

Scottish Natural Heritage

# The siting and design of aquaculture in the landscape: visual and landscape considerations



**Scottish Natural Heritage**  
**Dualchas Nàdair na h-Alba**

All of nature for all of Scotland  
Nàdar air fad airson Alba air fad



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# Section 1

## Introduction

Marine finfish and shellfish farming in Scotland are now well established. While salmon and mussel farming is still the mainstay of the industry, oyster farming, scallop lines and other types of finfish farming now also contribute to the expansion and development of this dynamic industry.



This document updates Guidance that was first published by SNH in 2000<sup>1</sup>. The revisions reflect the changes to the industry in the intervening decade. Since the publication of the original guidance there have been numerous changes in the finfish-farming sector. Evolving technology, for example, offers the potential to site fish farms in less sheltered locations and environmental regulations encourage the use of well-flushed sites. As a result, finfish farms may be found in more exposed locations, cages and feed storage barges may be larger and offshore accommodation for staff may need to be provided. In addition, economies of scale may encourage operators of both shellfish and finfish farms to consider expansion of installations on existing sites. In some locations, operators may wish to consolidate sites, or change the type of aquaculture from finfish to shellfish development, or vice versa.

This revised guidance therefore takes into account the wider range of aquaculture developments, and also the current trends in siting and technology. Sections 2 to 5 consider issues related to finfish and marine-based shellfish farming, while landscape and visual considerations for oyster farming associated with the intertidal zone are considered in Section 6.

This guidance offers advice on how to assess and address the landscape and visual impact of marine aquaculture developments. It does not deal with the other environmental, social or economic issues raised by this type of development. It aims to ensure that those involved in aquaculture developments are well informed on landscape issues, and provides them with a clear framework for making positive decisions about the siting and design of both onshore and marine based facilities.

Nevertheless, where landscapes are complex in character or sensitive to change, developers should consider employing a landscape architect to advise on the potential landscape and visual impacts of a proposal, and how these might be resolved.

## 1.1 Landscape

The European Landscape Convention defines landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'<sup>2</sup>. Scottish planning policy adopts this definition and states that 'all landscapes require consideration and care. Different landscapes will have a different capacity to accommodate new development, and the siting and design of development should be informed by local landscape character.'<sup>3</sup>

The landscapes of Scotland are a rich physical and scenic resource. The tourism and recreation industries, including sea-based recreation interests such as sailing and sea kayaking depend on the diversity and quality of the landscape. Other industries, such as aquaculture, benefit in their marketing from the promotion of the positive image of this landscape in the UK and abroad. Communities identify with the quality and individuality of their local landscapes and people are also inspired by them. New development of all kinds should therefore respond sensitively to the quality and variety of coastal landscapes, aiming to respect both the range of character types and the scenic qualities which make each area distinctive.

This guidance considers new sites and expansions of existing developments. Many potentially appropriate sites in sheltered waters are already occupied. This makes it more difficult to find suitable new sites in some coastal landscapes.

The incremental expansion of individual fish and shellfish farms in situ may also be difficult to accommodate within areas of more intimate scale around Scotland's coastline. Well-located and designed developments however, can complement landscape character, particularly where they can reinforce key characteristics, such as those associated with a working environment and are also more likely to be welcomed by local people.

The rich variety and distinctiveness of the character of all our landscapes is recognised as an important asset. Perceived wildness and sense of remoteness, qualities which are associated with the less developed stretches of our coastline, are further valued as a diminishing resource. All developments are expected to respect the landscape character within which they are located and sustain the qualities which reinforce experience of place. With careful choice of location, siting and layout, aquaculture can make a positive contribution to the landscape, for example through reusing redundant buildings and, where appropriate, reinforcing an energising sense of human activity.

The nature of Scotland's coastline means that aquaculture development is often highly visible, either from land or sea. The importance of visibility, whether in relation to classic vistas, or as a contribution to the experience of place, cannot be underestimated. Aquaculture need not be hidden from view, but should be well enough sited and designed to fit in with the surrounding character and contribute to a lived-in landscape.

1 Scottish Natural Heritage, (2000) 'Marine Aquaculture and the Landscape: The siting and design of marine aquaculture developments in the landscape'.

2 Council of Europe, (2004) European Landscape Convention, Chapter 1, Article 1

3 Scottish Government, Scottish National Planning Policy, February 2010, para 127

## 1.2 The aims of this guidance

This guidance was commissioned by Scottish Natural Heritage (SNH) and has involved consultation with representatives of the industry and the planning authorities. It is expected to be used by those who develop and manage aquaculture facilities, those who are consulted on new facilities and those commenting and making decisions on development applications.

With this in mind, the aims of this guidance are to:

- Give guidance on how to determine the most appropriate location for aquaculture development in relation to the landscape;
- Indicate and explain issues of landscape significance which may need to be addressed in an Environmental Impact Assessment (EIA) for finfish farming;
- Explain how to assess the landscape and visual impacts of aquaculture development;
- Offer guidance on how to site and design aquaculture developments to reduce both their visual impact and their impact on landscape character;
- Encourage the aquaculture industry to consider landscape character and design issues during the ongoing management, up dating and continuous development of existing sites; and
- Promote appropriate detail design and layout of structures and developments.

## 1.3 Landscape and visual considerations in the land use planning system

### 1.3.1 Scottish planning policy

The statutory planning system covers marine finfish and shellfish farms out to three nautical miles. National planning policy for fish farming is set out in the Scottish Planning Policy<sup>4</sup>. However, like other forms of development, aquaculture needs to take into account all relevant sections of the Scottish Planning Policy, including the overarching policies of Sustainable Development, as well as the sections on Coastal Planning, Landscape and Natural Heritage and the Historic Environment.

### 1.3.2 Development plans

Development plans set out local planning policies. Policies to guide aquaculture development will generally be set out as criteria-based planning policies. Development proposals will also have to be consistent with other development plan policies, including those associated with the environment and the landscape.

### 1.3.3 Supplementary planning guidelines

In addition, planning authorities are expected to develop spatial policies, which “identify areas which are potentially suitable for new or modified fish farm development and sensitive areas which are unlikely to be appropriate for such development.”<sup>5</sup> These spatial policies will take into account carrying capacity, landscape and other natural and cultural heritage issues as well as potential conflict with other users of the marine environment. These are likely to be included as supplementary planning guidance (SPG) to the main Development Plan. SPGs will become statutory when development plans that are currently being prepared are adopted in the future.

Examples of spatial policy at a planning authority level include the Integrated Coastal Zone Management plans prepared by the Argyll and Bute and Highland Councils, and the Aquaculture Framework Plans prepared by Highland Council.

### 1.3.4 Environmental assessment

When choosing a location for a finfish farm development, a developer should consider, and where necessary obtain advice from the planning authority on the process by which the need for an Environmental Impact Assessment (EIA) may be established. Further information on preparing the landscape and visual information that should be assessed when undertaking an EIA is included in Annex One.

### 1.3.5 Preparing planning applications

When determining applications for new aquaculture developments, or amendments to existing developments, planning authorities will consider the proposal in light of relevant national planning policy, development plan and spatial policies, all of which take into account visual impact and the effects of the development on the landscape. Planning authorities will also consider cumulative landscape and visual effects and will weigh up these and other environmental issues alongside social and economic policies when determining a planning application.

<sup>4</sup> Scottish Government, Scottish National Planning Policy, February 2010, paras 104 – 109

<sup>5</sup> Scottish Government, Scottish National Planning Policy, February 2010, para 105

Applicants are therefore expected to demonstrate how they have taken into account planning policies, avoided or minimised visual intrusion and mitigated against any negative landscape effects. The guidance offered in this document may be used to assist in the identification and presentation of the landscape and visual evidence required to support a planning application.

## **1.4 How to use this guidance**

This guidance is divided into five sections in addition to this introduction. The first four reflect the key decisions a potential developer makes when locating, siting and designing aquaculture development. Section 6 identifies issues which relate to oyster farming. These sections are summarised below:

### **Section 2: Choosing a location**

This section explains how to identify an appropriate location for development from a landscape perspective. It outlines the locational guidance available, and identifies the key issues of strategic significance to consider when assessing potential development within a broad landscape area.

### **Section 3: Siting and layout**

This section goes on to explain landscape character and visual assessment in detail. It highlights the issues most relevant to the siting and layout of aquaculture development within a chosen location.

### **Section 4: Visual assessment**

This section describes how to undertake a visual assessment for aquaculture development, offering advice on exploring visual options. It includes an on-site checklist which can be used for carrying out a landscape and visual assessment.

### **Section 5: Detail design**

This section illustrates detail design considerations, including those which relate to the onshore facilities which may accompany some offshore developments.

### **Section 6: Oyster farming**

This section describes the landscape and visual issues which are likely to be of particular relevance to oyster farming.

Finally, this report complements other published documents, which are listed in Annex Three.



## Section 2

# Choosing a Location

Scotland is a small country. While its coastline is relatively extensive, it is often intimate in scale and highly visible. A series of even modest developments can quickly make a disproportionately much larger impact in such an open and intricate landscape. Likewise, even a single poorly sited or designed development in a landscape valued for its special scenic qualities or located on a stretch of isolated coast may erode the national resource of these now relatively rare landscapes.



## 2.1 Location options

Options for locating aquaculture development are likely to be strongly influenced by non-landscape considerations, such as depth of water or tidal reach and the best sites to meet regulatory and other environmental and marine users needs. It is nevertheless important to explore options to identify optimal sites, which take on board and balance the potential conflicting interests, including landscape and visual interests. It is usually helpful if the rationale behind any compromises made by the potential developer is clearly expressed in the application.

## 2.2 New developments

Many of the most appropriate and often most sheltered coastal sites for aquaculture are likely to be already developed, and there is now more emphasis on expansion and consolidation of existing sites. Where there are coastal landscapes that offer opportunities to accommodate new aquaculture development, choosing an appropriate location for development is the first, and perhaps the most important, step in ensuring that aquaculture development fits in well with the landscape. Amendments to layout and detail design can create a more attractive and appropriate structure, but are unlikely to mitigate the negative effects of a poorly sited development in the first place.

## 2.3 Consolidating existing developments

This stage – choosing a location – is also likely to be important for any operator planning to consolidate or rationalise a number of developments.

Consolidating or rationalising developments may offer opportunities to remove, amend or re-design any structures which are poorly sited or designed, which in turn is likely to improve landscape character and visual amenity.

Considering the potential effects of different locations on the landscape and visual, as well as economic and other environmental effects, is likely to be part of any strategic rationalisation process.

## 2.4 Location

The location is the general area within which a development will be sited. When first considering aquaculture development, if possible, developers should assess a number of potential locations, possibly along a length of coastline and within a number of lochs. This will ensure that at an early stage:

- Areas where aquaculture development is inappropriate in principle are identified;
- For finfish farming, issues of landscape significance which might indicate the need for an EIA can be identified at an early stage; and
- The national and regional significance of the landscape as described in the relevant spatial policies is well understood.

This section explains the issues which should be addressed when assessing the potential opportunities and constraints of a location.

This process should take into account:

- The forthcoming National Marine Plan and related Regional Marine Plans
- Development Plan policies, including integrated coastal plans, aquaculture framework plans and policies set out in development plans prepared by relevant planning authorities
- Designated areas
- Remoteness and 'isolated coast'
- Landscape character assessment
- Visual impact
- Cumulative impact

This section of the guidance identifies broad strategic issues, it is important to recognise that the relevant spatial plans will identify opportunities and constraints for aquaculture development.



## 2.5 National Marine Plan

The Marine (Scotland) Act 2010, requires Scottish Ministers to prepare and adopt a 'national marine plan for the Scottish marine area'. This plan is likely to be available in 2012. The purpose of the national marine plan is to 'guide decision making within the marine planning system'. It is likely to provide a framework for the sustainable development of the Scottish marine area, setting economic, social and marine ecosystem objectives which will assist in decision making. Furthermore, the national marine plan will set the context for subsequent Regional Marine Plans. These are all likely to be relevant considerations when determining applications for aquaculture development in the future.

## 2.6 Development Plan policies

Current Scottish planning policy requires planning authorities to 'identify coastal areas likely to be suitable for development, areas subject to significant constraints and areas which are considered unsuitable for development such as the isolated coast. The identification of coastal locations which are suitable for development should be based on a clear understanding of the physical, environmental, economic and social characteristics of the coastal area and the likely effects of climate change'.<sup>6</sup>

Furthermore, planning authorities are specifically required to 'identify areas which are potentially suitable for new or modified fish farm development and sensitive areas which are unlikely to be appropriate for such development'.<sup>7</sup>

It is likely that most planning authorities will present this spatial policy as supplementary planning guidance, possibly specifically related to fish farming, or as a coastal framework or integrated coastal zone management plan. Often these spatial policies will seek to balance the needs of competing interests along the coast, and aim to identify positive opportunities for development as well as indicating constraints. These documents will be material considerations when determining a planning application for aquaculture development.

Some planning authorities have used landscape /seascape capacity assessment for aquaculture<sup>8</sup>, to inform spatial policy. Other planning authorities have taken into account landscape and visual issues, such as national and local landscape designations, visual sensitivity and landscape character, to inform the selection of areas suitable for development. These assessments will aim to identify positive opportunities for aquaculture development, as well as constraints.

As a result, applicants should bear in mind that these plans are already informed by a strategic analysis of landscape and visual sensitivities. These documents are therefore invaluable as a source of baseline information, and when looking for appropriate locations for aquaculture development, they can be used to help steer development towards suitable sites from the outset.

In addition, and especially in the absence of such spatial policies, planning authorities and Scottish Natural Heritage can advise on the possible landscape issues associated with developing specified locations.

6 Scottish Government, Scottish National Planning Policy, February 2010, para 100

7 Scottish Government, Scottish National Planning Policy, February 2010, para 105

8 Scottish Natural Heritage (2008) 'Guidance on Landscape/ Seascape Capacity for Aquaculture'



NSA Small Isles view to Rum



NSA Shetland St Ninians Bay

## 2.7 Designated areas

An area is designated because it contains characteristics or features which are particularly valued. These qualities have been assessed and evaluated by the designating body, and are supported by Scottish Government and local planning authority policies. Development should not undermine the special features or qualities which the designation was established to protect. Consequently there will be more constraints on development (not only aquaculture) in these areas. Indeed, development in some locations within the designated area may well be inappropriate in principle, regardless of design. Any applicant should establish early in the planning process, prior to assessing the proposal's landscape and visual impacts, the range of characteristics and qualities which have led to the designation. It will be necessary to demonstrate that a proposed development will not significantly adversely affect the reasons for which a designation has been identified. If there are other relevant material planning considerations that outweigh the need to protect the designated interests, these need clear justification.

The most significant designations in relation to landscape are:

- National Scenic Areas (NSAs), first identified in 1978, are landscapes designated because of their outstanding scenic value;
- National Parks, which are areas of national importance for their natural and cultural heritage; and
- Local landscape designations, which are designated by planning authorities and are identified in the local development plan. These are areas which are considered to be regionally or locally important in terms of their landscape character and visual quality.

Information on these designations is available from the relevant planning authorities, who will be able to offer advice on whether or not proposals are likely to affect the valued qualities of individual designations. SNH also has an important role as guardian of NSAs and has recently produced an up-to-date list of the landscape qualities that make each one special<sup>9</sup>.

Aquaculture installations, along with any other forms of development, may not be compatible with the scenic qualities or the integrity of the specific landscape character which is valued and underpins the designation. In these circumstances, it is likely that the proposed development will receive an objection in principle. Developers should therefore seek advice from the planning authority and SNH at an early stage if a proposed development is likely to be located in or adjacent to a designated area.

<sup>9</sup> <http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/nsa/special-qualities/>



'...the best expression of wildness is to be found in the more remote mountain and moorland cores, on the most isolated sections of the coast and on uninhabited islands...' from *Wildness in Scotland's Countryside* SNH 02/03, p.2

## 2.8 Remoteness and 'isolated coast'

Areas that are distant from settlements and obvious human activity often have qualities of remoteness which may be reinforced by the lack of accessibility. These qualities are increasingly rare and frequently significantly contribute to both the scenic quality and the distinctive identity or landscape character of a place. They are valued by both residents and visitors, and this is reflected in the Scottish planning policy which states that:

'Areas which are unsuitable for development will include the isolated coast, which is distant from centres of population and lacks obvious signs of development and is of very significant environmental, cultural and economic value. The special characteristics of the isolated coast should be protected, and there is a presumption against development in these areas.'<sup>10</sup>

Such 'isolated coasts' are valued because of their qualities of relative perceived wildness. This sometimes, but not always, coincides with a degree of remoteness, and can certainly be linked to inaccessibility. It is reinforced by a sense of sanctuary and solitude, and a high degree of naturalness. These qualities are engendered through the experience and perception of a place, not simply a physical separation from centres of population. LCAs may identify landscape character types which possess qualities of relative wildness, remote or isolated character. They may have been taken into account in the spatial policies and associated plans prepared by planning authorities.

Aquaculture development can be accessed by sea, and therefore can be proposed for relatively undeveloped areas, with little or no direct road access. The inaccessibility of such areas may reinforce qualities which create a sense of remoteness or isolation.

In such areas, it is likely to be inappropriate to introduce any aquaculture development. This is because it is not just the visual impact of the proposal which is likely to be of concern. It is also the movement, noise of boats and generators and ongoing management activity which will affect the experience and perception of such areas.

Onshore facilities, access tracks and power supplies as well as water-based structures are also likely to impact upon a sense of wildness. It may be that in some cases, the water-based element of a proposal can be accommodated, whilst road access or a shore base cannot without unacceptable adverse impacts.

Any developer considering locating structures along a coast of remote or isolated character should contact the planning authority to obtain feedback at an early stage.

<sup>10</sup> Scottish National Planning Policy, February 2010, para 102



## 2.9 Landscape character assessment

Physical character, human activity, visual qualities and experience of place combine to create a landscape character which is distinct across a geographic area.

One of the aims of locating and designing a development with care, is to ensure that the proposal does not undermine characteristics which most significantly contribute to the landscape character of an area. Where possible, new developments should relate to the key characteristics of an area. The process by which these key characteristics are identified and assessed is called landscape character assessment.

A national programme of landscape character assessment was commissioned by SNH which now covers the whole of Scotland. Individual landscape character assessment reports (LCAs)<sup>11</sup> for each planning authority area are available from SNH. In some areas, however, a more detailed character assessment of the coastal landscape has been carried out to inform spatial planning policies within the development plan, and this is likely to be more relevant than the more strategic LCA.

## 2.10 Visual impact

Structures in and on the water are often very visible due to:

- The contrast in texture between the cages, lines or buoys and the smooth, reflective surface of the water, particularly in calm weather;
- The contrast between the vertical sides of finfish cages and infrastructure and the flat water surface;
- The constant changes in light conditions can one moment cast a structure into shadow, and the next reflect bright light upon it;
- The size, type or extent of the structures, including the feed storage barges or lighting associated with finfish farms, or numerous buoys associated with shellfish lines;
- The changes in sea colour and tone, which can often camouflage the structures one moment, but then emphasise the structure in dramatic contrast the next;
- The contrast between the often very regular and geometric shape and alignment of cages or lines and the more fluid and organic shape of the landform and coastline.

As a result, water-based development can be very easy to see. This is another reason for care in choosing an appropriate location. This does not mean that structures should always be removed from view, but an assessment of visual impact should be an integral stage of choosing a preferred location for development. To do this, developers should establish the extent of visibility of sites which are being considered for water-based installations. This may also be necessary for sites which are being considered for shore-based facilities. A visibility assessment can be undertaken using maps and site survey work. If in doubt, computer-aided assessments of theoretical visibility can be used.

<sup>11</sup> <http://www.snh.org.uk/pubs/results.asp?Q=landscape+character+assessment&pp=10>



Shifting lighting conditions, changes in sea colour and tone emphasise the importance of investigating both the location and detailed design.

The likely visual impact of proposed onshore and water-based developments from the most frequently visited or most sensitive viewpoints should also be considered. Such viewpoints include:

- Established settlements
- Well used vantage points
- Sites or villages of historic, architectural or cultural importance where the wider landscape setting is important for visitor experience
- Views from a popular road or a route promoted as a tourist attraction
- Coastal footpaths
- Popular ferry routes

Applicants are strongly recommended to consult with the local planning authority to identify and agree the significant viewpoints in advance of undertaking a detailed visibility analysis.

In some circumstances it may be inappropriate to locate development within sight of a significant viewpoint. This can only be determined on an individual case basis. If in doubt, potential developers should consult with the planning authority, SNH or Historic Scotland as appropriate at an early stage.

Further information on undertaking a visual assessment for aquaculture development see Section 4 of this guidance on pages XX.

## 2.11 Cumulative development

Where there is existing aquaculture, both new proposals and extensions to existing developments may be more difficult to accommodate within the landscape. Planning authority supplementary guidance may include spatial plans which identify coastal areas which cannot easily accommodate additional aquaculture development because of potential cumulative landscape and visual, or indeed other environmental, effects.

Alternatively, a planning authority may wish to promote the consolidation and expansion of aquaculture in an existing developed area (or areas), to reduce development pressure or conflicts of interest elsewhere. The planning policies, and associated spatial planning guidance, of the relevant local authorities should help guide developers.

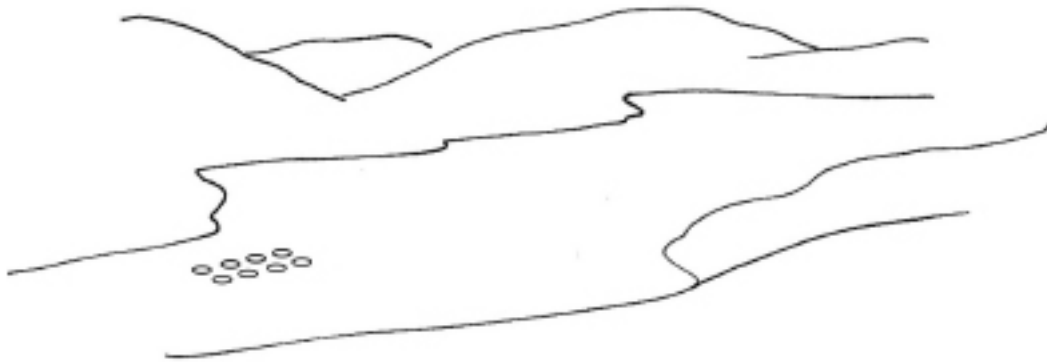
It may be that no aquaculture developments are apparent near the sites being considered, because they have been temporarily removed or the lease and application have not yet been taken up. Undeveloped sites need to be treated as developed sites when considering cumulative effects. Information on both existing permissions and leases which may not yet be developed, and also applications which are under consideration, can be obtained from the relevant national and local government bodies.



Where more than one development is located within a single loch or bay then consistency in size, layout and design ensures a better appearance.

### Examples of cumulative landscape and visual effects

As is illustrated here, a well-located, appropriately scaled proposal may be easily accommodated in the landscape.

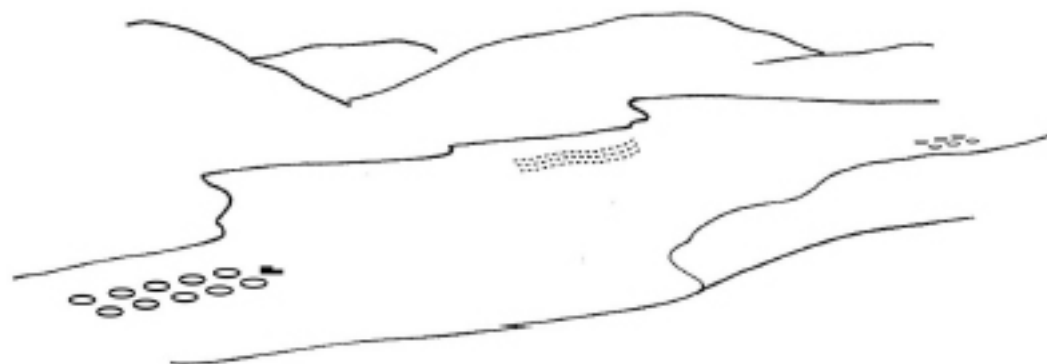


Whereas one individual development may act as a landscape feature, a number of developments can create a key characteristic of the landscape, altering the landscape character.

Expansion of several existing developments might also create similar cumulative landscape or visual issues as the structures become more dominant as they get bigger.



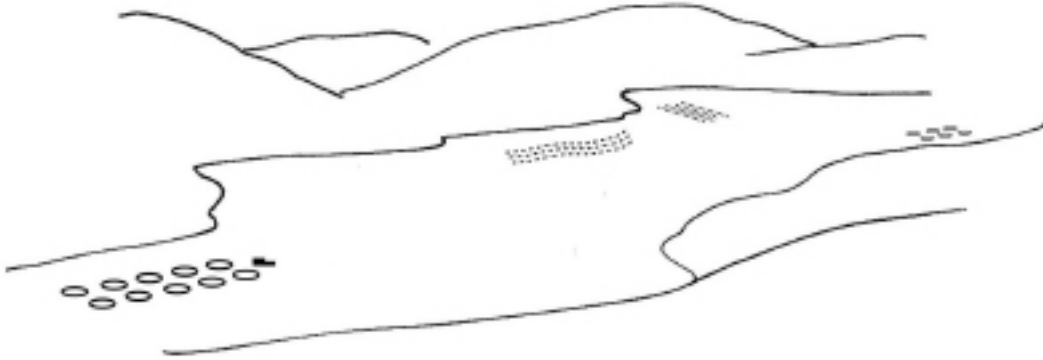
A number of developments occupying the same loch may be different in type, but in this illustration the common orientation, similar sizes, simple, uncluttered structures and dispersed spacing help to accommodate a number of developments.





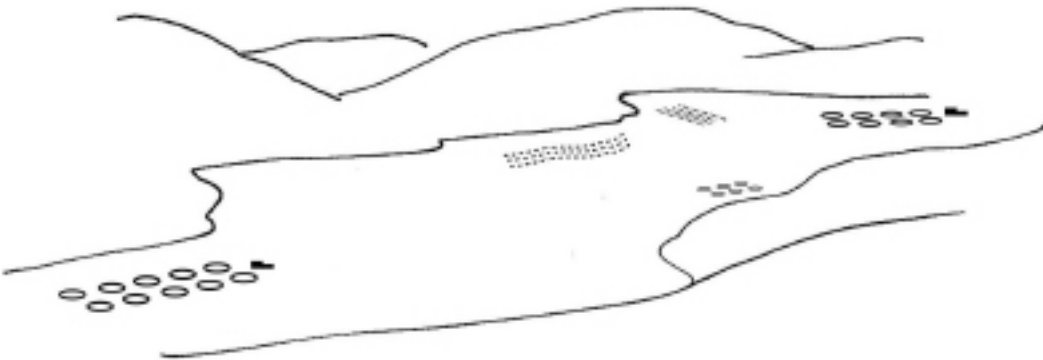
When a number of developments occupying the same loch are not coordinated in terms of siting, orientation, layout and design, negative cumulative effects can occur, as shown here. Proposals to change a lease, for example from a finfish farm to shellfish lines, should also take this into account.

This illustration demonstrates the sense of clutter introduced by an additional development being orientated differently from original developments. In addition, because the new lines are close to existing lines, the shellfish lines on the loch overall seem much more extensive – although individually they are modest.



Further development, here of different types, sizes and orientation, as well as simply a large quantity of development relative to the size of the loch can create a great deal of visual clutter and distract completely from the landscape.

This illustration demonstrates a different type of cumulative effect. If small inlets or bays are gradually filled up with development indentations along the coastline become difficult to read, as the eye 'jumps' along the seaward edge of the structures.



## Section 3

# Siting and Layout

Our generation has a responsibility to maintain and enhance landscapes of quality and exceptional diversity of character in Scotland. It is of benefit to many industries if this clean and attractive environment is managed sympathetically. New development should therefore respond sensitively to the quality and variety of coastal landscapes, and this section of the guidance sets out key issues which should be taken into account when thinking about the siting, orientation, size and layout of aquaculture installations in the wide range of Scotland's coastal landscapes.



Planning authorities expect developers to demonstrate how they have reduced potential adverse impacts on local landscape character and visual amenity when deciding on orientation, micro-siting and the size and layout of aquaculture installations. This section provides information which will help a developer analyse and take into account these landscape and visual issues.

### 3.1 Landscape character

Understanding the character of the landscape and how it is experienced is a first step towards siting and planning the layout of a finfish or shellfish farm proposal. In particular, landscape character assessment should assist in:

- Planning the scale of the development;
- Positioning both onshore and water-based structures;
- Aligning the water based structures
- Advising on the relationship between the proposed development and existing aquaculture developments; and
- Planning the layout and scale of both the water based structures and any necessary onshore facilities and infrastructure

### 3.2 Coastal landscape character

Coastal landscape character, which is sometimes called 'seascape' character when it is dominated by open water, is made up of many elements. Some of these, like the shape of the coastline, its relief and pattern of land use, are physical. Others, such as sense of openness or enclosure and degree of shelter or exposure, are experienced by people when they move around a place.

The process of character assessment analyses the coastal landscape and identifies which elements and experiences of the coast are the most typical and distinctive to the area. When assessing the potential impact of a development, it is then possible to assess how a new or amended development might affect or relate to these key characteristics. Each place is different, and will have characteristics that reflect that difference. However, broadly speaking, aquaculture development is most likely to influence one or more of the generic coastal landscape characteristics set out in Box 1.



Steep-sided enclosed lochs



Sheltered but expansive lochs



Indented coasts, bays and narrow straits



Open and expansive coasts



## Box 1: An introduction to assessing coastal landscape character for aquaculture development

	Likely opportunities	Likely constraints
<b>Shape and scale of coastal edge</b>	Long, regular, straight coastlines set against the backdrop of an open sea may offer more opportunities for siting larger sized developments of simple, regularly spaced structures.	A very indented, irregular and intricately scaled coast, possibly with offshore islands is unlikely to be able to easily accommodate large, simply shaped developments. The tiny size of some indentations, the organic shapes and the diverse, irregular pattern of skerries, islands, little bays and promontories are all likely to make a coastline more sensitive to development.
<b>Openness and expansiveness of the coast and sea</b>	Expansive stretches of sea along the horizon, creating a sense of big space and openness will often 'diminish' the relative size of a structure. Smaller and lower structures, including shellfish lines, are likely to fit in more easily to smaller spaces, but even then, the size and extent of the structure as a whole should aim to avoid dominating the size of the space.	Enclosed sea lochs, narrow coastal straits, small bays with limited visual links to the sea, stretches of water framed by peninsulas and islands, are all more easily overwhelmed by larger structures – simply because they are smaller spaces.  Narrow spaces can also be quickly 'filled up' by development extending across the loch or voe from one side to the other.
<b>Character of the hinterland</b>	Dark vegetation, or steep landform which casts shadows across the water for a large part of the day, can create a backdrop against which a structure can be relatively difficult to see.  In addition, such a backdrop is relatively 'stable', and not as subject to the variations in light which are characteristic of more open coasts.  Managed conifer woodland and farmed land with well defined field patterns, both offer a 'worked' landscape context which may more readily accommodate development.	More open, sparsely vegetated and less settled coastlines, with limited tree cover provide fewer 'features' with which a proposed development can be associated. This effect may be accentuated when the area has low relief.
<b>Landmarks and features</b>	Sites which do not compete with iconic or important features either visually or in terms of setting or context.	The setting of key coastal features, such as historic sites, natural arches, headlands, extensive tidal reaches, groups of islands or stacks, or other landmark features are all likely to be sensitive to any development.
<b>Isolation or 'wildness'</b>	Less remote and relatively accessible stretches of coast, or areas set within a context of inhabited or more developed stretches of coastline, loch, voe or sea.  Areas characterised by activity, and where the presence of the bustle of frequent maritime traffic is a key characteristic.  Landscapes where the hinterland is clearly managed, with a back drop of forestry or fields.	Relatively remote and less accessible stretches of coastline, where the character of the area is dominated by a sense of seclusion and relative wildness, and the area seems set apart from the main bustle of maritime traffic and development.  In such areas, the coast and hinterland will be largely undeveloped, generally characterised by moorland, rough open grassland or semi-natural woodland.

### 3.3 Using this section

The following guidance sets out how to integrate aquaculture with the principal landscape characteristics of the Scottish coastline. It does this by describing four broad categories of coastal landscape character, and illustrating what to consider when siting and aligning both water-based and onshore structures.

The four broad categories of landscape character are:

- Steep-sided enclosed lochs
- Sheltered but expansive lochs
- Indented coasts, bays and narrow straits
- Open and expansive coasts

These four broad categories broadly progress from narrow, confined and smaller scale landscapes to larger, more exposed and open landscapes. In some places, however, both small and large-scale landscapes will come together in one view.

Developers should use this section by reading the descriptions of each broad landscape character category. They should identify which category of coastline is most similar to their chosen location for development. Some locations may have characteristics which relate to more than one category, and applicants will need to study the guidance for these categories accordingly.

The guidance on siting and layout appropriate to each category follow each character description.

This section also describes the implications of land use and settlement pattern on landscape character and how that might affect decisions about the siting and layout of aquaculture developments.



In these relatively narrow, intimate lochs the simplicity, scale and expanse of the water surface is important. Too many water-based structures or one large development can quickly lead to overcrowding, and divert views away from the central loch space.

### 3.4 Steep-sided narrow lochs

#### 3.4.1 Key characteristics

- The coastline is dominated by steep mountain or hillsides which plunge into the sea, creating a sense of drama.
- The steep-sided topography can create dense shadow, and the sheltered, often calm waters offer opportunities for distinct reflections.
- Often this character type is dominated by the sense of enclosure and intimacy, emphasised by the verticality of the surrounding landform.
- Views are drawn along the length of, or directly across, the loch, rather than along the hilltops.
- The coastline of these lochs can be relatively simple, with few indentations.
- Roads often approach these lochs over high passes, giving elevated views, or are tucked along the loch-side, constrained by the steep landform, resulting in low-level views directly across the loch.
- Bridges crossing rivers at the head of the loch are often focal points in the landscape, and act as key viewpoints, too.



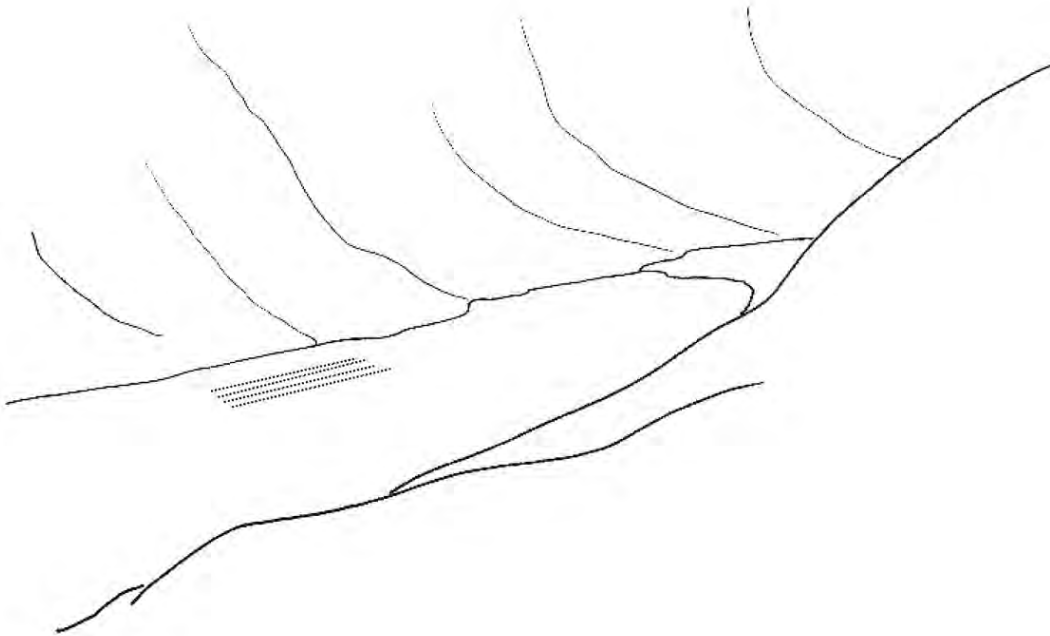
Here development relates clearly to one side of the loch, so as not to subdivide the central loch space or visual focus along loch length.



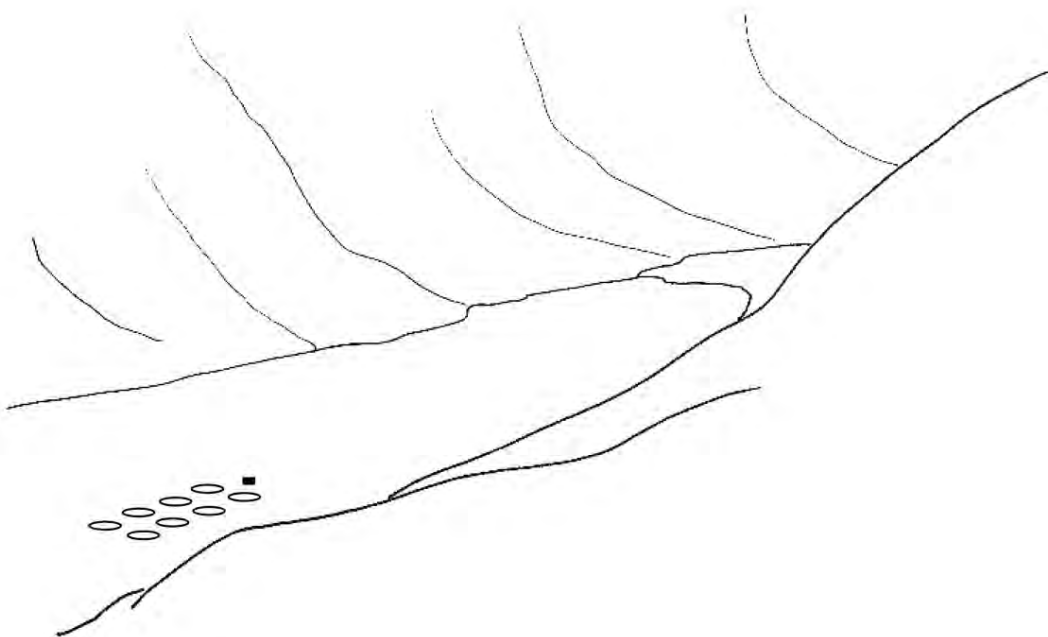
### 3.4.2 Implications for siting and layout

These intimate lochs are characterised by the relatively narrow expanse of the water surface, the sense of enclosure and often the straight shorelines. In these narrow spaces, several water-based structures, or one large development can quickly lead to overcrowding.

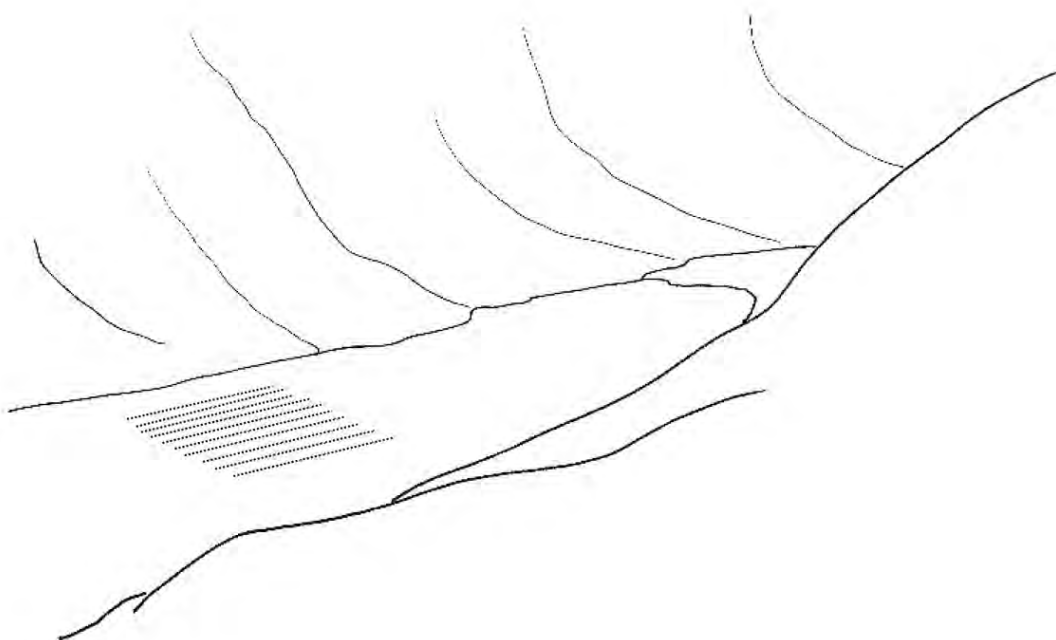
Often in steep-sided enclosed lochs, the coastal edge is straight, with relatively few indentations. The visual axis of the loch is along its length. Where possible therefore, cages and lines should aim to reflect this characteristic and appear as simple, linear configurations aligned broadly parallel with the long axis of the loch.



If possible, try to site the development where it relates clearly to one side of the loch or the other, as in this illustration – try to avoid locating the structure so that it sits in the middle of the loch, as this tends to disrupt the visual focus which extends along the length of the loch.



Structures reaching across the whole of the central loch space or orientated out towards the central axis should be avoided. These will fragment and subdivide the loch, as in this illustration.



Due to the steep sides of these enclosed lochs, there may be areas which are in deep shadow for much of the day. Offshore and shore-based facilities will be less obvious if sited against a backdrop of shadows, loch-side woodland and rising ground.



## 3.5 Sheltered but expansive lochs

### 3.5.1 Key characteristics

- These lochs are generally enclosed by hills and often feel quite separate from the open sea. They are broader relative to their length and feel less confined than steep-sided lochs. Because of the wider extent of the water surface and the less pronounced enclosure created by the surrounding low hills they feel less contained.
- The landform near to the water edge is frequently gentle in gradient, sometimes with low rocky outcrops or ledges, creating a gradual transition from the flat water surface to the steeper hillsides.
- Often, the eye is drawn to a skyline of hilltops over an expanse of water.
- The coastline is generally indented with small bays and sometimes islands or skerries.
- Roads tend to be less constrained by the surrounding topography so they are less likely to run close to the edge of the loch and may rise up surrounding hill slopes
- Views from roads part of the way up the hillside allow viewers to look down upon the water. Views of the loch from low-level views may be intermittent because of intervening ground and woodland.



In these landscapes, cages and lines can readily dominate the water surface of small bays and lochside indentations, resulting in the loss of a key characteristic. Often the relative intimacy of the coastline makes it difficult to accommodate the mass of large cages or extensive areas of lines.



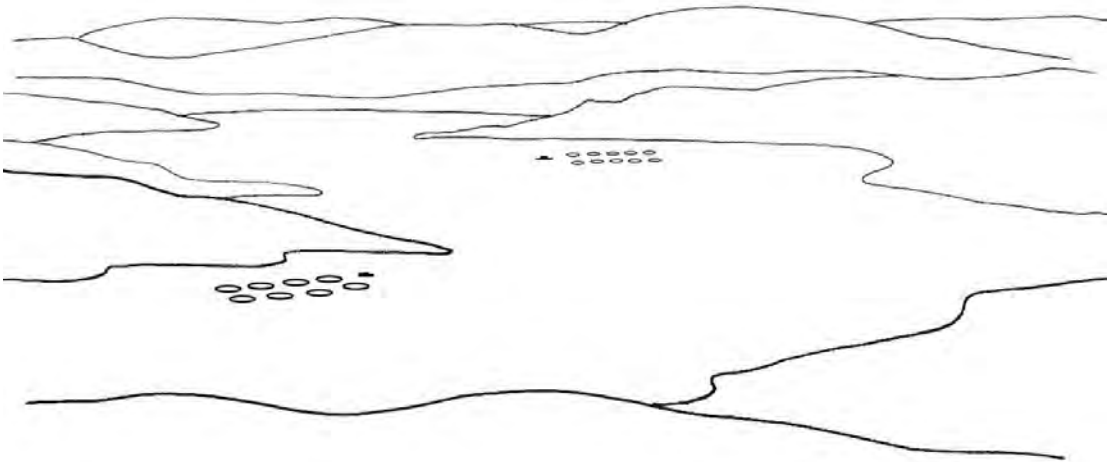


Low profile, tidy, elongated fish farm cages match the low lying relief and horizontal emphasis of the surrounding landform.

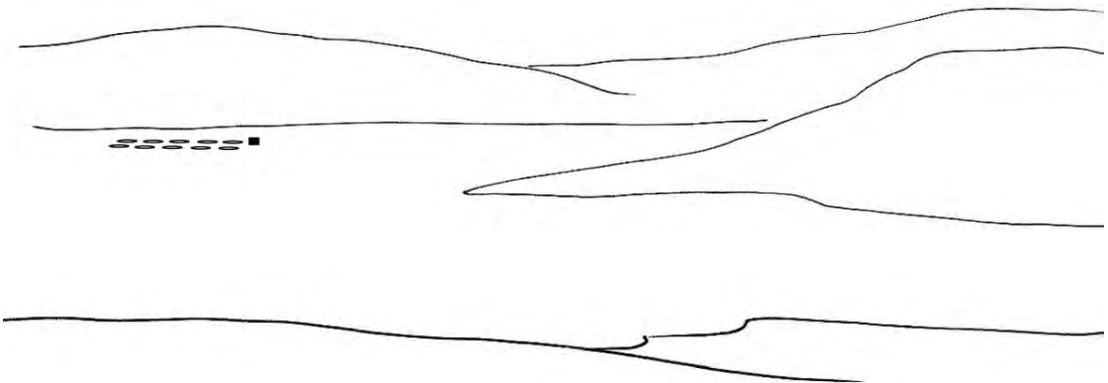
### 3.5.2 Implications for siting and layout

These broad lochs may be able to accommodate proportionately larger developments – but sometimes these lochs are not as expansive as they seem, and large structures can quickly overwhelm them.

Care should be taken not to ‘fill up’ these lochs with development – try to make sure that ‘undeveloped’ water surface dominates over ‘developed’ water surfaces when visible from key views, as in this illustration.

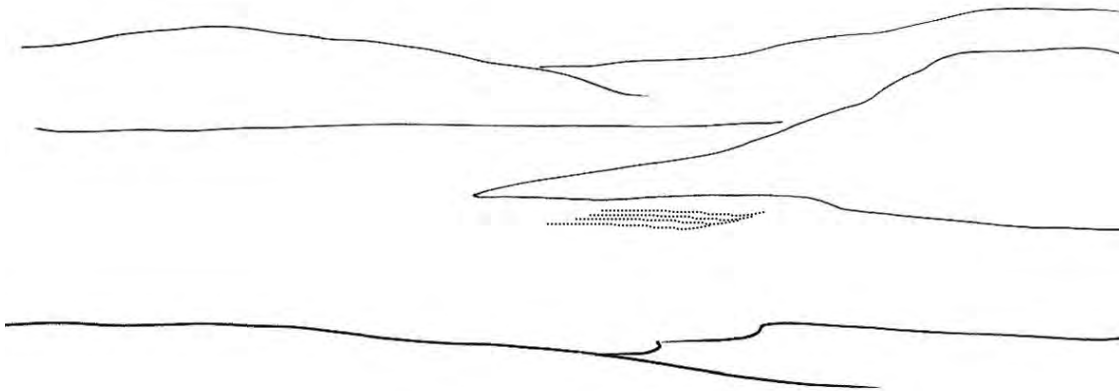


Taller structures, such as cages and feed barges, will be more easily accommodated where they can be seen to clearly relate to one side of the loch or the other rather than hover in the middle of the loch.

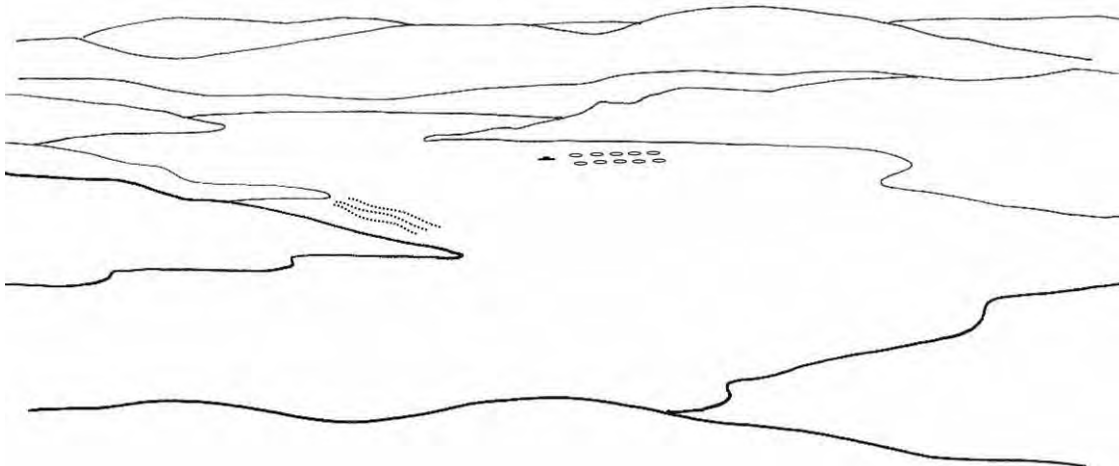




Cages and lines can reflect the horizontal emphasis in these wider, more low-lying landscapes, by reinforcing the alignment of long, low landforms and elongated spurs.



Where a series of small bays create an indented coastal edge, try to avoid 'filling in' each successive small bay with a development. The indentations along the coastline should be allowed to dominate, so that your eye can generally follow the convolutions of the coast without too much obstruction, as illustrated here.



## 3.6 Indented coasts, bays and narrow straits

### 3.6.1 Key characteristics

- Indented coasts are more open to the sea than sheltered sea lochs and voes, but indentations, bays, straits, and promontories may still create a relatively sheltered setting, at least in places.
- This coastal edge often forms distinctive bays and inlets, including straits and tidal narrows. It may be punctuated with islands or skerries, all of which have in common a relatively small scale.
- The landform around this coast is often relatively gentle, with low hills, rocky knolls and low sweeping headlands, however in some areas the coast is dominated by rocky outcrops and cliffs.
- Often this character type is visually dominated by the indentations or complexities of the coastal edge or, where it is visible, the flat horizon of the sea, sometimes broken by islands or more distant promontories
- Roads tend to be less constrained by the surrounding topography so they may lie close to the edge of the loch, or extend up surrounding hill slopes
- Views often alternate between the intimate and the panoramic as roads or footpaths wind around the coastal edge. Views might embrace the sweep of a small bay, the longer length of the coast or extend out to sea. Often views along the coastal edge are partial, broken by headlands, islands and promontories. There are also likely to be views from ferries and other marine traffic.



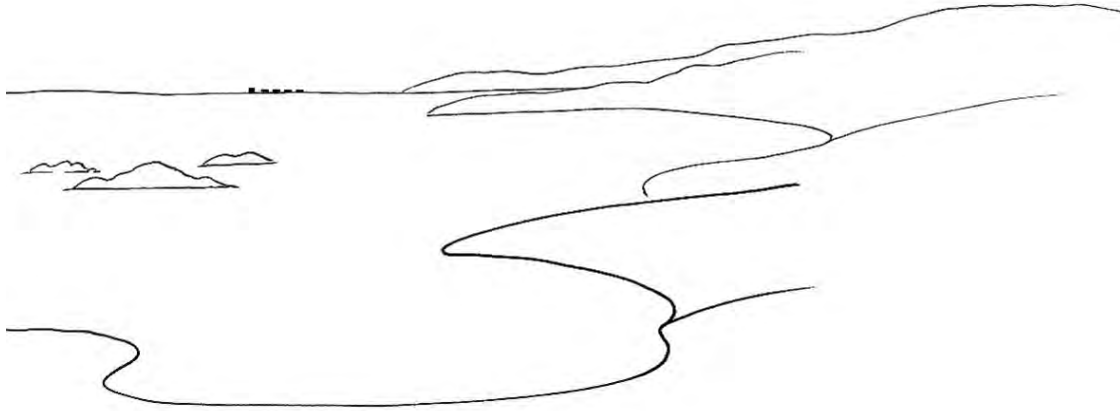
Implications for siting and layout: In these landscapes, cages and lines which are too large or too numerous can visually coalesce, obscuring the distinct pattern and scale of skerries and the indented coastline.



### 3.6.2 Implications for siting and layout

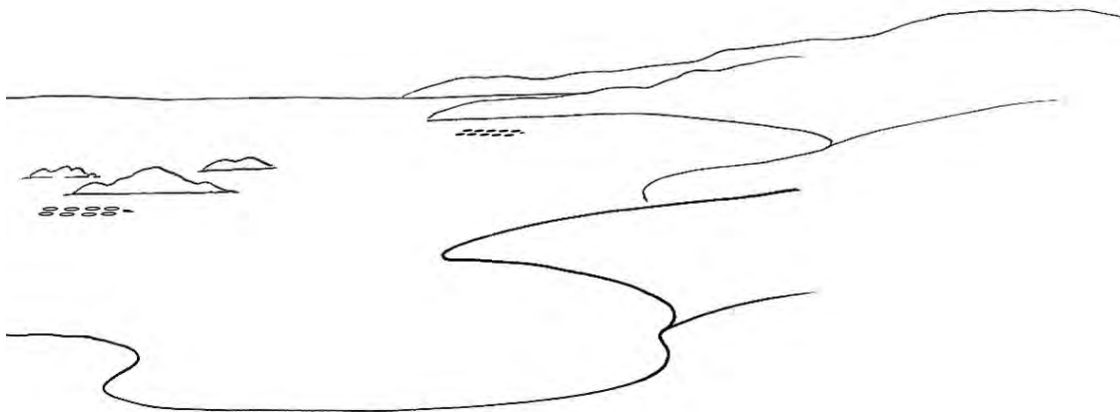
These often quite intricate shorelines are set within a context of the larger, sweeping scale of a wider coastal landscape. When siting a development, and thinking about the appropriate size, the developer will need to decide whether or not the development should relate to the expansive sea, or the more intricate coast.

In these landscapes, larger structures can be more easily accommodated where they can be set against a backdrop of the sea.



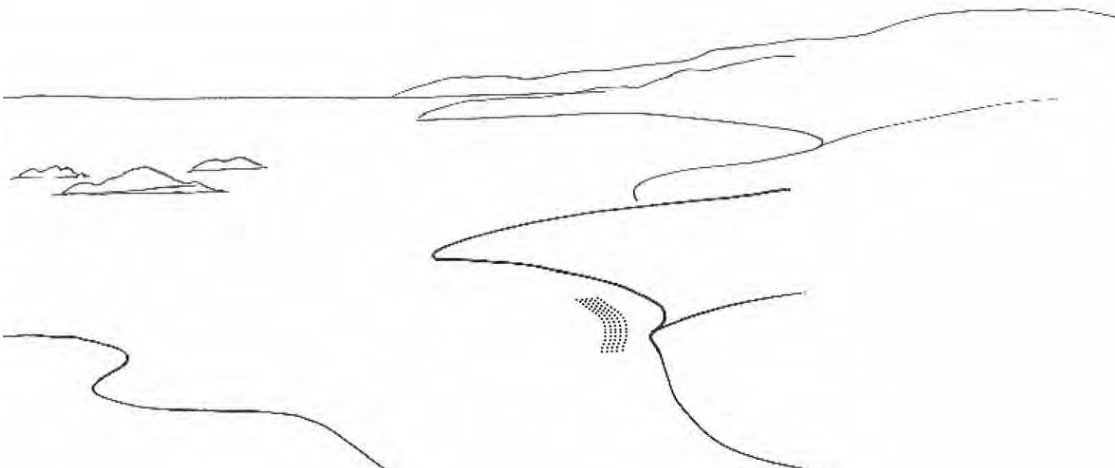
Smaller finfish and shellfish farms can often be sited to reflect the pattern and layout of skerries and islands, or be set against sheltered promontories or headlands.

Aim to site development where the coastline is most regular and straight, away from the indented sections of coast. The simple, often relatively ordered pattern of the structures can reflect the more simple, regular coastlines.

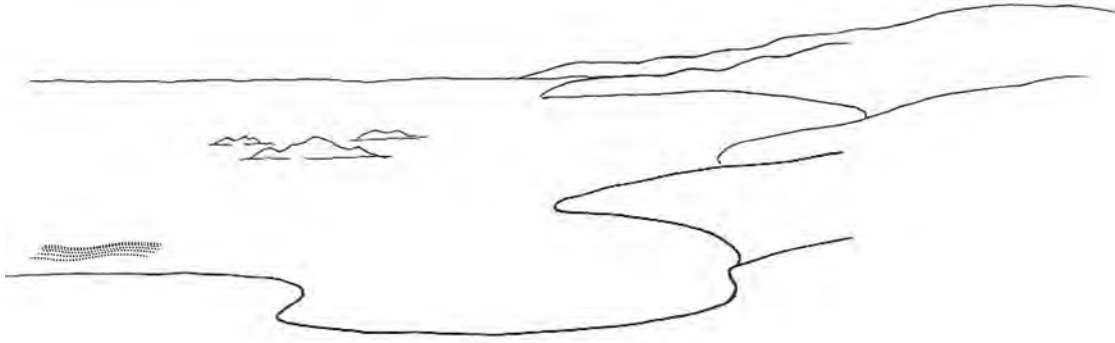


If possible, try to align shellfish lines and linear cage structures to be broadly parallel with the most dominant coastal edge. It may not be possible to achieve this from all viewpoints, so agree with the planning authorities which ones are most the important.

If the structures lie within a small bay, aim to retain a much larger proportion of undeveloped water surface, so that the installation does not dominate the bay.



If structures need to be sited close to where the bay meets the open sea, place them to the sides of bays, away from the middle of the mouth of the bay – this avoids a development appearing to block the entrance to a bay, or separate a bay from the open sea.



### 3.6.3 Key characteristics

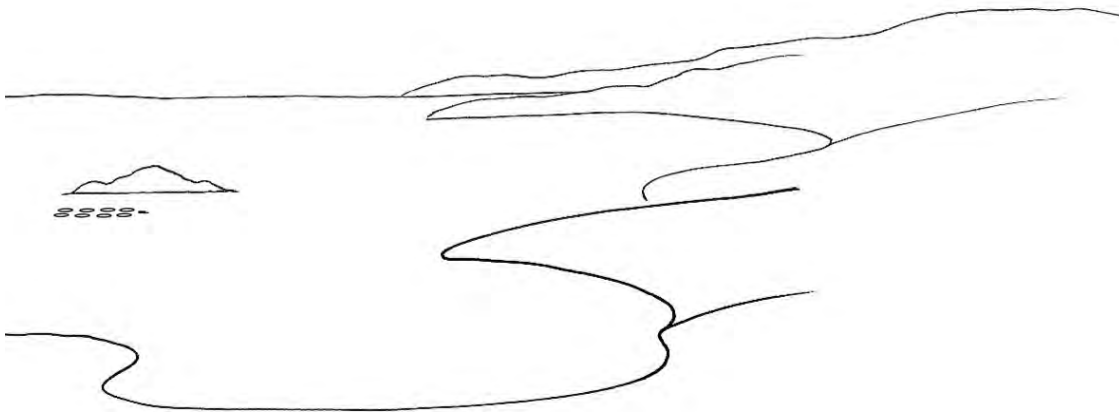
- Small groups, or single islands, often form landscape features or focal points within a wider coastal landscape
- The relatively small scale and intricate pattern, as well as interlocking forms of islands, are often well defined by the contrast between land and sea
- Small, low islands can appear to change in size and visual prominence as the tide rises and falls, with some skerries completely disappearing from view at high tide
- The complexities of the coastal edge of islands tend to be less visible from low level distant viewpoints
- Islands are focal points in views, often seen within the context of a more sweeping vista along the coast or extending out to sea
- As they are detached and self-contained, people tend to find islands inherently attractive and may project onto them characteristics, qualities, or associations which they would not project onto a comparable piece of the mainland
- They are popular places to visit by boat or kayak because of their natural focus



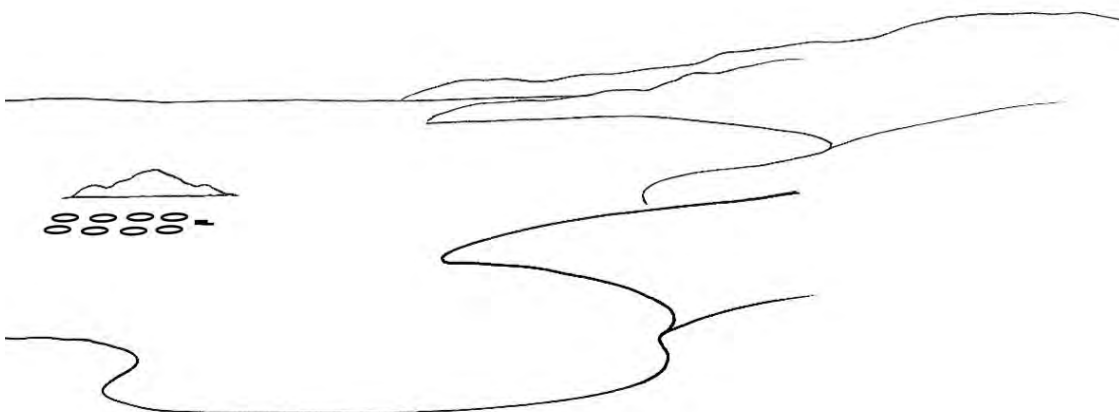
Groups of islands, islets and skerries seen within a panoramic seascape, lead gradually from the interior landmass to open sea. Land and sea appear 'interlocked'.



It is not easy to site an installation near to a single island, as it distracts from the visual focus. This should only be considered if the installation is much smaller than the island.



This illustration shows how a large development can easily dominate and distract from an island, or even a group of skerries or small islands. Introducing a larger scale structure, which disrupts the hierarchy of islands, bays and coastal landforms should be avoided. The size of a development must relate to the size of the islands at high tide.







Large structures are easily accommodated as they can be set against a backdrop of sea, or alongside a relatively straight coastal stretch.

## 3.7 Open and expansive coasts

### 3.7.1 Key characteristics

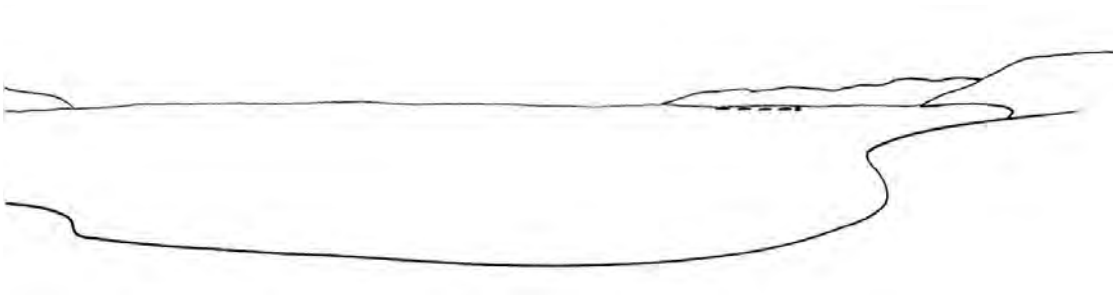
- This coast is characterised by its juxtaposition with the extensive and expansive openness of the sea, which dominates in terms of extent and scale
- Frequently exposed, the coastline is likely to be relatively regular and straight, and may be rocky, sometimes with cliffs, stony beaches and infrequent shallow bays
- Often this character type is dominated by the changing pattern of light and movement associated with the sea, with less focus on the land or even the coast, except where there are landmark features, such as cliffs, distinct promontories or historic features.
- Roads tend to follow the coastline, although this can be quite elevated, and may be set well back from the immediate coastal edge. There may be long stretches where access is limited or only possible on foot
- Views are often panoramic, embracing a wide expanse of sea. There are likely to be views from ferries and other marine traffic

### 3.7.2 Implications for siting and layout

These stretches of coastline tend to be heavily dominated by the open sea and a sense of vast distance, providing an expansive setting for structures. Long, elevated promontories and sweeping bays all reinforce the sense of large scale.

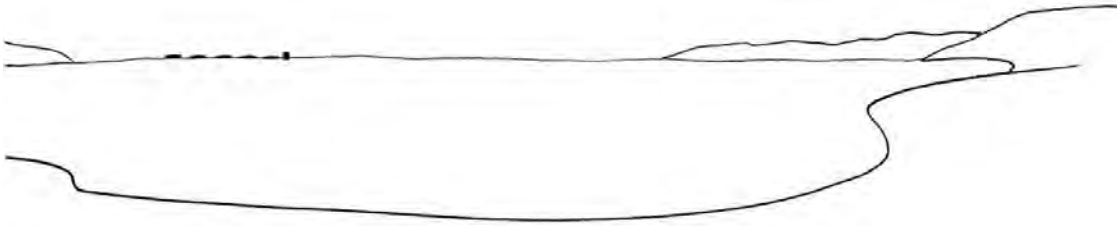
In these landscapes, larger structures can be more easily accommodated where they can be set against a backdrop of the sea or where a long stretch of the coastline is relatively straight.

The dominant trend of these landscapes is 'horizontal', made up of the horizon, long, low profiles of adjacent hills, promontories or distant islands, which can make it easier to accommodate long, low profiled structures.

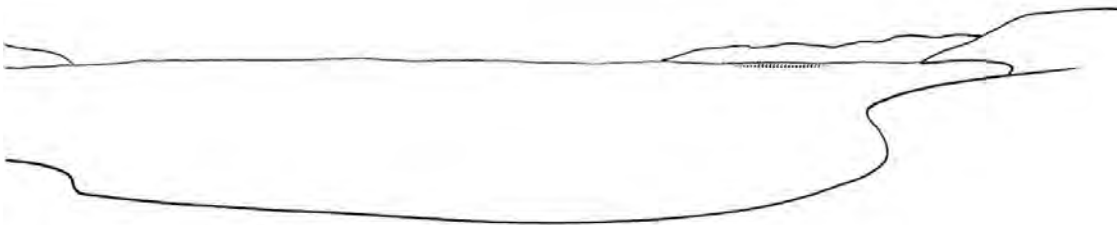


The expanse of the sea may potentially absorb even very large structures. By locating large structures where there are few – if any – other reference points (except for perhaps the occasional passing ship) the structures will appear small within the larger seascape, when viewed from land.

Try to avoid unnecessary clutter and irregular cage sizes or patterns. An ordered pattern of cages and simple feed barge structures will more appropriately reflect the simplicity of the open sea.



These coastlines are likely to be too exposed for shellfish lines, which are likely only to be accommodated perhaps in the lee of headlands.



Where sea is expansive it may absorb even very large structures. Long, elevated promontories and high viewpoints reinforce this sense of large scale.

## 3.8 Land use pattern

The four landscape character categories explained above will often contain some degree of settlement, land management or infrastructure. This land use pattern also contributes to landscape character, and can influence the siting and design of aquaculture proposals.

### 3.8.1 Settlement and infrastructure

Coastal villages can be linear, for example, stretched along a loch side road or peninsula, or clustered, perhaps at the head of a loch at a key bridging point or within the shelter of a bay. In more rural areas, settlement can also be 'dispersed', with houses and farms perhaps in a regularly spaced pattern, or as individual buildings scattered more randomly across the landscape.

The presence of settlement can influence the siting, scale and layout of both onshore and offshore development. Aquaculture may not be acceptable if it is too near a settlement or closely overlooked by houses, and often the need for clean water, accessible piers, accessibility for large vehicles and onsite security, make it difficult for both offshore structures and onshore storage bases to be sited close to a settlement.

Nevertheless, the activity, bustle and general developed character of areas with some settlement or other infrastructure, such as roads, piers, rural industries such as quarries or forestry, can all provide a suitable context for aquaculture development. In addition, these areas are more likely to have easy access to existing roads and other infrastructure, such as electricity, which will make onshore development more cost-effective.



**Concentrated settlement:** Careful consideration of aquaculture development – including shore-based facilities – is essential, taking account of their siting in relation to views, the landscape character and setting of villages.



**Concentrated settlement:** Where settlement is clustered it often forms a focal point within the landscape.





**Scattered settlement:** Here housing, often linked to the pattern of crofting land, creates a series of point features in the landscape. The pattern can be very dispersed and any aquaculture development is best related to the scattered nature of the land-based structures.



It is difficult and may not be desirable to introduce new roads and buildings into areas characterised by a sense of remoteness.



Forestry and aquaculture activity.

### 3.8.2 Land management

Even where there are few buildings in a landscape, there are often other signs of human activity, such as forestry, quarrying, pylon lines, roads or farmed land. These, too, contribute to landscape character, and can create an appropriate context for new buildings, or offshore structures in a way which makes the most of key characteristics.

Key principles to consider when siting aquaculture development are:

- Forestry, or other woodland, can offer a dark coloured backdrop to low cages or buoys, making them less visible. The busyness or activity associated with aquaculture will also be present in forestry and farming.
- Regular patterns, for example those arising from field boundaries, introduce elements which may be reflected in the pattern and distribution of lines and cages.

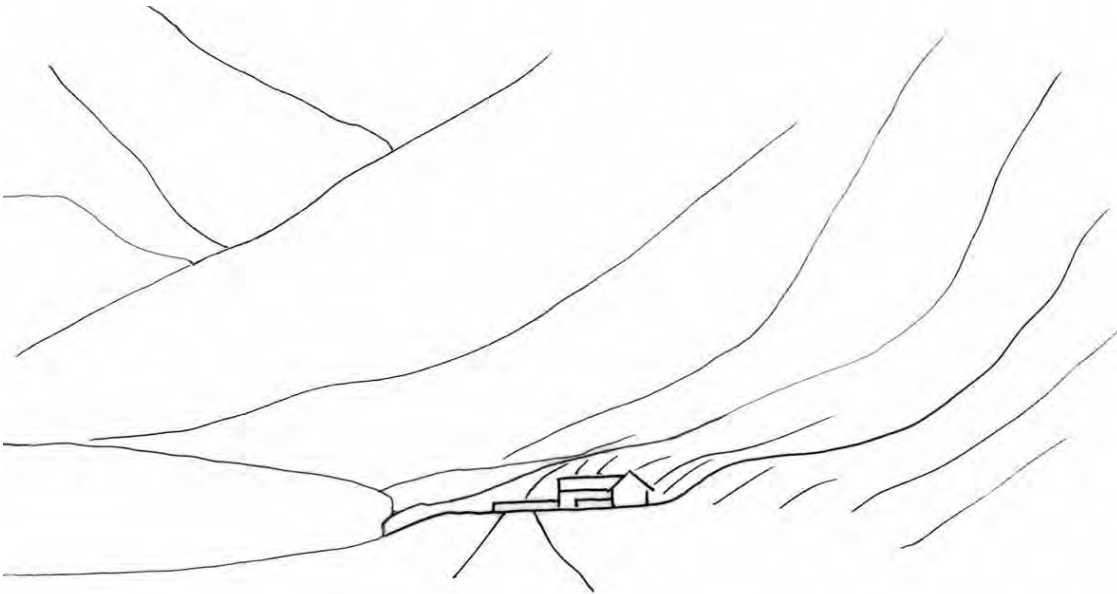
### 3.8.3 Shore-based facilities

Key principles to consider when siting shore-based facilities are:

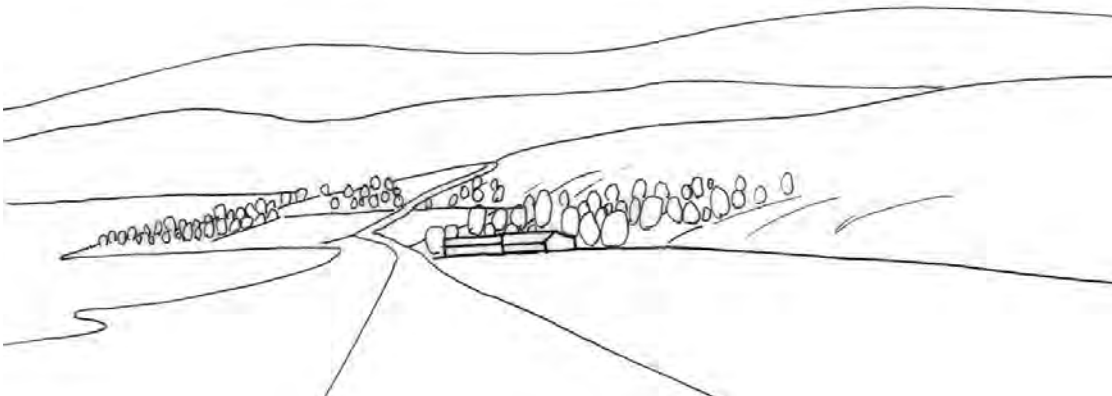
- The infrastructure associated with some shore bases, such as roads, storage yards and lighting, is more likely to be in keeping with areas where there is some existing development rather than relatively remote landscapes or 'isolated coast'.
- Shore-based development should be located within a sheltered bay or inlet, in the lee of a promontory or a rock outcrop, woodland, or another existing feature. Such locations are more likely to be appropriate than more open and exposed coastal landscapes.
- If possible, make use of existing roads and power lines. In more remote locations, you may be expected to underground power lines as a condition of planning permission.
- Any new development should aim to reflect the scale and distribution of existing built pattern if possible. It may even be possible not only to use existing roads and other infrastructure, but also re-use or modify existing buildings.



Excavation of landform on steep slopes for access tracks or shore bases can cause considerable long term scarring of the landscape. Shore-based facilities should be sited where neither the buildings nor the access roads result in excessive earth moving. Appropriate sites tend to be set back against a break in slope and away from promontories. Buildings should aim to sit low in the landscape, avoid breaching the skyline and be contained by a backdrop of rising landform.



Shore-based facilities should, where possible, nestle into rocky outcrops and low ledges. There may be an opportunity to use existing woodland to create a setting for the buildings. Alternatively, woodland could be established to link in with existing vegetation patterns to create a setting for the buildings or partially screen development.





## Section 4

# Visual Assessment

A visual assessment is used to help identify an appropriate site and to decide on a well-scaled and designed lay out for a proposed development. It can also be used to identify and weigh up opportunities to maximise visual amenity when considering consolidation or rationalisation of existing development within a loch system.

From high level viewpoints the shape, size, alignment and layout of cages and lines is apparent.



All the relevant elements of the proposed development should be included in a visual assessment including any visualisations or photomontages used to support a planning application. A visual assessment of offshore equipment should include the cages, buoys and lines, feed barges and feed pipes, rafts, top nets, lifting gear and lighting, huts and accommodation blocks. Any onshore elements that are part of the proposal, e.g. buildings, jetties/pontoons, feed hoppers, access roads and any other relevant structures should also be included in the visual assessment.

An introduction to visual assessment, including identifying key viewpoints and assessing the significance of viewpoints is given in Section 2, on page XX para 2.7. Box 2 (later this section) illustrates a more detailed checklist of steps to be considered when undertaking a visual assessment.

The visual assessment process allows applicants to explore the design of the proposal. This includes examining any mitigation measures that may link the proposal visually with the surrounding landscape, perhaps by locating the structures against a straight stretch of coast, or illustrating how big the size of the structure is in relation to the scale of the landscape. At a more detailed level, illustrations or photomontages can be used to explain how structures have been set against trees or dark vegetation, or sited and arranged to reflect a regular land use pattern.

**Viewpoint selection:** in assessing the visual impact of aquaculture development, it is important to consider both the elevation of the viewpoint and the proximity of the viewer to the development. For most structures, unless they are well out to sea, there will be both high-level and low-level viewpoints, and both distant and 'close up' views. It is difficult to design a structure which always looks good from every viewpoint. The planning authority should be able to help you decide which viewpoints are the most important.

#### 4.1 Key considerations from high-level viewpoints

- From a high-level viewpoint, the contrast in texture between fish farm structures and the smooth, reflective surface of the water is more obvious. The geometric shapes of lines and cages are also clearly visible.
- High-level views where a dramatic panorama is 'revealed' suddenly and all at once when a road or footpath crests a high point or a pass are usually very sensitive – people anticipate a spectacular view, and therefore this view is scrutinised closely.
- From high up, it is easy to see how the shape, size, alignment and layout of cages relate to the shape and scale of the coastline. It is also very obvious if lines and cages do not lie parallel to the coast, for example, so thinking about the relationship between the alignment of structures and the shape of the coast is likely to be a more important consideration from high-level viewpoints than low-level viewpoints.
- Where development is located further out to sea, then from high-level viewpoints a development may appear more obvious, but also smaller, as there are 36
- fewer reference points, or other features with which it can be compared in size. The vastness of the sea can help absorb the size of the development.
- From high-level viewpoints, it is also easy to see the broad patterns of the surrounding settlement and land use. It might be possible to link aquaculture developments to the pattern of the vegetation. Where there is a choice, for example, there may be an opportunity to site offshore structures opposite a stretch of woodland, or a series of farmed fields.



From high level viewpoints a development may be obvious, but where there are few reference points its apparent size may be small.



Well sited and scaled fish farm. Its regular, ordered layout relates to the coastline and to one side of the strait; smaller than the islands, islets and promontories in scale, it does not dominate the natural landform.





When viewed from a low level viewpoint and backed by a land formation, it can be difficult to distinguish cages.

## 4.2 Key considerations from low-level viewpoints

- From a low-level viewpoint, including from the sea itself, water based structures can be harder to see if they are set against a dark backdrop of landform and vegetation, or if they are often seen in shadow.
- When viewed close up, cages and buoys are of course likely to be more visible. Where existing trees are part of the character, planting trees along the shoreline, between the road and the structures, can break up the visibility.
- The size of a large structure may be easier to absorb if it is seen against the expanse of the open sea – the structures appear smaller and the water itself provides a well-scaled setting. Siting a structure at a distance from the viewer, perhaps on a long expanse of horizon associated with the open sea, will make the structure seem smaller in size.
- If you have the choice and you want to reduce visual impact, aim to site a structure where it is visible from a stretch of road where people are likely to be driving fast, and certainly try to avoid siting structures adjacent to lay-bys and other viewpoints from which there will be static views of the structure.
- Visual foreshortening occurs when the level surface of what appears to be a large expanse of water on plan takes up only a small part of a view. As a result, vertical structures viewed from a low-level viewpoint can have a proportionately higher impact, taking up proportionately more 'visual space' than the water.
- Conversely, low structures on a flat surface, such as lines of buoys, can merge together so that they appear to only occupy a small amount of the water surface, especially if located further away from the viewer, as foreshortening becomes more pronounced with distance.
- Structures such as top nets, feed barges and accommodation modules contrast most significantly with the level water surface. They will be less visible if they are kept close to the water surface.



Cages viewed from a low level viewpoint are absorbed by background vegetation.





A site can provide a complementary context to fish cages, especially where activities relate to the shore and aquaculture structures are kept close to the water surface, as here at Lyness.

### 4.3 Context of view

It is therefore useful to think about the way the proposed development will be viewed and the types of viewpoint from which it will be seen. Points to consider, for example are:

#### 4.3.1 Key visual sensitivities

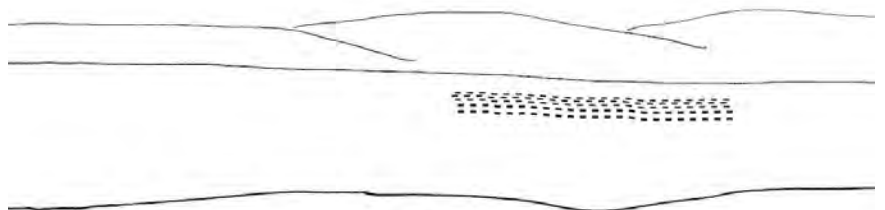
- A location where there is one well-known viewpoint, or only one panoramic view of a loch, for example if the loch is surrounded by woodland and is largely hidden. This will make that single viewpoint more important.
- Sometimes the view of a stretch of coast or sea loch is the first glimpse of the sea visible after travelling along a lengthy stretch of inland road. This will make that view more sensitive.
- High-level views which are 'revealed' as dramatic panoramas after travelling up a road or footpath to a high pass, ridge, summit or crest of a hill will always be important views.
- Views to focal points, such as the mountains at the end of a loch, or a castle or another feature, are likely to be highly sensitive.
- The visual setting of features and landmarks of cultural or natural importance, for example historic buildings or sites or visually dramatic features.

#### What is foreshortening?

Foreshortening is when the space between objects viewed across a plane becomes less visible with distance. When, for example, long lines are viewed from a low level viewpoint across the sea, the space between the lines appears to be reduced with distance. This can also have the effect of 'bunching' the buoys together so that they appear as a more solid mass when out at sea.

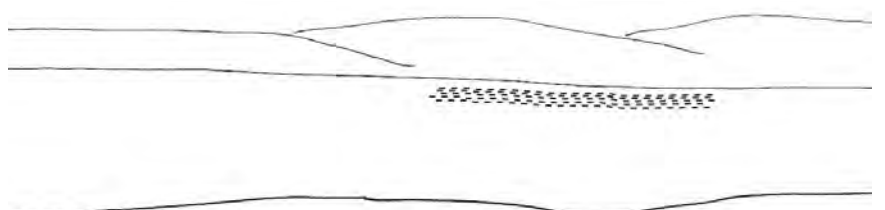
##### View One

The lines seen relatively close to the shore



##### View Two

The lines are located further away from the shore, and appear to occupy less space because of visual foreshortening, although they may be more visible, or appear too close to the centre of the loch from another viewpoint.



## Box 2: Visual Assessment

This guidance on undertaking visual assessment complements that given in other documents, in particular the 'Guidance for Landscape and Visual Impact Assessment'<sup>12</sup> published jointly by the Institute of Environmental assessment and the Landscape Institute.

When assessing the potential visual impact of a proposal, developers should:

### Preparation – identify key viewpoints

- Identify the extent of visibility and the proximity of viewpoints to the development. If necessary, this can be commissioned as a computer-generated map (called mapping the Zone of Theoretical Visual Influence). Separate maps may be required for onshore and the water-based structures.
- Having identified the extent of potential visibility, select key viewpoints, in consultation with the planning authority.

### Site survey – think about the type of views

- Is the development seen in a glimpse view, a panorama, or a series of sustained views?
- Does it reappear frequently, or is it a single, sustained view?
- From what the distance is it visible, and from how many viewpoints?

### Site survey – identify the viewpoints and those who will use them

- Identify how people view all elements of the development. Are people walking, with sustained views of the proposal, or are they travelling by car, with the potential development glimpsed behind landform or trees?
- Consider how views will change due to seasonal changes, such as when trees lose their leaves, or when the summer sun is at its highest. Will the development be lit, and therefore visible at night?
- Identify whether or not the proposal has a significant effect on the sequence of views experienced when travelling along a road, footpath or established boat route.
- Identify whether the main views of a site are from low-level vantage points or from viewpoints which allow residents and visitors to look down upon the site from above.

### Analysis – consider options for layout within the landscape context

- Consider whether views are mainly going to be from a distance, with the development set against a backdrop of hills, or from a nearby viewpoint, where the development will take up more of the foreground of the view. Can the structure be moved to take advantage of another feature, such as a woodland backdrop?
- Look to see how it could be sited to relate to other features in the landscape, such as landscape patterns, as well as other existing aquaculture installations
- If you have the opportunity, use photomontages or buoys placed on the water during a site visit, to experiment with different locations and configurations. For example, several larger cages may appear better scaled than a larger number of smaller cages; or shorter, but more numerous, mussel lines may occupy less of the perceived water space than a smaller number of longer lines
- See if you can take advantage of foreshortening – does moving the structure further from the shore by a small amount make it look much smaller for example, or does it simply make it more prominent from a nearby high level or other viewpoint?

All these considerations can be readily presented using maps, photographs, photomontages or computer-generated perspectives.

<sup>12</sup> Guidelines for Landscape and Visual Impact Assessment, 2nd edition, 2002, Institute of Environmental Management and Assessment. (at the time of going to press, this version is being updated)

## Section 5

### Detail Design

The most successful aquaculture development will be arranged and designed to integrate with the landscape, through positively building on the landscape characteristics and using the most appropriate detail design.





It is important to stress, however, that no matter how well designed the structure is, if it is poorly located, badly sited or inappropriately laid out, it will not integrate with the landscape. Well thought out detail design will not make up for a poor choice of location or a badly sited and laid out proposal. Detail design can only be of assistance once an appropriate location has been selected, and a layout has been planned which takes into account the surrounding landscape character.

When submitting a planning application for aquaculture development, it is important that all details of the development are described. In addition, it is important to consider not only what structures are required when a proposal is first submitted for approval, but also how the development might change or expand. Any proposed expansion or amendments to the original approved design will require planning permission, so it is useful to ensure that the landscape will be able to accommodate potential future changes if they are likely to be required.

This section describes examples of good practice in relation to the detail design of both onshore and offshore structures. The most appropriate design will reinforce the way in which a development reflects the landscape character of its location. Detail design will therefore aim to reinforce the key characteristics of the landscape type, for example by reflecting colour and texture, responding to landform shape and using existing vegetation pattern.

## 5.1 Designing structures

The main elements of a structure will be subject to planning control and this may be reflected in the conditions of your planning permission.

It is advisable to consult with the planning authority on the design and colour of any structure in advance of submitting the planning application, or if you are going to make any amendments to an approved scheme.

If, as a company, you are planning to change or replace equipment, it is also likely to be worthwhile speaking to the planning authorities or SNH in advance of ordering new equipment, as this can be an opportunity to mitigate potential design impacts.

If there is more than one aquaculture installation on a loch, they will appear less intrusive if the same appropriate types, sizes and colours of structures are used.

The appearance of some structures, both offshore and onshore, can be let down by poor maintenance, especially if they are not regularly repainted or there is general untidiness. This is a poor advertisement for the industry and can undermine good work undertaken in site planning and design.

The remainder of this section is divided into the following subsections:

- Finfish farm water-based structures
- Shellfish farm water-based structures
- Land-linked pontoons and jetties
- Onshore and shoreline based development

Detailed design considerations relevant to oyster farming are included in Section 6.

## 5.2 Finfish farm water-based structures

Water-based developments include:

- Finfish cages, on-farm feed hoppers and top nets
- Feed barges, lifting gear, on-farm accommodation for staff, ancillary rafts for generators and other infrastructure
- Feed pipes
- Above and below sea-level lighting

### 5.2.1 Finfish cages and top nets

- Most finfish cages are now circular, and dark grey in colour. This standardised form makes it easier to design an ordered layout. All cages in one development should be the same size.
- Top nets may be more visually intrusive than the cages. This is because they rise far above the water surface, and sometimes because they are a bright colour. The visual impact is greatly increased as the cages get bigger and the top nets consequently taller. Top nets are also more visible where the mesh of the net is small. In these circumstances, the dense mesh creates an almost solid block. Larger mesh and lighter coloured nets are less likely to be visually prominent. The larger and more visually prominent these structures are, the more likely it is that they will be difficult to accommodate within small-scale coastal landscapes. Brightly coloured top nets should be restricted to areas where bird strike is a risk, and avoided within sensitive and designated landscapes.
- If individual feed hoppers are used, attached to individual cages, then they should be painted a dark colour – sometimes they can be more visible than the cages



Light weight top nets minimise visual impact



Larger top nets with feed hoppers make for greater visual impact



Top net colour can affect visual impact



A feed barge similar in size and shape to a boat with 'boat-like' paint scheme.



Ordered cage layout, lighter top nets and alignment of feed barge make for a coherent image

### 5.2.2 Feed barges, lifting gear and on-farm accommodation for staff, ancillary rafts for generators and other infrastructure

- Feed barges can be particularly prominent, especially those which are tall. Wherever possible, aim to use low-profile structures.
- Large, bulky 'box-like' structures are also likely to be visually intrusive – wherever possible, try to divide the mass of the feed barge into several conjoined smaller blocks which will break up the outline;
- Feed barges should be located to associate well, and logically with the cage layout – a central position, or one where the barge is moored to align with the centre of the cages on the long axis tends to be the neatest arrangement
- Large structures, for example including accommodation modules, will be difficult to accommodate within small-scale coastal landscapes
- In general, the more elements included on a barge, the more fragmented the structure is likely to become. Try to avoid clutter by designing as many of the elements into the structure from the outset, and using the same colour to unify the individual elements.
- Dark muted colours and matt finishes tend to be less obtrusive. Dark matt grey and recessive colours specific to the surrounding context are used to minimise the visibility of structures feed barges; in some locations, for example, dark green has worked well.
- Alternatively, in some areas, especially where there is frequent water-based activity, feed barges have been painted in 'boat-like' colours. This is most likely to work if the feed barge is a similar size and shape to a boat.





Dark, muted, matt colours are less intrusive. They can minimise visibility of feed barges and other structures; dark coloured feed pipes matching the cages, read as a unit.

### 5.2.3 Feed pipes

- Pipes pumping feed from a shore-based storage building to the offshore cages can be highly visible and intrusive, especially in more open landscapes or if they extend across the water surface. They may form recreational impacts, for example for sea kayaks. As a result, they should be avoided wherever possible.
- They can be partially hidden by woodland and by being submerged in the sea. The location of the on-shore feed storage base will therefore be a key consideration in assessing the potential impacts of this type of development.
- If possible, pipes should be a colour which blends in with surrounding vegetation, or, if they are largely in the sea, dark coloured so that they are unified with the cages

### 5.2.4 Non- navigational Lighting

- Underwater lighting, used for photoperiod manipulation can emit an eerie glow and may not be appropriate in areas where there is little human activity and where development is sparse.
- Security lighting can be very intrusive, creating unwanted light pollution. Where security measures are needed, to prevent vandalism or theft, operators should consider the use of infrared cameras, which eliminate the need for overhead lighting.
- Where overhead lighting is required, baffles or guards should be fitted to reduce the focus light downwards and limit the extent of light emission.

## 5.3 Shellfish farm water-based structures

Water-based developments include:

- Buoys and long-lines
- Rafts and other structures

### 5.3.1 Buoys and long-lines

- Most long-line buoys are barrel-shaped and black or dark grey in colour. The standardised shape makes it easier to design an ordered layout. The dark grey barrels are likely to be less visually intrusive than the black buoys. All line buoys in one development should be the same size. It is recognised that navigation and corner buoys need to be brightly coloured and may be a different size.
- The pattern of buoys should be kept simple and relatively ordered, for example by maintaining the same distance between the lines and reflecting, as far as possible, the alignment of the coastline
- Currents and the wind might move the lines slightly, which makes them less geometric and simply reflects the dynamism of the sea.



Buoy pattern: simple and ordered, reflecting alignment of coastline, with constant distance between buoys.



Regular pattern of buoys and rafts complementing buoy pattern. Trees and vegetation along a shoreline can break up visibility.



Long-line buoys in an ordered layout, located in-shore can respect on-shore activities.





### 5.3.2 Rafts and other water-based structures

- Rafts, huts or other structures associated with long-lines and moored on the water should be located where they complement the layout of the lines, for example, moored to align with the centre of the lines on either axis
- Large structures will be difficult to accommodate within small scale coastal landscapes
- In general, the more elements included, the more fragmented the structure is likely to become. Try to avoid clutter by designing as many of the elements into the structure from the outset, and using the same colour to unify the individual elements.
- Wherever possible, choose materials which have a matt, unreflective surface, as they are less likely to catch the light and attract attention.

### 5.4 Land-linked pontoons and jetties

- Wherever possible, choose materials which have a matt, unreflective surface, as they are less likely to catch the light and attract attention.
- Large structures will be difficult to accommodate within small scale coastal landscapes

### 5.5 On-shore and shoreline-based development

On-shore facilities have the potential to be permanent structures. The implications of siting and design therefore have to be considered in terms of their long term impact.

In addition to buildings and storage yards, a base may need on-shore lifting gear, a new access road and a power supply, all of which can accumulate to make a very significant impact, especially in an area with few or even no built structures.

Shore-based developments include:

- Buildings, yards and associated infrastructure



Water-based structures can appear cluttered and visually prominent where many diverse elements, forms and varied colours are used.



### 5.5.1 Buildings, yards and associated infrastructure

- Redundant buildings can offer the opportunity for conversion into offices and storage sheds. The reuse of redundant buildings or slipways is often a positive contribution to the landscape.
- Even if existing buildings are not available for re-use, consider using existing access tracks and other infrastructure, such as slipways, if possible
- Depots and depuration facilities often need access to water and will need to be located on the coast or loch shore. This is often a sensitive location, especially in areas where development between a road and the sea is restricted to maintain views of the water from roads or existing housing and villages.
- Aim to site buildings low in the landscape, possibly tucked against a low hummock or rocky outcrop, or adjacent to woodland, all of which can provide a setting for the development
- Consider an innovative and ecologically sound building style if new build is required, in discussion with the local planning authority.
- Ensure that storage space is big enough to accommodate all storage needs now and reasonably far in the future, either through well-scaled buildings or organised and adequate external storage space. Car parking areas, too, often need to be larger than at first considered.
- The size of shore-based buildings and compounds should reflect the form and scale of other buildings. Large buildings will stand out. Consider breaking them into smaller units. Wherever possible, buildings should be orientated and aligned to fit in with locally characteristic designs and layout.
- If a large storage shed is required, consider breaking up the mass of the building to reduce its scale.
- Avoid excavating a steep slope and excessive under-building, and fit the buildings into the gradient.
- Aim to create an appropriate setting for buildings by using fence or wall materials and designs which relate to the character of the landscape. Avoid urban and suburban solutions.
- Although they may take longer to establish than 'instant' fencing barriers, well-established and maintained planting may be more effective in the long term. At some sites, fencing could be used to create a setting for a building until planting is established.
- Security lighting can be very intrusive, creating unwanted light pollution. Where security measures are needed, to prevent vandalism or theft, operators should consider the use of infrared cameras, which eliminate the need for overhead lighting.
- Where overhead lighting is required, baffles or guards should be fitted to reduce the focus light downwards and limit the extent of light emission.

## Section 6

# Oyster Farms

Oyster farming differs from other forms of finfish and shellfish farming because it is located in the intertidal zone. It is also limited to sites where there is a relatively accessible foreshore and where the intertidal is shallow, accessible and sheltered.



## 6.1 Oyster trestles

Oyster timber or metal trestles are placed in the intertidal zone, where they are submerged except at low tide, when the handler can gain access to turn and clean the oyster bags. They are therefore only visible when the tide is out, and then usually only when the tides are very low. Trestles are also low-lying, which reduces their overall wider visibility and makes them easier to accommodate in long, low coastal landscapes.

The trestles occupy the foreshore where the sea and land meet at low tides, and therefore can restrict access to the sea at low tide. They tend to be located on accessible stretches of beach which slope gently into the water and there may be some conflict between the trestles and recreational users of beaches and inshore waters.

Trestles are rectangular in shape, and often arranged in rows, creating a geometric pattern. While smaller farms are generally managed by hand, access to larger farms can involve wheeled vehicles, which can leave tracks on the foreshore. Before the incoming tide disperses these tracks, the churned up beach creates a more managed and fragmented character.

Key siting and design issues to consider when preparing a development application are:

- The use of the beach or intertidal area for recreation, including the popularity of access both from the land and the sea. The potential impact on the experience of the intertidal area may be a constraint to developing all or part of the foreshore;
- The visual sensitivity of the shoreline. Oyster trestles are only visible intermittently, but they may still impact on sensitive views. Section 4 sets out key considerations for assessing visual sensitivity, much of which is relevant to assessing the potential visual effects of oyster trestles.
- The regularity of the trestle layout. It may be possible to mitigate the impact of the development by altering the alignment of the trestles to reflect the shape of the coastline, to make the arrangement less regular;
- The scale or massing of the trestles. It may be possible to break up the trestles into smaller groups. Alternatively, trestles may occupy only part of the shoreline, and focus development at one or two locations, allowing the undeveloped intertidal area to dominate.
- The use of machinery. If tractors or other machines are used to access and manage the trestles, this is likely to have a much bigger impact on the foreshore than management by hand. The effects may only temporary – as the tracks below the high water mark are dispersed by the incoming tide shifting the sand – but on a large development, they can be one of the most disruptive elements.
- The degree of remoteness. As with other coastal developments, areas identified as ‘isolated coast’ are likely to be more sensitive to development than coasts which have a landscape context of managed forestry, farmland or which are not especially remote.



Oyster trestles in intertidal zone. Here they are arranged in lines that reflect the prevailing grain of the rock outcrops along the foreshore. Careful siting and design means need not preclude other, recreational users.



## 6.2 BST adjustable long lines

BST lines involves installing lines of posts fixed at right angles to the coast, and suspending baskets or bags of oysters from wires attached to the posts. They have been developed for both sub-tidal and inter-tidal oyster farming. The wires can be raised or lowered on the posts to maximise efficiency. Lines are generally accessed by boat.

Posts are usually set out at 3m centres, and can be set out in single, double, triple or 'quad' (four) line systems. Where there is more than one line in a system, the space between the individual lines varies but is approximately 700mm apart. Multiples of these systems can be used. They tend to be located on accessible stretches of shallow intertidal close to the shore and there may be some conflict between these lines and recreational users of beaches and inshore waters.

This system is more visible than the trestles, as the posts appear above the water line for longer than the low-lying trestles.

Key siting and design issues to consider when preparing a development proposal are likely to be:

- The use of the beach or intertidal for recreation, including the popularity of access both from the land and the sea. The potential impact on the experience of the intertidal area may be a constraint to developing all or part of the intertidal or sub-tidal area;
- The visual sensitivity of the shoreline. The posts are not always visible, and the posts closer to shore are likely to be more visible more of the time than those further out at sea. Nevertheless, they may still impact on sensitive views. Section 4 sets out key considerations for assessing visual sensitivity, much of which is relevant to assessing the potential visual effects of BST long lines.
- The uprightness of the posts. The verticality of the posts makes them more visible than trestles;
- The number of the lines and density of the posts. The visual impact of a proposed development is likely to relate strongly to the number of lines and their relative proximity. When several lines are located close together, the 'thicket' of posts becomes more dense and visible. It may be possible to break up the number of lines, adopting occasional single rather than more dense patterns of lines over a wider area. Alternatively, focusing development more densely at one or two locations, allowing the undeveloped intertidal area to dominate, may be more appropriate in some areas. Options for siting and arrangement should be explored with the planning authority.
- The degree of remoteness. As with other coastal developments, areas identified as 'isolated coast' are likely to be more sensitive to development than coasts which have a landscape context of managed forestry, farmland or are not especially remote. This may appear to conflict with advice on limiting development on 'popular and accessible' coastlines.



Vehicular access is needed for management of the oyster trestles, so access routes to the foreshore need to be planned.

# Conclusions

**This guidance describes and promotes the landscape character and design issues which it is appropriate to consider when developing new fish or shellfish farm, or extending an existing one.**

Further advice on landscape issues raised by this guidance is available from planning authorities and SNH local and regional offices. Local contact addresses and telephone numbers are available from the relevant web pages.

The issues raised in this guidance serve to emphasise that good detail design alone cannot limit the impact of a structure – it is very important that developments are in locations where structures and activity are appropriate in the first place. Only this, combined with well-sited, appropriately scaled and carefully laid out facilities will ensure that aquaculture integrates successfully into the Scottish landscape.





# Annex One

## Environmental Assessment

**When choosing a location for a finfish farm development, a developer is well advised to discuss the potential site (or site options) with the local planning authority and other relevant statutory consultees prior to submitting a formal planning application. This can help to minimise delays or difficulties at later stages in the application process. For applications which may require EIA, screening and scoping will help to establish the detailed information which will be required to be assessed.**

Guidance on the preparation of an EIA can be found online from the Scottish Aquaculture Research Forum at: <http://www.sarf.org.uk/SARF024.htm>

Preparing an EIA will include undertaking a landscape and visual impact assessment. Generic guidance on the preparation of an LVIA can be found in the Guidance for Landscape and Visual Impact Assessment<sup>13</sup>. In addition, Section 4 of this guidance on page XX summarises the key steps required to prepare a visual assessment for aquaculture development.

A checklist of steps to be considered when undertaking the landscape component of an environmental impact assessment is given in Box 3.

### **Box 3: Environmental Impact Assessment for finfish farms – a summary of landscape issues**

In preparing the landscape component of an Environmental Statement (ES), a developer should:

- Demonstrate the options which have been considered for locating the proposed development, including an explanation of why the particular location has been chosen. This explanation should include environmental as well as economic, social and practical considerations;
- Explain how the proposal relates to relevant planning guidance for the area and the policies of other consultees; and
- If the proposed location is within or near to a designated area, consider and describe the likely impact which the proposed development would have on the qualities for which the area has been designated.

In addition to the above, developers are required to present both an assessment of the impact of a scheme on the landscape and the mitigating measures which have been taken to reduce any identified significant adverse impacts. The ES is therefore also likely to include:

- Information from the appropriate spatial plans and development plan policies, including how the relevant advice and guidance has been used to help locate and design the proposal;
- An explanation of how the proposed scheme responds to the key characteristics of the local coastal landscape, including details of how any predicted adverse impacts on the landscape character or visual amenity will be mitigated;
- If appropriate, an explanation of how the proposal will avoid creating an adverse cumulative impact on the landscape;
- A visual impact assessment (see Section 4 of this guidance); and
- A map indicating key viewpoints, accompanied by illustrations or photomontages. These should illustrate how the final, mitigated proposal will be seen in context.

<sup>13</sup> Landscape Institute and Institute of Environmental Management and Assessment (2002). Guidelines for Landscape and Visual Impact Assessment, 2nd edition (This edition is under review)



# Annex Two

## Acronyms And Glossary

<b>EA</b>	Environmental Assessment
<b>EIA</b>	Environmental Impact Assessment
<b>ES</b>	Environmental Statement
<b>LCA</b>	Landscape Character Assessment
<b>LVIA</b>	Landscape and Visual Impact Assessment
<b>NSA</b>	National Scenic Area
<b>SNH</b>	Scottish Natural Heritage
<b>SPG</b>	Supplementary Planning Guidance
<b>ZTV</b>	Zone of Theoretical Visibility

### Aesthetic Quality

A value placed on the landscape, as part of the assessment process, which relates to its aesthetic appeal.

### Aesthetic Qualities

Those aspects of the landscape which, in the judgement of the assessors, contribute to the positive aesthetic appreciation of the landscape.

### Experiential Characteristics

Those aspects of landscape character which may be perceived visually, but are, like scale and space, often perceived through other senses also. In addition, these characteristics can often be enhanced by the movement of the observer, such as the drama experienced when arriving at the crest of a hill from where a panorama is suddenly revealed, or the sense of travelling up and down through an undulating landscape.

### Landscape Capacity

'The degree to which a particular landscape character type or area is able to accommodate change without significant effects on its character, or overall change of landscape character type' (Swanwick, C. and Land Use Consultants, 2002, page 53)

### Landscape Character

'A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another' (Swanwick, C. and Land Use Consultants, 2002, page 8)

### Landscape Unity

A landscape where elements create a pattern which is strongly related to the underlying physical capability of the landscape. This often results in a 'logical' landscape where the relationship between elements is easy to interpret, or at least can be understood with a bit of background knowledge. The resulting landscape is often seen as visually harmonious.

### Scenic Quality

In this report the term 'scenic quality' has been used as defined in SNH's Landscape Policy Framework<sup>14</sup>: 'the aesthetic value placed on the landscape, based primarily on the visual senses. This value is not absolute and tends to reflect prevailing ideas about which landscapes offer a particular aesthetic.'

### Seascape

The visual and physical conjunction of land and sea which combines maritime, coast and hinterland character.

<sup>14</sup> SNH Policy Statement No 05/01 December 2005

# Annex Three

## Bibliography and Useful Publications

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# Annex Four

## Useful Websites

### **Association of Scottish Shellfish Growers**

<http://assg.org.uk/>

### **Crown Estate**

<http://www.thecrownestate.co.uk/scotland>

### **Scottish Government Planning**

<http://www.scotland.gov.uk/Topics/Built-Environment/planning>

### **Scottish Government Marine and Fisheries**

<http://www.scotland.gov.uk/Topics/marine>

### **Scottish Natural Heritage**

<http://www.snh.gov.uk/>

### **Scottish Salmon Producers Organisation**

<http://www.scottishsalmon.co.uk/>

### **The Landscape Institute**

<http://www.landscapeinstitute.org/>





# Scottish Natural Heritage Dualchas Nàdair na h-Alba

All of nature for all of Scotland  
Nàdar air fad airson Alba air fad

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