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Lettermullen Galway O.S. L 827 213

O.S. Discovery Sheet 44



Conservation Designation: Kilkieran Bay and Islands SAC 002111

General description:

Lettermullen Pool is a very small (<0.5ha) **rock lagoon** on the western shore of Lettermullen Island in western Connemara. Six islands have to be crossed by bridges and causeways to reach Lettermullen. Golam Head is the final island in this group which lies 500 metres west of Lettermullen. The pool is usually regarded as a large rock pool into which a freshwater spring runs and seawater enters on spring tides and during storms. It can just as easily be regarded as a small coastal lagoon with a rock barrier. Salinity is generally high, even hypersaline, and measured 34-37psu at the time of sampling in September 1996.



Figure 53.1 Location of map of Lettermullen.

Lettermullen pool was surveyed in 1996 for vegetation (Hatch 1996, Hatch & Healy 1998), aquatic fauna (Healy & Oliver 1996, Oliver & Healy 1998). Results of these surveys are summarised by Healy *et al.* (1997a,b,c), Healy & Oliver (1998) and Healy (1999, 2003). The vegetation was surveyed again in September 2003 by C. Roden (Roden 2004), when sublittoral observations were made.

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

Flora

The vegetation of Lettermullen pool was surveyed by P. Hatch in 1996 (Hatch 1996, Hatch & Healy 1998). The presence of marine algae could be expected at such a site and several species are found here. *Corallina officinalis* is abundant. *Chondrus crispus*, *Lomentaria clavellosa*, *Codium tomentosum* and *Polysiphonia elongata* all occur at varying degrees of frequency.

Zostera marina could also be expected and is abundant here. Particularly interesting is the occurrence of these marine species with abundant *Ruppia cirrhosa* and with *Lamprothamnium papulosum*, a rare charophyte for which this is a new site. Both of the latter two species are lagoonal specialists. *Lamprothamnium* was known from only three Irish sites before this survey took place. Its presence at Lettermullen is alone reason enough to regard the site as valuable. This plant is very locally abundant in shallow areas close to the northern shore and was also found in deeper water (>1m) by grapnel survey from the southern and western shores. The distribution of species is also interesting in that a distinct zonation occurs along the steeper, rocky shores with algal species forming a 1-2m wide belt below the shore with a dense mixed *Ruppia* and *Zostera* bed beyond.

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 also now 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 Maghera, 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, 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. *Ruppia maritima* appears to be the more common of the species and was found at 41 of the lagoons surveyed (47%). *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. *R. cirrhosa* was only identified at 23 lagoons (26%), but species was not determined at 12 sites.

When surveyed by Roden in 2003, he described a dense vegetation of *R. cirrhosa* with *Z. marina* in the northern part and bare mud with some *C. linum* at 2-3m depth. The vascular plant vegetation was ascribed to the *Zostera/Ruppia/Lamprothamnium* unit although *Lamprothamnium* was not recorded in 2003. Seaweed communities are well developed including a community dominated by *Gigartina acicularis* and *Pterocladia*, hitherto only recorded from Loch Athola.

Lettermullen Pool is a good representative of an isolated (i.e. having no permanent connection to the sea) highly saline **rock/peat lagoon**. Species composition and shore zonation are interesting, species diversity and abundance are high and a rare charophyte occurs here. The marine algal community is of great interest, only recorded from this site and Loch Athola in Ireland, and not recorded from Scotland. Based on vegetation, this lagoon is rated as of **high conservation value**.

Fauna

Four stations were selected for faunal sampling in Lettermullen Pool in 1996 (Figure 53.2, Table 53.1) (Healy & Oliver 1996, Oliver & Healy 1998). Among 52 taxa recorded (Table 53.2), 48 are identified to species; including five species (*Idotea chelipes*, *Enochrus bicolor*, *Littorina "tenebrosa"*, *Cerastoderma glaucum* and *Conopeum seurati*) which are listed as lagoonal specialists.

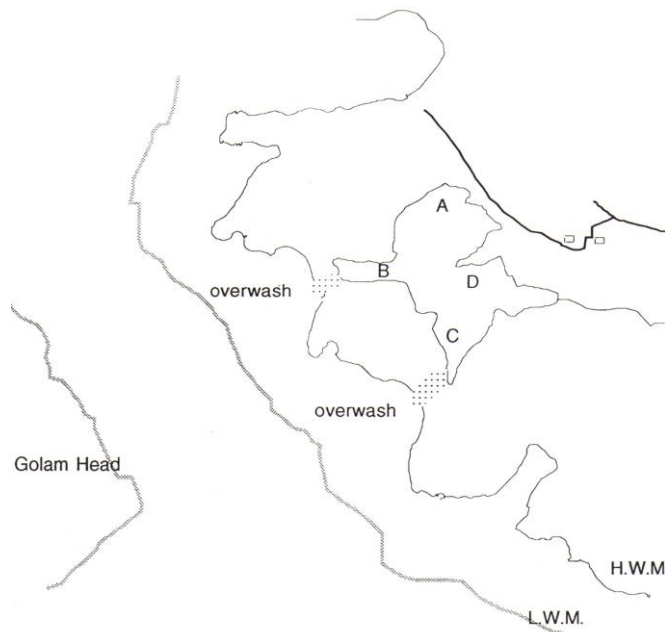


Figure 53.2 Sampling stations used at Lettermullen.

Table 53.1 Positions of sampling stations in Lettermullen Pool 25-26/8/06, with salinity, depth of water and type of substratum.

	Sta A	Sta B	Sta C	Sta D
GPS position	L 8261 2142			
Salinity(psu)	37	35	35	35
Depth(cm)	0-100	0-100	0-400	0-100
	Cobbles, stones, gravel, soft organic mud	Rock, gravel, coarse sand	Bedrock, cobbles, pockets of coarse sand	Organic mud, fine silt/sand

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.

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).

Table 53.2 Aquatic Fauna Recorded at Lettermullen Pool, Co. Galway. June and September, 1996. () = records from June. + = present; o = occasional; c = common; a = abundant; F = fyke net; L.T. = light-trap. Species in bold text are lagoonal specialists.

Fauna	Sampling Stations							
	A	L.T.A	B	L.T.B	C	L.T.C	D	L.T.D
Cnidaria	<i>Aurelia aurita</i>	(+)						
	<i>Laomedea angulata</i>	+	+		+		+	
Nemertea	Nemertea sp. 1	+						
	Nemertea sp. 2		+					
Annelida	<i>Arenicola marina</i>	+	+					
	<i>Hediste diversicolor</i>		?					
	<i>Janua pagenstecheri</i>		+					
	Spirorbidae indet.	+	+		+		+	
	<i>Tubificoides benedii</i>		+					
Crustacea								
	Copepoda					+		
	Cirripedia <i>Balanus improvisus</i>	+						
	Cumacean indet.							1
	Mysidacea <i>Praunus flexuosus</i>	c	75	c	11	c	2	c
	<i>Siriella jaltensis</i>					1		50
	Isopoda <i>Idotea baltica</i>	+	+					
	<i>Idotea chelipes</i>	a	11	a				o
	Amphipoda <i>Dexamine spinosa</i>	+	+	+				
	<i>Melita palmata</i>	+	+					
	Tanaidacea <i>Tanaïs dulongi</i>							+
	Decapoda <i>Carcinus maenas</i>	+		+		+		+
	<i>Palaemon elegans</i>	o						
Insecta								
	Coleoptera <i>Enochrus bicolor</i>	+						
	Diptera Chironomidae	+		+				
Mollusca								
	Polyplacophora <i>Lepidochitona cinerea</i>					+		+
	Prosobranchia <i>Bittium reticulatum</i>	+						
	<i>Gibbula umbilicalis</i>			+				
	<i>Hinia incrassata</i>			+				
	<i>Littorina littorea</i>			+				
	<i>Littorina "tenebrosa"</i>	a		+				c
	<i>Nucella lapillus</i>					+		1
	<i>Patella vulgata</i>			+		+		
	<i>Rissoa membranacea</i>	c		a				c
	<i>Skeneopsis planorbis</i>	o		c				
	Opisthobranchia <i>Elysia viridis</i>							+
	Bivalvia <i>Cerastoderma glaucum</i>	c		o		o		c
	<i>Mytilus edulis</i>	o						
Bryozoa	<i>Alcyonidium mamillatum</i>	+						
	<i>Conopeum seurati</i>			+		+		
	<i>Bowerbankia gracilis</i>	+						
	<i>Walkeria uva</i>	+						
Echinodermata	<i>Amphipholis squamata</i>					+		
	<i>Luidia ciliaris</i>					c		
	<i>Paracentrotus lividus</i>					1		
Tunicata	<i>Ascidia aspersa</i>	+						
	<i>A. scabra</i>	+				+		
	<i>A. ?virginata</i>							
	<i>Botryllus schlosseri</i>	+				+		
	<i>Clavelina lepadiformis</i>	+		+		+		+
Teleostei	<i>Conger conger</i>	F, 1						
	<i>Ctenolabrus rupestris</i>			F, 1				
	<i>Gasterosteus aculeatus</i>	+	1	+	4	+		o
	<i>Molva molva</i>			F, 1				
	<i>Pollachius pollachius</i>	F, 1		F, 2				

Littorina "tenebrosa" Gastropod mollusc recorded on the North Slob and in a brackish pool close to L. Murree, Co. Clare and at seven lagoons in Co. Galway. These are the only known sites in Ireland. The status of this taxon is still uncertain but specimens appear to be morphologically and ecologically distinct from *L. saxatilis*.

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.

Most species were distributed throughout the pool but some which are common intertidally in the area (*Patella vulgata*, *Littorina littorea*, *Nucella lapillus*, *Paracentrotus lividus*, *Luidia ciliata*) were restricted to the seaward stations, and some herbivores and euryhaline species (*Balanus improvisus*, *Idotea chelipes*, *Elysia viridis*, *Enochrus bicolor*) were found only at the landward stations which may receive more freshwater, or in *Zostera* beds. The pool contains a mixed flora of marine algae, *Zostera* and charophytes, and both hard and soft substrates, providing a wide range of habitats for fauna in a small area. An interesting hydroid (*Laomedea angulata*) was recorded. Specimens of Conger, Ling and Pollach were recorded in Fyke nets.

Ecotonal coleoptera

This site was investigated for ecotonal coleoptera in 1996, but it was decided that there was insufficient habitat to allow comparative sampling, and that based on this animal group, the site was of **no conservation value**.

Summary

Lettermullen Pool has high conservation value as a type of lagoon, rare in a European context, but characteristic of parts of the west coast of Ireland, especially in Connemara, referred to as **rock/peat lagoons** with restricted tidal influence due to the presence of a “barrier” of bedrock and peat. The aquatic fauna is rich and distinctly marine, but there is also a significant element of brackish species, including five lagoonal specialists one of which, *Littorina “tenebrosa”*, is currently being investigated. Floral species composition and shore zonation are interesting, species diversity and abundance are high and a rare charophyte, *Lamprothamnium papulosum* was recorded. The marine algal community is of great interest, only recorded from this site and Loch Athola in Ireland, and not recorded from Scotland. Overall, the pool is rated as of **high conservation value**.

Overall Conservation Value = High

Conservation Status Assessment (from Oliver 2007)

Impacts

No impacts

Conservation Status

Favourable

Further Information

Lettermullen Pool 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). The vegetation was surveyed again in September 2003 by C. Roden (Roden 2004). Included in a biological classification of Irish coastal lagoons (Oliver 2005) and in the Conservation Status Assessment (Oliver 2007).

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