U.S. Antarctic Marine Living Resources Program

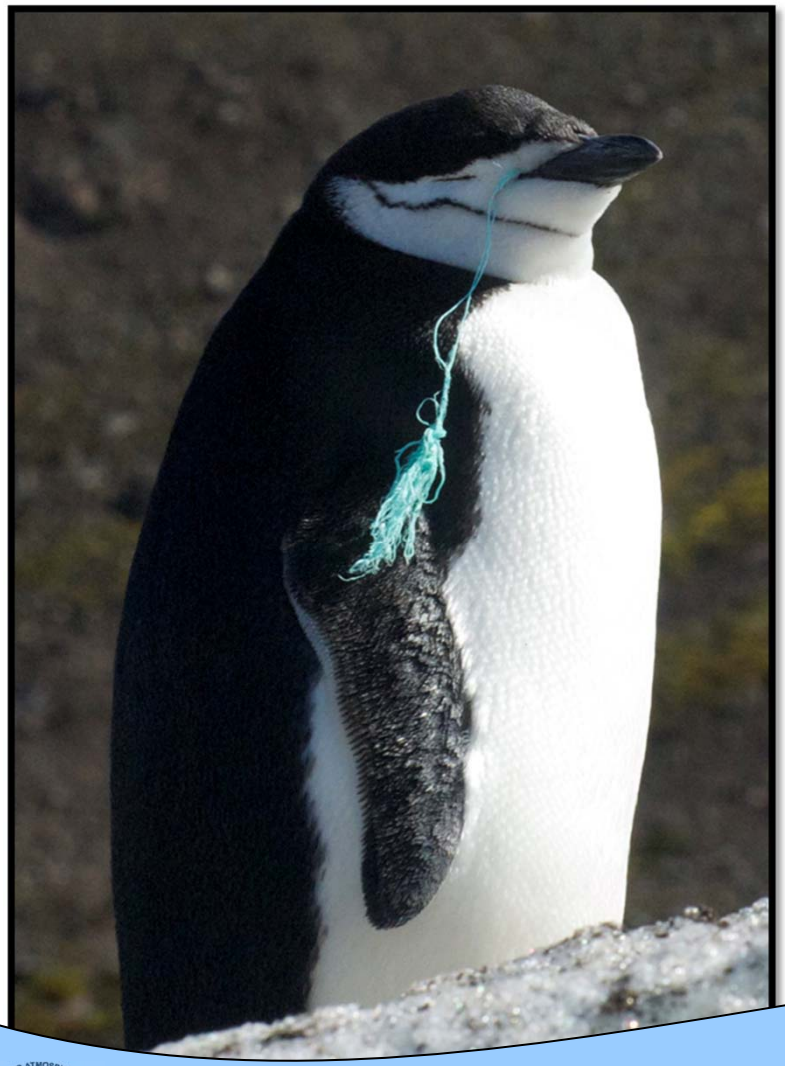
2014-2015 Weekly Field Reports
Cape Shirreff, Livingston Island

Report 15
February 9, 2015

Seabirds:

1. Peak gentoo crèche occurred on 8 February. Of our gentoo penguin reproduction plots, 8% are still brooding chicks, 8% of the nests had chicks that crèched, and 84% have failed. We estimated the peak of chinstrap chick crèche formation to have occurred on February 6th. To date, 24% of the chinstrap penguin reproduction study nests have crèched, 11% 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, 16% are brooding at least on chick, 12% have chicks that have crèched, and 72% have failed. Of the 40 known-aged chinstrap penguins that have initiated clutches, 26% have chicks that have crèched, 13% have at least one chick, and 64% have failed.



3. February 6-7 we deployed four time-depth-recorders (TDRs) and five satellite platform transmitter terminals (PTTs) on chinstrap penguins with chicks that have crèched. We will retrieve these instruments one week from their respective deployment dates.

4. On Sunday, Wiley found a chinstrap penguin on one of our study beaches that was tangled in unraveled sailing line. The line had wedged itself above the beak. We were fortunately able to remove the line (these types of entanglements can often lead to a dire situation for the animal).

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5. To date, we have collected 30 diet samples from chinstrap penguins and 20 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 for gentoos is 47.7 mm and 45.0 mm for chinstraps.

6. This past week a juvenile macaroni penguin has been observed off and on in colony 29.

7. Of the twenty-one pairs of brown skuas that we are monitoring, seven nests are still active while the remaining 14 nests have failed.

Pinnipeds:

8. Sixteen of the thirty-two attendance study females completed at least six trips to sea before they lost their pup, five completed at least nine, and four females have completed at least ten. The mean weekly trip duration from December 7, 2014 (when the first attendance study female departed for her first trip) through February 1, 2015 has ranged from 3.1-4.5 days.

9. One more CCAMLR attendance study pup has died. That brings the total to 24 of the 32 study females that have lost their pup.

10. 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 8th is 62.2%.

11. On February 3rd, we conducted the third round of CCAMLR pup weights. The mean mass was down from last year. Males averaged 12.6 kg (SE 0.21, n=50) while females averaged 11.4 kg (SE 0.13, n=58).

12. This week we recovered TDRs from three adult female fur seals; one of these females still has a pup but the other two have lost their pups. That brings the count of TDRs recovered for the year to thirteen. These records provide information about foraging and diving behavior. There are five remaining TDRs deployed on adult females, four of which are GPS/TDR combination units.

13. On February 6th, we completed our fourteenth weekly Cape-wide phocid census. We counted 207 southern elephant seals, 35 Weddell seals, 22 leopard seals, and we had an unusually high count of 8 crabeater seals.

14. This week we started collecting our eighth fur seal diet sample of ten scats. To date 78 scats have been collected, and 72 have been processed.

15. As of February 8th, we have recorded 323 sightings of 32 tagged leopard seals. We have recorded an additional 48 sightings of untagged or otherwise unidentified leopard seals which have been added to our photo-identification database. Twenty-one of the thirty-two tagged seals returned from previous years while the other eleven were tagged this year.

UAS Missions:

16. The hexacopter team encountered numerous weather-related delays this week. Our first attempt on Monday (February 2nd) resulted in one flight covering the stretch of San Telmo Beach to Punta San Telmo; 30 knot sustained winds ended our efforts that day. On Saturday (February 7th), conditions were more favorable (albeit not perfect) and we successfully flew our last mission for the Cape Shirreff coastline mapping project.

17. We also launched an additional two flights to obtain coverage of five tagged leopard seals for length measurements. We flew these two missions at 75', 100' and 150' altitudes with the 45mm lens. Next week we will begin training an additional ground station operator. We plan to photograph as many priority leopard seals as possible before the penguin chick census missions become a flight priority. Chinstrap and gentoo hick census hexacopter missions are expected to begin in a week.

Weather:

18. It was a wet week! Rain has finally washed away much of the remaining snow. While the mean temperature for the week (2.2 ^{0}C) was similar to last week, the maximum temperature for the week reached a season high of 5.2 ^{0}C. The low temperature was -1.9 ^{0}C and mean daily solar radiation was its third lowest of the season at 12,019 watts per sq. meter. The aforementioned deluge brought the highest precipitation of the season by threefold, totaling 1.68 inches for the week, and bringing the season total to 4.17 inches. Wind was mostly from the west again (59.1% of measured winds), while east, north, and south winds comprised only 17.6%, 15.5%, and 7.7% respectively, with an average speed of 13.4 mph. Daylight is down to only 16 hours and 24 minutes, leading to the southern cross being visible above camp.

Camp:

19. The recent rain has resulted in the camp and the penguin blind having considerable amounts of water leaking into buildings, mostly around the baseboards.

20. We replaced caulking along the west side of the penguin blind, and installed a new propane heater for the blind.

21. Significant improvements were made to repair the ‘supply hut east’ and ‘main hut north’ metal doors. Fragments of spare aluminum were collected around camp and cut to size in order to reinforce the exposed foam along the bottom 12 inches of the doors. These were screwed into the existing frame and caulked.

22. The ATV trailer has been removed from the ice and attached to the ATV. The ATV is now used regularly to transport remaining supply items from the beach to the camp. We expect the snow around camp to be gone this week, allowing us to move the weatherport rotomold case from the beach to camp.

23. Installation of the solar system has begun. Plywood backings have been installed into the attic spaces. The next step is to attach the standoff mounts to the roof on the next series of dry days. This step will be most critical, as it can potentially compromise the integrity of the roof, and must be performed under optimal weather conditions.

24. The new caulk along the north side of the supply hut has failed and will need to be replaced when weather conditions are dryer.

25. We had no problems with our generator or power supply this week! One generator was pulled offline and fully reconditioned. All four generators have now been serviced and are working well.

26. On the morning of February 5th, the Dutch scientists were transported via Chilean helicopter to the *Achilles*.

27. We had found 30 pounds of petroleum sludge that washed ashore on Modulo Beach during our last easterly storm. The unknown pollutant was in an unidentifiable bag, and sludge had seeped to some of the surrounding areas. We photographed the debris, cleaned it up, and disposed of all affected rocks. We will include this information, along with a description of the fishing line on the chinstrap, in our post season environmental reports.

Submitted by AMLR researchers currently residing at the Cape Shirreff field station, Livingston Island. Images provided by camp residents and S. Sexton.