

SOUTHERN RESIDENT KILLER WHALE TASK FORCE PREY POTENTIAL ACTIONS

SUMMARY TABLE OF PREY POTENTIAL ACTIONS FOR 2018 REPORT

The Table below (Pages 1-7) is intended to be an abbreviated way to see the outcomes of the Prey Working Group discussions on each action. For more detailed information on an action and an explanation of ratings, click the hyperlink embedded in each action name to be directed to the full matrix of considerations.

Effectiveness: the ability for the action to contribute to SRKW recovery by improving prey abundance

Affordability: High (Under \$30million), Medium (\$30million-\$100million), Low (\$100million+)

Ease of Implementation: Considers technical, regulatory, social, and political factors

Timeline of SRKW benefits once action is implemented: Immediate (0-3 years), Intermediate (3-10 years), Long-term (10+ years)

Note: The Prey Working Group would like to stress that there is a great deal of uncertainty related to many of the rankings of the actions considered due to incomplete knowledge. More time to discuss and source information or create information through models, studies, etc. would/will create greater certainty around these rankings.

Green font indicates those actions were highly supported by the Task Force on 8/7/18

Black font indicates those actions that had a mixed amount of support and/or those actions that the Task Force need more information in order to make decisions regarding support

(*) indicates low level of agreement in the Working Group for rating

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
Hydro	<p>A1. <u>Recommend that Ecology adjust total dissolved gas standards (match or exceed OR's gas caps) on the Snake and Columbia rivers to allow flexibility to adjust spill regimes, as needed, to benefit Chinook salmon and other salmonids.</u></p> <p>Potential specific recommendations:</p> <p>a) Recommend that Ecology remove the 115% forebay total dissolved gas standard, leaving just the 120% tailrace standard in place on the Snake and Columbia Rivers to allow flexibility to adjust spill regimes, as needed, to benefit Chinook salmon and other salmonids.</p>	H	M	H*	Intermed	<p>Supporting:</p> <ul style="list-style-type: none"> Increased spill leads to increased survival rates of migrating fish. Even if funds are reallocated away from habitat etc. due to increases in spill, the action has the potential to result in such an improvement to the number of fish successfully migrating that it would be worth it. Also, other funding sources could be sought to replace those lost. 	<ul style="list-style-type: none"> Affordability depends on how much is spilled and when (spilling to 125% 24 hours a day would be relatively less affordable, but other amounts of spill, or flexible spill regimes could be medium or high affordability) Spill regime and gas cap not inextricably linked – TF could recommend changing gas caps without changing spill regimes, which would allow flexibility to use the best available science to decide how much spill is beneficial at specific dams/systems, years, etc.

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<p>b) Recommend that Ecology adjust gas standards to 125% on the Snake and Columbia Rivers to allow flexibility to adjust spill regimes, as needed, to benefit Chinook salmon and other salmonids.</p> <p>A2. Recommend that Ecology adjust total dissolved gas standards (match or exceed OR's gas caps) on the Snake and Columbia rivers and that spill be increased to these increased TDG standards to benefit Chinook salmon and other salmonids.</p> <p>Potential specific recommendations:</p> <p>a) Recommend that Ecology adjust gas standards to 120% tailrace-only standard on the Snake and Columbia rivers and that spill be increased to this level to benefit Chinook salmon and other salmonids.</p> <p>b) Recommend that Ecology work with Oregon to adjust gas standards to 125% on the Snake and Columbia rivers and that spill be increased to this level to benefit Chinook salmon and other salmonids.</p>					<ul style="list-style-type: none"> • NEPA process is too slow to benefit the SRKW when they most need it – action is needed before that process is complete in 2021 or 2022. <p>Dissenting:</p> <ul style="list-style-type: none"> • Disagreement on science about impacts of increased spill. Dueling models for how much more benefit additional spill provides—more light will hopefully be shed via NEPA over next 3 years, as well as potential new dam operations during that period. • Increased cost of changes in spill management could result in BPA reallocating funding currently going to habitat improvements or hatcheries 	<ul style="list-style-type: none"> • Barging of fish beyond dams may be a related action that will allow for greater survival of fish under certain dry year conditions. • Task Force has requested additional information on this issue
<p><u>C. Increase survival at predation hot spots associated with dams</u></p> <p>Potential specific recommendations:</p> <p>a) Distribute the discharge/release sites for juvenile salmonids collected at Columbia and Snake River dams</p> <p>b) Support existing cormorant management plan objectives for East Sand Island in the Columbia River Estuary (including discouraging nesting on the Astoria/Megler bridge)</p> <p>c) Request direct congressional appropriations and authority to USACE to restore/create cormorant nesting habitat in non-sensitive areas outside of the Columbia Basin, such as has already been done as part of the federal Caspian tern management plan. Creation of habitat will allow</p>	M	M	L	Intermed	<p>Supporting:</p> <ul style="list-style-type: none"> • Predation has been shown to be a massive issue in some locations limiting Chinook stocks <p>Dissenting</p> <ul style="list-style-type: none"> • Uncertainty at ecosystem-wide scale effects and unintended consequences that may not benefit Chinook or SRKW • Lethal removal is an emotional issue for mammals and birds especially and may lead to lawsuits 	<ul style="list-style-type: none"> • Affordability will vary by specific action: reservoir management could be expensive, while others less expensive • Effectiveness of many of these actions is uncertain and therefore rankings difficult • Will have to monitor to assess benefits and discontinue if ineffective • Additional culling pilot programs should only be approved for a discreet period of time (e.g. 5 years) before reassessment.

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<p>for expanded management options by alleviating habitat constraints in other areas of the cormorant's range.</p> <p>d) Support further relocation of Caspian terns from the Columbia River Estuary to historical or prepared colony sites outside of the Columbia River Basin.</p> <p>e) Open Yakima River flow by removing Bateman Island causeway</p> <p>f) Support the McNary pool/reservoir study to evaluate predatory fish population survival reduction through reservoir elevation management</p> <p>g) Increase Snake and Columbia River spill to reduce predation rates below dams</p> <p>h) Support non-lethal dissuasion to reduce bird predation near dams (lethal removal potential action is found in Predation section)</p>						
<p>E. Prioritize and fund re-establishment of runs into currently blocked areas above dams in those areas that can successfully produce more salmon.</p> <p>Potential specific recommendations:</p> <p>a) Co-managers and regional organizations identify, assess and prioritize appropriate locations, cost, management, operations and other key information necessary to implement re-establishment of salmon runs</p> <p>b) Provide policy support for reintroduction upstream of Chief Joseph and Grand Coulee Dams for both the near-term trap and haul efforts (cultural releases implemented by the Upper Columbia tribes) as well as the long-term phased approach in the Northwest Power and Conservation Council's Fish and Wildlife Program and the Columbia River Treaty.</p>	H	L	L	Intermed		<ul style="list-style-type: none"> Effectiveness is variable, depending on location High affordability and ease of implementation for trap and haul but these would be smaller scale operations and smaller benefits to SRKW (low effectiveness). Volitional passage very expensive and more difficult to implement. The list of dams was quickly identified, and it is likely that there are many other dams in the state that pose a problem for Chinook salmon. Re-established runs should be self-sustaining (over the long-run) and not dependent on additional hatchery operations. See Regional Organization comments LINK
<p>F1. Remove other hydro and non-hydro dams in locations that most benefit Chinook passage</p> <p>Potential specific recommendations:</p> <p>a) Support funding for currently agreed to/supported dam removal projects across the state benefiting Chinook.</p>	H	L	L	Intermed	<ul style="list-style-type: none"> Variable affordability, efficacy, depending on location Consider SRKW chinook in proposals for new dams No new dams doesn't account for potential climate change impacts 	<ul style="list-style-type: none"> See WA Environmental Council/American Whitewater list of priority blockages See Regional Organization comments LINK

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<p>b) Develop a list of dams that have already been removed to benefit salmon and develop a list of priority projects for potential removal</p> <p>c) Halt dam projects that aim to address flooding on the Chehalis River. Instead, the state should pursue non-dam options to address flooding as WDFW assesses the potential impacts that dams on the Chehalis River would have on Chinook salmon and Southern Resident orcas.</p> <p>d) From American Whitewater list: In the next 1-3 years:</p> <ul style="list-style-type: none"> • Middle Fork Nooksack Diversion Dam on the Middle Fork Nooksack River, • Pilchuck on the Middle Pilchuck River, and • Nelson Dam on the Naches River. <p>In the next 4-5 years:</p> <ul style="list-style-type: none"> • Chambers Creek Dam on Chambers Creek • Enloe Dam on the Similkameen River <p>5 years plus:</p> <ul style="list-style-type: none"> • Electron Dam on the Puyallup River 					<ul style="list-style-type: none"> • Existing law (RCW 77.57.030) allows for the state to require fish passage improvements and/or removal to benefit salmon, but it is rarely enforced. • Dams that are known to have fish passage issues that should be looked at for removal or fish passage improvements include: Buckley Dam (White River), Chambers Creek Dam (Chambers Creek), Electron Dam (Puyallup River), Enloe Dam (Similkameen River), Middle Fork Nooksack Diversion Dam (Nooksack River), Pilchuck River Diversion Dam (Pilchuck River) 	
<p><u>F2. Remove the four lower Snake River dams to benefit Chinook passage</u></p> <p><u>Potential specific recommendations:</u></p> <p>a) Support the ongoing NEPA process and other discussions around potential removal of the lower Snake River dams to benefit Chinook populations.</p> <p>b) Develop a local/state/federal table to discuss how to mitigate impacts to local communities, energy transmission system, and regional stakeholders, including hatcheries, when/if the dams are removed.</p> <p>c) Develop a potential outline of a package to fund hatchery production to prevent any decreases in Chinook abundance due to dam removal (Snake River hatcheries currently depend on funding tied to the dams' existence and operation; LSRCP documents report the budget is \$30 million annually)</p>	H	L	L	Intermed, once implemented	<ul style="list-style-type: none"> • Variable opinions on affordability, efficacy, timeline to action implementation. 	<ul style="list-style-type: none"> • See Regional Organization comments LINK • Task Force has requested additional information on this issue

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	<p>d) Advocate that Army Corps unilaterally make a decision to stop operating the dams and seek authority to breach dams in near-term. Work to develop mitigation package for affected communities and stakeholders, and to fund necessary hatcheries and habitat actions in the absence of mitigation funding depending on dam operations. Work to ensure dam's energy is replaced with carbon-free alternatives.</p> <p>e) Pass executive order in favor of LSR dam removal and replacement with carbon-free alternatives.</p>						
	<p>G. Expedite NEPA process for Columbia River operations</p> <p><u>Potential specific recommendations:</u></p> <p>a) Request Governor to send USACOE a letter requesting that NEPA be expedited</p> <p>b) Request that the NEPA process and related BiOp fully consider the impact of the FCRPS on the SRKWs and recommend that the alternatives analysis fully consider, especially in light of climate change: (a) increased spill system-wide up to 125 TDG, and (b) breaching the lower Snake River dams.</p> <p>c) Oppose any additional extension of time to complete the FCRPS NEPA review process.</p>						<ul style="list-style-type: none"> It is unlikely that the State of Washington could expedite the timeline for the NEPA process for the Federal Columbia River Power System (FCRPS)
Hatchery	<p>A1. Increase hatchery production at facilities that most benefit SRKWs, in a manner consistent with wild fish conservation and the ESA</p> <p><u>Potential specific recommendations:</u></p> <p>a) Increase hatchery production at facilities that most benefit SRKWs, in a manner consistent with wild fish conservation and the ESA. Pair this action with investments in habitat protection and restoration to be effective.</p>	H	H	M	Intermediate	<p>Supporting:</p> <ul style="list-style-type: none"> Increases are essential in the near term for the whales due to dire need for more Chinook Disagreement with some that believe wild stocks are not impacted by hatchery fish. It is possible to increase production in some areas without negatively impacting 	<ul style="list-style-type: none"> Although nuanced, ensuring consistency with wild fish conservation and ESA is not the same as ensuring consistency with recovery plans. Recovery plans include specific actions, measures, and targets that agencies have committed to achieving, that are not accurately captured simply by referencing ESA and wild fish conservation. Decisions on production increase locations should consider adjacent wild stock categorization

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	<p>b) Increase hatchery production at facilities that most benefit SRKWs, in a manner consistent with wild fish conservation, state and federally adopted recovery plans, and the ESA. Pair this action with investments in habitat protection and restoration to be effective.</p> <ul style="list-style-type: none"> Ensure this action is coupled with investments in habitat restoration, protection, acquisition. Follow advice of regional recovery organizations to understand where these investments should occur 					<p>wild stocks (for example see suggestion letter from ODFW)</p>	<p>(supporting, contributing, and primary) and not affect primary stocks (where these categorizations exist).</p> <ul style="list-style-type: none"> Due to carrying capacity issues, habitat improvements are needed for increases to be effective at producing adult fish. Needs a strong emphasis on comprehensive reviews (5 year intervals) and adaptive management (annual) to limit hatchery impacts to wild stocks. Should consider: stray rates, productivity, PNI, juvenile rearing carrying capacity, smolt to adult ratios, genetic fitness, etc. Limited ability to use mark selective harvest to remove hatchery fish because Canada does not mark their fish. Locations of harvest of these hatchery fish needs to ensure that SRKW get a chance to forage on them first. Canada does not mass mark its hatchery Chinook production at this time. As far as implementing MSF fisheries, the mark-rate (i.e. % fish that are adipose clipped out of total) needs to be higher than the release mortality rate (approx. 15-20%) so that an implemented fishery does not have release mortalities that negate potential benefits for wild fish. Canada will be reviewing the renegotiated Pacific Salmon Treaty requirements and may consider additional MSFs to meet required reductions to meet conservation objectives in the Treaty. Increased production may increase risk for wild fish recovery. WDFW should proactively coordinate with Regional Organizations to ensure any increased hatchery production aligns with recovery plan goals and objectives, prior to making decisions. This should include evaluation and modeling of risks and benefits, where

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							<p>supported by data. This evaluation should also address populations in the Coast Region, where the focus would be to ensure hatchery production does not result in increased risk to non ESA-listed natural origin populations. See Lower Columbia Fish Recovery Board Comments regarding implementation of the Conservation and Sustainable Fisheries Plan (LINK)</p> <ul style="list-style-type: none"> • Increased hatchery production is not a long-term goal or solution in itself but instead just one tool to get to larger Chinook abundances. Larger goal is healthy wild Chinook populations and ecosystems. • If production is increased it needs to be for a timeframe only (e.g. 10 years) before it is fully analyzed for effectiveness. Do not want this effort to result in a blank check for more hatchery production for other purposes. • See Regional Organization comments LINK • Chinook populations in 10 rivers (Nooksack, Stillaguamish, Snohomish, Lake Washington, Green/Duwamish, Puyallup, Nisqually, Skokomish, Mid-Hood Canal, and Elwha) in the Puget Sound basin are by the Chinook Management Plan considered “extirpated”. Other management protocols should be considered for those river basins. <p>As hatchery production has decreased so has spawning numbers of Natural Origin Returns (NORS). A more aggressive integrated hatchery program should be looked at.</p>
	<p>B. Provide funding via WDFW to coordinate partners and begin testing actions in hatcheries to: a) increase the marine survival of Chinook, b) adjust return timing and locations to align with whale needs, c) increase size and age of return, and d) reduce potential competition with wild fish.</p>	M	H	M	Intermed		<ul style="list-style-type: none"> • Need to better reflect natural run timing and variability. SRKW would benefit from more diverse prey availability throughout the year and selecting for larger fish. • Consider including pen rearing in this action • Match to historic run timing where possible

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							<ul style="list-style-type: none"> • Need to have a better handle on SRKW historical timing of coming into the Salish Sea and how that information tracks with historical salmon run timing that has probably been altered by hatchery production over the past 100 years.
Harvest	<p>A: Further limit Chinook harvest in areas important to SRKW foraging</p> <p><u>Potential specific recommendations:</u></p> <p>a) Further limit the number of days open to harvest for both recreational and commercial fisheries on the west side of San Juan Island in June-September.</p> <p>b) Only in years with low Chinook availability in coastal and inland waters (which can be defined based on post-season quartile estimates of abundance), further restrict both commercial and recreational harvest on the west side of San Juan Island in June-September.</p> <p>c) Further reduce the number of days open to harvest for both recreational and commercial fisheries in Marine Area 7 (San Juan Islands) in June-September.</p> <p>d) Only in years with low Chinook availability in coastal and inland waters (which can be defined based on post-season quartile estimates of abundance), further restrict both commercial and recreational harvest in Marine Area 7 (San Juan Islands) in June-September.</p> <p>e) Further reduce the number of days open to harvest for both recreational and commercial fisheries in Marine Areas 4, 5, 6, and 7 (Strait of Juan de Fuca and San Juan Islands) in June-September.</p> <p>f) Only in years with low Chinook availability in coastal and inland waters (which can be defined based on post-season quartile estimates of abundance), further restrict both commercial and recreational harvest in Marine Areas 4, 5, 6, and 7 (Strait of Juan de Fuca and San Juan Islands) in June-September.</p>	L	H	L	Immediate	<p>Supporting:</p> <ul style="list-style-type: none"> • If we're serious about SRKWs, then close fisheries as an emergency action with immediate results • Both catch and vessel impacts related to this • Not willing to not weigh in on these decisions even if other entities are working on them. The TF should make known what they see as appropriate to benefit SRKW • TF could recommend that SRKW be considered in harvest recommendations but not be too specific • Instead of broad closure this action could be related to chinook run numbers and SRKW status (e.g. when run numbers are below a certain number and SRKW still have low body condition these areas would be closed <p>Dissenting:</p> <ul style="list-style-type: none"> • Treaty right concerns regardless of whether or not tribes are specifically excluded from harvest limits • Low likelihood of benefit for SRKWs – in Marine Area 7 by closing fisheries alone. 	<ul style="list-style-type: none"> • If any type of closure area is considered (due to vessel and/or prey impacts) then consider it for all stakeholders and not one group, both due to social issues and because it would not be as beneficial to SRKW. • Prioritization of action by fishery should consider duration, effort, mobility, and total Chinook mortalities of each fishing sector along with noise and disturbance potential associated with each sector. Further consideration should assess potential backfill of vessel traffic from other vessel related activities such as; recreational water sports including wildlife watching, diving, kayaking, sailing, etc. • Currently all citizens commercial salmon fisheries are controlled through the use of limited entry permits; authority for implementing recreational fisheries limited entry fisheries and related effort reduction action may require action by the Washington State legislator. Treaty Indian has authority for management of tribal fishers in the individual tribe. • Resulting shift in fishing to other areas would change stock complex of impact potentially resulting in unintended consequences for Chinook. • Post-season review and assessment from 2018 salmon fishery closures implemented by Fisheries and Oceans Canada in key SRKW foraging areas to support increased prey availability and reduce disturbance from fishing

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	<p>g) Encourage the Washington State Legislature to give WDFW the authority to develop a limited entry fishing permit system for recreational fisheries, to be implemented in foraging hotspots.</p> <p>h) Fund and develop a 'real-time' (within days) system to determine and communicate when Southern Residents are in an important foraging area in order to close commercial and recreational fisheries for that area. Seek authority to perform emergency closures for recreational fisheries during these days.</p>					<ul style="list-style-type: none"> • Likely low benefit for SRKWs – in Marine Area 7 recreational catch was only 3500 Chinook for summer • Treaty Indian and all citizens' commercial salmon fisheries for sockeye and pink salmon operate with annual caps; combined caps are 7-8,000 Chinook mortalities annually. • For real-time closures: For all citizens' recreational fisheries WDFW would need to have the authority to utilize the emergency rule making process in the Administrative Procedures Act to take action for the benefit of SRKWs. All citizens' Commercial have the potential of being implemented with area closed conditioned on the likely immediate presence of SRKWs. In the aggregate all manager would benefit from a readily accessible SRKW location reporting system. • Current mechanisms within Pacific Salmon Treaty and co-managers Puget Sound Harvest Management Plan will reduce harvest already so this is unnecessary • Harvest ceilings are already in place through other mechanisms so additional hatchery fish for SRKW will not result in increased fishing in areas detrimental to SRKW • Because the harvest is reduced substantially from the past already, further restriction should be coupled with other 	<p>vessels anticipated to be available Winter 2018; implemented based on identified need to take immediate action to increase prey availability; based on review of short-term management actions to increase prey availability from UBC 2017 SRKW Prey Availability Workshop; note the potential for consideration of spatial and temporal alignment of transboundary fishery closures to enhance effectiveness of potential future management action.</p> <ul style="list-style-type: none"> • WDFW has the ability to manage fisheries through the WAC process. Additional legislation is not needed. • MA 5 and 6 have a limited season for Chinook (6 weeks or encounters reached) plus the Eastern 2/3 of MA 6 has been closed to Chinook harvest since the late 1990s while bordering waters in MA 7 remain open. MA 7 has an MSF Chinook fishery in July with a limited season non-selective fishery for Chinook in August and closure for Chinook in September. • Consider annual harvest limit for Chinook salmon with a longer season structure. • Consider daily limit on Chinook and possible non-selective fishery options. • Known whale hotspots and better data on SRKW usage could open/close access to sport and commercial fishing by WAC • Current U.S. Ocean and Puget Sound harvest opportunity is developed annually through the Pacific Fisheries Management Council (PFMC) and the North of Falcon (NOF) process. Harvest numbers and seasons are controlled by conservation mandates for ESA listed wild stocks that limit fisheries based on annual stock status. Fisheries are modelled and analyzed by season scenarios

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						<p>vessel restrictions to fully realize the potential benefit to the orcas. This is because it is not just salmon abundance that can support recovery, but also improved prey availability, which includes the whales being able to forage without interruption.</p>	<p>for each user group (commercial, recreational and tribal) by area. It may be useful to request the Scientific Technical Team (STT), associated with the PFMC and NOF processes, investigate the feasibility of adding Ocean/Puget Sound post-harvest escapement of specific stocks as a SRKW prey availability component of the harvest models.</p> <ul style="list-style-type: none"> For Coho, Fisheries and Oceans Canada has implemented a management regime where wild Coho cannot be retained in southern BC fisheries for most years since the late 1990's. The exploitation rates in Canada are thought to be in the 3-5% range on Interior Fraser River (IFR) Coho each year (plus another 10% in US fisheries). Coho in southern BC are still in a low productivity period so a dramatic response from this in terms of rebuilding has not been seen. However, IFR Coho were originally assessed by COSEWIC as Endangered and were reassessed as Threatened. Fishing opportunities permit fisheries for more abundant species with release of Coho (e.g. commercial fisheries) or retention of hatchery marked Coho (e.g. FSC and recreational fisheries). Canada is marking most or all of its Coho hatchery production now.
	<p>B: Subsidize or compensate fishers to not fish</p> <p>Potential specific recommendations:</p> <p>a) Fund and conduct a buyback for the all commercial fisheries</p>	L	H	L	Immediate	<p>Supporting:</p> <ul style="list-style-type: none"> If we're serious about SRKWs, then we need to reduce harvest because it has immediate results It's possible because sport industry has been compensated before and commercial fisheries have had buy-backs in past <p>Dissenting:</p>	<ul style="list-style-type: none"> All citizens' commercial fishing fleets have gone through buy-backs in the past and if sufficient funds were available another round of buy-backs could be conducted. This is a time and monetarily expensive process with lots of winners and losers. The likely outcome is that salmon impacts/harvest would simply transfer to other sector. There are also significant implications related the Pacific Salmon Treaty.

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						<ul style="list-style-type: none"> • Action could divide groups against each other • Not an option for tribal fisheries • Low effectiveness and antagonizing so not worth the TF recommending • Could be removing people who care about salmon from the resource and therefore they might care less • Could this be precedent setting for paying for ESA listed species? • Treaty right concerns regardless of whether or not tribes are specifically excluded from harvest limits; low return • Disagreement about including recreational fishers – no mechanism to individually compensate • The sport fishing community has seen a steady decline in opportunities yet is tasked with funding most of the recovery efforts. Buy-outs of sport licensees is not an option. Support for businesses that support recreational and commercial fisheries might be considered. • This kind of action most applicable during very low Chinook abundance years where current harvest reduction mandates leave few fish for the fishing fleets and disaster relief makes sense economically for the fishers and for SRKW prey relief. 	<ul style="list-style-type: none"> • Commercial fishers are some of the most involved and active in salmon recovery across all user groups, so negative effects of removing them from effort?

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<p>C: Reduce bycatch of Chinook in non-targeted fisheries, including limiting gear types that increase mortality and incentivizing innovative gear types that decrease mortality</p> <p>Potential specific recommendations:</p> <p>a) Develop program to buyback salmon fishing gear types that have high Chinook mortality and/or convert those to reef nets, beach seines, or other gears that are highly selective and have very low mortalities.</p> <p>b) Through the Pacific Fisheries Management Council work with the North Pacific Fisheries Management Council and commercial fishing interests to limit the allowable bycatch of Chinook in Alaskan fisheries to ensure that more Chinook reach Southern Residents</p>	M	M	M	Immediate	<p>Supporting</p> <ul style="list-style-type: none"> Differences geographically w/ west coast fishery (low effectiveness) and AK fishery (high effectiveness) – changes need to happen in AK <p>Dissenting</p> <ul style="list-style-type: none"> There is a tribal allocation and treaty right concern 	
<p>D1. Include SRKW considerations in the next Pacific Salmon Treaty negotiations with AK and Canadian fisheries to allow more Chinook to reach WA waters</p>	H	L	L	Immediate once implemented, but that is 10+ years out	<p>Dissenting</p> <ul style="list-style-type: none"> Nearly already complete, will be in place for 10 years—discussions already include some SRKW benefits and will have to in the future <p>Supporting</p> <ul style="list-style-type: none"> Taskforce should still make comments regarding what this should look like in the future 	
<p>D2. Support the full implementation of the recently renegotiated Pacific Salmon Treaty together with the funding components that benefit SRKW.</p>				Immediate, Intermediate, Long-term	<ul style="list-style-type: none"> This upcoming/current package of the agreement could include hatchery production, habitat enhancements, etc. but funding is dependent upon federal support 	
<p>F: Implement slot size limits to get larger Chinook to whales, spawning grounds, and hatcheries (put a maximum size limit on catch)</p>	L	M	M	Long-term	<p>Supporting:</p> <ul style="list-style-type: none"> Could help to get bigger fish the whales 	<ul style="list-style-type: none"> Potential gear restrictions for commercial harvest for large fish escapement

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	<p>Potential specific recommendation: a) Request that WDFW form a small workgroup to evaluate the potential benefit, if any, of this action with tribal co-managers and other appropriate parties.</p>					<ul style="list-style-type: none"> We do this for other species and we have mark selective fisheries so worry about release mortality should not be a reason not to do this <p>Dissenting</p> <ul style="list-style-type: none"> May have impacts to wild stocks. Need full analysis to understand effects Could have unintended consequence of catch mortality if catch and release rates increased Fishing derbies would be eliminated 	<ul style="list-style-type: none"> Long-term because would take time to fully implement Need the best estimates of potential release mortality for this action.
Habitat	<p>A. Ensure full implementation & enforcement of existing local and state habitat protection regulations</p> <p>Potential specific recommendations: a) WDFW and/or others assess and report the status of implementation compliance and enforcement of existing regulations statewide b) Request increased funding for hydraulic code compliance monitoring and enforcement statewide c) Review previously completed assessment of the no-net-loss policy issuing permits and use-authorizations of state-managed aquatic lands. d) Should also explore feasibility of implementing an ecological-net-gain policy. e) Direct WDFW to fully apply Hydraulic Code Rules and Fish Passage barrier regulations to all proposed projects and instruct that the precautionary principle be used to ensure habitat protection. f) Direct DOE to fully apply SMA and stormwater/ water quality regulations to all proposed projects and that the precautionary principle be used. g) Direct WDFW and DOE to take legal action to enforce violations of habitat protection and water quality laws and regulations.</p>	H	M	L*	Immediate	<p>Prioritizing which regulations are lacking proper enforcement or need additional protective actions across the state in the context of existing and enhanced land use regulation is beyond what can be accomplished in this short-term effort</p> <p>RCW 77.57.030 is a law regarding fish passage barriers that is rarely enforced, and it could be of big benefit to orcas.</p> <p>State water quality laws are not fully enforced. A common issue cited by Dept. of Ecology, WDFW, and county prosecutors is a lack of funding and political support for enforcement staff and for prosecutors to pursue cases involving habitat, wildlife and water quality.</p> <p>Directives for full application of the exiting Hydraulic code regulations will have an</p>	<ul style="list-style-type: none"> Any regulation is not a long-term standalone durable fix. Needs to be coupled with significant improvements through acquisition and restoration in habitat Supplemental funding from the state General Fund needs to be requested for the various state agencies involved in the application and enforcement of habitat protection. It is a statewide need and shouldn't be carried by the license buyers. See Regional Organization comments LINK

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
						<p>immediate benefit to increasing salmon and salmon habitat protection and actions to improve habitat protection through this pathway can be taken immediately in year one.</p> <p>Full and appropriate application of RCW 77.57.030 regarding fish passage barriers will have an immediate benefit to increasing salmon and salmon habitat protections and actions can be taken in year one.</p>	
	<p>B. Enhance/change local, state and federal protection regulations, especially for key Chinook/SRKW habitats or areas</p> <p><u>Potential specific recommendations:</u></p> <p>a) Fund and complete and assessment of regulations relative to key chinook and SRKW habitats and report the effectiveness of existing regulations and enhance based on findings</p> <p>b) WDFW update SRKW Priority habitat guidance for GMA and SMA implementation and updates</p> <p>c) Require state agencies and local shoreline modification rules (WAC 173-26-231) consider cumulative impacts in issuing permits and use-authorizations of state-managed aquatic lands.</p> <p>d) Emphasize avoidance versus mitigation for impacts to SRKW, salmon and forage fish habitat.</p> <p>e) Revise the single-family exemptions laws and exceptions for docks (WAC 173-26-241) and shoreline armoring in shoreline master plans.</p> <p>f) Have Ecology and local govts require emphasis on low-impact development practices (LID) and prioritize retrofits in urbanized areas in SRKW priority chinook and coho salmon watersheds.</p>	H	M	L	Immediate	<p>Plans and regulations related to shoreline armoring, riparian habitat management, and impervious surfaces vary between municipalities. The state should be setting minimum standards for protection and restoration pertaining to all three of these issues (and likely other issues). These minimum standards should be consistent across municipalities and should be “enhanced” relative to current standards.</p> <p>The no-net-loss policy should also be revisited. This policy directive has failed to preserve habitat and restore chinook salmon. Mitigation efforts often do not full off-set development. Instead, the state should explore standards of ecological-net-gain, particularly in high priority areas for Chinook and SRKWs.</p>	<ul style="list-style-type: none"> Any regulation is not a long-term durable fix. Needs to be coupled with significant improvements through acquisition and restoration in habitat See Regional Organization comments LINK (though improved application of regulations should be system-wide)

Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
<p>e) Take immediate year one legislative and/or rulemaking action to improve habitat and fish life protection in the Hydraulic Code. Fish passage and water quality regulations.</p> <p>g) Representative WG and TF members will work with the Governor’s office, Legislative Partners Tribes, DNR/WDFW/DOE and salmon recovery representatives to develop a habitat protection/regulatory reform legislative package to put forward for action during the upcoming legislative session. This proposal will be finalized and submitted to the Task Force by October 15.</p> <p>h) Additional improvements that may be made through rulemaking or internal policy will also be identified and an action plan developed. This action proposal will be finalized and submitted to the Task Force by October 15</p>					<p>The state should supporting strong Hydraulic Code rules to protect habitat in both fresh and marine waters through the states. Because some SMPs also point to Hydraulic code rules, strengthening habitat protections here will have a beneficial impact on local SMPs</p> <p>Local SMPs are also tools for habitat protection but there are inconsistencies at between jurisdictions i.e. city, county etc.</p>	
<p>C. Acquire important Chinook habitat</p> <p><u>Potential specific recommendations:</u></p> <p>a) support and fund habitat acquisition projects on the PSAR and SRFB project lists (Location, cost, sponsor, and other information will be available on the data dashboard and summarized in a report for the early action “demonstrate chinook recovery project benefits to SRKW”</p> <p>b) increase the amount of funding to acquire important chinook habitat in PSAR, SRFB and other programs where acquisition is an eligible and high priority action</p> <p>c) Amend/Expand list of projects to include unlisted Chinook stocks that do or could contribute to SRKW prey</p> <p>d) Direct state agencies to conserve important SRKW, salmon and forage fish habitat on state-owned and managed aquatic lands from future development.</p>	H	L	L*	Immediate for existing habitat; Long-term for habitat needing restoration		<ul style="list-style-type: none"> Effectiveness and affordability depend upon scale. Higher for both for greater amount of habitat. See Regional Organization comments LINK

Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
<p>D. Accelerate habitat restoration by increasing funding significantly to address current regional priorities, including fish blockages in areas most beneficial to SRKW</p> <p><u>Potential specific recommendations:</u> a) Support and fund habitat restoration projects on the PSAR, ESRP, WCRI, SRFB, FpBD, FFFPP PSNERP, and FBRB project lists (Location, cost, sponsor, and other information will be available on the data dashboard and summarized in a report for the early action “demonstrate chinook recovery project benefits to SRKW” b) Amend/Expand list of projects to include unlisted Chinook stocks that do or could contribute to SRKW prey c) Create a fund for major estuary restoration projects that includes the funding necessary to work with landowners and regulatory agencies to develop, design, and implement these large projects</p>	H	L	M	Intermediate for blockages; Long-term for restoration but an action to ensure sustainability for future generations	When identifying culverts, keep in mind the importance of Chum and Coho salmon in the South Sound. These runs are a much larger portion of the SRKW’s diet in the fall and are more impacted by culverts than chinook are.	<ul style="list-style-type: none"> • Should consider what projects are currently not on the table because of feasibility (moving I5, BNSF rail line, dams) as an opportunity for the governor to make a significant difference. • This is essential in areas where habitat is at carrying capacity and hatchery production increases are desired. • See Regional Organization comments LINK • Strongly consider climate change in prioritizing habitat restoration projects (NEW for consideration)
<p>E. Create additional or bolster existing habitat protection and restoration incentives for landowners</p> <p><u>Potential specific recommendations:</u> a) Create safe harbor agreements for landowners voluntarily protecting or restoring habitat on their property b) Create financial assistance for cooperative conservation programs (fish screens, riparian areas, private fish passage upgrades, etc.) implemented by individual landowners</p>	M	M	H	Immediate for existing habitat; Long-term for habitat needing restoration	When identifying culverts, keep in mind the importance of Chum and Coho salmon in the South Sound. These runs are a much larger portion of the SRKW’s diet in the fall and are more impacted by culverts than chinook are.	<ul style="list-style-type: none"> • See Regional Organization comments LINK • Use social marketing to showcase good property (habitat) management • Create safe harbor agreements for landowners who are good stewards
<p>F. Engage BNSF rail road on shoreline management</p> <p><u>Potential specific recommendations:</u> a) Direct regulatory agencies to allow deposition of landslide material into the nearshore of Puget Sound to contribute to nearshore sediment budget.</p>						

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
	b) Work with BNSF to address fish passage barriers, restore pocket estuaries, and otherwise restore natural habitat processes along the eastern shore of Puget Sound						
Predation	<p><u>A1. Remove or alter artificial pinniped haul outs in places most important for SRKWs and Chinook so they are not as attractive.</u></p> <p>Potential specific recommendation:</p> <p>a) Where feasible and permitted, pilot the removal or alteration of artificial haul out sites used by pinnipeds in the Puget Sound in places that may improve Chinook survival. Monitor the effectiveness of this approach through the pilot and support ongoing scientific analyses of potential predation hotspots to guide potential future haul out removals.</p> <p>b) Establish a fund to support infrastructure costs associated with modification of artificial haul-outs that would be available to private entities, individuals or state agencies.</p> <p>c) Integrate “Best Management Practices” that discourage pinniped haul outs into review and permitting of projects (e.g., docks, swim platforms, buoys, riprap etc.) that could create haul-out sites at predation hotspots.</p>	L	H	M	Immediate		<ul style="list-style-type: none"> Task Force has requested additional information on this issue
	<p>B1. Lethal removal of pinnipeds to benefit specific runs and stocks</p> <p>Potential specific recommendations:</p> <p>a) Support efforts to amend the Marine Mammal Protection Act (MMPA) to more effectively manage pinniped predation of salmonids in the Columbia River (2018 bills in Congress).</p> <p>b) Support efforts to amend the Marine Mammal Protection Act (MMPA) to more effectively manage pinniped predation of salmonids in the Columbia River (2018 bills in Congress). Secure funding for the</p>	M*	M	L	Intermed	<p>Supporting:</p> <ul style="list-style-type: none"> Predation has been shown to be a massive issue in some locations limiting Chinook stocks Pinniped predation in Puget Sound has increased from 1970 to date. Estimated annual biomass of Chinook consumed by pinnipeds has increased from 69 to 625 metric tons. Conversion of juvenile salmon into adult equivalents shows 	<ul style="list-style-type: none"> Effectiveness is uncertain and therefore rankings difficult Will have to be monitoring to assess benefits and discontinue if ineffective See Regional Organization comments LINK Additional culling pilot programs should only be approved for a discreet period of time (e.g. 5 years). Task Force has requested additional information on this issue

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
	<p>removal program at Bonneville dam and Willamette Falls at a level sufficient to remove >95% of pinnipeds present.</p> <p>c) Ask NOAA to expediently convene the Pacific Scientific Review Group to perform an assessment to determine the Optimal Sustainable Populations of the harbor seal stocks of Puget Sound. This assessment will determine allowable removal levels (number of animals; Potential Biological Removal) under the MMPA, and therefore inform management option decisions.</p>					<p>pinniped predation is double that of SRKW and six times greater than the combined sport/commercial fisheries take.</p> <ul style="list-style-type: none"> Directed removal or hazing of pinnipeds at river mouths when out-migrating smolts are present will save measurable numbers of smolts/adult equivalents. Take permits may be issued for "...enhancing the survival or recovery of a species..." which should cover both Chinook salmon and the SRKW. MMPA needs to be amended to allow for greater flexibility to take pinnipeds for management/recovery efforts of other listed species and control of pinniped populations to keep them at or just below carrying capacity. <p>Dissenting</p> <ul style="list-style-type: none"> Situation at Bonneville is different than in Puget Sound and we know less in PS. Studies show west-coast wide increase in number of pinnipeds and therefore consumption of salmon but more information is needed that is specific to Washington's Puget Sound and Outer Coast regions to be applied to any management approaches and/or to acquire a permit for actions under MMPA Uncertainty at ecosystem-wide scale effects and unintended consequences that may not benefit Chinook or SRKW 	

Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
					<ul style="list-style-type: none"> Emotional issue for mammals and birds and may lead to lawsuits 	
<p>B2. Lethal removal of birds to benefit specific runs and stocks ALL THE POTENTIAL ACTIONS RELATED TO LETHAL REMOVAL OF BIRDS WERE IN SOME WAY ASSOCIATED WITH DAMS, THEREFORE SEE HYDRO ACTION C</p>	M*	M	M	Intermed		
<p>B3. Lethal removal of predatory fish to benefit specific runs and stocks (areas not associated with dams)</p> <p>Potential specific recommendations:</p> <p>a) Request and fund WDFW coordinate with appropriate management entities to assess level of predation at potential hotspots. If analysis suggests there are hotspots, support the development and implementation of a predator removal program at specific pinch points.</p> <p>b) Support the reclassification of non-native predatory fish (such as catfish, walleye, and bass) from “sport fish” to “invasive species”</p>	M	M	M	Intermed	<p>Supporting:</p> <ul style="list-style-type: none"> Predation has been shown to be a massive issue in some locations limiting Chinook stocks <p>Dissenting</p> <ul style="list-style-type: none"> Uncertainty at ecosystem-wide scale effects and unintended consequences that may not benefit Chinook or SRKW 	<ul style="list-style-type: none"> Will have to be monitored to assess benefits and discontinue if ineffective or has unintended consequences
<p>B4. Continue the development of additional science to better understand pinniped predation on salmonids, especially Chinook.</p> <p>a) Fund monitoring to provide area specific estimates of Chinook survival between the mouth of the Columbia River and Bonneville Dam.</p> <p>b) Support the continued development of science to better understand the extent pinniped predation in Puget Sound and the Outer Coast to determine and apply appropriate management actions. Analyses should help determine if pinniped predation is a limiting factor for Chinook in each area, where and what types of management actions are best suited to the situation, and, if needed, provide any information necessary to secure authorization to perform needed control actions. Both the science and assessment of the management actions should account for</p>	H	L	H			

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
	factors that may exacerbate or ameliorate predation, including infrastructure haul outs, hatchery strategies, and the presence/absence of forage fish or other fish that are staple food for pinnipeds.						
	C. Lethal removal in order to establish new baseline population levels of Pinnipeds	M	H	L	Intermed	Supporting: <ul style="list-style-type: none"> Predation has been shown to be a massive issue in some locations limiting Chinook stocks Dissenting: <ul style="list-style-type: none"> Emotional issue for mammals and birds and would be a violations of Migratory Bird Act and MMPA—will lead to lawsuits Uncertainty at ecosystem-wide scale effects and unintended consequences that may not benefit Chinook or SRKW 	<ul style="list-style-type: none"> Effectiveness is uncertain and therefore rankings difficult Need monitoring to assess benefits and discontinue if ineffective (this action was initially deleted after TF meeting in Wenatchee due to no support heard but added back after request was made during TF Survey)
Forage Fish	<p>A. Increase forage fish populations through habitat protection and restoration</p> <p><u>Potential specific recommendations:</u></p> <p>a) Complete the on-going Puget Sound forage fish assessment to establish baseline condition/current condition to measure progress or future loss against</p> <p>b) Continue to fully fund the Puget Sound forage fish spawning surveys to identify baseline spawning areas and spawning times and or population biomass.</p> <p>c) Support and fund PSAR and ESRP nearshore projects this biennium to restore forage fish habitat</p> <p>d) Support and fund PSAR and ESRP nearshore projects this biennium to restore forage fish habitats</p> <p>e) Support initiatives that inventory and identify shoreline habitats (e.g., PSNERP geodatabase, ESRP Beach Strategies geodatabase, Department of</p>	H	M	H	Intermed	Supporting <ul style="list-style-type: none"> Benefit to reducing predation and increasing salmon survival, but a lot of uncertainty to SRKWs More forage fish will be more positive than negative (even if some eat the same food at juvenile Chinook) Dissenting <ul style="list-style-type: none"> Potential negative feedback loop from forage fish consuming juvenile chinook food (zooplankton) 	<ul style="list-style-type: none"> Consider life history of forage fish relative to size needed for juvenile chinook Habitat protection for SRKW will directly benefit forage fish Prey for Chinook are sardines, anchovy, herring, sand lance, and smelt Habitat impacts from bulkheads in Puget Sound are significant. Eliminating single family bulkhead in the in SMA and improved Hydraulic code implementation and/or regulations; single family exemption elimination would greatly improve protections. Need to accelerate any studies of marine food web to be more confident on effect Forage fish recovery planning process is underway Pinniped predation on forage fish needs to be evaluated.

	Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
	<p>Ecology Coastal Atlas) to prioritize protection and restoration actions that most benefit forage fish spawning habitat</p> <p>f) monitor and enforce regulations to protect nearshore habitat</p> <p>g) Develop public awareness and landowner education regarding importance of properly functioning nearshore habitat and its relationship to SRKW by expanding the current Puget Sound “Shore Friendly” outreach efforts via ESRP, including funding and other incentives for landowners to remove armoring and restore natural shorelines</p> <p>h) Require state agencies and local shoreline modification rules (WAC 173-26-231) consider cumulative impacts in issuing permits and use-authorizations of state-managed aquatic lands.</p> <p>i) Direct state agencies to emphasize avoidance versus mitigation for impacts to forage fish habitat.</p> <p>j) Revise the single-family exemptions laws and exceptions for docks (WAC 173-26-241) shoreline armoring and removal of management of riparian areas in shoreline master plans.</p> <p>k) Conduct development and redevelopment operational activities in a manner that does not affect spawning behavior; disturb spawning substrate or sediment sources that support spawning including nearshore riparian shading in upper intertidal spawning areas.</p> <p>l) Inventory shoreline geomorphology along with assessing spawning beaches to determine those locations where upper beaches have space to migrate such that we can prioritize these areas for acquisition.</p> <p>m) Reduce predation by pinnipeds</p> <p>n) Reduce anthropogenic sources of light pollution in spawning areas</p> <p>o) Fund synthesis and solution testing phase of the Salish Sea Marine Survival Project</p> <p>p) Fund and implement Puget Sound-wide Zooplankton Monitoring Program</p> <p>q) Ensure full application of hydraulic code regulations.</p> <p>r) Direct WDFW to fully apply Hydraulic Code Rules and regulations to all projects and instruct that the precautionary principle be used, with existing regulations applied to historic, current and potential spawning areas. This</p>						<ul style="list-style-type: none"> • Ensure that ESRP has the staff capacity to work with landowners and manage the incentives program • Forage fish recovery planning process is underway – need to align efforts

Action (include geographic specificity or principles, as appropriate)	E	A	I	Time to SRKW Benefit	Supporting and Dissenting Opinions on Ratings (if applicable)	Working Group Notes
<p>will mean consistent application of the regulations with a goal of increased forage fish protections and populations.</p> <p>s) Develop: legislative action to improve forage fish protections in the Hydraulic code. Work with the Governor’s office, Legislative Partners Tribes, DNR/WDFW/DOE and salmon recovery representatives to develop a forage fish habitat/protection legislative package to put forward for action during the upcoming legislative session. This proposal will be finalized and submitted to the Task Force by October 15.</p> <p>t) Additional improvements that may be made through rulemaking or internal policy will also be identified and an action plan developed. This action proposal will be finalized and submitted to the Task Force by October 15</p>						
<p>B. Increase forage fish populations through harvest reductions</p> <p><u>Potential specific recommendations:</u></p> <p>a) WDFW inventory and assess existing harvest levels and impacts to prepare a recommendation based on science</p> <p>b) Close commercial and recreational harvest of surf smelt in Puget Sound until a full inventory and assessment of existing population levels and impacts from harvest or benefit from reduced harvest is determined.</p> <p>c) Close commercial and recreational harvest of Herring in Puget Sound until a full inventory and assessment of population levels and impact from harvest or benefit from reduced harvest is determined.</p>	H	H	M	Intermediate	Dissenting Although WDFW reports most harvest is non tribal, there may be a treaty right component	<ul style="list-style-type: none"> Based on information provided by WDFW annual harvest levels for herring are approximately 512,000 pounds and 60,000 pounds for surf smelt. Based on prior studies by WDFW on estimated harvest size approximately 845,000 mature surf smelt being taken commercially. Recreational harvest is not currently tracked but recent WDFW evaluations estimate a potential of approximately 22,000 pounds of smelt harvest which would represent approximately 315,000 mature fish. Total for recreational and commercial smelt potentially 1,160,000 fish.