4.79 **Durnesh Lake Donegal** O.S. G 878 695
O.S. Discovery Sheet 11

Conservation Designation: Durnesh Lough SAC 000138, pNHA 000138

General description:

Durnesh Lough is a large (83ha), shallow (<1m) **natural sedimentary lagoon** with an artificial outlet piped under sand dunes, located in the eastern part of Donegal Bay, 10 km north of Ballyshannon and 5 km east of Ballintra, Co. Donegal. The lagoon is impounded by a barrier of high sand-dunes which have filled the gap between two drumlins. A channel and then a pipe runs through the dunes which allows water to drain from the lake and for seawater to enter at least during spring tides and storms. Salinity was low (0-2psu) at the time of sampling (24-26/9/96), but measured 19psu near the inlet at one time on 29/9/96.

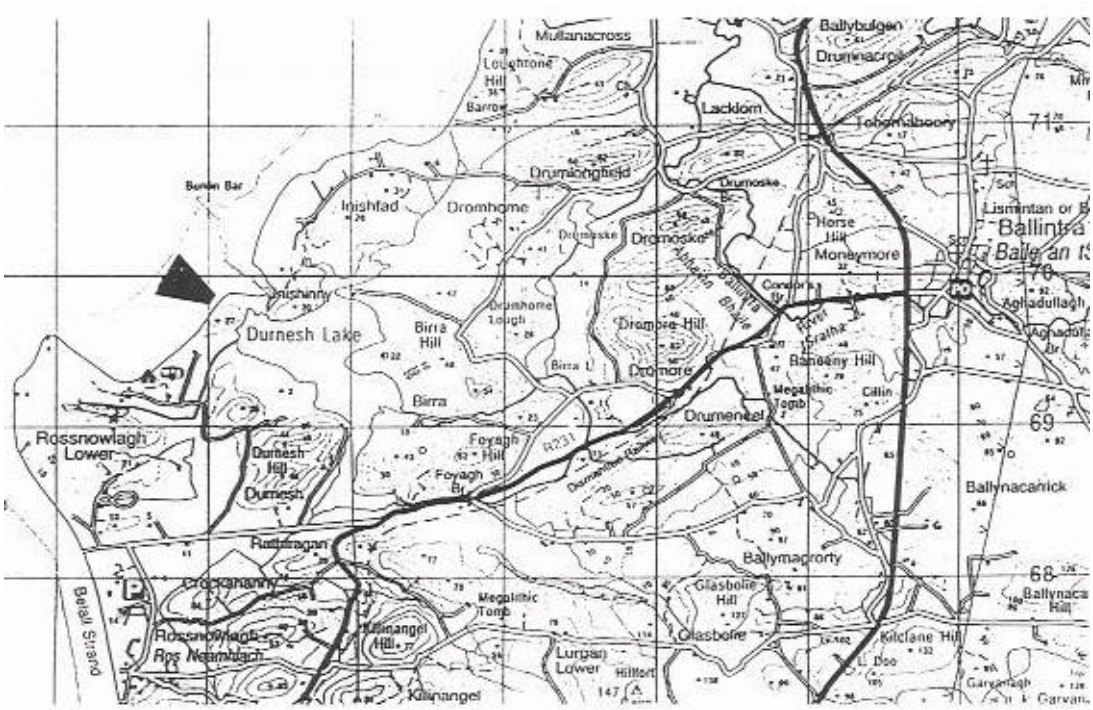

Figure 79.1 Location of map of Durnesh Lake.

Durnesh Lake 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).

Flora

Vegetation was surveyed by P. Hatch in 1996 (Hatch 1996, Hatch & Healy 1998) by transects only, and no underwater observations were made. Therefore, the information available upon which to make this assessment is limited compared with most other sites. Areas surveyed for flora do not necessarily correspond with stations sampled for aquatic fauna.

Ruppia was widely distributed but sparse with dense patches near the outlet pipe only. It is notable that both ***R.. cirrhosa*** and ***R. maritima*** occurred here. ***Chara canescens*** was found growing fairly sparsely in the vicinity of the outlet pipe. All three of these species are lagoonal specialists and *C. canescens* is a rare species.

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, 1999; 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. Its presence at Durnesh is reason enough to regard the site as valuable.

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 appears to be the more common of the species and was found at 41 of the lagoons surveyed (47%). ***R. 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 (26%), but species was not determined at 12 sites.

Potamogeton pectinatus also occurred widely, sometimes in dense stands. *Chara aspera* var. *aspera* was found at five transect sites, indicating a wide distribution. *Chara hispida* var. *major* was found growing with *C.aspera* var. *aspera* in an area of open water in a *Schoenoplectus* swamp. *Potamogeton* c.f. *obtusifolius* and *Callitriche stagnalis* occurred with *P. pectinatus* and *Myriophyllum spicatum* at the major freshwater inflow. *Litorella uniflora* was found at the two northernmost transect sites. *Myriophyllum spicatum* occurred at two sites in the southern half of the lake.

Marginal vegetation showed little variation. *Phragmites* and *Schoenoplectus* swamps were extensive in places and *Typha latifolia* was locally dominant in the southern half of the site, indicating the lower salinities here. The surveyed open shores were dominated by a *Juncus gerardii - Agrostis stolonifera* community.

Durnesh Lough is regarded as a good representative of a low salinity lagoon, with high species diversity and a species composition and distribution which reflect the spatial variation in conditions from freshwater to brackish. For these reasons, and the presence of ***Chara canescens***, the site is rated as of **high conservation value**.

Fauna

Seven stations were selected for faunal sampling in Durnesh Lake, 24-26/9/96 (Figure 79.2, Table 79.1).

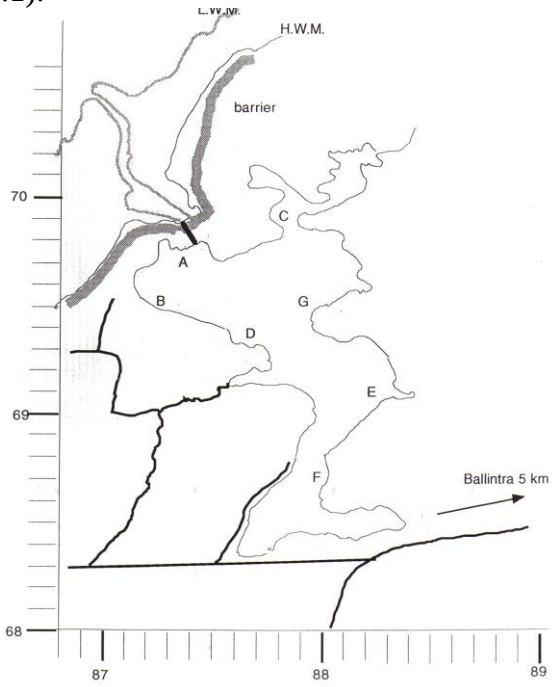

Figure 79.2 Sampling stations used at Durnesh Lake 24-26/9/96

Table 79.1 Positions of sampling stations in Durnesh Lake 24-26/9/96, with salinity, depth of water and type of substratum.

	Sta A	Sta B	Sta C	Sta D	Sta E	Sta F	Sta G
GPS	G 8741	G 8723	G 8781	G 8767	G8837	G 8805	G 8799
position	6975	6950	6988	6930	6920	6873	6944
Salinity(psu)	0-2	0-10	1.8-17	15	0-10	10-22	?
Depth(cm)	0-100	0-200	0-200	0-100	0-125	0-200	?
Substratum	Rocks, cobbles, coarse sand	Stones, sand, organic silt	Not known	Large rocks, gravel, sand	Peat, tree stumps	Peat, stones, sand	?

Among 46 taxa recorded, 43 were identified to species (Table 79.2). Two of these species are lagoonal specialists in Britain and two others (***C. caspia, J. nordmanni***) are uncommon proposed specialists for Ireland.

Cordylophora caspia. Hydroid recorded at four lagoons in Donegal (Kincas L., Inch L., Durnesh L., Blanket Nook), on the North Slob, Co. Wexford, Rostellan, Co. Cork, Muckinish, Co. Clare and an unsurveyed site (Rinmore) in Co. Galway and previously at Lady's Island L. (Healy *et al*. 1982). According to Arndt (1984), the species "appears to be an excellent bio-indicator for eutrophic brackish water in the horohaline zone". Proposed as a lagoonal specialist for Ireland by Oliver and Healy (1998).

Jaera nordmanni. Isopod crustacean recorded at 24 of the 87 lagoons surveyed (27.6%) and may occur at others where it was not recorded due to the fact that only adult males are easily identified. This species may occur in freshwater, as in L. Errol, Cape Clear, Co. Cork. Described in England (Barnes 1994, Hayward and Ryland 1995) as occurring in streams flowing down the shoreline, on south and west coasts only. All records in Ireland are from West Cork to Donegal. Proposed as a lagoonal specialist for Ireland by Oliver and Healy (1998).

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.

Table 79.2 Aquatic Fauna Recorded at Durnesh Lake, Co. Donegal. June and September 1996. L.T. = Light-trap, F = Fyke net, + = present; o = occasional; c = common; a = abundant; 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	E	L.T.E	F	L.T.F	G
Cnidaria	***Cordylophora caspia***	a		c		c		+						c
Crustacea														
Ostracoda												a		
Copepoda	*Eurytemora sp.*											a		
Mysidacea	*Neomysis integer*	o	18	o		o	?	o	3	c	>100	+		+
Isopoda	*Idotea baltica*		1											
	Jaera nordmanni	c		c		c								
Amphipoda	*Gammarus* sp.	a	a	a	a	a	a	a	c	c	c	c	c	c
Decapoda	*Carcinus maenas*	F, 2		F, 2		F, 1								
	Crangon crangon	1	1											
	Palaemonetes varians	o		c		c	75	c	4	o	5	+	1	c
Insecta														
Ephemeroptera												2		
Odonata	*Ischnura elegans*	+		c		o		c		o		c	1	
Plecoptera		+												
Trichoptera	(cases)					c								
Hemiptera	Corixidae	+		c		c	c	+	1	a	a	a	+	
	Callicorixa praeusta			+		c		+	+	c	c	c	+	
	Corixa panzeri	c				c	c	+	+	+	c	+	+	
	Hesoerocorixa linnaei					c								
	Arctocorisa germari									+				
	Sigara dorsalis			+					+	+	+	+	+	
	S. falleni										+	+	+	
	S. stagnalis	c		+		+		c		+	+	+		
Coleoptera				1		1		c		c		+		
	Anacaena globulus	+												
	Graptodytes granularis	+												
	Gyrinus aeratus									+				
	Helophorus brevipalpis													
	Hydroporus angustatus													
	H. gyllenhalli													
	H. incognitus													
	H. memnonius	+												
	H. palustris							+		+				
	H. planus									+				
	H. pubescens									+				
	H. striola							+						
	H. umbrosus	+												
Coleoptera cont.	*Hygrotus impressopunctatus*								+	+				
	H. inaequalis	+						+		+				
	Laccophilus minutus													
	Noterus clavicornis									+				
Diptera	Chironomidae	c		o		+		a		?		a	>1000	
Mollusca														
Prosobranchia	*Potamopyrgus antipodarum*	c		a		a		c		c		c		o
Pulmonata	*Lymnaea peregra*	+		1				o		3		o		
	Planorbis corneus							1						
	Sementina complanata											+		
Teleostei	*Anguilla anguilla*	+				F, 9						F, 6		
	Gasterosteus aculeatus	+		+		+	2	+	3	0				
	Mugilidae	F, 1												
	Platichthys flesus	F, 21		F, 18		F, 20						F, 1		
	Salmo trutta					F, 1								

The aquatic faunal assemblage included a high proportion of freshwater insect species. Corixids (7 spp.) and beetles (13 spp.) were particularly diverse. The fauna typified an isolated lagoon with persistently low salinity and restricted access for both seawater and colonists from the sea.

Gammarus chevreuxi was erroneously recorded in 1996 (Healy & Oliver 1996, Oliver & Healy 1998), and the specific identity of this gammarid awaits verification. The aquatic fauna is rated as of **high conservation value** for its high diversity of insects, and the presence of four lagoonal specialists.

Ecotonal Coleoptera

Twenty six species of staphylinid and eight species of carabid beetles were recorded at Durnesh Lake in 1996 (Good 1996, Good & Butler 1998), two of which (***Philonthus furcifer, Schistoglossa***) are regarded as indicator species, both of which are characteristic of marshy shores. The former is regarded as rare in Ireland and the latter is widespread but local. The presence of two indicator species indicates an ecologically well-developed shoreline community, but these species can breed in freshwater wetlands and their occurrence at this site may be due to the large area of reedbeds and marshes adjoining the lagoon.

Based on ecotonal coleoptera the Durnesh Lake is regarded as of **significant conservation value**.

Summary

Durnesh Lough is a large, **natural sedimentary lagoon,** separated from the sea by a sand dune barrier, but its present brackish nature may be entirely due to the presence of the artificial outlet.

The aquatic fauna typified a low salinity lagoon with little contact with the sea. The assemblage is rated highly for its high diversity of insects, and the presence of four lagoonal specialists, including an uncommon hydroid, ***C. caspia***. The vegetation is regarded as being representative of a low salinity lagoon, with high species diversity and a species composition and distribution which reflect the spatial variation in conditions from freshwater to brackish. For these reasons, and the presence of both ***R. maritima, R. cirrhosa*** and the rare charophyte ***C. canescens***, all of which are lagoonal specialists, the site is rated highly.

The presence of two indicator species of ecotonal Coleoptera indicates an ecologically well-developed system. Overall, the site is rated as of high conservation value.

Overall Conservation Value = High

Conservation Status Assessment (from Oliver 2007)	
Impacts	Significant eutrophication from surrounding farmland in some areas. Poaching by cattle. Leisure fishing. Silting up.
Conservation Status	Unfavourable-Inadequate

Further Information

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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