

4. Current management responsibility

There are several structures of governance around Lough Swilly. These operate at different levels, from local level to national level. National level governance is divided sectorally usually at the land-sea interface or Mean High Water mark. The main Government departments who have an input into the management of Lough Swilly are the Department of the Marine and Natural Resources, the Department of the Environment and Local Government, and the Department of Arts, Heritage, Gaeltacht and the Islands. Obviously other departments will also have concerns within the area, for example, the Department of Tourism, Sports and Recreation is involved in marine leisure activities. At the county level Donegal County Council exercises control over planning, roads, housing etc. Buncrana town has its own Urban District Council who act as an agent for the County Council in this area. While a full, in-depth analysis of each management body is beyond the scope of this report some of the more important bodies are discussed in greater detail below.

Department of the Marine & Natural Resources

The Department of the Marine & Natural Resources has jurisdiction from the Mean High Water mark seaward. The extent of their jurisdiction depends on what is being managed, however, it is generally accepted that this is the territorial or 12-mile limit (Kelly, 1995). The department has the following core mandates (DMNR, 1998):

- development and regulation of the maritime transport sectors (ports and shipping);
- development and regulation of the fisheries and seafood sectors;
- development and regulation of the marine coastal zone for economic, leisure and tourism purposes;
- protecting and saving lives at sea;
- protecting the marine environment;
- development of Ireland's marine and natural resources research and technology development capability;
- development and regulation of the forestry sector;
- promotion of minerals and hydrocarbons exploration and development for the optimum benefit to the Irish economy, consistent with the highest standards of safety and environmental protection.
- is the sole regulatory authority of marine aquaculture and shares responsibility for land-based and freshwater fish farming with the relevant local authority

The department also oversees the work of 14 State agencies, 8 Port Companies and 18 Harbour Authorities. Included in this are the Central Fisheries Board, seven Regional Fisheries Boards, Bord Iascaigh Mhara [Irish Sea Fisheries Board], the Marine Institute and the Salmon Research Agency. The Department of the Marine has its headquarters in Dublin but has a number of regional engineers located in a number of areas around the country. The north west regional headquarters is in Ballyshannon. Internally the department is sub-divided into a number of “divisions” including the Coastal Zone Administration Division, the Aquaculture Policy Division

and the Inland Fisheries Division. The responsibilities and functions of some of these divisions are discussed in greater detail below.

Coastal Zone Administration Division

The principal functions of this Division are to support the development of sustainable Coastal Zone Management through new policies, plans and legislation and through effective licensing arrangements for foreshore; aquaculture licensing and dumping at sea. The division has the responsibility of controlling developments on foreshore and reclaimed foreshore in accordance with the requirements of the Foreshore Acts 1933 and 1992 and the State Property Act, 1954. It also regulates through licensing in accordance with the provisions of the Fisheries Acts 1959 - 1997 the aquaculture industry. The Department issues a number of policy and guideline documents to aid applicants in the process. The regulation and monitoring of all dumping at sea is carried out in accordance with the requirements of the Dumping at Sea Act, 1996.

Aquaculture Policy Division

The Aquaculture Policy Division has the role of formulating policy for, and supporting the development of, the aquaculture industry in order to maximise the industry's contribution to employment, economic activity and exports (DMNR, 1998). According to the Department of the Marine & Natural Resources (1998) the services delivered by this division include:

- administration of the EU Fishery Operational Programme (Aquaculture Measure) through Bord Iascaigh Mhara [Irish Sea Fisheries Board];
- progressing and implementing Single Bay Management and fallowing strategies in consultation with Coastal Zone Administration Division, Engineering Division and appropriate State agencies;
- monitoring sea farm inspection programme for sea lice through the Fisheries Research Centre of the Marine Institute;
- advance licensing of treatments for use in fish farming in conjunction with the Department of Agriculture and Food;
- aquaculture market issues including representing the industry at EU level;
- inputting into draft EU Directives/Regulations on fish health and environmental issues affecting the aquaculture industry and implementing same where appropriate;
- representation on the Aquaculture Industry Forum - established to improve communications between State agencies and aquaculture industry;
- replies to requests for assistance and information from both the aquaculture industry and third parties.

Inland Fisheries

The Inland Fisheries Division oversees and monitors the activities, performance and expenditure of the Central Fisheries Board (CFB), seven Regional Fisheries Boards (RFBs) and the Foyle Fisheries Commission (FFC) (a joint North-South agency), who are responsible under their enabling legislation for

the management, development, conservation, protection and improvement of fisheries within their respective regions. The Fisheries (Amendment) Act 1999 provided, *inter alia*, for the establishment on a statutory basis of the National Salmon Commission and the introduction of a salmon tagging scheme. The role of the National Salmon Commission (NSC), which was established in March, 2000, is to assist and advise the Minister on the management of the national salmon resource and, in particular, on a scheme of tagging for wild salmon (DMNR, 2000b).

Aside from the above divisions other divisions within the Department of the Marine & Natural Resources have an important input into the management of Ireland's coastal zone. The Engineering Division, for example, provides an advisory and inspectorial service to the Department's Coastal Zone Administration Division on matters relating to foreshore, aquaculture and the environment. In 2000, the Engineering Division carried out 182 inspections on aquaculture installations; 17 further inspections were carried out at marine finfish sites and 22 at freshwater sites as part of Engineering Division's ongoing monitoring programme (DMNR, 2000b). The Engineering Division engaged and supervised consultants in the preparation of Visual Impact Assessment Guidelines for offshore aquaculture installations. Likewise, more than 150 proposed aquaculture projects were examined in respect of their potential impact on the safety of navigation by the Marine Safety Division of the Department.

Review of the Aquaculture Licensing Process

Aquaculture licensing and the broad area of property rights in water have always been controversial. With widespread interest in aquaculture developing in the late seventies this legislation was reviewed and revised in the Fisheries Act 1980. Section 54 of that Act introduced the concept of designation which was introduced initially "to *encourage and facilitate* aquaculture development by identification of coastal areas which would be *technically suitable* for such activity" (Glynn, 1993). The controversy and litigation which subsequently ensued has been well documented elsewhere. There have been judicial reviews and court cases with the result that designation is no longer being used and the Fisheries Act 1959 licence was being relied on to a greater extent.

Applications for licences for finfish, shellfish, aquatic plants and aquatic fish food aquaculture operations are processed by the Coastal Zone Administration Division (CZAD) of the Department of the Marine. Licensing is governed by the Fisheries (Amendment) Act, 1997, as amended by the Fisheries and Foreshore (Amendment) Act, 1998 [Fisheries (Amendment) Bill, 2000]), which provides for consultation with the public and with expert organisations on all licence applications. Prior to the implementation of the Fisheries (Amendment) Act, 1997 aquaculture licensing was based on the Fisheries (Consolidation) Act 1959 and the Fisheries Act, 1980. It was felt that these Acts were cumbersome and contradictory. As a result the 1997 Act was drafted and enacted. It provides a right of appeal to the independent statutory Aquaculture Licences Appeals Board (see below) against Ministerial decisions to licence or to refuse to licence (except

in the case of Trial Licences, because of their limited duration and experimental nature). It also makes specific provisions for conditions to be placed on licences and for the review, renewal and amendment of licences (KPMG, 2001). Since 1988, a total of 941 aquaculture licences have been issued. During 2000, the CZAD received approximately five new licence applications every month (KPMG, 2001) with an average annual figure of 150.

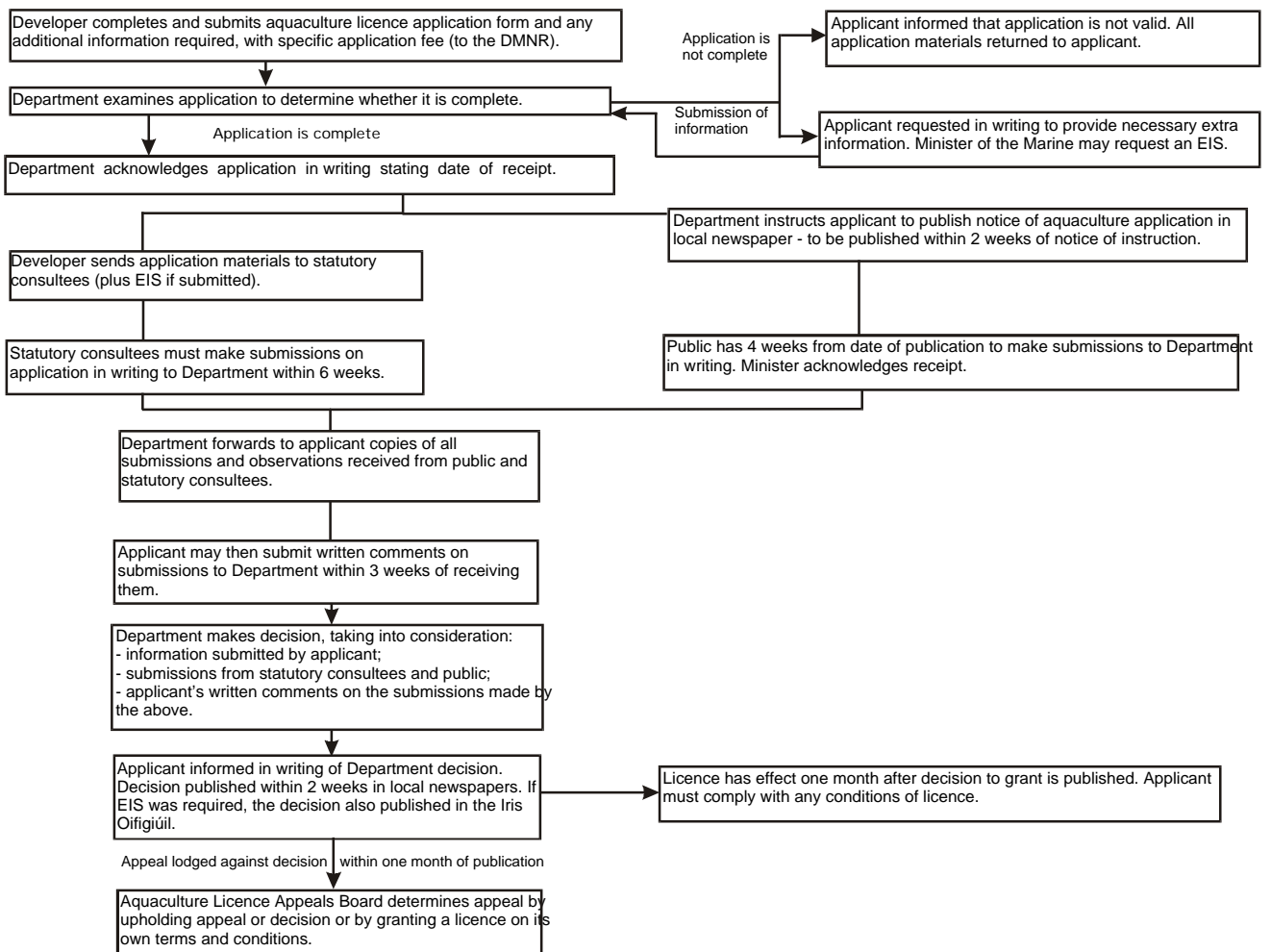
If an individual, co-operative or company want to engage in marine or land-based aquaculture he/she must apply to the CZAD for a licence. Licences are granted for a maximum period of twenty years. A licence application must also be made for any changes that are to take place at the site, for example, if production is to be increased or extended. A summary of the main steps in the aquaculture licensing process is given in Figure 8. Where a licence is granted it is subject to a number of conditions relating to the siting, design and management of the operation such as the exact location of the area covered by the licence, equipment to be used, controlled use of chemicals and antibiotics, arrangement for inspections of the licensed area and undertaking operations in harmony with other users of the coastal area (DMNR, 2001). Compliance with these conditions is a legal requirement of the licence. Trial licences are available for finfish (maximum 1 year) and shellfish (maximum 3 years) aquaculture. Such licences cannot be appealed against as they are viewed as being of a short-term, experimental nature.

The majority of Irish foreshore is State-owned and its control is vested in the Department of the Marine. The Department consequently has power to grant foreshore licences and leases. These, however, can only be granted when deemed to be in the "public interest" (Foreshore Act 1933, Section 2 (1)). Aquaculture on State-owned foreshore requires a foreshore licence as well as an aquaculture licence. This must be applied for at the same time as the aquaculture licence (DMNR, 2001). For any onshore development associated with aquaculture, for example, a processing plant or storage area, which lies above the mean high water mark, planning permission is required. Planning controls are carried out by the local county council, in the case of Lough Swilly this is Donegal County Council. Planning permissions are usually granted subject to a number of binding conditions. Local authorities are also statutory consultees in the aquaculture licensing process.

Oyster bed licences and oyster fishery orders

Oyster cultivation in Ireland has a long history. Four different Acts were enacted between 1845 and 1869 for the granting of oyster bed licences. The controversies which arose are well documented (for example Wilkins 1989). Both oyster bed licences and oyster fishery orders were previously issued under earlier Fisheries (Consolidation) Act 1959 a number of which are extant. Oyster bed licences were granted to enable people to form or plant an oyster bed. Oyster fishery orders provided for the establishment or improvement and for the maintenance and regulation of an oyster fishery. The Fisheries Act 1980 basically made both of these mechanisms redundant and the Minister for the Marine's power to grant such licences

or make such orders ceased with the commencement of Section 54 of that Act. Any licences or orders granted under Section 54 of the 1980 Act are no longer in force, as they have been repealed by Section 4 of the Fisheries (Amendment) Act 1997.



Environmental Impact Statement

A workshop held in Hamburg in the early nineties, "Fish farm effluents and their control in EC countries", recommended that greater emphasis should be placed on the harmonisation of certain procedures, including integrated planning and management of water resources. For this purpose it was suggested that greater use should be made of the EU directive on environmental impact assessment. It was also recommended that procedures for assessing ecological changes caused by fish farming and procedures for assessing ecological capacity of an aquatic system should be included in this harmonisation (Warrer-Hansen, 1993). Currently in Ireland all applications for aquaculture licences for marine salmon farms must be accompanied by an Environmental Impact Statement (EIS) in accordance with the Aquaculture (Licence Application) Regulations 1998 (S.I. No.236) and the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1999. If, however, the Minister for the Marine feels that any other type of proposed aquaculture scheme is likely to have significant effects on the environment he may request an EIS. An EIS may also be required in conjunction with an application for planning permission for certain on-shore developments such as harbour extensions, storage facilities, processing plants etc. An EIS is not required when applying for a trial licence for marine finfish projects involving annual production of less than one hundred tonnes (KPMG, 2001).

An Environmental Impact Statement (EIS) is a detailed document produced by consultants on behalf of the aquaculture licence applicant to identify any likely environmental impacts that might arise as a result of the proposed development and to identify options for mitigating against these impacts (KPMG, 2001). The content of an EIS is prescribed by the Aquaculture (Licence Application) Regulations 1998. Technical parameters covered by an EIS include sediment studies, baseline survey of water characteristics to include physical, chemical and biological characteristics and hydrographic studies (Glynn, 1993). The CZAD have prepared and published guidelines for the preparation of EISs in February 2000 (Regional DMNR engineer, pers., comm., October 2001). Prior to this the CZAD was involved in scoping of the EIS, in signing off the draft EIS and in the review of the published EIS. Since the publication of the guidelines the CZAD is only involved at the scoping and review stages. This is because the applicant has a statutory entitlement to seek scoping advice from the CZAD (KPMG, 2001).

The Fisheries (Amendment) Act 1997 requires public advertisement of all licence applications in order to give interested parties, and the public generally, the opportunity to comment on those applications and to have those comments duly considered before a licensing decision is made. A notice of the application must be published in a local paper. Where an EIS is required the applicant must make copies of this available to local residents and interested parties. Any person may, during the period of one month from the date of publication of the notice, make written submissions or observations to the Minister for the Marine & Natural Resources in relation to the proposed aquaculture. Statutory consultees, such as Dúchas, local authorities, Bord Fáilte and An Taisce, are given six weeks to respond. A decision by the licensing

authority to grant or refuse an aquaculture licence will have effect one month after the decision is published unless an appeal is lodged against the decision. The decision to grant a licence can be appealed to the Aquaculture Licences Appeals Board (see below). The appeal must be made within one month after the date of publication of the decision. The decision of the Appeals Board is final except by way of an application for judicial review.

Licence conditions

According to Mc Mahon (2000) the general conditions attached to salmon farming licences include, *inter alia*:

- that no fish other than salmon are cultivated or taken under the terms of the licence without prior written permission of the Minister for the Marine;
- that the licence shall make adequate arrangements to ensure that the cages shall not prevent the passage of migratory fish and shall take all measures necessary to prevent the escape of salmon from the cages;
- that the licensee shall keep records of all chemicals and antibiotics that have been used in the treatment of the fish, including the times and quantities of use;
- that the licensee shall inform the Department of the Marine & Natural Resources within 24 hours of the appearance or suspected appearance of any disease in the licenced area or any abnormal losses or mortalities in the licensed area;
- that the licensee shall inform the Department of the Marine & Natural Resources within 24 hours of any escapes of fish from the licensed area;
- towing of cages to or from the licensed areas shall be subject to prior approval by the Department of the Marine & Natural Resources.

Special conditions may include, *inter alia*: (after Mc Mahon, 2000)

- annual production levels;
- annual smolt input;
- stocking density (this should not exceed 20 kg m⁻³)
- minimum fallowing period (usually 60 continuous days per year)
- monitoring of sea-lice, seabed etc.

Mc Mahon (2000) states that the general conditions attached to shellfish cultivation licences include, *inter alia*:

- that the licensee shall ensure that all longlines, flotation devices, trestles or bags are placed on sites within the licensed area only;

- that the licensee shall ensure that the equipment is kept in good repair and condition and that they will not be hazardous to navigation, the adjoining lands or the public interest;
- that the licensee shall not use any substance that has a deleterious effect on the fishery environment including the use of organotin-based antifoulants.

Special conditions may include *inter alia*: (Mc Mahon, 2000)

- that storage of equipment on the shore outside the licensed area be prohibited;
- that the structures used are so constructed and arranged that the spaces between them are uniform and that they are aligned uniformly in relation to each other;
- in the case of rope mussel production, that the maximum number of longlines permitted per hectare does not exceed three;
- the colour of any flotation devices used;
- the type and location of navigation markers to be used.

Monitoring requirements

In the case of shellfish production no specific environmental standards have been established and, therefore, no specific monitoring standards have been set down. This situation is currently under review (DMNR, *pers. comm.*, 2002). In the case of salmon farming, however, environmental standards and monitoring requirements must be complied with. An extensive programme for monitoring of sea lice (*Lepeophtheirus salmonis*) on salmon farms began in April 1991 and has continued to date. Sea lice are regarded as having the most commercially damaging effect on cultured salmon in the world with major economic losses to the fish farming community resulting per annum (Bristow & Berland, 1991; Jackson & Costello, 1991). They inflict damage to their hosts through their feeding activity on the host's body (Jones *et al.*, 1992). According to Copley *et al.* (2001) sea lice affect salmon in a variety of ways: mainly by reducing fish growth, loss of scales which leaves fish open to secondary infections and damaging of fish which reduces marketability. Perhaps of greater concern is the fact that sea lice originating from salmon farms might be the cause of large numbers of sea trout returning to rivers in early summer in an emaciated state and with elevated lice numbers. In actual fact, this was the reason the monitoring programme was set up by the Marine Institute (Mc Mahon, 2000).

All fish farms undergo lice inspections 14 times per year (Jackson *et al.*, 1997). One lice inspection takes place each month at each site where fish are present, with two inspections taking place each month during the spring period (March to May). Only one inspection takes place in December/January. Lice counts are made on a sample of 30 fish from both a 'standard' cage (sampled during each inspection) and a 'random' cage (selected on the day of inspection). Each fish is examined individually for all mobile lice. Where mobile lice levels are high, treatments are triggered even in the absence of egg-bearing females (Mc Mahon, 2000). Outside of the critical spring period the 'action level' for lice is set at two egg-bearing

females per fish. If these levels are exceeded the farmer is advised to treat the fish (Mc Mahon, 2000). This treatment depends on the age of the fish involved and may be either external (e.g. Nuvan®, Cypermethrin) or through food (e.g. Ivermectin). Organophosphates, of which the most commonly used is Nuvan®, are effective only against pre-adult and adult stages, and do not kill larvae. They are temperature dependent, have a narrow therapeutic margin, leave residue in fish tissues, and pose risks to fish and consumers (Watershed Watch Salmon Society, 2001). Grant & Briggs (1998) found that Ivermectin, another drug used in sea lice treatment, is highly toxic to marine life and could have long-lasting effects. Since monitoring began lice levels on farms declined (Jackson *et al.*, 1997), infections in wild salmon declined and wild salmon stocks recovered although not to pre-1980s numbers (Gargan, 2000).

Since the mid-1980s, the monitoring of dissolved oxygen, chlorophyll *a* and dissolved inorganic nutrients (nitrate, nitrite, phosphate) at the surface, mid-depth and near bottom has been carried out at salmon farms on a monthly basis (Mc Mahon, 2001). Monitoring currently carried out in Lough Swilly will be discussed in greater detail in the next section. Gowen (1990) concluded that there were no statistically significant trends in nutrients or chlorophyll *a* concentrations at salmon farm sites. As a result it is now proposed to reduce the frequency of nutrient monitoring at salmon farms to the winter months only (Mc Mahon, 2000). Sea floor monitoring is currently monitored also as it is widely accepted that the sea floor under the cages receives most of the solid waste material generated during the production cycle. A study published for the Marine Institute by Aquafact International Services Ltd. (1999) found that finfish farming had no great impact on the water column. A review of benthic conditions at Irish fish farms (Aquafact International Services Ltd., 2001) found that sites where increased organic enrichment has been recorded, such as Lough Swilly, notes that impact in most cases is restricted to the area directly beneath the cages. Where annual monitoring results demonstrate an unacceptable impact on the benthos the licensee is required to submit to the Department of the Marine & Natural Resources a Benthic Amelioration Plan (Mc Mahon, 2000)

Aquaculture Licence Appeals Board

The Aquaculture Licences Appeals Board was established on 17 June, 1998 under Section 22 of the Fisheries (Amendment) Act, 1997. The function of the Board is to provide an independent authority for the determination of appeals against decisions of the Minister for the Marine on aquaculture licences. A person aggrieved by a decision of the Minister on an aquaculture licence application, or by the revocation or amendment of an aquaculture licence, may make an appeal within one month of publication (in the case of a decision) or notification (in the case of revocation/amendment) (ALAB webpages, 2002). In accordance with Section 23(3) of the Act, the Board must be made up of two members from each of the following types of organisations:

- organisations concerned with the promotion of the development of aquaculture or representative of persons carrying on the business of developing aquaculture;

- organisations concerned with the conservation, development and protection of wild fisheries;
- organisations representative of persons whose professions or occupations relate to physical planning and development;
- organisations representative of persons concerned with the protection and preservation of the environment and amenities;
- organisations representative of persons concerned with the promotion of general economic development; and
- organisations representative of persons concerned with the promotion of community development.

The Board has the authority to confirm the decision or action of the Minister; determine the application as if it had been sent to the Board at the outset; or substitute its decision on the matter for that of the Minister. The Board also has the discretion to hold an oral hearing of an appeal under Section 49 of the Act. In 2000, the Board received a total of 38 appeals. This represented 19 Ministerial decisions, 14 of which were made in 2000 and 5 made in 1999 (ALAB webpages, 2002). Two appeals were upheld and two appeals were declared invalid by the Board as they did not comply with statutory requirements. More than one appeal was received in respect of many Ministerial decisions. The Aquaculture Licence Appeals Board has overturned one shellfish licence in Lough Swilly on appeal, and has approved more than twenty. Many more licence applications are pending. While the Aquaculture Licence Appeals Board is obliged to determine appeals expeditiously, it has a statutory objective to determine appeals within four months.

Central Fisheries Board

The Central Fisheries Board (CFB) is a statutory body operating under the aegis of the Department of Marine & Natural Resources and was established under the Fisheries Act 1980. The principal functions of the CFB are to advise the Minister for the Marine & Natural Resources on policy relating to the conservation, protection, management, development and improvement of inland fisheries and sea angling; to support, coordinate and provide specialist support services to the Regional Fisheries Boards and to advise the Minister on the performance by the Regional Fisheries Boards of their functions. The Boards' jurisdiction, and consequent responsibilities, cover both inland waterways and seaward to the twelve mile limit. There are seven Regional Fisheries Boards who are responsible for the development and protection of inland fisheries in their respective regions, and for the development of angling (Brady Shipman Martin, 1997) The Northern Regional Fisheries Board is located in Ballyshannon and has responsibility for the northern region, which extends from Mullaghmore Head (Co. Sligo) to Malin Head. They also have the responsibility of issuing fishing licences in this area. The CFB provides scientific, financial, personnel, promotional and planning support services to the Regional Boards.

Bord Iascaigh Mhara (BIM)

Bord Iascaigh Mhara [Irish Sea Fisheries Board] was established under the Sea Fisheries Act 1952 as the state agency with responsibility for developing the seafishing and aquaculture industry. BIM works closely with fishermen, fish farmers, processors, marketers and the service sector to support the development of the industry from primary production stage through to marketing. It is sub-divided into four divisions, each responsible for the implementation of its primary development functions. These divisions comprise of the Aquaculture Development division, Fisheries Development division, Market Development division and Marine Services division. The Aquaculture Development division is responsible for the development of aquaculture through the provision of financial, technical, scientific and marketing assistance. The function of the Marketing division is to develop both the home and export market. This function is carried out primarily by An Bord Bia [Irish Food Board]. The Marine Services division provides education and training services to the fishing industry at the National Fishery Training Centre in Greencastle (Co. Donegal) and on the Coastal Training Unit (Brady Shipman Martin, 1997). BIM also operates a number of regional programmes such as cross-border initiatives, for example, Aquaculture Initiative and regional initiatives, for example, Co-ordinated Local Aquaculture Management System (CLAMS) which will be discussed below. In implementing these programmes BIM liaises closely with the Department of the Marine & Natural Resources, other state agencies and the seafood industry.

Marine Institute

The Marine Institute is a statutory body established under the Marine Institute Act 1991. This Act states that the function of the Institute is “to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the environment” (Marine Institute Act 1991, Section 4(1)). The Marine Institute can be described as having the role of coordinating and promoting research and development activities. The Institute is made up of a number of divisions, namely:

- Marine Science, Technology and Innovation Division (includes the Marine Data Centre, Water-based Tourism and Leisure section and Marine Technology section);
- Marine Environment and Health Services Division (MEHS), (includes the Fish Health Unit and Biotxin Unit);
- Marine Fisheries Services Division (MFSD), (based in Abbotstown and conducts a wide range of stock monitoring programmes to facilitate assessments and provide scientific advice for the management of fish stocks);
- Salmon Management Services (responsible for delivering scientific services in relation to salmon, aquaculture, sea trout, eels and some aspects of experimental inshore fisheries);
- Irish Maritime Development Office (promotes, assists and develops the Irish shipping and shipping services sectors);

- Corporate Services Division (includes Finance, Human Resources and Information Technology sections).

Brady Shipman Martin (1997) states that the work of the Marine Institute has improved the co-ordination of research and data collection in relation to the marine side, and complements the work of agencies such as the Environmental Protection Agency (EPA) on the landward side.

Department of the Environment & Local Government (DELG)

The functions of the Department of the Environment & Local Government are wide-ranging but are largely encapsulated in its divisional structure: Roads, Housing, Environment, Local Government & Development and Planning. It is also responsible for landward planning and recreational activities. This department guides local authorities who are, in effect, the implementation authorities for landward planning. Over 90% of the financial resources of the Department flow to local authorities either directly or through other public bodies (Department of the Environment & Local Government, 2001). Ireland's planning system is based on the Local Government (Planning and Development) Acts, 1963-94. This 1963 seminal piece of legislation came into effect on the 1 October 1964 and introduced for the first time a statutory development control system. However, arising out of the commitments in the Government Programme "An Action Programme for the Millennium", a comprehensive review of planning legislation was initiated in August 1997. The principle of the Review was to ensure that the planning system of the twenty-first century would be strategic in approach and focus on sustainable development. The Planning and Development Act 2000 arose out of the Review (DELG, pers. comm., September 2001). This Act consolidates all previous Planning Acts and much of the Environmental Impact Assessment Regulations. As well as consolidating existing provisions, the Act contains many significant changes and new initiatives. Perhaps of most interest in the case of Lough Swilly is the fact that the Department of the Environment, and consequently the local authority (i.e. Donegal County Council), is now formerly responsible for development on the foreshore. Prior to this there was no statutory obligation on a developer to apply for planning permission for his/her foreshore development. The new Planning and Development Act, however, has no effect on state jurisdiction and over-riding authority remains with the Department of the Marine & Natural Resources even if administrative boundaries are changed (DELG, Planning section, pers. comm., September 2001).

Environmental Protection Agency

The Environmental Protection Agency (EPA) comes under the aegis of the Department of the Environment & Local Government. It is a statutory body and was established by the Environmental Protection Agency Act 1992. There are four divisions in the organisation: Corporate Affairs, Environmental Management & Planning, Licensing & Control and Environmental Monitoring & Laboratory Services. The Agency operates on a regional structure with headquarters in Wexford, five regional offices (Castlebar, Cork, Dublin, Kilkenny and Monaghan) and four sub-offices (Athlone, Letterkenny, Limerick and Mallow). It is responsible for the promotion of improved environmental protection in Ireland. One of the principal reasons

for establishing the EPA was to licence and control large scale activities having the potential to cause significant environmental pollution (EPA webpages, 2002). The EPA monitors air, water and soil quality. Water quality in rivers, lakes, coastal and estuarine areas and ground waters are usually monitored by the relevant local authority, however, in some cases the EPA does the monitoring (especially the biological monitoring), and in other cases they carry out the monitoring for the local authorities (a service for which it receives payment). In Lough Swilly a number of bodies carry out water quality monitoring including the EPA, the Marine Institute, the CLAMS group, the DMNR, Donegal County Council and Marine Harvest Ireland [producer] (Lough Swilly CLAMS, 2001).

An Bord Pleanála (Planning Appeals Board)

An Bord Pleanála was established in 1977 under the Local Government (Planning and Development) Act 1976 and is responsible for the determination of appeals, references and certain other matters under the Local Government (Planning and Development) Acts 1963-99. The Board is also responsible for dealing with appeals under the Building Control Act 1990, the Local Government (Water Pollution) Acts 1977 and 1990 and the Air Pollution Act 1987. The appeals system is independent, designed to be fair, impartial and open (An Bord Pleanála webpages, 2002). In determining individual appeals, the Board acts in a quasi-judicial role in accordance with the principles of natural justice. Unlike most planning appeal systems in Europe, third parties may make appeals under the Irish system. The proportion of such appeals is growing and in 1997, third party appeals represented 42% of determined planning appeals (An Bord Pleanála, pers. comm., 2000). Thirty-seven oral hearings were held in that year to assist the Board in particularly complex cases or where significant national or local issues were involved (An Bord Pleanála, pers. comm., 2000).

Department of Arts, Heritage, Gaeltacht & the Islands (DAHGI)

The Department of Arts, Heritage, Gaeltacht & the Islands is responsible for the development and implementation of Government policy in a wide range of areas affecting all aspects of Irish life. There are seventeen Agencies discharging specific responsibilities in the culture and heritage sectors who are accountable to the Minister for Arts, Heritage, Gaeltacht and the Islands. Dúchas [the Heritage Service] manages the Department's responsibilities under National and European law for the protection, conservation, management and presentation of Ireland's natural and built heritage. Dúchas is divided into 3 main operational areas; the Education & Visitor Services, the National Monuments and Architectural Protection Division (NMAPD) and the National Parks and Wildlife Division (NPWD).

The National Parks and Wildlife Division of the Department is responsible for the conservation of a range of ecosystems and populations of flora and fauna in Ireland. The Division is also responsible for the implementation of a large body of legislation both domestic (Wildlife Act 1976) and international (EU Habitats and Birds Directives) and for the management and development of National Parks and Nature Reserves. Natural Heritage Areas (NHAs) are the national framework to provide for protected areas in

Ireland. All other nature conservation designations overlap with NHAs. Until recently, there were no formal legal means for designation of NHAs. The process of designation took place over several years. Existing protective measures include the use of planning legislation to prevent certain damaging activities, refusal of State/EU grants for damaging activities, and financial incentives for environmentally sound farming (DAHGI, 1998). Details of proposed NHAs are supplied to all planning authorities, who normally take them into account in considering developments (although there is currently no obligation on them to do so). However, developments which are exempt from planning cannot be controlled, except, in some cases, indirectly through the refusal of grants or provision of incentives.

The Department is also responsible for designation and management of sites under European legislation, for example, Special Areas of Conservation and Special Protection Areas. The Habitats Directive was transposed into national legislation by the European Union (Natural Habitats) Regulations 1997. The Habitats Directive contain a list of habitats requiring conservation measures. This list (Annex I) includes priority habitats, which require particular attention. Priority Irish habitats include raised bogs, active blanket bogs, turloughs and machair. Other Annex I habitats include heaths, lakes and woodlands. There is also a list of species (Annex II) which must be afforded protection and for Ireland this includes the Bottle-Nosed Dolphin, Otter, Freshwater Pearl Mussel and Killarney Fern.

Nature conservation designations have significant implications for licensing and grant-aid for new shellfish farms in coastal areas which have been designated either as SPAs or as candidate SACs (Brady Shipman Martin, 1997). Current management strategies for aquaculture installations within SACs or SPAs will be discussed below.

Donegal County Council

Donegal County Council is the local authority responsible for Lough Swilly and its environs. Local authorities together constitute the Irish local government system, who deliver a wide range of services such as housing, roads, water and sewerage to every village, town and city in the country. Local authority jurisdiction generally extends from Mean High Water landward. Under the Local Government (Re-organisation) Act 1985 the Minister for the Environment has the authority to extend local authority jurisdiction up to three miles beyond the High Water Mark. This power, however, was seldom exercised. The new Planning & Development Act 2000 allows a local authority to administrate in respect of foreshore areas which may ameliorate problems previous jurisdictional problems.

One of the most important functions of any local authority is the creation of the county Development Plan. Section 19(1) of the Local Government (Planning & Development) Act 1963 requires every local authority to "make a plan indicating the development objectives for their own area". This is now governed by Part II, Chapter I, Sections 9-17 of the Planning & Development Act 2000. The development plan must consist of a written statement and a plan, which is essentially a map, indicating the development objectives for the area

in question. There is no exhaustive definition of the term "development objectives" but the term includes objectives for physical, economic, spatial and social development (Scannell, 1995). This plan must be reviewed at least once every 6 years. Once the draft development plan and its amended version have been put on public display to allow objections and representations, it is the function of the elected representatives of the Council to adopt the plan by resolution. Once this has been done, the plan becomes a legally binding document, therefore, binding the local authority to the implementation of its objectives. The 2000 Act also allows for the creation of Local Area Plans.

The Draft Co. Donegal Development Plan 1998 (Donegal County Council) deals with 3 priority areas of activity:

- Urban and Rural Planning and Development
- Provision of Economic and Social Infrastructure
- Heritage Management and Conservation.

When the 1988 Development Plan was under consideration, a key issue was the lack of development of many of the County's natural resources, i.e., the potential for afforestation, aquaculture and development of peatlands. Since then, the volume and rate of activity in these areas has increased considerably and problem issues have emerged. Developments in the aquaculture industry both finfish and shellfish was one activity which was not considered to any great extent in 1988 (Donegal County Council, 1998). In the section on "the Marine Resource", however, the council vows to "support the consolidation and further development of the fishing industry (including aquaculture) through development of an "Integrated Fisheries Infrastructure Development Programme" over a 10 year period based on a comprehensive review of all landing places in the County (Donegal County Council, 1998).

The Environmental Services and Protection section of the 1998 draft Development Plan covers the provision of water and sewerage facilities, waste management and disposal and the huge range of activities included under the heading "Environmental Protection" ranging from Blue Flag Beaches and litter to air, noise and water pollution monitoring, control and prevention. Within this section is a policy for Water Quality Management. According to the draft Development Plan (1998) all water sources and uses within the jurisdiction of the Council form the basis of an Integrated Water Quality Management Programme being developed by the Council - drinking waters, ground waters, receiving waters, bathing waters and fishing waters. The Council is developing monitoring, control and improvement programmes to provide a structured approach to actions under this policy area. These include:

- Preparation of Water Quality Management Plans for major catchments. Plans have been prepared for the Foyle and Swilly catchments and a plan will also be prepared for Donegal Bay;
- Monitoring of discharges into river bays, lakes and Blue Flag beaches;

- Monitoring and sampling of drinking waters by the North Western Health Board which is integrated with the Council's data collection and reporting system;
- Protection of the ground water resources of the county through ensuring that all domestic, industrial, commercial and agricultural effluent complies with existing and proposed regulations. The Council will also enforce the need for strict control over the application of farm and animal wastes to the ground, with the intention of minimising ground water pollution.

The draft Development Plan (1998) states that the potential for conflict is greatest in the coastal zone, particularly in the interface between sea and land and in the upland areas. It also states that the situation is further complicated by:

- the variety of agencies and statutory bodies responsible for these activities; and,
- the fact that many of the significant activities do not require planning permission or other statutory control.

As the council recognises the importance of the coastal zone it includes the creation of strategic frameworks for coastal zone and upland management on a county and sub county basis and management plans for Blue Flag Beaches in the first instance and in other cases where there is a noticeable need for action as two of its policy objectives. The Council feels that the diversity and complexity of activities and actors in the scenic landscapes and heritage areas of Donegal require a more holistic response rather than simple land use zoning. For this reason they wish to achieve their aims and objectives through a strategy of active management partnerships with local communities and relevant agencies/organisations, rehabilitation of damaged landscapes, conservation of buildings and guiding of development under the Planning Acts.

The usual way of protecting particular elements of the landscape is through landscape categorisation. The scenic landscape of Co. Donegal has been divided into three categories for development control purposes. These are outlined below (DCC draft Development Plan 1998):

- **Category 1** Areas are the largest category and are primarily the low lying farm and open lands throughout the county and where most rural activities take place.
- **Category 2** Areas are highly scenic areas, whose natural character has been modified by human activities. These areas include much of the low lying coastal zone, valleys, the islands and foothills of the upland areas. The landscape is characterised by small fields, stone ditches, a pattern of hedgerows and a scatter of long established houses.
- **Category 3** Areas are the areas of highest quality landscape in the county, with characteristics of wilderness, and few if any manmade structures. They include the high cliffed coastal zone, and the upland mountain areas.

The location of these landscape areas are shown in Figure 9 (overleaf).

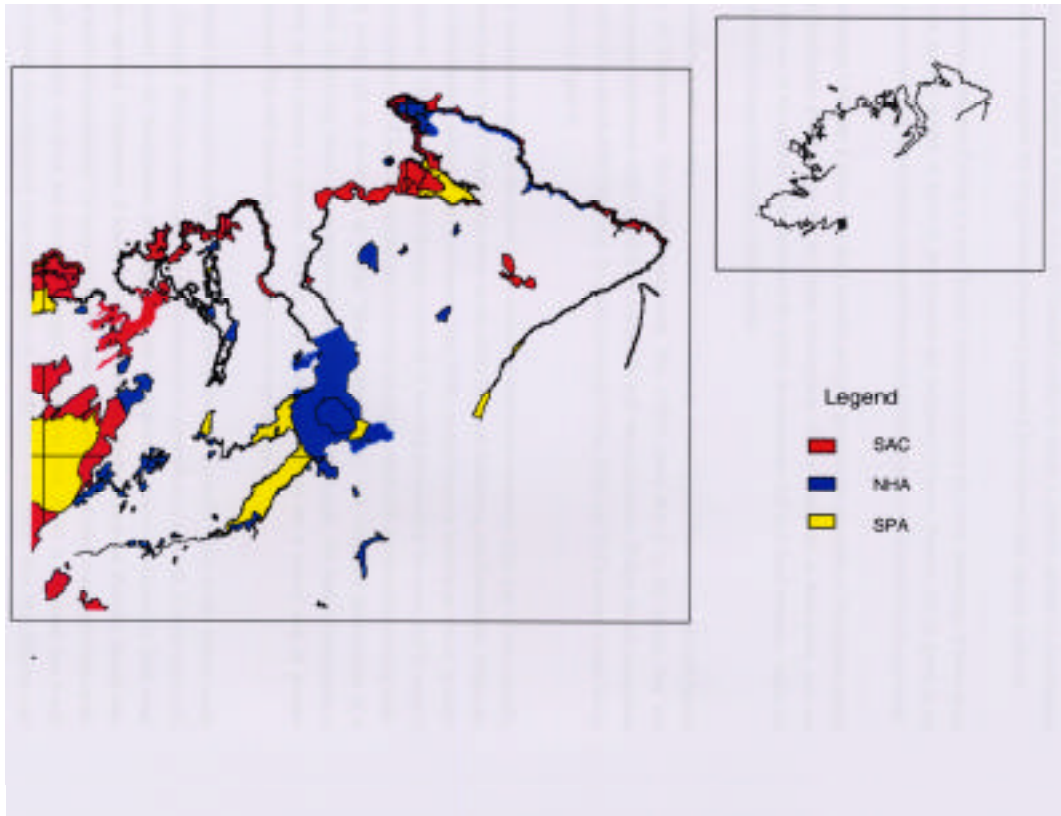


Figure 9. Map of NW Donegal showing statutory nature conservation designations.

According to the draft Donegal Development Plan (Donegal County Council, 1998):

In Landscape **Category 1** Areas, it is the Council's policy to adopt a positive attitude to development proposals which support the living countryside policy and which the landscape has capacity to absorb.

In Landscape **Category 2** Areas it is the Council's policy to conserve the scenic landscapes of these areas, by more specific control of types of development and categories of users. Priority will be given to the indigenous rural population building permanent houses and holiday homes will in general not be permitted.

In Landscape **Category 3** Areas, it is the Council's policy to preserve the amenities of the highest quality scenic landscapes in the county and no further development will be considered in these areas, save the particular use of the amenity value itself and the public developments tied to a fixed resource, which are imperative for reasons of overriding public interest.

Conservation is also a strong priority within Natural Heritage Areas, Special Protection Areas and Special Areas of Conservation. The draft Development Plan (1998) states that it is EU policy that any developments undertaken within an NHA are compatible with the environment. If they are not compatible they will not be afforded EU Grant Aid. As stated previously NHAs, SPAs and SACs around Lough Swilly are shown in Figure 9.

Scenic routes such as those described in the section on land-based recreation form part of the council's "Tourism Identity Areas". Included in these are the Malin Head and Inishowen, and Rathmullan. Within the tourism development section of the Development Plan (1998), marine leisure is listed as an area of "product development". The priority is to develop a network of mooring places along the coast, and to support the development of 3-4 higher order marinas at strategic locations, which will accommodate touring boats. Lough Swilly will be developed as a pilot "Marine Leisure Zone" with integrated development of a hierarchy of mooring places and management and promotion of the Lough. No further information is available on this project at present. Walking routes around the county are a second area of product development. This will include the erection of new and clearer signage.

The Marine Resource section of the Development Plan outlines the Council's vision for the marine sector in Co. Donegal. While the council supports the development of aquaculture in principle, it states that it will give priority to the development of management and development strategies in conjunction with other relevant agencies. (Department of Marine & Natural Resources, Northern Regional Fisheries Board) user groups and local communities, for integrated development of aquaculture and other coastal activities on the Donegal coastline, sea inlets and estuaries (Donegal Development Plan, 1998). It also states that it will oppose fishing and aquaculture proposals on sites on or adjacent to designated Blue Flag Beaches and where such developments would significantly interfere with recreational use of popular beach areas.

Discussion

There are numerous bodies involved in the management of the Swilly at local and national level. These each have responsibility for one or more sectors. In some instances, there are mechanisms for discussion and consultation between these bodies while in others there are none. Most management bodies are governed by specific legislation and strive to achieve specific sectoral goals. This institutional, sector-based arrangement poses an impediment to lateral thinking and multi-resource, multi-user management. The level of local involvement in most of these management bodies is low and mechanisms for consultation have not been viewed with universal praise.