POP2018-03
New Zealand sea lion: Auckland Islands pup count

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Presentation to the CSP TMP sea lion Technical Working Group

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Department of Conservation
Te Papa Atawhai

New Zealand Government

Project Objectives

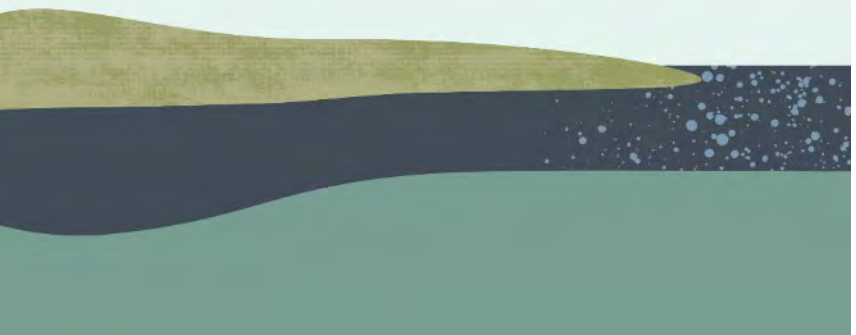
To measure pup production and pup mortality at the Auckland Islands and contribute to the long-term monitoring of demographic parameters

- Pup production mark-recapture estimate Enderby & Dundas Islands
- Flipper tag and microchip all pups at Sandy Bay, and 400 at Dundas
- Weigh and measure, a sample of 100 pups (50 males and 50 females) at each location.
- Daily counts of dead and live animals at Sandy Bay
- Resight marked animals at Enderby Island, including recording of PIT tags (second half of season)
- Acquire photos of animals with shark (distinct) scarring for future research
- Whole island counts and resighting
- Necropsy to determine causes of pup mortality
- Monitoring of ramps

Changes to the season coordination
CSP a part of the wider TMP

Logistics

- 3 Jan – 8 Jan Quarantine
- On Island 10 Jan – 9 Mar 2019
- CSP pup counts - Team of 5 until 27 Jan 2019
- Other TMP work - Team of 3 until 9 Mar 2019
- Focus on the CSP component
- Highlight high level TMP component
- Pup mortality – separate presentation



Team members:

Part 1: Don Neale*, Helena Dodge, Eleanor Cooper, Mike Morrissey, Karen Ismay

Part 2: Aditi Sriram*, Andrew Eastwood, Helena Dodge

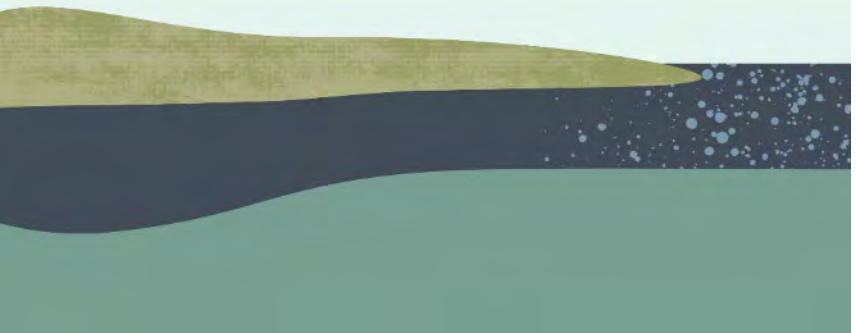
Methods

Mark Recapture

Daily counts

Resightings

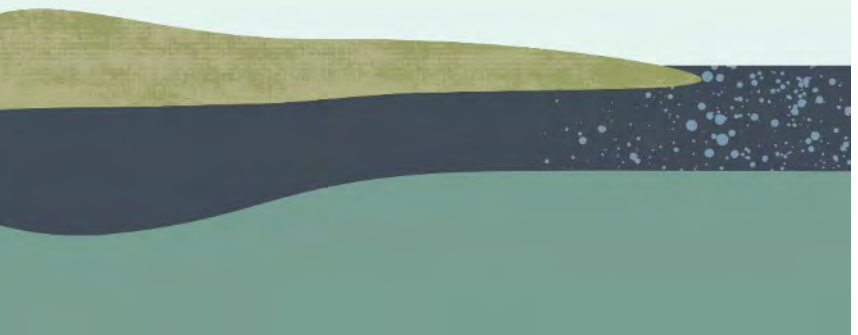
Additional work



	Sandy Bay	Dundas
Capped pups	200	400
Recapture counts (no. of counts completed)	10	10
Daily counts (no. of counts completed)	44 (over 20 days)	5 (over 1 day)
Tag resightings (& approx. effort)	~3370 (153 hrs)	8 (2 hr)
Flipper/PIT tagging (no. of pups)	312	400
Ramps installed (no. pre-existing)	7 (11)	0 (3)
'Shark scars' (no. of cases; possibly duplicates of individuals)	84	1
Dead pups & Necropsies done	44 (35)	63 (0)
Enderby round-island counts	6	n/a

Results 1

Pup counts



Live pup counts from different methods

Method	Sandy Bay	Dundas
Mark-recapture (not including dead pups)	315	1240
Head count	286	1310
Flipper tag	312	N/A (400+)

Pup production estimates including dead

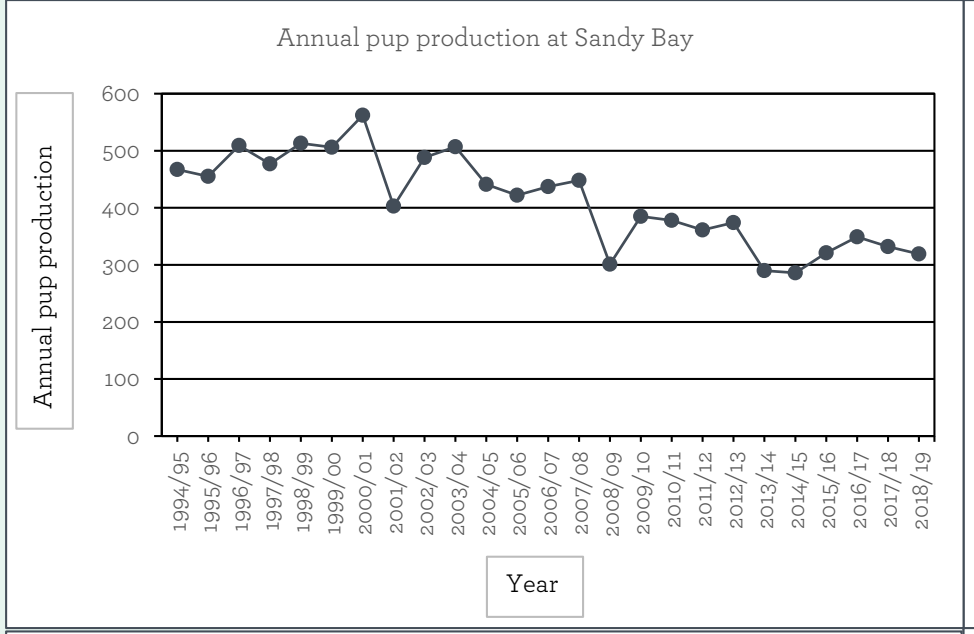
Location	Pup production	No. live	No. dead
Sandy Bay	319	312	7
Dundas Island	1295	1240	55
Figure of Eight Island	64	59	5
South East Point	0	0	0
Total Auckland Islands	1678	1611	67

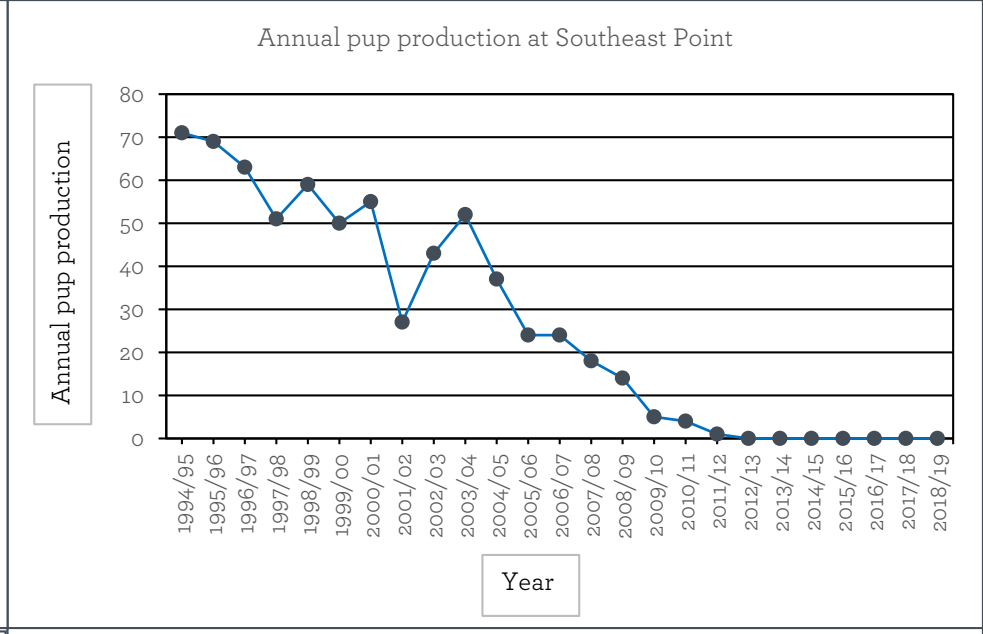
Comparison with last season

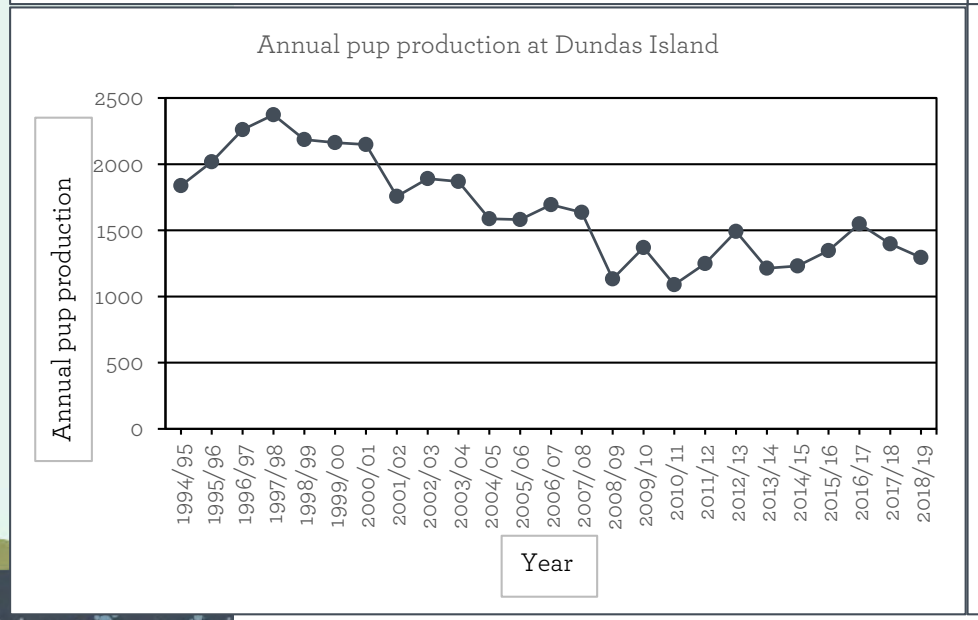
Location	Pup production 2018	Pup production 2019
Sandy Bay	332	319
Dundas Island	1397	1295
Figure of Eight Island	63	64
South East Point	0	0
Total Auckland Islands	1792	1678

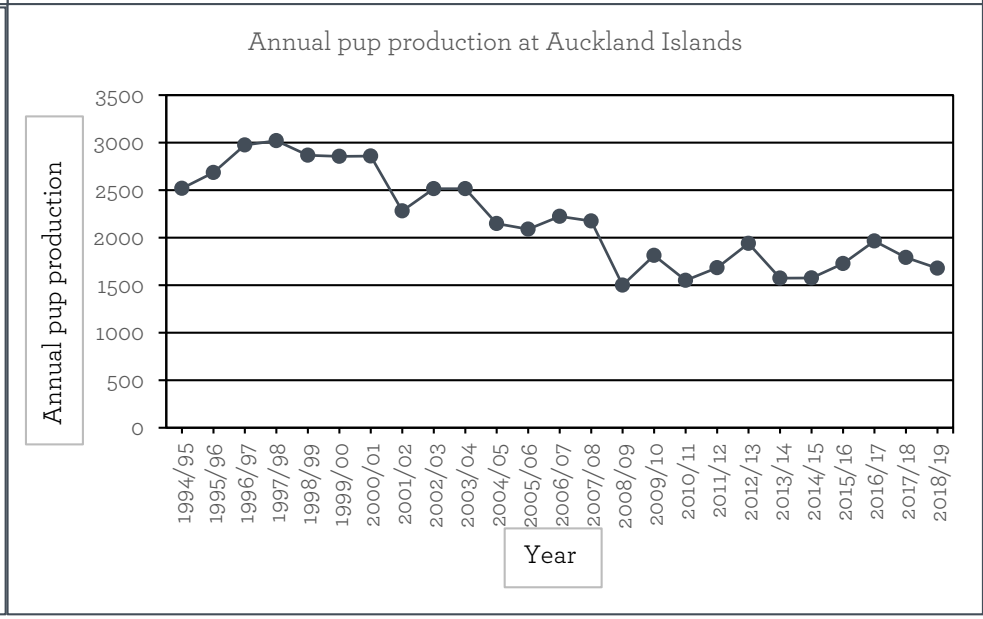
Results 2

Pup production estimate trends





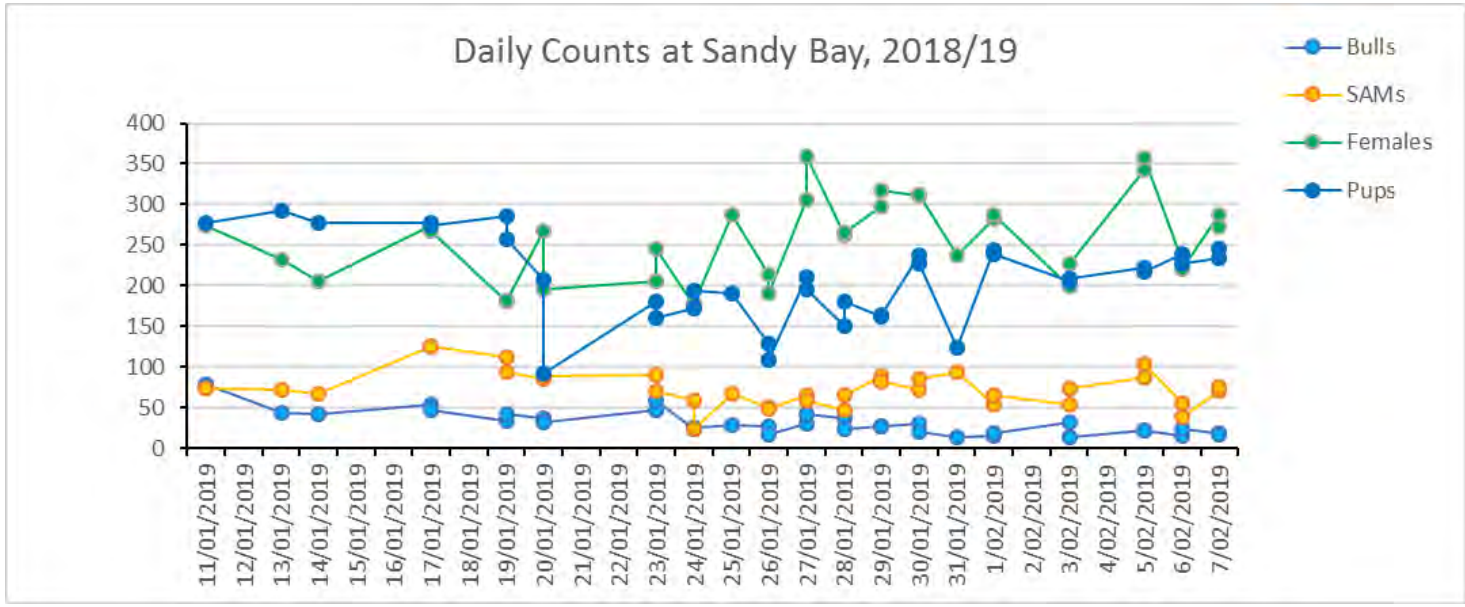




Results

Sandy Bay – Daily counts

- Counts of adult males, females, subadult males and pups
- Highest female counts ~350
- Highest pup count 300

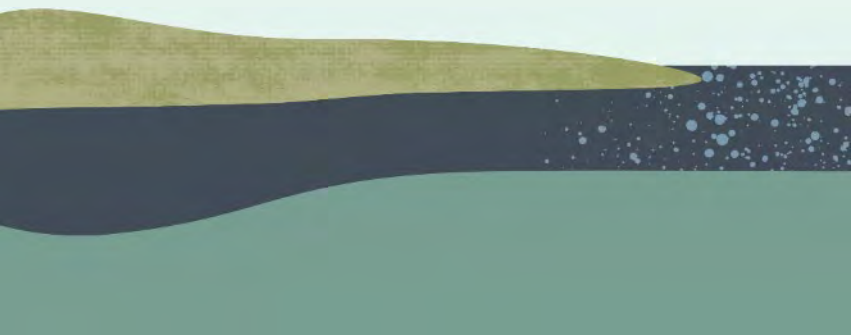


Results

Weights

- Males approximately 1.5kg heavier than females
- Minimal difference between locations
- Represents overall increase from last season

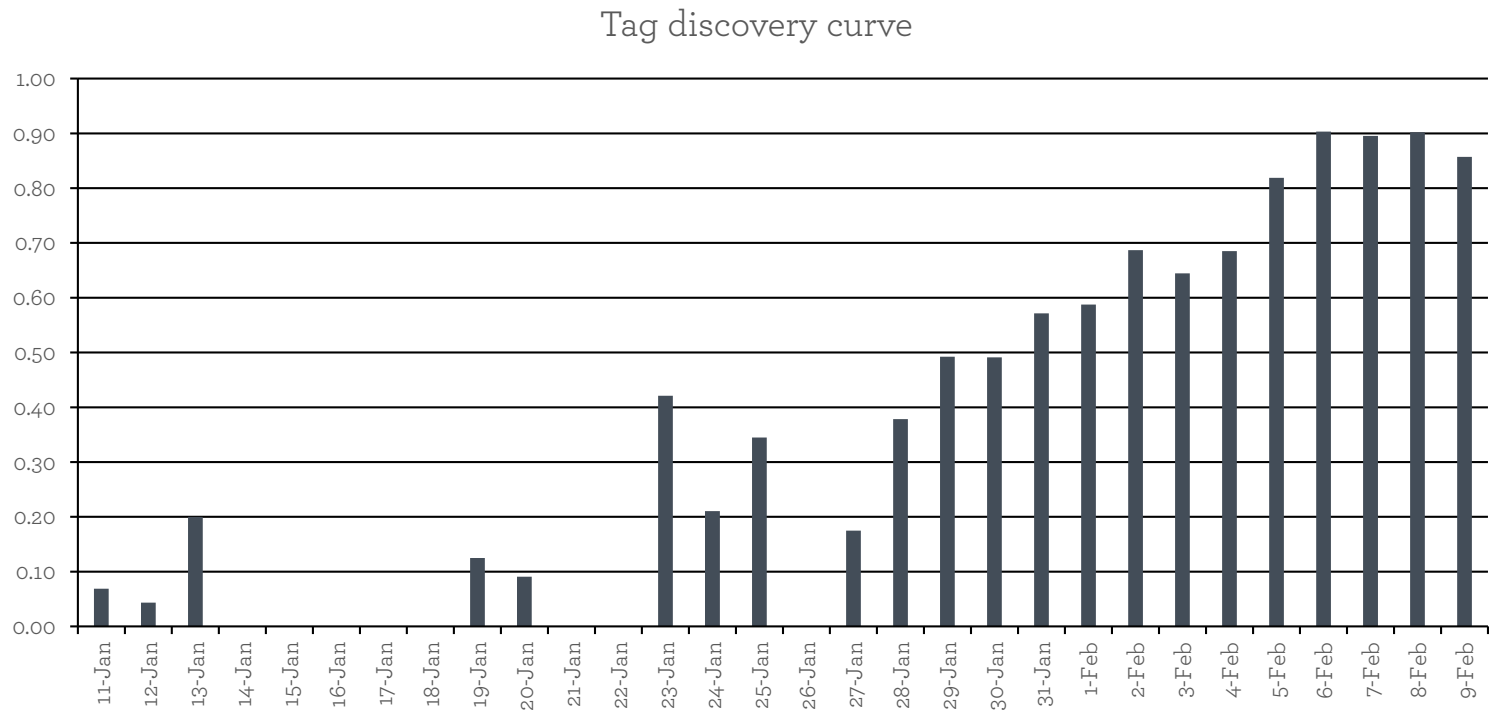
Location	Mean female weight			Mean male weight		
	n	Kg (SD)	Change from 2017/18	n	Kg (SD)	Change from 2017/18
Sandy Bay	50	12.24 (1.83)	+3.7%	50	13.82 (2.44)	+12.4%
Dundas Is	50	12.11 (1.82)	+12.1%	50	13.87 (2.45)	+11.9%



Results

Resightings

- >1300 total tag resights 11 Jan – 9 Feb
- Early season focus on pup counts
- By early Feb 90% of tags observed had multipleresights
- Second half of season resights still to be added, ~3370 whole season



Results

Shark scars

- Images collected on approximately 84 cases
- Not all matched yet (some will be duplicates)
- Modelled after HMS Photo ID programme
- Initiating a library of images for future analysis

Dorsal overall

Dorsal BHF

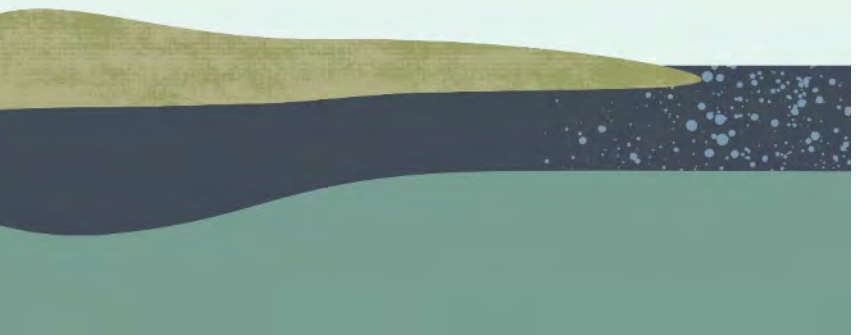
Dorsal LFF +tag

Results

Ramps

- 11 Ramps in place, 7 new ones added, images and GPS locations
- Focus operational to ensure pups could rescue themselves
- Team rescued pups as and when needed

Conclusions



- Change to the season in contracting – learnings, actions field season debrief
- Overall a successful season
- Pup counts similar to although lower than last year (1751 vs 1678)
- Pups consistently heavier this season
- Addition of microchipping at Dundas
- Considerable effort on resighting
- Post mortem analysis

Acknowledgements

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