

HB41
SHELLFISH ENHANCEMENT PROJECTS: HATCHERIES

PUBLIC COMMENTS.

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Thank you for the opportunity to provide my thoughts on HB41. Please feel free to contact me if you have questions.

I am opposed to the passage of HB41, as currently written. It is simply an expansion of the current salmon hatchery program to all shellfish species in the state. This is not a responsible approach to the Constitutional mandates for sustainability of natural resources in Alaska. And certainly not within even the most liberal meaning of "precautionary" standards. "Precautionary" can be defined in broad terms.

As you are probably aware, the existing salmon program faces many challenges today. The Alaska Board of Fisheries wrestles with the salmon hatchery issues on a very regular basis, with limited resolution, partially due to the way the statute, and subsequent regulations were written. With respect to salmon, issues have been identified including genetic fitness, phenotypic fitness, straying with reproductive effects, food competition with natural stocks, appropriate remote release sites and volumes, special harvest locations, and other effects have been identified which could effect the sustainability of Alaskan natural stocks, shellfish included. A mathematical increase in abundance and returns of hatchery pinks and chums does not necessarily mean success or proper and sustainable management of natural salmon stocks for use by all Alaskan citizens as mandated by the Alaska constitution.

Scientists know much more about the life history, management systems, enhancement methods, and effects of exploitation by all user groups of salmon than they do on many of Alaska's shellfish species. The ability of the State to sustainably manage and exploit various shellfish species in Alaska should also be questioned. Abalone in Southeast Alaska is an example of a fishery that was overexploited at least partially due to inadequate research and management monitoring capabilities. The commercial fishery currently exists in regulation only. The Dungeness crab fishery in the Yakutat area failed years ago and has not recovered, although it also still exists in regulation. Various red king crab, Tanner crab, shrimp, and Dungeness crab fisheries in different regions of the state are other examples where current population levels support very small historic fisheries or no current fisheries. Generally, they have not been sustainable.

Shellfish species in general have much more complex life histories than salmon. The many and sensitive life history stages shellfish pass through on their way to adulthood are susceptible to changing environmental conditions (e.g. temperature, winds and currents, proper food availability throughout the trophic dynamic food chain or pyramid, etc.) predation, and have specific health and disease issues. Significant and specific information is needed to ensure that a shellfish enhancement project is well-designed and properly executed. Examples of well designed and executed projects would be the geoduck fishery in the state of Washington, and the abalone and sea urchin program in Kona, Hawaii.

If a shellfish enhancement project is simply another release and harvest fishery as with some current salmon enhancement programs, then the State is not really enhancing the natural stocks. There is limited assurance that the current salmon methods will result in a hatchery fish with the same genetic and phenotypic traits of the natural fish. But, the programs are enhancing the pocket books of a special group of users (permit holders), the PNP organizations, and associated infrastructure.

Some traditional Alaskan shellfish fisheries might well benefit from enhancement after years, or perhaps decades, of stock declines. Population declines may have been a result of a combination of factors including (but not limited to) natural biological processes, insufficient life history knowledge before exploitation began, inadequate fishery management plans, inability to monitor and identify negative factors during prosecution of fisheries and make appropriate and timely in-season management decision.

Properly funded research and management programs of natural fishery resources is the best means to ensure that natural resources will be sustained for use by all citizens of the State. The staff should be properly educated, experienced, led and supported to meet the needs of today's demands on the resources to ensure overexploitation. Ongoing research projects on raising red king crab by UAS professor Ginny Eckert has provided important information into the complexity of enhancing that species. Similar work on any potential shellfish species of interest is an imperative to responsible decision making prior to initiation of a shellfish enhancement project.

There is a need for shellfish enhancement in Southeast Alaska, and probably throughout Alaska, my experience is basically in in Southeast Alaska and Yakutat portions of the state. I will defer to others with experience in other regions of the State to comment on their specific areas of expertise.

I can not support HB41 as written. I understand it is a starting point, but at the present a naive starting point. I would be supportive of a bill that identifies each shellfish species to be enhanced through a special permitting process. This process may already be defined in statutes or regulations to some degree.

The needed background and research information to support a shellfish enhancement project should be fully identified (population estimates, reasons for fishery failures, etc) and evaluated by a qualified and independent group prior to being permitted in the State. In addition, as much as possible, facilities used to provide grow out or brood stock should be restricted from dumping effluent back into the natural ecosystem without proper treatment. All waters should be properly treated prior to being added back into the natural environment. Such programs could be also authorized by special permits issued by the commissioners of the Alaska Department of Fish and Game and other associated departments (DEC as an example). Disease profiling should be the responsibility of the permittee, with oversight from the State. Genetic profiling should be required from the inception of the program, with oversight from the State. Whenever possible, releases should be well marked to enable evaluation of enhanced versus natural stocks. A robust evaluation process should be included in permits. Permits should be subject to revocation when violations occur.

The current Private-Non-Profit salmon statutes have two major flaws that should be corrected at some time in the near future, and eliminated from any special shellfish enhancement permits or statutes from the start.

First, there should be a specific State definition of what constitutes "non-profit", and at what appropriate level of an organization such a determination should be evaluated.

Second, the ownership of any product that uses a State permit or lease of any sort (tideland, water rights, etc), or natural state broodstock, should be retained by the State's

citizens, not a specific group of other “owners”. Once the knowledge base has increased substantially, and the potential for success of a program is determined to be highly feasible, then an expanded permit could be issued and ownership discussed further. As I understand the Alaska Constitution, the natural resources of the State belong to the citizens, not specific user groups.

The specific need for enhancement should be fully elucidated in the permit application. The primary reason for enhancement should be to replenish natural stocks in fisheries or locations where stock depletion is demonstrated through scientifically based population estimation programs. Other factors such as historic and potential values of the revived fisheries could also be used, but with a lower priority.

There have been numerous scientific books and research papers produced that address enhancement, and some relate directly to Alaskan shellfish. Available information provides insight into the complexity of the estuarine, near ocean, and open ocean environments that effect complex life histories, necessary food resources, and in some cases, factors of interspecies competition of food or habitat, and predation. A few of interest on varying subjects are provided below for those who seek to investigate further. Some are independent peer reviewed documents. Bibliographies associated with these documents should lead to additional questions and further investigation before any positive action on HB41 is taken:

1. Cushing, D.H. 1974. A Link Between Science and Management in Fisheries. *Fishery Bulletin*: Vol 72, No 4, pages 859-864, 1974.
2. Orensanz, J.M. (Lobo), Janet Armstrong, David Armstrong, and Ray Hilborn. 1998. Crustacean Resources are Vulnerable to Serial Depletion - the Multifaceted Decline of Crab and Shrimp Fisheries in the Greater Gulf of Alaska. *Reviews in Fish Biology and Fisheries*, 8, pages 117-176 (1978).
3. Larkin, P.A. 1977. An Epitaph for the Concept of Maximum Sustained Yield. *Trans. Am. Fisheries Society*. Vol 106, No. 1, pages 11. 1977.
4. Knapp, Gunnar, Cathy A. Roheim, and James L. Anderson. 2007. *The Great Salmon Run: Competition Between Wild and Farmed Salmon*. Traffic North America, World Wildlife Fund, Washington, DC. 297 pages. Jan 2007.
5. NMFS and NPFMC staff (Prepared by Diana Evans, Mike Fey, Robert Foy, John Olson). 2012. *The Evaluation of Adverse Impacts From Fishing on Crab Essential Fish Habitat*. Crab EFH Discussion paper. 37 pages. January, 2012.
6. Naish, K.A., J.E. Taylor III, P.S. Levin, T.P. Quinn, J.R. Winton, D. Huppert, R. Hilborn. 2007. An Evaluation of the Effects of Conservation and Fishery Enhancement Hatcheries on Wild Populations of Salmon. *Adv. Mar. Biol.* 53, pages 61-194. 2007.
7. Christie, M.R., M.L. Marine, R.A. French, R.S. Waples, M.S. Blouin. 2012. Effective Size of a Wild Salmonid Population is Greatly Reduced by Hatchery Supplementation. *Heredity (Edinb)*. Oct:109 (4), pages 254-60. 2012.
8. Paul, A.J., J.M. Paul, and K.O. Coyle. 1989. Energy Sources for the First-feeding Zoea of King Crab *Paralithodes camtschatica* (Tilesius) (Decapoda, Lithodidae). *Journal of Experimental Marine Biology Ecology*. 130, pages 55-69.