platelet volume (MPV) increased after 1 day. White blood cell count (WBC) increased after 3 days and red blood cell count (RBC) after 6 days. Platelet count (PLT) decreased after 4 days, probably from continued clotting. After 28 weeks frozen, cholesterol, total bilirubin, glucose, total protein, creatinine, calcium, and albumin increased; gamma glutamyl transferase (GGT) and alkaline phosphatase (ALK) decreased. There was no significant difference through time for total iron, triglycerides, alanine aminotransferase (ALT), aspartate aminotransferase (AST), blood urea nitrogen (BUN), sodium, potassium, chloride, magnesium, creatinine phosphokinase (CK), and sorbitol dehydrogenase (SDH). These results provide time limits that blood samples should be analyzed to avoid inaccuracies and aid in the interpretation of blood values from stored samples when analysis has been delayed.

Odontocete vocalizations in Onslow Bay, North Carolina: Integrating data from two passive acoustic techniques

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Passive acoustic monitoring is being used with increasing regularity to study marine mammals as it provides several advantages over visual surveys, including providing unparalleled long-term records and the ability to sample at night and in rough weather. We use two passive acoustic techniques to examine seasonal and spatial patterns of vocalizing odontocetes in Onslow Bay, North Carolina, an extensive area encompassing several habitats. The two acoustic techniques are a towed hydrophone array with a 2 - 96 kHz bandwidth and a High-frequency Acoustic Recording Package (HARP) with a 0.01 - 100 kHz bandwidth. Concurrent ship-based visual and towed array surveys provide species identity confirmation to the recorded vocalizations. The towed hydrophone array data cover a broad area allowing us to examine spatial trends in habitats that odontocetes are encountering, whereas the HARP data provide long-term time series allowing us to examine temporal trends including diel and seasonal variability. To date, we have collected 10 towed array recordings of bottlenose dolphins (*Tursiops truncatus*) and 11 of spotted dolphins (*Stenella frontalis*). We are using the whistles and clicks from these recordings to determine species-specific patterns that will be used to identify which species are recorded by the HARP. Using Long-Term Spectral Averages (LTSAs) to locate vocal events within the HARP dataset, we have found hundreds of odontocete vocal events from several species including sperm whales (*Physeter macrocephalus*), pilot whales (*Globicephala macrorhynchus*), and unidentified odontocetes. The daily duration of these vocal events indicate an increase in vocal activity from mid-October 2007 to mid-January 2008. Overall, the combination of these two passive acoustic techniques provides information on seasonal trends and habitat use of odontocetes in Onslow Bay.

The bowhead whale hunt in Nunavut: A 15-year case study on the use of Inuit knowledge and western science

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In 1993 the Inuit of Nunavut were permitted to resume the hunting of bowhead whales after the settlement of the Nunavut Land Claims Agreement. A significant contribution to this resumption of hunting was the mandate given to the Nunavut Wildlife management Board (NWMB) to complete an Inuit knowledge bowhead study within the first five years of the land claims agreement. The Bowhead Whale Traditional Knowledge Study (BTKS), interviewed Inuit elders and other Inuit who were knowledgeable about bowhead whales. The study documented seasonal distribution and movements of the whales in each of the interviewees' traditional hunting areas. This study also documented the unreported historic harvest of bowhead whales since Inuit voluntarily curtailed their harvesting practices to allow for bowhead recovery after the commercial exploitation of the bowhead population. The BTKS provided important migration and geographic distribution information that assisted in the design of the scientific population survey. Prior to this study, the published scientific literature suggested that there were two eastern arctic populations with a minimum population census of approximately 400 animals for the northern Hudson Bay/Foxe Basin population. Inuit had since observed an increase in the abundance and distribution of bowhead whales which has been corroborated with the most recent aerial survey estimates of the population. This paper discusses the uses and gaps of both Inuit knowledge and western science and how each was able to complement each other in order to facilitate management and conservation of the eastern Arctic Bowhead population.

Determining the aerobic dive limit: First record of continuous blood lactate profiles in freely diving elephant seals

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The aerobic dive limit (ADL), a fundamental concept in diving physiology, is defined as the dive duration beyond which blood lactate begins to accumulate. Here, we report the first continuously recorded blood lactate concentrations in a freely diving marine mammal. An implantable lactate sensor, initially developed for use in humans, was modified for use in elephant seals. The sensor is based on the following reaction: lactate + O_2 → pyruvate + H_2O_2. The sensor consists of the lactate oxidase enzyme immobilized in a gel membrane coupled to an oxygen electrode. Lactate and oxygen in the blood react with the enzyme. The remaining oxygen is detected by the electrode and produces an oxygen-dependent current that has been modulated by the lactate oxidase reaction. A second oxygen electrode, the reference electrode, detects ambient oxygen, producing an oxygen-dependent reference current. Lactate concentrations are calculated by the differences between the reference current and the lactate-modulated current. In April 2009, the lactate sensor was inserted into the extradural vein of an anesthetized juvenile elephant seal that had been captured at the Año Nuevo rookery. The seal was transported to Monterey and released. After a four day trip at sea, the seal returned to the Año Nuevo rookery, where the instrument was recovered. Blood lactate concentrations were recorded continuously before, during and after dives. Prior to this experiment, the ADL for the northern elephant seal could only be calculated from estimates of oxygen stores and oxygen consumption rates. With this approach and these data, a true measure of the ADL may be determined.

Behavioural thermoregulation in the Australian fur seal *(Arctocephalus pusillus doriferus)*

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The physiological and behavioural adaptations animals can adopt to accommodate changes in ambient temperature can play an important role in determining their daily activity patterns and geographical distribution. Pinnipeds (seals, fur seals and sea lions) are adapted to existing in cold aquatic habitats but the physiological and morphological adaptations that allow them to do so can lead to over-heating in the terrestrial environment. Using infrared thermography and behavioural observations, the present study investigated the mechanisms by which Australian fur seals (Arctocephalus pusillus dorifeus) dissipate excess body heat. Positive correlations were observed between body surface temperature and ambient black-bulb temperature. The flipper surfaces acted as the main source of body heat loss whereas the temperature of the body trunk fur surface was indicative of solar radiation. This is in contrast to that observed in phocid seals and reflects the high thermal insulative properties of fur seal pelage. Oblique and Spread postures were increasingly displayed with increasing ambient and body surface temperature. These postural adjustments contributed to thermoregulation by controlling the amount of flipper surface area exposed to