

Science Report

Seabirds

1. Gentoo penguins finished crèche formation this week. The failure rate in the reproductive study nests for gentoo penguins was 44% while 56% reached the crèche stage. The chinstrap reproductive study continues. Thirty-four percent of nests in the chinstrap reproductive study have chicks, 24% have reached the crèche stage, and 42% have failed.
2. Of the nests of known-age chinstrap penguins 27% have chicks, 13% have crèched and 60% have failed. The failure rate of known-age gentoo penguin nests remains at 44% while 56% of the study nests have crèched.
3. We started to deploy GLS instruments on chinstrap penguins this week. We deployed 2 on 2 February and 52 on 5 February. These instruments are about the size of a dime and attached to leg bands. They record light levels in order to calculate latitude and longitude. These tags will be left out over winter and recovered next year when they return to the colony to breed.
4. We finished measurements of chinstrap and gentoo chick weights in all reproductive and known-age study nests. The measurements, taken when chicks are 21 days old, is used as an index of chick condition before they crèche.
5. 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 length and sex frequency of krill were recorded for each stomach sample. We are done with gentoos and have only one more round of chinstrap diets left. Average krill length for gentoo diets was 42.72mm and average krill length for chinstrap diets was 38.89mm. The sex ratio of krill in the diets of both gentoos and chinstraps was 49.6% male, 27.8% female with 22.6% juvenile krill of undetermined sex.
6. We deployed six PTTs and four TDRs on chinstraps on 5 February. The satellite transmitters will be used to determine where the penguins forage and the time-depth recorders give profiles of diving behavior. We will recover these instruments after one week of deployment. We are currently recovering the instruments we deployed on gentoos just over a week ago. We have recovered all four TDRs and five out of the six PTTs.



7. We discovered a pair of skuas with a chick we didn't know about last week. Currently, ten pairs have failed, 8 pairs have one chick and one pair has two chicks.
8. A juvenile macaroni penguin is molting in the colonies. Originally it was molting with chinstraps, but has since moved into a gentoo colony. We have all decided this was probably a smart decision as the gentoos are much friendlier to their neighbors than the chinstraps.

Pinnipeds

9. Seven CCAMLR attendance study pups have died. That brings the total to 15 of the 30 study females that have lost their pup.
10. Trip durations continue to be long, but have decreased slightly. Twenty-six of the 30 attendance study females completed at least six trips to sea before they lost their pups, 21 completed at least eight, and one female has completed 13. 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), fourth trip 4.31d (s.d.=1.16, n=29), fifth trip 4.40d (s.d.=1.22, n=28), sixth trip 4.24d (s.d. = 1.32, n=25), seventh trip 4.00d (s.d. = 0.88, n=26), eighth trip 3.77d (s.d. = 0.87, n=21). The maximum trip duration remains at 9.56 days.
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 are now actively playing and swimming off shore where they are easily accessible to leopard seals. Our current estimate for pup loss to leopard seal predation as of 5 February is 46.7%. In a related study of composition of leopard seal scat, all of the scats collected this week contained pup fur and 60% were composed entirely of fur seal pup remains.
12. This week we collected our seventh fur seal diet sample of ten scats. To date 70 scats have been collected.
13. On 4 February we completed our eleventh weekly Cape-wide Phocid census. We counted 212 southern elephant seals, 15 Weddell seals, and 21 leopard seals.
 14. Leopard seals continue to arrive and as of 5 February we have recorded 377 sightings of 32 tagged seals. We have recorded an additional 49 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database. Twenty-two of the 32 tagged seals returned from previous years and the other ten we have tagged this year.



15. We completed another capture of an adult female leopard seal this week that weighed over 470 kg. Samples for stable isotope analysis and scat were collected to determine diet, and a PTT satellite location instrument was deployed to help us define the summer foraging range for the seasonally resident animals.
16. We have begun deploying GLS tags on leopard seals to build on our data set of over-winter distributions based on PTT instruments. The tags will be deployed all winter, and recovered when the animals return to the cape next summer. To date, two of the 10 instruments have been deployed.
17. On 1 February we began our systematic surveys of defined areas of the Cape for the 500 per annum fur seals tagged as pups. This will give us a measure of tags sighted per unit of effort for different cohorts and for different areas of the Cape.
18. On 3 February we conducted our third sample of CCAMLR pup weights. The mean mass was 12.35 kg (s.d. = 0.18, n=50) for males and, 10.95 (s.d. = 0.15, n=60) for females.

Weather

19. Our streak of clear weather came to an end this week with one small storm and two low pressure systems moving through Drake's Passage to the north of us. Winds averaged 11.2 mph with a maximum wind speed of 38 mph. The predominant wind directions were west (43.2%) and north (33.6%). Precipitation for the week was 0.08 inches bringing the season total to 2.84 inches. The average temperature was 2.9° C with a high of 7.6° C and a low of - 0.6° C. Mean daily solar radiation was 13,916 Wm². Sunrise is now at 4:52am and sunset is at 9:30pm.

Camp

20. While the weather was not as calm and sunny this week, we did manage to paint the north wall of the work shop and complete some other basic tasks such as water and fuel transfers.



Doug



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