

Science Report

Seabirds

1. Chinstrap penguins finished crèche formation this week. The failure rate of the chinstrap reproductive study nests has remained the same since last week at 42% and remaining 58% are crèched.
2. Chinstrap chicks have begun to fledge this week. On 19 February we started weighing fledglings immediately before they depart to obtain a measure of condition. We will continue to collect these data throughout the fledging period. To date we have weighed 122 fledglings and they have an average mass of 3129g. The heaviest fledgling weighed in at 4150g and the lightest was 2100g.
3. In addition to the reproductive study, we also follow the fate of 50 chinstrap nests in a manner that minimizes disturbance to the birds. Reproductive success in this non-disturbance sample was 1.04 chicks crèched per nest.
4. On 16 February we banded 250 chinstrap penguin chicks. In the future, resights of these bands will help us determine cohort survival and with luck some of these penguins will become part of our known age reproduction study.
5. We deployed our last GLS on adult chinstraps on 13 February. 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.
6. We have recovered all but 2 PITs from the last chinstrap deployment. We are hoping to recover the last two instruments soon.
7. We started collection of 48-day measurements of brown skua chicks on 15 February. We collect bird weights and morphometric measurements at 48 days of age to determine their sex and to assess their condition. Of the original 19 breeding pairs from this season, seven nests remain active, while the remaining 12 have failed.
8. The juvenile macaroni penguin that has been consistently seen molting by our colonies departed on 16 February. We also had a visiting Adélie fledgling on the 15th and 16th.
9. A significant portion of the week was spent compiling and proofing data, along with general camp maintenance.



Pinnipeds

10. Of the original 30 CCAMLR attendance study Antarctic fur seal females, 18 have lost their pup. Note that no attendance pups were lost this week which was concurrent with a sharp drop in the number of leopard seals hauled out on our study beaches.
11. Trip durations increased this week, though the sample sizes are now quite small due to pup losses. The following are mean values for trip durations of all females with living pups by calendar week:

Week of:	Mean Trip Duration (days)	S.D.	N (completed trips by week)
12/4/2011	2.79	2.75	4
12/11/2011	2.53	1.79	28
12/18/2011	4.01	1.84	47
12/25/2011	4.32	1.71	34
01/01/2012	4.16	1.19	38
01/08/2012	4.48	0.92	36
01/15/2012	4.59	0.70	25
01/22/2012	4.15	0.82	20
01/29/2012	3.39	0.79	21
02/05/2012	2.88	1.22	7
02/12/2012	3.42	0.47	3

12. 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. Our current estimate for pup loss to leopard seal predation as of 19 February remains at 56.7%.
13. On 17 February we conducted our fourth and final sample of CCAMLR pup weights. The mean mass was 15.4 kg (s.d. = 0.16, n=56) for males and 12.6 kg (s.d. = 0.13, n=50) for females.
14. Systematic surveys of defined areas of the Cape for the 500 per annum fur seals tagged as pups continued this week. This will give us a measure of tags sighted per unit of effort for different cohorts and for different areas of the Cape. Return percentages of animals from recent cohorts are as follows: 2008/09 (0.4%), 2009/10 (3.8%), 2010/11 (0.2%).
15. This week we are collecting our ninth fur seal diet sample of ten scats. To date 86 scats have been collected.



16. On 17 February we completed our thirteenth weekly Cape-wide phocid census. This week we saw a decrease in the number of all species. We counted 100 southern elephant seals, 13 Weddell seals, and 5 leopard seals.
17. As of 19 February we have recorded 404 sightings of 37 tagged leopard seals. We have recorded an additional 64 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database. Twenty-three of the 37 tagged seals returned from previous years and the other fourteen we have tagged this year.
18. We recovered the second TDR (Time-Depth Recorder) instrument deployed on a leopard seal in late January. This extends our data set on diving behavior and foraging patterns to nine full-resolution records over five years. These two TDR's recorded a total of 5157 dives over 31 days and included 27 foraging trips.
19. We continued deploying GLS tags on leopard seals to build on our data set of over-winter distributions. The tags will be deployed all winter, and recovered when the animals return to the cape next summer. To date 5 of the 10 instruments have been deployed.

Weather

On Saturday we had an impressive easterly storm which brought winds over 40 mph and quite a lot of snow. For the week winds averaged 14.2 mph with a maximum of 55 mph. The predominant wind directions were west (72.4%) and east (13.7%). The average temperature was 0.8° C with a high of 6.8° C and a low of -3.8° C. Mean daily solar radiation was $13,122 \text{ Wm}^2$. Sunrise is now at 5:35 AM (CLST) and sunset is at 8:46 PM (CLST).

We would like to thank the Ocean Prediction Center (OPC), Ocean Forecast Branch of NOAA's National Weather Service (NWS) for providing valuable and very accurate weather forecasts which have been used to plan our work efficiently and keep our team safe.



Camp

Preparations have begun in earnest for closing the US AMLR field camp for over-winter. Inventories of all supplies, food, and gear have begun, machinery is being serviced and gear and trash are being organized for removal from the island.

Doug



Presented by Doug Krause and McKenzie Mudge, with assistance from Kevin Pietrzak, Jay Wright, and Nicole Cook at the Cape Shirreff Field Camp, Livingston Island, South Shetland Islands, Antarctica

