



Conservation Designation: Lower River Shannon SAC 002165, pNHA 000435

General description:

Two small (2ha), shallow (<1m) **karst lagoons**, situated **on** the south shore of the Shannon estuary 5km northwest of Askeaton, Co. Limerick. The two lagoons are connected intermittently depending on water levels by a small channel. Seawater enters Quayfield Lough through limestone grykes, and salinity in this lagoon measured 28psu at the time of sampling (27/9/03). Seawater occasionally then flows into the Poulaweala Lough, but this is now almost a freshwater lake.

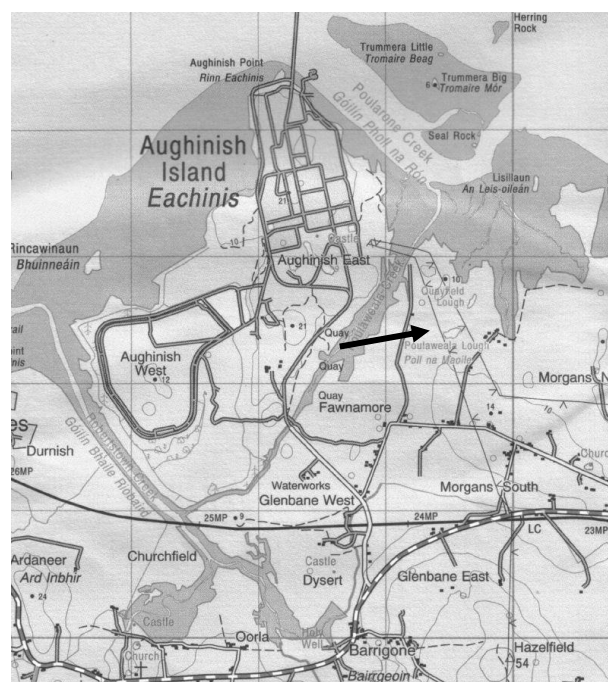


Figure 31.1 Location map of Quayfield and Poulaweala Loughs.

Quayfield and Poulaweala Loughs were surveyed in 2003 as part of a PhD study (Oliver 2005) and used in a biological classification of Irish coastal lagoons. Three stations were selected for the sampling of aquatic fauna and flora (Figure 31.2, Table 31.1)

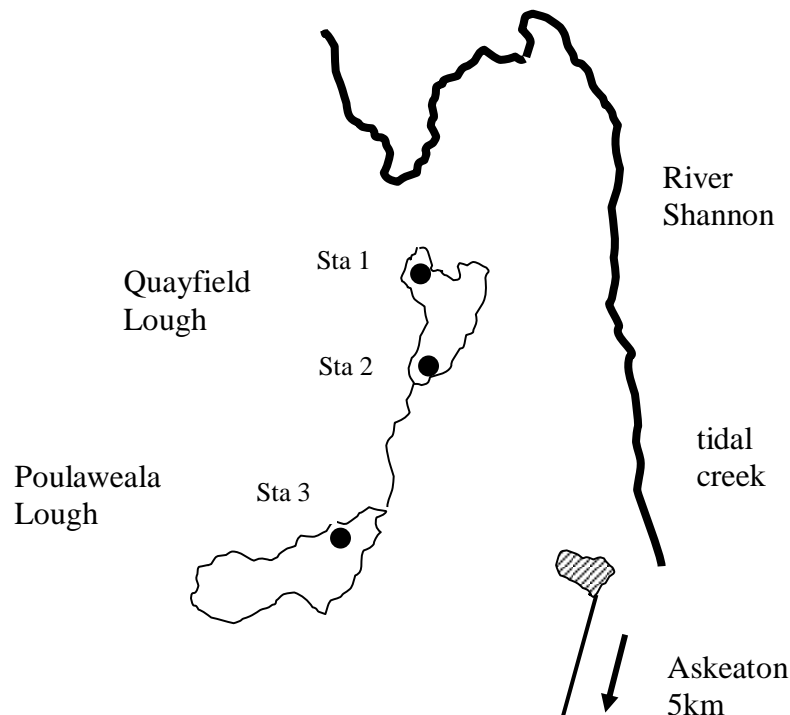


Figure 31.2 Sampling stations used at Quayfield and Poulaweala Loughs on 13/7 and 27/9/03.

Flora

A total of 13 floral taxa were recorded at Quayfield and Poulaweala Loughs on 13/7 and 27/9/03 (Table 31.1). Two of these taxa are regarded as lagoonal specialists. None of the other species are particularly rare or unusual.

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. The *Ruppia* at this site was not specifically identified as no flowering plants were found but is assumed to be *Ruppia maritima* which appears to be the more common of the species and was found at 41 of the lagoons surveyed (47%).

The southern part of Poulaweala Lough is largely dominated by *Cladium mariscus* but this species was not present in the areas sampled.

The lagoon habitat is small but largely dominated by two lagoonal specialists and based on aquatic vegetation, as a lagoon the site is regarded as of **moderate conservation value**.

Table 31.1 Positions of sampling stations in Quayfield and Poulaweala Loughs on 13/7 and 27/9/03 with salinity, temperature and depth of water, type of substratum and percent cover of vegetation, bare ground and rotting vegetation. Species in bold text are lagoonal specialists.

Taxa	Sampling Stations		
	Sta 1	Sta 2	Sta 3
GPS position	R 29624 53383	R 29639 53216	R 29471 53111
Salinity (psu)	28.8	28.6	1.9
Temperature	15.9	22.1	13.5
Depth (m)	0-30	0-30	0-20
Substratum	soft mud, occ. stones	soft mud, occ. stones	soft organic mud, occ. stones
Percentage cover:			
BARE - mineral	97	5	5
BARE - rotting vegetation		1	
ALGAE			
Chlorophyta	<i>Chaetomorpha linum</i>	2	2
	<i>Cladophora sp.</i>	1	5
	<i>Enteromorpha sp.</i>	1	1
	<i>Ulva lactuca</i>	1	1
Phaeophyta	<i>Fucus vesiculosus</i>	1	
Rhodophyta	<i>Hildenbrandia</i>	1	
	<i>Chondrus crispus</i>	1	
Charophyta	<i>Chara polycarpa</i>		1
Angiosperms	<i>Potamogeton pectinatus</i>		2
	<i>Ruppia sp.</i>	1	3
	<i>Schoenoplectus lacustris</i>		5
	<i>Scirpus maritimus</i>	5	45
	<i>Spartina sp.</i>	1	

Fauna

A total of 31 faunal taxa were recorded in Quayfield and Poulaweala Loughs (Table 31.2), largely due to the salinity range of the two loughs and the relatively high number of insects in the lower salinity Poulaweala. However, six of the species recorded in Quayfield Lough are lagoonal specialists.

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.

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

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.

Sigara stagnalis Hemipteran insect (water-boatman). A common lagoonal specialist found at 36 of the 87 (41.4%) lagoons surveyed.

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.

Table 31.2 Aquatic fauna recorded at sampling stations in Quayfield and Poulaweala Loughs on 13/7 and 27/9/03. Species in bold text are lagoonal specialists.

	Sta 1			Sta 2			Sta 3		
	SW	Sed	L.T. Ab	SW	Sed	L.T. Ab	SW	Sed	L.T. Ab
Annelida									
Polychaeta			o			o			
	0.3		c	1.5	6.0	c			
Crustacea									
Cirripedia			o						
Isopoda	0.3	12.0	o	7.5	4.0	c			
	16.7	11.0	a	2.0	44.0	a			
Amphipoda	1.0	5.0	o	0.5		r			
	2.7	5.0	c						
		1.0	r						
	2.0	8.0	o	7.0	6.0	c	37.3	5.0	c
Insecta									
Odonata									o
Heteroptera				1.5		o	9.7	12.0	o
								1.0	r
							1.3		o
							1.3		o
							0.3	1.0	r
									r
							0.7		o
							0.3		r
						o	4.7	1.0	o
Coleoptera							7.3	4.0	c
							4.0	2.0	c
							0.3		r
							0.3		r
							1.0		o
							1.7	2.0	o
									r
Diptera	0.3		r	3.0		o	3.7	1.7	o
Mollusca									
Prosobranchia	46.0	6.0	c	35.0		c			
	8.3		o	1.0		o			
			r						
			o						
							2.7	1.0	o
Pulmonata									o
Bivalvia			r			o			
			o						
Bryozoa			r			o			
Pisces				0.5		r	2.3	4.0	o
			o						
	0.3	18.0	c	1.5	2.0	c			

The two loughs are both small and Poulaweala is closer to a freshwater lake than a lagoon, but Quayfield Lough is largely dominated by lagoonal specialist species, and based on this fauna, as a lagoon it is regarded as of **moderate conservation value**.

Summary

Poulaweala and Quayfield Loughs are both small and Poulaweala is closer to a freshwater lake than a lagoon, but Quayfield Lough is largely dominated by lagoonal specialist species, with 2 floral and 6 faunal lagoonal specialist species. It is also a **karst lagoon**, with connection to the sea through underground fissures, which is an unusual lagoon type in Europe. Therefore, despite its small size, as a lagoon it is regarded as of **moderate conservation value**. Poulaweala Lough is included as, although it is at present closer to a freshwater lake, it appears to be silting up and the possibility of dredging part of the lake, thus recreating more brackish conditions, might be considered.

Overall Conservation Value = Moderate

Conservation Status Assessment (from Oliver 2007)

Impacts	Natural eutrophication in small, shallow lagoons. Poulaweala becoming drier and "choked" by emergents. Silting up.
Conservation Status	Unfavourable-Inadequate

Further Information

Listed as a lagoon by Healy *et al.* 1997, and Healy 2003. Surveyed in 2003 as part of a PhD study (Oliver 2005) and used in a biological classification of Irish coastal lagoons and in the Conservation Status Assessment (Oliver 2007).

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