respectively) as determined through RIA, was selected for further endocrine analysis. Pregnant animals exhibited significantly higher concentrations of progesterone (P=< 0.001), leptin (P=0.003) and aldosterone (P=0.002). Non-pregnant animals exhibited a significantly higher concentration of total T3 (P=0.034). These results indicate that while manual palpation correctly identified pregnant animals, it did so with only 50% accuracy. Endocrine results indicate that aldosterone activity in pregnant seals is similar to that in other species; that is, it increases over the course of the pregnancy to offset the antialdosterone actions of increased progesterone for gestational maintenance. Increased leptin in pregnant seals may be a reflection of the added production of leptin by the fetoplacental unit. Lower concentrations of total T3 close to parturition may be a reflection of maternal attempts to enhance energy reserves in preparation for the birth and feeding of the neonate.

Late-Feeding Season Movements of a Western North Pacific Gray Whale off Sakhalin Island, Russia and Subsequent Migration into the Eastern North Pacific

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The western population of North Pacific gray whales (WGW), once thought extinct, is now estimated at 130 individuals and feeds primarily off northeastern Sakhalin Island, Russia, during summer. The population is critically endangered, facing anthropogenic threats throughout its range from nets, ships, and oil development, but present migration routes and wintering areas remain unknown. On 4 October 2010, a subcutaneous Argos tag was applied following protocols established by the International Whaling Commission to a 13-year-old male (named “Flex”) in good body condition off Piltun Lagoon, northeastern Sakhalin Island. Flex was first seen as a calf off Sakhalin in 1997. State-space modeling of fall near-shore movements for 68 days post-tagging identified a small home range foraging area within 45km of the tagging site. These data are unique as local weather conditions during this time generally prevent other forms of whale observation. On 11 December, Flex departed Sakhalin and began migrating across the Okhotsk Sea, Bering Sea, and Gulf of Alaska. By 5 February, Flex was within 20 km of the central Oregon coast, overlapping spatially and temporally with the last few weeks of the usual eastern gray whale southbound migration. Flex’s migration segments were linear, high speed (averaging 6.5 km/h), and included deep water far offshore, suggesting open-water navigation skills not previously attributed to gray whales, who are considered coastal and/or shallow-water oriented. State-space modeling (considering directionality and speed) identified the basin-wide movements as “migration” rather than “wanderings" associated with foraging behavior. Flex’s movements do not preclude other migration routes or winter destinations for WGWs. It is also possible that WGWs are the most westerly feeding destination of the EGWs. Additional WGW tagging is needed to identify other areas of use. The resulting data will have high conservation value and be useful in potential mitigation of anthropogenic activities.

Foraging behaviour and trophic ecology of marine mammals in the Canadian Arctic

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Human activity has increasing potential to affect marine ecosystems and the Arctic is particularly susceptible to these impacts. Understanding the foraging behaviour of marine mammals is necessary to characterize how changes will affect their distribution and movements. The purpose of this study was to examine diet, trophic position, movements, and acoustics of marine mammals in the Canadian High Arctic. Specifically the objective was to build on sparse existing data to improve knowledge of habitat and prey selection. Stomach, and liver and muscle tissue of beluga (*Delphinapterus leucas*) (n=13), narwhal (*Monodon monoceros*) (n=3), and ringed seal (*Pusa hispida*) (n=21) were collected near Resolute, Nunavut by hunters during the summer of 2010. Stable isotope analysis ($\delta^{13}C$ and $\delta^{15}N$) was performed on liver and muscle tissues of the marine mammals. Three autonomous cetacean monitoring systems (CPODs) were deployed. CPODs are relatively new technology that categorize sounds and classify whale clicks using several parameters (i.e. frequency, duration, click second^{-1}) which can highlight differences in acoustic behaviour when foraging. Approximately 75% of the stomachs contained food items and nearly all contained either fresh remains or otoliths of Arctic cod. Beluga and narwhal muscle $\delta^{15}N$ values were more depleted than liver values due to diet differences during migration. Ringed seal liver $\delta^{13}C$ was more enriched than tissues of all other marine mammals likely due to changes in short-term food sources. Juvenile and female ringed seals consumed smaller Arctic cod than adults and males, respectively, and whales consumed larger Arctic cod than ringed seals. Acoustic detections of whales were greatest at the beginning and end of summer coinciding with migration patterns. By incorporating stomach content and stable isotope analysis, as well as observational and acoustic data, this study provides an extensive assessment of marine mammal foraging in the Canadian Arctic necessary for responsible ecosystem management.

Diet of Eastern Canadian Arctic/Northwest Atlantic killer whales (*Orcinus orca*) described using stable isotope ratios ($d^{15}N$ and $d^{13}C$) in teeth

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Killer whales (*Orcinus orca*) occur in the eastern Canadian Arctic (ECA) during the open-water season, where they have been documented feeding on narwhal, beluga, and bowhead whales. Summarized accounts of killer whale distribution indicate a broad seasonal range extending from the ECA south along the coasts of Labrador and Newfoundland (Northwest Atlantic; NWA). To provide quantitative trophic-level diet estimates and examine diet variation among individuals from the two regions, we measured stable nitrogen ($d^{15}N$) and carbon ($d^{13}C$) isotope ratios in teeth from ECA (n=6) and NWA (n=7) killer whales. Dentin was sampled from annual growth layer groups (GLGs) to construct $d^{15}N$ and $d^{13}C$ profiles for individual whales spanning 4 to 19 yrs. Mean GLG $d^{13}C$ values differed significantly between ECA (-14.14 ± 0.43‰; mean ± s.d.) and NWA (-13.66 ± 0.49‰) whales, while $d^{15}N$ did not (ECA 16.95 ± 2.17‰; NWA 16.77 ± 0.88‰). Significant differences in mean GLG $d^{15}N$