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**Lough Murree, County Clare O.S. M 255 119**

Lough Murry / Loch Muiri

O.S. Discovery Sheet 51



**Conservation Designation:** Galway Bay complex SAC 000268, pNHA 000268

**General description:**

Lough Murree is situated on south side of Galway Bay, 12 km west of Kinvarra, County Clare. The lake has formed in limestone bedrock on which a cobble barrier has been deposited along the coastal side. A road now runs along this barrier between the lake and the sea. There is no direct communication with the sea. Seawater may enter the lake occasionally by overtopping of the barrier but the main routes are percolation and possibly through subterranean fissures in the bedrock. The lake has become highly eutrophic, with recurrent algal blooms but remains of interest due to its unusual geomorphology and rare charophyte flora. Galway University has a research station near the lake. Salinity levels varied across the site from 13-24 ‰ at time of survey.

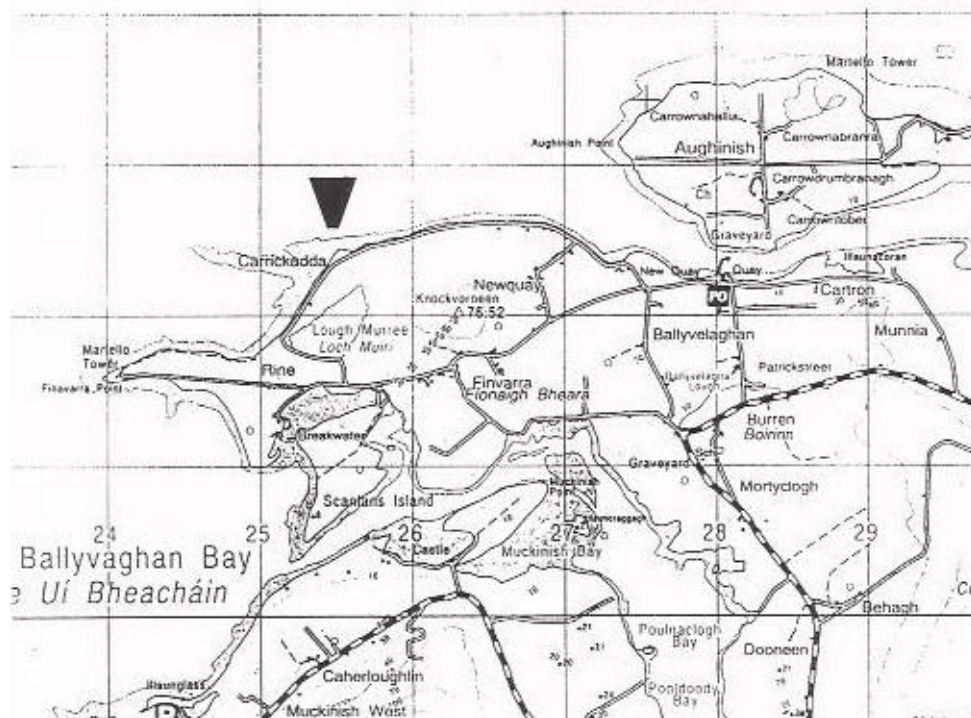


Figure 37.1 Location map of Lough Murree.

Lough Murree was surveyed in 1996 as part of the lagoon surveys, 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). The lagoon was sampled again in 2002-2003 as part of a PhD study (Oliver 2005)

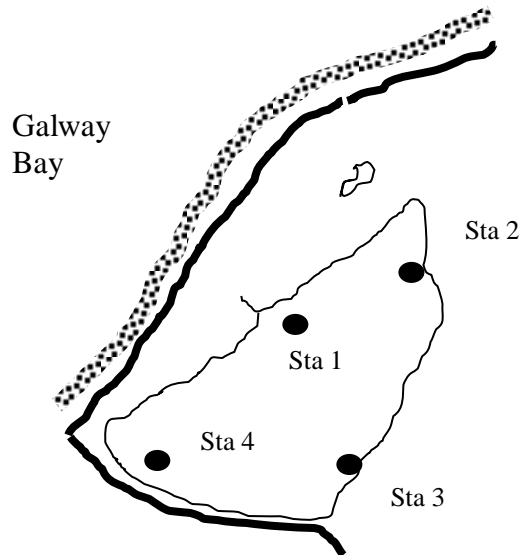


Figure 37.2 Sketch map of sampling stations used at Lough Murree.

### Flora

Twelve floral taxa were recorded in Lough Murree (Table 37.1), of which 9 were identified to species. This is a relatively low number of species but five of these are lagoonal specialists and two of these are rare in Europe. The vegetation of the Lough is notable for the abundance of these typically brackish water plants.

*Ruppia* and *Potamogeton pectinatus* occur within 20 metres of all but the north eastern shores. *P.pectinatus* is dominant in dense beds along the eastern and western shores with more or less sparse *Ruppia*. *Ruppia* is locally dominant over *P.pectinatus* in mixed beds along the southern shore. It is notable that both *Ruppia cirrhosa* and *R.maritima* occur at this site. Two rare charophytes were already known to occur here - *Lamprothamnium papulosum* and *Chara canescens*. Both were re-found during the course of this survey. Both are occasional along the western shore. *Lamprothamnium* is abundant along the southern half of the eastern shore and both species are frequent to locally abundant amongst *Ruppia* and *P.pectinatus* to at least 20 metres out from the southern shore. The presence of these rare charophytes is reason enough in itself to regard this site as valuable.

*Chara canescens* was recorded in **eight lagoons** during the lagoon 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 re-found 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.

*Lamprothamnium papulosum* was known from only three sites in Ireland before 1996 (Hatch and Healy 1998). As a result of the surveys it was relocated at two of these

sites (Lady's Island L., Co. Wexford, L. Murree, Co. Clare), but not at Tacumshin L., Co. Wexford. It is now also known from a total of 14 lagoon sites, most of which are clustered in Connemara, but there are also new records from the North Slob, Co. Wexford, L. Bofin, Co. Galway and Maghery, Co. Donegal. This species is listed in the Red Data Book for Britain and Ireland (Stewart and Church 1992). Although recorded from the Baltic to the Mediterranean and Black Sea and also South Africa, it is believed to be declining in Europe. There are only five recent records from the south of England, but there are 12 important sites in the Outer Hebrides (Bamber et al. 2001b). These Irish locations are very important in European terms.

***Chaetomorpha linum***. There is some doubt about the taxonomic status of the unattached lagoonal form of this species, and it was recorded by Hatch and Healy (1998) as *C. mediterranea*. It is a common, characteristic alga of semi-isolated Irish lagoons, recorded at 49 of the 87 (56.3%) lagoons surveyed.

Table 37.1 Positions of and type of substratum at sampling stations in Lough Murree, June 2002-August 2003 with average salinity, temperature and depth of water, and variation in percentage cover of vegetation, bare ground and rotting vegetation through the year. Text in bold indicates "lagoonal specialist" species.

	Sampling stations			
	Station 1	Station 2	Station 3	Station 4
GPS position	O 20086 47849	O 20160 48209	O 19480 48350	O 22469 47091
Mean salinity(psu) at surface	10.2	9.3	9.22	9.3
Mean salinity(psu) at depth	14.3	9.36	9.04	8.9
Min/max salinity range	1.7-24.3	1.7-12.7	1.7-11.5	1.7-10.8
Mean Temperature (°C) at surface	13.8	14	15.44	15.3
Mean Temperature (°C) at depth	13.06	13.9	14.4	14.6
Min/max temperature range	0.4-21.0	5.4-17.9	6.9-19.5	5.6-20.1
Mean Depth (cm)	67	107	67	51
Min/max depth	50-100	50-150	50-100	30-80
Substratum	soft mud, occ. stones on shoreline	soft mud, occ. stones on shoreline	gravel & soft mud, occ. stones	gravel & soft, sandy mud, occ. stones
Percentage cover:				
<b>Bacteria</b>		<i>?Beggiatoa</i>		
<b>ALGAE</b>				
Chlorophyta		<b><i>Chaetomorpha linum</i></b>		
		<i>Cladophora ?pellucida</i>		
		<i>Cladophora sp.</i>		
		<i>Enteromorpha intestinalis</i>		
Single-cell algal bloom				
<b>Charophyta</b>		<b><i>Chara canescens</i></b>		
		<b><i>Lamprothamnion papulosum</i></b>		
<b>ANGIOSPERMS</b>		<i>Phragmites australis</i>		
		<i>Potamogeton pectinatus</i>		
		<b><i>Ruppia sp.</i></b>		
		<b><i>Ruppia cirrhosa</i></b>		
		<b><i>Ruppia maritima</i></b>		
		<i>Scirpus maritimus</i>		
BARE - mineral	5-70	5-20	0-50	0-80
BARE - rotting vegetation	0-20	0-25	0-20	5-100

**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. *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 (as in Lough Murree). *Ruppia cirrhosa* was only identified at 22 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).

## Fauna

Among 25 taxa recorded, 20 are identified to species, including three which are listed as a lagoonal specialists (Table 37.1). One of the species identified (*Jaera ischiosetosa*) appears to be rare in Ireland, but is very small and may be overlooked.

Table 37.2 Fauna Recorded at Lough Murree. June and August 1996.

( ) = records for June. + = present; o = occasional; c = common; a = abundant; F = fyke net; L.T. = light-trap. Species in bold text are lagoonal specialists or rare species.

		Sampling Stations							
		Sta 1	L.T.	Sta 2	L.T.	Sta 3	L.T.	Sta 4	L.T.
<b>Nemertea</b>	Nemertea				+				
<b>Annelida</b>	<i>Hediste diversicolor</i>	c							
	<i>Clitellio arenarius</i>								+
	Mysidacea <i>Neomysis integer</i>	1	1						
	Isopoda <b><i>Jaera ischiosetosa</i></b>	12				+			
	Amphipoda <i>Echinogammarus marinus</i>								
	<i>Gammarus duebeni</i>	+	+	c	+	+		+	
	<i>Hyale</i> sp.			a					
	<i>Melita palmata</i>	+				+			
	Decapoda <b><i>Palaemonetes varians</i></b>	+	21	o	1			o	4
<b>Insecta</b>									
	Ephemeroptera			1					
	Odonata <i>Ischnura elegans</i>			+				+	
	Trichoptera (cases)	+							
	Coleoptera <b><i>Enochrus bicolor</i></b>	+							
	<i>Agabus nebulosus</i>			+				+	
	Diptera Chironomidae	c		a		a			
	Culicidae	+							
	Syrphidae							1	
<b>Mollusca</b>									
	Prosobranchia Hydrobiidae	+		250	30	+			1
	<b><i>Hydrobia ventrosa</i></b>	+		+	+	+			
	<i>Potamopyrgus antipodarum</i>	+						+	+
	<i>Littorina saxatilis</i>	+							
	Bivalvia <b><i>Cerastoderma glaucum</i></b>	shells							
<b>Teleostei</b>									
	<i>Anguilla anguilla</i>	F, 1							
	<i>Gasterosteus aculeatus</i>	+	29	o	2	c	c	+	10
	<i>Pomatoschistus microps</i>				1				

***Palaemonetes varians*** Decapod crustacean listed as a lagoonal specialist in the U.K. by Barnes (1989) and Bamber (1997), but apparently is no longer regarded as such. Although found in estuaries, this species appears to be far more characteristic of lagoons in Ireland, found in 64 of the 87 lagoons surveyed (73.6%) and may require a lagoonal environment for reproduction. Therefore, it remains on the proposed list of lagoonal specialists for Ireland.

***Enochrus bicolor*** Water-beetle recorded at 12 lagoons of the 87 surveyed, from the southern half of the country from Co. Wicklow to Connemara including the Aran Islands. There are only two recent records from N. Ireland (Nelson *et al.* 1998).

***Hydrobia ventrosa***. Gastropod mollusc commonly found in brackish lagoons and ditches and generally not on the open coast. Recorded at 18 of the 87 (20.7%) lagoons surveyed up to 2006.

***Jaera ischiosetosa*** Isopod crustacean recorded at 12 sites from West Cork to Donegal. The only previous record appears to be for L. Hyne. Co. Cork (Goss Custard *et al.* 1979).

The species assemblage typifies a medium salinity lagoon which has no direct contact with the sea. The medium salinity regime, good macrophyte growth and availability of both hard and soft substrates might be expected to provide conditions favouring a wide range of species, but the faunal richness was, in fact, low. In the absence of a sea inlet or frequent overwash, marine colonists presumably enter by way of rock fissures or some form of aerial transport. It is possible also that the eutrophic conditions which resulted in a severe algal bloom in July 1996 may have depleted the fauna. Blooms are not new to this lake, however, and were reported in the 1960s (Lansbury 1965). Previous studies indicate that conditions in the lake undergo wide fluctuations resulting in important variations in faunal composition. The salinity in 1974 (Pybus and Pybus 1981) was similar to that of 1996 but the fauna indicated a less saline regime with corixids (*Sigara stagnalis*), a beetle (*Enochrus halophilus*) (both lagoonal specialists) and a variety of insect larvae coexisting with *Neomysis*, *Palaemonetes*, *Jaera* and *Potamopyrgus*, while empty shells of barnacles and *Pomatocerus* indicated that a more marine environment had existed in the past

### **Ecotonal coleoptera**

Twenty six staphylinid and 15 carabid species were recorded in Lough Murree by Good & Butler (1998), including two indicator species (*Brundinia meridionalis*, *Stenus nigrutilus*), both of which are rare species. Based on ecotonal coleoptera, Lough Murree was described as of **significant conservation value**.

### **Summary**

The lagoon is fairly well documented. There are published accounts of algae, Hemiptera, fauna and hydrology. The presence of a University Field Station encourages further research projects. The lake obviously suffers from eutrophication and the invertebrate fauna recorded in this survey was poor. However, as a representative of an unusual morphological type of coastal lagoon with a rich aquatic flora its conservation value is high. Based on geomorphology, vegetation and an interesting ecotonal fauna Lough Murree is rated as of **high conservation value**.

**Overall Conservation Value = High**

**Conservation Status Assessment (from Oliver 2007)**

Impacts	Accumulation of organic material causing natural eutrophication. Poached by cattle in some areas. Dumping.
Conservation Status	Unfavourable-Inadequate

**Further Information**

The area was surveyed in 1840 and referred to as Lough Murry - salt lake. The fauna of the lake was sampled by Lansbury (1965) and an ecological survey was carried out by Pybus & Pybus (1980). Lough Murree was surveyed in 1996 for ecotonal coleoptera (Good 1996, Good & Butler 1998), aquatic vegetation (Hatch 1996, Hatch & Healy 1998) and aquatic fauna (Healy & Oliver 1996, Oliver & Healy 1998), results of which were summarised by Healy *et al.* (1997a,b,c), Healy & Oliver (1998), and Healy (1999, 2003). Sampled seasonally in 2002-3 and included in a biological classification of Irish coastal lagoons (Oliver 2005), and in the Conservation Status report (Oliver 2007).

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