Prey Working Group Outputs from May 2018

Steve Martin
Governor’s Salmon Recovery Office

Penny Becker
Washington Department of Fish and Wildlife
Working Group Assignment for Meeting #1:
Develop the Universe of Potential High Level Actions to Address ‘4Hs and a P’ to Increase Chinook Abundance for SRKW

- Habitat
- Hatchery
- Hydropower
- Harvest
- Predation
Overarching Direction from Task Force:

1) Highlight actions that will have short, medium, and long-term impact

2) Develop a suite of multiple solutions, rather than looking for just one solution

3) Come up with strong and inclusive policies and bold, concrete, implementable actions at different scales

4) We will keep a tally of potential social, economic and environmental costs and benefits. Highlight where we will have to discuss these considerations in more depth.
Potential Actions for 4Hs & P for Year 1 In-Depth Discussions

• **Proposed action #1:** Complete or modify Hatchery and Genetic Management Plans (HGMPs) to maintain or increase salmon hatchery production. (Intermediate)

• **Proposed action #2:** Achieve full production at hydropower mitigation permitted hatchery facilities. (Intermediate)

• **Proposed action #3:** Reduce marine salmon harvest and transfer opportunity to terminal fisheries while Chinook abundance is increased. (Immediate)
Potential Actions for 4Hs & P for Year 1 In-Depth Discussions

• **Proposed action #4:** Improve juvenile downstream passage at dams. (Intermediate)

• **Proposed action #5:** Gather data and information to support consideration of dam removal on salmon-bearing river systems. (Long term)

• **Proposed action #6:** Remove or alter artificial habitat features so they are not as attractive to predators. (Immediate)
Potential Actions for 4Hs & P for Year 1 In-Depth Discussions

- Proposed action #7: Gather data and information to inform consideration of lethal removal of pinnipeds, birds, and/or other predatory fish to benefit specific Chinook runs and stocks. (Year 2 of Task Force should include in-depth discussion when we will have the benefit of all the gathered information to guide recommendations.) (Intermediate)
Potential Actions for 4Hs & P for Year 1 In-Depth Discussions

• **Proposed action #8:** Increase enforcement of current habitat protection regulations. (Immediate)

• **Proposed action #9:** Enhance habitat protection regulations, especially to conserve key areas/habitats for Southern Residents and Chinook. (Immediate)

• **Proposed action #10:** Accelerate habitat restoration, including fish blockages in areas most beneficial to SRKW. (Intermediate)
Next Step for Prey WG

• Priority areas, times, stocks for SRKW: review NOAA/DFW analysis, workshop outcomes

• Begin in-depth discussions to produce detailed outputs and considerations to TF
Questions?

Clint Rivers, Eagle Wing Tours
Contaminants in SRKW

June 14, 2018
What is an Implementation Strategy?

Who’s Involved
- Core (Steering Team)
- Interdisciplinary Team

What they Include
- Starter Package
- Situation Analysis
- Intervention Points
- Strategies for intervening
- Much, much more!
What is an Implementation Strategy?

Who’s Involved in Implementation
- Core (Steering Team)
- Interdisciplinary Team

What they Include
- Starter Package
- Situation Analysis
- Intervention Points
- Strategies for intervening
- Much, much more!

**Intervention Strategies**
The TIF team identifies actions, or approaches, for each intervention point identified (*no culling or prioritization at this point*).

**Intervention Point:**
“Inadequate PBDE ban enforcement”

**Action:**
“Require producers to demonstrate compliance”
TIF Implementation Strategy

Mid May

TIF Kick-off

TIF Situation Analysis

TIF Strategy Approaches

TIF Strategy Detail

TIF Final Report

Mid August

Mid September

October Draft Deadline

We can ensure that Orca toxics priorities are incorporated into AA as TIF Priorities

Gov’s Orca Task Force

SRKW Contaminants Workgroup

TIF Kick-off

TIF Strategy Approaches

Explore any gaps in process, identify any differences in priorities for Orca

Identify Orca Specific Approaches

Add context and detail to priority strategies for TF

Orca Task Force

Orca Task force updated on progress gives feedback on initial actions

Task Force decides on a final package of Prey, Vessels, and Contaminants Recommendations

Initial TF Recommendations to the Governor

Orca Task Force
Actions to Reduce Contaminants in SRKW

Stormwater
• Increase treatment and increase the implementation of treatment techniques. Enhanced Maintenance of stormwater systems and street sweeping to reduce loading.

Wastewater
• Increase treatment from wastewater treatment plants to reduce the toxic load coming from wastewater treatment plants. Better management of wastewater residuals could also decrease the impact of applying them on land.

Source Control and Cleanup
• Regulations and Bans could be applicable to many different chemicals. Regulatory changes could include new frameworks that require producers to prove that products or chemicals are safe, or free of harmful chemicals.
• Incentives for reducing the toxic contamination could include incentives for reducing vehicle leaks and emissions from passenger and commercial vehicles by incentivizing fleet electrification. Other incentive programs could be targeted to reduce residential trash burning. Stormwater treatment system incentives could increase treatment of contaminated stormwater. Programs to remove contaminant laden furniture from homes and businesses. (Cars, residential trash burning, Stormwater BMPs, furniture)
• Training and certification for facilities that take discarded chemical laden items such as furniture and electronics could help reduce end-of-life risks from product disposal.
• Increasing the rate, or number of toxic cleanup projects could be an important way to reduce contaminant risks to SRKW. Cleaning up legacy contaminants, and removing contaminated materials—such as creosote pilings—could help reduce loading.
• Waste Management

Education
• Education, for both decision makers, and for consumers could be used to help reduce demand for toxic products

Research and Monitoring
• Research and monitoring are important to know where contaminants are, how they move through the environment, and if actions taken to remove them are having their expected impact.
**PCBs**

**Sources**
- Electrical equipment
- Building materials
- Inadvertent production

**Legacy**
- Contaminated sediments
- Contaminated food web

**Pathways**
- Stormwater
- Atmospheric deposition
- Groundwater

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**Response**

**Current Strategies**
- Remove/replace old electrical equipment
- Develop and promote containment BMPs for PCBs in building materials
- Sediment remediation
- Pigment and dye improvements

**Existing Programs**
- Ecology's Waste 2 Resources Program
- TMDL, MTCA, CERCLA
- Ecology's Remedial Action Grants and Loans
- Ecology's Voluntary Cleanup Program
- Toxic-Free Future

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**Current Strategies**
- Stormwater management
- BMP Implementation
- Enhanced maintenance
- Source tracking

**Existing Programs**
- NPDES permits
- MS4 stormwater management programs
- Ecology's Water Quality Combined Financial Assistance Program

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See Section 3.3.1 of Starter Package

See Section 4.2.1 of Starter Package
PCBs

**Sources**
- Electrical equipment
- Building materials
- Inadvertent production

**Legacy**
- Contaminated sediments
- Contaminated food web

**Pathways**
- Stormwater
- Atmospheric deposition
- Groundwater

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### Estimate of Releases of PCBs

<table>
<thead>
<tr>
<th>Source</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large capacitors</td>
<td>1,200 (60 – 2,400)</td>
</tr>
<tr>
<td>Small capacitors</td>
<td>500 (1 - 1,000)</td>
</tr>
<tr>
<td>Residential Trash Burning</td>
<td>28 (14 – 560)</td>
</tr>
<tr>
<td>Transformers</td>
<td>130 (7 - 250)</td>
</tr>
<tr>
<td>Sealants (Caulking)</td>
<td>110 (10 – 1,000)</td>
</tr>
</tbody>
</table>

**Percent of Total Release**

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### Estimate of Legacy PCBs

<table>
<thead>
<tr>
<th>Source</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediments</td>
<td>1440 kg</td>
</tr>
<tr>
<td>Water Column</td>
<td>10 kg</td>
</tr>
<tr>
<td>Biota</td>
<td>40 kg</td>
</tr>
</tbody>
</table>

**Notes:**
- These estimates are made based on available data, largely relying on reported values from the literature. The uncertainty is high.
- Distribution of legacy PCBs in sediments is not uniform throughout Puget Sound.
- Distribution of loading is not uniform throughout Puget Sound.

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**References:**
PBDE

**Sources**
- Consumer electronics
- Furniture
- Mattresses

**Legacy**
- Contaminated sediments
- Contaminated food web
- Landfills

**Pathways**
- Wastewater (Biosolids)
- CSOs
- Stormwater
- Atmospheric deposition

**Estimate of Releases of PBDEs**

<table>
<thead>
<tr>
<th>Source</th>
<th>Release (kg/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor office air</td>
<td>430 (120 - 750)</td>
</tr>
<tr>
<td>Indoor residential dust</td>
<td>150 (100 - 315)</td>
</tr>
<tr>
<td>Indoor office dust</td>
<td>78 (&lt;0.001 - 1,200)</td>
</tr>
<tr>
<td>Indoor residential air</td>
<td>9.5 (0.6 - 18)</td>
</tr>
</tbody>
</table>

Total: 680 kg/yr

**Notes:**
- These estimates are made based on available data, largely relying on reported values from the literature. The uncertainty is high.
- Distribution of loading is not uniform throughout Puget Sound.

**References:**
- Control of toxic chemicals in Puget Sound: assessment of selected toxic chemicals in the Puget Sound basin, 2007-2011 (Ecology and King County 2011); Control of Toxic Chemicals in Puget Sound. Phase 3: Primary Sources of Selected Toxic Chemicals and Quantities Released in the Puget Sound Basin (Ecology, 2011); PBDE Chemical Action Plan (Ecology and Department of Health 2006).
# PAHs

## Sources
- Wood smoke
- Vehicles
- Spills

## Legacy
- Creosote pilings
- Railroad ties
- Asphalt surfaces
- Sediment hotspots

## Pathways
- Stormwater
- Atmospheric deposition
- Groundwater

## Notes:
- The uncertainty is high for the releases data.
- Distribution of loading is not uniform throughout Puget Sound.

## References:
- Control of toxic chemicals in Puget Sound: assessment of selected toxic chemicals in the Puget Sound basin, 2007-2011 (Ecology and King County 2011).

<table>
<thead>
<tr>
<th>Source</th>
<th>Total PAH (kg/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodstoves and Fireplaces</td>
<td>107</td>
</tr>
<tr>
<td>Creosote Treated Marine pilings - total</td>
<td>54</td>
</tr>
<tr>
<td>Creosote Treated Railroad ties</td>
<td>43</td>
</tr>
<tr>
<td>Light Duty Gasoline Vehicle Emissions</td>
<td>29</td>
</tr>
<tr>
<td>Creosote Treated Utility poles</td>
<td>17</td>
</tr>
<tr>
<td>Heavy Duty Gasoline Vehicle Emissions</td>
<td>11</td>
</tr>
<tr>
<td>Petroleum spills, leaks, and improper motor oil disposal</td>
<td>11</td>
</tr>
<tr>
<td>Residential Trash Burning</td>
<td>6.6</td>
</tr>
<tr>
<td>Air Emissions from Ind/Com/Institut. Sources</td>
<td>5.2</td>
</tr>
<tr>
<td>Lawn and Garden Equipment Emissions</td>
<td>5.0</td>
</tr>
<tr>
<td>Pulp and Paper Mills</td>
<td>3.2</td>
</tr>
<tr>
<td>Aluminum Mills</td>
<td>2.7</td>
</tr>
<tr>
<td>Petroleum Refineries</td>
<td>2.3</td>
</tr>
<tr>
<td>Commercial Equipment Emissions</td>
<td>2.0</td>
</tr>
<tr>
<td>Heavy Duty Diesel Vehicle Emissions</td>
<td>1.8</td>
</tr>
<tr>
<td>Construction Equipment Emissions</td>
<td>1.4</td>
</tr>
<tr>
<td>Gas Station Emissions</td>
<td>1.2</td>
</tr>
<tr>
<td>Tire wear</td>
<td>1.0</td>
</tr>
<tr>
<td>Recreational Equipment Emissions</td>
<td>0.9</td>
</tr>
<tr>
<td>Coal tar sealants</td>
<td>0.9 (0.2 - 1.7)</td>
</tr>
<tr>
<td>Recreational Boat Emissions</td>
<td>0.9</td>
</tr>
<tr>
<td>Other Industrial and Military Facilities</td>
<td>0.6</td>
</tr>
<tr>
<td>Roofing materials - total</td>
<td>0.6</td>
</tr>
<tr>
<td>Locomotive Emissions</td>
<td>0.6</td>
</tr>
<tr>
<td>Industrial Equipment Emissions</td>
<td>0.3</td>
</tr>
<tr>
<td>Light Duty Diesel Vehicle Emissions</td>
<td>0.2</td>
</tr>
<tr>
<td>Residential Yard Waste Burning</td>
<td>0.1</td>
</tr>
<tr>
<td>Logging Equipment Emissions</td>
<td>0.05</td>
</tr>
<tr>
<td>Agricultural Equipment Emissions</td>
<td>0.04</td>
</tr>
<tr>
<td>Residential Fuel Combustion, except Wood</td>
<td>0.04</td>
</tr>
<tr>
<td>Cigarette smoke</td>
<td>0.03 (0.02 - 0.03)</td>
</tr>
<tr>
<td>Asphalt - total</td>
<td>0.02</td>
</tr>
<tr>
<td>Airport Service Equipment Emissions</td>
<td>0.02</td>
</tr>
<tr>
<td>Railroad Maintenance Equipment Emissions</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Total: 310,000 kg/yr
<table>
<thead>
<tr>
<th></th>
<th>PCBs</th>
<th>PDBE</th>
<th>PAHs</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTW</td>
<td>120 – 1,600</td>
<td>6,600 – 19,300</td>
<td>10 – 40</td>
</tr>
<tr>
<td>Surface Runoff</td>
<td>2,000 – 12,500</td>
<td>4,100 – 8,000</td>
<td>260 – 360</td>
</tr>
<tr>
<td>Air Deposition</td>
<td>230 – 1,290</td>
<td>2,300 – 5,600</td>
<td>30 – 90</td>
</tr>
<tr>
<td>Groundwater</td>
<td>NC</td>
<td>NC</td>
<td>10 – 530</td>
</tr>
</tbody>
</table>

From Puget Sound Regional Toxics Model. Washington State Department of Ecology. 2015
Vessels Working Group Outputs

Todd Hass, PhD
Chair, Vessels Working Group
Puget Sound Partnership
June 14 2018
Working Group Assignment for Meeting #1: Product 1: The universe of potential actions to reduce ‘vessel noise and physical disturbance’ to SRKW

“What noise sources have the greatest impact on orcas?”

- Shipping
- Small vessels
- Sonar
- Ferries
Overarching Direction from Task Force:

- Highlight actions that will have short, medium, and long-term impact yes-variable onset
- Develop a suite of multiple solutions, rather than looking for just one solution yes-portfolio w/ 4
- Come up with strong and inclusive policies and bold, concrete, implementable actions at different scales yes-local to Salish Sea
- We will keep a tally of potential social, economic and environmental costs and benefits. yes-process warning: keep list short for sufficient context/engagement -- or bust
Potential Actions for Year 1 In-Depth Discussions

• Create **speed limits** for small vessels near SRKWs
• Expedite transition to quieter **WA State ferries transition**
• Develop/apply best, safe practices for recreational use of **echosounders**
• Create **permit system** for commercial whale watching vessels
• Expand Washington State collaboration in **transboundary shipping mitigation** options via ECHO
• Balance and advance **no-go zone** implementation
Questions and consideration requests from SRKW Task Force *in italics*; provisional answers from sources and/or Chair, Todd Hass after hollow bullets

**Topic 1. Sonar**

- What are some options for dealing with the fact that depth sounders are pinging at a frequency that interferes with orca foraging?
  - Require such vessels, when consistent with navigational safety, to shut off sonars and other underwater transducers within 1 km (vicinity) of the whales. (CEOP, PWWAVG) *Highlighted among initial 6 options.*
  - *Is the Navy’s use of sonar equipment out of Bremerton and other places impacting the whales?*
  - Recommended for fall phase of discussions.

**Topics 2. & 3. Ships and Small Vessels**

- *Can we change the geographic distribution of vessels?*
  - Yes—in theory and practice—for example, options like no-go zones and lateral displacement of the international shipping traffic separation scheme, for small vessels and ships, respectively.
  - *Consider creating a communication system between the whale watching fleet and commercial shipping, so the whale watching fleet can let them know where whales are at certain times and they can slow down in those areas.*
  - ECHO and Washington State Ferries are collaborating on advancing a communication system. *Highlighted among initial 6 options.*

**Topic 2. Ships**

- *What incentives does industry need to participate voluntarily?***
  - Vaguely worded/applied: can seek answers through ECHO, though voluntary participation in slowdown trials in 2017 (>60%) and 2018 expected if well-
Questions?

Clint Rivers, Eagle Wing Tours