

# New Zealand fur seal database

Richard Mansfield and Finlay Thompson

22 July, 2014



## Project objectives

To develop and deploy a New Zealand fur seal database that can be queried via a web interface.

Modelled on the existing sea lion demographic database containing tagging and resighting events from the Auckland Islands.

Created by converting existing folders of spreadsheets into a relational database, providing a standard schema.

## Where the data have come from

The spreadsheets contain field work from three sights on the West Coast,

- Wekakura Point
- Cape Foulwind
- Open Bay Islands

Includes mark - recapture estimates of pup production, weight and length measurements, tagging records, and counts of dead pups.

# Spreadsheets

| H6 |   |              |                |            |            |                     |              |             |            |   |   |      |
|----|---|--------------|----------------|------------|------------|---------------------|--------------|-------------|------------|---|---|------|
|    | A   | B            | C              | D          | E          | F                   | G            | H           | I          | J | K | L    |
| 52 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 53 | Marking used  |              |                |            |            |                     |              |             |            |   |   |      |
| 54 | ALLFLEX LASER button tags, 28mm diameter. WHITE for male pups, YELLOW for female pups. Details below (tags used per Sector, plus dates, time of day & tag markings, year code notches, etc.)  |              |                |            |            |                     |              |             |            |   |   | 2009 |
| 55 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 56 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 57 | 5 Petersen Estimate "recapture" counts  |              | 01-03 Feb 2009 |            |            | File 2009obiest.xls |              |             |            |   |   | 2009 |
| 58 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 59 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 60 | PUP MEASUREMENTS  |              |                |            |            |                     |              |             |            |   |   |      |
| 61 | Pups weighed with a PESOLA 20kg spring scale (all 3 rookeries in 1999-2000; original 1992 scales for OBI, new [1999] scales for WP and CF). OBIs 1992 PESOLA scale checked against a new (unused, purchased late-2002) 20kg PESOLA scale to weigh > 9.5kg water container. Identical weight reading from both scales (to <0.1kg). 22 Jan 2009 and 14 Feb 2009 |              |                |            |            |                     |              |             |            |   |   |      |
| 62 |   |              |                |            |            |                     |              |             |            |   |   | 2009 |
| 63 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 64 |   |              |                |            |            |                     |              |             |            |   |   |      |
| 65 |   | MALE PUPS    |                | Male pups  |            | Female pups         |              | FEMALE PUPS |            |   |   |      |
| 66 | white tag no.   | length (cms) | weight (kg)    | Sector No. | Sector No. | yellow tag no.      | length (cms) | weight (kg) |            |   |   |      |
| 67 | 3451  | 68.0         | 6.6            | 2          | 2          | 3451                | 68.5         | 3.8         |            |   |   | 2009 |
| 68 | 3452  | 71.0         | 7.2            | 2          | 2          | 3452                | 79.5         | 5.1         | checked x2 |   |   | 2009 |
| 69 | 3453  | 75.0         | 6.5            | 2          | 2          | 3453                | 76.0         | 7.2         | 2009       |   |   | 2009 |
| 70 | 3454  | 72.5         | 5.1            | 2          | 2          | 3454                | 67.5         | 3.8         |            |   |   | 2009 |
| 71 | 3455  | 77.5         | 8.0            | 2          | 2          | 3455                | 75.5         | 7.7         |            |   |   | 2009 |
| 72 | 3456  | 67.5         | 4.2            | 2          | 2          | 3456                | 74.0         | 6.3         |            |   |   | 2009 |
| 73 | 3457  | 68.5         | 4.2            | 2          | 2          | 3457                | 77.5         | 7.0         |            |   |   | 2009 |
| 74 | 3458  | 80.0         | 8.0            | 2          | 2          | 3458                | 71.5         | 5.2         |            |   |   | 2009 |
| 75 | 3459  | 74.0         | 6.4            | 2          | 2          | 3459                | 71.0         | 5.8         |            |   |   | 2009 |
| 76 | 3460  | 76.0         | 8.1            | 2          | 2          | 3460                | 70.5         | 6.0         |            |   |   | 2009 |
| 77 | 3461  | 75.0         | 8.1            | 2          | 2          | 3461                | 65.0         | 4.3         |            |   |   | 2009 |
| 78 | 3462  | 69.0         | 4.7            | 2          | 2          | 3462                | 68.5         | 5.4         |            |   |   | 2009 |
| 79 | 3463  | 76.5         | 7.9            | 2          | 2          | 3463                | 70.5         | 5.1         |            |   |   | 2009 |
| 80 | 3464  | 75.5         | 6.7            | 2          | 2          | 3464                | 69.0         | 5.2         |            |   |   | 2009 |
| 81 | 3465  | 66.5         | 4.9            | 2          | 2          | 3465                | 67.0         | 4.5         |            |   |   | 2009 |
| 82 | 3466  | 78.0         | 6.0            | 2          | 2          | 3466                | 69.5         | 4.8         |            |   |   | 2009 |
| 83 | 3467  | 77.5         | 8.4            | 2          | 2          | 3467                | 74.5         | 6.7         |            |   |   | 2009 |
| 84 | 3468  | 77.0         | 7.8            | 2          | 2          | 3468                | 74.0         | 5.6         |            |   |   | 2009 |
| 85 | 3469  | 69.5         | 4.7            | 2          | 2          | 3469                | 77.0         | 7.3         |            |   |   | 2009 |
| 86 | 3470  | 68.5         | 4.6            | 2          | 2          | 3470                | 66.5         | 6.0         |            |   |   | 2009 |
| 87 | 3471  | 73.0         | 6.3            | 2          | 2          | 3471                | 63.5         | 4.0         |            |   |   | 2009 |

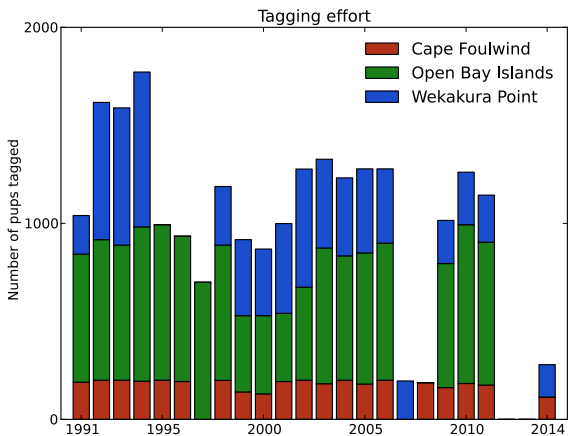
## Method

All the spreadsheets were worked through manually by Anusha Beer at DOC. They were converted into a standard format for loading.

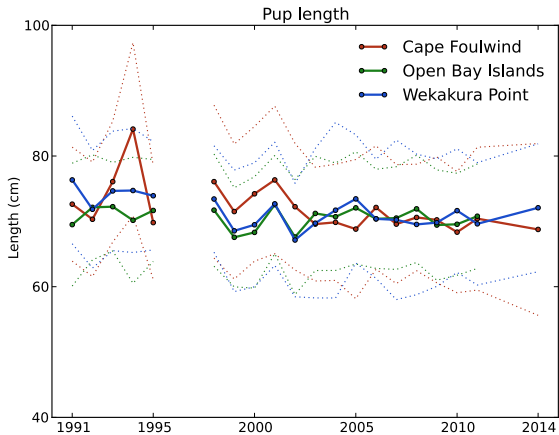
For every record, the name of the original spreadsheet, column and row are also recorded to ensure that the sources can be recovered.

Scripts were used to load the standardised files into a PostgreSQL database, with final grooming made. Any grooming made is visible on the website.

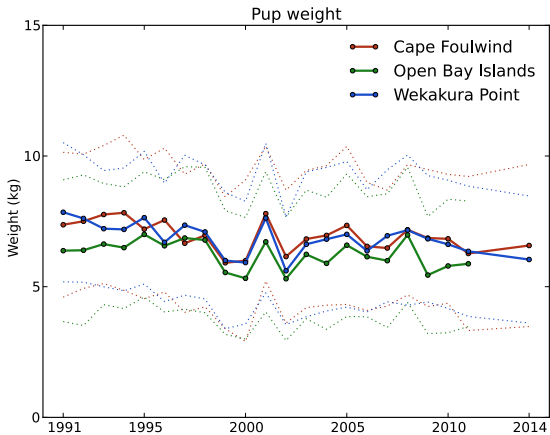
A web interface created that allows the data to be queried.



# Pup lengths

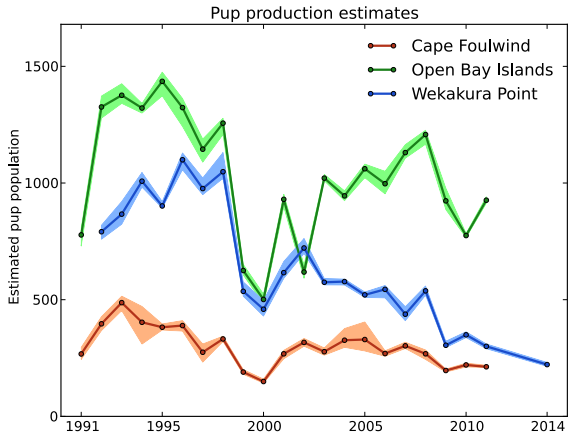


# Pup weights





# Pup estimates



# Current status of database

New Zealand fur seal demographics

Tags

Measurement

Pup production

About

Download

finlay@dragonfly.co.nz

## Summary of fur seal tags

The table summarises the tagging effort in each year in each of the monitored West Coast colonies. In each colony, male and female pups are marked with different coloured tags. For each year and each tag colour, the table lists the number of tags used, the range of tag numbers, and the positions of the [edge marks](#) on each tag.

You can also [search](#) for seals using tag numbers, location, sex, and other characteristics.

[List of all tagged pups →](#)

| Year | Wekakura Point |  |   | Cape Foulwind     |                   |                                      | Open Bay Islands                     |  |  |
|------|----------------|--|---|-------------------|-------------------|--------------------------------------|--------------------------------------|--|--|
|      | Total tagged   | green disc                               | lilac disc                                | blue button       | orange button     | white button                         | yellow button                        |  |  |
| 2014 | 279            | 79 7651-7729                             | 86 7651-7736                              | 52 1801-1852      | 62 1801-1862      |                                      |                                      |  |  |
| 2011 | 1144           | 4 7401-7404 4,12<br>100 7301-7400 3,4,12 | 36 7401-7436 4,12<br>100 7301-7400 3,4,12 | 83 1501-1583 4,12 | 92 1501-1592 4,12 | 306 4251-4609 4,12                   | 373 4251-4624 4,12                   |  |  |
| 2010 | 1261           | 133 7151-7284                            | 135 7151-7285                             | 94 1401-1494 3,12 | 89 1401-1489 3,12 | 361 3851-4211 3<br>50 3801-3850 2,3  | 349 3851-4200 3<br>50 3801-3850 2,3  |  |  |
| 2009 | 1015           | 100 7001-7100                            | 120 7001-7121                             | 81 1301-1381 2    | 81 1301-1381 2    | 332 3451-3782 2                      | 301 3451-3753 2                      |  |  |
| 2008 | 187            |  |   | 96 1201-1296 1,12 | 91 1201-1300 1,12 |                                      |                                      |  |  |
| 2007 | 196            | 96 6903-7000 11                          | 100 6901-7000 11                          |                   |                   |                                      |                                      |  |  |
| 2006 | 1278           | 104 6801-6914 11<br>100 6701-6800 10,11  | 75 6801-6880 11<br>100 6701-6800 10,11    | 100 1101-1200 11  | 100 1101-1200 11  | 349 3101-3450 11                     | 350 3101-3450 11                     |  |  |
| 2005 | 1278           | 219 6451-6670 10                         | 210 6451-6662 10                          | 93 1001-1093 10   | 87 1001-1087 10   | 312 2751-3062 10<br>25 2726-2750 9   | 307 2751-3057 10<br>25 2726-2750 9   |  |  |
| 2004 | 1232           | 99 6351-6450 9<br>100 6251-6350 8,9      | 99 6351-6450 9<br>100 6251-6350 8,9       | 100 901-1000 9    | 100 901-1000 9    | 323 2401-2723 9                      | 311 2401-2711 9                      |  |  |
| 2003 | 1327           | 239 6001-6239 8                          | 214 6001-6214 8                           | 93 801- 893 8     | 89 801- 889 8     | 242 2151-2393 8<br>100 2051-2150 7,8 | 250 2151-2400 8<br>100 2051-2150 7,8 |  |  |
| 2002 | 1277           | 207 5771-5977 6<br>70 5701-5770 6,7      | 210 5771-5993 6<br>116 5655-5770 6,7      | 100 701- 800 7    | 100 701- 800 7    | 128 1911-2038 7<br>110 1801-1910 6,7 | 126 1911-2036 7<br>110 1801-1910 6,7 |  |  |
| 2001 | 999            | 93 5571-5688 6<br>120 5451-5570 5,6      | 125 5571-5696 6<br>120 5451-5570 5,6      | 100 601- 700 5    | 93 601- 693 5     | 175 1604-1778 5,6                    | 173 1601-1774 5,6                    |  |  |
| 2000 | 869            | 158 5251-5408 5                          | 182 5251-5432 5                           | 64 501- 564       | 66 501- 567       | 104 1500-1603 5<br>99 1401-1499 4,5  | 98 1500-1597 5<br>98 1401-1499 4,5   |  |  |

## Next steps

Load data from more field work, including completing the series from the West Coast.

Adding interface for adding, and editing records. In particular, ad-hoc sightings reported by the public.

Making the database available to the general public.

# Acknowledgments

Thanks to Laura Boren, Anusha Beer, and all the DOC team.

