Contaminants Working Group

Considerations for Evaluating Potential Actions SRKW Contaminants Working Group to Task Force

Ban all PCBs in Consumer Products	**Effectiveness:** M	**Affordability: H**	**Ease of Implementation: M**
Location: (listed by priority) Sound-wide State-wide ban of PCBs in products—target primary sources • Packaging • State purchased products **Timing/Prioritization:** Effective in 2020 with phase-outs starting in 2025	Brief explanation of rating: Addresses new sources only. Still significant quantities of PCBs cycling in the ocean. Has global impact to eliminate sources of PCBs in products • Pigments and colorants • Paint/chalk limits • Road paint limits • Packaging limits Magnitude of benefit to SRKW (quantify if possible): Source reduction. Transitioning to PCB-free products or set ultra-low levels Time for response to occur: Start in 2020 • Similar to 'Better Brakes' copper reduction • Set levels below 50ppm • Help provide guidance • Set Specifications Degree of certainty: High Examples: Yellow road paint, transitioning to insect based fish food	Brief explanation of rating: Puts responsibility to manufacturers to formulate PCB free products TBD for implementation (High-med) High for creosote piling removal (PAHs) Estimated cost to implement (in dollars): $300k per biennium (1 FTE) $100k product testing and monitoring (.5FTE + lab costs) $200k Alternatives assessments for packaging (contractor) Degree of certainty: High.	Brief explanation of rating: Needs regulatory authority, to set limits and enforce ban Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): Good. Existing models—'Better Brakes' Degree of alignment with current federal and state law (versus requiring changes to laws): Supports state policy on PCB reductions in Gov. SRKW EO and State PCB law Political/social feasibility: Potential resistance from industrial producers. Some brands are interested in sustainable packaging and products. Technical feasibility: Industry will need time to transition. Lab methods need to be improved/developed for detection/compliance. Promotes innovation and green chemistry. Degree to which it reinforces or leverages existing efforts: Leverages State Department of Enterprise Services 'PCB Products Policy' Degree of certainty: Good/Medium

- Location and sequencing
  Start in 2020—set limits by 2020
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  Promotes safer products
- Comments on current and potential funding sources and estimated gaps
  Need staffing and resources
- Whether each action will improve conditions for all pods or a subset
  All pods
- Additional considerations unique to Working Group, if appropriate:_____

- Who has the authority to implement each action
  Need authority—or, expand state purchasing programs
- Severity of threat being addressed
  Eliminates new sources of PCBs
- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)
  Priority of the Spokane River Toxics Task Force
- Links to existing programs, communities, groups, or mechanisms
  DES State purchasing rules/guidelines
- If and how each action could be evaluated, monitored and responsive to adaptive management
  Product Testing

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Improve Effectiveness and Implementation of NPDES permits for reducing discharges of toxic chemicals impacting SRKW &their prey	**Effectiveness:** H/M	**Affordability: H/L**	**Ease of Implementation: H/M/L**
Location: (listed by priority) Puget Sound Coast Columbia Strait of Juan de Fuca **Timing/Prioritization:** Start where numeric water quality criteria exist. Develop criteria for other EDCs/PBT. Reconsider existing protections relative to whales and prey (SRKW, Chinook (juvenile and adult), impacts to forage fish necessary to support a healthy ecosystem)	Brief explanation of rating: NPDEs permitted discharges represent the last opportunity to remove toxics before entering the environment. Multiple benefits across a suite of contaminants. Possible synergistic benefit w/nutrient reduction. Most stormwater is totally untreated Magnitude of benefit to SRKW (quantify if possible): Reduce loadings to prey likely to result in increased prey survival. And reduced toxic loading to SRKW could contribute to recovery and survival. Time for response to occur: NPDES permits are issued on a revolving basis—5yrs. It can take years for permittees to fully implement, and then it would be limited by chinook lifecycle time frames (5yrs) Degree of certainty: Highly certain that it would significantly reduce pollution. Low certainty that it could achieve water quality standards.	Brief explanation of rating: High: Setting new standards or increasing implementation and enforcement Low: Implementing new permit requirements. Municipalities and rate payers would foot the bill for treatment upgrades, or other increased WQ management Estimated cost to implement (in dollars): • Agency Staffing: 6-10 FTEs. (Currently it can be difficult to recruit and retain enforcement staff at current job classification levels) • Publicly owned treatment Works (wastewater treatment plants): Billions (tens) • Municipal Stormwater: Billions to high millions (current expenditures $250m/yr.) • Industrial Stormwater: billions to high millions • Industrial pre-treatment: millions • Permitting Mid hundred thousands to low millions Degree of certainty:	Brief explanation of rating: High: regulatory feasibility Low: massive upgrades to POTW Low/Med: rate payer bonds Low: Create new criteria for PBDEs and EDCs Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): High: already falls under state and federal regulations, and nothing additional is needed. Degree of alignment with current federal and state law (versus requiring changes to laws): High: existing regulations already support this work. Clear alignment with the Clean Water Act but need work on chemicals w/o numeric standards Political/social feasibility: Question of whether rate payers would agree Technical feasibility: High: benefit for overall reduction with widespread stormwater treatment. Uncertainties: Could be difficult or infeasible to reach human health criteria for PCBs and Science to derive numeric standards is difficult. Degree to which it reinforces or leverages existing efforts: High Degree of certainty: Mixed

	Low certainty for contaminants of emerging concern due to lack of data.	Medium	

- Location and Prioritization
    1. Reissuance of NPDES permits 2. Enforcement 3. Water Quality Standards
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
    - Decrease Pollutants in industrial areas, Benefits to EJ communities; Compliance work =jobs

- Comments on current and potential funding sources and estimated gaps
    - Industrial=Permittee Compliance-private permittee funded
    - Muni/POTW=ratepayer cost
    - Other funding sources =state (SFAP, GROSS) and Federal (EPA, NEP)

- Whether each action will improve conditions for all pods or a subset
    - Primary benefits to J-pod for Puget sound locations

- Additional considerations unique to Working Group, if appropriate:_____
- Who has the authority to implement each action
    - Ecology and EPA
- Severity of threat being addressed
    - High
- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)
- Links to existing programs, communities, groups, or mechanisms
    - Ecology: NPDES, WQ assessment, SFAP, SEC 319
    - Public works Trust Fund?
- If and how each action could be evaluated, monitored and responsive to adaptive management
    - Effluent measurement us a standard NPDES component and could be used to inform management/permitting decisions

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Incentives and 'swap-outs' to reduce legacy sources	**Effectiveness:** H	**Affordability: H**	**Ease of Implementation: H**
Location: (listed by priority) Puget Sound (start with North Sound) Distribution: • Creosote (PAH): marine, forage fish habitat • PCBs: utility corridors, built environment (Pre-ban construction) • PBDEs: built environment, and in consumer products—foams and electronics • PFAS: military and firefighting facilities **Timing/Prioritization:** Initiate program now to build programs Funding ramp-up over time	Brief explanation of rating: It is highly effective to address action closest to the sources, before expensive treatment or clean-up are necessary. We know these exist and can have a positive impact now. Counties have creosote piling removal programs. Magnitude of benefit to SRKW (quantify if possible): Reduce loadings to prey likely to result in increased prey survival. And reduced toxic loading to SRKW could contribute to recovery and survival. Time for response to occur: Forage Fish: 1-2 years Salmonid Rearing: 1-2 years Adult Salmonids: 5-7 years to decades SRKW: Decades Degree of certainty: Highly certain that it will reduce toxic loading, but medium to low on timeline for species-level response	Brief explanation of rating: Can be scaled—highly affordable for pilot programs to right-size incentives for swap-outs. TBD for implementation (High-med) High for creosote piling removal (PAHs) Estimated cost to implement (in dollars): Phase 1: Program to create incentives (3-5 FTE effort), including education and outreach, inform people, businesses and agencies Capital/incentive investments TBD: $1,000,000 or above Degree of certainty: Medium—there aren't current estimates for costs. Estimates for administration are higher confidence based on ongoing programs	Brief explanation of rating: Easy to start pilot programs. We know where most of the sources are. We could then scale as we develop programs and learn early lessons. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): High alignment—no barriers. Degree of alignment with current federal and state law (versus requiring changes to laws): High alignment—no barriers. Political/social feasibility: High (in general) for incentive programs. Exceptions—railroads may be more difficult, and the SCUBA community often resists creosote removal Technical feasibility: Highly feasible. Need to verify good PFAS substitutes. Degree to which it reinforces or leverages existing efforts: Reinforces other 'source control' approaches such as municipal stormwater line cleaning Degree of certainty: Medium Creosote: High Electrical equipment/PCBs: Medium Flame retardants in couches: Uncertain

- Recommendations about where and when to implement each action, including sequencing
  Start Program now, focus on North Sound
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  EG; breaking the recycling chain for PBDEs in couches=benefits to workers who handle disposed couches, reduces sources to humans
- Comments on current and potential funding sources and estimated gaps
  Public investments, generate private investments, organizations currently working in these areas can help better estimate funding gaps
- Whether each action will improve conditions for all pods or a subset
  More for J-pod, statewide programs could also improve conditions for K and L
- Additional considerations unique to Working Group, if appropriate:

- Who has the authority to implement each action
  State and local government
- Severity of threat being addressed
  Prevention =most beneficial; also benefits to people
- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)
  Toxics-prey connection
- Links to existing programs, communities, groups, or mechanisms

- If and how each action could be evaluated, monitored and responsive to adaptive management
  Could measure quantity diverted by programs as implemented—programmatic adaptive management to reassess types of incentives, and new knowledge—and could also measure concentrations in species endpoints (chinook, forage fish)

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Monitoring and New Science	**Effectiveness:** H	**Affordability: M**	**Ease of Implementation: M**
Location: (listed by priority) Aquatic resources utilized by whales and prey **Timing/Prioritization:** • Require Ecology/EPA to add PBDE monitoring to NPDES wastewater permits • Monitor air quality • Monitor volitization of chemicals on water surface • Monitor CECs in PS—via freshwater inputs • Monitor CECs in prey and forage fish • Establish thresholds for CECs that are protective for whales and prey	Brief explanation of rating: Data gaps are present. Monitoring data will establish current conditions to help direct management actions and support adaptive management where/if harm is caused Magnitude of benefit to SRKW (quantify if possible): Data driven solutions for adaptive management to support other actions and strategies Effective management requires data. This action amplifies the impact of other actions. Time for response to occur: Immediately be able to make better informed decisions. Degree of certainty: High	Brief explanation of rating: Collection of samples-field effort, existing groups and teams are in place that could add monitoring to existing effort Estimated cost to implement (in dollars): 1. Existing programs--$3000 for chemical analysis 2. Pilot program $500k. Gather information on logistics, feasibility, and data on samples from multiple sites. Pilot data would guide future sampling efforts Degree of certainty: Low. Above are estimates, there is some information from Goeckel, Mongillo 2012, and EPA estimates.	Brief explanation of rating: Existing programs and expertise for monitoring programs and new analytical methods would be part of the process. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): Degree of alignment with current federal and state law (versus requiring changes to laws): Adding PBDEs to current NPDES is in-line with current law . Monitoring data would provide information useful for regulatory purposes. Political/social feasibility: Yes Technical feasibility: Technically feasible Yes, but new protocols for analytic methods would take time Degree to which it reinforces or leverages existing efforts: Degree of certainty: High

- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed

- Comments on current and potential funding sources and estimated gaps

Not currently funded. Some funding could come from NPDES permittees

- Whether each action will improve conditions for all pods or a subset
  All

- Additional considerations unique to Working Group, if appropriate:_____

- Who has the authority to implement each action
  Not a question of authority.

- Severity of threat being addressed
  The uncertainties around contaminants are an important threat—and poorly studied and understood.

- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)

- Links to existing programs, communities, groups, or mechanisms
  Many existing monitoring programs could be enhanced, and there are many groups currently working in associated monitoring programs.

- If and how each action could be evaluated, monitored and responsive to adaptive management
  Could look to see if monitoring is answering resource management questions, and if it appears to be driving policy decisions

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Prioritize Chemicals and Develop and Implement Plans to Reduce Harm	**Effectiveness:** H	**Affordability: M**	**Ease of Implementation: H**
Location: (listed by priority) Puget Sound/region-wide. Could work transboundary with Canada **Timing/Prioritization:** Take direct actions for immediate high-priority work: • Conduct alternatives assessments (AA) • Enforce bans/take regulatory action Responses: o Phase outs o Bans o Restrictions o Incentives • Prioritize New Endocrine Disrupting Chemicals (and chemical classes) o Phthalates Chemical Action Plan (CAP) o Expand existing product laws and update Persistent Bioaccumulative toxins	Brief explanation of rating: Most Cost effective tool for eliminating sources of Toxics Magnitude of benefit to SRKW (quantify if possible): • Eliminates the source of pollution impacting SRKW • Improve health • Increase prey survival and ecosystem health Time for response to occur: Immediate action that will result in long-term and sustained toxics reduction. Shifts the market for manufacturers to make safer products. Degree of certainty: Highly possibility of successes, for example, PBDE case study. We have 5 existing Chemical Action Plans. 100% compliance with product laws.	Brief explanation of rating: Based on cost of enhancing existing programs. Estimated cost to implement (in dollars): $400-800k for AA $300k for enforcement staff $300k for CAP Coordinator $300k for rule writer Degree of certainty: High, if directed and based on experience of FTEs and costs.	Brief explanation of rating: Based on existing experience with toxics reduction. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): Have existing authority, fills gaps in federal law. May need new authority for other 'regulatory response' for SRKW chemicals to ban, restrict, or phase out as listed in the NOAA SRKW list of chemicals. Degree of alignment with current federal and state law (versus requiring changes to laws): Can't wait for federal agencies to act. Political/social feasibility: Good support from interested parties (industry, local gov, tribes, NGOs and agencies). Ranked highly by Toxics in Fish experts. Technical feasibility: Highly feasible. Degree to which it reinforces or leverages existing efforts: Leverages existing resources w/ ecology and department of health. Adds capacity, and can leverage efforts across states and provinces. Degree of certainty: High (good)

- Location and Sequencing
  Start July 2019, FY19-20 biennium ongoing funding
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  Benefits to communities and people, and addresses EJ concerns
- Comments on current and potential funding sources and estimated gaps
  Needs more funding to accelerate actions. Funding would most likely come from the state
- Whether each action will improve conditions for all pods or a subset
  Reduces toxics at the source—would benefit all pods but larger benefit to J
- Additional considerations unique to Working Group, if appropriate:
  Could have international impacts
- Who has the authority to implement each action
  Dept. of Ecology, Health
- Severity of threat being addressed
  Chemical pollution is impacting SRKW and is sever and chronic
- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)
  Links to existing programs, communities, groups, or mechanisms
  Existing programs and likely authority, but under resourced.
- If and how each action could be evaluated, monitored and responsive to adaptive management
  Toxics monitoring to track results

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Prioritize and Accelerate clean-up based on the risk to species and expand efforts for sediment remediation (PCB, PBDE, PAH, mercury)	**Effectiveness:** M	**Affordability: L**	**Ease of Implementation: H/M**
Location: Sediment cleanup is most important in areas where human development over the past 150 years has left a legacy of toxic contaminants This include, but are not necessarily limited to: • Duwamish river/estuary • Commencement Bay • Anacortes • Portland Harbor • Hanford Reach • Sinclair/Dyes Inlet • Lake Union • (Victoria Harbor, and the Frasier Delta) **Timing/Prioritization:** • Salmonid Rearing areas • Forage Fish Spawning Beaches • 'Hot spots' over 'sensitive areas'	Brief explanation of rating: Sediment remediation and aquatic macro communities will have and impact low in the food web. Recognize that nearshore sediments and habitat have a large impact on the survivability of forage fish and juvenile salmonids. Rated medium because the response in killer whales would not likely be immediate. But remediation and restoration are highly effective for forage fish Magnitude of benefit to SRKW (quantify if possible): Difficult to quantify. Early marine survival of SRKW prey is severely depressed, and both forage fish and Chinook rely on nearshore habitats likely to be contaminated. Restoring nearshore habitat for forage fish—as food for chinook, and as 'buffer prey' to reduce predation on outmigrants—are critical to long-term chinook viability. Time for response to occur: Habitat Improvement: Forage Fish 1-2 years Salmonid Rearing: 1-2 years	Brief explanation of rating: Affordability is low due to the cost of projects—however if this was a prioritization criteria for existing funds (and did not 'accelerate' cleanup) it would be considerably less expensive Estimated cost to implement (in dollars): Puget Sound/Project • Dredging: $10-30m • Disposal: $5m • Capping: $3m • Columbia: $5-10m Degree of certainty: • Low: Not certain to be cost effective. Changes in technology could lead to cost savings	Brief explanation of rating: High: because regulations are already in place to move these projects through a process Medium: Process is time consuming, difficult, and competes for priority with other problems. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): High: already falls under state and federal regulations Degree of alignment with current federal and state law (versus requiring changes to laws): High: MTCA and CERCLA (State and Federal clean-up laws) Political/social feasibility: Currently, funding for aquatic sediment remediation is low Technical feasibility: High, but should consider increasing funding towards new promising technologies for sediment remediation Degree to which it reinforces or leverages existing efforts: Existing regulations in place—needs additional funding Degree of certainty: High: If funding were increased and available, the implementation would be easy

	Degree of certainty: High. Highly certain that remediation and protection of nearshore habitats will benefit forage fish and salmonids.		

- Location and Priorities above
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  Sediment cleanup can have large benefits to people. Historically disadvantaged communities are often subject to more toxic environments—and cleanup of urban water ways can disproportionally benefit these communities.
- Comments on current and potential funding sources and estimated gaps
  MTCA, CERCLA. Funding gap is significant. ($10s-100s m)
- Whether each action will improve conditions for all pods or a subset
  J pod is most impacted, but it would depend on where cleanup took place
- Additional considerations unique to Working Group, if appropriate:_____
- Who has the authority to implement each action
  State and federal cleanup programs
- Severity of threat being addressed
  Chronic, ongoing threat. Probably most important when considering forage fish habitat
- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)

- Links to existing programs, communities, groups, or mechanisms

- If and how each action could be evaluated, monitored and responsive to adaptive management
  Could measure pollutant levels in proximate biota, or in species that are passing through areas to measure impacts to species critical to prey survival.

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Reduce Stormwater Threats through prioritizing, planning, and implementing stormwater source control and treatment, and incentivizing redevelopment	**Effectiveness:** H	**Affordability: H**	**Ease of Implementation: H**
Location: Priority locations are commercial and industrial lands. These areas are stormwater toxicity hotspots. There are geographic hotspots such as the Snohomish basin (watershed scale), and the Duwamish. Transportation infrastructure, such as state owned highways, also represent hot spot reduction opportunities. **Timing/Prioritization:** Phase 1 (2-3 years): Identify priority areas, Phase 2 (1-2 years): plan approach (source control, retrofits, redevelopment) Phase 3 (ongoing): Implement	Brief explanation of rating: Financial vehicle for areas not covered by new development requirements (retrofits and redevelopment). Largest barrier is funding, long history of implementation. Magnitude of benefit to SRKW (quantify if possible): Addresses the largest contribution of toxics to SRKWs Highly beneficial for juvenile chinook survival Highly beneficial to forage fish and herring survival Time for response to occur: As facilities are built response in forage fish and juvenile salmonids and forage fish would be immediate. It could take years or decades to see increases in chinook productivity It could take decades to see reductions of contaminants in SRKW Degree of certainty:	Brief explanation of rating: High affordability because it can leverage existing efforts. Additionally piloting innovative approaches to develop and explore incentives is relatively inexpensive (Building Cities in the Rain, Public Private Partnerships, Peterson proviso) Estimated cost to implement (in dollars): Could tackle biggest bang for the buck areas. Could likely realize 50% of the benefits by fixing 10% of the areas. $80m-150m/biennium for treatment of 25% of the pollutant load. $300m-400m/biennium for treatment of 50% of the pollutant load. Additional cost savings may be found by learning from most efficient facilities built to date. <u>Source of info</u> • Watershed plans for NPDES Phase I permittees (King, Snohomish, Clark) • Recent NTA on Cost benefits • King County retrofit Study (WRIA 9 $46m for 100yrs) • Past Stormwater Financial Assistance Program funding levels	Brief explanation of rating: High: Existing grant programs (SFAP, Centennial) are easily scalable to accommodate additional funding. We have a long history of implementing these activities. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): High: already falls under state and federal regulations Degree of alignment with current federal and state law (versus requiring changes to laws): High: MTCA and CERCLA (State and Federal clean-up laws) Political/social feasibility: Public awareness and support is high in our region. Additionally these projects have benefits for green job creation, and local construction. Additionally, there are environmental justice benefits to cleaning up areas disproportionately burdened by toxics. Technical feasibility: High. Our region is the center of stormwater innovation. Lots of evidence and existing expertise from site identification to design through implementation. Degree to which it reinforces or leverages existing efforts: High. It adds additional prioritization and funding to existing grant programs. It also encourages the redevelopment of under-utilized commercial and industrial lands (such as brownfields) which would accelerate existing redevelopment and clean-up efforts.

	High. Not Trial and error. Have data and science, we know how to implement	Degree of certainty: High	Existing projects underway for CSO planning, ECY stormwater retrofit program NPDES basin planning, capital facilities plans. It could also be used to prevent MTCA/Superfund cleanup recontamination. Degree of certainty: High:

- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  These projects have benefits for green job creation, and local construction. Additionally, there are environmental justice benefits to cleaning up areas disproportionately burdened by toxics.
- Comments on current and potential funding sources and estimated gaps
  State Funded programs
  - *$80m-150m/biennium for treatment of 25% of the pollutant load.*
  - *$300m-400m/biennium for treatment of 50% of the pollutant load. Additional cost savings may be found by learning from most efficient facilities built to date.*

- Whether each action will improve conditions for all pods or a subset
  Most benefits to J-pod inside PS. These threats are less prevalent on the coast, and could address other hotspots in the Columbia River Basin.

- Additional considerations unique to Working Group, if appropriate:
  This will assist with municipal stormwater permit implementation by funding local governments and would provide additional benefits beyond ocra and the environment—human health, and increasing property values.

- Who has the authority to implement each action
  Ecology, local govts, WSDOT

- Severity of threat being addressed
  Juvenile chinook survival, and forage fish/herring populations=limiting factors for chinook early marine survival.

- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)
  Prey—toxics limit survival, health of forage fish, corollary habitat benefits to some actions (flow, habitat temperature, nutrients, etc.)
  Vessels—fueling stations, oil spills, boatyards/shipyards, hull cleaning, etc.

- Links to existing programs, communities, groups, or mechanisms

Stormwater Financial Assistance Program, NPDES municipal and industrial stormwater permits, Stormwater Action Monitoring

- If and how each action could be evaluated, monitored and responsive to adaptive management
  Programmatic monitoring designed to encompass adaptive management

Considerations for Evaluating Potential Actions
SRKW Contaminants Working Group to Task Force

Reform Federal Toxics Laws to take a Precautionary Approach	**Effectiveness:** H	**Affordability: M**	**Ease of Implementation: M**
Location: (listed by priority) Federal policy action to prevent priority chemicals from contaminating and harming SRKW. Shorter Term, could utilize the Pacific Coast Collaborative to implement policy along the West coast. **Timing/Prioritization:** 10-15 years. Recent Toxics Substances Control Act reform may make it difficult to reform the federal statute to make it appropriately protective.	Brief explanation of rating: A law that is robust and comprehensive that stops the flow of harmful chemicals into the environment is the most effective approach to protect SRKW from contamination. Magnitude of benefit to SRKW (quantify if possible): SRKW are subject to myriad contaminants, the effects of many are not known. For long term recovery it is critical to reduce the risk of a mixture of toxics they are exposed to. Time for response to occur: Long-term Degree of certainty: High	Brief explanation of rating: It will cost money to implement the lew law, but it will prevent future clean-up costs. It shifts the cost burden from the public (in the form of cleanup costs) to consumers and producers. TBD for implementation (High-med) High for creosote piling removal (PAHs) Estimated cost to implement (in dollars): Difficult to quantify—shifts current cleanup and treatment costs upstream. Degree of certainty: Medium	Brief explanation of rating: It will require a shift in approach to chemical regulation that focuses on the hazards of chemicals, requiring significant data to be disclosed and evaluated, including an assessment of alternatives and enforcement. Regulatory feasibility (laws, regulations and treaties—including local, state, federal, international, tribal, etc.): There is existing federal Toxics Substances Control Act (TSCA) which was recently updated. It will take a number of years to make federal changes making state action a priority at this time. The recent updates to TSCA are extremely inadequate to address concerns relevant to SRKW. Degree of alignment with current federal and state law (versus requiring changes to laws): This would require a change to federal law. Political/social feasibility: Medium: This is a heavy lift—but it represents a much better way to address toxic chemicals in commerce and in the environment. Technical feasibility: Technically feasible Degree to which it reinforces or leverages existing efforts: Degree of certainty: High

- Location and priorities;
  Federal legislative action, or coastal states
- Social/cultural, economic, community, and environmental costs and benefits of actions (local and statewide), and potential ways to ameliorate any negative impacts. The equity of impacts will also be discussed
  This action would shift current cost burdens (cleanup, treatment, health impacts) from the general public to producers, and consumers of products that contain toxics.
- Comments on current and potential funding sources and estimated gaps

- Whether each action will improve conditions for all pods or a subset
  All pods

- Additional considerations unique to Working Group, if appropriate:_____

- Who has the authority to implement each action
  Congress. Possibly WA, there are questions about federal preemption.

- Severity of threat being addressed
  Prolific, and chronic.

- Information on integration (tradeoffs and complementarities across the actions under the three threat areas)

- Links to existing programs, communities, groups, or mechanisms
  Could build off existing authority, but would likely require federal action to be most sucessful

- If and how each action could be evaluated, monitored and responsive to adaptive management