4.29	**Lough Gill, County Kerry** O.S. Q 606 142 O.S. Discovery Sheet 71

Conservation Designation: Tralee Bay and Magharees Peninsula, west to Cloghane SAC 002070, SPA 004011, pNHA 002070

General description:

Lough Gill is situated on the north coast of the Dingle peninsula, 1 km from the town of Castlegregory. A large (144ha) shallow (up to 2m), natural **sedimentary lagoon** in a classical position lying between two barriers which unite to form a tombolo connecting the mainland to a group of the Magharee islands.

Figure 29.1 Location map of Lough Gill.

Lough Gill was surveyed in 1996 for vegetation (Hatch 1996, Hatch & Healy 1998), aquatic fauna (Healy & Oliver 1996, Oliver & Healy 1998) and ecotonal coleoptera (Good 1996, Good & Butler 1998). Results of these surveys are summarised by Healy *et al*. (1997a,b,c), Healy & Oliver (1998) and Healy (1999, 2003).

Stations used for faunal sampling are not necessarily the same as those used for vegetation or ecotonal coleoptera.

Flora

Lough Gill was surveyed by P. Hatch in 1996 (Hatch 1996, Hatch & Healy 1998) and briefly by C. Roden in 1998 (Roden 1999).

In 1996 it was surveyed by transects only.

Ruppia maritima was found growing in fairly dense patches near the freshwater inflow, the outlet channel and the south east shore. It is extensive around the outlet, growing in dense beds to 50 metres out from the shore. *Potamogeton pectinatus* was found at the same three transects at more or less sparse cover. Both species are seen to have a wide distribution across the site. Locally abundant ***Zannichellia palustris*** grows with the last two species at the freshwater inflow and south eastern transect sites. *Myriophyllum spicatum* was found at three places in the western half of the lagoon. ***Chara aspera*** var. *aspera* showed a wide distribution, occurring at the south western, south eastern and north central transect sites.

There is a notable diversity of marginal species and communities here. *Phragmites*, *Schoenoplectus* and *Scirpus maritimus* all occur in fairly extensive mixed and single species swamps. *Typha latifolia* occurs with *Phragmites* along the north shore and *Iris psuedacorus* is locally dominant on the south eastern shore. Freshwater *Phragmites* fen can be found in the south east and associated with the main freshwater inflow. *Rumex hydrolapathum* occurs in this community.

Hatch described Lough Gill as a representative of mildly brackish conditions. Aquatic species composition is interesting and distribution and abundance worthy of further study. Diversity of marginal communities is fairly high, but as a full aquatic survey was not possible Lough Gill was only rated as **"potentially valuable".**

In 1998 Roden examined a small area in the north east of the lake, including a dense stand of *Phragmites australis* and shallow open water. Two unusual plants were found in the reedswamp, ***Ceratophyllum demersum*** and ***Aster lanceolatus***. The former is an uncommon native species while the latter is a scarce introduction from North America. The open water was extremely shallow, with patches of ***Ruppia cirrhosa*** in an unusual small form but with the characteristic very long flower or fruit peduncules reaching the water surface. Two charophytes were found; abundant *Chara aspera* and occasional patches of ***Chara canescens***. The latter species was not found in 1996 but had been recorded from Lough Gill at the start of the century. Both species, like *R. cirrhosa*, were dwarf forms about 2-4cm high.

A total of 22 floral taxa were recorded in Lough Gill, of which three are lagoonal specialists (*C. canescens, R. maritima, R.cirrhosa)*:

Chara canescens was recorded in **eight lagoons** during the surveys - North Slob, Lady's Island L., and Tacumshin L., Co. Wexford, L. Gill, Co. Kerry, L. Murree, Co. Clare, Tanrego, Co. Sligo and Durnesh L. and Inch L., Co. Donegal (Hatch & Healy, 1998; Roden, 1998; Roden 2004). It was also recorded at Shannon Lagoon in 1996 (Hatch and Healy 1998), but not refound at that site in 2003 (Roden 2004). This species is listed in the Red Data Book for Britain and Ireland (Stewart and Church 1992). Although recorded from several European countries it is believed to be declining. It is believed to be extinct in Holland, and there are only a few records from

the U.K. since 1960. These Irish locations are very important in European terms, and it is especially encouraging to have found new sites.

***Ruppia* spp.** are the most characteristic aquatic plant taxa of Irish coastal lagoons. The species are hard to distinguish when not flowering, and remain uncertain at some sites, but *Ruppia* of one species or the other (*R. maritima, R. maritima var brevirostris, R. cirrhosa*) was found at 62 of the 87 lagoons (71.3%) surveyed, and is one of the most useful indicators of coastal lagoon status (*R. maritima* at 41, *R. cirrhosa* at 22 sites).

Ruppia maritima appears to be the more common of the species and was found at 41 of the lagoons surveyed. ***Ruppia cirrhosa*** is believed to tolerate higher salinities than the former species and to be less common, but neither of these statements is clearly supported in Irish lagoons and the two species were often found growing together. *Ruppia cirrhosa* was only identified at 23 lagoons, but species was not determined at 12 sites. ***Ruppia maritima var brevirostris*** was only positively identified at two sites (Ballyteige, Co. Wexford and Inch L., Co. Donegal).

The presence of *C. canescens* greatly increases the conservation value of this site, and together with the fact that both *Ruppia* species were recorded, and the general floristic richness of the site results in an evaluation of **high conservation value**.

Fauna

Seven stations were selected for sampling of aquatic fauna in 1996 (Healy & Oliver 1996, Oliver & Healy 1998) (Figure 29.2, Table 29.1).

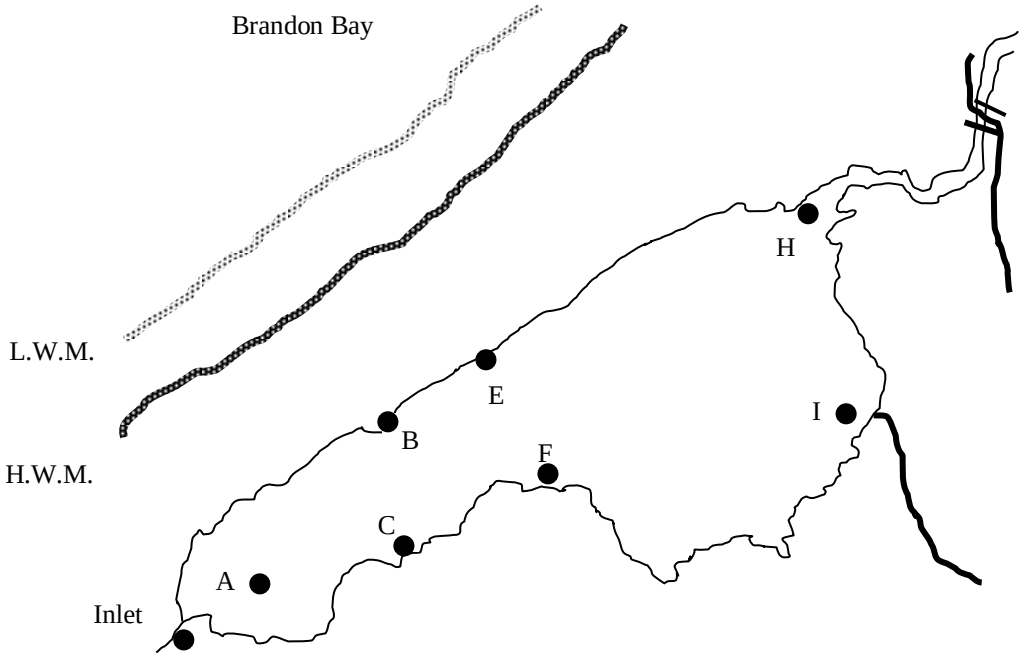

Figure 29.2 Sampling stations used at Lough Gill.

A total of 43 taxa were recorded in Lough Gill, of which 35 were identified to species (Table 29.2), but this list included only one species (*Lekanesphaera hookeri*) regarded as a lagoonal specialist and one rare species (*C. sternalis*).

Lekanesphaera hookeri is a common lagoonal isopod crustacean, found at 37 of the 87 lagoons surveyed (42.5%).

Cercyon sternalis Water-beetle recorded at L. Gill. There are only three other Irish records, from Kerry (Bullock 1935) and two other recent records from L. Gash, Co. Clare and Portumna, Co Galway (Owen 1997).

Most of the beetles were taken in light traps and could have been attracted by the lights while flying. Some brackishwater species e.g. *Lekanesphaera hookeri* and *Pomatoschistus microps* were confined to the area near the mouth of the sea inlet while others e.g. *Clitellio arenarius* and *Neomysis integer* were more widely distributed.

Table 29.1 Positions, salinity, temperature, water depth and substratum of sampling stations in Lough Gill 11-13/9/96.

	Inlet	Sta A	Sta B	Sta C	Sta D	Sta E	Sta F	Sta G	Sta H	Sta I
GPS position		Q 5933 1346	Q 5956 1381	Q 5967 1341	Q 5983 1373	Q 6030 1396	Q 5955 1382	Q 6077 1349	Q 6122 1464	Q 6134 1403
Salinity(psu)	0	0	0	2	2	2	2	0-1	2	1-2
Depth(cm)	0-200	25-100	25-80	0-50	100	40-50	200	0-25	25-50	25-50
Substratum	Sand	Sand	Sand occasional stones	Stones and organic silt	Sand	Sand	Fine organic silt	Rich organic mud	Clean sand	Sand, occasional stones

The fauna is rich and diverse, comprising both freshwater and brackishwater elements. Hemiptera (6 spp.) and Coleoptera (11 spp.) were especially abundant and diverse. The faunal assemblage typifies a system which is essentially freshwater but which receives small incursions of seawater. All of the hemipterans and beetles are freshwater species. The long, sluiced inlet and weir apparently prevent crabs and prawns entering the lake but juvenile flounder and mullet were able to find their way in during 1996. The aquatic fauna appears to be diverse and includes one rare species but is typically freshwater. A significant brackish element is present but only one lagoonal specialist was recorded. As a result of this, based on the invertebrate fauna Lough Gill is rated only as of **moderate conservation value** as a coastal lagoon.

Lough Gill was one of the four sites selected for seasonal monitoring from 2002-2003 (Oliver 2005).

Ecotonal Coleoptera

Fifty four species of staphylinid and 20 species of carabid beetles were recorded at lough Gill (Good & Butler 1998), of which two species are indicator species of well-developed coastal shoreline habitat (*Gabrius keysianus, Philonthus furcifer*). The site was evaluated as of **significant conservation value**. The rating of significant refers to sites reaching a status that is worth conserving, in terms of their ecotonal fauna.

Table 29.2 Fauna Recorded at Lough Gill, Co. Kerry. July and September, 1996. L.T. = light-trap ( ) = records for July, + = present, o = occasional, c = common, a = abundant, F = fyke net. Species in bold text are lagoonal specialists or apparently rare.

		Sampling Stations														
		Inlet	L.T.	A	L.T.A	B	L.T.B	C	E	L.T.E	F	L.T.F	G	H	L.T.H.	I	L.T.I
Annelida	Hirudinea			+		+		+	+							+	
	Clitellio arenarius															+	+
	Naididae																+
Crustacea																	
Ostracoda			+	+	+	+	+	+	+	+	+	+					+
Copepoda			+	+	+	+	+				+	+					+
Mysidacea	*Neomysis integer*					+		+	+	+	c	150	o	+	1	(+)	(+)
Isopoda	***Lekanosphaera hookeri***													a	25	(+)	(+)
Amphipoda	*Gammarus zaddachi*					+					+			+	+		
	Melita palmata								+	+							
Arachnida	Hydracarina		12	+			+	+								+	+
Insecta																	
Ephemeroptera	*Cloeon simile*		+		+		+										
	Procloeon bifidum		+														
Odonata	*Ischnura elegans*	+						+	+		+			+	1	+	+
Plecoptera															1		
Trichoptera						+		+									
Hemiptera	*Nepa cinerea*															+	
	Corixidae	+	+	+	100	+	150	+	+	+	+	300	o	+	65	+	+
	Callicorixa praeusta			+	+	+	+		+	+			a			(+)	
	Corixa punctata															+	+
	C. panzeri	a	+	+	+			a	+	a	+	+	+	+	c	c	c
	Arctocorisa germari			+	+												
	Sigara dorsalis	a	a	a	a	a	a	a	+	a	+	a	a	+	+	c	c
Coleoptera	***Cercyon sternalis***																
	Enochrus testacus													+			
	Haliplus confinis						+			+		+					
	H. fulvus				+		+										
	H. lineatocollis				+												
	Hygrotus inaequalis													+		(+)	
	Laccobius biguttatus															(+)	
	L. minutus						+										
	Laccophilus minutus				+		+										
	Llybius fuliginosus																
	Nebrioporus depressus						+			+							
Diptera	Chironomidae	+				+		+					+	+			
	Tipulidae														+	+	+
Mollusca																	
Polyplacophora	*Lepidochitona cinerea*														1		
Prosobranchia	*Potamopyrgus antipodarum*	+				+		+	+	+			+	+	+	+	+
Pulmonata	*Lymnaea peregra*			+		+		+	+				+		+	+	
	Sementina complanata	+													+	+	
Bivalvia	*Cerastoderma sp.*			shells		shells									shells	shells	shells
	Pisidium sp.					+		+	+				+		+	+	+
	Sphaerium sp.	+				+							+				
Bryozoa	*Plumatella repens*							a								(+)	
Teleostei	*Anguilla anguilla*		1	F,1		F,46		+			F, 94				+	+	+
	Gasterosteus aculeatus	a	49	a	130	a	14	c	c	4	+		+	+	4	+	+
	Mugilidae										F, 3						
	Platichthys flesus			F, 23		+					F, 6		+	+	+	+	+
	Pomatoschistus microps													c			
	Salmo trutta			F, 3							F, 2						

Summary

The lake is an important trout fishery and of great concern to the local inhabitants as a local resource to encourage tourism. Recent algal blooms, presumably resulting from eutrophication have caused fish kills, and an apparent decline in waterfowl numbers.
The lake is a shallow natural lagoon "in a classical position" (Guilcher & King 1961) lying between two barriers which unite to form a tombolo connecting the mainland to a group of the Magharee islands. Geomorphologically it is a classic example of a large, shallow, low salinity **sedimentary lagoon** lying between two sedimentary barriers. However, the predominance of freshwater species among the aquatic fauna and the localised occurrence of the single lagoonal specialist near to the sea inlet, casts some doubt upon the acceptance of the lake as a true lagoon based on the fauna alone. However, the presence of both ***Ruppia maritima*** and ***Ruppia cirrhosa*** and the rare charophyte ***Chara canescens*** (all lagoonal specialists) greatly increases the value of the site and justification for regarding Lough Gill as a coastal lagoon, and not a freshwater lake. However, its conservation value as a coastal lagoon depends entirely on management. If seawater is allowed to enter on a regular basis, Lough Gill will remain a classic brackish lagoon. If not, it will become a freshwater lake.
The L. Gill area is also of major importance as the main breeding site of the Natterjack toad (*Bufo calamita*) (see Gresson and O'Dubhda 1971) and is scheduled for designation as a National Nature Reserve.
In conclusion, based on aquatic invertebrates Lough Gill is not of great interest as a coastal lagoon, but based on geomorphology, vegetation and ecotonal coleoptera, overall Lough Gill is rated of **high conservation value.**

Overall Conservation Value = High

Conservation Status Assessment (from Oliver 2007)	
Impacts	Extreme eutrophication at times due to agricultural activities causing algal blooms and fishkills. Relieved by modification of hydrology. Accumulation of organic material. Considerably improved. Poaching by cattle. Leisure fishing. Golf course.
Conservation Status	Unfavourable-Inadequate

Further Information

Lough Gill was surveyed in 1996 for vegetation (Hatch 1996, Hatch & Healy 1998), aquatic fauna (Healy & Oliver 1996, Oliver & Healy 1998) and ecotonal coleoptera (Good 1996, Good & Butler 1998). Results of these surveys are summarised by Healy *et al.* (1997a,b,c), Healy & Oliver (1998), and Healy (1999, 2003). Vegetation was surveyed briefly again in 1998 (Roden, 1999). Sampled seasonally from 2002-2003 and included in a biological classification of Irish coastal lagoons (Oliver 2005), and in the Conservation Status report (Oliver 2007).

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