U.S. Antarctic Marine Living Resources Program

2014-2015 Weekly Field Reports
Cape Shirreff, Livingston Island

Report 14
February 2, 2015

Seabirds:

1. Chinstrap and gentoo penguins have started to crèche this week. In the third week since gentoo penguin peak hatch, 16% still have at least one chick, and 84% have failed. In the third week since peak chinstrap penguin hatch, to date 7% of the chinstrap penguin reproduction study nests have crèched, 28% have at least one chick, and 65% have failed.

2. We continue to monitor known-age penguins. Of the 43 known-aged gentoo penguins that initiated clutches, 5% have chicks that have crèched, 23% still have at least one chick, and 72% have failed. Of the 39 known-aged chinstraps penguin that have initiated clutches, 5% have chicks that have crèched, 33% have at least one chick, and 62% have failed.

3. On January 31st we initiated recovery of instruments we deployed on gentoo penguins that are brooding chicks. These data await analysis.

4. To date, we have collected 25 diet samples from chinstrap penguins and 15 from gentoo penguins. Chinstrap penguin diet samples have consisted almost entirely of Antarctic krill (*Euphausia superba*) with trace amounts of fish. Gentoo penguin diet samples were a mix of Antarctic krill and fish. To date, we have found otoliths from the species *Gymnoscopelus nicholsi, Lepidonotothen kempii, T. newnesi* and an unknown species. Average krill size consumed by gentoos is 48.8 mm and 45 mm for krill consumed by chinstraps.

5. On February 1st a juvenile macaroni penguin was observed near colony 29.

6. We found a chinstrap brooding two small gentoo chicks in colony 8. We intend to keep an eye on the nest, but the chicks are not growing very fast.

7. Of the twenty-one pairs of brown skuas that we are monitoring, 11 nests are still active and 10 nests have failed.

8. As of 1/31/15, all of the snow stakes are (finally!) clear of snow!

National Marine Fisheries Service
Southwest Fisheries Science Center

Pinnipeds:

9. Fifteen of the thirty-two attendance study females completed at least six trips to sea before they lost their pup, eight completed eight trips, and five have completed at least nine. Trip durations are as follows: first trip 2.55d (s.d.=1.46, n=28), second trip 4.32d (s.d.=1.86, n=28), third trip 4.49 d (s.d.=1.67, n=27), fourth trip 4.67d (s.d.=1.66, n=25), fifth trip 4.51d (s.d.=1.19, n=20), sixth trip 3.83d (s.d. = 0.54, n=15), seventh trip 3.94 (s.d.=0.41, n=10), eighth trip 3.36d (s.d.=0.55, n=8), ninth trip 3.78d (s.d.=0.98, n=3). The maximum trip duration remains at 9.00 days.

10. Six more CCAMLR attendance study pups have died. That drops the total to 23 that have lost their pup out of the original 32 study females.

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 February 1st is 58.9%.

12. This week we collected our seventh fur seal diet sample of ten scats. To date 70 scats have been collected, and 61 scats have been processed.

13. On February 4th we completed our thirteenth weekly cape-wide phocid census. We counted 251 southern elephant seals, 19 Weddell seals, and 21 leopard seals.

14. We currently have eight time-depth recorder (TDR) or GPS/TDR instruments (four of each) deployed on females for monitoring foraging locations as well as diving behavior. Three of the GPS/TDR instruments were recovered this past week from females that lost their pup. In order to maintain a sample size of four, two GPS/TDR instruments were deployed on tagged females with pups. These instruments will give us insight on where these females are foraging in the later part of the season.

15. Leopard seals continue to arrive. As of February 1st, we have recorded 217 sightings of 29 tagged seals. We have recorded an additional 43 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database. Twenty-one of the 29 tagged seals returned from previous years and the other eight we have tagged this year.

UAS Missions:

16. Restricted visibility was at an all-time high for the season during this week, crippling our attempts to capitalize on the lower winds. We spent much of this week reviewing mapping photos for quality, and to look for identifiable geographic reference points that can be used to process the data. We had one successful day of flying, including five missions from the northern beach of Alcazar to the eastern shore of San Telmo beach. The jagged and rocky terrain along the west side of Cape Shirreff required significantly more time to map, and we are confident in the quality of the images. We have one more day of cape mapping before we shift our focus to other UAS priorities. We expect to begin leopard seal hexacopter missions later this week. Once Cape Shirreff reaches its penguin chick census date, that will become the new priority for missions.

Weather:

17. This past week, despite being the warmest of the season, was also the darkest overall, thanks mostly to a persistent layer of fog covering most of the Cape. The mean temperature was 2.3 ^{0}C, with a high reaching 4.2 ^{0}C and a low of 0.4 ^{0}C. Mean daily solar radiation, however, was only 7,807 watts per sq. meter, well below the previous season low of 10,327 in mid-November. This week was also the first of the season with precipitation every day, totaling 0.44 inches and bringing the season total to 2.49 inches. Wind was primarily from the west and north (74% and 20% respectively), with an average of 11.8 mph and a maximum of just 30 mph. As always, daylight continues to fade into darkness faster each week, lasting only approximately 17 hours and 8 minutes as of February 1st.

Camp:

18. The camp is full of water. Every available barrel is full, and downspouts are near the brim. Our supply of water exceeds demand, and more showers and/or laundry may be encouraged!

19. The ATV has been pulled out of the snow and tracks have been laid out between the camp and the landing beach. As soon as Modulo Beach dries out, we can begin ATV trips to bring remaining items up to camp.

20. Preliminary installation of the solar system began this week. Measurements were taken and plywood sheets have been cut to support the mounting process. We have yet to have a series of dry days, but everything else is in place for the installation. The crew is collaborating constructively on methods of installing the panels most effectively. This project is expected to be a very successful team effort.

21. The camp dried out a bit late in the afternoon, just before an eastern storm hit on Sunday (February 1st). We removed old caulk from the northern side of the workshop, and the northern side of the supply hut. Both areas were dried, and hit with a fresh layer of caulk. We will continue to monitor these areas.

22. No problems with our generator or power supply this week.

23. We dug out the path leading to the garbage bin, as well as the urinal plumbing.

24. We invited the Dutch scientists for breakfast on Sunday, to take part in our traditional waffle/pancake social. Smiles for miles all the way around the table.

25. This week we celebrated Wiley's birthday! We had grilled steak, oven-baked spare ribs, shrimp kabobs and assorted vegetables. The Dutch scientists provided stroopwafels (a waffle made from two thin layers of baked dough with a caramel-like syrup filling in the middle), oliebollen (Dutch donuts), and two 3-liter bottles of soda (orange Fanta and Sprite). For dessert*, we baked (from scratch, of course!) a devil's chocolate cake and topped it with 27 candles. The camp sang the Dutch version of 'Happy Birthday'.

Submitted by AMLR researchers currently overstuffed at the Cape Shirreff field station, Livingston Island.

**AMLR researchers stateside ponder whether waffles and donuts were considered part of the main course or dessert!*