

Salmon Hatcheries in Alaska

Plans, Permits, and Policies that Provide Protection for Wild Stocks

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Spawning chum salmon.

Introduction

The hatchery program in Alaska was initiated in the early 1970s to contribute to the rehabilitation of the state's depleted and depressed salmon fisheries. It was intended to supplement, not supplant, wild stock production. For this reason, numerous policies and regulations were promulgated to guide hatchery development and operations and to serve as safeguards for the maintenance of wild stocks. As evidenced by the dramatic increases in abundance of salmon in Alaska's commercial harvests since 1975 (Figure 1), the salmon advancement program has not had detectable adverse impacts on the abundance of Alaska's wild stocks.

Alaska has not yet repeated the mistakes made in the Pacific Northwest, where habitat destruction, hydropower development, and use of hatcheries to replace damaged wild stock production have resulted in serious depletion of most salmon resources. In Alaska, protection of wild salmon stocks is accomplished through:

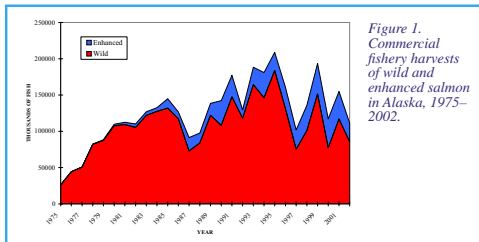


Figure 1. Commercial fishery harvests of wild and enhanced salmon in Alaska, 1975-2002.

- A rigorous hatchery permitting process that includes genetics, pathology, and fishery management reviews;
- Policies that require hatcheries to be located away from important wild stocks;
- Use of local brood sources;
- Legal mandates that require wild stocks to be given priority in fishery management;
- Requirements for tagging/marketing of hatchery fish; and
- Requirements for special studies on hatchery/wild stock interactions.



Mature chum salmon.

Policy Development

Beginning with the inception of Alaska's hatchery program, policies, statutes, and regulations were instituted to control hatchery development and, at the same time, protect wild stocks. Rigorous genetic and fish health policies were developed to guide the program.

Policy and Regulation Chronology

- 1974 Private Non-Profit Hatchery Act
- 1974 Hatchery permitting policy
- 1975 Genetic policy
- 1976 Regional salmon planning statute
- 1978 Alaska Board of Fisheries hatchery management policy
- 1981 Fish transport and fish disease regulations
- 1985 PNP hatchery permitting regulations
- 1985 Revised genetic policy
- 1988 Fish pathology policy
- 1992 Wild stock priority statute
- 1992 Salmon escapement goal policy
- 1994 Sockeye salmon culture policy
- 1994 Fish resource permit policy
- 2000 Sustainable salmon management policy

Hatchery Production

Hatchery contributions of adult salmon to commercial fisheries in Alaska grew from a few thousand fish in the mid 1970s to a high of over 42 million in 1999 (Figure 1). Hatchery production in 2002 accounted for 23.1% of the total salmon harvested in common property commercial fisheries. Production has stabilized in recent years (Figure 2). Most of the production is pink and chum salmon (Figure 3).

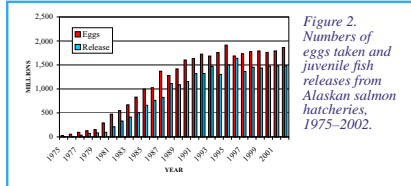


Figure 2. Numbers of eggs taken and juvenile fish releases from Alaskan salmon hatcheries, 1975-2002.



Black bears at Neets Bay hatchery in Southeast Alaska.

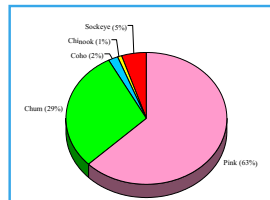


Figure 3. Percentage of eggs of each species of salmon taken for incubation in Alaskan hatcheries in 2002.

Whether the current magnitude of hatchery production in Alaska is impacting wild stock production has been debated, especially in relation to pink salmon production in Prince William Sound. The most recent analyses suggest that

variable conditions in the marine environment over time, rather than the number of hatchery fry, best explain the changes in wild stock production.

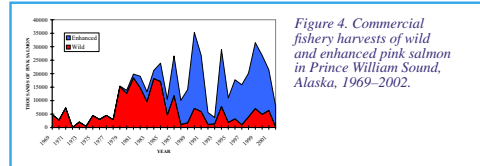


Figure 4. Commercial fishery harvests of wild and enhanced pink salmon in Prince William Sound, Alaska, 1969-2002.

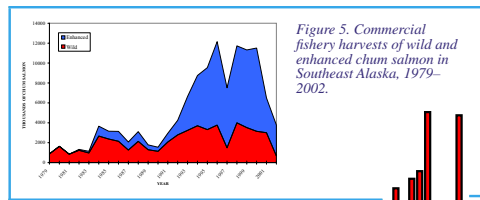


Figure 5. Commercial fishery harvests of wild and enhanced chum salmon in Southeast Alaska, 1979-2002.

In Southeast Alaska, fisheries for chum salmon are concentrated in terminal areas on hatchery production. Wild chum salmon production has increased during the growth of hatchery production and is generally stable.

Salmon commercial harvests in Alaska 1878-2002.

Start of Hatchery Program: 1971.

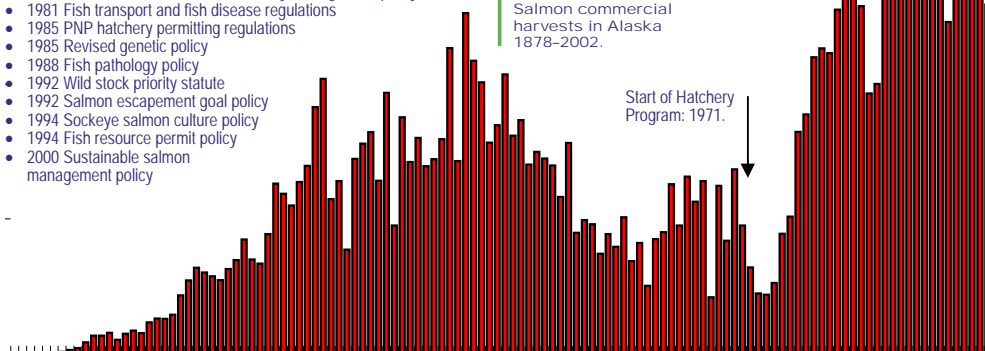


Figure 6. Designated comprehensive salmon planning regions in Alaska.

Area M

Regional Planning

The hatchery program was initiated with requirements for a regional salmon planning process to guide fisheries enhancement. Salmon planning regions have been established for most of Alaska's coastline as well as the Yukon River drainage (Figure 6).



Commercial harvest of chum salmon at Hidden Falls hatchery in Southeast Alaska.

Regulation of Hatcheries

The hatchery permitting process is rigorous and thorough and usually takes two years.

- Hatchery must fit into Regional Salmon Plan
- Application reviewed for impact to wild stocks
- Public opinion solicited through formal hearing
- Multi-agency review involving state and federal agencies
- Use of specific brood stocks requires additional permits
- Approval of Annual Plan required for each year of operation
- Hatchery permits are non-transferable
- 13 PNP permits have been revoked

Tight regulatory oversight of hatcheries continues after operating permits have been issued (Figure 7).

Fish released by hatchery operators are available to the people for common use in the same way as natural stocks until they return to the location established by ADF&G for harvest by hatchery operators. Conservation of wild salmon stocks, consistent with sustained yield principles, is accorded the highest priority in the policies for management of mixed-stock and sustainable salmon fisheries.

Each facility is inspected at least every other year, and each brood stock is examined for disease prior to its use in a hatchery. The disease history of each stock must be kept current, and samples of fish must be sent to the department's Pathology Laboratory for analysis whenever there is an incidence of disease. An annual report containing information on hatchery returns, numbers of eggs taken, and numbers of fry or smolt released, by species and stock, must be filed.

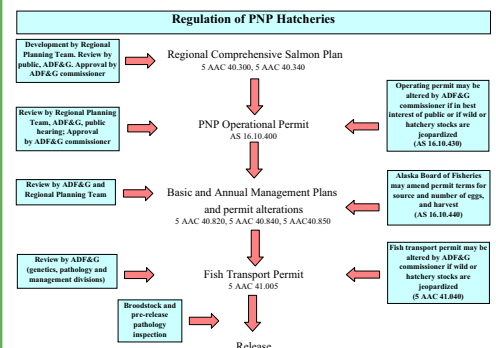


Figure 7. Regulation process for PNP hatcheries.

Conclusion

Alaska's current hatchery program has enhanced and supplemented wild stock production for over 30 years, without detecting adverse impacts on wild salmon, which are at record levels of production. The success of this program is attributable to the development of policies, procedures, and plans that require hatcheries to be located away from important wild stocks, the use of local broodstocks, priorities in fisheries management that provide protection for wild stocks, and constant vigilance on the part of ADF&G and hatchery operators to improve the program through ongoing analysis of hatchery performance.