

New Zealand sea lion research  
CSP final report  
Summer 2007/2008



# Field Trip Logistics

First Team: 3 people

Left Bluff 4<sup>th</sup> December 2007

Return ~ 13<sup>th</sup> January 2008

Second Team: 6 people

Leave Bluff 7<sup>th</sup> January 2008

Return ~ 20<sup>th</sup> February 2008

# NZ sea lion research objectives

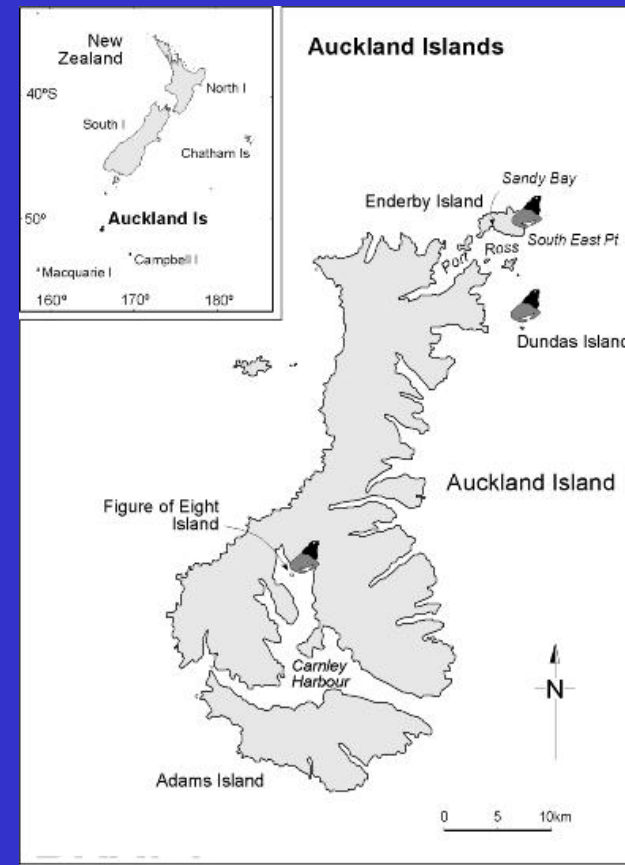
## Auckland Islands

- Measure Auckland Islands pup production
- Tag pups produced during 2007/08
- Data to estimate survival and reproduction of previously marked female NZ sea lions
- Maintain and update the NZ sea lion database
- Characterise and analyse the at-sea distribution of poorly known age and sex classes of NZ sea lions



# Pup production - methods and date of estimate

- Sandy Bay (Enderby Island) - Mark/Recapture estimate (16/1/08)
- Dundas Island - Mark/Recapture estimate (21/1/08)
- S.E. Point (Enderby Island) - Direct count - daily counts
- Figure of 8 Island - Single direct count - (10/1/08)

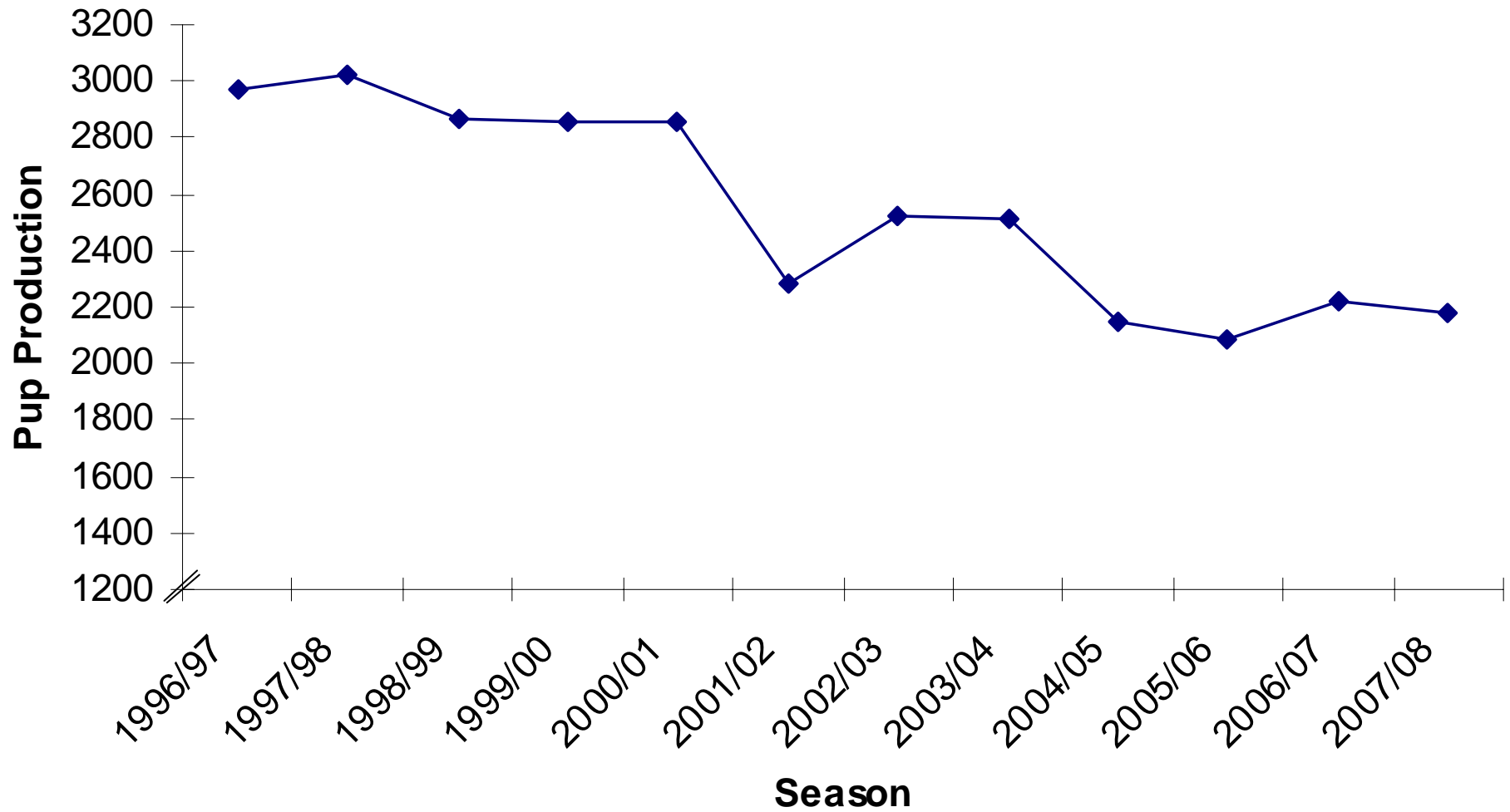


# Pup production 2007/08 - Results

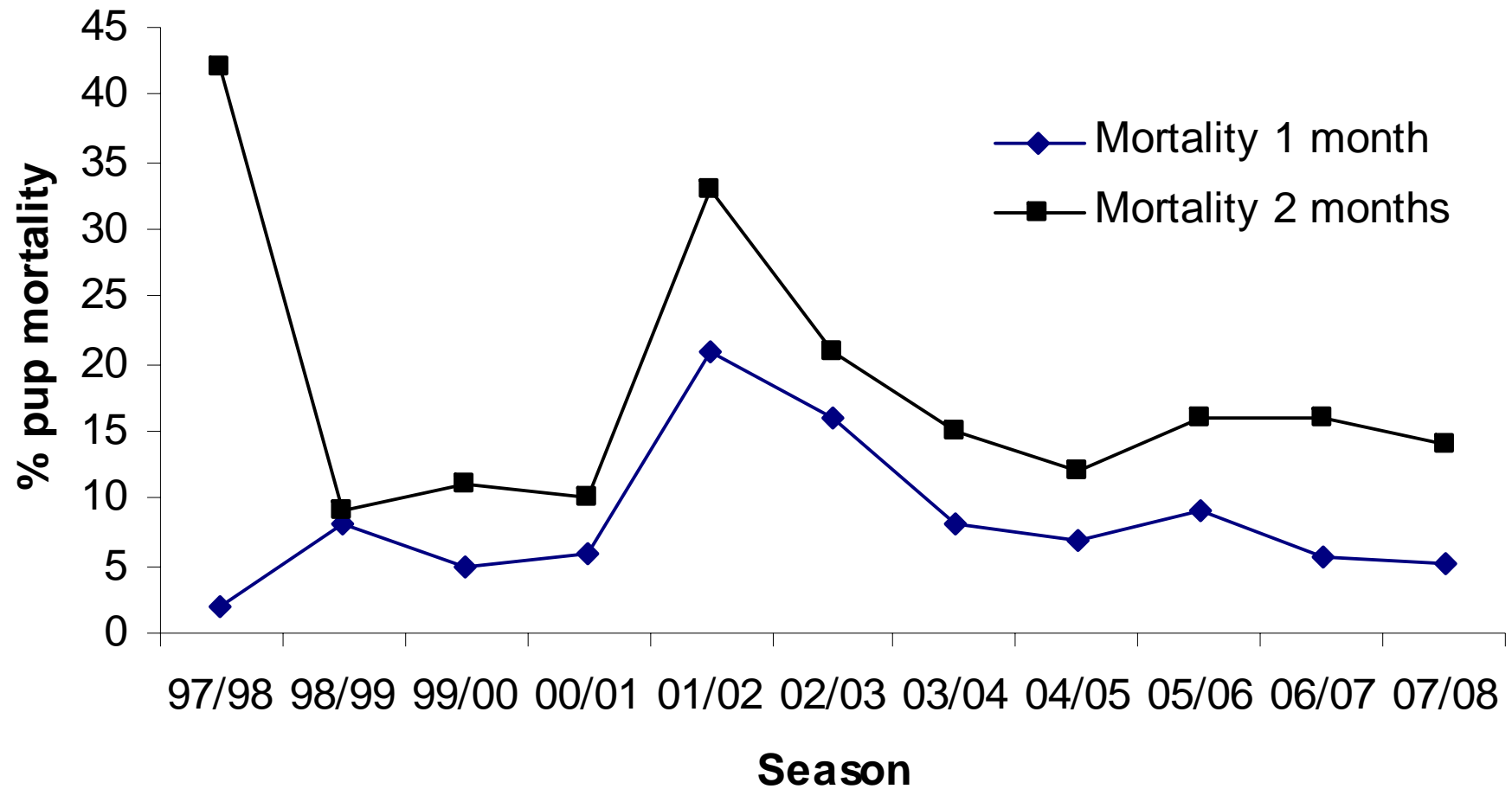
- Sandy Bay = 448
  - 425+/-3 live pups
  - 23 dead pups
  - 417 tagged
- Dundas = 1635
  - 1512 +/- 44 live pups
  - 123 dead pups
- South East Point = 18
  - 13 live pups
  - 5 dead pups
- Figure of 8 = 74
  - 72 live pups
  - 2 dead pups

**Total for Auckland  
Islands = 2175 +/- 46**

# AUCKLAND ISLANDS PUP PRODUCTION 1997-2008



# Pup Mortality



# Pup tagging

- 866 pups were double tagged
- All live pups at both Sandy Bay (417) and SEP (13), and 400 pups (100 males and 300 females) at Dundas Island.
- 38 pups were also tagged on Figure of Eight Island with red Dalton tags.
- 202 pups captured at 4 weeks after tagging at Sandy Bay to check tag loss, 14 pups lost a tag (3.5%). Previous tag loss using Dalton tags has been 0.4%, 1.4%, 0.6% & 1.3%. Previous tag loss using Allflex 11.5%.
- High tag loss this year was a result of a change in tag pin size by the manufactures – tags are the same size, the pin is substantially larger resulting in a higher tag loss rate. Now change recognised problem can be overcome next year by placing the tags higher up the pups flipper





# Juvenile Satellite Tagging

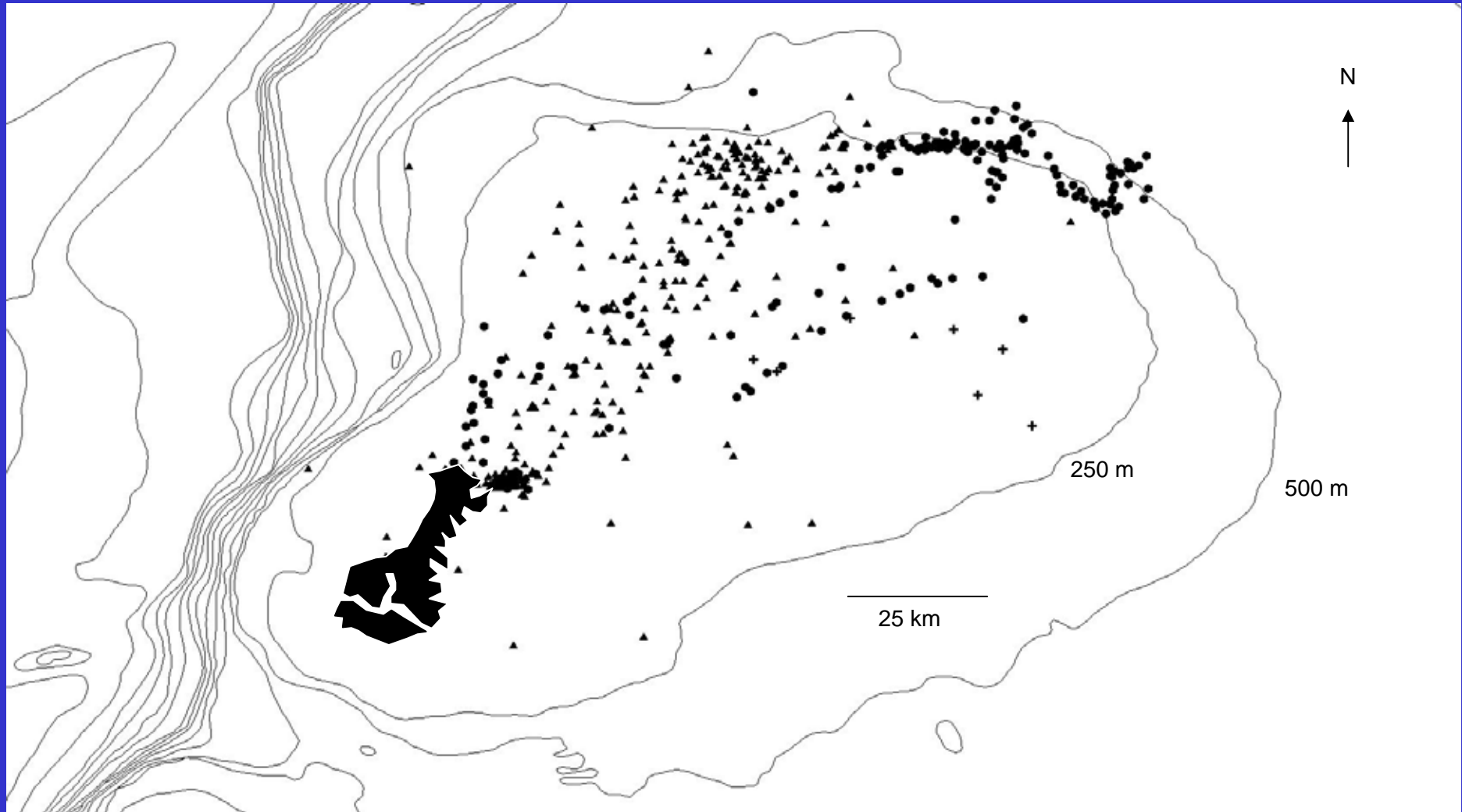
- Ten juvenile sea lions (4 male and 6 female) between the age of 2 and 5 years were captured at Sandy Bay, Enderby Island.
- Tags were deployed for between 2 and 60 days.
- Plots of satellite locations shown in following slides.
- An analysis of sea lion distribution data in relation to fishing effort will be reported at a later date when fisheries data is available.



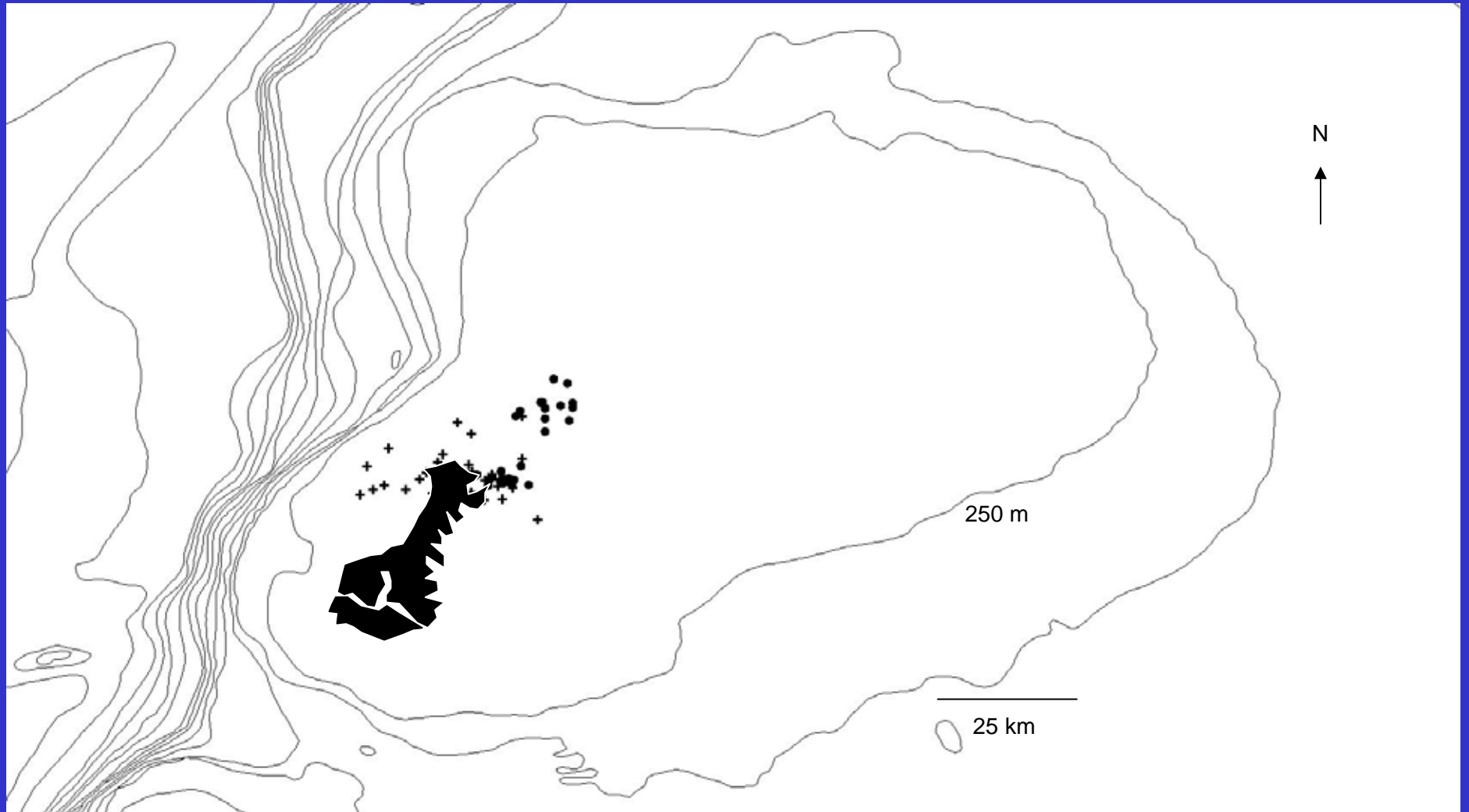
**Tag number, satellite tag identification, sex, age, weight, length, girth, number of days deployed and number of satellite locations received from 10 juvenile sea lions captured January 2008.**

<b>Date</b>	<b>Tag</b>	<b>Satellite tag id</b>	<b>Sex</b>	<b>Age</b>	<b>Weight</b>	<b>Length</b>	<b>Girth</b>	<b>Days</b>	<b>Number of satellite locations</b>
14/01/2008	4121	49094	M	5	103.5	180	108	14	215
14/01/2008	5051	49095	M	4	134.5	184	126	49	366
14/01/2008	5093	54757	M	4	83	164	100	2	7
14/01/2008	3727	54760	M	5	102	177	106	16	309
17/01/2008	6130	76964	F	3	68	153	87	17	248
18/01/2008	5857	76966	F	3	71	141	92	14	183
24/01/2008	5863	54756	F	3	68	152	89	2	26
25/01/2008	6463	67259	F	2	73.5	146	91	31	322
25/01/2008	5913	54761	F	3	68	156	95	11	217
26/01/2008	6059	54759	F	3	84.5	154	96	4	39

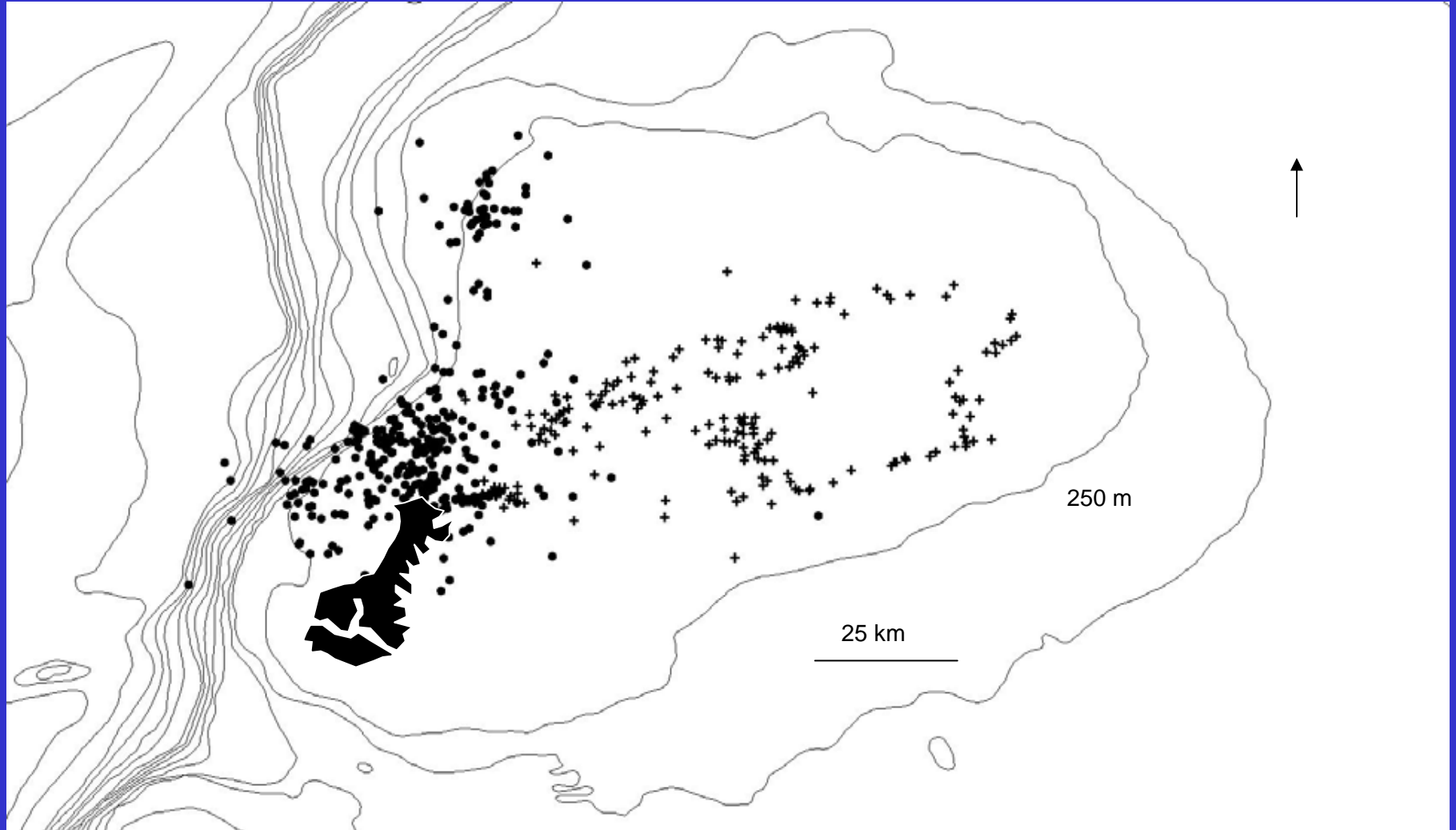
# Satellite locations of juvenile male NZ sea lions 4121, 5093 and 3727



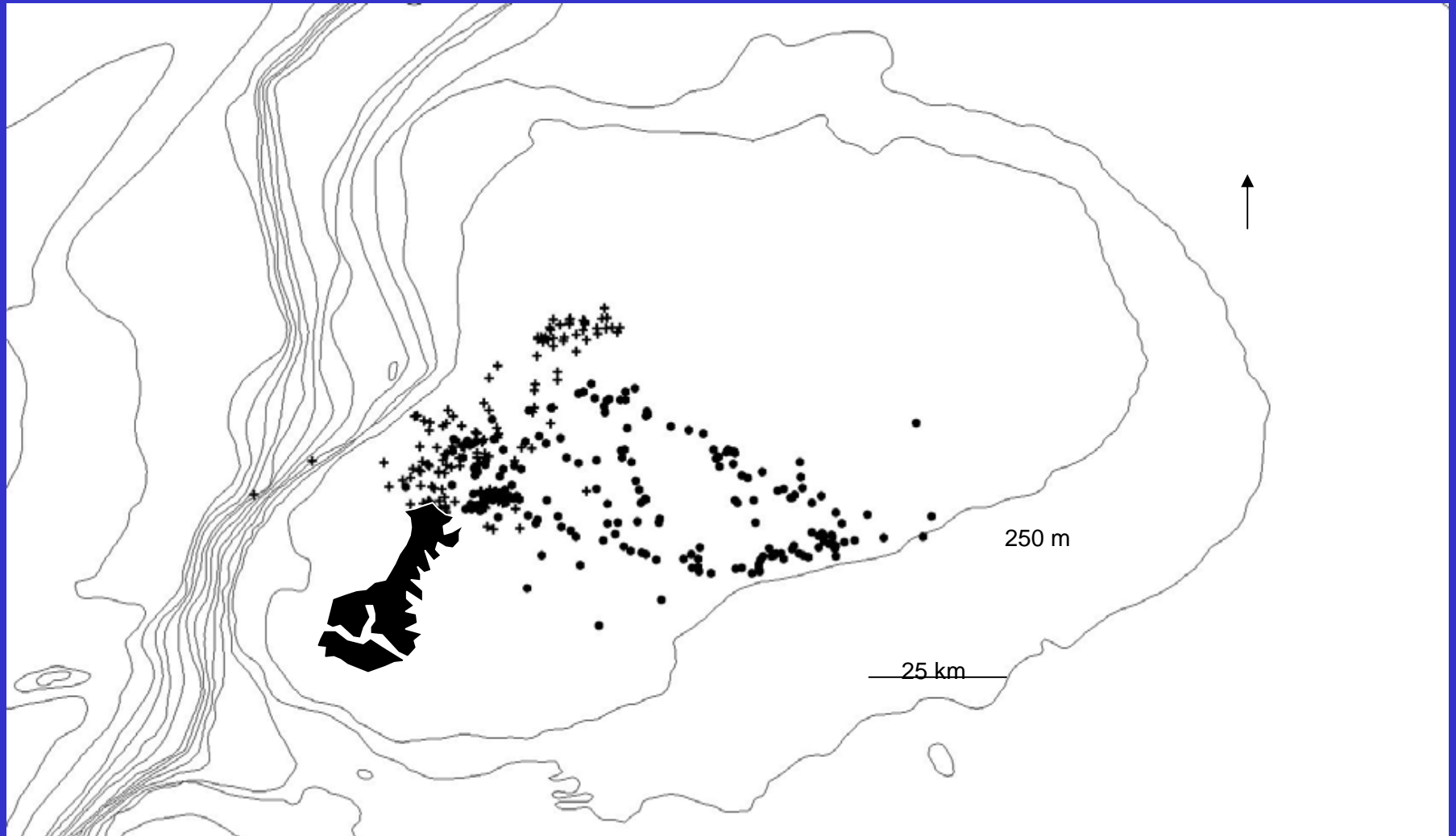
# Satellite locations of juvenile female NZ sea lions 5863 & 6059



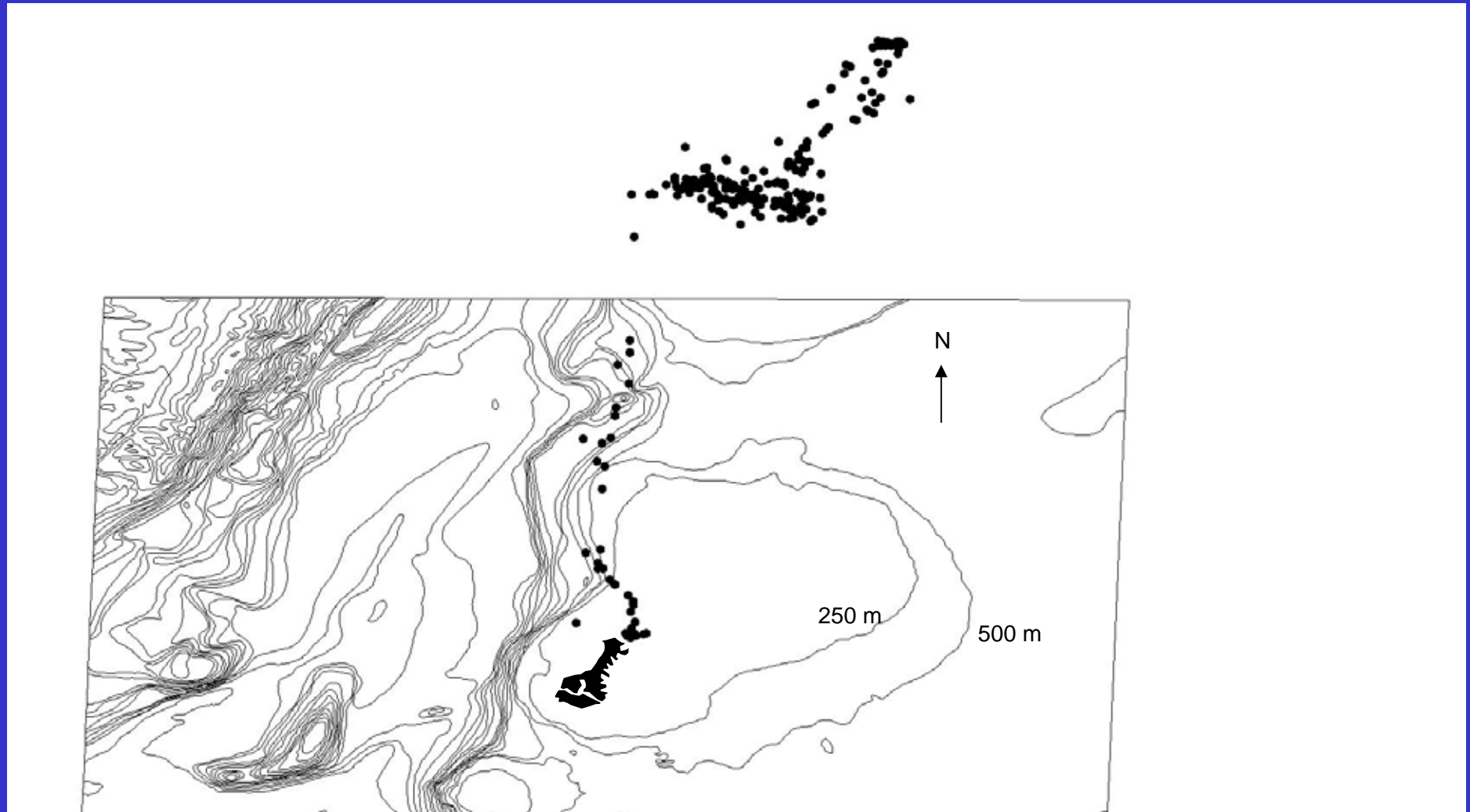
# Satellite locations of juvenile female NZ sea lions 5913 & 6463



# Satellite locations of juvenile female NZ sea lions 6130 & 5857



## Satellite locations of juvenile male NZ sea lions 5051





# New Zealand sea lion research: summer 2008/2009 pre-trip





## Field Objectives:

- 1) Collect field data that will allow quantification and estimation of:
  - sea lion pup production
  - survival of previously marked NZ sea lions
  - reproduction by known-age female NZ sea lions
- 2) Maintain and update NZ sea lion database
- 3) Characterise at-sea distribution of poorly known age and sex classes of NZ sea lions

# Field Trip Logistics

First Team: 3 people

Leave Bluff 28<sup>th</sup> November 2008

Return ~ 13<sup>th</sup> January 2009

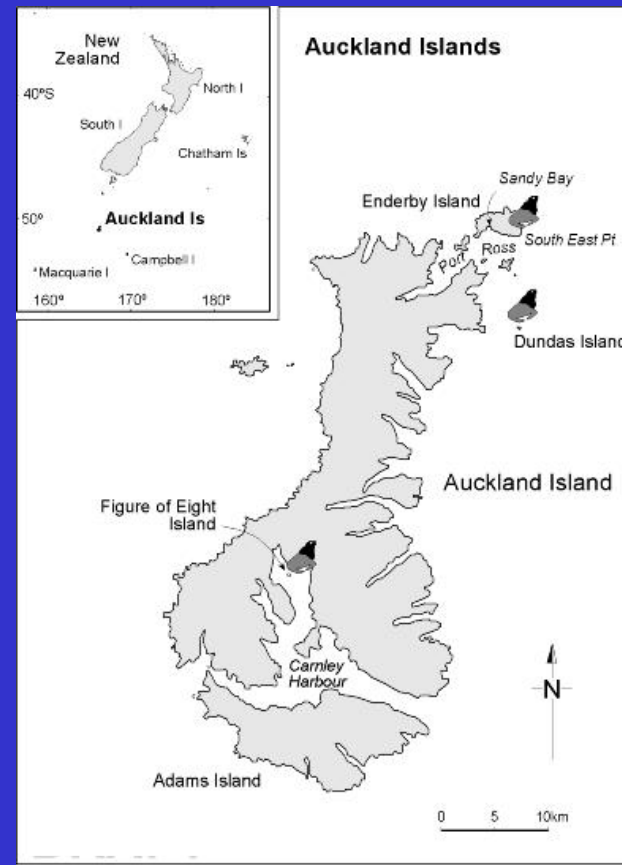
Second Team: 6 people

Leave Bluff 7<sup>th</sup> January 2009

Return ~ 20<sup>th</sup> February 2009

# Pup production field data - methods and date of estimate

- Sandy Bay (Enderby Island)  
- Mark/Recapture estimate  
(16/1/09)  
- Direct count & daily counts
- Dundas Island -  
Mark/Recapture estimate  
(21/1/09)
- S.E. Point (Enderby Island) -  
Direct count & daily counts
- Figure of 8 Island - Single  
direct count - (10/1/09)



# Pup tagging

- All pups at Sandy Bay and SEP will be double flipper tagged with **pink** DALTON super tags.
- 400 pups from Dundas Island (300 female and 100 males) will be double flipper tagged with **pink** DALTON super tags.

- Tags have letter and number series

- A001 to A099
- E100 to E199
- H200 to H299
- K300 to K399
- M400 to M499
- N500 to N599
- P600 to P699
- V700 to V799
- W800 to W899
- X900 to X999



Collect field data to allow quantification and estimation of:

- survival of previously marked NZ sea lions
- reproduction by known-age female NZ sea lions

\* Daily resightings of previously tagged and branded animals at SEP & Sandy Bay between early Dec & late Feb.

\* Opportunist sightings collected from Figure of Eight, Dundas Island Ross Harbour and Auckland Island mainland.

\* Tag number, tag colour, number of tags, date of sighting, location and reproductive status are recorded.

\* When possible animals double tag scares will have their PIT tags read.

\* All sightings will be added to the NZ sea lion database.

\* Palmtop data collector will be trialled if appropriate field compatible machine available.



## Characterise at-sea distribution of poorly known age and sex classes of NZ sea lions

- \* Satellite, time depth recorded (TDR) and VHF tag up to 10 juvenile NZ sea lions, 5 of each sex, each season.
- \* All from Sandy Bay, Enderby Island
- \* We will target 2, 3 & 5 year old males and 2 year old females in 2009
- \* Data will be analysed using Arc GIS and compared with fisheries activity for each season.

