Organochlorine, pesticides and polybrominated diphenyl ether contaminant concentrations in multiple tissue matrices of live Steller sea lions (*Eumetopias jubatus*) in Alaska

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Blood, blubber, milk, and feces were collected from 53 free-ranging and 3 captive Steller sea lions (*Eumetopias jubatus*) in Alaska from 1998-2003 to assess exposure to selected organochlorine (OC) contaminants (e.g., dioxin-like PCBs, DDTs). Organochlorine contaminant relationships among multiple matrices of individuals were used to determine the appropriate tissue for exposure monitoring in live animals and thus minimize invasive sampling techniques. Concentrations of certain OC contaminants in blubber, milk and blood were highly correlated within individuals; however fecal concentrations were only correlated with those measured in blood. Thus a blood sample may be the best alternative as a less-invasive indicator of relative contaminant exposure in lieu of surgical blubber biopsy while feces may be used as a non-invasive monitoring tool of relative OC exposure without direct handling of animals. Regional OC contaminant exposure was compared in blubber samples of pups through sub-adults of the stable eastern stock in Southeast Alaska (n=48) as compared to the endangered western stock of the Gulf of Alaska (n=55) and Aleutian Islands (n=43). Pesticides and polybrominated diphenyl ethers were detected in 25 and 15 animals respectively, including 4 individuals that were sampled at 5 month intervals. Transplacental transfer of OCs was extremely low. Concentrations of OCs peaked in pups sampled between 2 - 6 weeks of age, declined by midway through the suckling period, and increased again through the first year of the presumed dependent suckling period though the weaning period. These data suggests that exposure to OCs is at a level of concern especially in young pups in portions of the range of the endangered western stock of Steller sea lions.

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