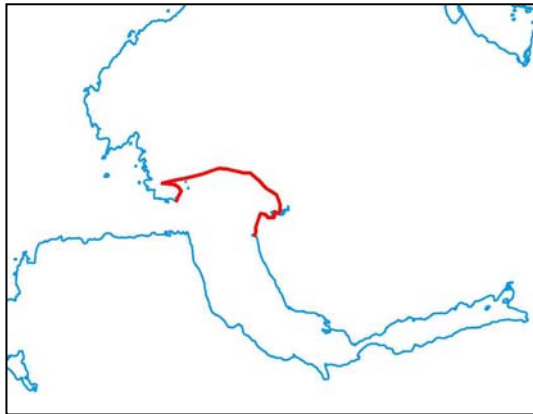
109. The exposure of this coastline and generally shallow water depths in the bays are physical constraints on the development of aquaculture. Also it is important to safeguard the navigational approaches to the anchorages, the amenity of the isolated houses and settlements along this coast and the wildlife interest where appropriate. However, the section of coast between Aior and the bay at Doune has low visibility other than to passing marine traffic. This may give some potential for unobtrusive siting of new finfish or shellfish farming installations but the exposure and relatively shallow depths close to shore are likely to discourage development with anything but the most robust gear. There may also be some scope for small-scale shellfish farming with trestles in the intertidal area at Sandaig Bay.

The classification of this section of coast under the terms of NPPG 13 is Isolated.

Area policy

110. Safeguard the landscape setting, outlook, and navigational approaches of Aior, Doune and Sandaig. Precautionary presumption against the siting of aquaculture installations below low water mark along this section of coast other than in the low-visibility section of coast between Aior and Doune. Ensure that any shellfish farming in the intertidal area is compatible with the amenity and access of settlements here.

Area B – Inverie Bay (Rubha Raonuill to An Cnap)



Characteristics/constraints

111. The section of coast from Rubha Raonuill to Creag an Eilein encompasses the main Loch Nevis community of Inverie. The open, uncluttered character of the bay and the views from here across the loch to Sgurr an Eilein Ghiubhais are key elements of its amenity. The western end of the bay is the most intimate and sheltered part, with an attractive shallow inlet between Creagan Dearga and Rubha Raonuill. The Inverie River, which has a wild salmon population, flows into the bay at its eastern end. An area is set aside for campers by the shore at this eastern end of the bay.

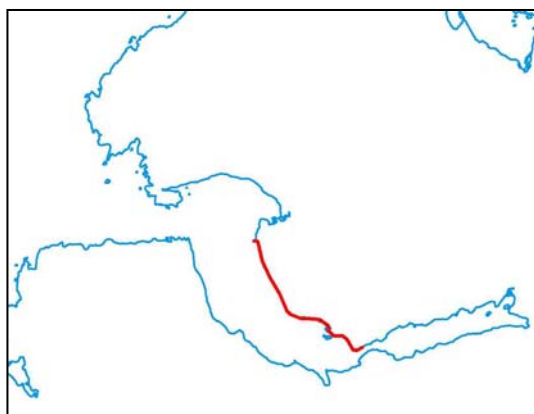
112. In the context of this remote area, Inverie Bay is relatively busy. It has the main pier which provides access for the ferry and the local fishing fleet. It is also the main mooring place for recreational vessels and there are recognised anchorages at Eilean na Glaschoille. The number of visitor moorings in the bay has recently been increased and visiting yachts and small cruise boats are seen locally as an important element of the tourist market.

113. The classification of this section of coast under the terms of NPPG 13 is “Undeveloped”. However, the development of aquaculture in the marine area along this stretch of coast is heavily constrained by amenity and navigational considerations. To the east of the pier the water is too shallow and subject to freshwater flushing from the Inverie River. To the west, the need to safeguard the amenity of the bay at Eilean na Glaschoille and various residential properties near the shore militates against aquaculture development.

Area policy

114. Presumption against the siting of finfish or shellfish farms along this stretch of coast - to safeguard access to the moorings and anchorages within the bay, to safeguard the general vista from Inverie village and the amenity of properties near the shore, and to provide safe passage to and from the open sea for migratory salmonid populations from the Inverie River system.

Area C – Middle reaches of Loch Nevis - east/north side (An Cnap to Kylesknoydart)



Characteristics/constraints

115. This section of coast is characterised by steep and relatively undifferentiated hill slopes descending to a narrow stony shore, with steep bathymetry below sea level. The route of the ferry between Inverie and Tarbet runs close to this shore. The 50m depth contour is only 200m from the shore for much of the length of this coast and in the middle of the loch the depths reach more than 100m. The waters become much shallower close to the narrows which separate the main basin of the loch from the upper basin.

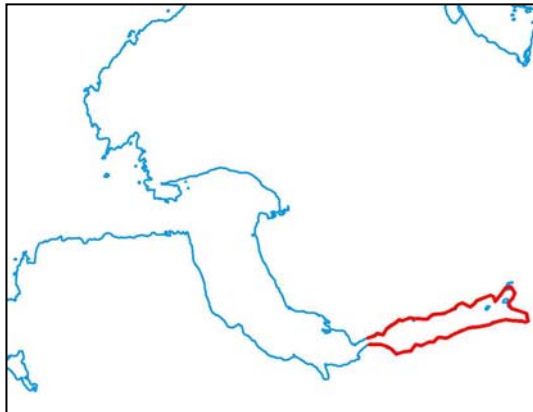
116. This is one of the more exposed sections of coast within the loch and the area is actively fished by the local fishing fleet. Only Braomisaig Bay and Kylesknoydart have a degree of shelter from the north-west wind. The more moderate water depths and shelter in Braomisaig Bay make it an area with potential for shellfish aquaculture (at the time of writing there is an existing consent for mussel farming here which is not being used). The shallow bay immediately to the west of Kylesknoydart is however an amenity for the remote holiday cottages near there and it is an important part of the landscape setting of the narrows.

117. The classification of this section of coast under the terms of NPPG 13 is Isolated. The southern two-thirds of this section of coastline is designated as EU Shellfish Growing Waters.

Area policy

118. Presumption in favour of small to medium-scale shellfish cultivation in Braomisaig Bay provided it uses discreet, low-profile gear. Presumption against development in the bay immediately to the west of Kylesknoydart to safeguard the landscape character of the narrows. Further aquaculture development will only be considered favourably in this zone if it can avoid impacting adversely on inshore fishing, navigation, and scenic quality.

Area D – Inner Loch Nevis



Characteristics/constraints

119. Inner Loch Nevis is a very secluded area of inshore waters, closely surrounded by high, rugged hills. Its scale, remoteness, lack of development and sanctuary quality make it virtually unique in a UK context, with only the upper basin of Loch Hourn and the heads of Loch Glendhu and Glencoul in Sutherland being comparable. The entrance to the inner loch between Kylesknoydart and Kylesmorar is narrow with a width of channel being approximately 200m. There is also a very shallow sill here with approximately 2m depth of water at chart datum. These two features act to severely restrict tidal flushing in the inner loch basin. Two rivers flow into the inner loch: the Carnoch and the Finiskaig. The former has traditionally sustained runs of native salmon and sea trout but its remoteness makes it difficult to manage. The latter has a short, steep course. Both rivers drain steep, high-rainfall areas.

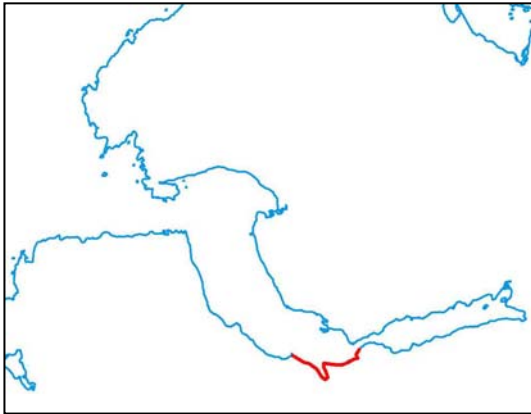
120. There are currently no consents for aquaculture operations in this area. Servicing any form of aquaculture development in the inner loch would be constrained logistically by the area's remoteness. However, the main constraint on development here is the impact it would have on the Knoydart National Scenic Area and the area's special value as core wild land. The area around the head of the loch is particularly valued in this respect by walkers and the eastern part is sometimes visited by the Loch Nevis ferry as a scenic detour for tourists. Aquaculture development in this area would have significant visual and possibly also noise impacts arising from increased boat activity and/or use of mechanised equipment.

The classification of this section of coast under the terms of NPPG 13 is Isolated.

Area policy

121. Presumption against development of aquaculture to safeguard the scenic and recreational value of this remote and nationally important area of core wild land.

Area E – Tarbet Bay and approaches (Kylesmorar to Ardintigh Point)



Characteristics/constraints

122. This short section of mainly rocky coastline includes the houses at Tarbet and Kylesmorar. Together these represent one of the most isolated areas of settlement in Highland. Because of the high scenic value here recent building has tended to be of a high design specification, most of it discreetly implemented in traditional stone. The small inlet of Tarbet Bay provides shelter and moorings for local and visiting vessels, including the ferry from Mallaig, and is fairly well used. To the east of Tarbet Bay there is a relatively narrow channel for vessel passage into the inner loch. A spit extends from Kylesknoydart towards Tarbet which further restricts passage into the inner loch forcing vessels to pass close to the southern shore

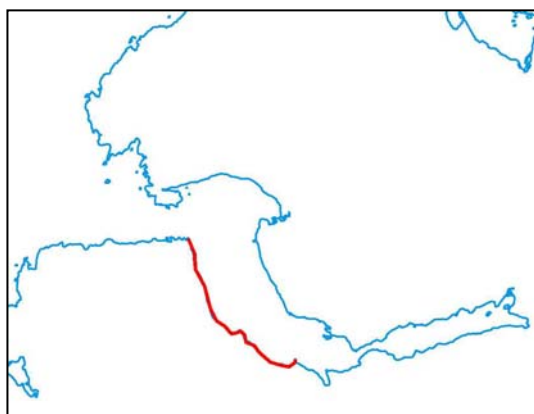
123. At the time of writing there is an area consented for shellfish farming between Ardintigh Point and Tarbet Bay. This is located close to the shore to avoid interference with navigation into and out of the bay. East of the bay the water depths are too shallow for commercial shellfish farming and the risk of interference with navigation through the narrows is too great. In considering aquaculture development possibilities, the amenity and setting of houses at Tarbet and Kylesmorar is a significant consideration. However navigation in the vicinity of the anchorage and the narrows is the main concern here.

124. The classification of this section of coast under the terms of NPPG 13 is Undeveloped.

Area policy

125. Presumption in favour of small to medium-scale shellfish farming close inshore between Ardintigh Point and Tarbet Bay, provided it uses discreet, low-profile gear, respects the amenity of nearby houses, and does not impact on navigation to and from the bay. The currently permitted scale of operation here should not be exceeded. Presumption against siting aquaculture installations in Tarbet Bay itself and the area between here and Kylesmorar - to safeguard access to the anchorage and the narrows and to conserve the scenic value of the narrows area.

Area F – Middle reaches of Loch Nevis - west/south side (Ardintigh to Sgeir a'Ghail)



Characteristics/constraints

126. This part of Loch Nevis has seen the most development of aquaculture because it is sheltered from prevailing winds, has water near to shore of appropriate depth, and there are relatively few other competing interests. The loch is 2-2½ kms wide here and the coast is backed by steep and rugged hill slopes along most of its length. It is uninhabited apart from Ardintigh Bay where there is a privately run outdoor activities centre.

127. It is questionable whether large-scale fish farming is appropriate in principle in an area which is nationally designated for its rugged and unspoilt coastal scenery. However, this policy zone is the one in Loch Nevis best able to accommodate such development without detriment to the area's scenic character and other interests. To maintain an acceptable balance, the extent of this development requires careful management. Whilst the finfish farms in this zone are clearly visible from the high ground nearby, the steep hill backdrop means they are relatively unobtrusive when viewed across the loch from Inverie or from the ferry. This depends on the installations being close to the western shore, discreet in their scale, and the design of their surface equipment being sympathetic to their surroundings.

128. A key landscape feature of local significance is the small bay and wooded headland at Stoul. There are old grazings here and several ruined buildings near the shore which could be the target of renovation in the future. The area is linked by a hill footpath to Bracorina on Loch Morar. The final stages of the approach to Stoul along this path offer fine views over the middle and upper reaches of Loch Nevis.

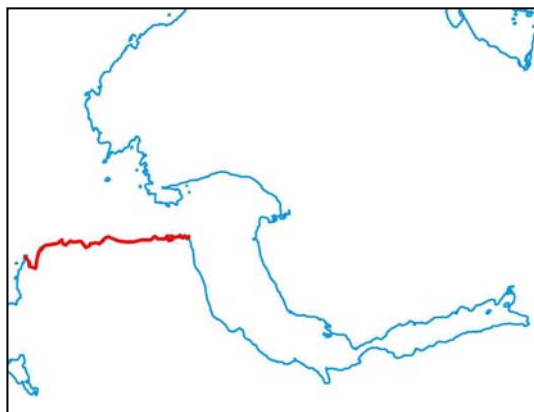
129. At the time of writing, two areas are leased for finfish farming along the stretch of coast northwest of Stoul. A third area is leased for finfish farming in Ardintigh Bay which also has a shellfish farming area (mussels + clam ranching) nearby. The combination of the two operations in Ardintigh Bay, when the shellfish area is being used for mussel farming with longlines, has however resulted in a somewhat cramped layout which could be addressed by relocation.

130. The predominant classification of this section of coast under the terms of NPPG 13 would be Isolated. The immediate environs of Ardentigh Bay could however be classified as Undeveloped.

Area policy

131. Presumption in favour of finfish or shellfish aquaculture installations which are discreet in their scale, spacing, and the design of their surface equipment. The area within 1km either side of the point at Stoul should be kept clear of aquaculture installations to safeguard the amenity of this area and the views from the approach path.

Area G – Southwestern approaches to Loch Nevis (The headland just north of Sgeir a’Ghail to Mallaig)



Characteristics/constraints

132. The coast between Mallaig and the mouth of Loch Nevis is characterised by steep and rugged north-facing hill slopes with little or no level ground near the sea. This ruggedness is particularly marked towards the eastern end of this zone where the rocky peak of Sgurr an Eilein Ghiubhais dominates the entrance to the loch. This makes for an impressive approach to Loch Nevis by sea from Mallaig and it adds to the sense of the loch being a remote enclave tucked away amongst mountains, even though in distance terms it is only a few kilometres away.

133. This stretch of coast is very exposed to the northwest but there are some small pockets of shelter from south and southwesterly winds, most notably at Mallaigmore. There is also a recognised (if lesser known) anchorage in the lee of Eilean Giubhais. The water is generally quite deep close to the shore but there is a well-defined subsea sill (marking the entrance to the main Loch Nevis basin) between Sròn Raineach on the south side and Sandaig Bay on the north side. This rises to within 9m of chart datum on the south side.

134. Whilst there might be some physical scope for a very limited scale of aquaculture development here, the exposed nature of the coastline and navigational considerations militate against it. In poor weather marine traffic going to and from Loch Nevis usually stays close to this southern shore. Sgurr an Eilein Giubhais is a key landscape feature and development directly below it on the north side could detract from its scenic value and impact on the anchorage and dive site there. This stretch of coast is also considered to be an important route for migratory salmon en route to and from the Inverie River and River Carnoch.

135. Under the terms of NPPG 13 most of this section of coast (the area west of Mallaigmore) would be classified as Isolated. In the vicinity of Mallaig Bheag and Mallaigmore it would be Undeveloped. Around Mallaig itself it would be Developed.

Area policy

136. Presumption against development of aquaculture along this section of coastline because of its exposure and to safeguard navigation and the scenic quality of the entrance to Loch Nevis.

Appendix 1 – Current leases (December 2008)

CEC lease reference	Location	Species	Permitted gear and biomass limit	Lease expiry date*
IN9-33-3	Earnsaig	Salmon	10 x 70m circle cages 1500T	31/03/2010
IN9-33-3	An Dubh-chamas	Salmon	12 x 24m ² square cages 1500T	31/03/2010
IN9-42-3	Ardintigh Bay	Salmon	6 x 100m circle cages 800T	31/03/2010
IN9-42-2	Ardintigh Point	Mussels	3 x 200m longlines	31/03/2010
IN9-42-2	Ardintigh	Clams	Non-specific fenced clam ranching area	31/03/2010
IN9-42-7	Ardintigh Point	Mussels	1 x 100m and 3 x 150m longlines	31/03/2012
IN9-37-1	Braomisaig	Mussels	14 x 100m longlines	31/12/2013

* At the time of writing, all the Crown Estate aquaculture consents which were in place at the beginning of April 2007, were due for review by the Scottish Government with a view to converting these into planning consents with appropriate conditions.

Appendix 2 – Bibliography

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Photo credits

Page 7 - photo 1 - Inverie Bay – Highland Council

Page 8 - photo 2 - Salmon farm in Loch Nevis – Highland Council

Page 13 - photo 3 - The new pier at Inverie – Highland Council

Page 16 - photo 4 - Shellfish farming L. Nevis – John Haynes

Page 17 - photo 5 - Fishing and tourist boats in Loch Nevis – Bruce Watt

Page 18 - photo 6 - Tall Sea Pen – Sue Scott

Appendix 3 – Jetties and slipways

Location	OS Grid Ref	Type	Ownership / access	Condition	Main Usage
Mallaig Harbour	NM 678 971	Pier, slip and ferry terminal	Mallaig Harbour Authority	Good	Main fishing port with ferries and some public use
Mallaigmore	NM 698 977	Jetty	Private*		Unknown*
Tarbet	NM 791 924	Jetty	Private*		Unknown*
Near Camusrory	NM 843 953	Pier	Private*		Unknown*
Braomisaig	NM 790 948	Jetty	Private*		Unknown*
Inverie	NG 765 002	Pier	Highland Council	Completed 2006	Local commerce, Mallaig ferry and general public
Airor	NG 717 054	Pier	Private*		Unknown*

* denotes information taken from Ordnance Survey 1:10,000 scale mapping with no further data available

Appendix 4 – List of bodies consulted at the outset of plan preparation

Association of District Fishery Boards
Association of Scottish Shellfish Growers
Association of West Coast Fisheries Trusts/Association of Salmon Fisheries Boards
Atlantic Salmon Trust
British Marine Finfish Association
Bruce Watt Cruises
Crofters Commission
Federation of Highlands & Islands Fisherman
Food Standards Agency (Scotland)
FRS Freshwater Laboratory
FRS Marine Laboratory
Highland Shellfish Management Organisation
Highlands and Islands Enterprise
Historic Scotland
HM Naval Base Clyde
Inverie Moorings Association
Knoydart Community Association
Knoydart Forest Trust
Loch Nevis Shellfish Ltd
Lochaber Fisheries Trust
Mallaig & North West Fisherman's Association
Mallaig Community Council
Morar Community Council
National Trust for Scotland
Pier House Guest House
Royal Society for the Protection of Birds (Scotland)
Royal Yachting Association (Scotland)
Scottish Association of Marine Science
Scottish Environment Link
Scottish Environment Protection Agency
Scottish Executive (now Scottish Government)
Scottish Natural Heritage
Scottish Quality Salmon
Scottish Rural Property and Business Association
Scottish Sea Farms
Scottish Water
Scottish Wildlife Trust
Sea Fish Industry Authority
Soil Association
The Crown Estate
The Highland Council
The Knoydart Foundation
Tom McClean Enterprises
Visit Scotland - Highlands
West Highland Anchorages & Mooring Association
West Highland Fish Producers Association

Appendix 5 – Relevant policies in the Highland Structure Plan

Relevant policies within the Highland Structure Plan, applicable to marine aquaculture, are set out below:

G1 - Conformity with strategy – the Council will support developments, having regard to the Plan’s sustainable objectives, which promote and enhance the social, economic and environmental wellbeing of the people of Highland.

G2 – Design for Sustainability - This policy details at some length criteria against which development proposals will be assessed. Developments which are judged to be significantly detrimental in terms of the listed criteria shall not accord with the Structure Plan.

G3 – Impact Assessments - Where environmental and/or socio-economic impacts of a proposed development are likely to be significant by virtue of nature, size or location, the Council will require the preparation by developers of appropriate impact assessments. Developments which will have a significant adverse effect will only be approved if no reasonable alternatives exist, if there is demonstrable over-riding strategic benefit or if satisfactory overall mitigating measures are incorporated.

G6 - Conservation and Promotion of the Highland Heritage - The Council will seek to conserve and promote all sites and areas of Highland identified as being of high quality in terms of nature conservation, landscape, archaeology or built environment.

FA5 – Aquaculture Framework Plans – Existing Aquaculture Framework Plans will be updated...to take account of changes in patterns of sea bed leases, current trends in aquaculture and equipment and new information on environmental parameters, such as water quality and wildlife interest.

FA6 - Fish Farming Developments – The Council will make recommendations on Crown Estate consultations and on fish-farming-related planning applications within the context of the policies outlined in its Aquaculture Framework Plans and the guidance in sub-regional Coastal Zone Management strategies.

In advising the Crown Estate on marine fish farming developments and in considering planning applications for onshore or freshwater-related fish farming development, the Council will support proposals which comply with Strategic Policy G2.

L4 - Landscape Character – the Council will have regard to the desirability of maintaining and enhancing present landscape character in the consideration of development proposals including offshore developments.