U.S. Antarctic Marine Living Resources Program

# 2014-2015 Weekly Field Reports
# Cape Shirreff, Livingston Island

**Report 11**
**January 12, 2015**

**Seabirds:**

1. Gentoo penguin peak hatch occurred on January 9th. To date 16% of the reproduction study plots have at least one chick, 74% have failed, and 10% are still on eggs. In the first week since peak chinstrap hatch, 41% of the chinstrap penguin reproduction plots have hatched at least one chick, 8% are still on eggs, and 51% have failed.

2. We continue to monitor known-age penguins. Of the 43 known-aged gentoo penguins that initiated clutches, 23% have hatched at least one chick, 16% continue to incubate and 61% have failed. Of 41 known-aged chinstraps that have initiated clutches, 44% have hatched at least one chick and 56% have failed.

3. On January 8th we deployed radio transmitters on breeding chinstraps to measure foraging trip durations during the chick-provisioning period.

4. On January 10th we began diet sampling and collected samples from five nesting chinstrap penguins using the wet offloading technique. Data on total mass of stomach contents, diet composition, and length and sex frequency of krill were recorded for each sample. To date, we have collected five diet samples from chinstrap penguins. Chinstrap penguin diet samples have consisted entirely of Antarctic krill (*Euphausia superba).*

5. Brown skuas have continued to hatch this past week. Of the twenty pairs of brown skuas that we are monitoring, five have at least one chick, six are still incubating partial or full clutches, and 11 pairs have failed.

**Pinnipeds:**

6. Three of our 32 CCAMLR attendance study females has completed six trips to sea. Seven more are currently on their sixth trip to sea. All but one female has completed at least three trips to sea. Eight females have lost their pups; five of them have been from the same beach. This reduces our sample size to 24. Mean trip duration thus far is 3.78 days (s.d.: 1.84; N=101).

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7. Our TDR females have completed 41 trips to sea, averaging 3.37 days (s.d.: 1.83). Approximately half of the monitored trips have been with GPS capable TDRs.

8. We captured seven adult female fur seals this week. Two were instrument recoveries from attendance study females that have lost their pups. The remaining five were females 20+ years old for a study of whisker stable isotopes (C:N).

9. To date we have sexed and collected DNA from 72 pups of tagged females.

10. Leopard seal predation of pups from our attendance study females prior to completion of six trips to sea is so high we have begun collecting pup weights at four trips to sea. We now have growth rates for 15 of our study pups. The current mean is 191.5 g/d (s.d.: 43.9, range: 111.3-286.7. All weights are taken post-absorptive the day following the mother's departure to sea.

11. Leopard predation of fur seal pups is in full swing now. 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. Pups have begun entering the water and spend considerable amounts of time now playing in shallow water, making them easily accessible to leopard seals. Thus far the estimate of offspring mortality attributed to predation is 20%.

12. This week we collected our fourth sample of fur seal scats for diet analysis. To date, 32 of 40 samples have been processed. All of the samples processed have been composed of krill.

13. On January 9th we completed our seventh weekly Cape-wide phocid census. We recorded 175 southern elephant seals, 10 leopards, and 41 Weddell seals.

14. We have recorded 81 sightings of leopard seals and the arrival of 17 tagged leopards. Four untagged leopards have now been tagged. We have taken over 281 photos of leopards for the photo ID archives; 149 of these were of untagged leopards.

15. We have tagged 12 Weddell seals thus far this season. We have sighted 24 tagged Weddell seals.

16. We have recorded 168 tagged fur seals to date. Eighteen of these have been 3-yr-olds. Only one two-year-old has been observed thus far; yearlings have not been seen yet. However, juveniles are still arriving and we expect to see more in the coming weeks.

**UAS Missions:**

17. On January 9th, our UAS hexacopter was tested and successfully completed five mission flights. Cape photo-mapping missions have begun and thus far we have covered about half of the coastline on the east side of the Cape. Weather permitting, the remaining beaches will be surveyed and photographed throughout the week.

**Weather:**

18. Despite continued temperatures above freezing, the Cape remains largely covered in snow. However, large swatches of ground are now visible around all the study beaches, as well as most of the hilltops. The mean temperature for the week was 0.5 $^{0}$C, with a low of 0.9 $^{0}$C and a high of 3.8 $^{0}$C. The wind has picked up again, primarily from the east (70% of all measured wind), with an average speed of 12.6 mph and a maximum of 39 mph. With the wind came occasional snow flurries, however precipitation was only 0.16 inches for the week, bringing the season total to 1.31 inches. Daylight is down to 19 hours and 6 minutes, and mean daily solar radiation was the lowest it has been since November, at 13,435 watts per sq. meter.

**Camp:**

19. All medical supplies were evaluated; expired meds were replaced and secured for return to La Jolla.

20. Chilean and Dutch scientists arrived at Cape Shirreff via Chilean helicopter on January 7th. All hands assisted in the transport of gear and equipment from the helicopter landing area (on a hill nearby) to the INACH (Chilean) Guillermo Mann Field Station (adjacent to the US AMLR field camp).

21. We monitored excessive 'braking' of the wind generator in times of high wind and later during a period of calm, we recalibrated the internal voltage regulator on the turbine. Since then, our wind generator has increased its overall productivity.

22. We continue to have problems with two of our 3kw generators. For at least one of the generators, there was a problem with water in the carburetor. It has been cleaned, serviced and is now back on line.

23. We removed the ATV from the shed this week. We dug out snow to clear a ramp, used the ATV tracks to gain traction in the snow and drove it in reverse until it was on top of the snow pack. It will remain covered until more snow melts; at that time, we will use the ATV to transport remaining supplies from the landing beach to camp. We are now utilizing the freed ATV space to prep the hexacopter for missions.

24. We have had light snow and drizzle over night for the last two nights with only a negligible amount of water added to our freshwater supply.

25. We celebrated Renato's birthday with a spectacular feast on Sunday night! We invited the Chilean and Dutch scientists to join us, thus we had a celebration with the entire human population on the Cape (12 people!). Everyone had a great time getting to know each other, sharing stories, music, and talking about our various science projects.

*Submitted by AMLR researchers currently residing at the Cape Shirreff field station, Livingston Island. Images taken by Mike Goebel.*