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Understanding how variations in oceanographic conditions affect marine predators is essential in identifying critical foraging habitat and defining conservation strategies. We investigated how physical ocean and sea-ice parameters within the ice-region are linked to intensive or extensive foraging activities in southern elephant seals. For this, we developed a new approach consisting in using indexes of foraging success derived from high resolution dive and accelerometry data to predict foraging success from an extensive, low resolution dataset from CTD-Satellite Relay Data Loggers (SRDLs). A total of 25 seals were studied, 13 females and 12 males, during post-moult movements from Kerguelen Islands to the Antarctic shelf from 2004 to 2012. 23 seals were equipped with CTD-SRDLs, while two animals were equipped with accelerometer and dive recorders. Recently, the use of accelerometers has allowed the detection of prey capture attempts (PCA) at sea, and thus foraging success of predators. First, we fitted a Linear Mixed Model for each animal equipped with an accelerometer relating PCA to degraded dive data simulating low resolution CTD-SRDLs-like data. By applying a cross-correlation, we obtained a concordance index of 65 % between predicted PCA on degraded low resolution data and observed PCA on original data. We then used this model to predict the PCA on the 23 CTD-SRDLs, for which no information on foraging success was available otherwise. We also assessed if adding outputs from a Correlated Random Walk Switch Models using location data improves the model. Preliminary results showed a positive correlation for males between PCA and latitudes, as opposed to females for which no clear influence of latitudes on PCA was apparent. To investigate how the ocean and sea-ice parameters influence the foraging activity of elephant seals, we then combined our results on foraging success with satellite data of sea-ice concentration and hydrographic data collected by tags.

Marked increase in perinatal mortalities in beluga (*Delphinapterus leucas*) from the St. Lawrence Estuary, Quebec, Canada

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Mortalities of beluga from the threatened St. Lawrence Estuary population (Quebec, Canada) have been monitored since 1983 and complete post-mortem examinations were conducted on 222 of 475 beluga carcasses found dead during these 30 years. Carcasses of calves (< 1 year old) were only occasionally reported from 1983 to 2007, numbers of dead calves seen annually ranged from 0 to 3 (median = 1), or 6% of total carcasses found. From 2008 to 2012, the number of carcasses of calves found has dramatically increased, ranging from 1 to 17 annually (median = 8), or 37% of total carcasses found. So far,*post-mortem* examinations have not identified causes for these mortalities. Although the relatively high number of dead calves observed in recent years could be indicative of an increase in the reproductive rate or population size, field observations on live beluga do not support this hypothesis. The concurrent increase in mortalities of adult females due to *peri-partum* complications (2008 – 2012: average of 1.2 cases/year; 1983 – 2007: average of 0.15 case/year) rather suggests an increase in the occurrence of calf/mother separations/abandonments subsequent to parturition complications. Hypotheses proposed to explain these complications and mortalities include contamination with xenobiotics such as polybrominated diphenyl ethers, exposure to biotoxins produced by harmful algal blooms, nutritional stress and increase in disturbance from boaters. Monitoring of calf production and mortality, necropsies and population surveys should determine whether these changes are transient or a new threat to recovery of this population.

The acoustic response of coastal dolphins to mine exercise (MINEX) training activities

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Mine exercise (MINEX) activities have the potential to injure or kill marine mammals occurring in the same area. In March 2011 three common dolphins (*Delphinus delphis*) were killed at the Silver Strand Training Complex off San Diego, California during a Navy training exercise using underwater explosives. In response to this incident, an effort was begun in August 2012 to monitor odontocete activity at the Virgina Capes (VACAPES) Range Complex MINEX site using passive acoustic methods as part of the Navy's Integrated Comprehensive Monitoring Program. The objectives of the project were to establish the daily and seasonal patterns of occurrence of dolphins in the VACAPES MINEX training area, to detect explosions related to MINEX activities, and to determine whether dolphins in the area show evidence of a response to MINEX events. Two Ecological Acoustic Recorders programmed to achieve continuous monitoring were deployed and refurbished approximately every two months. The data were analyzed manually for the daily presence/absence of dolphins and their acoustic activity was quantified in detail for the period prior, during and after MINEX activities, which can occur in the range multiple times per month. The results indicate that dolphins are present daily in or near the MINEX range, a finding that was not anticipated based on vessel survey information. The data also reveal that dolphins exhibit a short-term acoustic response immediately following an explosion event. Acoustic activity increases briefly and then declines substantially. There is also evidence of a decrease in overall acoustic activity lasting several hours following the exercise. However, it is not clear yet whether the response represents a shift in acoustic behavior or a spatial redistribution of animals. These results underscore the value of long-term monitoring to inform the military on the potential impacts on marine mammal populations from training exercises involving underwater explosions.

Development and field testing a satellite-linked fluorometer for marine mammals: shedding light on the unknown

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Understanding the responses of marine mammals and other apex predators to spatial and temporal variability of primary productivity is fundamental for their conservation and for predicting how they will be affected by future climate change. Attaining this goal is often hampered by paucity of oceanographic data, but the use of animal-borne platforms as environmental sensors is quickly emerging to complement conventional oceanographic data collection methods, sample inaccessible locations, measure and map three-dimensional