

A survey of breeding gulls and terns on Lough Corrib, Co.'s Galway and Mayo.

by
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Flooded Arctic Tern nest, Oughterard Bay, Lough Corrib



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Summary

The 2007 survey of Lough Corrib gathered data on the nesting gull and tern populations at this site. While gull numbers appear to have stabilised since 2000, the drastic declines during the 80's and 90's have yet to be explained. Productivity data on nesting gulls found that chick survival in 2007 was moderately good. While this data provides some insight into breeding success, data gathered over a number of years is required. The numbers of Common and Arctic Tern nesting on Lough Corrib have fluctuated since the 1980's, and any clear trend is difficult to detect. However the data suggests a decline in Common Tern numbers and an increase in Arctic Tern numbers. No productivity data could be gathered on these species due to limited resources. Data on Common Scoter, while incomplete, suggests a decline in the breeding population and a dedicated survey for this species is urgently required.

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1. Introduction

Lough Corrib is designated as a Special Protection Area (SPA) under the EU Birds Directive¹. It supports nationally important numbers of Common Tern, *Sterna hirundo* and Arctic Tern *Sterna paradisaea*, both of which are Annex I² species under the Birds Directive. Lough Corrib also supports a nationally important breeding population of the Red Listed³ Common Scoter. Since the 1970's Lough Corrib has been of further national importance for its large numbers of nesting gulls. However, the numbers of gulls nesting on Lough Corrib have suffered drastic declines over the last 15 years. The aim of this project was to look at the status of the breeding gull population on Lough Corrib, not only in terms of numbers nesting but also in terms of breeding success. Given the importance of this site for nesting terns and Common Scoter, efforts were also made to record these species.

Breeding Gulls

In 1977 a survey of Lough Corrib found over 8,000 breeding gulls (Whilde *et al*, 1978). Breeding numbers dropped to just over 6,000 in 1993 (Whilde *et al*, 1993) and dramatically to just over 1,000 in 2000 (Mitchell *et al*, 2004) (Table 1). The main breeding species in the 1970's were Black-headed Gull *Larus ridibundus* and Lesser Black-backed Gull *Larus fuscus* and there were also good numbers of Common *Larus canus* and Herring Gull *Larus argentatus*. By 2000 Lesser Black-backed Gull and Herring Gull were nearly absent as a breeding species and while Common and Black-headed Gull continued to breed their numbers were much lower than previously. Declines in breeding gull numbers have been recorded on all of Connaughts in land lakes, but nowhere so drastically as on Lough Corrib. The 2007 survey aimed to assess the health of the Lough Corrib gull population, both in terms of the total numbers nesting, and also in terms of breeding success. While long term changes in the population can be detected by measuring breeding numbers, data on the numbers of chicks which fledge per breeding pair can highlight pressures on a breeding population such as shortage of food or predation.

Table 1: Number of individual gulls breeding on Lough Corrib between 1977 and 2000

Species/Year	1977	1993	2000
Great Black backed Gull	35	6	1
Lesser Black backed Gull	2587	389	20
Herring Gull	611	6	8
Common Gull	972	696	362
Black headed Gull	4660	5284	850
Total	8865	6381	1241

1977 and 1993 data is from Whilde *et al*, 1978 and 1993; 2000 data is from Seabird 2000, (Mitchell *et al*, 2004)

¹ EC Directive 79/409 on the Conservation of Wild Birds.

² Annex I species are so listed due to their vulnerable status and require species conservation measures.

³ Red Listed according to BOCCI (Newton *et al*, 1999)

Breeding Terns

Surveys of nesting Common Tern and Arctic Terns on Lough Corrib took place as part of All Ireland tern surveys in 1984 (Whilde, 1984) and 1995 (Hannon *et al*, 1997) (Table 2). Most recently the terns on Lough Corrib were surveyed as part of Seabird 2000 (Mitchell *et al*, 2004). While the tern surveys of 1984 and 1995 were dedicated national surveys of all nesting terns in Ireland, Seabird 2000 was a national survey of all nesting seabirds in Ireland. The tern survey in 2000 was therefore completed at the same time as a survey of nesting gulls. Likewise in 2007, it was intended that the terns would be surveyed, not as a dedicated tern survey, but at the same time as the gull survey. It was the aim of this survey to survey all tern nest sites identified in the Seabird 2000 survey.

Table 2: The numbers of Common and Arctic tern pairs nesting on Lough Corrib since the 1980's

Year	Common Tern	Arctic Tern
1984	27	10
1995	37	60
2000	12	14

Breeding Common Scoter

The last survey of Common Scoter breeding on Lough Corrib was in 1999 when 32 pairs were found (Tierney *et al*, 2000) (Table 3). Previous surveys for Common Scoter on Lough Corrib took place in the 1990's (Gittings, 1995; Delaney and Gittings, 1996) and the 1980's (Ruttledge, 1987) (Table 3). While full coverage for Common Scoter could not be attempted in the 2007 survey, Common Scoter were recorded wherever they were encountered. Survey effort for Common Scoter would be focused at known core areas for this species, where they overlapped with gull nesting areas.

Table 3: Common Scoter breeding pairs recorded on Lough Corrib from the 1980's to 1999.

Year	No. of Pairs
1985, 86, 87	7
1995	30
1996	40
1999	32

2. Methods

Gulls and Terns

The most recent survey of gulls and terns on Lough Corrib was completed as part of Seabird 2000 (Mitchell *et al*, 2004). The aim of the 2007 survey was to visit all of the sites occupied in 2000. Thirty five sites supported nesting gulls and terns in 2000 and all of these sites were re-visited in 2007. Where local information indicated other sites that supported nesting gulls or terns, these were checked. Additional sites were also identified during survey work. Records from the 1993 Lough Corrib survey by the late Tony Whilde (Whilde *et al*, 1993) were also reviewed and any main colonies from this survey were also re-visited.

Census methods for gulls followed those outlined by Walsh *et al.* (1995). Where landing at the colony was possible counts of apparently occupied nests (AON) were made, otherwise counts were made from the boat and were of Apparently Occupied Sites (AOS). Nest counts for the gulls were completed on the 7th May, 16th May and 17th May. Fledgling counts were carried out on the 29th June and 3rd July. Fledgling counts were only attempted where there was a colony of nesting gulls, either on a single island or on a discreet group of rocks and islets. As some gulls nested in single pairs on a scattering of single rocks, fledgling data for these sites could not be reliably gathered and these sites were not revisited (see constraints). At Taney Island and Walsh's Island where there was a good number of nests, we walked through the colonies and fledglings moved to the water where they could be easily counted. This quick method of gathering fledgling data is described by Criak (2000). At all other sites fledgling counts were made from the boat by scanning the nest sites with binoculars.

Census methods for terns also followed those described by Walsh *et al.*, 1995. Limited resources meant that only a nest census was completed and no fledgling data was gathered. As for the gulls, counts of AON's or AOS's were made. However, quite often it was only possible to count the number of individual adult terns flying above a nest site. The number of individual adults was converted into an estimated number of nesting pairs using a factor of 1.5 adults to one pair, as described in Walsh *et al.* (1995). Nesting terns were counted on the 29th June and the 3rd July. Any terns seen on during the gull nest census were also recorded. All tern nest sites covered by Seabird 2000 were visited.

Common Scoter

Two of the areas surveyed for nesting gulls are also important for nesting Common Scoter (Dorus Peninsula/ Cornamona Bay and Oughterard Bay). Any sightings of Common Scoter in these or any other areas were recorded during the gull survey. The male and female Common Scoter was identified, as were any obvious pairs. The location of each sighting was recorded. Dedicated Common Scoter survey methods were not used and coverage was dependant the area being covered by the gull and tern survey. Notwithstanding these limitations, extra efforts were made to scan for Common Scoter within the known core areas.

Constraints

There were several constraints to surveying nesting gulls and terns on Lough Corrib. Lough Corrib has a surface area of approximately 17,000 ha and is the second largest lake in Ireland. Furthermore Lough Corrib has an estimated 365 islands and islets. Given the size and complexity of this lake and the amount of survey time available, coverage had to be restricted to known nesting sites and not all parts of the lake were surveyed. The gathering of fledgling data was limited by the dispersed nature of the nest sites. While there were a few discreet gull colonies (Taney Island and Walshes Island), most gulls were nesting in small numbers on small islets or as single pairs on single rocks. Fledgling data could only be gathered where it was possible to link the fledged young to a nest site. Weather conditions during most fieldwork on Lough Corrib was changeable, with numerous episodes of wind and rain. This may have limited coverage in some areas. Despite the above constraints overall coverage of nest sites was considered to be good and fledgling counts were considered to be accurate.

3. RESULTS

Gulls

The 2007 survey on Lough Corrib, found 635 pairs of nesting gulls. There were 204 Common Gull and 431 Black headed Gull (Table 4; Appendix 1a). No Herring Gull were found. A few young Great Black-backed Gull were seen on the lake, but their nest sites were not located. The largest concentration of Common Gull was 81 nests at Walshes Island. Smaller concentrations were held at Oughterard Bay, Illaunacreeve and Balinduff Bay. Most of the Black-headed Gulls were located at one site, with 402 out of 431 nests on Taney Island (Map 1a; Table 4; Appendix 1a).

Table 4. Breeding success for Common Gull at selected colonies (full details of data in appendix) in 2007

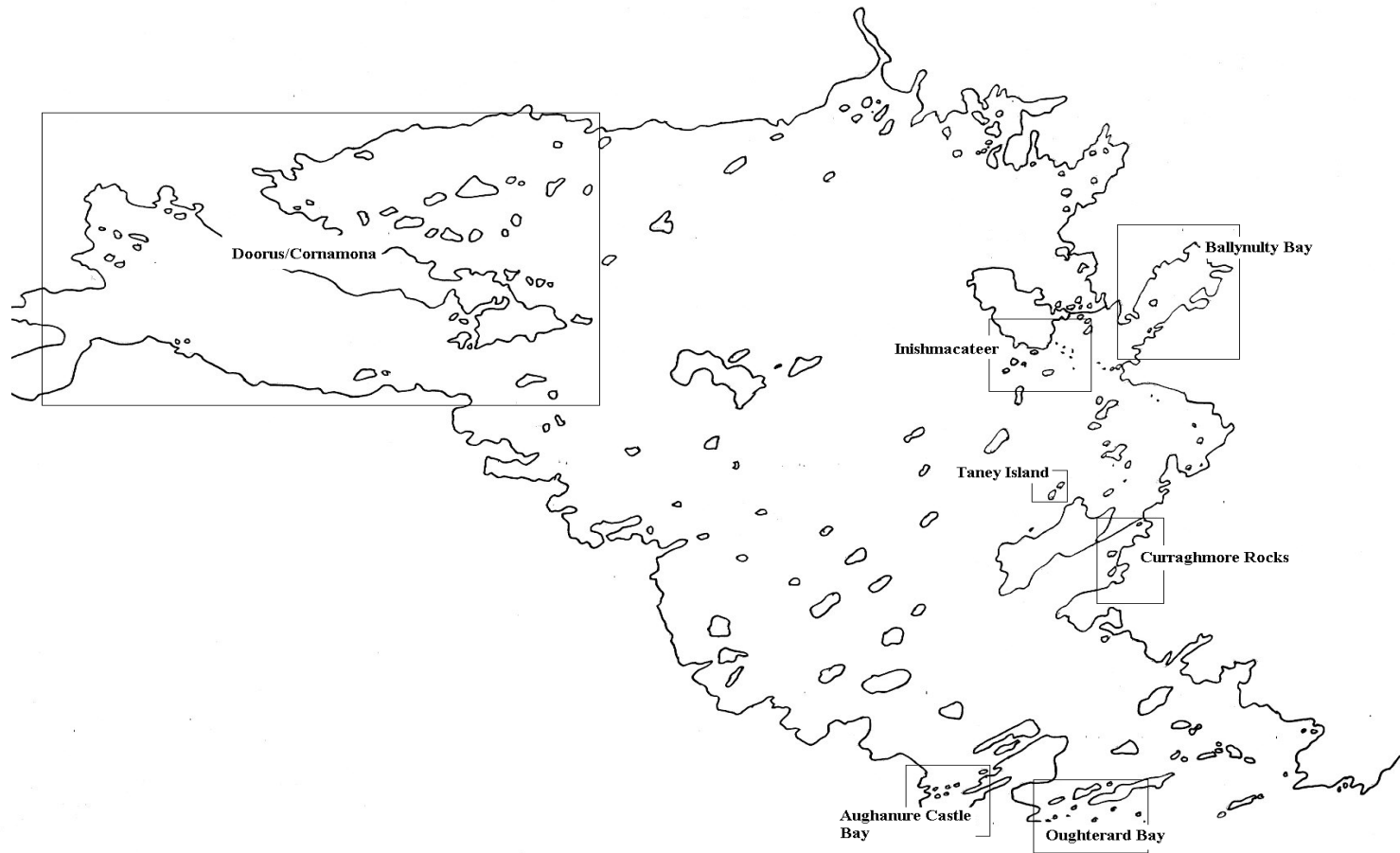
Nest site	No. Nests	No. Fledged	Productivity
Walsh's Island	81*	67	0.83
Ballynalty Bay, small islet	2	0	0
Ballynulty Bay, Red Island	7	3	0.43
Ballynulty Bay total	9	3	0.3
Curraghmore Rocks	2	8	4
Curraghmore Rocks	5	2	0.4
Curraghmore Rocks total	7	10	1.43
Oughterard Bay	1	2	2
Oughterard Bay	4	4	1
Oughterard Bay	20	52	2.6
Oughterard Bay total	25	58	2.32
Aughnanure Castle Bay	5	9	1.8
Mountross Bay	11	8	0.7
Lees Island	3	12	4
Gallcharrick Island	3	3	1
TOTAL from all groups	144	170	1.18

* The nest count for Walshes Island was early and so the nest count may be an underestimate.

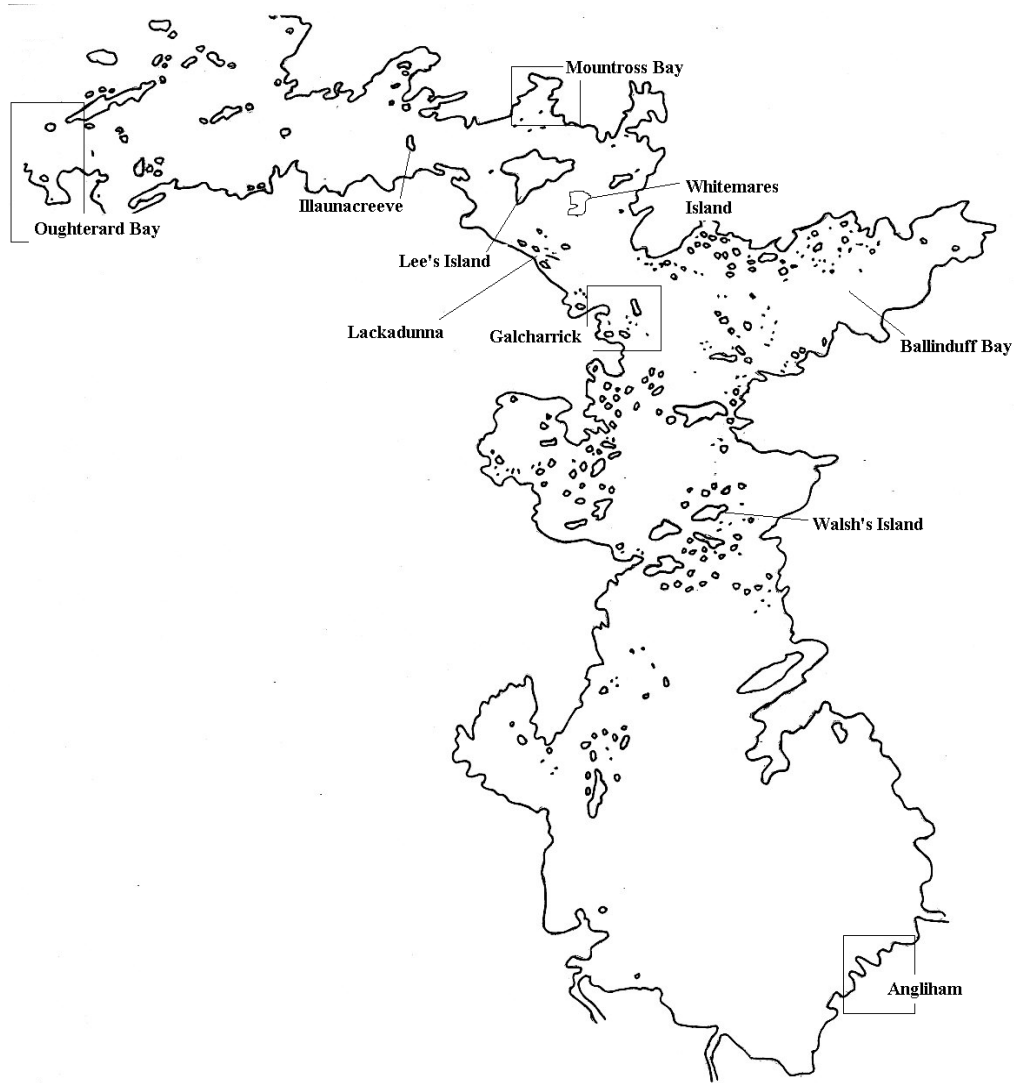
Table 4b Table 4. Breeding success for Black-headed Gull at Taney Island (full details of data in appendix) in 2007

Nest site	No. Nests	No. Fledged	Productivity
Taney Island	402	410	1.01

Productivity data is only presented for the nest sites that were re-visited (Table 4). Walshes and Taney Island show moderate productivity for Common Gull and Black-headed Gull. This data is considered to be accurate because there were a good numbers of nests and it was easy to return to these sites to carry out a complete fledgling count. Data for the other sites is only considered to be an estimate as



Map 1a: The northern half of Lough Corrib showing the main nesting areas for Common Gull, Black-headed Gull, Common Tern and Arctic Tern. For further details refer to Results and Appendix. See also Map 1b.



Map 1b: The southern half of Lough Corrib, showing the main nesting areas for Common Gull, Black-headed Gull, Common Tern and Arctic Tern. For further details refer to Results and Appendix. See also Map 1a.

accuracy was hampered by the dispersed nature of the nest sites (see constraints). At a minimum these data show that breeding was successful at Common Gull nest sites on Lough Corrib.

Common and Arctic Tern

An estimated 22-23 pairs of Common Tern and 47-49 pairs of Arctic tern were recorded. The largest concentration of Common Tern was found at a small islet next to Walsh's Island. The largest concentration of Arctic Tern was found near Lees Island. Other tern sites were found in Ballynulty Bay, Oughterard Bay and Aughanure Castle Bay (Map 1a and 1b).

Table 5: Sites with nesting Common and Arctic Tern on Lough Corrib, showing the an estimated number of pairs nesting at each site. Where nesting was not confirmed the number of pairs is question marked (?). Full details of the results are shown in Appendix 1b.

Site name	Common Tern No. of pairs (estimate)	Arctic Tern. No. of pairs. (estimate)
Islet next to Walshes	13	
Ballynalty Bay, small islet	4	
Ballynulty Bay, Red Island	5	
Inishmacateer		1
Curraghmore Rocks		1
Oughterard Bay		5
Oughterard Bay		4
Oughterard Bay		8
Aughnanure Castle Bay		2
access channel (at Aughanure Castle Bay)		11
Doorus Tip	1?	
Lees Island		15
Whitemares Island		1?
Ballinduff Bay		1?
	22-23	47-49

Changes in nest site distribution between 2000 and 2007 (gulls and terns)

The 2007 survey covered all areas which had nesting gulls or terns in 2000 and most were occupied again in 2007. The 2007 survey found some additional sites which were occupied by nesting gulls, particularly around Ballinduff Bay and Lees Island (Map 1). However some of these sites may have been missed in 2000 due to the limited survey time.

Common Scoter

Ten pairs of Common Scoter were recorded from the known core areas for this species at the Doorus/Cornamona Bay (8 pairs) and Oughterard Bay (2 pairs) (Map 1a). A total of 26 individual Common Scoter were recorded, ten female and 16 male. Full details of the results are presented in Appendix 1c.

4. Discussion

Gulls

The numbers of nesting gulls on Lough Corrib increased in the 1970's (Whilde, 1978) and since the 1990's have crashed dramatically, to the low numbers recorded in Seabird 2000. The 2007 survey found that numbers have remained stable since the 2000 survey. As in 2000 the main breeding gull population on Lough Corrib comprises Black-headed Gull and Common Gull.

In 2000 the majority of Black-headed Gulls were concentrated at Lackadunna an island in the middle of the lake (Map 1b). In 2007 the Black-headed Gulls were concentrated further north at Taney Island just north of Inchiquin. It is not possible to suggest reasons for this move, however it is not unusual for this species to switch nesting sites. Angliham at the very south of Lough Corrib supported a Black headed Gull colony with over 500 pairs in the 1970's (Whilde, 1977). In 2000 six nests were found at this site and in 2007, there were eleven nests. As in 2000, the majority of Black-headed Gulls are nesting at one site.

In 2000 Common Gulls were found nesting in low numbers (max. 18 nests at one site) with nest sites mainly concentrated in the narrow section of Lough Corrib and around Inchiquin, Inismacateer and Doorus (Map 1a and b) In 2007 nest sites were similarly distributed. As in 2000 most nest sites comprised no more than a group of 20 nests, however a concentration of Common Gull at Walsh's Island, with 81 nests, was not present in 2000.

The 2007 survey found breeding success to be moderate for both Black-headed Gulls and Common Gull. A figure of 1.1 fledged young per pair was calculated for all nests sites on Lough Corrib, where fledgling data was collected. At Walshes Island which held the only concentration of nesting Common Gull 0.8 chicks fledged per pair (81 pairs and 67 fledged). While this data may be limited by timing (early nest count at Walshes Island) and by the difficulties of counting fledglings accurately at dispersed nest sites, it compares well with the more successful colonies on Lough Mask (0.88 at Long Rock in 2006), in Co. Mayo (Hunt and Heffernan, 2006). Data from the more successful Common Gull colonies in Scotland also shows similar productivity of between 0.8 chicks fledged per pair and up to 1.26 chicks fledged per pair (Mavor *et al*, 2002 and 2006). Given the drastic declines in breeding numbers on Lough Corrib in the past this productivity data has at least shown that Common Gull successfully reared young in 2007.

For Black-headed Gull productivity data was gathered at Taney Island, where 402 out of the 431 nests were concentrated. From 402 nests at Taney Island, there was a minimum of 410 fledglings, giving a productivity of 0.98 chicks fledged per pair. A colony of Black-headed Gulls on Lough Mask, Co. Mayo fledged 0.7 chicks per pair in 2006 (Hunt and Heffernan, 2006). Data from the more successful colonies in Scotland shows just over one fledged chick per pair (Mavor *et al*, 2002 and 2006).

Terns

The All Ireland Tern survey in 1984 found small numbers of both Common (27 pairs) and Arctic terns (10 pairs) nesting on Lough Corrib. Since then Common Tern numbers have fluctuated up to 37 pairs and down to 12 pairs. In 2007, 22-23 pairs were found. It is likely that some tern nest sites were overlooked and this figure should be considered a minimum estimate. Since 1984 the number of Arctic Terns have also fluctuated up to 60 pairs in 1995 and down to 14 pairs in 2000. The 2007 survey found 47-49 pairs. From the data available it is difficult to determine any overall trend in the numbers of terns nesting on Lough Corrib. Furthermore, the last All-Ireland Tern Survey was now over 10 years ago. The 1995 data gives a national Common Tern population of 3053 pairs and for Arctic Tern 3092 pairs. The Lough Corrib populations in 2007 therefore stand at 0.7% and 1.6% of the national population, respectively.

Common Scoter

Based on data for 1999 it was estimated that the national population of Common Scoter was 80 pairs (Tierney *et al*, 2000). The same survey recorded 32 pairs of Common Scoter at Lough Corrib, making it the most important site for the species in Ireland. In addition to the 32 pairs there were 19 unpaired males and 4 unpaired females, giving a total of 87 birds. Most of the Common Scoter recorded during this survey were concentrated in two areas of Upper Lough Corrib; Doorus (Cornamona) and the islands around Oughterard Bay (Tierney, 2001). The 2007 gull and tern survey covered both the areas of Doorus and Oughterard Bay. While looking for gull and tern nest sites 10 pairs of Common Scoter were counted and a further 6 unpaired males. All of the Common Scoter were located either in Oughterard Bay or around Doorus (Cornamona). While the 2007 data was not derived from a dedicated Common Scoter survey, the core areas for Common Scoter on Lough Corrib were visited. These results suggest a decline in the numbers of Common Scoter nesting on Lough Corrib. Given the status of this species as a rare breeding duck a proper assessment of its status on Lough Corrib is urgently required.

5. Conclusion

The 2007 survey of Lough Corrib provided data on breeding numbers for both gulls and terns and productivity data for gulls. These data suggest that gull populations are stable since 2000, but reasons for the drastic declines in previous years remain unclear. No clear trend in tern numbers is apparent, though a decline in Common Tern numbers is suggested. Data gathered on Common Scoter suggest a decline in numbers nesting on Lough Corrib. Given the lack of productivity monitoring at gulls and tern sites in the west of Ireland, it is suggested that parts of Lough Corrib could be targeted for annual monitoring of breeding success in the gull and tern populations.

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Appendix 1a: Results from the survey of nesting Gulls on Lough Corrib, 2007. This table shows all the sites visited during the nest count whether gulls were recorded or not. Only those with a sufficient concentration of nesting gulls were revisited for the fledgling count. The table shows the date of the nest count in column 1, the nest site code in column 2, the nest site name in column 3, followed by Grid Reference of site, the number of nests of either Common or Black-headed Gull counted and the number fledged, with reference to the date of the fledgling count. Nest counts are of Apparently occupied sites (AOS) unless AON is noted next to the count, in which case the count is of Apparently Occupied Nest. NC indicates the nest site was not revisited for a fledgling count. S indicates fledglings were recorded at the site, but the number was not counted.

Date				Common Gull	fledged		fledged		Black-headed Gull	fledged
2007	code	Site name	Grid ref	AON/S	29th May	3rd July	Total		AON/S	29th May
7thMay	1	Walsh's Island	M272372	AON 81		67	67			
	1a	Islet next to Walshes		nc		9	9			
16th May	2	Ballynalty Bay, small islet	M191501	AON 2	0					
	3	Ballynulty Bay, Red Island	M191505	AON 7	3		3		AON 3	1
	4	Inishmacateer	M177499	2	nc					
	5	Inishmacateer	M176499	2	nc					
	6	South of Inishmacateer, small islet	M172477	1	nc					
	7	Taney Island	M176474	nc	4 est.		4		AON 402	410 min
	8	Curraghmore Rocks	M188469	2	8		8			
	9	Curraghmore Rocks	M1844466	5	2		2			
	9a	Curraghmore Rocks		nc	13		13			
	10	Eagle Island	M185434	2	nc					
	11	Moor Island	M194428	1	nc					
	12	Oughterard Bay	M183421	AON 1	2		2		AON 1	(2 AON)
	13	Oughterard Bay	M188416						2	0
	14	Oughterard Bay	M179421	4	4		4			

	15	Oughterard Bay	M176422	20	52		52			
	15a	Oughterard Bay	M178 420							
	16	Ard Point	M179436							
	17	Ard Point	M1784345	1	nc					
	18	Aughnanure Castle Bay	M163427	AON 5	9		9		AON 11	3 (+5 AON)
	18a	access channel	M160426							
	20	Bog Bay Islands	M141435	AON 3	nc					
17th May	21	Cornamona Bay	M083512							
	22	Cornamona Bay	M077514	1	nc					
	25	Cornamona Bay	M071513							
	26	Cornamona Bay	M070519							
	27	Cornamona Bay	M069521							
	30	Cornamona Bay	M096507							
	32	Cornamona Bay	M099504							
	35	Doorus Tip	M097485							
	36	Keetogues, Doorus Bay	M049497	1	nc				1	nc
	37	Tootoge Rock	M044500	2	nc					
	39	Dooros Bay	M039515	1	nc					
	40	Illaunacreeve	M235422	10	S					
	41	Illaunacreeve	M231423	5	S					
	42	Illaunacreeve	M232426	4	S					
	43	Castle Bay	M229429	2	nc					
	44	Mountross Bay	M248429	11		8	8			
	45	Lees Island	M254420	AON 3		12	12			

	47	Keekill Bay	M261421	1	nc				
	48	Keekill Bay	M260418	1	nc				
	49	Whitemares Island	M255415	1	nc				
	50	Whitemares Island	M249408	1	nc				
	51	Gallcharrick Island	M258401	3		3	3		
	52	Ballinduff Bay	M270395	4		nc			
	53	Ballinduff Bay	M272395	5		nc			
	56	Ballinduff Bay	M283407	5		S			
	57	Ballinduff Bay	M275404	1		nc			
	58	Ballinduff Bay	M271407	2		nc			
	59	Ballinduff Bay	M266405	1		nc			
26th May	60	Angliham						AON 11	nc
Total (pairs)				204			196	431	414

Appendix 1b: Results from the survey of nesting terns on Lough Corrib, 2007. All sites shown in Appendix 1a were also surveyed for Terns. Only those sites where terns were recorded are presented below, the grid references for each of these sites are shown in Appendix 1a. Column 1 of the table shows the nest site code, followed by nest site name. Columns 3-5 show the number of Common Tern individual (ind.) adult birds counted on each survey date, or the number of Apparently Occupied Nests (AON) or Sites (AOS). An estimated number of nesting pairs is presented in column 6. Where an early count of terns was recorded (16th May) but there was no late visit (29th May/3rd July) “nc” is listed (not counted) and the estimated number of pairs is question marked (?).

Code	Site name	Common Tern			Total pairs (estimate)	Arctic Tern			Total Pairs (estimate)
		16 th May	29 th May	3 rd July		16 th May	29 th May	3 rd July	
1a	Islet next to Walshes			20 ind; 9AON	13				
2	Ballynalty Bay, small islet	6 ind.	6 ind		4				
3	Ballynulty Bay, Red Island	8 ind.	3 AOS (2 AON)		5				
5	Inishmacateer						1 AOS		1
9	Curraghmore Rocks						1 AON		1
12	Oughterard Bay					5 AON	2 AON		5
15	Oughterard Bay						4 AON		4
15a	Oughterard Bay						12 ind.; 1AON; 2C		8
18	Aughnanure Castle Bay					2 AON	0		2
18b	access channel						16 ind		11
35	Doorus Tip	1 ind.	nc	nc	1?				
45	Lees Island					3 AOS		22 ind.	15
49	Whitemares Island					2 ind.	nc		1?
53	Ballinduff Bay					2 ind.	nc		1?
					22-23				47-49

Appendix 1c: The number and location of Common Scoter recorded during the Gull and Tern survey of Lough Corrib, 2007. Date refers to the day the Common Scoter were recorded, code refers to colony/nest site code (see Appendix 1a). The site name and grid reference relate to where the Common Scoter were recorded.

Date	Code	Site name	Grid ref	Common Scoter
16th May	14	Oughterard Bay	M179421	1 male
	16	Ard Point	M179436	3 male, 2 female
17th May	21	Cornamona Bay	M083512	1 pair
	22	Cornamona Bay	M077514	1 pair
	25	Cornamona Bay	M071513	1 pair
	26	Cornamona Bay	M070519	3 male, 2 female
	27	Cornamona Bay	M069521	1 female, 4 male
	30	Cornamona Bay	M096507	1 pair
	32	Cornamona Bay	M099504	1 pair
Total (pairs)				10
(26 individuals; 10 female and 16 male)				