

# *U.S. Antarctic Marine Living Resources Program*

## *2011-2012 Weekly Field Reports*

### *Cape Shirreff, Livingston Island*

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#### Science Report

##### Seabirds

1. Gentoo chicks are starting to crèche; our first crèched nest was on January 13. The failure rate of the gentoo reproductive study nests has increased since last week to 44%, 52% are brooding chicks, and 4% are crèched. In the chinstrap penguin reproductive study 56% of nests have chicks and 44% have failed.
2. Of the nests of known-aged chinstrap penguins 50% have chicks and 50% have failed. This week the failure rate of known-aged gentoo penguin nests has increased from 38% to 44% and 0% have crèched.
3. We are continuing to weigh chinstrap and gentoo chicks of all reproductive study and known-aged breeder nests. The mass, taken when chicks are 21 days old, is used as a measure of chick condition before they crèche.
4. We continued diet sampling on chinstraps and gentoos this week. We followed adults returning from foraging trips back to their nests to verify that they were breeders and captured them before they feed their chicks. Samples were collected using the wet-offloading technique. Data on total mass of stomach contents, diet composition, and the length and sex frequency of krill were recorded for each stomach sample.
5. On January 11 we deployed one time-depth recorder and two satellite transmitters on adult gentoos. We also deployed six satellite transmitters and five time-depth recorders on adult chinstraps.
6. Most of the skua eggs have hatched. Currently, reproductive efforts of five pairs have failed, eight pairs have one chick, one pair has two chicks, and three pairs are still incubating eggs.

##### Pinnipeds

7. Five of our original six GPS/Time depth recorder females for monitoring foraging range and behavior continue to collect data. The sixth was removed two days ago from a female that lost her pup after trip five. We have collected data on 27 foraging trips. All have completed at least four trips to sea, one has completed six trips and two others have completed five. Mean trip duration for these instrumented females is 4.21 days (s.d.=1.58; range: 1.29-6.71 days).



8. Only 13 of our 30 CCAMLR attendance females have completed six trips to sea. Five of our attendance females have lost their pups; however, only two of these lost their pups after completing six trips.
9. Trip durations continue to be longer than average for the fifteen years we have been monitoring. All 30 attendance study females have completed at least three trips to sea, only one has not completed at least four trips. Trip durations are as follows: first trip: 3.20d (s.d.=2.09, n=30), second trip 3.99d (s.d.=2.19, n=30), third trip 4.26 d (s.d.=1.83, n=30), and fourth trip 4.28d (s.d.=1.71, n=28). The maximum trip duration remains at 9.56 days.
10. Twelve of the pups of the 13 females that have completed six trips to sea have been weighed according to protocol. Mean mass gain from the start of female foraging cycles to completion of the sixth trip suckling bout is 94.2 g/d (s.d.=23.1).
11. We continue to monitor our adult tagged female population and mother pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Pups have begun entering the water and spend considerable amounts of time now playing in shallow water making them easily accessible to leopard seals. We estimate that 20% of pups have been lost to leopard seal predation thus far.
12. We captured 18 fur seals this week for retrieval of archival instruments and deployment of over winter geolocation light sensors (GLS). We retrieved three time depth recorders from females that have lost their pups. Thus far we have deployed 45 of the planned 60 GLS fur seal over winter instruments for 2012. Two GLS instruments that were deployed in November and early December were removed and replaced. Communications with one of the two failed, however.
13. This week we collected our fourth fur seal diet sample of ten scats. To date 40 scats have been collected. Fish continue to be represented more in the diet this year than last year although complete analyses have not done yet.
14. On 13 January we completed our eighth weekly Cape-wide Phocid census. We counted 245 southern elephant seals, 19 Weddell seals, and 14 leopard seals.
15. Leopard seals continue to arrive and as of 15 January we have recorded 149 sightings of 22 tagged seals. We have recorded an additional 26 sightings of untagged or otherwise unidentified seals. Fourteen of the 22 tagged seals returned from previous years and the other eight we have tagged this year.



## Weather

16. We have had three consecutive days of sunny weather this week. Sunny weather is often accompanied by windy weather and overall for the week, the winds averaged 15.0 mph with a maximum wind speed of 51 mph. Once again westerlies dominated all week. Precipitation for the week was 0.57 inches bringing the season total to 2.6 inches. The average temperature was 1.9° C with a high of 4.4° C and a low of 0.1° C. Sunrise is now at 3:45am and sunset is at 10:28 pm.

## Camp

17. We had a welcoming dinner for the Chileans that arrived late in the evening of 8 January. They have been working all week on their camp improvements in anticipation of four scientists arriving around 20 January. We also expect to receive a new camp mate with the arrival of Ph.D. student Doug Krause.
18. The good weather has allowed for many camp improvements of our own this week. We completed transfer of all our remaining cargo on the beach and replaced it with empty propane cylinders in anticipation of camp closing in early March. We also painted some exterior and interior walls. Some of the interior walls were scrubbed and painted with mildew resistant paint. In addition to these camp improvements we also re-roofed our ATV shed with a new aluminum roof.
19. The crew is excited and looking forward to the arrival of Doug Krause (a.k.a. “Santa Krause”) and a small order of some fresh produce that will get us through the end of the season.



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