

**Science Report**

Seabirds

1. Thirty-four percent of our gentoo penguin reproductive study nests have hatched, 22% are partially hatched, 10% of nests have eggs, and 34% of the nests have failed.
2. Peak hatching for chinstrap penguins was 28 December and 51% of all nesting pairs have chicks; while 12% of the reproductive study nests still have eggs. Nest failures have occurred in 37% of the study nests since we began recording data on breeding success in early November.
3. The first banded one year old chinstrap was seen on 30 December. Of the nests of known-aged gentoo penguins 13% are still incubating eggs, 40% have hatched chicks, 18% are partially hatched and 29% have failed. The failure rate of known-aged chinstrap nests has increased since last week to 50%. So far 10% of the known-aged chinstraps nests have not begun to hatch, 15% have initiated hatching and 25% have completed hatching.
4. The first skua chick was seen on 29 December. There are 17 brown skua pairs attending territories on Cape Shirreff; 5% have hatched at least one chick, 71% still have eggs including two of which were relays after a failed attempt.
5. A total of 49 Kelp Gull nesting pairs are under observation. Most pairs (71%) are still incubating eggs, 23% have hatched and 6% have failed. Once the chicks hatch they are fairly mobile and cryptic which makes it difficult to determine chick survival rates. However, as young birds approach fledging, they are less likely to hide and become conspicuous on their natal territories. Reproductive success is calculated as the number of chicks seen around fledging time in discrete areas of the Cape per number of pairs that were known to have nested.

Pinnipeds

6. All our CCAMLR attendance females ( $n = 30$ ) have completed at least one trip to sea. Mean trip duration for the first trip to sea was 3.2 days (s.d. = 2.1; range: 0.4-9.6). Last year the mean trip duration for the first trip to sea was 2.3 d (s.d. = 0.9,  $n = 30$ ). Three females have completed six trips to sea. The total number of trips logged as of yesterday is 97. Thus far none of our attendance study females has lost her pup to leopard seals.



7. Our six GPS instrumented females have all completed at least two trips to sea and together they have completed 15 trips to sea. The mean trip duration is 3.7 days (range: 1.3 - 6.7 d).
8. Since last week we recorded three tagged females arriving for the first time this season. Two of these females returned not pregnant (one is 24 years old). The last tagged female to give birth did so on 28 December. Only two of our tagged females are still on their first visit to shore.
9. Thus far our return rate for the tagged adult female population is 80.8%. However, if only known-aged females  $\leq 18$  years old ( $n = 106$ ) are considered, the return rate is 85.8%. The natality rate for females  $\leq 18$  years old is only 83.5%.
10. We have sexed and collected DNA samples from all but three pups of tagged females ( $n = 156$ ). It is a challenge to get all the pups sexed and DNA collected before leopard seals get them so we are pleased to have gotten almost all of them so early.
11. We had a female that carried a nano-LAT overwinter show up on 29 December. This brings the total number of returned to 88% (15 of 17 females). The return rate for females deployed over winter with an ARGOS transmitter remains 14 of 15 females.
12. We conducted our last census for fur seal pups on the U.S. AMLR study site on 31 December. Our maximum count was on 27 December; we recorded a total of 1,064 pups (1,017 live and 47 dead). We are no longer seeing the occasional pregnant female arrive and give birth. Based upon daily pup counts the median date of pupping was 6 December. The median date of pupping for our tagged population was 7 December and the median date of pupping of our CCAMLR attendance females was 8 December.
13. We censused the entire Cape for fur seal pups on 26-27 December. We recorded a 10.3% reduction in fur seal pup production over last year.
14. The total number of southern elephant seals in the last weekly phocid census was down (189) since the previous census of 227. The reduction was likely due to weather as it had been raining all morning, reducing the numbers of animals on shore.
15. Leopard seals are increasing and we observe new animals tagged in previous years arriving almost daily. As with southern elephant seals we recorded a reduced number of leopard seals on shore as compared with last week (4 vs. 10 the previous week).
16. We collected our second weekly sample of fur seal scats for studies of diet. We collect ten every week. All scats collected this week were composed primarily of krill.



## Weather

17. The mean temperature for the week was 2.0°C and the high temperature for the week was 7.8°C. The low was 0.3°C. Winds were mostly westerlies this week with a mean wind speed of 11.5 mph and maximum of 50.0 mph. Total precipitation this week was 0.43 inches, resulting in total precipitation since 14 November of 1.90 inches. Sunrise and sunset are now 03:08 and 22:54. Mean daily solar radiation this week was 13,013 watts per sq. meter.

## Camp

18. We continued our never ending battle of mold and mildew in the camp this week and scrubbed, cleaned and dried out a particularly damp corner of our main hut.
19. We had a low key New Year's Eve and an uneventful New Year's Day. For dinner we had left-over turkey pot pie with a "secret ingredient." Not even the cook knew what the ingredient was until a discussion at dinner. The cook believed she was using leftover gravy in the turkey pot pies, but once she added it she realized it wasn't gravy after all. She thought she had put some sourdough starter in the pot pies and it wasn't until dinner that we all realized it was leftover waffle batter. Nonetheless the turkey pot pies were delicious.
20. Everyone at the Cape sends their best wishes to all for a Happy New Year.



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