U.S. Antarctic Marine Living Resources Program

2014-2015 Weekly Field Reports
Cape Shirreff, Livingston Island

Report 16
February 16, 2015

Seabirds:

1. Chinstrap penguins have finished crèche formation this week. Of our chinstrap penguin reproduction plots, 35% of the nests had chicks that crèched, and 65% have failed. The average date of crèche formation was February 6th. The average age of chicks when first crèched was 33 days, and on average 0.5 chicks crèched per nest.

2. In addition to the reproductive study, we also follow the fate of 50 chinstrap nests in a manner that minimizes disturbance to the birds. For these non-disturbance nests, 48% crèched at least one chick and 52% have failed, resulting in 0.82 chicks crèched per nest.

3. Gentoo penguins have finished crèche formation this week. Of our gentoo penguin reproduction plots, 16% of the nests had chicks that crèched and 84% failed. The average date of crèche formation was February 9th. The average age of chicks when first crèched was 30 days and, on average, 0.2 chicks crèched per nest.

4. We have finished monitoring most known-age penguins. Of the 43 known-aged gentoo penguins that initiated clutches, 23% have chicks that have crèched, 3% are still brooding chicks, and 74% failed. Of the 39 known-aged chinstraps penguin that have initiated clutches, 38% have chicks that have crèched, and 62% failed.

5. On February 15th we conducted our annual gentoo penguin chick census. We counted a total of 320 chicks. This is 35% of the previous 18-year mean of 922, and 37% of last year's count of 867. On February 13th we conducted our annual chinstrap penguin chick census. We counted a total of 2180 chicks. This is 39% of the previous 18-year average of 5577, and 62% of last year's count of 3498.

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6. We retrieved instruments from chinstrap penguins that we deployed last week, and we deployed five satellite platform transmitter terminals (PTTs) and three time-depth recorders (TDRs) on gentoo penguins on February 16th.

7. We have completed collecting diet samples from penguins. In total we collected 40 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. We found otoliths from the species *Gymnoscopelus nicholsi*, *Lepidonotothen kempii*, *Pleurogramma antarticum*, and one unknown species as well as a few beaks. Average krill size consumed by gentoo penguins was 47.7 mm and 45.1 mm for chinstrap penguins.

8. A juvenile macaroni penguin continues to molt on colony 29.

9. A subadult male fur seal was observed killing chinstrap penguin chicks in the middle of colony 20. At least two chicks were killed.

10. Of the twenty-one pairs of brown skuas that we are monitoring, five nests are still active and 16 nests have failed. Photo shows a 48-day-old healthy skua chick.

Pinnipeds:

11. Two more fur seal pups of the original 32 CCAMLR attendance study females have died, which brings the total to 26 females who have lost their pup.

12. This week we recovered the five remaining TDRs from adult female fur seals; this concludes our TDR recoveries for the season. Sixteen TDRs were deployed during the perinatal period and two more were deployed in late January and early February to maintain sample sizes. All of these TDRs were successfully recovered; 10 of the deployments were with GPS-TDRs.

13. As we process the TDR data, we are able to make corrections to trip durations for females that hauled out in areas with poor VHF coverage. Weekly mean values for trip duration for all females with living pups ranged from 3.63 (±2.07) to 4.61 (±2.10).

14. 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 15th climbed to 66.7%.

15. Juvenile seals that were tagged as pups continue to arrive. To date we have seen four four-year olds, 29 three-year olds, two two-year olds, and one yearling.

16. This week we collected our ninth fur seal diet sample of ten scats. To date 90 scats have been collected, and 86 have been processed.

17. On February 13th we completed our fifteenth weekly Cape-wide phocid census. We counted 222 southern elephant seals, 23 Weddell seals, 10 leopard seals, and 2 crabeater seals.

18. As of February 16th, we have recorded 361 sightings of 34 tagged leopard seals. We have recorded an additional 49 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database. Twenty-one of the 34 tagged seals returned from previous years; the other thirteen were tagged this season.

UAS Missions:

19. On February 10th, we focused on the west side penguin colonies for the chick census. We took advantage of a period of no wind and were able to fly missions over 12 colonies. Some gentoo colonies still had only 10% of chicks crèched so we have delayed conducting missions for those colonies. We are expecting to complete the rest of the colonies early next week, which would complete all planned UAS missions for this season.

Weather:

20. Thankfully several storms moving through the area this past week did not reach the Cape. Despite being one of the darkest weeks this season (mean daily solar radiation was only 9,679 watts per sq. meter), it remained relatively warm with a mean temperature of 2.1 ^{0}C (range 0.5 ^{0}C to 5.5^{0}C). Darker days were aided by the dwindling daylight, which is down to only 15 hours and 40 minutes as of February 15th. One storm did pass close enough to produce a high wind speed for the week of 42 mph, however, the average speed was only 10.3 mph. The nearby storms also kept the wind direction variable with 43.5%

from the west, 23.1% from the north, 19.9% from the east, and 13.3% from the south. Despite the variability in weather, precipitation remained low, totaling only 0.16 inches for the week, bringing the season total to 4.33 inches.

Camp:

21. The camp and the penguin blind continue to have water leaking onto the floors. Once we have a period of dry weather, we will attempt to re-caulk areas that are leaking.

22. The ATV continues to used by the researchers to obtain access to supplies that remain secured at the landing beach.

23. This week we made significant progress on the upgraded power system installation. Solar panels have been brought up from the landing beach. Rails and grounding lugs have been affixed to the solar panels. All standoff mounts have been safely installed into the roof of the workshop. The next step is to lift the panels to the roof. This part will require everyone at camp, and is planned for this coming week.

24. An additional wind generator tower and mount have been installed on the northeast corner of the workshop. We plan to run cable up the tower this coming week and hopefully install a new wind generator as well.

25. We took advantage of some dry weather earlier in the week to re-caulk along the northern side of the supply hut. We will continue to monitor this problematic area during times of precipitation.

26. We had two generator failures this week, for reasons unknown. Both generators have exhibited surge-type behavior, cutting out whenever the microwave was turned on. We cycled out the two generators and will try simple fixes. If we are unable to correct the issues, we will siphon out the gasoline and prepare them to be returned to La Jolla.

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