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Managing disposal at sea in the Salish Sea to protect Southern Resident killer whale habitat

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Managing disposal at sea in the Salish Sea to protect Southern Resident killer whale habitat

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April 4, 2018

Objectives of Presentation

- To provide a foundational briefing on Environment and Climate Change Canada's Disposal at Sea Program and its activities impacting Southern Resident killer whales.
- To provide context for future discussion to protect Southern Resident killer whales and their habitat.



Overview of Canada's Disposal at Sea Program

- As Party to the London Protocol and London Convention (marine pollution prevention treaties), Canada has committed to preventing marine pollution by:
 - prohibiting dumping of wastes at sea without a permit
 - limiting permits to a small list of wastes that have been assessed
 - conducting disposal site monitoring
 - reporting annually to London
- ECCC's Disposal at Sea program delivers on these obligations and on Canada's pollution prevention objectives for disposal at sea through the *Canadian Environmental Protection Act, 1999* (CEPA) and its associated regulations.



Overview of Canada's Disposal at Sea Program

- Permits can be obtained only for low-risk wastes listed on Schedule 5 of CEPA 1999:
 - Dredged material
 - Fisheries waste
 - Vessels, aircraft or other structures, which have been suitably cleaned
 - Inert inorganic geological material
 - Uncontaminated organic material of natural origin
 - Bulky wastes
- Before issuing a permit, Applicants must demonstrate that:
 - Efforts to reduce waste and seek alternatives were made
 - Conflicts with other uses of the sea can be avoided
 - Waste is suitable and low risk
 - Waste is matched to a suitable disposal site
 - Potential impacts of the disposal at sea are predicted to be low



Species at Risk Act

- Under SARA, populations that are listed as threatened, endangered, or extirpated are protected by the general prohibitions of the Act, making it an offence to kill, harm, harass, buy, sell, trade, etc. individuals or parts thereof.
- For any listed species, the SARA requires the preparation of a recovery strategy which lists specific threats to the species and actions to mitigate them.
- Recovery strategies must also identify and describe the critical habitat necessary for recovery of the population, and any activities that are likely to destroy the critical habitat.
- Once described, the critical habitat is protected from destruction by an order made under the SARA.

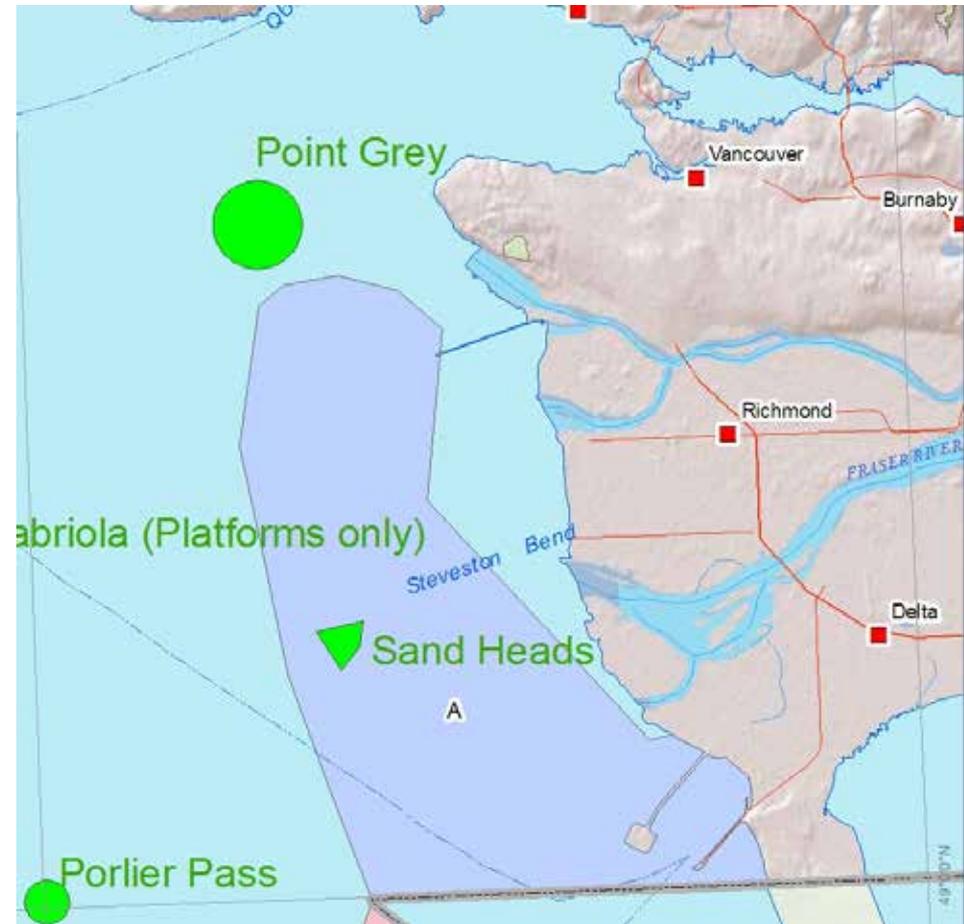


Species at Risk Act (SARA) - Killer Whales

- Southern Resident Killer Whales are listed as **Endangered** under SARA.
- Population has fluctuated from 70 in 1974 (following live capture of approximately 47 whales) to 99 In 1995, to 76 as of January 2018. Poor body form and calf survival rate have been noted.
- In August 2011, Canada published the Recovery Strategy for Northern and Southern Killer Whales (*Orcinus orca*) in Canada, which also delineated Critical Habitat for killer whales.
- Primary threats to Southern Resident killer whales include prey availability, acoustic disturbance and environmental contamination.
- Northern Resident Killer Whales are listed as Threatened.



SRKW Critical Habitat and Disposal at Sea Sites



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Sand Heads Disposal Site

- The Sand Heads disposal site is located in SRKW Critical Habitat.
- Site is located near the mouth of the Fraser River.
- Highly dynamic due to Fraser River outflow, tidal action and marine weather.
- Ranges in depth from 10 to 130 m (30' to 400').
- Characterized by frequent dense marine traffic.



Impacts of Disposal at Sea - PCBs

- Disposal at Sea can have a direct impact on contaminant loadings and acoustic disturbance.
- Food web modelling of polychlorinated biphenyls (PCBs), a persistent organic pollutant, suggested that a total PCB range of 0.012 to 0.200 $\mu\text{g}\cdot\text{kg}^{-1}$ dry weight in sediment would be protective for killer whales (as compared to the Canadian Disposal at Sea Lower Action level of 100 $\mu\text{g}\cdot\text{kg}^{-1}$). (Ocean Disposal in Resident Killer Whale (*Orcinus orca*) Critical Habitat: Science in Support of Risk Management, Lachmuth et al., 2010)
- However, ambient sediment levels in many parts of coastal BC already exceed 0.200 $\mu\text{g}\cdot\text{kg}^{-1}$.
- PCBs were effectively banned in Canada over 40 years ago, but their attenuation in the environment is very slow, and they are ubiquitous in coastal sediments in Canada.

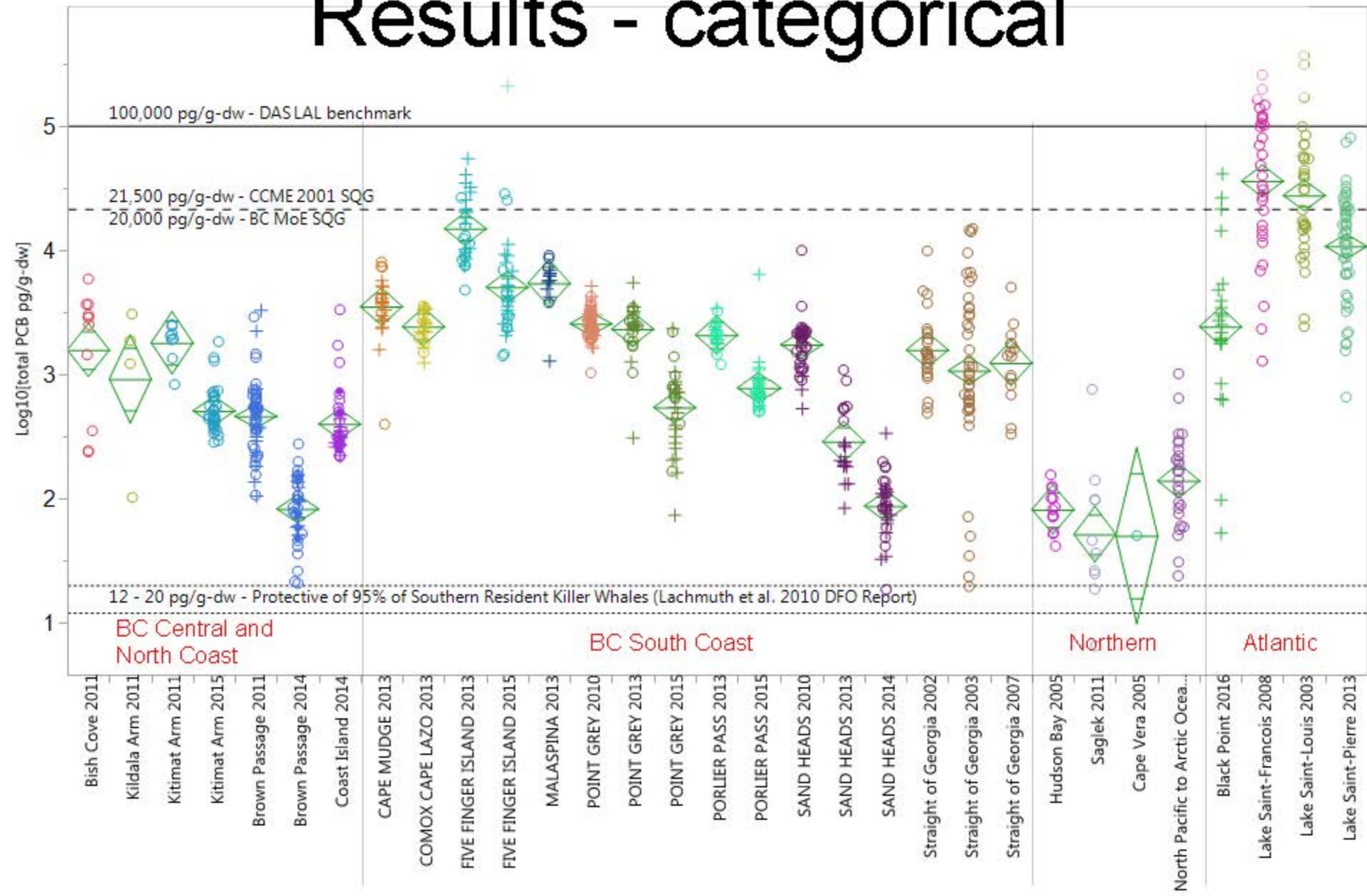


Management Action to Protect SRKW

- Management decision to only accept clean, Fraser River sediment at the Sand Heads site.
- Contaminant levels, specifically PCBs, in dredged material must be lower than ambient contaminant levels at the disposal site.
- Analysis of PCBs must be high-resolution and congener-specific, (as opposed to the much more coarse Alaclor method).
- Qualified marine mammal observer must be on board all vessels disposing at Sand Heads.
- Activities must cease if whales are observed within 1000 m, with all activity reported.
- Study of ambient levels of PCBs along British Columbia coast.



Results - categorical



Emerging Issues and Challenges

- Evolving relationship between Canada and indigenous peoples (Canada signatory to the UN DRIP). “Prior, informed consent.”
- Emerging contaminants such as microplastics and polybrominated diphenyl ethers (PBDE)
- Unprecedented capital investment in British Columbia (Roberts Bank Terminal 2, Kinder Morgan Pipeline, Site C dam, port upgrades, mines, LNG terminals, etc.).
- Federal Oceans Protection Plan announced in 2016 to improve marine safety and responsible shipping, protects Canada's marine environment, and offers new possibilities for Indigenous and coastal communities, with a specific focus on protecting marine mammals.



Thank you

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