

Saving Puget Sound's Southern Resident Orca



SENATOR ANN RIVERS

18TH LEGISLATIVE DISTRICT - WASHINGTON STATE SENATE

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Rivers' 'more salmon for all' bill set for Thursday public hearing

Adapting Alaska's innovative hatchery approach could help feed orca sooner

OLYMPIA... Legislation that could lead to a dramatic increase in the number of salmon in Washington waters and boost the food supply for Puget Sound's southern resident orcas will come before the Senate's natural-resources committee at 1:30 Thursday afternoon.

The bipartisan bill is aimed at supporting the creation of a new private-public salmon hatchery in Bellingham, modeled after an approach that has proven to be productive and financially self-sustaining in Alaska.

Sen. Ann Rivers is prime sponsor of Senate Bill 6509, known as the Salmon Repopulation Act. She sees it as the most effective action lawmakers can take on behalf of the endangered orca as well as the commercial fishers, sport fishers, tribes and others in Washington who would benefit from having more salmon return to the state's waterways.

"So far the things that have either been approved or proposed in the name of helping the orca tend to be restrictive, like putting more limits on whale-watching tours, or destructive – meaning the idea of breaching dams," said Rivers, R-La Center. "I think the bipartisan support for this bill is due to its positive approach. What could be divisive or controversial about producing more fish in a way that would respect the environment and be a good investment for taxpayers?"

"Our state has a robust hatchery program but the operation I saw in Alaska this past summer is at another level. I have no doubt this is the fastest and also the smartest way to make more salmon available for the orca to eat," she added. "I'm convinced it can be adapted to our state, and the Port of Bellingham has the ideal location. The people who can make this happen have come to the table in recent weeks. The Legislature simply needs to say yes – and it needs to be this year, so the pilot project can get going. The orca can't wait."

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Please visit Sen. Rivers' website at www.SenatorAnnRivers.com.

Bringing the Alaska Fisheries Model to Washington state

A timely response to the orca crisis

The Salmon Repopulation Act has been introduced in the Senate by Sen. Ann Rivers, R-La Center (SB 6509) and in the House by Rep. Luanne Van Werven (HB 2741). The bill provides a new approach to hatchery management, modeled after the successful approach utilized by the state of Alaska.

The bill would give the Department of Fish and Wildlife the authority to pursue opportunities for public-private partnerships in state-approved hatcheries, either independently or in cooperation with the state.

Under the Alaska model, a share of the harvest can be earmarked for project participants, while providing additional feedstock for whales and other species, and boosting fish for commercial and sport fishing, and other users.

SUMMARY OF LEGISLATION

- **Gives authority to Dept. of Fish and Wildlife to pursue opportunities for public-private partnerships and private hatchery operation.**
- **Requires department to evaluate development of a self-supporting hatchery system, following Alaska model.**
- **Launches pilot project at the Port of Bellingham**
 - Permits remote release in northern Puget Sound.
- **Allows department to conduct technical studies and reports for pilot project.**
- **Requires department to consult with government, agencies, tribes and other appropriate entities.**
- **Requires report to Legislature by Dec. 1, 2020, on:**
 - Necessary legislation.
 - Opportunities for partnerships and private hatchery operation, to meet state's salmon-recovery goals.

An innovative approach to hatchery management

- Brings self-sustaining approach to hatchery management, based on Alaska Fisheries Model
- Private investment and management by public agencies.
- Private investors are guaranteed a share of the catch. More fish for orca, commercial and sports fisheries.
- SB 6509 launches pilot project at Port of Bellingham, directs study by Department of Fish and Wildlife.
- “Remote releases” permitted – release pens envisioned in San Juans.
- Proposal designed by San Juan AREA Sea Life, Port of Bellingham.

What are the expected returns?

Current salmon releases on Whatcom Creek

- Currently release 4 million/ year
- Low estimate return/year
64,000 adult salmon
- High estimate return/year
72,000 adult salmon

San Juan AREA Sea Life hatchery project

- Eventual release (10-12 years out)
40 million/ year
- Low estimate return/ year
800,000 adult salmon
- High estimate return/ year
1.6 million adult salmon



DIPAC hatchery in Juneau.

PORT OF BELLINGHAM 2019 PILOT SALMON HATCHERY PROPOSAL



Restore Salmon Populations in the Salish Sea to 1985 Levels

- *Review Best Practices Used in Salmon Hatcheries in Alaska, British Columbia, Washington, Oregon and California*
- *Design & Build the Best Salmon Hatchery in the World*



The Port and City of Bellingham are redeveloping 237 acres on Bellingham's downtown waterfront. The opportunity exists to develop a state-of-the-art salmon hatchery to support the recovery of Southern Resident Orcas and meet a wide range of economic, environmental and community objectives

Sustainable Funding Model

- In **Alaska**, hatcheries are primarily self-funded through the sale of returning fish
- In 2017, 17% of salmon returns from the DIPAC hatchery in Juneau were needed for cost recovery. The remaining fish benefitted commercial, sport, subsistence and personal use fisheries

Research & Innovation

- The **Oregon Hatchery Research Center** uses simulated stream channels to support scientific research
- In **California**, the latest genetic techniques are being used to preserve decimated stocks
- **Bellingham Technical College's** Whatcom Creek Hatchery is located next to the proposed salmon hatchery site on Bellingham's waterfront

Environmental Protection

- **Alaska** hatcheries are among the healthiest in the world with no stocks of concern and a rigorous permitting process including public oversight
- A new hatchery on Bellingham's waterfront and remote release sites could increase the food supply for **Southern Resident Orcas** and decrease fishing pressure on native stocks.

Community Engagement

- The Port could expand its Marine Life Center as part of a new hatchery
- The DIPAC Hatchery in **Alaska** has accommodated hundreds of thousands of visitors and become an important educational resource for the community of Juneau.



San Juan AREA Sea Life

The San Juan AREA Sea Life organization is a non-profit (501c3) entity established in Bellingham to pursue an initiative to help restore salmon abundance to 1985 levels within the Marine Area 7 (San Juan Islands). Our goal is to develop a salmon hatchery pilot project at a site on Bellingham Bay near the mouth of Whatcom Creek.

The impetus for our mission is the Alaska Private Non-Profit (PNP) Salmon Hatchery program, which has been in existence for over 45 years. It has a proven track record of consistently providing a substantial contribution of hatchery-produced fish to the common property fisheries of Alaska in concert with its highly reputable salmon management program.

Our model in this endeavor is Douglas Island Pink & Chum's (DIPAC) Macaulay Salmon hatchery in Juneau, Alaska. DIPAC started operations in 1976 and today is one of the most successful salmon hatchery programs in the world. The Macaulay facility releases well over 100 million juvenile chum, chinook and coho salmon, and rainbow trout each year for commercial, sport and subsistence uses. Annual returns range between 2.5-5 million harvestable adult salmon with an estimated ex-vessel value of \$6-20 million.

In addition to its salmon enhancement programs DIPAC has accommodated over a million tourists to its visitor center to date, hosts fall and spring field trips for thousands of elementary school students each year, provides internships and scholarships to high school students interested in fishery/hatchery technology, stocks local lakes with rainbow trout, and contributes funding to support salmon research in Alaska.

As with all PNP hatchery organizations in Alaska, DIPAC is run by an independent board of directors comprised of a variety stakeholder groups. Its 23 members represent commercial and sport fishing industries, Alaskan Natives, and tourism and education with the overarching goal of producing healthy populations of salmon for the benefit of all users within the area they serve.

SJASL has been researching the Alaska PNP hatchery program and DIPAC's operations and best management practices for over 3 years. We have toured the DIPAC facility and met with ADF&G officials several times.

This White Paper was written through the collaborative contributions of the San Juan AREA Sea Life Board of Directors and several additional subject matter experts.

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What are the key components of the Alaskan hatchery model that makes it so successful?

1. A robust regulatory and permitting system based on the principles of sustained yield management and wild stock protection.

All PNP hatcheries operate under permits issued by the Alaska Department of Fish & Game (ADF&G). Operators must complete a comprehensive feasibility study that considers all of the project's impacts on the environment, existing native stocks, broodstock selection, water quality, facility design and permitting, staffing plans, operating overhead budget forecasting, and the development of a business plan. It must also provide reasonable expectations of potential benefits to users of the resource in the area under consideration.

2. A long-standing partnership between government, private industry (stakeholders) and PNP hatchery organizations that work together on achieving a myriad of production goals for the benefit of all users.

Every key aspect of hatchery operations undergoes a regular permitting and review process. Hatchery permit applications, fish transport permits and annual hatchery management plans are reviewed by regional planning teams comprised of departmental and hatchery representatives who evaluate the proposals and forward their recommendations to the ADF&G commissioner for final approval/disapproval. This joint review process ensures accountability for existing programs and thorough vetting of new proposals from all points of view.

3. Government financing and self-supporting funding mechanism to repay loans and defray operating costs.

The Alaska PNP Hatchery program was created with the specific intent of it being financially self-supporting, thereby insulating it from the effects of competing funding priorities in the government budgeting process. The revenue primarily comes from a cost recovery program developed by each operator, which allows the harvest of a portion of the fish produced by the hatchery.

Financing of hatchery construction and startup costs is provided through the Salmon Enhancement Revolving Loan Fund. This program provides upfront capital for construction of hatcheries and operating funds for the early years of the project. Low-interest loans and a 6-10 year grace period before repayment begins allows hatchery operators to grow their program and reach a point where salmon returns are large enough to start covering the costs of operations and debt service.

The state provides suggested goals for the portion of production hatchery operators should plan on for cost recovery. During the start-up phase and while they are repaying state loans, hatcheries may allocate up to 40% of the production for cost recovery. As their program continues to mature and all loans are eventually paid off hatchery operators are expected to allocate no more than 30% for cost recovery. In some instances strong returns and healthy salmon markets can result in the hatchery needing far less than 30%, perhaps as low as 10-12%.

The cost recovery model, in conjunction with stakeholder oversight through the organization's board of directors, incentivizes the operator to achieve the best possible returns through pursuit of best management practices.

4. A hatchery production strategy designed to maximize benefits to salmon harvesters while minimizing impacts to wild salmon stocks.

A typical multi-species hatchery operation in Alaska uses a central incubation facility (CIF) to collect broodstock and incubate eggs. The resultant juvenile salmon are then either reared and released at the hatchery or transferred to one or more remote sites for imprinting, rearing and release. This approach allows the program to achieve multiple production goals more effectively than releasing all of the production directly from the hatchery by spreading out the production and targeting specific areas for maximum benefit.



To understand the concept more clearly consider the following hypothetical example: A hatchery designates a small portion of its production for future broodstock by releasing them at the hatchery site. This ensures that an adequate number of fish return to the facility in coming years to perpetuate the production cycle. Since the hatchery has its own freshwater supply, juvenile salmon are already imprinted to that location and will return there as adults during their spawning migration.

Another major portion of the production is earmarked for common property (public) harvest. This could occur at one or more remote release sites depending on fishery harvest goals. After transfer to the remote rearing site(s), juvenile salmon are reared for a short period of time in saltwater net pens located near a reliable source of freshwater.

This approach has three advantages: First, it forces the fish to imprint to the new site rather than the hatchery where they were incubated. This insures the resultant adult salmon return to the intended area. Second, short-term rearing in seawater net pens over a period of a few weeks protects them from predators and allows the young salmon grow in size. Releasing them at a slightly larger size significantly improves their survival rate because the young fish are able to spread out to open waters more readily and avoid predation more easily. Third, better homing fidelity reduces straying and unintentional spawning interaction with wild stocks.

Lastly, a moderate portion of production would be reserved for hatchery cost recovery. This could be done at the hatchery or at a remote release site. In Alaska, each hatchery has a "Special Harvest Area" (SHA) designated for this purpose. This allows the hatchery operator to target only fish returning from its program for cost recovery. They are not allowed to participate in regular commercial fisheries to achieve their financial goals. Once the hatchery's cost recovery goal has been met for the season the area may be opened for commercial harvesters to catch any surplus fish, if fishing regulations allow.

Using remote release sites to spread out the production of hatchery-reared fish also helps minimize impacts on wild stocks. Sites can be located away from sensitive areas thereby diverting fishing pressure away from threatened populations and avoiding over-fishing.

Why was Whatcom Creek the chosen site for this Salmon Hatchery Pilot Project?

Whatcom Creek has historically produced millions of wild juvenile salmon and also supports a small hatchery project (2-4 million annual release), which is operated by the Bellingham Technical College (BTC) for its Fisheries and Aquaculture Science program. It is a known salmon producer that returns healthy numbers of adult salmon every year after traveling through Marine Area 7 (San Juan Islands).

In addition to the creek itself there is an existing pipeline that was previously utilized by the Georgia Pacific Mill to remove bark from logs. This pipeline draws water from the deepest part of Lake Whatcom, which provides the coldest and cleanest water available (with the highest oxygen content) and can provide up to 60 million gallons per day. This volume far exceeds what we expect our proposed hatchery will need at full capacity. We estimate that it will require about 2 million gallons a day to produce about 40 million fish.

Utilizing this existing pipeline will also provide some side benefits as well. First, it will help to improve the health of Lake Whatcom which has suffered from "low flow stagnation" since Georgia Pacific stopped operations in Bellingham. Drawing water from the lake will increase turnover thereby reducing stagnation and improving water quality. Second, it presents an opportunity to incorporate a micro-hydro turbine to generate carbon-free power for hatchery operations.



How would this concept work in Washington State as it relates to fisheries co-management between the Washington Department of Fisheries & Wildlife (WDF&W) and the Puget Sound Treaty Tribes?

Fisheries management and hatchery production are more complicated in Washington State than in Alaska. Due to the principles established in the Elliott Bay Treaty, the Boldt Decision, the tribes would be eligible to take 50% of any harvestable surplus coming from additional hatchery production. Also, because of the co-manager relationship between WDF&W and the tribes, coordinating fisheries and harvest allocation involves complex negotiations. This means we will have to work closely with both entities to find a workable way in concert with existing regulations to address these issues.

Won't increasing the number of hatchery fish have negative impacts on native stocks?

Because of the ESA listing of Puget Sound chinook and steelhead there will be permitting requirements and potential limitations on hatchery operations and fishery impacts that will have to be considered. This will require a rigorous analysis early in the planning stages as part of a thorough feasibility study.

Will this project help the Southern Resident Killer Whales?

The project will produce several million Chinook salmon smolt which although not the only but the preferred food stock for SRA whales. Bringing these salmon back to Marine Area 7 will provide the SRO's with ample salmon stocks to maintain a healthy habitat for the whale population to once again thrive in the San Juan Islands.

What do we expect the project to cost?

Feasibility Study: \$250,000 to \$2.5 million (We won't know the full scope of the feasibility study until we have completed the initial RFP for the feasibility project.) We expect that the Feasibility Study RFP will be completed later this spring.

Project Capital & Initial Operating Costs: \$45 million (Again, we won't have a more precise feel for the total capital cost of the project until the feasibility study is completed.) We expect the feasibility study to have been awarded by the end of the third quarter 2020 and that it will be completed before the end of the 2nd quarter of 2021.

Why should the state consider funding this project?

Currently the state funds about 40 state-run hatcheries around the region and spends some \$115 million per year on these operations. This funding is provided for via the state tax payers and is not something that will eventually go down or away under the current model.

The Alaskan PNP Cost Recovery model provides for an eventual situation whereby the hatchery essentially pays its own way. This will result in the burden of funding THIS hatchery to be taken away from the state of Washington. If this pilot project is successful and is determined to be viable for other State of Washington hatcheries, just think of the impact of that on our state budget and ultimately our economy.

Without a hatchery cost recovery program, the State of Washington is left to fund 100% of all state operated salmon hatchery programs with no end date in sight. With a Cost Recovery Salmon Hatchery Program, the State of Washington can expect to, over time, have the Private Non-Profit Hatchery pay for the lion's share of its own annual operating costs and long term facility/infrastructure capital costs.



Who are the stakeholders that have been involved so far with San Juan AREA Sea Life?

Agriculture (Water Rights/In-stream flow restrictions)
Bellingham Technical College Hatchery, Fisheries Program
City of Bellingham
Commercial Fishing Industry
K-12 Education
Lummi Nation Tribe
Nooksack Salmon Enhancement Association (Stream/Habitat Restoration)
Port of Bellingham
San Juan Cruises (Whale Watching)
Sports Fishing
State of Washington Senators and Representatives
Tourism
Washington State Department of Fish and Wildlife
Whatcom Business Alliance
And several other interested and supportive retired individuals.

The stakeholders are working together on a project that is simply focused on restoring salmon populations to what was believed to be a modern high water mark of 1985 levels. This simple overarching objective has allowed groups that may not have historically played well together, to join together behind an initiative that is clearly in the best interest of all stakeholders. Many of the stakeholders are fairly easy to figure out why they are in favor of the project, however Agriculture is one that has taken an interest in that they have a water interest in our community as it relates to irrigating their crops. If this project can be successful, it will take a lot of pressure off of the discussions and or restrictions related to water usage for farming.