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Salish Sea Ecosystem Conference

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Transboundary Actions to Address Threats to Southern Resident Killer Whales (SRKW)

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Session 1.2 – Transboundary Actions to Address Threats to Southern Resident Killer Whales (SRKW)

Southern Resident Killer Whales (*SRKW*, *Orcinus orca*) are iconic to the Salish Sea ecosystem which includes transboundary waters extending north through the Strait of Georgia in Canada, west along the shared Strait of Juan de Fuca, southward through the Puget Sound in the U.S. Currently the population of 76 SRKW is lower than it was when both Canadian and US governments listed them as endangered species. Recovery of SRKW is a priority to Canada and US, and this session presents ways to improve the level of transboundary collaboration to support SRKW recovery while acknowledging the cumulative effects of threats that SRKW face.

Misty MacDuffee (Raincoast Conservation Foundation) proposed management options to address findings of a population viability analysis (presented in an earlier session by Dr. Rob Williams) that combining a modest increase in Chinook prey with a modest reduction in vessel disturbance would have a greater influence on SRKW population growth than a sharper increase in Chinook alone. Management options include restricting fisheries and reducing vessel noise and disturbance in feeding refuges within the critical habitat of SRKW. Place-based salmon management would focus fisheries on specific populations close to natal watersheds and set escapement goals based on ecosystem science. Salmon enhancement activities would focus on recovering severely depleted populations of Chinook and maximizing spawners that create the largest numbers of returning fish.

Todd Hass (Puget Sound Partnership) presented the current status of law and enforcement on maritime rights-of-way to SRKW, distinctions in disturbances between noise vs physical presence of vessels and the concept of ecological interference competition, and a proposal to amplify mitigation measures in years of low prey abundance. Mitigation measures include increased distance and reduced vessel speed, rationing of boat numbers or time of day, enforcement and fishing restrictions.

Ken Balcomb (Centre for Whale Research) asserted that recovery actions should focus on risks with greatest influence over SRKW population dynamics. Mortality among mature females is currently higher than it was 20 years ago, birth complications are increasing with 69-75% of pregnancies ending in miscarriages, and 33% of these are late term miscarriages which are of high risk to mother survival. Less than 50% of calves born are females, and 44% of SRKW young die before they mature. Previous work has shown female SRKW fecundity is highly correlated with prey abundance.

Dr. Sam Wasser (University of Washington) presented findings that SRKW population growth is limited by nutritional stress and toxin impacts on pregnancy success. PCBs are highest in SRKW scat during years when prey availability is lowest, supporting the hypothesis that these toxins stored in fat are released into circulation and most biologically available when nutritional stress is greatest. Contaminant levels are highest in adult males and long-lived post-reproductive females compared to reproductive females with more than one calf as they transfer their toxin load to their newborns via fatty breast milk.

Adam La Rusic presented on Environment and Climate Canada's Disposal at Sea Program and its activities to limit contaminant loadings and vessel disturbances to SRKW. The Sand Heads disposal site is located near the mouth of the Fraser River in SRKW critical habitat and is characterized by frequent dense marine traffic. Waste disposal at this site is prohibited without a permit which is granted only

when levels of PCBs in the waste are lower than contaminant levels that are already at the Sand Heads. A qualified marine mammal observer must be on board all vessels operating at Sand Heads and disposal activities must cease when whales are observed within 1000m.