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Ministry for Primary Industries
Manatū Ahu Matua



New Zealand sea lion interactions in SBW6I Campbell Island southern blue whiting fishery

Deepwater Environmental Engagement Forum

16 December 2013

Growing and Protecting New Zealand



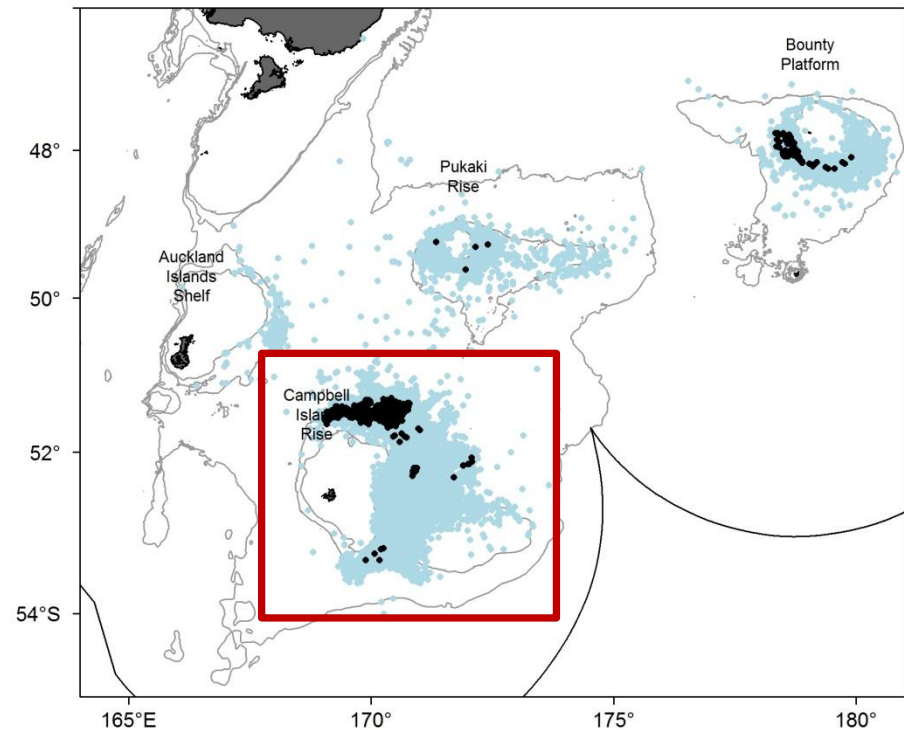
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Overview

1. SBW fisheries
2. SBW6I
3. Campbell Island sea lion population
4. 2013 SBW6I fishery
5. Sea lion interactions in 2013
6. Timeline
7. *Possible causes*
8. *Where to now?*

Southern blue whiting

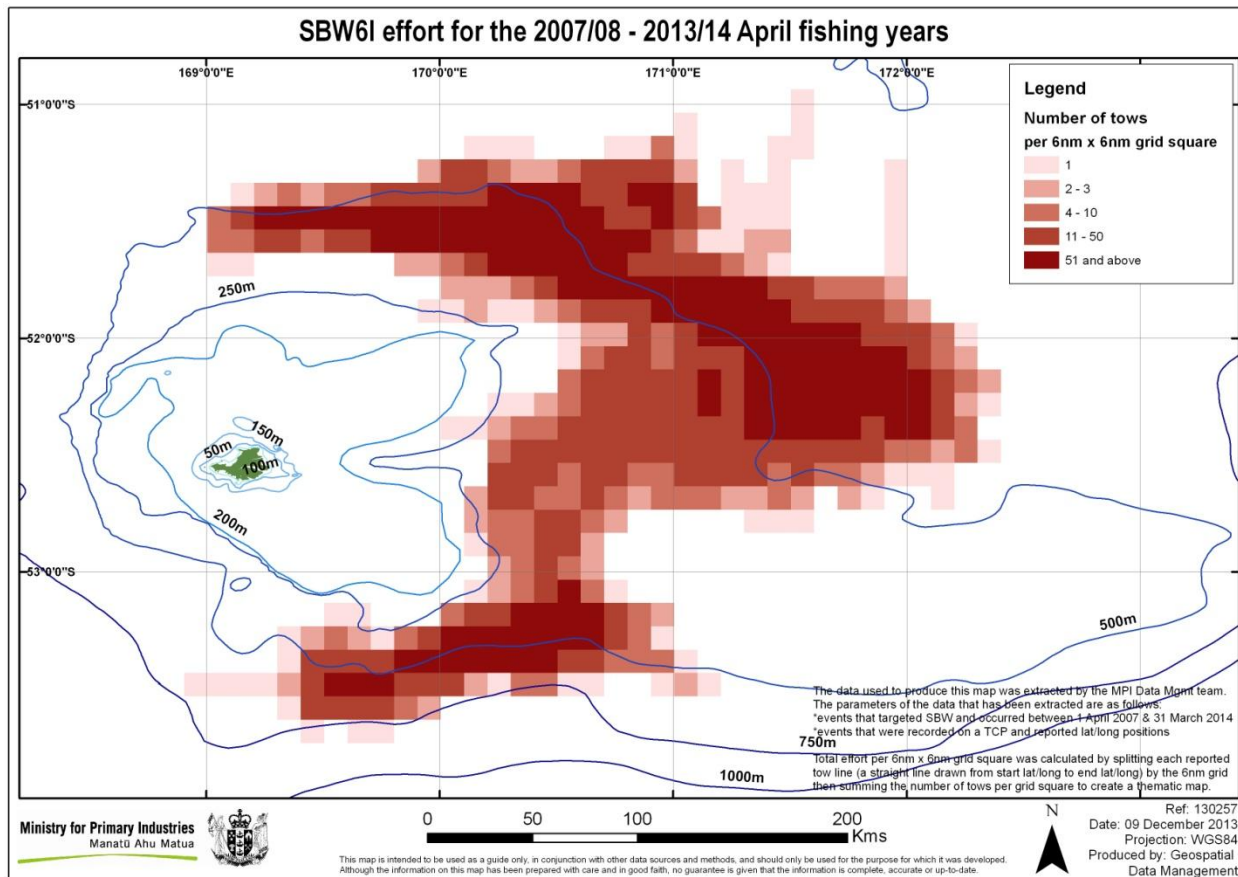
- Sub-Antarctic
- spawning aggregations
- August – October
- TAC of ~ 43,000 tonnes in 2012-13
- Main fisheries are SBW6I and SBW6B
- Small volumes taken in SBW6R
- No target SBW fishing in SBW6A



Location of all target southern blue whiting tows, TCEPR data 1990–2013. 2013 tows in black

SBW fishery at Campbell Island - SBW6I

- Largest SBW fishery
- TAC of 30,000 tonnes
- 70% of the total SBW catch
- Fishery operates from mid/late September to early October
- 12-14 vessels each year
- Consistent observer coverage since 1990's
- Known interactions with New Zealand sea lion population at Campbell Island – low number of captures, until recent years



- Three main fishing grounds

- North
- South
- East

- Fishing around the 500m depth contour - 99% tows >400m depth

SBW fisheries plan chapter - 2011

Operational Objective 2.1:

“Ensure that incidental New Zealand sea lion captures do not impact the long term viability of the sea lion population at Campbell Island and that captures are minimised through good operational practice”

MSC Certification

- Certification achieved in April 2012
- One condition raised
- SBW6I scored 75 for PI 2.3.2
 - “The fishery has in place precautionary management strategies designed to:*
 - Meet national and international requirements*
 - Ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;*
 - Ensure the fishery does not hinder the recovery of ETP species*
 - Minimise mortality of ETP species”*
- PI was rescored at 85 following the annual audit in January 2013
- Score of 85 retained after the expedited audit in September 2013
- Next audit in February/March 2014 (date tbc)

Sea lion population at Campbell Island

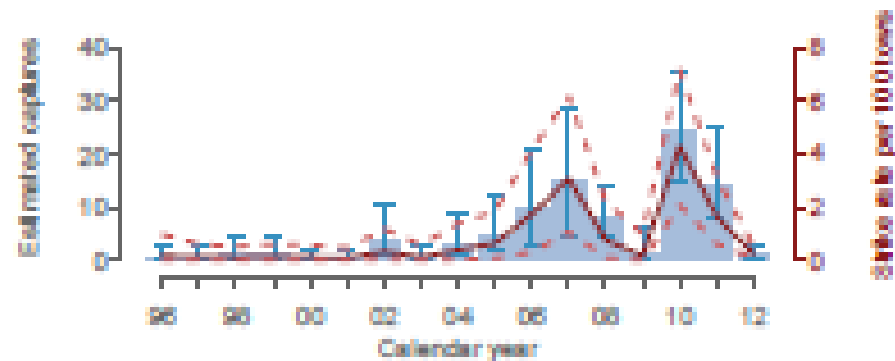
- Three recent pup counts
- Increasing estimates of pup production – **385** in 2003; **583** in 2007/08 and **681-726** in 2009/10
- Estimates not directly comparable – different methodologies
- Approx 1 100 pups tagged since 1988
- High pup mortality

Year	Total tows	% tows observed	Observed sea lion captures	Mean estimated sea lion captures	Total estimated catch	TACC
1996	474	27	0	1	14 959	21 000
1997	641	34	0	1	15 685	30 100
1998	963	28	0	1	24 273	35 460
1999	788	28	0	1	30 386	35 460
2000	447	52	0	0	18 049	20 000
2001	672	60	0	0	29 999	30 000
2002	980	28	1	3	33 445	30 000
2003	599	43	0	0	23 718	25 000
2004	690	34	1	3	19 799	25 000
2005	726	37	2	5	26 190	25 000
2006	521	28	3	9	19 763	20 000
2007	544	32	6	15	20 996	20 000
2008	557	41	2	5	20 483	20 000
2009	627	20	0	1	19 040	20 000
2010	550	43	11	24	20 224	23 000
2011	815	40	6	14	30 971	29 400
2012	591	76	0	1	20 808	29 400

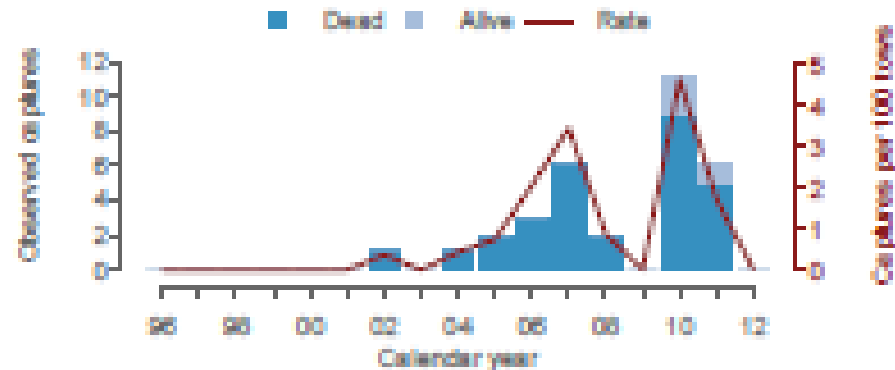
Source: DRAFT Thompson *et al* in prep. & MPI 2012 Fisheries Assessment Plenary

Sea lion captures – time series

(a) Estimated captures



(b) Observed captures



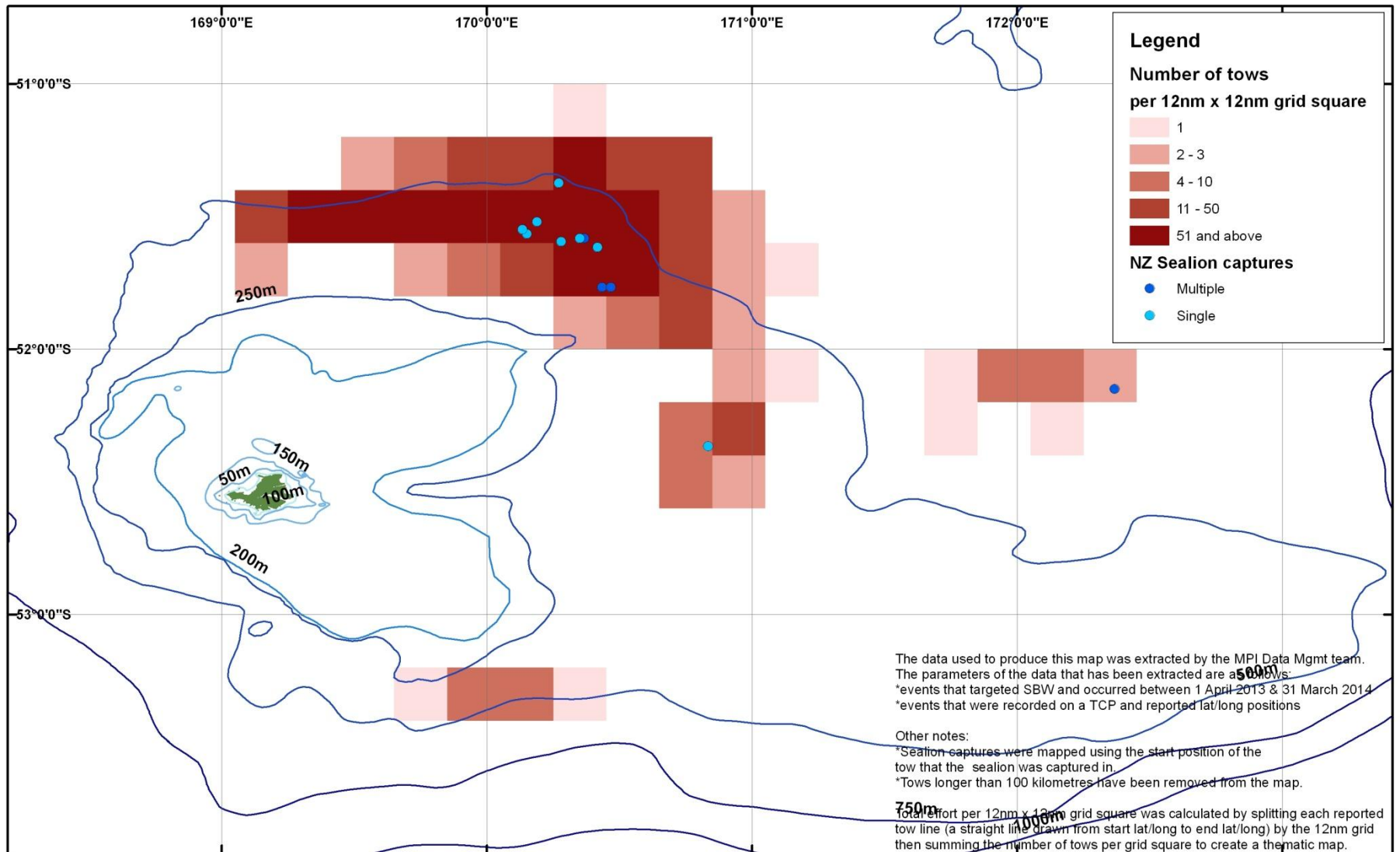
2013 season

- 10 vessels
 - Six BATM vessels: factory H&G vessels with meal plants
 - One surimi vessel
 - Three domestic factory H&G vessels: two with meal plants
- Season ran from 15 August to 2 October (49 days)
- Total “vessel days” = 262
- Total tows = 689
- Observed sea lion captures = 21 (17 fatal; four released alive)
- Total estimated catch ~ 26,000 tonnes
- All vessels had at least one MPI Observer on board

Sea lion interactions in 2013

- 21 total captures
 - 20 in a two week period early in the season
 - 1 single capture three weeks later
 - 17 mortalities; 4 released alive
- 7 single captures and four multiple capture events
 - One tow - five animals, 1 was released alive
 - One tow - four animals
 - Two tows - two animals
- All captures were of male sea lions, likely sub-adults
- Majority of captures occurred further north than in previous years

SBW6I effort for the 2013/14 April fishing year showing NZ Sealion captures



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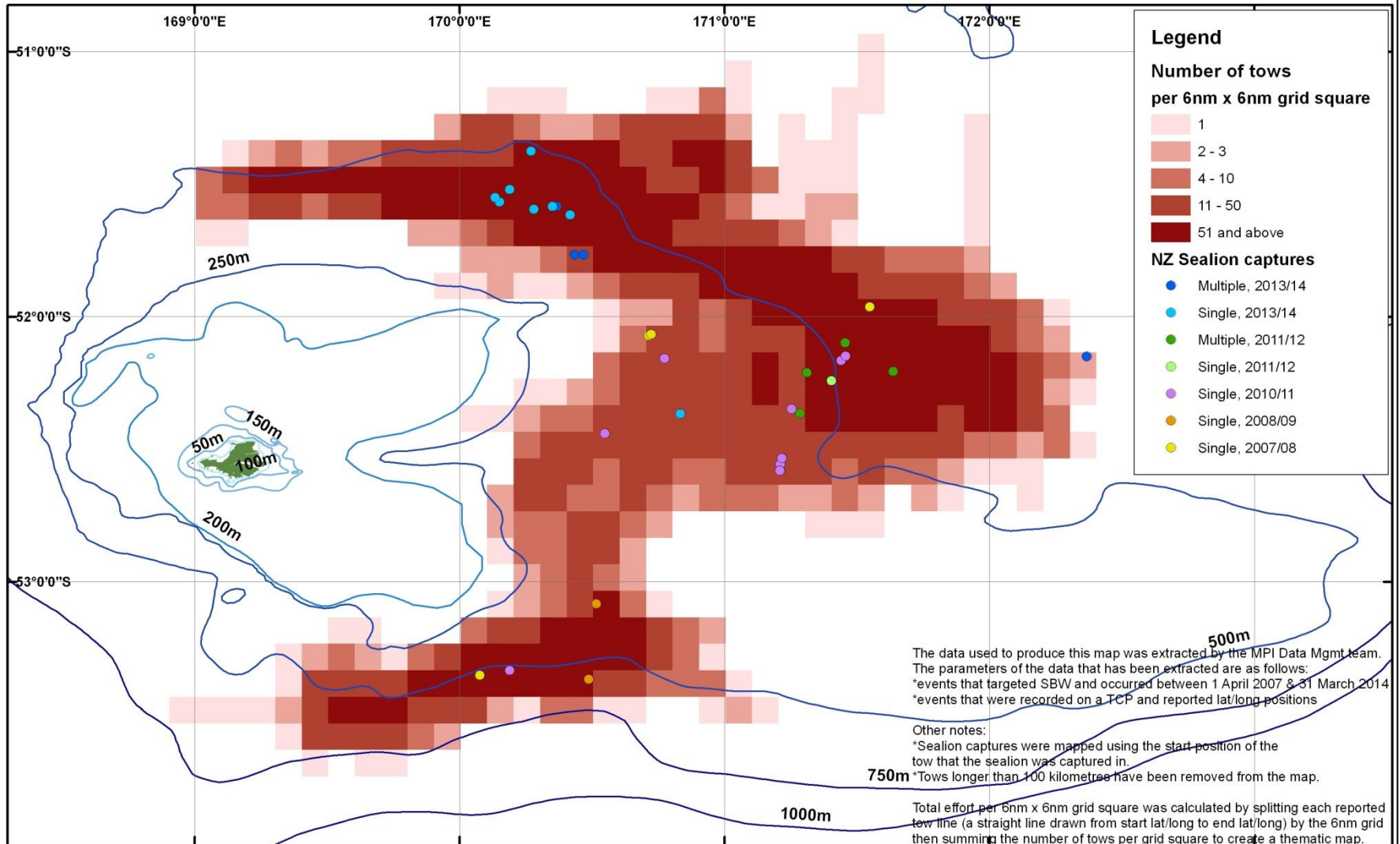
0 50 100 200 Kms



Ref: 130257
Date: 09 December 2013
Projection: WGS84
Produced by: Geospatial
Data Management

This map is intended to be used as a guide only, in conjunction with other data sources and methods, and should only be used for the purpose for which it was developed. Although the information on this map has been prepared with care and in good faith, no guarantee is given that the information is complete, accurate or up-to-date.

SBW6I effort for the 2007/08 - 2013/14 April fishing years showing NZ Sealion captures



Legend

Number of tows per 6nm x 6nm grid square

- 1
- 2 - 3
- 4 - 10
- 11 - 50
- 51 and above

NZ Sealion captures

- Multiple, 2013/14
- Single, 2013/14
- Multiple, 2011/12
- Single, 2011/12
- Single, 2010/11
- Single, 2008/09
- Single, 2007/08

The data used to produce this map was extracted by the MPI Data Mgmt team. The parameters of the data that has been extracted are as follows:
 *events that targeted SBW and occurred between 1 April 2007 & 31 March 2014
 *events that were recorded on a TCP and reported lat/long positions

Other notes:
 *Sealion captures were mapped using the start position of the tow that the sealion was captured in.
 *Tows longer than 100 kilometres have been removed from the map.

Total effort per 6nm x 6nm grid square was calculated by splitting each reported tow line (a straight line drawn from start lat/long to end lat/long) by the 6nm grid then summing the number of tows per grid square to create a thematic map.

Timeline – week 1 (15th – 21st August)

15 August – 1st vessel arrives at SBW6I, starts fishing north east of CI – no sea lions

18 August – 1st captures: one single capture, followed by a multiple capture of five (12 observed at the vessel)

- 1st vessel moves to Pukaki (SBW6R) to avoid sea lions, following instruction from the vessel operator
- 2nd vessel arrives at SBW6I – observer reports no sea lions after first tow

20 August – 2nd vessel captures one animal (8 sea lions observed on hauling)

21 August – Third vessel arrives at northern SBW6I

- Two vessels move to alternative fishing grounds (east and south) to determine presence of SBW and sea lions
- Sea lions observed in the east, not in the southern area, but also no fish
- A single capture occurs to the east ; both vessels return to the northern area
- DWG ensures all operators have SLEDs aboard all vessels (including transporting SLEDs to vessels already on the grounds) as a contingency

Timeline of key events – week 2

22 August - Daily reporting of vessel position and sea lion captures/sightings instigated by DWG.

- One further vessel joins the fishery, observer reports zero sea lions
- After discussion, operators raised the idea of deliberately feeding sea lions to either distract or satiate animals attending the vessels. Idea was dropped on advice of MPI – regulations under the Wildlife Act prohibit this activity.

23 August – One further capture occurs; further information sought from the observer

24 August – MPI and DWG reiterated that vessels are to take all measures possible to reduce offal loss overboard from factory floors

- Multiple capture of four animals in one tow, followed by a single capture three tows later. Same vessel – observer reported 20-30 sea lions around the vessel

28 August – Two further sea lion captures from two different vessels

Timeline of key events – week 3

29 August – One vessel moves to eastern fishing ground to determine sea lion abundance. No sea lions observed upon arrival

- DWG advised the fleet to cease ‘doors up’ turns, and reiterated the requirements of the MMOP to avoid unnecessary gear time in the water.
- DWG circulate net binding instructions if animals are present during shooting
- SLED trial arranged in consultation with operators and MPI.

30 August – MPI met with DOC and advised/discussed situation

- After 48 hours of fishing without observing sea lions, the vessel in the eastern area captured two sea lions (8 sea lions reported by MPI observers). Vessel moves back to the north to join the rest of the fleet

31 August – Two SLED trial tows undertaken

2 September – DWG circulate results of SLED trial and instructions on SLED use.

3 September – MPI and DOC Officials met with Ministers to discuss

4 September – Ministers sought agreement for all vessel to trial SLEDs

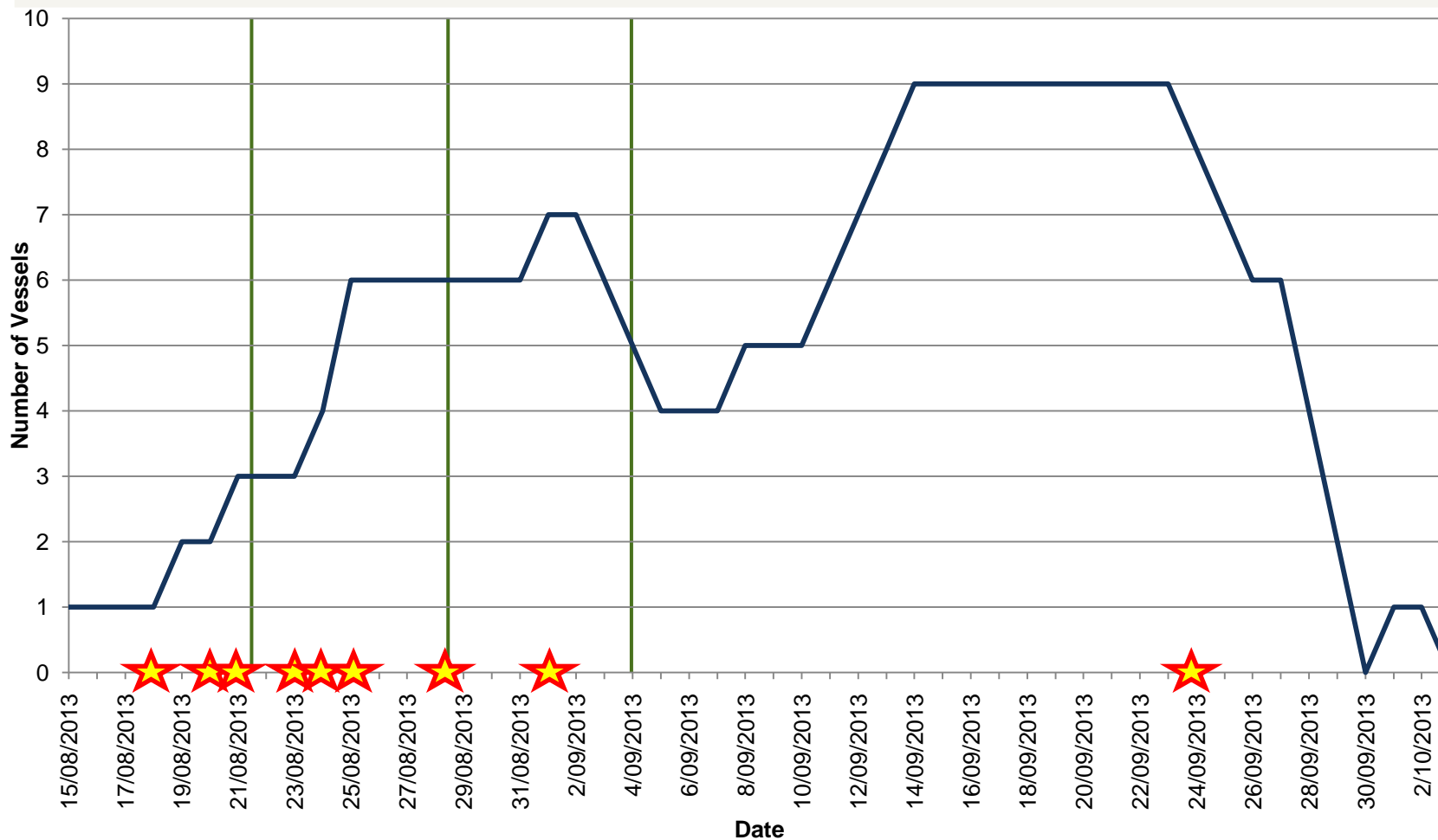
Timeline – week 4 onwards

- 5 September** – fleet install SLEDs, apart from one vessel which remains as a “control”
- 13 September** – one vessel advises of problem with SLED use and discontinues deployment
- 9-11 September** – SBW MSC CAB undertakes expedited audit of performance against PI2.3.2
- 24 September** – final sea lion capture occurs on control vessel not using a SLED. Vessel has not made any captures previously, operating in SBW6I for 20 days and making >50 tows in the fishery. Vessel then deploys SLED on all further tows.

SLED trial

- Initial concerns - different operational characteristics in SBW vs SQU
 - Higher catch volume over much shorter timeframe
 - Health and safety
 - Effect on catch rates/product quality
- Proceeded with some caution
- Trial vessel identified to test SLED use
- Explicit instructions drafted and supplied to the trial vessel and the MPI Observer.
 - First tow targeted less dense marks
 - Some concern regarding large fish (opah) caught against the SLED grid
 - Second tow targeted ~30 tonnes
 - No problems reported re: fish loss/damage
- Results reported to DWG and MPI

Fishing vessels in SBW6I - 2013

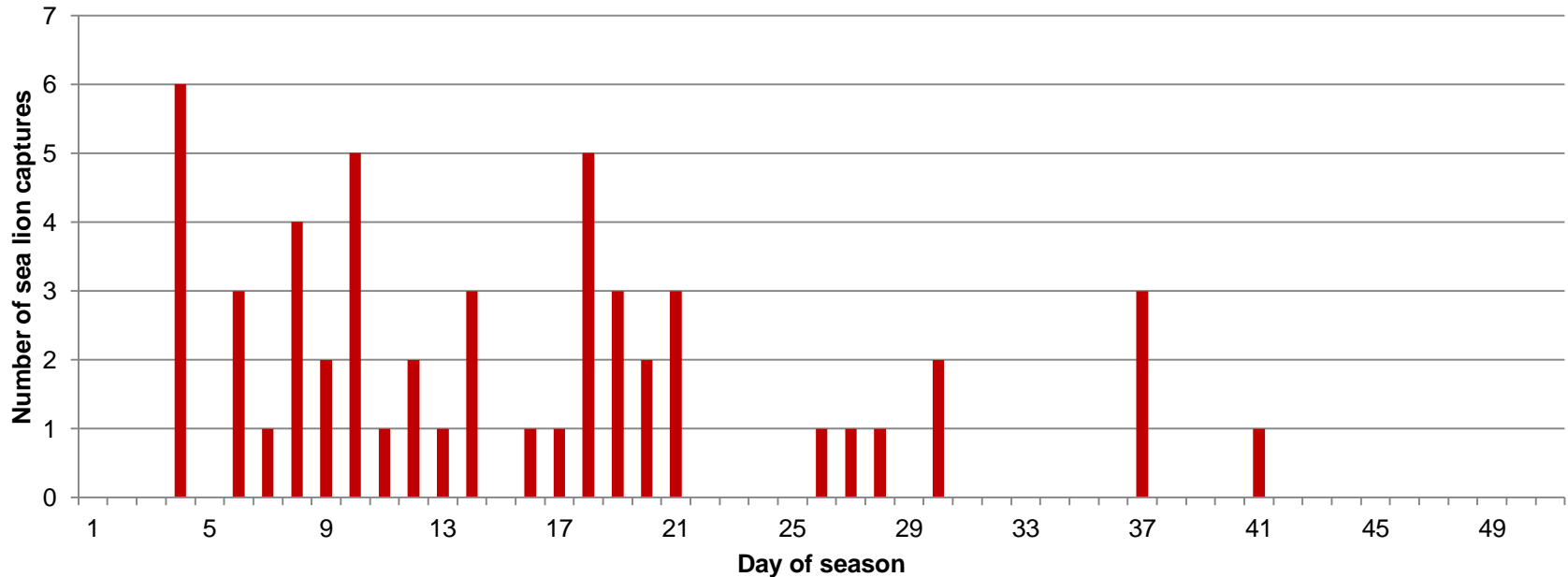


SBW6I daily tows



Timing of captures: 2004-2013

Timing of the captures appears to be consistent with previous years



Learnings

- Good communication and cooperation from fleet and observers
- A number of operational points have been discussed as potential reasons for the increased risk of captures in 2013
- No obvious correlations
 - Offal management?
 - Bulk fishery, soft offal loss from factory – but several captures occurred when minimal/no offal discharge
 - FUR observed feeding near factory, HSL appear to associate with the cod-end
 - Likely a risk and MPI expects operators to minimise loss of offal
 - Turns?
 - Doors up turns/turns at depth
 - Hauling speed?
 - Minimise gear time on the surface

Next steps

- Before next season, DWG to report on plan to mitigate future sea lion captures
- Reiterate the current management measures
 - Offal control
 - Minimise gear time on surface
 - Turns
- Also discuss:
 - SLED use
 - Coordinate vessel entry