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Mercury in marine mammals and human health: Alaska perspective

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Marine mammals represent an amazing and very broad group of animals 1) range from the tropics to the poles, 2) feeding ecology traits that vary from strict herbivores to strict carnivores (fish-based food webs), 3) extremes in body size, and 4) possibly longest longevity for any mammal.

These differences can translate into variations in measured Hg concentrations for marine mammals that require careful considerations.

This presentation will focus on two major aspects of assessing mercury (Hg) in marine mammals of Alaska from a human health perspective both as sentinel species and sources of food. These two major themes will allow for an appreciation of marine mammals and their importance to Alaskans that includes cultural, nutritional, spiritual, economic and environmental values. With respect to sentinel species we will highlight the Steller sea lion (example fish consumer). As a food source in Alaska we will emphasize the importance of targeting tissues consumed for Hg analyses, appreciation of the feeding ecology of the harvested marine mammals, the manner food is consumed (kind of fork), and the importance of the ongoing Alaska

Statewide Maternal Hair Mercury Biomonitoring Program. As a part of the assessment of Hg in marine mammals and human exposure is the consideration of the form of Hg present (e.g., % methyl mercury) and relationship with Se and other nutrients. We will provide some information relevant to variations in proportion of methyl mercury by tissue type. One must recognize unique aspects that characterize the only legal marine mammal consumer population in Alaska, predominately rural Alaska Native (AN) residents. There are a number of AN communities that might be less sustainable if not for the sea mammal harvest. Consumption advisories that do not consider the factors we outline here can leave rural AN populations with limited, or no, adaptive possibilities for continuing an essential traditional cultural diet.