

### 3. Current Utilisation of the Lough

Lough Swilly has a highly indented coastline with striking cliffs and mountains as well as a number of fine sandy beaches. The location of the Lough and the major towns around it is shown in Figure 1. The combined catchment area of the Lough is 1,130 km<sup>2</sup>. These assets bring with them a responsibility and a challenge to make the most of the Lough's advantages while simultaneously ensuring the protection and sustainable development of the marine environment. The Lough is currently used for a number of activities which may, at times, compete with each other. This section examines some of these activities and assesses the patterns of development.

To place current utilisation in context, it is interesting to note that the total population of the Swilly catchment is about 65 000, of which about 15 000 inhabit Letterkenny and 4500, Buncrana. The 45% population growth over the past 15 years in Letterkenny suggests a marked increase in potential use of Lough Swilly for a variety of recreational and other uses. Current Bord Failte estimates (Bass, 2002) indicate about 1.4 million tourist nights are spent per year in the Swilly catchment.

#### Water – Based Activities

##### Water-based recreation

Nationally, water-based tourism and leisure is estimated at being worth £497 million per annum, equivalent to 1.15% of GNP and supporting 14,525 jobs. This accounted for 1.25% of total employment in Ireland in 1996 (Marine Institute, 1999). The Marine Institute's document entitled "A Framework for the Development of Tourism and Leisure on the Marine and Inland Waters of County Donegal" recommends that county based data on number, origin, attitude and behaviour of marine and inland water leisure participants be acquired to inform management priorities. A current on-going development is the "peninsula-hopping" project. A large slipway has been constructed in Rathmullan while another is under construction in Buncrana. The aim is to facilitate a car ferry between the two towns. Plans are also underway to have a car ferry between Greencastle, on the western side of Lough Foyle, and Magilligan Point on the eastern side of the Foyle. There are also plans to build a 500 metre bridge across Mulroy Bay, linking the Fanad and Rossguill peninsulas. No data is currently available on the number of visitors to the county who take part in water-based leisure activities, although some data has been gathered at specific beaches (University of Ulster and Donegal County Council – EU LIFE project on ICZM, 1998/99).

##### Diving

The north-west area as a whole is regarded as one of the most interesting venues in Ireland by diving enthusiasts. West Donegal is by far the most popular while the sport is relatively undeveloped in the Lough

Swilly area. There are about 53 references to shipwreck in the Swilly, of these only a handful (less than five) are known dive sites (W. Forsythe, pers. comm., 2002). Conditions are dark and murky in the south of the lough, but should improve toward the sea. Keadew Rock is a popular non-wreck sports dive site. Otherwise visibility varies widely between almost zero and five metres. The HMS Laurentic is one of the better known wrecks but is in deep water and is therefore challenging and not recommended for amateurs. According to the Marine Institute (1999) conflict has arisen in the past between divers and anglers around the more popular wreck sites in Donegal. The potential of this activity has not been fully explored.

#### Small Powered Recreational Craft and Sailing

Some 6% of all people resident in Ireland participated in boating activities including sailing during 1995/96 (DMNR, 2000a). In that season it was identified that an estimated 1.58 million day trips were made in connection with boating on coastal and inland waters in Ireland. Approximately one quarter of these trips were made by people to take part in water skiing, jetskiing and other sports in the sea (DMNR, 2000a). There is no data which provides a census view of the number of recreational powered craft around the Irish coastline. It is estimated, however, that 1% of the number of marina berths available are located on the north coast. A survey conducted by the Department of the Marine & Natural Resources (2000a) carried out during December 1999 and January 2000 found that the sales of new power boats and similar craft in Ireland are increasing annually, in 1998 by 27% on the 1997 figures and in 1999 by 28% on the 1998 figures. The largest number of personal watercraft are being sold to addresses in the Dublin area with Cork, Galway and Donegal having the next highest figures (DMNR, 2000a). While there are no specific data available for Lough Swilly, the trend nationally is that use of such vessels are increasing.

Sailors make three main uses of sites in Co. Donegal: those who keep their boats on moorings; those who stop off at moorings; and those who use dinghies in the more sheltered waters of the various inlets. To date there have been few infrastructural developments to facilitate sailing. Some are in the planning stages including two small marinas or pontoons at Rathmullan and Buncrana. One private marina at Fahan was in the early stages of construction when planning difficulties were encountered. The status of this development is currently unclear. Whilst there are many small harbours in Donegal few are suitable for yachts, either because they are primarily used for commercial fishing and lack yachting facilities, or because the harbours are dry or shallow at low tide, necessitating anchoring or mooring nearby (Marine Institute, 1999). The national moorings scheme promoted by the Marine Institute and Bord Fáilte has led to the placing of moorings at a number of sheltered locations around the Donegal coastline to facilitate visiting yachts. These include Portsalon and Rathmullan (pontoon). At present the Irish Sailing Association (ISA) has two Category 1 affiliated clubs in Donegal, namely the Merville Boat Club and the Lough Swilly Yacht Club. The Lough Swilly Club was founded in February 1955 and currently has over 150 members. They run both sailing and powerboat courses during the Summer. The Irish Sailing Association believes that the key to extending participation in sailing anywhere in Ireland is the provision of easy berthing such

as marinas, very accessible moorings and pontoons. One of the short-term RTDI priorities of the Marine Institute (1998) was to look at possible harbour improvements and potential locations for the development of moorings, pontoons, slipways, breakwaters and marinas. The value of this sector to the local economy is currently unknown.

#### Wind-surfing

Portsalon and Fahan are the most popular locations in Donegal for windsurfing. No specific data is available on windsurfing locations as windsurfers can launch almost anywhere there is a beach or slipway. It is carried out primarily on a casual basis without any dedicated clubs. The economic value of this activity is currently unknown.

#### Angling

Donegal is well known to Irish anglers and, according to the Marine Institute (1999) has the potential to be one of the top European sea angling destinations. Good shore fishing is available around much of the coastline from both the bays and rocky shoreline with a variety of species at each site especially within Lough Swilly. A distribution chart is shown in Figure 6. A sea angling festival (the International Tope & Whitefish Festival) is held at Rathmullan early each summer. Tope and skate fishing are popular in May-June and recent initiatives have seen the tope weighed and returned live to the water. The economic value of this activity is currently unknown. A number of commercial fishing boats take angling excursions at weekends from Inch and a community-owned boat at Rathmullan is used for angling charters. There is believed to be a large market for angling, particularly from Northern Ireland-based associations, but also from the continent. Commercial fishermen operate a symbiotic relationship with anglers in that angling trips rely on the expertise of the skipper to locate suitable sites and the skipper in turn acquires knowledge of fish distributions.

#### **Commercial Fishing**

Commercial fishing is undertaken both within and outside Lough Swilly by boats based there. The key to commercial viability of the fishing fleet lies in its ability to alternate between species depending on the time of the year and the availability of stock. Rathmullan and Buncrana have been used as landing centres in the past, however, they do not support a fishing tradition of their own *per se*. Much fishing in the lough is undertaken by boats from Greencastle and Killybegs. Lough Swilly's fishing fleet has remained relatively small because of the exposed nature of the Lough and the poor port and pier infrastructure within it. (Table 1). At several locations within the lough there is a long tradition of winkle and oyster gathering by hand.

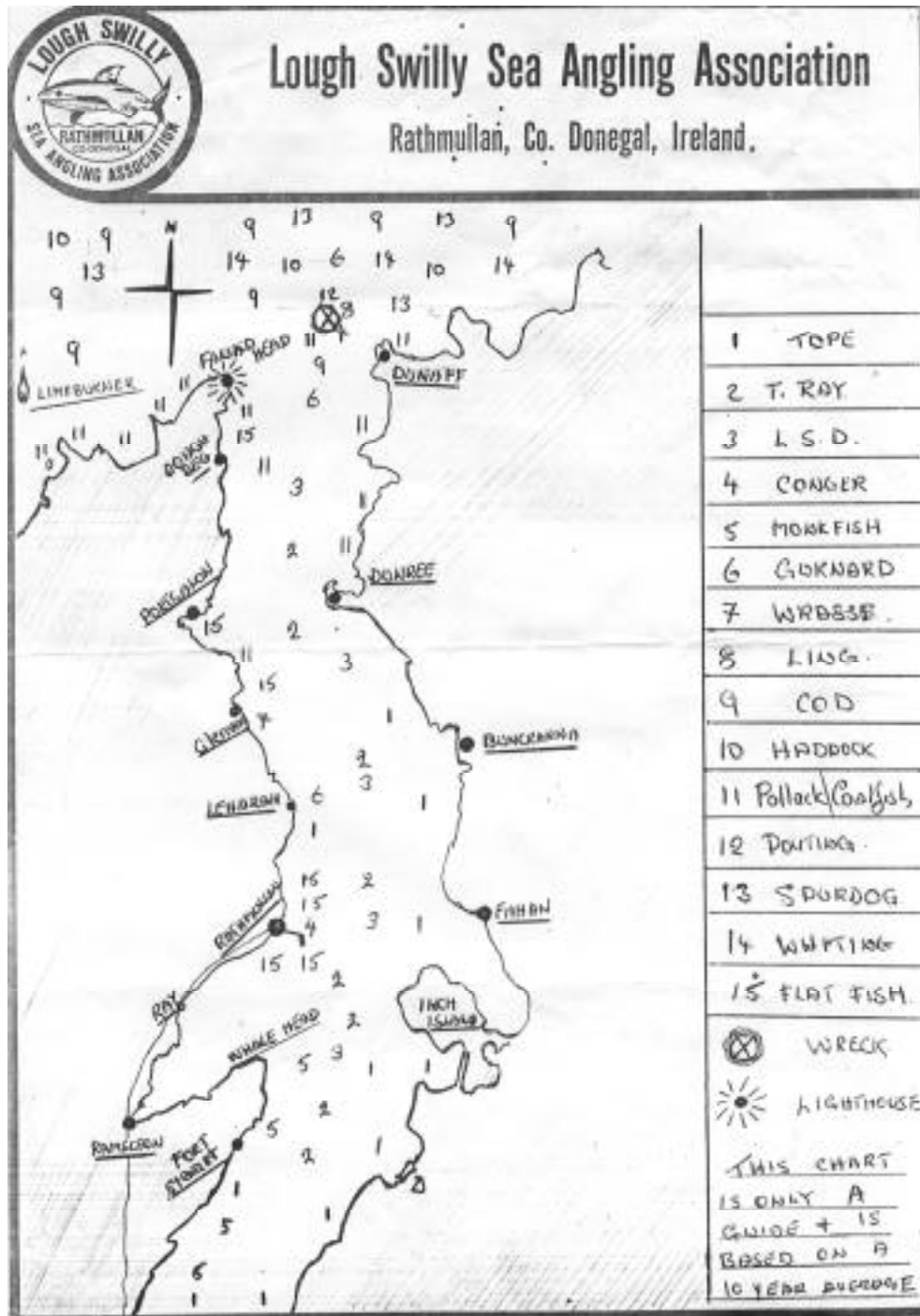


Fig. 6. Distribution of main sea angling species.

<u>Place name:</u>	<u>Boats operating:</u>	<u>Species caught:</u>
<b>The Breakwater (Lehardan)</b>	1 x 35ft trawler	Plaice Some Haddock & Whiting Lobsters & Crabs
<b>Rathmullan</b>	1 Dev Assoc. boat	Sea angling
<b>Rathmelton</b>	Drift net boats	Salmon
<b>Newtowncunningham</b>	Oyster dredgers Tangle-netting	Oysters Skate
<b>Inch</b>	3 x 50ft	Salmon (drift nets) Herring Mussels (formerly wild, now cultured)
	4 x 20ft punts	Salmon (drift nets) Winkles
	3 x 27ft	Salmon Skate Lobster/Crabs Also used for sea-angling
<b>Buncrana</b>	c. 6 punts c. 6 flat-bottomed boats	Salmon (drift & draft nets)
<b>St. Paul</b>	Few drift net boats	Salmon and Winkles
<b>Leenan</b>	4 x 50ft	Used to be mainly Salmon Now mainly crabs
	1 x 37ft	Used to be mainly Salmon Now mainly crabs
	3 x 27ft	Lobsters Salmon

**Table 1A.** Fishing boats by harbour and main types of fish caught.

Species	Season
Crabs	All year round (best from August – December)
Lobsters	May – September/October
Skate	May – July (but variable)
Salmon drift netting	June-July
Salmon draft netting	June-July
Herring	November, December, January & February

**Table 1B.** Temporal patterns of fish exploitation

Landing figures for piers in Lough Swilly have been allocated to either Rathmullan or Buncrana, although much of the catch is derived from other sites (e.g. Inch). Pelagic species, that is, fish that live in the water column, such as herring, mackerel and horse mackerel are fished outside the Lough but landed at Rathmullan by boats based in Killybegs. Boats which fish out of Inch and Leenan often land into Greencastle on Lough Foyle. As a result of this the value of fisheries within Lough Swilly is difficult to estimate with accuracy.

Herring and sprat are the most important pelagic species caught in Lough Swilly. Fishing for such species is seasonal and lasts from November to February. At the peak of the season up to twenty boats (ranging in size from 25ft to 65ft) from Lough Swilly and nearby Greencastle in Lough Foyle rig their boats for mid-water and trawl using either pelagic trawls, purse seines, driftnets and/or longlines. Mackerel is also fished in the Lough from approximately May to June (Lough Swilly CLAMS, 2001).

Demersal fish are those, which as adults live at, or just above, the sea floor and are mostly taken in bottom trawls. Demersal fish caught in Lough Swilly include plaice (*Pleuronectes platessa*), sole (*Solea solea*), brill (*Scophthalmus rhombus*), turbot (*Scophthalmus maximus*) and various types of cod (*Gadious* family). Plaice is the most important of these as it is available throughout most of the year. Trawling in the Lough is exercised mainly from Fanad Head east to Dunaff Bay, from there south to Macamish Point, across south-east to the Saltpans Light, and from there east to Buncrana. Within this delimited zone trawling is carried out over most of the sea area except in rocky areas where it is not possible to trawl.

Salmonid Fisheries

There are a number of salmonid rivers within the Lough Swilly catchment, namely, the Rivers Crana, Leannan, Mill, and Swilly. The River Crana is the most productive of these in terms of rod caught fish and has been restocked recent years. The commercial salmon fisheries on Lough Swilly involve loop, drift and draft net fishing. According to the Lough Swilly CLAMS document (2001) the numbers of people actively engaged in this activity throughout the season varies, with the peak of activity between mid-June and mid-

July depending on the runs. The Northern Regional Fisheries Board estimate that there are approximately 100 individuals involved in the Swilly area. Less than half of these are licence holders, with the remainder being either nominees or crew members. The Lough Swilly CLAMS document states that statistics for these fisheries are believed to be unreliable, but what is acknowledged, is that most fisheries have seen a dramatic decline. Included in this is the Leannan draft net fishery and the Swilly loop net fishery. Catches for these two fisheries combined would currently be unlikely to exceed 100 fish per annum (Lough Swilly CLAMS, 2001).

The Lough Swilly loop net fishery commences on May 15<sup>th</sup> and ends on July 31<sup>st</sup> of each year, with restriction times and days within this period. Loop net fishing rights on the Swilly are believed to have been granted by Queen Anne I (1665-1714). Loop netting involves one person using a wooden frame with a net attached, wading into the estuary. The base of the frame is then placed on the substrate. When a fish hits the net the frame is then lifted quickly out of the water. The draft net season runs from the same time. Draft netting takes place on the Rivers Leannan and Crana. It takes place from the intertidal zone out to approximately half a mile. The drift net season takes place from June 1<sup>st</sup> to July 31<sup>st</sup> of each year. The main areas for drift netting are at the mouth of the River Leannan and south of Buncrana town. It is also carried out at the mouth of Lough Swilly and outside the lough four days per week in daylight only.

#### Shellfish fisheries

Shellfish fisheries are also an important activity within Lough Swilly. This includes crustaceans (shrimp, crabs and lobsters), bivalve molluscs (mussels, oysters and scallops) and cephalopods (squid and octopus). Lobsters (*Homarus gammarus*) are fished in waters up to 30 fathoms deep but more usually waters under 12 fathoms deep near reefs and cliffs. The North West Lobster Association is currently implementing a V-notching programme. V-notching involves cutting a 'V'-shaped notch into the tail of a berried female and then returning them to the sea. The minimum allowable size for marketable lobsters is a carapace length of 87 millimetres, measured from behind the eye to the beginning of the tail. It is illegal to be in possession of a 'v'-notched or undersized lobster and current fines can be as high as £25,000. At present lobster fishermen are required to be a fully paid up member of the Irish Lobster Association or its affiliates and the registered owner of a licensed fishing vessel. Crabs (*Cancer pegurus*) are fished in water between 25 and 100 fathoms deep. Crabs are usually caught in creel type crab pots/traps normally baited with fresh bait. Pots are mainly constructed with a steel base and a welded tubular polythene frame covered with 50 - 60 mm mesh netting. The modern pot has one end, which serves as a lid or door for removing crabs. Many of the smaller seasonal vessels use older, lighter wooden pots. These pots are cheaper and less durable but are only fished certain times of the year depending on the weather. In Lough Swilly, lobster and crab fishermen fish mainly along the rocky parts of the coast in the subtidal zone and out into the deeper waters where the substrate is sandy.

The main shellfish harvested within Lough Swilly are bottom mussels via aquaculture installations (see below). Oysters within the Lough are fished throughout the year except from May to August. The Irish oyster industry is currently valued at over £7 million at the point of first sale. Production has increased dramatically with almost 300 producers in 14 coastal counties involved in the industry (CIRCA Report, 2000). In Lough Swilly there are currently 11 oyster dredge licences issued by the Northern Regional Fisheries Board (Lough Swilly CLAMS, 2001). The season runs from September to April with no restrictions. There is no management programme for this fishery. Native oyster (*Ostrea edulis*) beds occur from the channel of the River Leannan where the Leannan joins the Swilly up the estuary to Ballylawn Point. There are only nine such natural beds in Ireland. Periwinkles are gathered around Delap Bay and Inch Island with some gathering also occurring from Buncrana to Dunree. Seaweed is harvested in the lower reaches of the Lough.

### **Aquaculture**

Aquaculture, though still a relatively young industry in Ireland, has already grown to the stage where it accounts for 25 % of the value of total fish production. From 1979 to 1997 the total production grew more than tenfold from 3,938 tonnes to 37,803 tonnes, and the value of the industry rose £1.5 million [approximately £190 million] to £59.9 million [approximately £76 million] (DMNR, 2000b). Recent research indicates that the future growth potential of the industry is considerable, with a possible tripling of production levels over the next fifteen years (DMNR, 2000b).

According to the CIRCA report (2001) the most crucial component in this development has been the availability of investment funding. Under the National Development Plan 2000 – 2006, Exchequer and EU grant aid is available for investment projects in aquaculture, some of these are listed in Table 2.

Employment in the aquaculture industry has increased by a third since 1988 (CIRCA Report, 2000). The processing sector comprises 220 firms employing approximately 3400 persons (Marine Institute webpages, 2000). Generally full time employment is better in the cultured salmon industry. Employment in mussel cultivation and Pacific oysters tends to be more part-time and seasonal which makes these sectors highly suited to those who also work part-time as fishermen, farmers or in the tourism industry (CIRCA Report, 2000).

Present and proposed aquaculture sites in the Swilly are shown in figure 7 (overleaf)

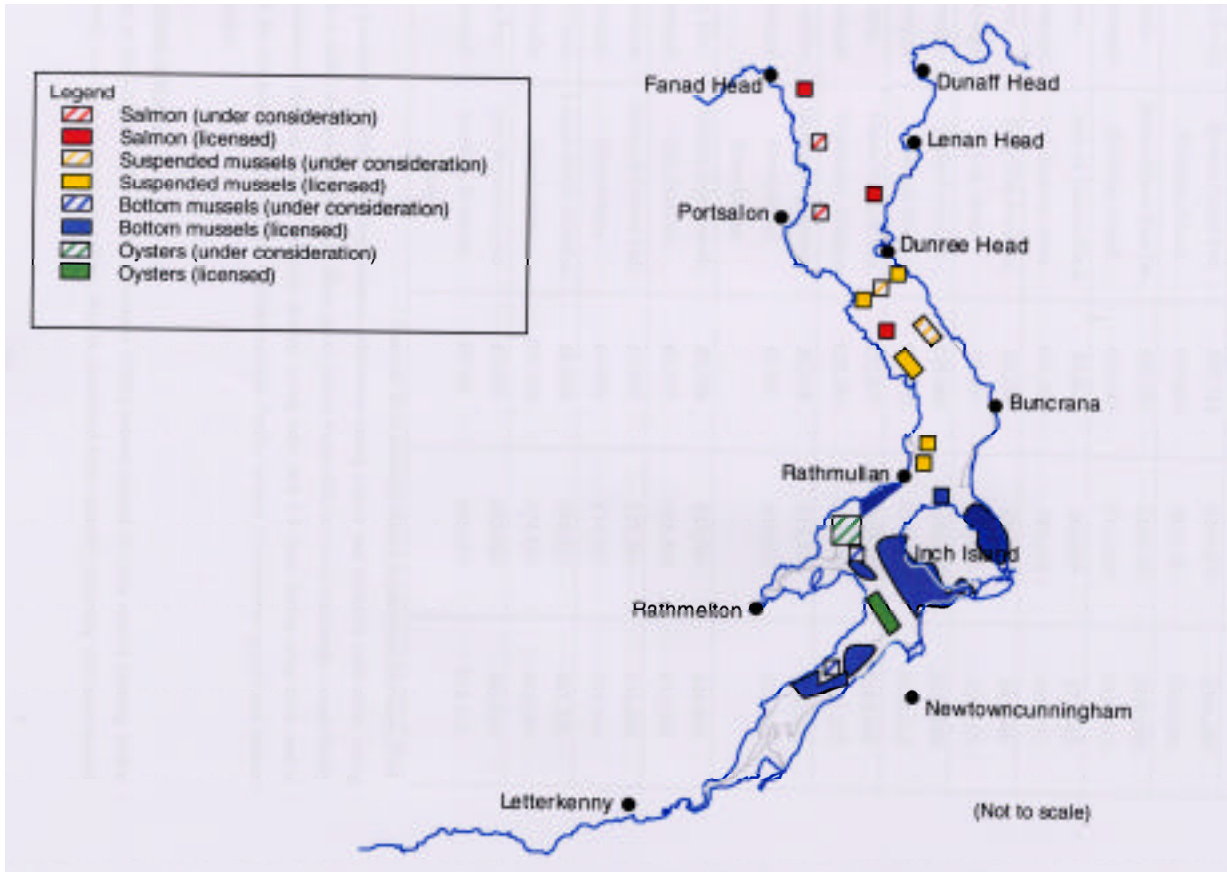


Fig. 7. Map of Lough Swilly showing 2002 aquaculture sites (licensed and under consideration) for finfish and shellfish

**TABLE 2 – PRIVATE PROJECTS IN CO. DONEGAL THAT HAVE RECEIVED FINANCIAL ASSISTANCE UNDER THE NATIONAL DEVELOPMENT PLAN 2000-2006, FIRST TRANCHE**

<b>Location</b>	<b>Company</b>	<b>State Aid</b>	<b>FIFG Aid</b>	<b>Total Aid</b>
Lough Swilly	Bradán Fanad Teo. Kindrum, Fanad.	<b>£37,712</b> _47,884	<b>£263,977</b> _335,181	<b>£301,689</b> _383,086
Glink, Co. Donegal	Bradán Maoil Rua Teo., Kindrum, Fanad.	<b>£35,101</b> _44,569	<b>£245,707</b> _311,983	<b>£280,808</b> _356,552
Inver, Co. Donegal	Creevin Salmon Farm Ltd., Creevin, Inver.	<b>£9,064</b> _11,508	<b>£63,449</b> _80,563	<b>£72,513</b> _92,072
Inver, Co. Donegal	Eany Fish Products Ltd., Inver	<b>£5,250</b> _6,666	<b>£36,750</b> _46,662	<b>£42,000</b> _53,329
Killybegs, Co. Donegal	Ocean Farm Ltd; Donegal Road	<b>£28,000</b> _35,552	<b>£196,000</b> _248,868	<b>£224,000</b> _284,421
Pettigoe, Co. Donegal	Fanad Pettigoe Teo; Tievetooley, Pettigoe	<b>£22,827</b> _28,984	<b>£159,788</b> _202,888	<b>£182,615</b> _231,873
Mountcharles, Co. Donegal	Donegal Aquaculture Services Ltd; Rossylongan	<b>£2,348</b> _2,981	<b>£16,439</b> _20,873	<b>£18,787</b> _23,854
Mulroy Bay, Co. Donegal	Mulroy Bay Mussels Ltd; Cranford	<b>£3,256</b> _4,134	<b>£22,786</b> _28,932	<b>£26,042</b> _33,066
Mountcharles, Co. Donegal	Donegal Oysters Ltd; Rossylongan	<b>£3,937</b> _4,998	<b>£27,558</b> _34,991	<b>£31,495</b> _39,990
Farland Creek, Lough Swilly	Lough Swilly Shellfish, Carndonagh	<b>£8,416</b> _10,686	<b>£58,912</b> _74,802	<b>£67,328</b> _85,488
Mulroy Bay, Co. Donegal	Iasc Sligoeisc Uisce Leathan, Kindrum, Fanad	<b>£7,692</b> _9,766	<b>£53,842</b> _68,365	<b>£61,534</b> _78,132

Source: Bord Iascaigh Mhara Aquaculture Division, 2001.

The best locational conditions for both salmon cultivation (using cages) and shellfish cultivation (using long lines or rafts) are areas of sheltered, deep, good quality water with fast water exchange. Lough Swilly has an estimated flushing time of 2.0 days during spring tides and 5.9 days during neap tides and is important for the production of mussels (*Mytilus edulis*), Pacific oysters (*Crassostrea gigas*) and salmon (*Salmo salar*).

#### Bottom mussel cultivation

According to the Lough Swilly CLAMS document (2001) bottom mussel (*Mytilus edulis*) farming within Lough Swilly is a form of extensive culture. Seed is transferred from naturally occurring wild seed mussel

beds to culture pots/ licensed areas where conditions are more favourable, growth and survival rates are improved and the stock can be managed more effectively. No structures are used for the culture of bottom mussels, and most of the beds are sub-tidal therefore, the general public is not aware of their existence (Lough Swilly CLAMS, 2001). Mussel farming has been in operation in Lough Swilly since the early 1980s. Farming developed around a co-operative system, which individuals have since evolved to develop their own specific areas, and some have even diversified into different species. Production volume and value of bottom mussels cultivated in Lough Swilly is shown in Table 3 below.

**TABLE 3 - PRODUCTION VOLUME AND VALUE OF BOTTOM MUSSELS CULTIVATED IN LOUGH SWILLY**

Year	Production (Tonnes)	Value (IR£)	Value (Euro)
1998	340	119,000	151,113
1999	20	8,000	10,160
2000	600	240,000	304,800
2001*	1,000	400,000	508,000

**Source:** BIM Employment/Production Survey in Lough Swilly CLAMS, 2001

\*projected figures

Rope mussel farming

Rope grown mussels (*Mytilus edulis*) in Lough Swilly are farmed using a suspended culture system. This involves the placing of naturally collected mussel seed into mesh stockings, which are then suspended from floating rope long-lines in the water column of the growing areas. As with bottom mussel farming, mussels cultured using suspended culture techniques obtain their food by filtering microscopic algae from the water. Within 9-18 months, thin shelled, sand-free mussels with high meat contents can be harvested. The first rope mussel farm in Lough Swilly was established in 1988. Since then two other farms have been established with a further two sites recently approved for licences (Lough Swilly CLAMS, 2001). Production volume and value of rope mussels cultivated in Lough Swilly are given in Table 4.

**TABLE 4 - PRODUCTION VOLUME AND VALUE OF ROPE MUSSELS CULTIVATED IN LOUGH SWILLY**

Year	Production (Tonnes)	Value (IR£)	Value (Euros)
1998	0	0	0
1999	0	0	0
2000	0	0	0
2001*	400	200,000	254,000

**Source:** BIM Employment/Production Survey in Lough Swilly CLAMS, 2001 \*projected figures

Pacific Oyster farming

For many years France has dominated the oyster market both in terms of supply and demand but the unique nature of this market is that the French producers cannot supply the demands of their local markets, as consumption has more than doubled in the past twenty years (CIRCA Report, 2000). Oyster farming within Lough Swilly began in the early 1990s but is now a form of intensive culture. Cultivation of the Pacific oyster (*Crassostrea gigas*) is carried out by growing oysters in bags placed on trestles. Trestles are metal frames measuring 3 metres by 1 metre that stand 0.4 metres in height and hold five bags each. Bags are made of a plastic mesh and are fastened to trestles using rubber straps. Bags vary in mesh size depending on oyster stock grade (4 millimetres, 7 millimetres, 9 millimetres and 14 millimetres). Farms within Lough Swilly are positioned between Mean Low Water Spring and Mean Low Water Neap, allowing 2.5 to 3.5 hours exposure depending on prevailing weather conditions. According to the Lough Swilly CLAMS document (2001) this translates to approximately 15% visual exposure during daylight hours over a typical month. There are currently six licensed sites, with only one commercial farm in operation, with five licences approved over the last two years (DMNR, pers. comm., 2002). Production volume and value of pacific oysters cultivated in Lough Swilly are given in Table 5.

**TABLE 5 - PRODUCTION VOLUME AND VALUE OF PACIFIC OYSTERS CULTIVATED IN LOUGH SWILLY**

Year	Production (Tonnes)	Value (IR£)	Value (Euros)
1998	55	63,250	80,327
1999	90	158,400	201,168
2000	80	92,000	116,840
2001*	165	189,750	240,982

**Source:** BIM Employment/Production Survey in Lough Swilly CLAMS, 2001      \*projected figures

Salmon farming

The ideal conditions for growing Atlantic salmon include availability of highly indented fjord-like coastlines, which offer physical protection of the sites, combined with necessary temperatures and temperature variations, currents and tides. Salmon farming is a relatively new industry, which, after more than two decades of development has achieved good growth, increasing market share in the finfish industry and is now operating on substantial economies of scale. There is one commercial salmon farming operation in Lough Swilly, namely Marine Harvest Ireland (formerly Fanad Fisheries). This company was set up in 1979 and has operated a salmon (*Salmo salar*) production site at Anny Point on the western side of Lough Swilly since 1985. The annual licensed capacity of this site is 1,000 tonnes of salmon. Marine Harvest Ireland is a fully integrated salmon farm, meaning it carries out all phases of the business, starting with taking the ova from broodstock to packaging the final product. Nationally salmon production has grown from 4,075 tonnes in 1988 to 15,441 tonnes in 1997 with a value of £39,957 million (\_50,734 million) (CIRCA Report, 2000). Marine Harvest Ireland now represents approximately 12% of Ireland’s national production (Lough Swilly CLAMS, 2001). For the year 1999, Marine Harvest Ireland had a turnover of

£19.2 million (approximately £24.4 million) and directly employed 161 personnel mainly from within relatively remote Fanad communities (Lough Swilly CLAMS, 2001) (Table 6).

Marine Harvest is currently licensed to produce 1,500 tonnes in L. Swilly. In 2001/2002 it received additional licensed capacity of 500 tonnes. This may be distributed over 3 possible locations in the Lough - Anny Point (the current production site), Binnaweelamore and Callagh. At the Anny Point site 27 x 25m diameter plastic cages have been deployed.. The other two sites are intended as rotation/fallow sites only. The latter two are new sites which are planned to be developed in time with the introduction of new offshore technology. A new design which was trialled at Binnaweelamore was unsuccessful due to wave fetch and storm forces.

The company believes there is little potential for expansion because of shallow water, exposure to storms and high current speeds.

**TABLE 6 - PRODUCTION VOLUME AND VALUE OF SALMON CULTIVATED IN LOUGH SWILLY**

Year	Production (Tonnes)	Value (IR £)	Value (Euros)
1998	1,128	2,968,000	3,347,904
1999	917	3,146,000	2,884,882
2000	967	3,567,000	3,449,289
2001*	1,000	3,050,000	3,872,700

**Source:** BIM Employment/Production Survey in Lough Swilly CLAMS, 2001

\*projected figures

### **Land – Based Activities**

#### Golf

There are a number of golf courses around Lough Swilly. Letterkenny Golf course is an 18-hole parkland course located along the shores of the Lough. Northwest Golf Club is situated in Lisfannon and has 18-holes also. A 9-hole course is located in Buncrana. Portsalon has an 18-hole course, while south in Rathmullan there is another 9-hole course.

#### Horse-riding

There are two equestrian centres around Lough Swilly. Inch Island Stables is a family run school which operates two beach rides as well as rides in the surrounding area. Golden Sands Equestrian Centre in Rathmullan also utilises the nearby beaches for riding activities.

### Cultural sites

Limited exploitation of cultural sites has taken place around the Swilly. The Dunree Fort museum offers opportunity to explore this largely Victorian complex. The Flight of the Earls Visitor Centre at Rathmullan is located in a victorian defensive structure and provides interpretations of the event in 1607 that saw Hugh O'Neill and Rory O'Donnell flee Ireland. Ramelton Heritage Centre, centres on the birthplace of Francis Makemie (born in 1658) who emigrated in 1683 and founded the Presbyterian church in America. Several other sites offer the potential for enhanced exploitation.

### Coastal Walks

Co. Donegal with the second longest coastline in Ireland offers ample opportunities for coastal walking and sightseeing. There are a few advertised coastal routes around Lough Swilly namely, beach walks on both shores of the Lough and Rathmullan coastal walk between private gardens and woodlands along the shore. Inland there are walks along the Crana river in Buncrana and Letterkenny town walk. The Marine Institute (1999) stated that many of the walks in Donegal are not sign-posted on the ground, making them difficult for the visitor to find. They suggest the development of a county signage scheme with accompanying maps and walks guide.

Blue Flag Beaches: Tied to beach walking and seaside holidays is the Blue Flag Beach Scheme. This is a voluntary, non-statutory, quality assurance scheme aimed primarily at recreational beaches. This European wide scheme is administered by the Foundation for Environmental Education in Europe (FEEE), at a European level, and by An Taisce (the National Trust for Ireland) in Ireland. Under this scheme blue flags are awarded to beaches that meet specific criteria related to water quality, visitor facilities, beach management (including litter control), environmental information and display facilities. With respect to water quality, this is assessed in accordance with the European Directive on Bathing Water Quality. At a site-specific level this scheme is implemented by the local authority, Donegal County Council. Donegal had twelve such beaches in 2001. Those around Lough Swilly include Lisfannon and Portsalon. As an indicator of quality Blue Flag status is important for tourism and many other Donegal beaches do not meet the parking facilities and supervisory criteria needed to attain the award.

### Coastal Drives

There are 5 popular coastal drives around Donegal. Two of these offer views of Lough Swilly. The Inis Eoghain 100 drive around the Inishowen peninsula follows the eastern shores of the lough. On the western shores the Fanad Scenic Tour passes through the towns of Rathmullan and Portsalon with striking views of Ballymastoker Bay and Fanad Lighthouse. No figures are available on use by tourists, however, they are likely to contribute in secondary revenue generation, for example, bars, restaurants, etc.

### Environmental Interest

Lough Swilly is an important site for waterfowl in Autumn and Winter. Approximately 80% of the Donegal coastline is either listed or designated as Natural Heritage Areas (NHAs), Special Protection Areas (SPAs) for birds, or Special Areas of Conservation (SACs) for habitats. In national terms approximately 7% of land area is subject to NHA status. Lisfannon, a blue flag beach, is a Natural Heritage Area and a key wetlands site for birds. Fahan Wood is within 1km of the beach and is classified as being of Regional importance, noted for Oak, Hazel and Rowan. In Co. Donegal the percentage of designated areas is higher and one of the key areas is Lough Swilly. SAC designations within the county are extensive and include the whole of the northern coastlines of the Inishowen and Fanad peninsulas. These are outlined below.

### Lough Swilly SPA and SAC

This large designated site comprises the inner part of the Lough. It extends from below Letterkenny to just north of Buncrana. The site is estuarine in character, with shallow water and intertidal sand and mud flats being the dominant habitats. Bivalves and polychaete worms are well represented in the macro-invertebrate fauna, with species such as Cockles (*Cerastoderma edule*), Mussels (*Mytilus edulis*), Baltic Tellin (*Macoma balthica*), Ragworm (*Nereis diversicolor*) and Sand Mason (*Lanice conchilega*) being common (Dúchas, 2000a). Salt marshes are also well represented in the inner sheltered areas of the site, with good examples in the Ramelton area. These marshes are characterised by species such as Thrift (*Armeria maritima*), Sea Milkwort (*Glaux maritima*) and Red Fescue (*Festuca rubra*). Two woodlands occur near to the north-western shore of the Lough. These are Rathmullan and Carradoan Woods, the former being a National Nature Reserve. They are dominated by Sessile Oak (*Quercus petraea*) and Birch (*Betula pubescens*). The site supports a population of otter (*Lutra Lutra*), a species listed in Annex II of the EU Habitats Directive. According to Dúchas (2000a) Lough Swilly was proposed as an SAC because it contains good examples of at least four habitats listed in Annex I of the Habitats Directive (i.e. estuaries, lagoons, Atlantic salt meadows and old oak woods). Dúchas has prepared a draft conservation management plan for the Lough Swilly SPA, and is preparing one for the Lough Swilly SAC. These plans are not yet ready for public consultation (Dave Duggan, Dúchas, pers. comm., April 2002).

### North Inishowen Coast SAC

The North Inishowen Coast SAC stretches from Crummies Bay in the west up to Malin Head and back down to Inishowen Head to the east. It encompasses an excellent variety of coastal habitats including high rocky cliffs, offshore islands, sand dunes, salt marsh, a large intertidal bay and rocky, shingle and sand beaches. There are excellent raised beaches along the east coast including the oldest and best preserved late-glacial fossil coast in Ireland (between Ineuran Bay and Esky Bay). It is the only well preserved such coast in Europe and so is of international importance. Sea cliffs are a feature of the site, with the best examples found in the west of the site (Dunree to Leenan Head and Dunaff Head) and in the area to the north-west of Glengad Head (Dúchas, 2000b). Cliffs are often less than 50 metres in height, though they

reach over 200 m at Dunaff and to the north-west of Glengad Head. The dominant rock type is quartzite which is particularly hard and unyielding. The vegetation cover of the cliffs is variable, depending on factors such as underlying geology, aspect and the degree of exposure to winds and sea-spray. Common plant species of the rocky cliffs Thrift (*Armeria maritima*), Rock Spurrey (*Spergularia* spp.), Sea Aster (*Aster tripolium*), Red Fescue (*Festuca rubra*), and Scurvey Grass (*Cochlearia officinalis*). The cliffs contain a number of rare plant species, notably Scot's Lovage (*Ligusticum scoticum*), a legally protected species. Two other scarce species recorded at the site, Moss Campion (*Silene acaulis*) and Purple Saxifrage (*Saxifraga oppositifolia*), are listed in the Red Data Book (Dúchas, 2000b). Two Annex I Birds Directive species breed within the site as well as a number of other important species. This northern site is of high conservation value because of the extensive area of relatively unspoilt coastal habitats and the range of plant and animal species that these habitats support. Of particular note is the presence of good examples of two EU Habitats Directive Annex I priority habitats, fixed dunes and machair. Very good examples of several other Annex I habitats are found, notably sea cliffs, vegetated shingle banks, dry heath and intertidal sand and mud flats.

#### Ballyhoorisky Point to Fanad Head SAC

This large coastal site lies approximately 20 kilometres north of Millford in north Donegal. The coastline is a series of bays with rocky headlands and steep cliffs at the east end. The underlying geology is predominantly granodiorite, a basic igneous rock. The east-facing coast is of quartzite and is exposed as a rocky shore and low cliffs. Large quantities of windblown sand dominate the northern section of the site. Vegetated sea-cliffs, a habitat listed on Annex I of the EU Habitats Directive, are well represented at the site and are best developed to the south of Fanad Head where they reach a maximum height of 120m. The vegetation of the habitat has been little studied, however species such as Thrift (*Armeria maritima*), Sea Campion (*Silene vulgaris* subsp. *maritima*), Common Scurvygrass (*Cochlearia officinalis*) and the scarce Roseroot (*Rhodiola rosea*) occur (Dúchas, 1999). The Red Data Book species Scot's Lovage (*Ligusticum scoticum*), has been recently reported from sea cliffs at the site. Shingle beaches, another habitat listed on Annex I of the EU Habitats Directive, are a feature of this site. These are best developed in the various small sheltered bays, especially between Ballyhoorisky Point and Rinboy Point and also along the stretch of coastline between Rinmore and Currin Point. This site contains many other coastal habitats including sandy beaches with drift line vegetation, sand dunes, wetlands, coastal heath and open marine water, the latter included in the site for its ornithological interest. The site is of ornithological importance for waterfowl, with nationally important numbers of Sanderling, Eider and Long-tailed Duck, as well as good numbers of Oystercatcher, Ringed Plover and Turnstone (Dúchas, 1999). Peregrine Falcon and Chough both breed within the site - these are listed on Annex I of the EU Birds Directive. The site is also used by Otter, Frog and Irish Hare, each of which is listed in the Red Data Book.

### Wildlife Watching

It has been stated that the north west coast of Ireland is relatively poorly studied with respect to the distribution and numbers of mammals, in comparison with other parts of the coasts of Ireland and Britain (Lough Swilly CLAMS, 2001). Locally, however, stories are told of dolphin and porpoise sightings as well as basking sharks and killer whales at the mouth of the Lough during Summer months. Grey seals (*Hilichoerus grypu*) and common seals (*Phoca vitulina*) have been observed within Lough Swilly (Lough Swilly CLAMS, 2001).

### Residential, commercial and industrial

Letterkenny is the largest town in Co. Donegal with a population of approximately 15,000. It is situated at the mouth of the River Swilly where it meets the Lough. It has a range of employers including factories, hospitals, schools and a third level institution as well as tertiary service institutions.

Buncrana is the largest town in the Inishowen peninsula with a population of approximately 4,500. It is located on the eastern shore of Lough Swilly and is an important industrial centre. The largest employer in this town is Fruit of the Loom, a textile manufacturer. In 1998 the company moved some of its production to Morocco resulting in a loss of 120 jobs in the town. The factory has licence to dispose effluent in the Swilly. Buncrana receives a number of visitors from nearby Derry City and county. This is an important source of tourist income for the town. Currently plans are underway to extend the harbour in the town.

Rathmullan is located on the western shore of the Swilly and is important in nautical and fishing terms. Historically the Flight of the Earls took place from Rathmullan and later in 1798 this was where Wolfe Tone was captured before being taken to, and held in, Letterkenny en route to Dublin. In 1957 the main pier was built with a new slipway recently completed (2001). Currently Rathmullan is an important tourist resort with a long sandy beach. A number of holiday homes have been built in the village and surrounding area in recent years.

Other villages around Lough Swilly rely on income generated from agriculture, tourism, fishing and aquaculture. The tourism industry is largely seasonal and many accommodation providers close for the winter season. Caravan sites are located in Buncrana and Portsalon. The low-lying land around Lough Swilly is generally used for grazing. On the eastern side of the Lough the land tends to be more hilly and mountainous resulting in poor turnover. Like most of Donegal, the most intensive development over the past five years has been holiday village and holiday home developments.

### **Discussion**

There is clearly a wide variety of uses in and around Lough Swilly that exploit various aspects of its natural resources. A number of these uses are symbiotic and the diversity of activity is a key to sustaining

livelihoods in the area. For example, fishing is highly variable in terms of the species caught at various times of year and many fishermen engage in additional activities. Angling clubs and commercial fishermen both gain from sea angling excursions and tourist facilities benefit from the attraction of anglers, recreational users and sightseers drawn to area for its natural resources. There are, however, real and potential conflicts. For example, aquaculture is believed by some to impact negatively on navigation and fishing and high speed water craft create noise and disturbance to wildlife and may impede enjoyment by other visitors. Those involved in the utilisation of the lough (including those who live and work around it) have much to offer to its future management in terms of information, ideas and vision. A structure to engage with these users and residents would enable these management benefits to be realised.

“ Wherever aquaculture has developed in Atlantic Canada it has encountered opposition. Property owners complain of the aesthetic damage, recreational users of the waterways protest against interference to their right of free passage and the traditional fisheries claim that aquaculture interrupts stock migrations, foul the seabed, excludes access to their fishing ground and pollutes the water with chemicals. In addition, coastal industries are concerned that aquaculture will require pristine water, thereby inflicting environmental costs on them.” (Ridler, 1997). Such a situation appears to have developed in lough Swilly with the advent of aquaculture.