

Weekly Situation Report B-232
Monday Oct 31st – Sunday Nov 6th
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Project Goals: B-232 is deploying to McMurdo Station twice during austral summer 2011-2012. The primary goal of the Oct-Nov field season is to locate Weddell seals that we outfitted with satellite tags last Jan-Feb, and recover the tags. Over the winter months the tags transmitted information on animal location, diving behavior, and temperature and conductivity information from the water column. However, bandwidth and transmission constraints mean that not all the recorded data is recovered via the satellite link. Retrieving the tag allows us to recover all the collected data, and significantly improves the information on animal behavior and winter oceanography. This is particularly true for the late winter months, as wear and tear on the antenna that occurs when seals swim around ice eventually causes antenna breakage, and this further reduces the amount and quality of the data transmitted. When we recover the tag, we also assess the physiological condition of the animal: this allows us to assess diet, how behavior influences growth and health, and to examine the relative impact of exercise on aerobic capacity. Samples collected during recovery are compared to similar samples collected when tags were deployed. For comparative purposes, additional, non-tagged animals are also handled.

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This week started off with two days of fairly spectacular weather - if you like wind, snow, and no visibility that is! McMurdo was in weather condition 1 & 2, with extremely low visibility due to blowing snow – and winds causing the ambient temperature to drop to -40C with wind chill. We caught up on paperwork and labwork as going outside to work was obviously not possible. The arrival of PI Dan Costa was delayed from Monday until Wednesday evening due to the weather (and the day it took to clear the runways of all the snow so that the planes could start flying again!).

Wednesday dawned bright and clear, and we got an early start looking for seals. We knew that two of our tagged animals were at Hutton Cliffs (WS11-21 & WS11-01) and headed there to see if we could find them and recover their satellite tags. WS11-21 was easy to find and had a large healthy pup. We successfully recovered her tag and completed the follow-up physiology measurements; we also relocated WS11-03, from whom we had recovered a tag on 10/23/11. She and her pup were doing well, and showed no adverse effects from her handling the previous week. We searched the front area of Hutton Cliffs for WS11-01, but were unable to locate her. We then headed to Big Razorback where we knew that another tagged female was located. However winds at Big Razorback were so strong that it was hard to walk or stand, and while we found our seal, we decided it was unsafe to work in the weather conditions. Instead, we went to Tent Island, and located a non-parous female there. This 'physiology' animal is part of the cohort that provides comparative data for our tagged animals. Special thanks to FSTP for getting the snow-machine bridge in that allows crossing in to Big Razorback and the inner bay & for approving snow machine access to the back side of Tent Island. This improved access was critical to our success this week.

Thursday, Dan Costa was in training, but Jesse Hiatt was able to come out with the team for the first time. And what a 'first' day for him! We headed directly to Big Razorback, hoping for better weather than we had the day before. And we found it and much more. While working on the first seal (WS11-17) we were approached by a group of about 15 emperor penguins, who came right up to us, investigated our gear and seals, and then wandered off towards the glacier tongue. This visit was followed about 2 hours later (just while we were in the middle of procedures on the second seal of the day) by a second group of ~ 60 penguins who approached from Tent Island and milled around while we were working. We had a little time to appreciate this group, as the seal we were working on was the largest we've handled yet – 502 kg!! Finally, a third group came to visit just as we were packing up our gear – this time we could stop and appreciate their beauty. As the penguins wandered off, we too left for Turk's Head. There we scanned for other returning tagged seals, and collected a few dead pups for Linnea's necropsy work. It was a wonderful first day for Jesse, and a great last day for Jenn Burns, who had to head back to Alaska on Friday.

The nifty and unique animal sightings continued on Nov. 5th, when the team was at the glacier tongue looking for suitable physiology animals. There, amongst the Weddell seals was a crabeater seal. This species is generally found in pack ice, and so is not a common visitor to McMurdo Sound, particularly not so early in the season. However, the closeness of the ice edge and the prevalence of cracks this year may bode well for more sightings. In addition to successfully handling two Weddell seals, we were able to get a blood and whisker sample from crabeater seal for stable isotope analysis. These samples will supplement a much larger dataset from seals around the Antarctic, the collection of which began in 2001 with the US GLOBEC cruises and has continued with other OPP funding. A manuscript reporting on variation in isotope signature among individuals is in draft form. This sample will be the first from McMurdo Sound, and we hope to supplement it with samples from mummified seals in the dry valleys.

The week wrapped up on Monday when we handled another previously tagged seal at Hutton Cliffs. While searching (unsuccessfully) for WS11-01, we located WS11-04. While a very pleasant surprise, unfortunately, she did not have her tag still attached; its last transmission was in mid-June, suggesting that it lost its antenna and/or fell off mid-winter. Still, recapturing this animal allows us to assess seasonal changes in condition and diet, and so is valuable. It is encouraging to see that so many of the seals that we tagged in Erebus Bay in Jan/Feb of this year have returned to the area, and given birth to healthy pups. Improving tag attachment success and antenna durability for the next deployment should facilitate recovery of the tags in year three, should we be able to return to McMurdo in Oct 2012.

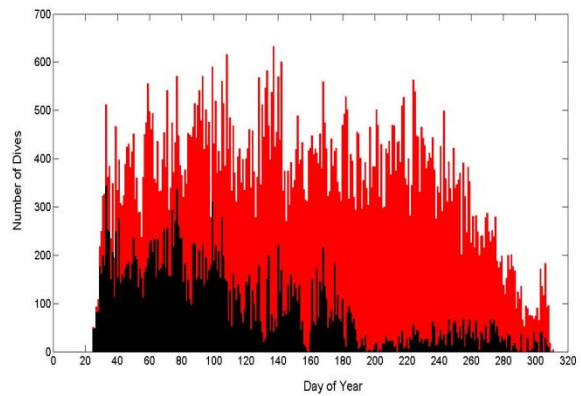
The end of this week marks the mid-point of our Oct/Nov deployment to McMurdo. Despite bad weather, and difficult ice conditions, the season is proving successful, as we have handled 13 animals, 5 of which are seals tagged in Jan/Feb, and we know of at least one more tagged animal in Erebus Bay. This represents two-thirds of the animals we tagged in Erebus Bay, and indicates that recovery success can be high for animals within this area. Over the remainder of our season, we hope to recover more tags from animals tagged within Erebus Bay, and will continue our helicopter searches for animals tagged outside Erebus Bay (that are not expected to return to the local area). Our target sample size is 20-22 animals total, so we are well on the way to success.

All activities/animals depicted were conducted pursuant to NMFS Permit No 87-1851.

Here are a few images from the week:



Weather condition 2 in McMurdo, Nov 1st (and 2nd). Blowing snow kept visibility very low & we stayed inside. The distance between the camera and the second person in the distance is about 15m.



Seal WS11-21 following satellite tag removal on 11/2 at Hutton Cliffs. Recovering the tags allows us to download data on all the dives made during the entire deployment period, significantly increasing data recovery. The right panel shows the number of dives per day from 5 recovered tags (in red) as compared to the data obtained from the same tags through satellite transmissions (black).



November 3rd was a fabulous Antarctic day – while working on two seals at Big Razorback (a recovery and a physiology animal) we were visited three times by different groups of Emperor penguins, who came over to investigate our activities and equipment.



Subadult crabeater seal seen in among a group of Weddell seals along the south side of the Erebus Glacier Tongue on Nov 5th. We were able to collect a blood and whisker sample from the animal to supplement an ongoing study of isotope ecology of these animals around the Antarctic Peninsula.