

U.S. Antarctic Marine Living Resources Program
2013/2014 Weekly Field Reports
Cape Shirreff, Livingston Island

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Science Report

Seabirds

1. It is approximately four weeks since peak hatch for both gentoos and chinstraps. The peak gentoo crèche occurred on 27 January. To date, 64% of the 50 gentoo reproductive success study nests have crèched, while 6% are brooding chicks and 30% have failed. To date, 12% of the 100 chinstrap reproductive study nests have crèched, while 58% are brooding chicks and 30% have failed.
2. We continue to monitor known-age penguins. Currently, 40.5% of the 42 known-age gentoo penguin nests have crèched, while 21.4% are brooding chicks and 38.1% have failed. Also, 5.1% of the 39 known-age chinstrap nests have crèched, while 69.2% are brooding chicks and 25.7% have failed. We have started to band both gentoo and chinstrap known-age chicks.
3. We finished weighing chinstrap and gentoo chicks from all reproductive study and known-age breeder nests. The mass, taken when chicks are 21 days old, is used as a measure of chick condition before they crèche.
4. We conducted the gentoo chick census on 2 February and counted 867 chicks, which is an increase from last year's count (683), but still lower than the 16 year mean (926). The chick to nest ratio for this year is 0.96, based on the nest census conducted earlier. This figure is also lower than the 16 year mean of 1.13.
5. We saw our first yearling chinstrap on 27 January.
6. We have finished diet sampling from gentoo penguins, having collected and analyzed a total of 20 samples. We continue to sample the chinstrap diets, and have collected 25 out of the 40 planned samples.
7. We deployed five PTI's and two TDRs on gentoos this week to obtain post-crèche foraging data. 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.
8. The skuas are done hatching. Currently, 12 pairs have failed, eight have one chick, and two pairs have two chicks.



Pinnipeds

9. Twenty six of the original 30 attendance study females have completed at least six trips. Four females lost their pups before completion of six trips. Seventeen have now completed nine trips and one female has completed 15 trips to sea. Trip durations are as follows: first trip: 3.26 d (s.d. = 1.29, n = 30); second trip: 3.21 d (s.d. = 1.46, n = 30); third trip: 3.24 d (s.d. = 1.13, n = 29); fourth trip: 3.21 d (s.d. = 0.96, n = 28); fifth trip: 3.54 d (s.d. = 0.97, n = 28); sixth trip: 3.59 d (s.d. = 1.06, n = 26); seventh trip: 3.51 d (s.d. = 0.71, n = 24); eighth trip: 3.54 d (s.d. = 0.77, n = 19); ninth trip: 3.39 d (s.d. = 0.97, n = 17). The maximum trip duration remains at 6.69 days.
10. Three more CCAMLR attendance study pups have died. That brings the total to 12 of the 30 study females that have lost their pups.
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. Our current estimate for pup loss to leopard seal predation as of 2 February is 43.5%.
12. This week we are collecting our seventh fur seal diet sample of ten scats. To date 63 scats have been collected, and 61 scats have been processed.
13. On 4 February we completed our thirteenth weekly Cape-wide Phocid census. We counted 324 southern elephant seals, 34 Weddell seals, and 14 leopard seals.
14. We currently have three remaining Time depth recorder (TDR) or GPS/TDR instruments (one and two, respectively) deployed on females for monitoring foraging locations as well as diving behavior. None were retrieved this past week.
15. 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.
16. Leopard seals continue to arrive, and as of 2 February we have recorded 219 sightings of 26 tagged seals, eight of which were tagged this year. We have recorded an additional 24 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database.



17. To date, five GPS location instruments have been recovered from leopard seals, and another deployed. These instruments together with stable isotope analysis of blood will help us understand leopard seal foraging behavior and quantify their impact on Antarctic fur seals and penguins. To date, we have successfully performed twelve leopard seal captures on seven animals.
18. Leopard seal CRITTERCAM deployments: In an effort to describe leopard seal foraging ecology, we have deployed four animal-borne video instruments (CRITTERCAM developed by National Geographic's Remote Imaging group) on adult female leopard seals. We have recovered three of them.
19. We continue to operate the APH-22 hexacopter in order to measure leopard seals, census fur seals, and map/census penguin colonies. This week we surveyed an additional 8 leopard seals (four with known length and mass, three with known length), obtained coverage of fur seal beaches with the 20 mm lens, and obtained full coverage of the western penguin colonies. To date, we have captured over 2,600 aerial images at Cape Shirreff.

Weather

20. After a challenging weather week last week, we finally got a couple calm days. Winds averaged 11.8 mph with a maximum wind speed of 45 mph. The predominant wind directions were west (47.3%) and east (30.1%). The average temperature was 1.3° C with a high of 4.3° C and a low of - 0.4° C. Mean daily solar radiation was 17,493 Wm². Sunrise is now at 4:44 am and sunset is at 9:38 pm.

Camp

21. After a prolonged delay due to weather and mechanical difficulties, the Chilean Field Station participants were picked up on 2 Feb at 1900 via helicopter by Chilean Air Force. Our team assisted in carrying approx. 300 kilos of Chilean gear up El Condor peak in the days leading up to their departure. Three people departed; their good humor and company will be missed. The Chilean station, Guillermo Mann, is now closed for the winter.

22. On 1 Feb the camp welcomed LTJG David Vejar as our new camp leader. As our new camp leader his responsibilities include, but are not limited to, daily email communications with Palmer Station, writing the camp section of the Weekly Report, and overseeing all logistics at the Cape.

During camp closing operations later this month, responsibilities will include the oversight of inventories and transferring equipment to the landing beach for the R/V *Laurence M. Gould* to pick up.



23. Camp maintenance continues apace despite a very busy science schedule. The paint on the fur seal lab west wall has been scraped and chipped. It is scheduled to be painted on the next set of dry days; the electronics clamshell was opened and dried in the sun; a new toilet seat was installed in the outhouse, and two new coats of paint have been applied in the interior of the outhouse.
24. Along the southern main hut wall (bunk spaces), moist soil was extracted. The section was dried out and caulked. Southern walls at the base of the deck were also re-caulked (freshies room, MH south and shower room).
25. Cape Shirreff electrical system: As part of our comprehensive overhaul of the camp's electrical system we replaced three-way switch on wind generator and improvements in the 12V DC charging have been identified. Three days of sunshine this week allowed peak charging from the solar system. Battery bank recharge was at 100% capacity on one of those days, and the internal voltage regulator in the wind generator caused the blades to stop spinning. Finally, this week we learned that new 256W solar panels for Cape Shirreff have FINALLY arrived to Punta Arenas after a prolonged hold by DHL in Santiago, Chile.
26. All door covers have now been measured, drilled out, and fitted to the doors. They are now stored on the newly-assembled door cover rack station, ready for camp closing ops.
27. The anemometer at the east end of the supply hut has been in the lee of the main hut rooftop during eastern winds, and as a result the readings have been unreliable. This week, we extended the cable from the Main hut attic, installed a longer pole and reinforced with larger stainless steel u-brackets. Anemometer is now 4' higher and provides more-consistently accurate readings during eastern winds.
28. We hosted the Chileans for the third and final dinner, hosted by Kevin. We had grilled beef filets, half of the filet was dry-rubbed with South African spices, and the other half was marinated in teriyaki. For dessert, we savored German Chocolate Cake with a thick coconut-almond sauce. In return for our hospitality, our Chilean colleagues graciously provided us handmade sopapillas and a fresh loaf of white bread the following day.

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