through WHMP, hunters are still required to self-report though MTRP and present tusks for tagging. Since reporting compliance within MTRP is not 100%, the Service uses data from MTRP and WHMP to more accurately estimate total U.S. walrus harvest. We utilize a mark-recapture methodology to estimate reporting compliance and correct the total reported harvest for the segment of the harvest which goes unreported. Using this corrected harvest estimate we then factor in a 42% struck and loss rate to account for animals which are mortally wounded by hunters but not recovered. This results in a more accurate estimate of the total annual removal of Pacific walrus in the United States.

Examination of the level of the anti-epizootic effectiveness of immune system of marine mammals as a method to estimate of the anthropogenic influence on the wild populations

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During recent decades the problem of anthropogenic influence on environment has become very acute. The research of influence of anthropogenic factors on the wild populations takes on the important significance. Marine mammals most suffer from such kinds of human activity as: petroleum industry (oil floods), agriculture (PCB, DDT), industrial sewage (toxic pollutions) and others. As is well known each of them influences immune system of marine mammals direct or indirect and can be cause of an immunosuppression. At that the risk of epizootic expansion into wild populations is increasing. Therefore the conducting of regular monitoring of level anti-epizootic effectiveness of immune system in wild populations became real actuality. Complex of methods which is allowed to estimate the anti-epizootic effectiveness of immune system in marine mammals was developed. This complex include: immunological, microbiological, toxicological and pathologoanatomic investigations. Were studied: 98 pups of the Steller sea lion (Eumetopias jubatus) from Far East in 2004, 55 Black sea bottlenose dolphins (Tursiops truncatus) at various terms of adaptation from 2001 to 2004, 12 beluga whales (Delphinapterus leucas) in 2003, Ladoga ringed seal (P. hispida ladogensis) in 2007, and 10 T. truncatus in 2009. The performed investigations showed a similar picture of interconnected changes of indices. In this case, there was a general trend in decrease of immune status indices compared with a high level of the infection by the pathogenic microflora in different species of marine mammals. Findings can indicate that the low level of anti-epizootic effectiveness of immune system was detected in the investigated marine mammal species that also can talk about high degree of their vulnerability during the epizootic process. In all cases visible effect of environment condition on the health of animals was observed. Therefore these methods can be employed to estimate the anthropogenic influence on marine mammal populations.

Passive acoustic monitoring of cetaceans off Jacksonville Florida

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We conducted synoptic fixed passive acoustic monitoring and vessel-based visual surveys off Jacksonville Florida to examine temporal occurrence of cetaceans in offshore waters. We deployed high-frequency acoustic recording packages (HARPs) at two locations in depths of 35 (shallow) and 90m (deep) between April 2009 and January 2011, resulting in 14,976 hours of data. In addition, we made towed-array recordings during monthly boat-based visual and acoustic surveys in the presence of short-finned pilot whales (*Globicephala macrorhynchus*), Risso's dolphins (*Grampus griseus*), Atlantic spotted dolphins (*Stenella frontalis*) and bottlenose dolphins (*Tursiops truncatus*). There was significant inter-annual variation in odontocete vocalization occurrence at both sites. We detected more than twice as much odontocete click (12.4% vs 5.2% hours) and whistle (4.2% vs 1.4% hours) activity at the shallow site in spring and summer 2009 than 2010. In contrast, at the deeper site, odontocete click (31% vs 20% hours) and whistle (5% vs 2%) activity occurred more often in spring and summer 2010 than 2009. This suggests a shift in animal distribution from shallow to deeper waters from 2009 to 2010, a behavioral or group compositional change, or an inverse change in propagation conditions at the two sites. Comparison with monthly aerial survey data in the region supports the hypothesis of a distributional shift at the deeper site. Both odontocete whistle and click events were detected more frequently at night at the shallow site and more frequently during the day at the deeper site, which may reflect differences in species occupancy or behavioral usage patterns at the two sites. We are analyzing three distinctive spectral patterns found in autonomous HARP click recordings, which may represent species-specific patterns, by examining towed array recordings for these patterns and by developing automated species-classification algorithms.

Possible factors determining beluga (*Delphinapterus leucas*) summer habitat selection in the Okhotsk Sea

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In summer, in the Okhotsk Sea, belugas concentrate along the seashore and in estuarine waters. Reasons for such distribution are unclear. We studied the influence of 2 ecological factors (biotic and abiotic) on the beluga distribution: amount of major summer prey (*Salmonidae*) and morphological type of estuary. Distribution analysis was based on coastal aerial survey data from August-September, 2009-2010, excluding Kuril Islands region. The major beluga aggregations were found in the estuary of the Amur River and southern part of Sakhalinsky Bay, in the Bays of the Shantar region: Nikolaya, Ulbansky, Tugursky, Udskaya; in the north-east – in Gizhiga and Penzhina Bays, and in the river estuaries along the north-western coast of Kamchatka Peninsula. For the last 25 years, most of spawning chum (*Oncorhynchus keta*) and pink (*O. gorbuscha*) salmon have been concentrating in the north-eastern (at the river mouths of the south-western coast of Kamchatka Peninsula) and the north-western coasts of the Okhotsk Sea, and along Sakhalin Island.