



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.

In stark contrast to the successful Alaska model, Washington State has seen precipitous declines in both hatchery and wild Puget Sound salmon in recent decades. Hatchery production has declined in large part due to funding reductions at the state level and Washington's funding model makes it impossible to guarantee appropriate production levels moving forward. The recent headlines surrounding lack of food for Southern Resident Killer Whales is a blunt indicator of the magnitude of this problem. The Washington hatchery system has been chronically underfunded and a new model is needed to protect the future of iconic salmon and the health of Puget Sound.

As with all PNP hatchery organizations in Alaska, DIPAC is run by an independent board of directors comprised of a variety of 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 Lake Whatcom which is ideal for supplying the needs of the fish hatchery and sufficient quantities are available from the City of Bellingham to meet the needs of the hatchery. The pipeline can provide up to 60 million gallons per day which far exceeds what the proposed hatchery will need at full capacity. We estimate the hatchery will require up to 4 million gallons a day to produce 40 million fish.

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 re-quirements 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 state has initiated an aggressive recovery program for Southern Resident Killer Whales (SRKW) including a major increase in hatchery-produced salmon, especially Chinook, the primary prey base for orcas. Part of the production envisioned for our project also includes Chinook salmon. And although it will be many years before we will begin to see significant returns of Chinook salmon from our project, we will work closely with the appropriate agencies to tailor the production goals to work in concert with ongoing recovery efforts.

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 subsidized 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.