

Weekly update #4

This week the Muscle Beach Team (MBT) has been busy sampling adult and juvenile Weddell seals around Tent Island and near Barne Glacier. To date we have sampled 6 adults and 3 juveniles. The ice around the Delbridge Islands has been very active. It has moved up a few feet near Tent Island and the number of pressure ridges and cracks have increased between the islands and along Erebus Ice Tongue. We have seen dozens of seals hauled out on sunny days in this area and more will come as the ice condition continues to change. We have also had a few minor injuries. Working in such extreme conditions is very taxing on the body and unfortunately mishaps can occur. Dr. Noren and Dr. Trumble both had minor spills while riding their snowmobiles. Dr. Noren was thrown off of her snowmobile during a fierce windstorm and Dr. Trumble made like a stunt person after he hit an ice ridge during flat lighting conditions. The accidents luckily only resulted in a few bumps and bruises and some innocent teasing from the rest of the MBT. See we are all still smiling!



On Monday and Tuesday we worked around Tent Island and managed to examine 3 adult males. On Wednesday we had a guest, Dr. Roberta Marinelli, travel along with us on our search for seals. Dr. Marinelli is the Program Director for the Antarctic Biology and Medicine Program of the Office of Polar Programs at the National Science Foundation (NSF). We were honored to have her presence and she was happy to take a field trip out of her McMurdo Station office. We worked up an adult male at Barne Glacier. Barne Glacier is stunning; it is a huge mass of blue ice that juts out of the seemingly flat terrain. We took a census in the lab and decided that the glacier is probably as tall as a 30-40-

story building! The picture unfortunately does not do it justice because there are not any other objects in the picture that can provide a frame of reference for scale.



After sampling a few adults, we have decided to focus on sampling juveniles. We have found in the past that juvenile seals are difficult to find and a bit of a challenge to sample.

We have never seen juvenile seals around females and pups. This is likely because the larger adult males aggressively defend their precious breathing hole. To avoid conflict, juveniles tend to haul out solitarily along cracks. Thursday of this week Dr. Kanatous and Dr. Trumble went out on snowmobiles along the large ice cracks near the ship channel (west of Tent Island) to find juvenile seals. It was a beautiful sunny day with little wind, which made sighting animals easier. The rest of the MBT slowly followed in the Matt Tracks. We were pleasantly surprised to find two Adelie penguins meandering across the ice. The penguins were a bit hesitant as the humans dressed in matching “Big Red” jackets attempted to approach them to take pictures. We managed to snap a few pictures before they waddled and tobogganed off (tobogganing is when they lay down on their bellies and slide quickly across the ice, using their feet as propellers). Our penguin sighting made up for the fact that we did not find any juveniles along the ice cracks that day. Disappointed we made our way back to the fish hut to regroup and warm up. Dr. Noren and Linnea decided to give “the boys” a break from the cold weather and drove the snowmobiles back to McMurdo so that Dr. Kanatous and Dr. Trumble could warm up in the Matt Tracks. Dr. Noren is proud to report that she managed to stay on the snowmobile for the entire journey back “home”.



Friday of this week we found one juvenile near Barne Glacier and after some struggle (it was an ornery little female!!) had success sampling. Weddell seals are wonderful animals to work with because of their non-aggressive behavior. They do not have predators on the ice, so they probably think that we are just extra large penguins! However, the juveniles can be challenging because they are very active and more aggressive than their adult counterparts. And just like last year, we will be flying on helicopter scouting missions to locate the juveniles. Saturday, Dr. Kanatous, Dr. Noren, and Jay were scheduled to go out and sample juveniles from one of the NSF helicopters, but that mission was cancelled due to mechanical problems. We used the down time to catch up

work in the laboratory. Some of the laboratory work includes running Western Immunoblots. This technology utilizes electrical charge to separate proteins (the proteins that we obtain from our very small muscle biopsies from the seals). Dr. Kanatous is exploring a range of proteins, including myoglobin and HIF (hypoxia-inducible factor), which are associated with the ability for prolonged breath-hold diving. The challenge is that the antibodies used for these analyses are based on mouse physiology and we can only hope that we can successfully utilize them in seal analyses. When we finished with our work, three of us (Jay, Linnea, and Dr. Noren), decided to make Halloween costumes for the Halloween party on base that night. What do you think of our costumes?





Sunday the MBT was ready for another day in the field. We trekked out to Barne Glacier with the hopes of finding juveniles. We found a young female. This animal was much more cooperative than our last juvenile. We successfully examined the seal in record time because we needed to get back to McMurdo in time for Jay to give a presentation on his toxicology work. He did a great job! And we are looking forward to another week on “the ice”, with hopes of good weather, no helicopter mechanical difficulties, and lots of animals out along ice cracks for sampling. Wish us luck!

Dr. Shawn Noren