2007/2008 and 2008/2009. Our study indicates that like other SES, seals from EI exhibit specific migratory patterns during the post-breeding period which are different from those exhibited during the post-moulting period. These differences are reflected not only on their foraging and diving behaviours but also on the physical environment and specific features they encounter "en route" such as specific water mass properties (with temporal and spatial variations), sea ice dynamics and water circulation patterns. Seal movements were widespread reaching as far south as Marguerite Bay and Bellingshausen Sea through Wilkins ice-shelf, open waters around frontal zones such as the PFZ, the northern portion of the Weddell Sea and westerly towards the South Pacific Ocean. Tag recovery rates in this study were as high as 75% for post-breeding seals and close to 50% for post-moulted animals, what is quite remarkable for satellite tracking studies. Financial support by CNPq,/MCT, INPE, FURG, MB/PROANTAR/SECIRM, MMA, CAPES.

Application of risk assessment for evaluating the effects of sound from oil industry operations on marine mammals

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Increases in underwater sound levels due to offshore exploration and production (E&P) operations raise concerns regarding potential impacts to marine mammals that are highly dependent on sound to carry out their life functions. Sound-related effects that have been observed or suggested include behavioral disturbance, noise-induced hearing threshold shifts, physical injury, reduction in productivity, and shifts in distribution. However, our ability to assess the likelihood and consequences of such effects is hampered by the paucity of knowledge about the importance of natural and anthropogenic underwater sounds to marine mammals and about the auditory processes of most species. In addition, there is substantial variability in an animal's response to a given type and level of anthropogenic noise, depending on factors such as the animal's activity, habituation, and sound duration. Given the need to make management decisions despite data gaps and uncertainty, a useful approach is to conduct a risk assessment that considers the nature and magnitude of E&P operational sound and the probability that effects will result from that sound. We developed a methodology that allows for the criteria developed by Southall et al. (2007, *Aquatic Mammals* 33[4]) and for uncertainty inherent in available data sets to assess risk to cetaceans and pinnipeds from sound resulting from offshore E&P activities. The methodology allows semi-quantitative and qualitative risk assessment, depending on the available data and management needs. We also developed an extendable prototype software application that provides links to useful resources and acts as an interactive tool to guide a user through the steps of the proposed methodology.

Aerial hearing sensitivity measurements in seven California sea lions (*Zalophus californianus*) using single and multiple auditory steady-state response methods

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Existing data regarding hearing sensitivity in pinnipeds are based on studies that have used psychophysical methods with a small number of captive individuals, making it difficult to form conclusions regarding hearing at a population level. Measurements of the electrophysiological auditory steady-state response (ASSR) and multiple ASSR elicited, respectively, by single and multiple sinusoidally amplitude-modulated (SAM) pure tones, have proven to be efficient for evaluating hearing sensitivity in an increased number of odontocete cetacean subjects. In an effort to expand these methods to pinnipeds, ASSRs elicited by single and multiple SAM tones were used to measure aerial hearing thresholds at 2, 4, 8, 16, and 32 kHz in seven California sea lions from a wild population. There were no significant differences between threshold measurements acquired using the single ASSR and multiple ASSR methods, despite the more rapid nature of data collection using the multiple ASSR method. There was a high degree of variability in ASSR thresholds among subjects; thresholds covered a range of approximately 40 dB at each tested frequency. Although all ASSR thresholds were elevated relative to those from a behavioral audiogram previously obtained with a trained California sea lion, the features of upper-frequency cutoff and relative sensitivity were similar for the ASSR and behavioral audiograms. The apparent elevation of the ASSR thresholds relative to behavioral thresholds is presumably a result of failure to detect an electrophysiological signal in extraneous electrical noise, rather than an actual decrement in the hearing sensitivity of the individuals tested. Although the ASSR thresholds displayed a high degree of variability among subjects and were elevated above behaviorally obtained thresholds, our measurements suggest that single and multiple ASSR methods can provide a useful estimate of relative sensitivity and upper-frequency cutoff in a large number of sea lions.

Seasonal differences in cetacean distribution from visual and acoustic surveys in southern California, 2004-2008

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Seasonal and spatial distribution patterns of cetaceans in the Southern California Bight were assessed using visual and acoustic surveys during 18 quarterly California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises from summer 2004 - fall 2008. Acoustic surveys were conducted during daylight and included a towed hydrophone array while underway to record odontocetes and Navy sonobuoys deployed near sampling stations to record baleen whales. The most frequently sighted odontocete species were common dolphin (n=347 sightings), Dall's porpoise (n=58), Pacific white-sided dolphin (n=57), Risso's dolphin (n=27), bottlenose dolphin (n=23), and sperm whales (n=24). The most frequently sighted baleen whale species were humpback (n=74 sightings), fin (n=69), grey (n=41), and blue whales (n=39). Some species distributions varied seasonally and differed between visual and acoustic detection methods. Grey whales and Dall's porpoise were sighted primarily in winter and spring, whereas blue whales were visually and acoustically detected in summer and fall only. Some species were detected (by either means) predominantly inshore (depth < 2000 m), including grey whales and Risso's, bottlenose, and long-beaked common dolphins, whereas most sperm whale sightings and acoustic detections were offshore. Species detected both inshore and offshore included Dall's porpoise, Pacific white-sided dolphins, short-beaked common dolphins, and blue and fin whales. Humpback whales were visually detected in spring through fall primarily inshore, whereas they were frequently detected acoustically offshore in winter and spring. Fin whales were only detected (either visually or acoustically) inshore in spring, whereas during other seasons they were detected both inshore and offshore. These contrasting patterns suggest that the probability of detecting animals visually or acoustically varies depending on their seasonal distribution and behavioral state, e.g. foraging, migrating, and social or reproductive interaction. Current research is underway to investigate the association between cetacean seasonal distribution and other biological and physical oceanographic variables measured during CalCOFI surveys.

A preliminary overview of epidermal lesions in Atlantic bottlenose dolphins (*Tursiops Truncatus*) from the Indian River Lagoon, Florida

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