

PROPOSAL 98

5 AAC 27.190. Herring Management Plan for Southeastern Alaska Area.

Reduce harvest rate for commercial herring fisheries in the Southeastern Alaska Area, as follows:

We propose the following language changes be made to the *Herring Management Plan*:

These changes allow for a more conservative approach to the commercial sac roe fishery while also providing for a sustainable commercial fishery.

5 AAC 27.190 Herring Management Plan Statistical Area A

- (1) shall identify stocks of herring on a spawning area basis;
- (2) shall establish minimum spawning biomass thresholds below which fishing will not be allowed;
- (3) shall assess the abundance of mature herring for each stock before allowing fishing to occur;
- (4) except as provided elsewhere, may allow a harvest of herring at an exploitation rate between ~~10 percent and 20 percent~~ 0 and 10 percent of the estimated spawning biomass when that biomass is above the minimum threshold level;
- (5) ~~may~~ must identify and consider sources of mortality in setting harvest guidelines or deduct an ecosystem allocation of at least 25% from the commercial fishery allocation;
- (6) by emergency order, may modify fishing periods to minimize incidental mortalities during commercial fisheries.

What is the issue you would like the board to address and why? We would like the Board to consider the rapidly changing ecosystem of the Eastern Gulf of Alaska and Sitka Sound and take management actions to help provide for a robust herring population and sustainable commercial fishery by lowering the harvest rate of the sac roe fishery in Sitka Sound either through a reduced sliding scale (0-10%) and/or through an ecosystem set aside taken off the commercial fishery quota.

Herring are an especially important species that needs the utmost consideration from the board of fish because of its cultural and subsistence significance, the importance of the commercial herring fishery and the importance of herring as a prey species for most all other commercial fish species, for its role as prey for important sport fish, and for its ecosystem role. It is clear that there are changes taking place in the Gulf of Alaska with ocean conditions that we have not seen before and the arrival of new species to the SE Alaska coast. At this time, with those changes, it is imperative that we take a more conservative approach to management to ensure the continuation of commercial, sport, and subsistence fishing stocks and for the maximum resilience of the ocean ecosystem.

Sitka Sound is the site of one of the largest remaining sac roe herring fishery on the west coast. According to Hebert (2016) "After a period of building since about the late 1990s, herring spawning biomass in Southeast Alaska is now in a period of decline, which has become apparent over the past few years. The total combined spawning biomass estimated in 2015 for all of Southeast Alaska is at a level similar to that of the late 1990s". Although the Sitka Sound herring stock appears to be stable or increasing in recent years, spawn deposition has decreased (miles of spawn) for Sitka Sound (Hebert 2016). In 2017 spawn deposition along the road system is very

light with only 1 or two layers of eggs. Sitka Sound has been experiencing rapid changes due to changing climate: this includes increased ocean acidification (OA), warming temperatures, the intrusion of new species (ie market squid), and a changing predator field with increasing populations of humpbacks whales spending more residence time in Sitka Sound, particularly in the winter and early spring. Implications of the 2-year residency of market squid are unknown but they likely consume larval herring, co-occurring in squid spawning habitats. The current fishery management plan was implemented in 1994, well before our current climate conditions and although a 20% maximum harvest rate was the norm at the time, other commercial fisheries for herring on the west coast are currently using a 10% maximum harvest rate. Other fisheries managed by ADFG have very conservative harvest rates because they are potentially vulnerable. This includes sablefish in Chatham, lingcod in SE Alaska, and rockfish in SE Alaska. These precedents would support a more conservative approach towards the herring resource which is a species that supports most of the other commercial species in the region as its base food source. There is local concern that, in part, due to rapid changes in the environment, the Sitka Sound herring resource is vulnerable and given its irreplaceable role as the key prey species supporting healthy salmon, halibut, and rockfish fisheries and its integral role in our marine ecosystem as a forage for whales, pinnipeds, and seabirds it is imperative that any fishery removals be cautiously approached.

Current management states that management:

- (1) shall identify stocks of herring on a spawning area basis;
- (2) shall establish minimum spawning biomass thresholds below which fishing will not be allowed;
- (3) shall assess the abundance of mature herring for each stock before allowing fishing to occur;
- (4) except as provided elsewhere, may allow a harvest of herring at an exploitation rate between 10 percent and 20 percent of the estimated spawning biomass when that biomass is above the minimum threshold level;
- (5) may identify and consider sources of mortality in setting harvest guidelines;**
- (6) by emergency order, may modify fishing periods to minimize incidental mortalities during commercial fisheries.

It puts an unfair burden on ADFG to be able to seasonally adjust commercial fishery quotas as allowed by number (5) above as there is little precedent for that. However, this is an important management tool in a rapidly changing ecosystem. In 2017, it was clear that humpbacks were present in large numbers as the larger bodies of herring arrived into the Sound. This increased residency and feeding capacity (and increasing population size of humpbacks) is not factored into a fishery model natural mortality estimate but has a large impact on the resource. Estimates of whale consumption of herring can exceed 10,000 tons – similar in magnitude the Sitka Sound commercial fishery. Further, the herring larvae are likely to be prey for market squid, a new predator to our ecosystem and the impacts of that are also unknown. Finally, Ocean Acidification and warming conditions in the gulf of Alaska have been shown to negatively impact Atlantic herring, with Ocean Acidification impacting adult herrings ability to successfully forage. Shelton et al (2014) and Levin (2016) have published recent work for informing ecosystem-based fishery management of forage fish. One approach is to develop a set aside for the ecosystem (“1/3 for the birds”) which would allow this to be taken off the top. Another approach would be to lower the exploitation rate to a place that is more conservative given the fact that the current model

cannot account for changes in ocean conditions, increased predation, or the potential regime changes that we may be seeing in the Sitka Sound/Gulf of Alaska.

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