A RETROSPECTIVE INVESTIGATION OF PATHOLOGIC FINDINGS IN PACIFIC HARBOR SEALS (Phoca vitulina richardsi) STRANDED IN SAN JUAN COUNTY, WASHINGTON

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ABSTRACT

Since 2002, Pacific harbor seal (Phoca vitulina richardsi) carcasses have been opportunistically collected and undergone necropsy in San Juan County as part of the Northwest Marine Mammal Stranding Network’s efforts to monitor marine mammal populations. The wide distribution, high trophic level, relatively well-known biology, and ability to bioaccumulate pollutants make harbor seals a desirable sentinel species, and they have been used previously as indicators of ecosystem health. Out of the approximately 50 harbor seal strandings reported annually in San Juan County, 71% are pups and half of these animals were diagnosed with emaciation/malnutrition syndrome as their primary or contributory cause of death. The purpose of this investigation was to elucidate the causes of morbidity and mortality in three other age groups, adults (n=26), yearlings (n=2), and weaned pups (n=22). Necropsy reports for 50 harbor seals stranding between 2002-2010 were reviewed. A total of 58 unique etiologic diagnoses were made. Specific causes of morbidity and mortality were categorized as traumatic, infectious, metabolic, immunologic, toxic, nutritional, or unknown. Infectious etiologies were the most common postmortem finding for all age classes, affecting nearly three quarters of all individuals. Some of the agents identified pose potentially serious risks to human and domestic animal health, such as Brucella and Salmonella. Pathogens responsible for epizootics in harbor seals in other parts of the world, such as phocine distemper virus and influenza A, were not diagnosed. All of the specific diagnoses have been previously reported in free-ranging harbor seals. Elevated levels of mercury and, occasionally, other heavy metals were reported in the liver from most of the adult seals. Although these high values were not associated with disease in all but one case, the accumulation of such toxins could indicate environmental contamination. More than half of the animals in the study had signs of trauma. Trauma is a common wildlife mortality factor, however, at least 10% of all the carcasses had strong evidence of anthropogenic trauma, such as gunshot or propeller strike. The true prevalence of anthropogenic trauma may be greater, due to the challenging nature of determining ultimate traumatic cause. Opportunistic collection of carcasses, especially of a marine species, presents an appreciable sampling bias. The pathologic data, however, especially from a federally protected species living at the urban interface, can be very useful for surveillance of diseases important to harbor seals, humans, and the ecosystem as a whole.
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LITERATURE CITED