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Bridge Lough, Knockakilleen, County Galway O.S. M 342 128
O.S. Discovery Sheet 52



Conservation Designation: Galway Bay complex

SAC 000268, SPA 004031, pNHA 000268

General description:

Bridge Lough is a small (3ha), shallow (<1m), partly artificial **karst lagoon** situated on the south side of Galway Bay, 10 km west of Kinvarra, County Clare. The lake is impounded by a causeway which allows a limited tidal exchange through a small outlet. Restriction of tidal flushing through construction of the causeway with such a small outlet appears to have resulted in colmatisation and a concentration of nutrients. The lagoon is privately owned and it was not possible to carry out the more intensive survey of aquatic fauna due to objections from a landowner.



Figure 47.1 Location map of Bridge Lough.

Bridge Lough 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

The vegetation of Bridge Lough was surveyed by P. Hatch in 1996 (Hatch 1996, Hatch & Healy 1998). The lagoon is dominated by an almost complete cover over the entire site of the filamentous green alga, *Chaetomorpha linum*. The only higher plant species recorded was *Ruppia maritima* which was restricted to a small area on the south western shore. Both of these species are lagoonal specialists:

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.

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 (47%).

Marginal vegetation shows no notable variation. *Puccinellia maritima* dominated saltmarsh forms a more or less narrow strip around most of the site with *Schoenoplectus lacustris* ssp *tabernaemontani* locally dominant in a small bay in the south west corner of the site.

Fauna

The fauna of Bridge Lough was surveyed briefly in 1996 (Healy & Oliver 1996, Oliver & Healy 1998), but was restricted by objections from the landowner. The following assessment is based on a single collection made at two stations (Table 45.1, Figure 45.2).

Table 47.1 Positions of faunal sampling stations in Bridge Lough, 23/6/96, with salinity, depth of water and type of substratum.

	Sta A	Sta B
GPS position	M 3405 1306	M 3407 1285
Salinity(psu)	37	37
Depth(cm)	0-50	0-100
Substratum	Soft organic mud, large stones	Soft organic mud, limestone rocks

Among 20 taxa recorded (Table 45.2), 18 are identified to species, of which six are listed as a lagoonal specialists in Britain.

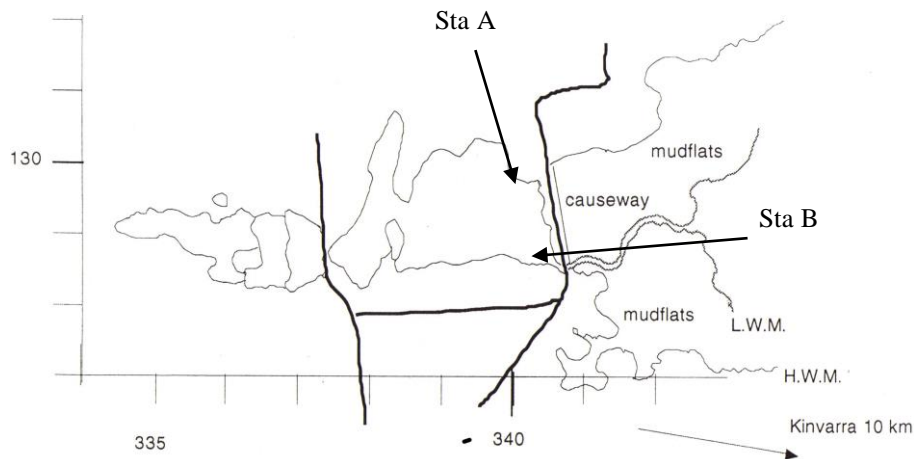


Figure 47.2 Sampling stations used at Bridge Lough.

Idotea chelipes is a common, lagoonal, isopod crustacean, often found in association with the lagoonal form of *Chaetomorpha linum*. Found at 23 of the 87 (26.4%) lagoons surveyed, mostly at relatively high salinity.

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.

Cerastoderma glaucum Bivalve mollusc. A common lagoonal specialist found at 30 of the 87 lagoons (34.5%) surveyed.

Conopeum seurati Bryozoan recorded at 49 of the 87 lagoons surveyed (56.3%), but is not listed in a recent review of Irish marine Bryozoa (Wyse Jackson 1991). Either the species is under-recorded or is truly a lagoonal specialist.

Cercyon littoralis was recorded at Bridge L. and Mill L. in 1996 (Oliver and Healy, 1998) and at L. an Aibhnín and Kilmore Lake in 1998. Driftline species with few recent records.

Most of the recorded species occurred on the thick masses of *Enteromorpha* or *Chaetomorpha*, or on stones on the soft substratum. *Idotea chelipes* and *Cerastoderma glaucum* were particularly abundant. A feature of the site was the presence of a dark variety of the common beadlet anemone *Actinia equina*, a variety also found at Ballyvodock, Co. Cork and known to be tolerant of brackish conditions.

The short list of species indicates an assemblage characteristic of a lagoon in which medium to high salinities are maintained by frequent tidal incursions. The relatively high proportion of lagoonal specialists makes it particularly interesting.

For the high number of species in such a small lagoon and the high proportion of lagoonal specialists, Bridge Lough is rated as of **moderate to high conservation value**.

Further investigations should be carried out if possible as a more detailed survey may indicate a higher rating.

Table 47.2 Fauna Recorded in Bridge Lough, Co. Galway. 23/6/96,
+ = present; o = occasional; c = common; a = abundant. Species in bold text are lagoonal specialist or rare species.

Taxa		Sampling Stations	
		A	B
Cnidaria	<i>Actinia equina</i>	(c)	c
Annelida	<i>Arenicola marina</i>	(c)	
Crustacea			
	Mysidacea <i>Praunus flexuosus</i>	(+)	
	Isopoda <i>Idotea chelipes</i>	(a)	
	<i>Jaera sp.</i>	(+)	
	Amphipoda <i>Dexamine spinosa</i>	(+)	(+)
	Decapoda <i>Carcinus maenas</i>	(+)	+
	<i>Palaemonetes varians</i>	(c)	
Insecta			
	Coleoptera <i>Enochrus bicolor</i>	+	
	<i>Cercyon littoralis</i>	+	
	Diptera Chironomidae	(c)	
Mollusca			
	Prosobranchia <i>Hydrobia ventrosa</i>	(c)	
	<i>Littorina littorea</i>	(o)	c
	Opisthobranchia <i>Limapontia depressa</i>	(+)	
	Bivalvia <i>Cerastoderma glaucum</i>	a	
	<i>Mytilus edulis</i>		c
Bryozoa	<i>Conopeum seurati</i>	+	
Teleostei	<i>Pomatoschistus microps</i>	1	
	<i>Gasterosteus aculeatus</i>	+	

Ecotonal coleoptera

Twenty eight species of staphylinid and eleven species of carabid were recorded at Bridge lough by Good & Butler (1998, Healy 1999), only one of which (***Brundinia meridionalis***) is an indicator species. Based on ecotonal coleoptera, the site is regarded as of **no conservation interest**.

Summary

Bridge Lough is a **karst lagoon**, which is an unusual lagoon type in Europe, but it is partly artificial that it is formed partly by construction of a causeway. The lake appears to be highly eutrophic and seems unlikely to improve in the immediate future, and there has been at least one attempt recent infill parts of it. The vegetation is dominated by two lagoonal specialist species (***C. linum***, ***R. maritima***) and despite the fact that only one area was sampled, and very briefly, some interesting species were recorded with a relatively high proportion of lagoonal specialists. Based on aquatic invertebrates the lake is of moderate conservation value as an artificial lagoonal environment. Overall Bridge Lough is small and rated as of moderate conservation value, but further investigations are encouraged.

Overall Conservation Value = Moderate

Conservation Status Assessment (from Oliver 2007)

Impacts	Moderate eutrophication in shallow lagoon but significant tidal flushing. Silting up.
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Further Information

Bridge Lough 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). Included in a biological classification of Irish coastal lagoons (Oliver 2005) and in the Conservation Status Assessment (Oliver 2007).

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