

# Lady's Island Lake Tern Report 2016

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An Roinn Ealaíon, Oidhreachta,  
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

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Department of Arts, Heritage,  
Regional, Rural and Gaeltacht Affairs

## **Acknowledgements**

The Lady's Island Lake Tern Conservation Project is managed by the National Parks and Wildlife Service (NPWS) of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, and is now in its 34th year.

Its success depends on the support and co- operation of many people.

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## Summary

Management and monitoring of the Lady's Island Lake Tern Colony commenced on the 15th March and continued until the 4th August 2016.

The total number of gull and tern nests recorded was 6248, a 6.7% increase on that of 2015.

Black-headed Gulls (*Larus ridibundus*) increased by 417 pairs (21%) to 2429.

72 pairs of Mediterranean Gulls (*Larus melanocephalus*) nested, 44 more than in 2015, representing a 150% increase.

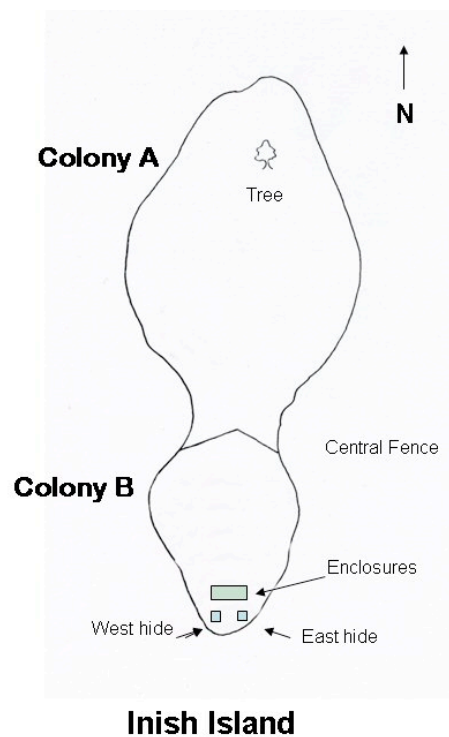
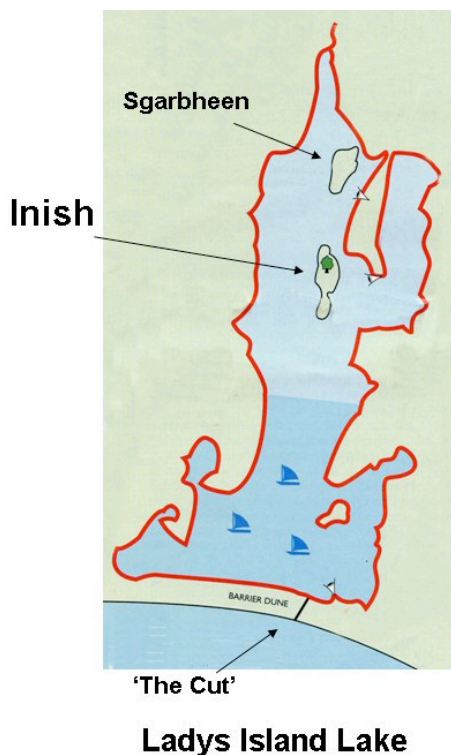
Sandwich Terns *Sterna sandivensis* decreased by 117 pairs (6.6%) to 1682.

Common and Arctic Terns (*Sterna hirundo/paradisaea*) were censused separately, with a total of 1012 Common and 844 Arctic Tern nests recorded. This gave a combined total of 1856, a 3.1% increase on that of 2015. The mean clutch size for Common and Arctic Terns was 2.36 and 1.79 respectively.

209 Roseate Tern pairs nested, which is a 2.8% decrease on that recorded in 2015, with a mean clutch size of 1.43 per egg laying pair, and a hatching success of 85%.

The mean temperature was 13.3 degrees Celsius and the mean rainfall was 70.9mm for the survey period.

Water levels measured 3.95m on the staff gauge at the beginning May falling to 3.84m at the end of July.



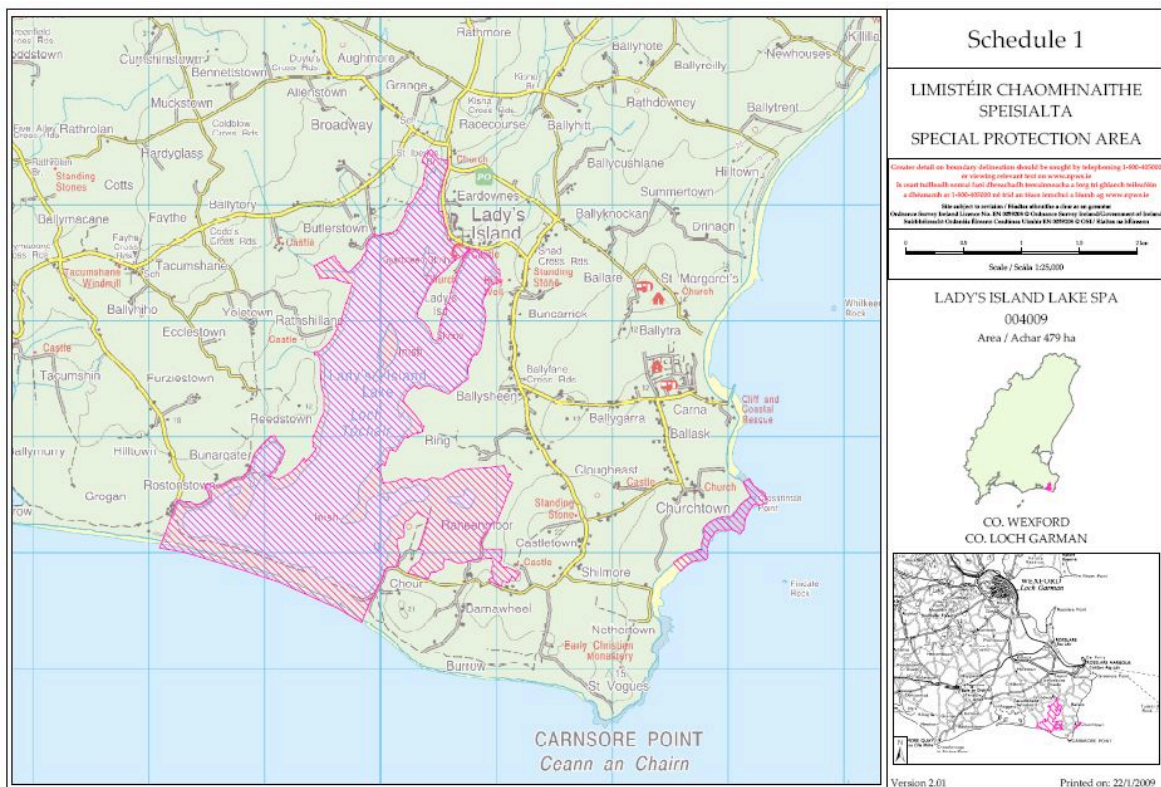
# 1. Introduction

## 1.1 Colony site

### SITE SYNOPSIS

SITE NAME: LADY'S ISLAND S.I. No. 69/2012 SPA: 004009

Lady's Island Lake is situated in the extreme southeast of Ireland and is comprised of a shallow, brackish coastal lagoon separated from the sea by a 200-metre wide sand and shingle barrier. The lake is 3.7 km in length and 1.3 km at its widest southerly point, and covers an area of 466 hectares. The lake and its two islands, Inish and Sgarbheen, are designated Special Protection Areas (SPA), holding 5 Special Conservation Interest Species; Gadwall (*Anas strepera*), Black-headed Gull (*Larus ridibundus*), Sandwich Tern (*Sterna sandvicensis*), Roseate Tern (*Sterna dougallii*), Common Tern (*Sterna hirundo*), and Arctic Tern (*Sterna paradisaea*).



This site is of high conservation importance, having three habitats, which are listed on Annex I of the EU Habitats Directive and one of these (lagoons) with priority status.

## **2. Methods**

### **2.1 Preparatory work**

#### ***Deployment of nest boxes:***

330 wooden nest boxes were deployed on 13<sup>th</sup> April in Colony B and placed in approximately the same positions as those in 2015.

Three wooden observation hides were placed on top of wooden palettes and tied down securely. Three enclosures were put in place, one on the eastern side of the roseate colony and two on the western side, to facilitate the collection of biometric data on roseate tern chicks.

#### ***Central fence:***

A three-foot high wire mesh fence, topped by a single electrified wire was put in place on the 6<sup>th</sup> May to prevent mammalian access to the southern colony.

### **2.2 Active Nest Census**

*All nest censuses were carried out during good weather conditions and without prolonged disturbance to gull and tern species.*

#### ***Black-headed Gulls:***

Two 'walk-through' nest censuses were carried out, one in Colony A on the northern end of Inish and one in Colony B on the southern end of Inish on 5<sup>th</sup> May, recording a total of 2380 nests. A small colony of 49 nests was also censused on Sgarbheen.

Two and three nest clutches were recorded on two tally-counters, whilst one and four/five clutches were noted separately.

#### ***Mediterranean Gulls:***

Mediterranean Gull nests were censused on the 3<sup>rd</sup>, 6<sup>th</sup> and 24<sup>th</sup> May.

72 nests were marked with bamboo sticks with the appropriate nest number attached.

#### ***Sandwich Terns:***

Three 'walk-through' censuses were carried out, two on Inish on 24<sup>th</sup>/30<sup>th</sup> May and one on Sgarbheen on 26<sup>th</sup> May.

#### ***Common and Arctic Terns:***

Censusing of Common and Arctic Terns took place on 2<sup>nd</sup> June on Inish and the 3<sup>rd</sup> June on Sgarbheen.



## **2.3 Predator Control**

### **Brown Rat (*Rattus norvegicus*)**

10 kgs of Storm rat bait was placed in open-ended clay and plastic pipes around the perimeter of Inish on 31<sup>st</sup> March and the 8<sup>th</sup> April.

### **Hooded Crow (*Corvus cornix*)**

A pair nested in the Monterey Tree on the northern end of Inish and another pair nested successfully on the main peninsula close to the castle.

### **Peregrine falcon (*Falco peregrinus*)**

Two Peregrines made irregular visits to the islands up to mid-July and was noted taking tern species on most occasions. Two adult roseate terns were noted prey species on the 17/18<sup>th</sup> May.

### **Kestrel (*Falco tinnunculus*)**

A pair bred nested in a ruin near the southeast end of the lake and were noted on several occasions flying over both Inish and Sgarbheen. One was observed taking an arctic tern chick on Sgarbheen on the 25<sup>th</sup> June.

### **Oystercatcher (*Haematopus ostralegus*)**

Two oystercatcher nests were situated within the roseate tern colony and their contents were removed (under licence) as adult oystercatchers are known to depredate tern eggs and chicks.

### **Black-headed Gull (*Larus ridibundus*)**

178 pairs of Black-headed Gulls nested in colony B and were noted taking tern chicks throughout the early part of the hatching when common/arctic chicks were small enough to be taken.

Four nests and their contents were removed from the vicinity of the roseate tern colony.

### **Lesser Black-backed Gull (*Larus fuscus*)**

Two pairs of Lesser Black-backed Gulls were noted in Colony 'A' close to the black-headed gull colony on Inish. One nest containing three eggs was located on the eastern shore and removed on the 18<sup>th</sup> May. No other nests were found.

### **Great Black-backed Gull (*Larus marinus*)**

Two Great Black-backed Gulls were observed taking sandwich tern and black-headed gull chicks from late June to late July.

### **Greylag Geese (*Anser anser*)**

Greylag Geese are a feral, non-native species. To prevent the population expanding out of control, nests were removed from Inish and Sgarbheen under license at the beginning of the breeding season.

## **2.4 Prevention of disturbance**

Signs, requesting lake users to remain on the southern end of the lake away from the breeding colonies, were put in place at the commencement of the project.

Hunting peregrines, great black-backed, lesser black-backed, herring gulls and starlings caused the most noted dreads.

## 2.5 Weather

*Weather summary records from Met Eireann Johnstown April-July 2016*

### **April**

Temperatures were average, 7.3 degrees Celsius and a total rainfall of 79 mm.

### **May**

Temperatures were below average, 11.4 degrees Celsius and a total rainfall of 70.3mm.

### **June**

Temperatures were average 14.5 degrees Celsius and a total rainfall of 93.5mm.

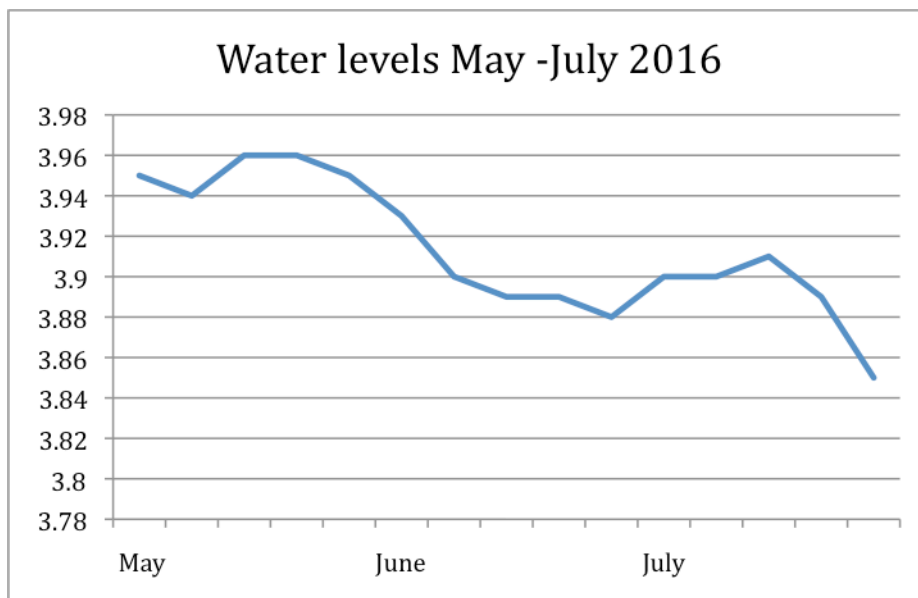
### **July**

Temperatures were average 15.3 degrees Celsius and a total rainfall of 40.9mm.

Precipitation was recorded at Lady's Island Lake on 32 days between 1<sup>st</sup> April and 31<sup>st</sup> July with heavy rain on the 19<sup>th</sup> June and the 9<sup>th</sup> July.

## 2.6 Water levels

A decision to lower the lake water levels was taken at a Lady's Island Lake committee meeting on the 1<sup>st</sup> February. The 'cut' was opened on the 2<sup>nd</sup> February at a level of 5.83m on the staff gauge. The lake emptied and water levels rose to 4.48m requiring a second cut on the 15<sup>th</sup> March. Levels measured 3.95m on the 1<sup>st</sup> of May and averaged 3.9m until the end of July.





## 2.7 Ringing and ring reading

The census methods are the same as those implemented in 2012 and are detailed in section 2.2 of that report.

## 3. Results

### 3.1 Nest census

#### **3.1.1 Black-headed Gulls (*Larus ridibundus*)**

A total of 2380 Black-headed Gull pairs were recorded on Inish with a further 49 pairs on Sgarbheen, giving a grand total of 2429. This was an increase of 417 pairs on that recorded in 2015.

The mean clutch size was 2.47.

The main colony was again situated on the eastern side of the Inish, with three sub-colonies situated on the west, northwest and south and one on Sgarbheen.

The first eggs were recorded on the 10<sup>th</sup> April, with the first chick hatching on the 3rd May.

Censusing took place on the 5<sup>th</sup> May.

#### **3.1.2. Black-headed Gull productivity on Inish**

	<b>Nests</b>	<b>Total eggs</b>
X 1 egg	335	335
X 2 egg	575	1150
X 3 egg	1464	4392
X 4 egg	6	24
<b>Total</b>	<b>2380</b>	<b>5901</b>
<b>Mean clutch</b>	<b>2.47</b>	

#### **Black-headed Gull productivity on Sgarbheen**

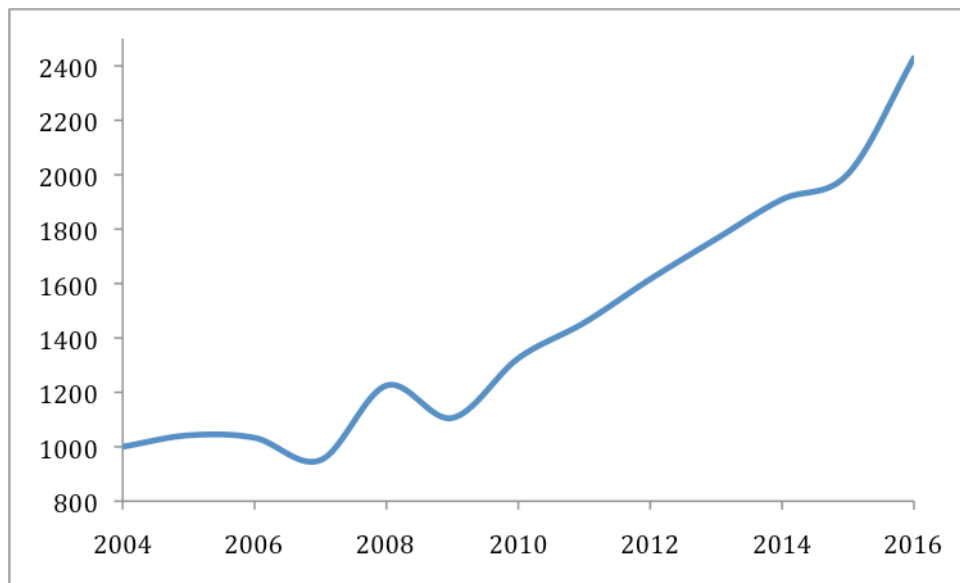
	<b>Nests</b>	<b>Total eggs</b>
X1 egg	11	11
X 2 egg	13	26
X 3 egg	25	75
<b>Total</b>	<b>49</b>	<b>112</b>
<b>Mean clutch</b>	<b>2.28</b>	

#### **Combined Black-headed Gull productivity on Lady's Island Lake**

	<b>Nests</b>	<b>Total eggs</b>
X1 egg	346	346
X 2 egg	588	1176
X 3 egg	1489	4467
X 4 egg	6	24
<b>Total</b>	<b>2429</b>	<b>6013</b>
<b>Mean clutch</b>	<b>2.47</b>	

### 3.1.3

*Black-headed gull pairs 2004-2016*

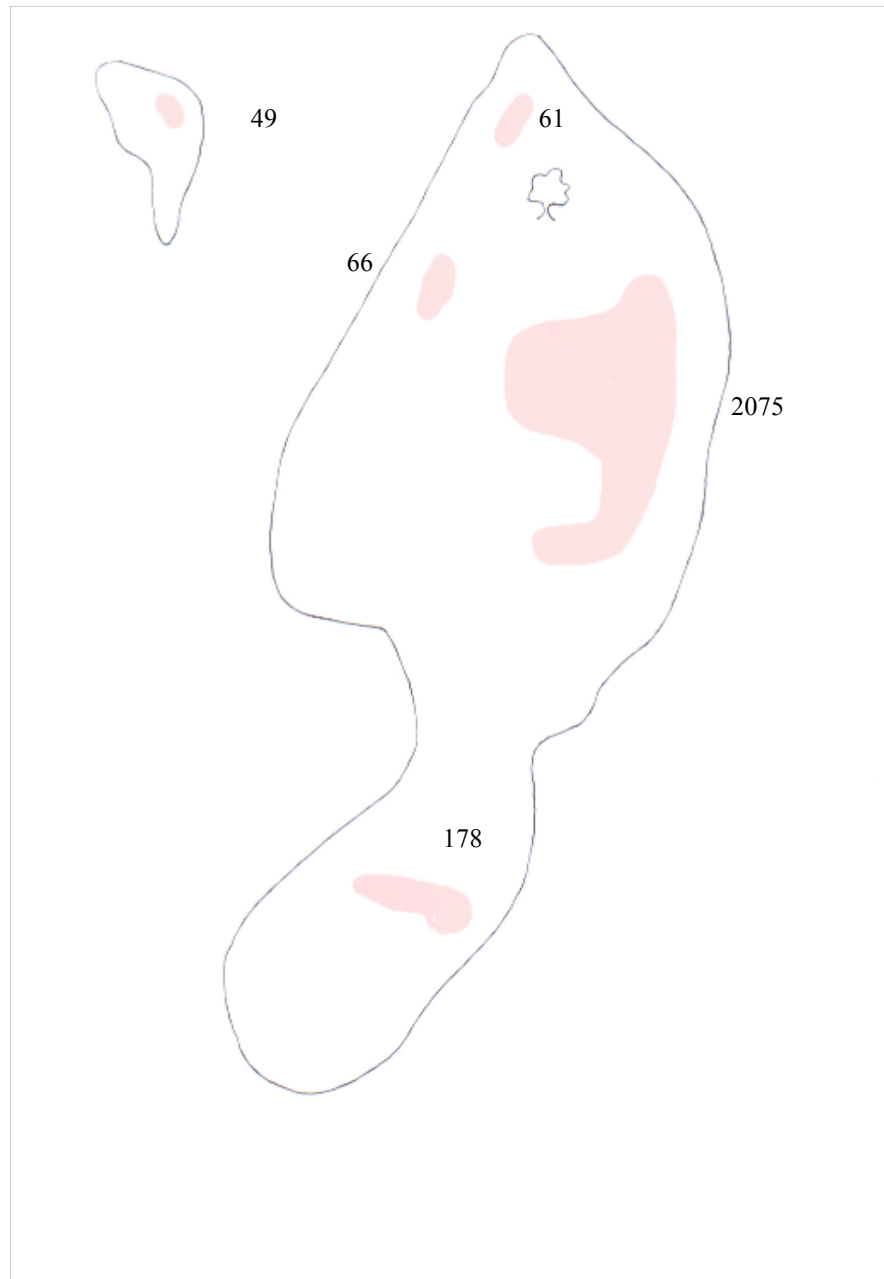


***Re-sightings;***

EX52465 ringed on 12/06/15 re-sighted The Lough Cork 28/11/15.

EL75952 ringed on 22/05/15 re-sighted The Lough Cork 28/11/15

3.1.4. *Location of black-headed gull colonies/pairs on Inish/Sgarbheen 2016*



### 3.2 Mediterranean Gulls (*Larus melanocephalus*)

A census of Mediterranean Gull nests was made on the 3<sup>rd</sup>, 6<sup>th</sup> and 24<sup>th</sup> May.

72 nests were located within the main black-headed gull colony and each nest was marked with a bamboo cane, identifying the nest number and its contents.

Two chicks were found dead, one the 24<sup>th</sup> May and one on the 27<sup>th</sup> June.

	Nests	Total eggs
X 1 egg	1	1
X 2 egg	19	38
X 3 egg	51	153
X 4 egg	1	4
<b>Total</b>	<b>72</b>	<b>196</b>
<b>Mean clutch</b>	<b>2.72</b>	

#### 3.2.1 Ringing

Ringing took place on the 8<sup>th</sup>/17<sup>th</sup> and 21<sup>st</sup> June with a total of 38 chicks ringed with BTO rings, 29 of which were also fitted with yellow darvic rings.

Date 08/06/16	Ring no.	Darvic	Date 08/06/16	Ring no.
“	EX02027	2XE0	“	EX02026
“	EX02028	2X1N	“	EX02040
“	EX02029	2X1N	“	EX02042
“	EX02031	2X3N	“	EX02045
“	EX02032	2X4N	“	EX02047
“	EX02033	2X5N	“	EX02048
“	EX02034	2X6N	“	EX02049
“	EX02035	2X7N	“	EX02050
“	EX02036	2X8N	“	EL75977
“	EX02037	2X9N		
“	EX02038	2X0N		
“	EX02039	2XH3		
“	EX02041	2XH4		
“	EX02043	2XH5		
“	EX02044	2XH6		
“	EX02046	2XH7		
“	EL75973	2XH8		
“	EL75974	2XH9		
17/06/16	EL75975	2XH0		
“	EL75976	2XR1		
“	EL75978	2XR2		
“	EL75980	2XR3		
“	EL75981	2XR4		
“	EL75982	2XR5		
“	EL75983	2XR6		
“	EL75984	2XR7		
“	EX02042	2XR8		
21/06/16	EL75985	2XR9		
“	EL75986	2XR0		

**Re-sighting:** 2XK2, ringed as adult Sandycove Dublin 07/09/15 was recorded on Inish on 8<sup>th</sup> June. Five juveniles, 2X6N, 2X6X, 2XH7, 2XR3 and 2XR9 were re-sighted on the west shore of the lake on the 11<sup>th</sup> July.

### 3.3 Sandwich Terns (*Sterna sandvicensis*)

A grand total of 1682 Sandwich Tern pairs nested on Inish and Sgarbheen. This was a decrease of 117 pairs on that of 2015 when a total of 1799 pairs were recorded.

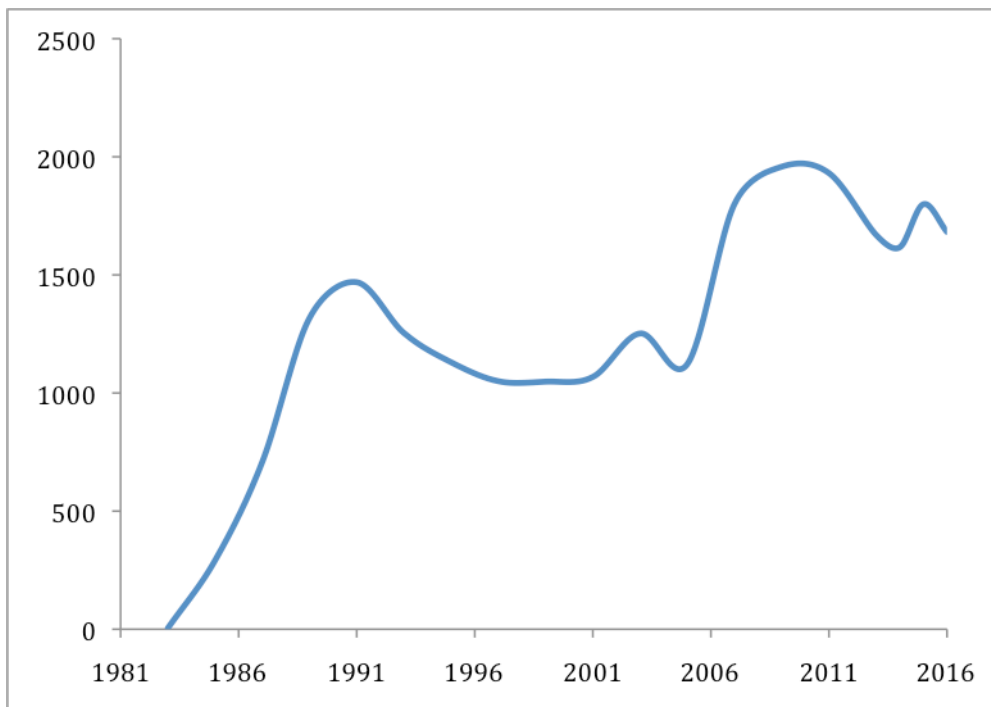
The biggest colony, comprising 822 nests, was situated on the northeastern side of Sgarbheen, a decrease of 412 nests on that recorded in that location in 2015.

The first eggs were noted on the 29<sup>th</sup> April, four days earlier than 2015. The mean clutch size was 1.36. Censusing took place on the 24<sup>th</sup>/30<sup>th</sup> May on Inish and 26<sup>th</sup> May on Sgarbheen with a total of 860 and 822 nests recorded respectively.

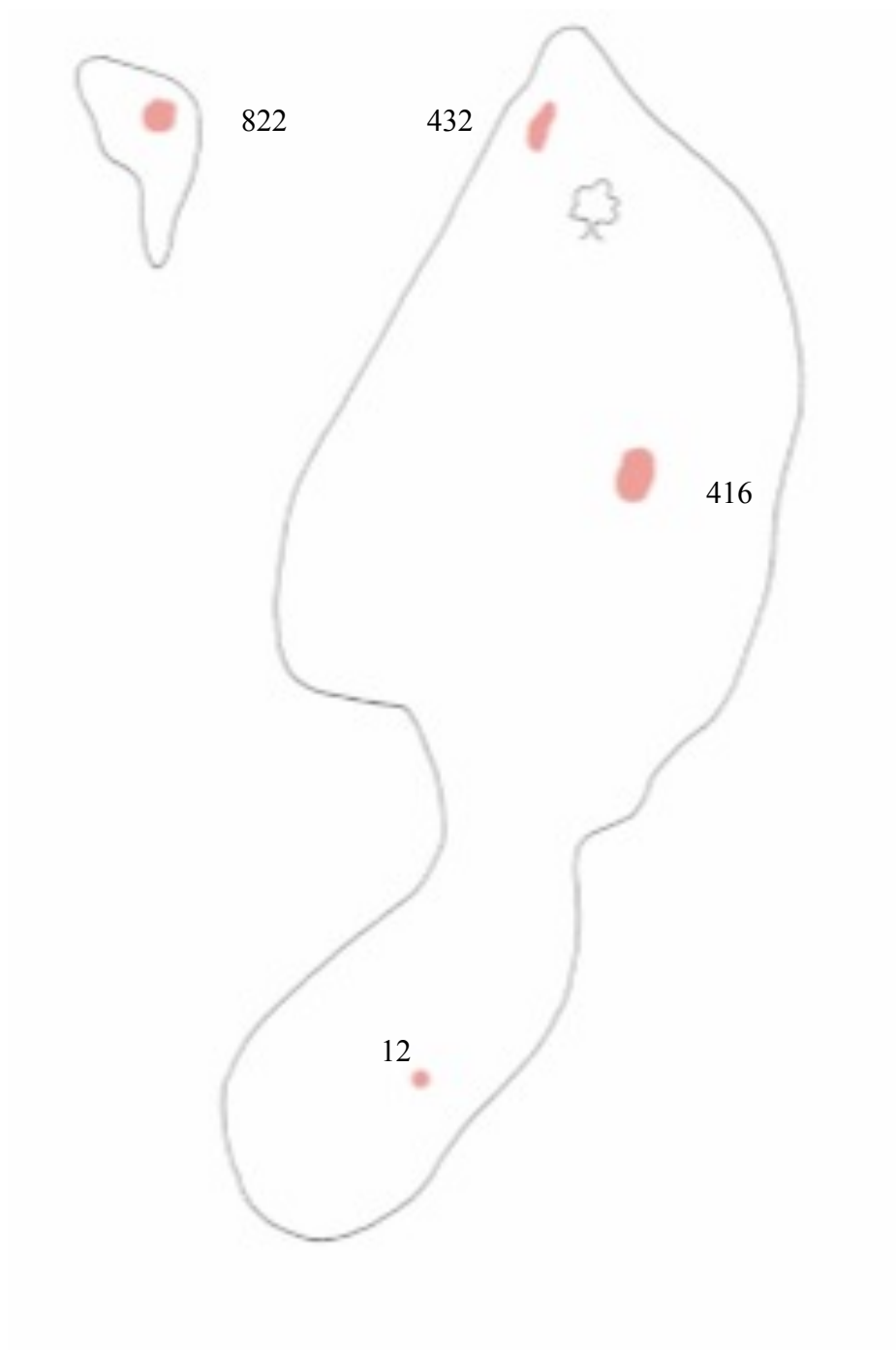
#### 3.3.1 Productivity on Inish and Sgarbheen

	<b>Inish</b>		<b>Sgarbheen</b>		
	Nests	Total eggs		Nests	Total eggs
X 1 egg	674	674	X 1 egg	394	394
X 2 egg	186	372	X 2 egg	428	856
<b>Total</b>	860	1046		822	1250
<b>Grand total</b>	1682	2296			
<b>Mean clutch</b>	1.36				

**Sandwich Tern pairs 1983-2016**



3.3.2 Location of Sandwich Tern colonies on Inish 2016



### 3.3.3 Ringing

Ringing of sandwich terns took place on two days with a total of 196 pulli fitted with BTO metal rings, of which 193 which were fitted with darvic rings (commencing with the letter 'K').

Date	Ring no.	Darvic	Number	Total	Date	Ring no.	Darvic	Number
17 <sup>th</sup> June	DD79891				21 <sup>st</sup> June	DD78157	K7D	1
	DD79892-5	KZA-KZD	4			DD78158	K7F	1
	DD79896	KZF	1			DD78159	K7H	1
	DD79897	KZH	1			DD78160-2	K7J-L	3
	DD79898	KZJ	1			DD78163	K7N	
	DD79899-100	KZK-KZL	2			DD78164	K7P	
	DE05337	KZN	1			DD78165-6	K7S-T	2
	DE05338	KZP	1			DD78167	K7V	
	DE05339	KZS	1			DD78168	K7Z	
	DE05340	KZT	1			DD78169-72	K8A-D	4
	DE05341	KZV	1			DD78173	K8F	1
	DE05342	KZZ	1			DD78174	K8H	1
	DD05343-6	KOA-D	4			DD78175-7	K8J-L	3
	DD05347	KOF				DD78178	K8N	1
	DD05348	KOH	1			DD78179	K8P	1
	DD05349-50	KOJ-KOK	2			DD78180-1	K8S-T	2
	DD79451	KOL				DD78182	K8V	1
	DD79452	KON	1			DD78183	K8Z	1
	DD79453	KOP	1			DD78184-7	K9A-D	4
	DD79454-5	KOS-T	2			DD78188	K9F	1
	DD79456	KOV	1			DD78189	K9H	1
	DD79457	KOZ	1			DD78190-2	K9J-L	3
	DD79458-61	KIA-D	4			DD78193	K9N	1
	DD79462	KIF	1			DD78194	K9P	1
	DD79463	KIH	1			DD78195-6	K9S-T	2
	DD79464-6	KIJ-L	3			DD78197	K9V	1
	DD79467	KIN				DD78200	K9Z	1
	DD79468	KIP	1			DD78201-4	KOA-D	4
	DD79469-70	KIS-T	2			DD78205	KOF	1
	DD79471	KIV	1			DD78206	KOH	1
	DD79472	KIZ	1			DD78207-9	KOJ-L	3
	DD79473-6	K2A-K2D	4			DD78210	KON	1
	DD79477	K2F	1			DD78211	KOP	
	DD79478	K2H	1			DD78212-3	KOS-T	2
	DD79479-81	K2J-L	3			DD78214	K0V	1
	DD79482	K2N	1			DD78215	KOZ	1
	DD79483	K2P	1			DD78216-9	K1A-D	4
	DD79484-5	K2S-T	2			DD78220	K1F	1
	DD79486	K2B	1			DD78221	K1H	1
	DD79487	K2Z	1			DD78222-4	K1J-L	3
	DD79488-91	K3A-D	4			DD78225	K1N	1
	DD79492	K3F	1			DD78226	K1P	1
	DD79493	K3H	1			DD78227-8	K1S-T	2
	DD79494-6	K3J-L	3			DD78229	K1V	1
	DD79497	K3N	1			DD78230	K1Z	1
	DD79498	K3P	1					
	DD79499-500	K3S-T	2			K9J - dead	27/06/16	
	DD78101	K3V	1			K1F- dead	27/06/16	
	DD78102	K3Z	1					
	DD78103-6	K4A-D	4					



	DD78107	K4F	1		7 <sup>th</sup> July	DD78231	K2A	
	DD78108	K4H	1			DD78232	K2B	
	DD78109-11	K4J-L	3			DD78233	K2C	
	DD78112	K4N	1			DD78234	K2D	
	DD78113	K4P	1			DD78235	K2F	
	DD78114-5	K4S-T	2			DD78236	K2H	
	DD78116	K4V	1			DD78237	K2J	
	DD78117	K4Z	1			DD78238	K2K	
	DD78118-21	KSA-D	4			DD78239	K2L	
	DD78122	KSF	1			DD78240	K2N	
	DD78123	KSH	1			DD78241	K2P	
	DD78124-26	KSJ-KSL	3			DD78242	K2S	
	DD78127	KSN	1			DD78243	K2T	
	DD78128-9	KSS-KST	2			DD78244	K2V	
	DD78130	KSV	1			DD78245	K2Z	
	DD78131	KSZ	1			DD78246	K3A	
	DD78132-5	K6A-D	4			DD78247	K3B	
	DD78136	K6F	1			DE05309	K3C	
	DD78137	K6H	1			DD78248	K3D	
	DD78138	K6J	1			DD78249	K3F	
	DD78139	NONE				DD78250	K3H	
	DD78140-1	K6K-L	2			DD78251	K3J	
	DD78142	K6N	1			DD78252	K3K	
	DD78143	K6P	1			DD78253	K3L	
	DD78144-5	K6S-T	2			DE05330	K3N	
	DD78146	K6V	1			DD78254	K3P	
bto	DD78147	K6Z	1	darvic		DD78255	K3S	
124	DD78148-50	K7A-K7C	3	122		DD78256	K3T	
						DD78257	K3V	
						DD78258	K3Z	
						DD78259	K4A	
						DD78260	K4B	

### 3.3.4 Sandwich tern enclosure

An enclosure was put in place on the 13<sup>th</sup> May on Sgarbheen surrounding 40 nests.

51 eggs were laid, 29 x A1, 11 x A2 and 11 B. Four eggs, all A1's were depredated.

BTO rings were placed on 32 chicks and daily weights of these were taken over a seven-day period.

However, it was noted that several chicks died beside the wire, with fish provisions dropped by the parents on the opposite side. Poor weather at the time may also have been a factor. Therefore, the enclosure was removed on the 13<sup>th</sup> June.

	A1	A2	B	Total
Eggs	29	11	11	51
Cold eggs	5	1	7	13
Depredated eggs	4			4
Dead chicks	4	2	1	7
Live chicks	16	8	3	27

### 3.3.5 Recoveries:

Ring number	Darvic	Place	Date	Recovered/controlled	Date
DD79366		LAD	26/6/15	Ceredigion UK	04/9/15
DD79569		LAD	03/7/13	Ringaskiddy/Cork	11/8/15
DD56956		LAD	18/6/10	Ringaskiddy/Cork	12/8/15
DD41288		LAD	14/6/06	Ringaskiddy/Cork	10/8/15
DD41264		LAD	14/6/06	Ringaskiddy/Cork	07/9/15
DD14318		LAD	25/6/02	Ringaskiddy/Cork	11/08/15
DE02017	KAC	LAD	05/6/15	St Annes Lanc. UK	21/08/15
DE02046	KCK	LAD	17/6/15	St Annes Lanc. UK	21/08/15
DD79446		LAD	01/8/15	Mauritania	08/11/15
DD79396		LAD	26/6/15	Gt Saltee	23/7/15
DE02143	KLZ	LAD	23/06/15	Gt Saltee	23/07/15
DK93628		LAD	08/6/96	Salina Di Comacchio Italy	
DD57604		LAD	14/6/06	Anglesey, UK	22/4/16
Dd79249		LAD	25/6/14	Dawlish Warren UK	09/07/16

### 3.4 Common Terns (*Sterna hirundo*)

A total of 723 common tern pairs nested on Inish with a further 289 on Sgarbheen giving a grand total of 1012 breeding pairs with a mean clutch size of 2.36.

The first egg was recorded in colony B on the 14<sup>th</sup> May, two days later than 2015.

Censusing took place on the 2<sup>nd</sup> June on Inish and the 3<sup>rd</sup> June on Sgarbheen (combined with the arctic tern census).

#### 3.4.1 Common Tern productivity on Inish

	Nests	Total eggs
X1 egg	52	52
X 2 egg	344	688
X 3 egg	327	981
<b>Total</b>	<b>723</b>	<b>1721</b>
<b>Mean clutch</b>	<b>2.38</b>	

#### 3.4.2 Common Tern productivity on Sgarbheen

	Nests	Total eggs
X1 egg	24	24
X 2 egg	162	324
X 3 egg	101	303
X 4egg	2	8
<b>Total</b>	<b>289</b>	<b>659</b>
<b>Mean clutch</b>	<b>2.28</b>	

#### Combined Common Tern productivity on Lady's Island Lake

	Nests	Total eggs
X1 egg	76	76
X 2 egg	506	1012
X 3 egg	428	1284
X 4 egg	2	8
<b>Total</b>	<b>1012</b>	<b>2380</b>
<b>Mean clutch</b>	<b>2.35</b>	

### 3.5 Arctic Terns (*Sterna paradisaea*)

A total of 525 Arctic Tern pairs nested on Inish with a further 319 pairs on Sgarbheen, giving a grand total of 844 breeding pairs with a mean clutch size of 1.79.

First egg was recorded on 14<sup>th</sup> May in Colony B.

Censusing took place on the 2<sup>nd</sup> and 3<sup>rd</sup> June (combined with common tern census).

#### 3.5.1 Arctic Tern productivity on Inish

	<b>Nests</b>	<b>Total eggs</b>
X1 egg	107	107
X 2 egg	377	754
X 3 egg	41	123
<b>Total</b>	<b>525</b>	<b>984</b>
<b>Mean clutch</b>	<b>1.87</b>	

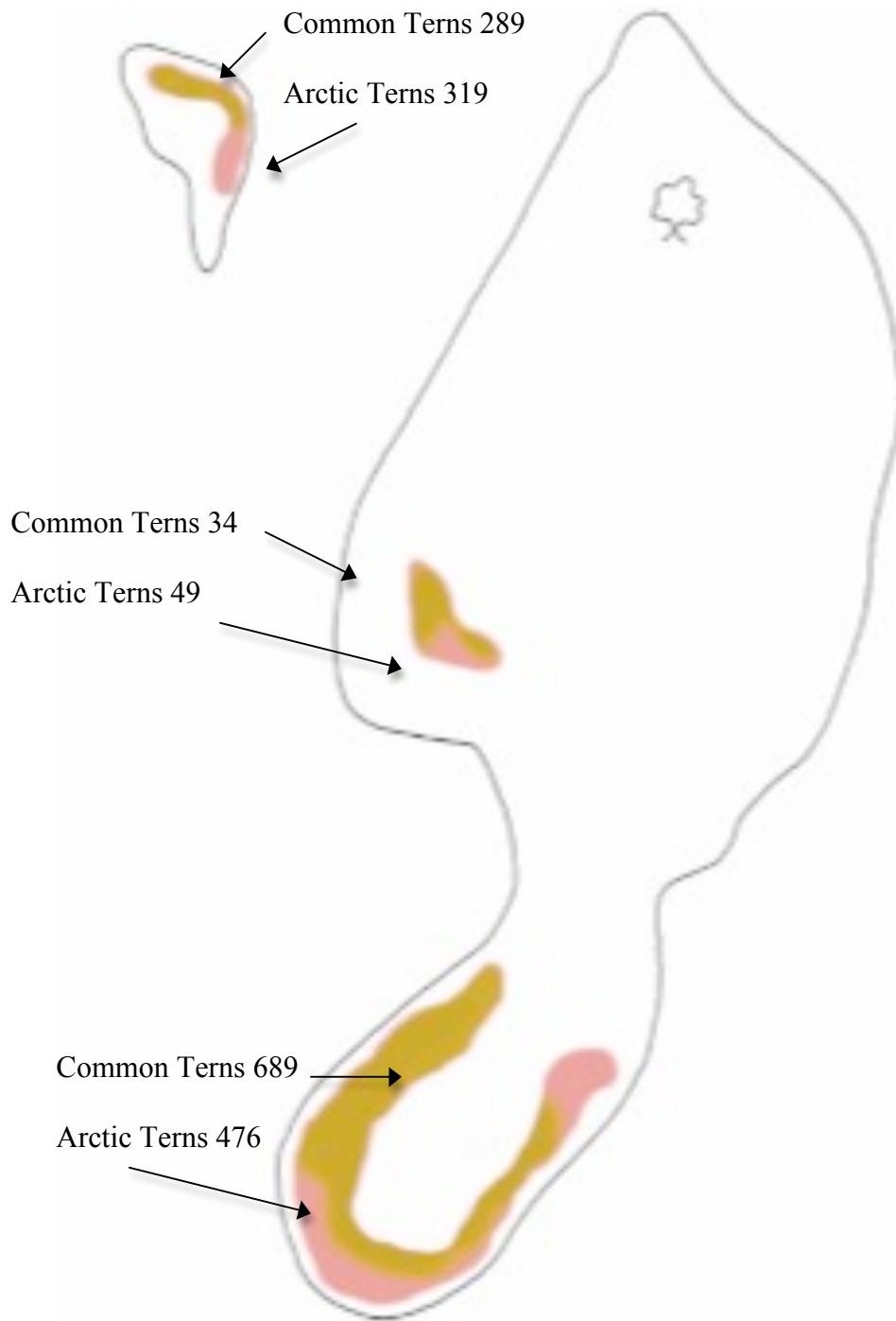
#### 3.5.2 Arctic Tern productivity on Sgarbheen

	<b>Nests</b>	<b>Total eggs</b>
X1 egg	36	36
X 2 egg	244	488
X 3 egg	39	117
<b>Total</b>	<b>319</b>	<b>641</b>
<b>Mean clutch</b>	<b>2.01</b>	

#### Combined Arctic Tern productivity on Lady's Island Lake

	<b>Nests</b>	<b>Total eggs</b>
X1 egg	143	204
X 2 egg	621	1252
X 3 egg	80	54
<b>Total</b>	<b>844</b>	<b>1510</b>
<b>Mean clutch</b>	<b>1.79</b>	

3.5.3 Location of common/arctic tern colonies on Inish and Sgarbheen



### 3.6. Roseate Terns (*Sterna dougallii*)

#### 3.6.1 Productivity:

209 breeding pairs of roseate terns were recorded nesting on the southern end of Inish.

This was an decrease of six nests on that recorded in 2015.

The mean clutch size was 1.43 per egg laying pair, with a hatching success of 85%.

The first egg was laid on the 14<sup>th</sup> May, the same as in 2015.

The main laying period was from 14<sup>th</sup> May to 16<sup>th</sup> June. A total of 198 roseate tern clutches were designated as primary nests, laid up to and including the 16<sup>th</sup> June, the cut-off date (34 days after the first roseate egg was detected). Of the 198 nests, 108 were 1 egg and 90 were 2 egg clutches. From 14<sup>th</sup> May – 16<sup>th</sup> July, outside the cut-off point, a further 11 clutches were designated as secondary nests, all which were single egg clutches.

Of the 198 primary nests, hatching success was calculated to be 87.5%.

Roseate Tern Productivity 2004-2016

	nests	eggs	cold depredated eggs	fledged chicks	dead chicks	clutch size	hatching success
2016	209	299	42	225	32	1.43	85%
2015	215	316	29	248	39	1.47	91%
2014	174	293	36	214	42	1.68	88%
2013	150	230	39	159	32	1.53	83%
2012	126	196	58	91	47	1.55	70.4%
2011	155	263	32	231	25	1.7	78%
2010	118	195	10	182	11	1.65	92%
2009	125	210	57	91	62	1.68	72%
2008	109	146	27	119	23	1.34	81.5%
2007	89	153	13	140	33	1.72	76.42%
2006	93	142	13	129	3	1.52	88.7%
2005	74	131	6	125	19	1.77	80.9%
2004	66	118	17	101	19	1.79	69.5%

### 3.6.2 Location of 209 roseate nest sites on Inish

West	Centre	East
179 180 59 141 108	203 162 105 <b>178</b>	76 83 3 2 <b>125</b>
174 184 25 94 107	195 134 34 168	110 74 <b>82</b> 99
7 10 26 31 186	197 135 130 150	104 147 33 37
8 140 27 122 145	202 41 40 68	39 66 20 100 75
<b>156</b> 190 6 159 60	42 14 69	<b>112</b> 65 81 19 32
21 191 5 142 160	153 132 131	181 84 146 126
22 192 155 143 163	78 133 152	<b>177 103 96 165</b>
116 <b>194</b> 4 158 <b>171</b>	154 114 151	<b>188</b> 128 77 <b>109</b>
9 198 57 95 172	138 183 169	129 102 101 64
117 11 91 52 35	70 85 67	176 38 55 63
23 139 28 185 53	136 161 113	148 111 166 98
58 89 72 123 187	137 43 149	167 127 <b>193</b> 18
44 36 49 79 200	115 56 170 <b>207</b>	<b>189 182</b> 17 1
86 71 144 124 199		<b>97</b> 54 15 16 62
24 46 50 13 196		
45 30 51 12 201		
118 92 120 73		
88 29 121 61		
119 48 175 80		
87 47 93 164 204		
157 90 106 173		
<b>205 206 208 209</b>		

(red denotes open nest)

### 3.6.3 Hatching success;

A total of 299 eggs were laid in 209 nests, of which 190 were in boxes and 19 were natural/open nest sites.

198 nests were assigned as primary and 11 as secondary nests.

Of these, 108 (54.5%) were one egg clutches and 90 (45%) were two egg clutches.

Overall hatching success was 85%. Excluding the eleven secondary nests, hatching success was 87%.

### 3.6.4 Chick survival rate:

Of the 252 chicks to hatch within the primary cohort, 28, (three A1, one A2 and 24'B'), were found dead, giving a known chick survival rate of 86 % (similar to that recorded in 2015 at 86.4%).

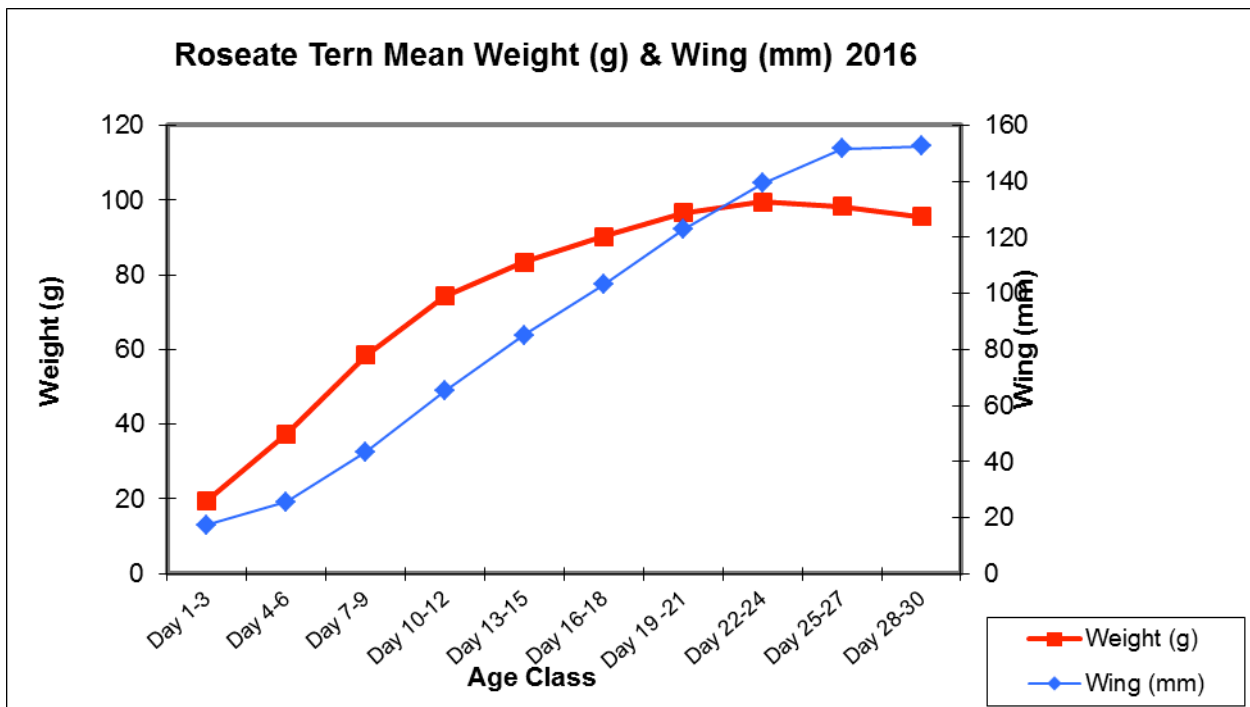
Two B chicks and one A2 could not be found two days following hatching.

Primary nests	A1	A2	B	Total
Cold eggs	15	3	16	34
Depredated eggs	2			2
Dead chicks	3	1	24	28
Live chicks	87	86	48	221
Missing		1	2	3
Secondary nests				
Cold eggs	5			5
Depredated eggs	1			1
Live chicks	4			4

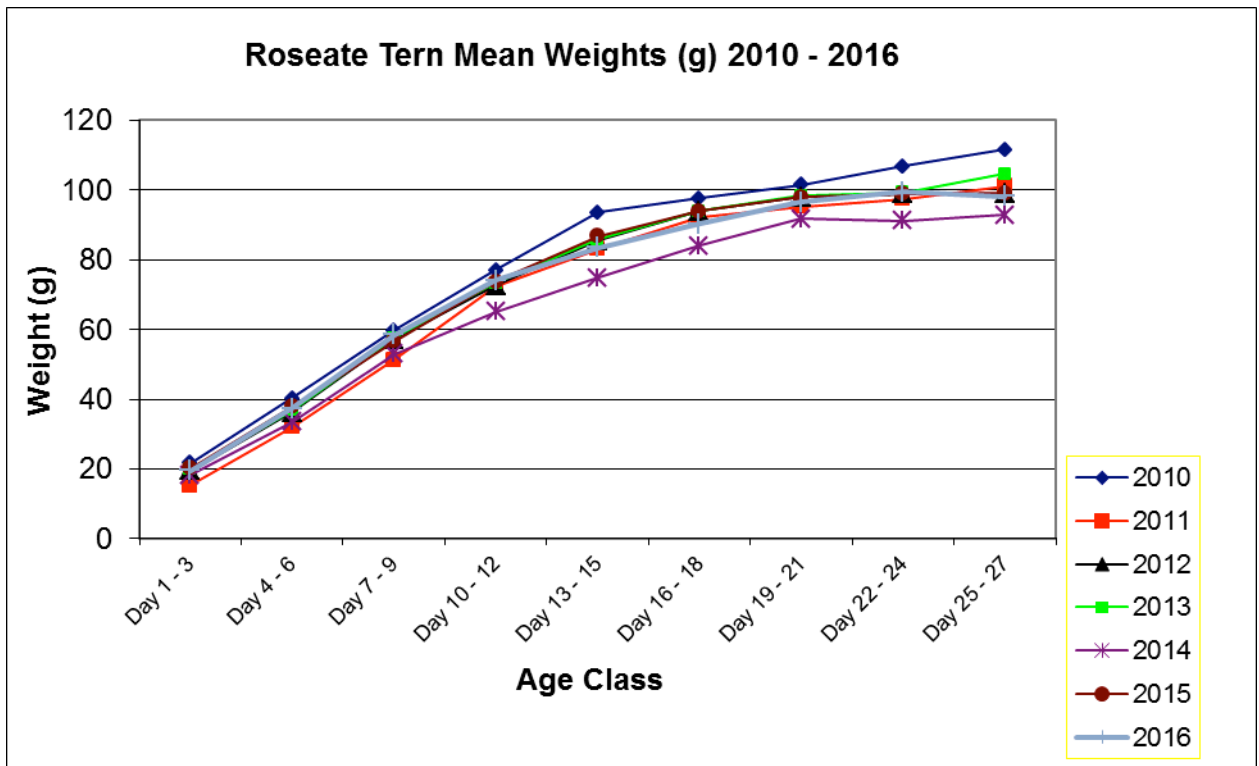
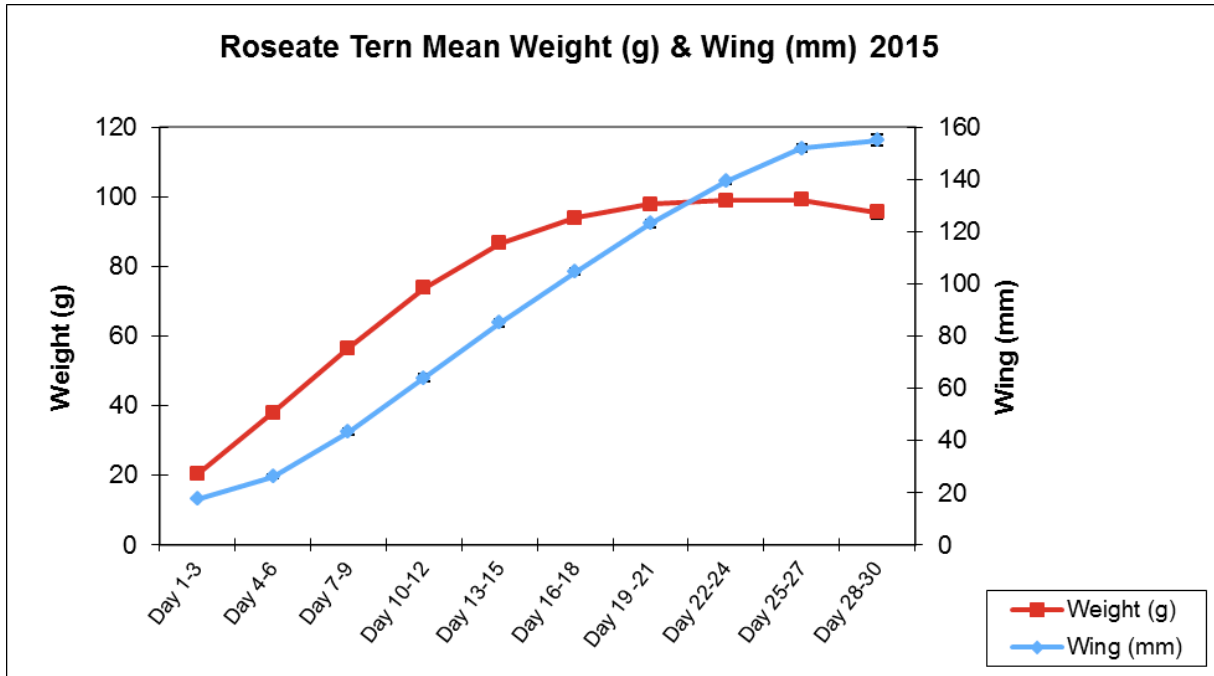
Dead chick	1			1
<b>Combined total</b>				
Cold eggs	20	3	16	39
Depredated eggs	3			3
Dead chicks	4	1	24	29
Live chicks	91	86	48	225
Missing chicks		1	2	3

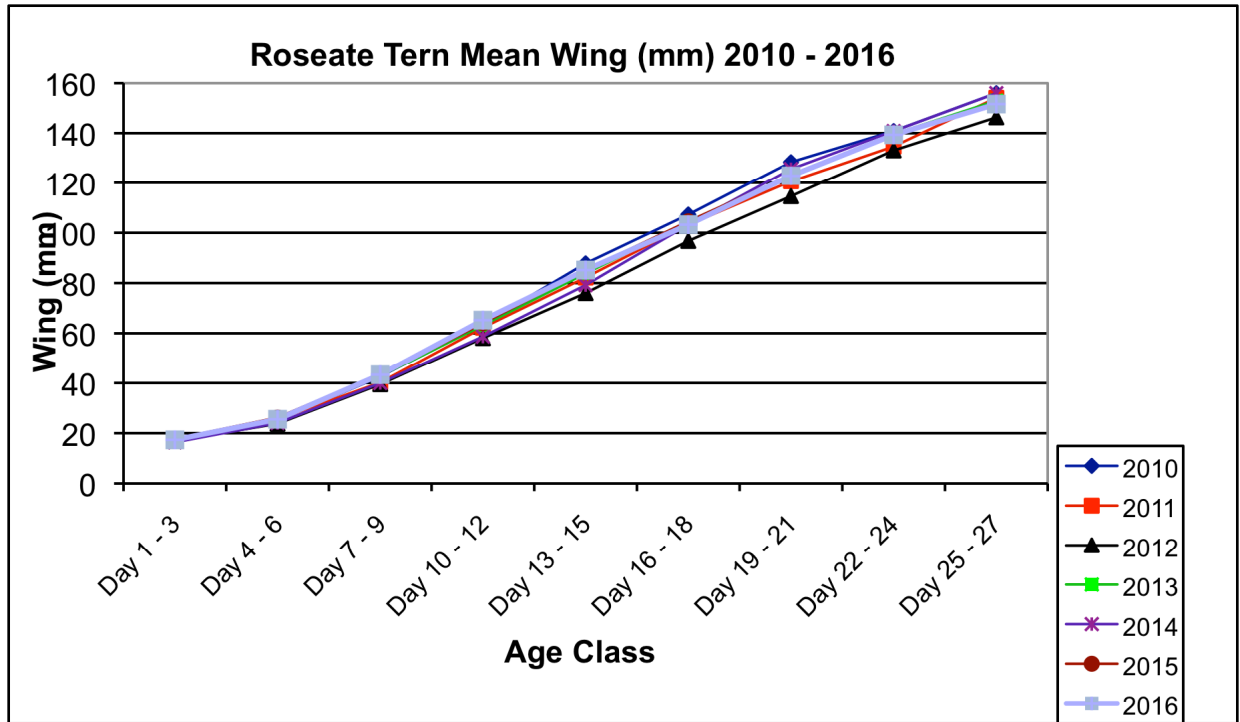
### 3.6.5 Chick growth:

Three study enclosures were erected, one the eastern side of the colony and two on the western side. A total of 33 nests and their contents were monitored and biometrics measurements were carried out on 31 chicks from 29 nests over a 30-day period. Of the 33 nests, four failed completely: Two x 2 egg and one x 1egg failed to hatch. One A2 and nine B chicks died.









### 3.6.6 Mortality:

Excluding the eleven secondary nests, 25 nests were known to have failed. In total, 28 chicks were found dead. On the 20<sup>th</sup> June, both A2 and B chicks were found dead for no apparent reason, in box 48.

	A1	A2	B	Total
Cold eggs	15	3	16	34
Depredated eggs	2			2
Dead chicks	3	1	24	28

### Adult mortality:

Two un-ringed adults were found dead in the western colony on 17<sup>th</sup> and 18<sup>th</sup> May, both taken by peregrine.

### 3.6.7 Nest failure:

25 nests failed completely, 21 single and four double clutch nests. The removal of four oystercatcher nests (under license) within the roseate tern colony earlier in the season reduced the likelihood of egg depredation.

### 3.6.8 Ringing and ring reading:

235 Roseate tern chicks were ringed from 7<sup>th</sup> June – 16<sup>th</sup> July.

Date	Special	BTO	Total	Dead	
7 <sup>th</sup> June	19DE	ST54019	1		
9 <sup>th</sup> JUNE	20DE-23DE	ST54020-23	4		
10 <sup>th</sup> June	24DE-33DE	ST54024-33	10		
11 <sup>th</sup> June	34DE-51DE	ST54034-51	18	47DE	
12 <sup>th</sup> June	52DE-73DE	ST54052-73	22	61DE 66DE	
13 <sup>th</sup> June	74DE-90DE	ST54074-90	17	79DE 82DE	86DE
14 <sup>th</sup> June	91DE-94DE	ST54091-94	4	93DE 94DE	
15 <sup>th</sup> June	95DE-99DE	ST54095-99	5	99DE	
16 <sup>th</sup> June	00DE	ST54000	1		
16 <sup>th</sup> June	01F9-38	ST54201-38	38	07F9	
17 <sup>th</sup> June	39F9-52	ST54239-52	14	41F9 44F9	
18 <sup>th</sup> June	53F9-69F9	ST54253-69	17	65F9	
20 <sup>th</sup> June	70F9-98F9	ST54270-98	29	94F9 90F9	
21 <sup>st</sup> June	99F9-00F9	ST54299-00	2		
	01F8-07F8	ST54101-07	7 (total 9)		
22 <sup>nd</sup> June	08F8-13	ST54108-13	6		
23 <sup>rd</sup> June	14F8-17	ST54114-17	4		
24 <sup>th</sup> June	18F8-21	ST54118-21	4		
25 <sup>th</sup> June	22F8-24	ST54122-28	3		
26 <sup>th</sup> June	25F8-31	ST54125-31	7		
27 <sup>th</sup> June	32F8-34	ST54132-34	3		
28 <sup>th</sup> June	35F8-37	ST54135-37	3		
1 <sup>st</sup> July	38F8	ST54138	1		
2 <sup>nd</sup> July	39F8-41F8	ST54139-41	3		
3 <sup>rd</sup> July	42F8-46	ST54142-46	5		
4 <sup>th</sup> July	47F8	ST54147	1		
7 <sup>th</sup> July	48F8	ST54148	1		
8 <sup>th</sup> July	49F8	ST54149	1		
12 <sup>th</sup> July	50F8-52F8	ST54150-52	3		
16 <sup>th</sup> July	53F8	ST54153	1		

### 3.6.9 Ring reading:

322 special rings were read. Of these, 200 were ringed on the left tarsus (green), 122 on right (orange). A further 36 un-ringed adults were identified at nests sites or paired with known adult mates. 76 ringed adults were identified as new or previously unrecorded at Lady's Island. The oldest bird sighted on 3<sup>rd</sup> June, was Y337 (XR76537) ringed as a chick in 1996. The natal site of 322 sighted individuals is as follows:

Natal site	Total sighted	% Total	New to site	% New
Lady's Island Lake	200	62%	36	18%
Rockabill	122	38%	40	33%
	322			

Black indicates birds' ringed as chicks with special rings on left leg at Lady's Island.  
 Orange indicates chicks ringed on right leg on Rockabill.

AU07	16BX	35F1	50V4	70BA	97S9	
AV56	16R9	35F9	50X0	70BE	98BL	
AW69	16V4	35R4	51BB	70BM	98BY	
AW75	16V7	35S9	51BD	71T4	98F0	
AC38	AY71	20BX	37X0	54V4	77BL	99Y7
AC42	CB71	21BR	38BB	54X0	77V3	Y329
AC53	CC60	21BX	38BF	55BL	77YO	Y337
AC57	CZ35	20F9	38F0	55BY	78X0	80CR
AC58	CD20	21BR	38X0	55Y0	79T0	20DA
AC66	CD35	21BZ	39BY	56BD	80BY	21DB
AC95	CF87	21Y0	39BZ	56BH	80F0	70BT
AC98	00BJ	23BK	39Y0	56BD	80F1	74CN
AD00	01BF	23BX	3A56	56BL	80F7	86CN
AD01	01BY	23F9	3A63	56F1	80V5	87CL
AD13	01BZ	23T0	3F38	57BD	81F3	88CT
AD22	01F1	24BC	3F52	57B5	81P3	SV48490
AD25	02R2	24BD	3F63	56DA	81W6	
AD26	02S9	24BY	3F68	57BD	82BY	
AD28	02T0	25BD	40BZ	57W6	82R3	
AD29	02T1	25BY	49V7	58BM	82W2	
AD30	03F3	25BM	41DA	58Y2	83F0	
AD36	05T3	26F9	41F1	59BY	83F4	
AD37	05X0	26T0	40R9	59F0	83S4	
AD39	07BA	26W6	40V7	59R4	84V3	
AD43	07BH	27BX	40X0	59R8	85BH	
AD49	07BS	27V3	42BY	59V3	85BY	
AD54	07V3	27V7	42T0	60BZ	85BZ	
AD56	08BD	28BD	43BD	60CJ	85X0	
AD64	09BP	28CL	43X0	61F0	86F0	
AD67	28WC	28W0	43BZ	61BD	87BD	
AD71	09BR	29V4	44BZ	62BY	87S9	
AD75	09BY	2A52	44X0	62X0	88BD	
AD76	0D01	30BB	45BZ	63BD	88BY	
AD88	0A32	30F0	45F1	64BL	90BZ	
AD97	1D85	31BH	45S9	64BY	90F1	
AF50	10S9	31BZ	45X0	64W0	91BF	
AH52	10Y0	31V3	47BL	65BZ	91S9	
AK19	11BY	32BJ	47P4	65X0	91Y2	
AK87	12F1	32F2	47W5	66BD	91X0	
A026	12V3	32F0	46BZ	66X0	94BD	
A029	13BY	33F9	48F0	66Y0	94X7	
AJ07	13S9	33S0	48F1	67F1	95BH	
AJ41	13V3	33Y3	49BM	68F0	96BD	
AM59	15F0	34BY	49BY	68R9	96BL	
AT54	15P8	34T0	50BC	68BN	96BJ	
AT49	15R9	34V7	50BY	69F7	97BC	
AU33	15S9	35BD	50F0	69X0	97BJ	

## **Appendix 4.**

### ***Other species recorded:***

#### Great Crested Grebe (*Podiceps cristatus*)

Ten individuals were counted on the eastern side of the pilgrimage path on 30<sup>th</sup> May. No nests or young were observed.

#### Little Egret (*Egretta garzetta*)

Two pairs bred in trees on the western shore. Three juveniles were noted on Inish on 21<sup>st</sup> July.

#### Shelduck (*Tadorna tadorna*)

Only two nests were located during census work on Inish and fewer adults were noted during the season.

#### Mallard (*Anas platyrhynchos*)

29 pairs were recorded on Inish, all nest marked with coloured tape.

#### Gadwall (*Anas strepera*)

25 pairs bred on the northern end of Inish, and three pairs on the southern end, one within the roseate colony.

#### Shoveler (*Anas clypeata*)

One pair was present and presumed breeding, although no nest was found.

#### Oystercatcher (*Haematopus ostralegus*)

Seven pairs nested on Inish and one on Sgarbheen.

#### Ringed Plover (*Charadrius hiaticula*)

Just two pairs nested on Inish and one on Sgarbheen.

#### Redshank (*Tringa totanus*)

Two pairs were recorded breeding on Inish with a single pair on Sgarbheen.

#### Lesser Black-backed Gull (*Larus fuscus*)

A nest containing three eggs was located close to the shore on the eastern side of Inish.

#### Great Black-backed Gull (*Larus marinus*)

Up to six adults were present but no breeding was noted.

## **5. Recommendations**

Consideration must be given to vegetation control during the 2017 season.

It is necessary to use some herbicide to allow safe access through the roseate colony and to allow clear views for ring reading.

The perimeter ditch surrounding the black-headed gull colony should be kept clear of vegetation to insure access for rat baiting.

‘Kletrat’ should be used in preference to ‘Storm’ as the latter is eaten by slugs.

The central fence to be installed again at the commencement of the 2017 project to prevent mammalian access to the southern end of Inish.

The removal of the oystercatcher nests within the roseate tern colony should continue.

As the Black-headed gull colony continues to increase, it is likely that more pairs will colonize the southern end of Inish, in the center of the main common/arctic tern colony.

178 pairs nested there this year and a marked increase in depredation by gulls on tern chicks was noted.

Efforts should be made to deter black-headed gulls from nesting on this end of the island.

Reducing the amount of high grass and tussocks by strimming early in the season should be considered.

