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Attention: Russell Harding

Comments to the Conservation Services Programme, TWG on:

Research to assess the demographic parameters of New Zealand sea lions, Auckland Islands DRAFT REPORT Contract Number: POP 2010/01 by Dr. B Louise Chilvers and Dr. Ian Wilkinson

Objectives. There is an obvious need to continue long term research into the population parameters of the NZ sea lions, which this paper reports on. However there is also a critical need for research into the obvious cause of pup production declining at the Auckland Islands, ie fisheries-induced resource competition. Previous work by Chilvers and other researchers¹ clearly point towards this competitive effect occurring with direct overlap of sea lion foraging areas both in lactating females and juvenile sea lions with squid trawl fisheries effort and a continued decline in pup production occurring simultaneously with increased fishing effort. An obvious experimental approach would be to stop trawling altogether for a season (or two) and investigate the resulting impact on the sea lions.

The data for this report is also available for modelling work. Forest & Bird would be interested to see a model which predicts, at the current rate of decline, when the production of pups is likely to reach a critical level from which recovery is unlikely.

Pup production estimates. We have read the report and the reasons for the later (16 day) count of pups on Dundas Island. We agree that the pup production figures are reasonable and support the estimate for this year presented by Chilvers. We understand that there has been some criticism of the result (from the fishing industry) as it shows a significant 15% decline from last year.

¹ Bruce Robertson and B. Louise Chilvers 2011. The Population Decline of the New Zealand Sea Lion *Phocarctos hookeri*: a review of possible causes. Mammal Review 2011.

Our response to those criticisms and support for the results is as follows.

The counts were undertaken 16 days after the usual time. There are several indicators that suggest that this count should stand.

- First and foremost is that researchers based at Dundas Island over several years 01/02, 03/04, 05/06 and 06/07 until the 2nd February (only 4 days prior to the date when the current mark/recapture date) found no evidence of mass dispersal of pups and mothers from their breeding island, and that they leave in just ones and twos.
- Furthermore the researchers know from their observations over many years, that the location that these mothers and pups go to when they do disperse is Kekeno on main Auckland Island. The count of pups at Kekeno was just 8 pups. There are no other areas of suitable habitat near here for pups and mothers to go to (ie only steep rocky cliffs).
- In addition there were other researchers at other parts of the Auckland Islands up to the 24th January and there was no sign of pups or mothers at other possible locations such as Carnley Harbour and East Coast Inlets.
- Further evidence is provided by the series of four mark-recaptures undertaken on Dundas between 21st and 29th January 2002. As Chilvers points out this does not indicate a downward trend. Our observation of this data suggests a possible minor upward trend and in fact the final count on the 29th January, 2002, just 6 days prior to the count being undertaken in 2011 is the highest in the series.

To further support the data, Chilvers suggests undertaking comparative M-R estimates on Dundas on the 17 January and 6 February 2012. In the meantime there is no evidence to suggest that the trends shown by this year's data should be discounted. The pup production estimate for this year should be retained, particularly as this is a critically endangered species requiring a precautionary approach to its management.

Any management outcomes as a result of these pup counts must be predicated on recognition that there is a continued decline of this sea lion population.

Karen Baird 1 July 2011