U.S. Antarctic Marine Living Resources Program

2014-2015 Weekly Field Reports
Cape Shirreff, Livingston Island

Report 13
January 26, 2015

Seabirds:

1. In the second week since gentoo penguin peak hatch, 16% of the reproduction study plots have at least one chick, 2% are still incubating eggs and 82% have failed. In the third week since peak chinstrap penguin hatch 35% 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, 30% have at least one chick, 2% are still incubating eggs, and 68% have failed. Of 39 known-aged chinstraps that have initiated clutches, 41% have at least one chick and 59% have failed.

3. With thanks to a lot of help from the pinniped research team, we were able to deploy the rest of our transmitters and instruments on gentoo penguins. From 20 to 24 January, we deployed 14 radio transmitters on gentoo penguins. From 20 to 25 Januar,y we deployed five satellite transmitters and three time depth recorders (TDRs) on gentoo penguins that are brooding chicks. We will recover these instruments after one week of deployment. From 19 to 20 January, we recovered the instruments we deployed on chinstrap penguins the previous week. These data await analysis.

4. To date, we have collected 20 diet samples from chinstrap penguins and 10 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. We have also found two tiny squid or octopus beaks. Average krill length consumed by chinstrap penguins is 44.9 mm and by gentoos is 48.9 mm.

5. Of the 21 pairs of brown skuas that we are monitoring, 11 nests are still active and 10 nests have failed.

Pinnipeds:

6. We currently have ten remaining time depth recorders (TDR) or GPS/TDR instruments (4 and 6 respectively) deployed on females for monitoring foraging locations as well as diving behavior. Two TDRs were recovered this past week.

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7. Fifteen of our 32 CCAMLR attendance females have completed six trips to sea. To date, seventeen attendance females have lost their pup.

8. Fifteen of the thirty-two attendance study females completed at least six trips to sea before they lost their pup and nine have completed at least eight trips. 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 4.33d (s.d.=1.11, n=18), sixth trip 3.52d (s.d. = 0.87, n=15). The maximum trip duration recorded this season is 9.00 days.

9. Twelve of the pups from the females that have completed six trips to sea have been weighed according to protocol. Mean mass gain from the start of female foraging cycles to completion of the sixth trip suckling bout is 103.7 g/d (s.d. = 17.5; n=12; range: 82.3-135.7).

10. We continue to monitor mother-pup pairs in our adult tagged female population 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 yesterday (1/25/15) is at 44.4%.

11. On January 19th we completed the second sample of CCAMLR pup weights. Mean mass for males was 10.9kg (s.d. 1.8; n=50; range 6.9-14.6) and mean mass for females was 9.7kg (s.d. 1.4; n=50; range 5.8-12.8).

12. With the breeding season over we are seeing more juvenile fur seals returning to molt. Of the animals that were tagged here as pups, we have seen four four-year-olds, 27 three-year-olds, and two two-year-olds.

13. We have collected our sixth fur seal diet sample of ten scats. To date 60 scats have been collected, and 51 have been processed.

14. On January 23rd we completed our ninth weekly cape-wide phocid census. We counted 283 southern elephant seals, 30 Weddell seals, 20 leopard seals, and 1 crabeater seal.

15. Leopard seals continue to arrive; as of January 25th we have recorded 186 sightings of 27 tagged seals. Two leopard seals were tagged this past week. We have collected 318 photos of twenty different tagged leopards. and another 300 photos of untagged individuals.

UAS Missions:

16. Much of the weather this week was not good for photogrammetry. Conditions consisted of heavy winds and/or precipitation, with a lingering onset of restricted visibility (<0.25nm) on most days. There was a pocket of sunshine on 1/24/15, where we were able to complete some flight time. We continued our mapping of Cape Shirreff at 300ft with the 20mm lens. We were able to obtain a fair amount of coverage, successfully mapping the coastline from Maderas, north through Bahamonde, all the way to Punta Olivia. On the next possible day, we will begin at Alcazar and attempt to get most/all of the west side. We expect to complete the mapping project with missions along San Telmo beach on the day after that.

17. Upon completion of cape mapping, and before chick census (estimated early-mid February), hexacopter missions will focus on leopard seal coverage using the 45mm lens at varying altitudes.

Weather:

18. Snow is finally starting to disappear along most of the lower elevations of the cape, helped largely by several days of rain and warm weather. The precipitation totaled 0.5 inches for the week, accounting for nearly 25% of the total rain for the season (2.05 inches). This week was also the warmest of the season with no days recorded below freezing and an average of 1.8 ^{0}C (range: 0.2 to 3.9 ^{0}C). Despite these warmer temperatures, average daily solar radiation was one of the lowest of the season at just 13,301 watts per sq. meter. Wind averaged 13.7 mph, however the maximum speed reached 52 mph, with the majority of wind coming from the west (80.2%). Daylight continues to slip away, lasting only approximately 17 hours and 50 minutes as of January 25th.

Camp:

19. Window covers continue to be installed as conditions permit.

20. Our new external iridium antenna has been permanently installed outside the north access of the main hut. All tests were satisfactory. The installation allows the camp to use the iridium phone in the office area for database questions and medical emergencies.

21. The team had a thorough briefing and orientation on the solar system installation. All parts and hardware have been accounted for, and installation should begin on the next series of dry days.

22. The camp had one dry day this week. We capitalized on re-caulking some of the problematic areas around camp, including the BGAN hole along the north side of the main hut, iridium hole along the west fur seal lab access, and the northeast corner of the main hut. Water continues to trickle in along the northern side of the workshop and the northern side of the supply hut. Both areas will be addressed on the next dry day.

23. Two problematic 3kw generators have been tested successfully and are now in active rotation.

24. All paths around camp are now accessible. We spent some time this week digging out the following paths: main hut east, supply hut south, generator shed deck, and back lab deck.

25. The camp was able to collect lots of fresh water this week. All water collection barrels at the main camp and bird blind are now full.

26. We invited the Dutch scientists for dinner twice this week and we continue to provide support as needed.

27. Much of the snow has melted this week and we expect to get the ATV on the road soon. The access between the road and the landing beach may require additional time to melt and drain.

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