Yukon River Chinook Enhancement Information

The Alaska Department of Fish and Game (ADF&G) has been considering the option of rearing and stocking Chinook salmon smolt within the Yukon River drainage. There are many aspects, both technical as well as biological, that need to be adequately vetted before Chinook salmon enhancement can occur (beyond simply vacant production capacity) within the Ruth Burnett Sport Fish Hatchery (RBSFH). Below I've provided information for you related to general enhancement guidelines (regulatory, biological and management), the capacity and goals for the RBSFH, and a brief status update on the William Jack Hernandez Sport Fish Hatchery.

The use of a hatchery as a tool to rehabilitate or enhance a fishery can be very effective. Hatcheries can produce very large numbers of juveniles in a relatively cost effective manner. However, hatchery production, if not done carefully, has the potential for unintended consequences such as reducing natural production. Because of this, Alaska has set the bar higher than other regions when it comes to the release of hatchery fish. Alaska has mandated a natural production priority, and hatchery production is viewed as a supplement to natural production, not a replacement.

The Alaska enhancement program has learned many lessons from enhancement experiences in the Pacific Northwest and tries very hard not to repeat those mistakes. Much of the hatchery production on Columbia River (a mixed stock gauntlet fishery similar to Yukon River) has been controversial as to benefits and impacts. Placing large scale enhancement efforts on top of wild stocks has not worked well on Columbia River and has created numerous challenges that are still plaguing managers and agencies. If Alaska were to undertake an enhancement effort on Yukon River, it should be done after careful planning and evaluation and should include stakeholder input as well as a well-developed exit strategy.

There are many regulatory, biological, and fishery management guidelines that require a cautious approach to the use of hatcheries in Alaska. Alaska applies a "first do no harm" mind set to authorizing releases of hatchery produced fish. Below is some of our primary guidance.

Regulatory

- Fishery enhancement activities are required by law to be addressed in regional comprehensive salmon plans (AS 16.10.375) drafted and reviewed by fishery stakeholders in the region through a public process. The Yukon River Comprehensive Salmon Plan (http://www.sf.adfg.state.ak.us/FedAidpdfs/CFSP.26.pdf) was approved on August 7, 1998. It states "…very little support or desire for large-scale hatchery production…"
- Sport Fish stocking is guided by the Statewide Sport fish Stocking Plan (http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportStockingHatcheries.stockingPlan) which is updated and approved through a public process. RBSFH production planning is guided by this plan.

Biological

- Fish released by hatcheries are required to be from a local stock with similar life history characteristics as adjacent natural stocks in order to reduce the potential for negative genetic effects on wild stocks.
- Hatchery produced fish are required to be released where they will have no significant impact on adjacent wild stocks in order to reduce the potential for negative ecological (competition) effects on wild stocks. For example, if hatchery produced juveniles are released into waters where naturally produced juveniles are rearing, there will be competition for food and space which could reduce survival, resulting in fewer adults.

Management

- Fishery management in Alaska has a wild stock priority. Hatchery produced fish are required to be released where the returns will be segregated from wild stocks. There is still potential to overharvest wild stocks when attempting to harvest hatchery produced fish, therefore it is important to be able to identify hatchery-produced fish through tagging when they are harvested in a mixed stock fishery. It may be necessary to forgo harvest opportunity on hatchery produced fish in order to protect a wild stock. Targeting of the hatchery produced fish could reduce the natural spawning population resulting in a decrease in natural production.

Ruth Burnett Sport Fish Hatchery (Fairbanks)

This facility was designed and built with the goal of not only meeting the current Sport Fish stocking needs of Interior Alaska, but also to allow a doubling of the stocking levels to absorb an anticipated increase in the need to provide additional opportunities for the sport fishing public in the future. It is currently operating at roughly 65% capacity, as outlined in the stocking plan.

There are five full time staff members employed at that facility; (manager, assist. manager, two fish culturists, and a maintenance engineer).

Chinook salmon are produced at the facility along with coho salmon, rainbow trout, Arctic char and Arctic grayling. Chinook salmon are reared to eight or ten inches and stocked into land locked lakes to support ice fishing. Coho salmon are also reared and stocked in lakes as fingerling in the summer to provide added lake angling opportunity in the fall and winter.

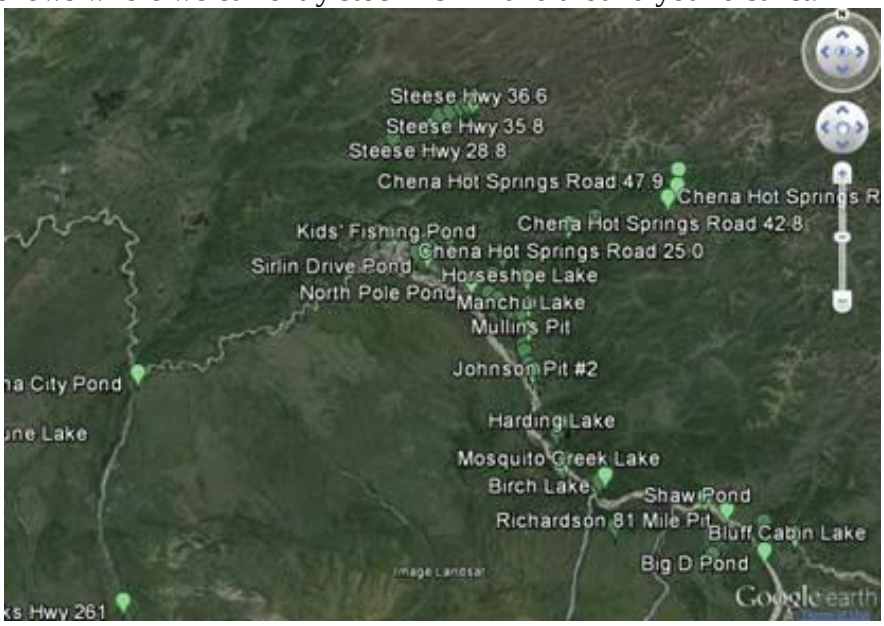
Per the stocking plan, no Chinook salmon smolt are produced at the facility for anadromous release as part of the hatchery's normal production. However, should the plan change, there is currently enough available rearing capacity to produce ~700,000 Chinook smolt. To produce these added smolt would require the procurement of additional incubators and installation of lighting control to provide the natural environment needed to ensure normal development and maturation. We have also been realistic in our discussions with folks where using a contemporary smolt to adult survival rate of 1% would yield 7,000 adults returning, whereas during periods of average production survival of 3-5% would yield 21-35,000 adults.

Current production in the facility is as follows.

Species	Inventory	Life Stage at Release
Chinook Salmon	19,315	Catchable 8” - 10”
Coho Salmon	76,749	Fry 1” - 3”
Rainbow Trout	144,610	Catchable 8” - 10”
Arctic Grayling	22,052	Catchable 8” - 10”
Arctic Char	6,010	Catchable 10”- 12”

Locations where Sport Fish division stocks fish in the Fairbanks and North Pole areas can be found at the following link:
http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportStockingHatcheries.lakesdatabase .

This diagram shows where we currently stock fish in and around your district.



William Jack Hernandez Sport Fish Hatchery (Anchorage)

The William Jack Hernandez Sport Fish Hatchery has been in operation for nearly three years now.

To date it has met or exceeded most if not all performance expectations and allowed us to reinitiate the catchable Chinook and Arctic grayling programs. Fish size has been increased and fish health has been significantly improved.

We should begin to see the first returning adults from Chinook and coho smolt releases this coming summer.

Due to increased stocking levels and improved fish health and size, it appears that angling effort on stocked waters within Southcentral Alaska is increasing. This trend will not be clear for another year or two when we acquire angler effort from the Statewide Harvest Survey.