

## 5. Current management practice

A number of management initiatives are currently operating around Lough Swilly, however, some important ones are still in the development phase. This section will assess the geographical scope, the main aims and the implementing mechanisms of these initiatives. An important part of this will be a review of cross-sectoral consultation mechanisms of management initiatives.

### Management plans for Special Areas of Conservation and Special Protection Areas

As can be seen in Figure 9 a number of SACs and SPAs border Lough Swilly. To date Dúchas have prepared a draft conservation management plan for the Lough Swilly SPA, and are preparing one for the Lough Swilly SAC (Dave Duggan, Dúchas Officer, pers. comm., April 2002). These plans are not yet ready for public consultation. There are currently two conservation rangers covering the Swilly area, one for the western side of the Lough and one for the eastern side. There are no specific site management plans for the North Inishowen SAC or the Ballyhoorisky Point to Fanad Head SAC.

Bord Iascaigh Mhara (1999a) produced a document entitled “Aquaculture and the Environment” which briefly explains what each designation is and the implications they have for aquaculture operations. BIM (1999a) stated that designated SPAs suitable for aquaculture were having Aquaculture Zone Management Plans drawn up relating to them by Dúchas. These were to be made available to members of the aquaculture industry and would be subject to public consultation. BIM also felt that these designations could be extended to SAC designated areas in time. An Aquaculture Zone Management Plan (AZMP) is currently being drafted for Lough Swilly (CLAMS Liaison Officer, pers. comm., May 2002). In theory these plans would divide the relevant areas into four sub-zones which are outlined below (after BIM, 1999a).

#### ?? Zone W – Highly Sensitive Zone

These are the most sensitive zones within SPAs relevant to the species for which the area was designated. Aquaculture will not be allowed to develop in these areas. In theory existing aquaculture operations in Zone W areas may have to be moved. BIM states, however, that very little aquaculture is practised in Zone W areas. They also state that Dúchas do not see this as being a significant area of conflict. If an aquaculture operation had to be moved it would qualify for a compensation package to be agreed between the aquaculture operator and Dúchas (BIM, 1999a).

#### ?? Zone X – Transition Zones (Sensitive Zone)

Transition zones refer to areas where aquaculture and wildlife may co-exist subject to conditions. Expansion of current operations or new installations will be considered on a site by site basis. As these

areas include areas where knowledge is limited, further scientific work may necessitate re-zoning as Zone W or Zone Y.

?? **Zone Y – Less Sensitive Zone**

Zone Y areas are areas that are included inside an SPA but which have low usage by the species for which it was designated. In such areas the regulation of aquaculture will be in line with DMNR licensing legislation.

?? **Zone Z – External Influence Zone**

These zones relate to areas that are on the edge of designated SPAs but where aquaculture activity may still have an effect on the designated area through noise levels or access routes etc. Some regulations may apply to these areas. They will be considered on a site by site basis.

The protection of wild bird species is also of relevance to the aquaculture industry. At times various species may pose a predation threat. Under the Wildlife Act 1976 it is an offence to interfere with certain wild species such as Cormorants, Herons, Terns, Oystercatchers, dolphins, porpoises, seals and otters. In order to mediate possible predators aquaculture operators are advised by BIM (1999a) to use preventative methods such as predator nets, proper net weighting and ultrasonic “seal scarers”. Culling is a final resort and can only be carried out if a licence has been granted by the relevant authority.

**Single Bay Management**

On the basis of information gathered in surveys of lice infestation on salmon farms in 1991 and 1992 the Department of Marine, as it was then, put in place a new initiative in salmon farm management. This initiative was termed “Single Bay Management”. This management strategy was endorsed not only by the Department of the Marine & Natural Resources, but also the Sea Trout Task Force and the Irish Salmon Growers Association as being fundamental to the rational management of the salmon farming industry. Plans were developed and implemented on a voluntary basis at salmon farm locations during the years 1992 to 1994 and are ongoing (Mc Mahon, 2000). Key elements of Single Bay Management plans include agreed husbandry practices, annual and synchronous fallowing of sites, separation of generations, early harvest of two sea-winter fish and targeted sea lice treatment regimes.

According to the Lough Swilly CLAMS document (2001) the Lough Swilly Single Bay Management plan sought to formalise the arrangements by:

- ?? Setting up formal structures for exchange of information and co-ordination of action between fish farmers.
- ?? Providing a forum for regular, two way, exchange of information between fish farmers, fishery owners/Regional Fishery Boards and other users of the Lough.
- ?? Agreeing on a code of practice covering a range of fish husbandry practices.

- ?? Agreeing on set fallowing periods for each production site in the bay.
- ?? Ensuring all stock for aquaculture and fisheries management purposes is disease free and is only introduced in accordance with accepted protocols and regulations.

Jackson & O'Carroll (1999) state that Single Bay Management has resulted in significant and sustained improvements in lice control on farmed fish. Single Bay Management practices have now been extended to all aquaculture species (BIM webpages, 2000). In terms of Lough Swilly a regional group, comprising fish farmers, a representative of the Irish Shellfish Association, a representative of the fishery board and a representative from the DMNR, has been set up to facilitate implementation of the Single Bay Management Plan. This group will also be the forum for discussion of proposed modifications to the plan.

A Code of Practice form the basis of the Single Bay Management Plan for Lough Swilly. This covers such issues as management of fish mortalities and runts; harvest water; lice treatments; health status of incoming smolts, separation of generations and fallowing. The lice treatment section of the plan contains a "lice protocol" which Marine Harvest Ireland are committed to (Lough Swilly CLAMS, 2001).

#### **Co-ordinated Local Aquaculture Management Systems (CLAMS)**

The concepts and practices of Single Bay Management have been further developed into Co-ordinated Local Aquaculture Management Systems (CLAMS). This initiative was launched in 1998. The concept is to amass all relevant baseline data and in conjunction with the formation of a local CLAMS group, to formulate an aquaculture development plan for a particular bay while incorporating and extending the principles of Single Bay Management to all farmed species (BIM,1999b). While CLAMS does not have a legislative base it is national marine policy and is co-ordinated by the Marine Institute and Bord Iascaigh Mhara [Irish Sea Fisheries Board]. Steps involved in establishing CLAMS include:

- ?? appointment of a local liaison officer,
- ?? consultation with the DMNR on relevant policy and licensing issues for the area,
- ?? compilation of relevant baseline environmental data,
- ?? development of a Geographical Information System incorporating this baseline information,
- ?? consultation with other resource users,
- ?? formation of a local CLAMS group, and,
- ?? presentation of a CLAMS plan to relevant local organisations, councils and state bodies.

It is envisaged that CLAMS plans will fit into broader Coastal Zone Management plans and County Development Plans (BIM webpages, 2000). It is also hoped that CLAMS will provide a policy backdrop to help inform the detailed evaluation of individual licence applications. Currently there are 5 CLAMS plans in operation in the country. These include plans for Bannow Bay, Co. Wexford, Roaringwater Bay, Co.

Cork; Killary Harbour, Co. Galway; Clew Bay, Co. Mayo, and Lough Swilly Co. Donegal. Further plans are being developed.

### **Lough Swilly CLAMS**

The Lough Swilly CLAMS plan was published in September 2001. This examines current infrastructure, fishing activity, aquaculture activity, environmental designations, tourism and recreation uses of the region. It also looks at a wide range of issues highlighted by producers and consultees in the area. Taking all this information into account, the CLAMS group developed a management plan for the Lough. The CLAMS initiative ensures that producers are aware of current national policy and relevant legislation and licensing requirements. The CLAMS document views management from an aquaculturist perspective. It is intended that the plan produced will ensure that all producers within the Lough conform to the best practices and standards in the areas of visual impact, co-existence with other resource users and environmental management (Lough Swilly CLAMS, 2001). In order to develop a management plan the CLAMS group took each of the consultees issues and outlined a specific strategy to be taken by producers. In relation to maritime archeology, for example, the CLAMS document states that if in the future there is evidence to suggest that areas that are currently licensed for aquaculture, might contain objects of archaeological interest, aquaculture operations could be carried out with particular sensitivity so as to accommodate archeological surveys and ensure preservation. How this would operate in practice is not specified.

Other steps to be taken include compliance for all producers with the DMNR's "Guidelines for Landscape and Visual Assessment of Marine Aquaculture" (2001) as well as lights on mussel lines for safer navigation, waste management and single access routes. The Lough Swilly CLAMS plan also contains a development plan for aquaculture producers in and around the region. This section looks at each species and the potential for its development. One of the producers in the lough, Marine Harvest Ireland, already operates a comprehensive Environmental Management System (EMS) for all stages of production which conforms to the requirements of ISO 14001:1996. Part of this system includes the yearly publication of environmental reports. The CLAMS group will review all sections of the plan on an annual basis and is in regular contact with all relevant management bodies to ensure information is kept up-to-date.

The Lough Swilly CLAMS document contains many positive contributions to aquaculture management. It is not, however, legally binding and consequently is subject to the vagaries of the market, personality, economy, etc. If, as is intended, the CLAMS approach is incorporated into a regional Coastal Zone Management Plan or even the County Development it will provide an important component.

### Water monitoring programmes

Water quality within Lough Swilly has to meet the necessary standards for a range of activities, including aquaculture, bathing and fishing. As noted above a number of different agencies presently carry out such monitoring. These are shown in Table 7.

**Table 7** Water quality monitoring currently performed in Lough Swilly

Organisation	Programme	No. Sampling sites	Frequency of sampling
Environmental Protection Agency	Estuarine & Coastal Waters Quality Monitoring Programme Directive 91/271/EEC & Directive 91/676/EEC	24	2/year (Summer) 1/year (Winter)
DMNR/Marine Institute /CLAMS Group	Phytoplankton Directive 91/492/EEC	1	Monthly (Jan.-Mar.) Weekly (Apr.-Jun.) Monthly (Jul.-Sept.) Weekly (Oct.-Dec.)
DMNR/Marine Institute /CLAMS Group	Biotoxin & Bacterial Sampling Directive 91/492/EEC	4	Weekly (twice weekly for mussels)
Donegal County Council	Quality of Bathing Water Directive	4	Every 2 weeks (May on)
<i>Marine Harvest Ireland</i>	Water Quality <sup>1</sup>	5	See notes below
<i>Marine Harvest Ireland</i>	Water Quality <sup>2</sup>	1	See notes below

Data compiled from: Lough Swilly CLAMS, 2001

#### Notes:

Water Quality<sup>1</sup> – tests for nitrate, nitrite, total ammonia, dissolved reactive phosphorus & chlorophyll *a* are carried out bimonthly along with sediment RedOx potentials and benthic macro fauna sampling.

Water Quality<sup>2</sup> – monitoring of water temperature and oxygen is carried out daily; phytoplankton monitoring is performed during the Spring and Autumn seasons.

1. The **Environmental Protection Agency (EPA)** carries out the National Biological River Quality Survey. By doing this, river quality and pollution trends and changes can be monitored at both local and national level. The surveys reveal the environmental impact of all types of waste discharges. Consequently, they provide a means of assessing current waste treatment facilities and highlight where improvements should be made. Many local authorities carry out physio-chemical measurements of river quality which is needed to identify and quantify the specific pollutants in the water. The EPA is also responsible for the Estuarine and Coastal Waters Water Quality Monitoring Programme. This aims to determine the

eutrophication status of Irish estuarine and coastal waters in relation to the Urban Waste Water Directive 91/271/EEC and Nitrates Directive 91/676/EEC. Under this programme Lough Swilly is surveyed twice annually (during the summer) and once every few years in the winter (Lough Swilly CLAMS, 2001). This role is likely to be maintained or expanded with the implementation of the Water Framework Directive.

**2. The Department of the Marine & Natural Resources** is responsible for monitoring shellfish waters under Directive No. 79/923/EEC of 30 October 1979 on the quality required of shellfish waters. The Quality of Shellfish Waters Regulations 1994 (S.I. No. 200) prescribe quality standards for shellfish waters and designate the waters to which they apply, together with sampling and analysis procedures to be used to determine compliance with the standards. Lough Swilly currently has classification A under the Health Conditions for Production and Placing on the Market Regulations 1996 (S.I. No. 147 of 1996). This means that live bivalve molluscs can be collected from this area for direct human consumption. The DMNR carries out bacterial sampling at least once a month from random sites (Lough Swilly CLAMS, 2001).

The DMNR is also responsible for enforcing the Marine Biotoxin Monitoring Programme in Ireland under Directive 91/492/EEC (laying down the health conditions for the production and the placing on the market of live bivalve molluscs). The Marine Institute is the National Biotoxin Monitoring Reference Laboratory and carries out marine biotoxin testing on behalf of the DMNR. All tests carried out by the Institute are done in accordance with protocols under Directive 91/492/EEC.

**3. Donegal County Council** is responsible for monitoring water quality at designated bathing areas within the county. This is carried out in order to comply with Directive 76/160/EEC concerning the Quality of Bathing Waters. It is also a requirement of the Blue flag beach scheme. In Lough Swilly four different beaches are monitored, namely, Lisfannon, Rathmullan, Portsalon and Lady's Bay. Water quality sampling begins in mid-May and is undertaken at least every two weeks thereafter.

**4. Marine Harvest Ireland** collect bi-monthly water samples from Anny Point in accordance with the company's Standard Operating Procedures. Periodic phytoplankton monitoring is also carried out particularly during the period between Spring and Autumn (Lough Swilly CLAMS, 2001). Staff at the Institute of Aquaculture at the University of Stirling carry out water quality sampling on behalf of Marine Harvest Ireland. They are also employed to execute annual Environmental Impact Assessments at Anny Point. The EIA includes water quality sampling as well as taking core and grab samples.

#### **Other management initiatives**

##### Landscape and Visual Impact Assessment

The Department of the Marine & Natural Resources recommends that a landscape and visual impact assessment of some kind should be carried out for any new marine aquaculture installation, however small,

although the level of detail will vary and the assessment need not always be part of a formal EIS (DMNR, 2001). They also state that the key requirements for landscape and visual impact assessments are:

- ?? an explanation of how the proposed scheme relates to the landscape character of the area;
- ?? if appropriate, an explanation of how the proposal relates to other aquaculture developments in the vicinity, and how cumulative impacts upon the landscape are to be avoided;
- ?? if the proposal is to be located in a remote area, or an area with a strong sense of wilderness, an indication of how it will affect these qualities;
- ?? a map indicating key viewpoints and the extent of visibility of the proposed development from settlements, hotels, beaches, roads, footpaths, ferries and other key water routes;
- ?? illustrations such as sketches, overlays or photomontages to show how the proposal will be seen within its landscape and visual context.

Landscape & Landscape Assessment: draft Guidelines for planning authorities (2000)

In June 2000 the Minister for the Environment announced the publication of draft guidelines for planning authorities on Landscape and Landscape Assessment. Essentially they were created to fit into the National Sustainable Development Strategy published just beforehand. The aim of the Guidelines is to heighten awareness of the importance of landscape in all aspects of physical planning, to provide guidance to planners and to others as to how landscape considerations should be dealt with and to indicate specific requirements for Development Plans and for development control. They propose that all planning authorities should classify the landscapes in their areas, recommending the use of Landscape Character Assessment (described below). This method of assessment enables a much more proactive approach to landscape and allows landscape to be viewed for its ability to accommodate developments. It gives indicators as to which developments might be most suited, under what conditions and using what design criteria. It will, therefore, be possible for planning authorities to indicate particular landscape areas which would be suitable for one kind of development while not being considered for another. By proposing the same approach for each planning authority, the guidelines will ensure compatibility of decision-making along boundaries between adjoining authorities.

The process of establishing landscape character areas will correspond to the following three stages (DELG, 2000):

- ?? Stage 1 – Identification of Physical Units (desk-study mapping exercise)
- ?? Stage 2 -Identification of Visual Units (verify physical units involving on-site landscape assessment)
- ?? Stage 3 - Image Units

Landscape values are the second major component of these Guidelines. Values are those realities which satisfy human needs and desires. Landscape values can be described as the environmental or cultural benefits, including services and functions, that are derived from various landscape attributes. These

attributes will, in many instances, be the components and image of the landscape as already established in the assessment of landscape character. The sensitivity of a landscape to development and therefore to change will vary according to its character and to the importance which is attached to any single value or combinations of values which are attributed to that landscape. The sensitivity of a landscape is the measure of its ability to accommodate change or intervention without suffering unacceptable effects to its character and values. Areas of sensitivity include NHAs, SACs, tourist resorts, etc.

It will be the function of the planning authority to categorise landscapes according to their sensitivity. From such categorisation will flow the planning authority's policy responses to various developments. The development plan will be the means by which each authority will spell out its policies and objectives in relation to the landscape of its area. Given the technical complexity of the methodology proposed, the draft Planning Guidelines on Landscape and Landscape Assessment were issued for a three-month public consultation period in late 2000.

#### Aquaculture Protocols

The Department of the Marine & Natural Resources produced five aquaculture protocols in May 2000 with the support of the fish farming industry. The protocols have been welcomed by the North Atlantic Salmon Conservation Organisation, an international body whose report is the conservation and protection of wild salmon stocks in the North Atlantic region (Minister for the Marine, Frank Fahey; Dáil Debates Official Report 8/2/01). One of the protocols in question relates to sealice monitoring and control. The aquaculture protocols for Lough Swilly are currently being reprinted by the DMNR and were not available at the time of writing.

#### Implementation of the Water Framework Directive (WFD)

In response to the decline in water quality and wetland ecosystems throughout Europe, the European Parliament and Council passed into law EC Directive 2000/60/EC establishing a framework for Community action in the field of water policy, commonly known as the Water Framework Directive (WFD). It has many implications for water management in Ireland. It requires a shift towards integrated management of all water bodies on a catchment basis, including adjacent coastal waters, as well as the development of quality criteria reflecting conditions in healthy (i.e. undisturbed) aquatic ecosystems. The WFD will supersede and amalgamate a number of existing, and more narrowly focused, directives enacted in response to pressures on aquatic environments that have been recognised widely since the 1970s. The Directive must be transposed into Irish law by 22<sup>nd</sup> December 2003 and monitoring programmes must be operational by 2006.

According to Irvine *et al.* (2002) it appears as though certain responsibilities under the WFD will be allocated to local authorities, it will be necessary for Ireland to ensure that all provisions of the WFD are

transposed by measures that cover the entire territory of Ireland. Directives are not usually implemented by way of primary legislation in Ireland. However, where directives require the incorporation of new and far-reaching concepts or controls into Irish law, primary legislation tends to be used (Scannell, 1995). The potential exists for a major increase in the scope and intensity of monitoring in marine areas. This would have implications for the cost, availability and deployment of marine scientific resources.

Irvine *et al.* (2002) state that the view of the Department of the Environment and Local Government (DELG) is that implementation of the WFD will be achieved through greater coordination between the existing competent authorities, without the establishment of any new authorities and without any transfer of functions between authorities. This seems to be the preferred approach being adopted by most EU Member States. It may be necessary, however, to assign additional functions to certain authorities (e.g. the making of a River Basin Management Plan (RBMP)). The Department of the Environment and Local Government (DELG) has the lead role in relation to the initiation and coordination of arrangements for implementation of the WFD. The major portion of the work for implementation of the WFD falls within the water quality management remit of the DELG, local authorities and the Environmental Protection Agency.

#### Marine monitoring under the Water Framework Directive and OSPAR Convention

In relation to monitoring and assessment of transitional and coastal waters, Ireland has an established programme that responds to the requirements of the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention). A significant proportion of the marine environmental scientific work carried out by the Marine Institute is governed by OSPAR's Joint Monitoring and Assessment Programme (JAMP) which focuses on hazardous substances, eutrophication, offshore activities, man-made radioactivity and maintenance of biodiversity. The national strategy will need to address the relationship between the monitoring requirements of the WFD and JAMP (Irvine *et al.*, 2002).

#### **Discussion**

Management practice in the Swilly reflects the aims and objectives of the responsible bodies. In many instances these are governed by specific legislation that defines the instruments to be used to achieve the goals. A number of national and local policies affect the management of the Swilly. As is to be expected, these are not always identical and can lead to conflict. Several areas of conflict exist within the Swilly and its immediate surroundings. Many of these centre on the aquaculture industry and its conflict with other users. The establishment of the umbrella 'Save the Swilly' group of over 30 member organisations and commercial interests, is an indication of the depth of feeling involved. In part, the establishment of a government-backed initiative to promote and develop aquaculture (CLAMS) could be viewed as counter-productive to the integrated management of the Swilly in the sense that a well organised and active group of this sort is perceived as a threat by other sectors particularly in the absence of an overall plan for the

Swilly. An atmosphere of mutual suspicion and mistrust has developed that is inhibiting effective management and sustainable development of the Swilly.

In addition, there are concerns that some management systems lack effective appeal mechanisms or lack adequate public consultation. Consultation can be a costly and time-consuming exercise that is often viewed as counter to development, however, there is a growing public demand for consultation. It has been found useful elsewhere for management groupings to play an important role in the consultation process. For example, the Scottish Coastal Forum is consulted by Scottish government departments on developments likely to affect the coast, and can provide a multi-user, response to aid government planning.