Commercial Herring Fisheries in Southeast Alaska

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by

Kyle Hebert

Herring Research Supervisor – Southeast Region
Alaska Department of Fish and Game
Division of Commercial Fisheries
Topics

• 19 herring proposals – focus on pertinent issues
• Ecosystem considerations for herring
• Orientation of stocks and fisheries
• Management plan overview
• Harvest rate/thresholds (Props 98-100)
• Herring resiliency (Props 95,96,100)
• Potential commercial fishery effects on subsistence
• Sitka closed waters, historical spawn, historical fishery openings (Props 104,105,106)
• Spawn-on-kelp fishery (Props 101,102,103,107,112)
Ecosystem Considerations

- Herring play an important role in ecosystem, linking lower and higher trophic levels

- Important as prey for many marine mammals, fish, birds
Location of Spawning Areas

- Yakutat
- Lynn Canal
- Seymour Canal
- Hobart Bay
- Tenakee Inlet
- Hoonah Sound
- Sitka Sound
- Craig
- Ernest Sound
- West Behm Canal
- Kah Shakes / Cat Island
- Juneau
- Sitka
- Ketchikan

- = actively surveyed areas
- = historically surveyed areas
○ = minor spawning areas

Southeast Herring Oral Report RC3, Tab 22
Southeast Commercial Herring Fisheries and Gear Types

- **Sac-roe**
  - Purse seine or gillnet
  - Spring fisheries
  - Largest fishery for landings and usually for overall value

- **Spawn on kelp**
  - Closed or open pounds; herring collected with purse seine
  - Spring fisheries

- **Bait/food**
  - Purse seine
  - Fall/Winter fisheries
  - Smallest fishery for landings and overall value

- **Some areas have multiple fisheries with allocations**
  - Example is Craig: Bait/food (60%) and spawn on kelp (40%)
For management of herring, the department:

1) Shall identify stocks on a spawning area basis;
2) Shall establish minimum spawning biomass thresholds;
3) Shall assess abundance of mature herring before fishing;
4) May set exploitation rate between 10% and 20%;
5) May consider sources of mortality;
6) May modify fishing periods to minimize incidental mortalities.
Harvest Rates

• Goals: sustainability; optimize yield; minimize closures

• Established based on analysis of other Alaskan herring stocks

• Southeast uses sliding scale to add a measure of conservatism

• Recent research suggests that a fixed 20% harvest rate with a threshold set at 25% of pristine biomass:
  – successful at maintaining and rebuilding populations in high productivity states and possibly for maintaining populations in low productivity states
  – might not be successful at rebuilding populations in low productivity states
Sliding Scale Harvest Rate

Biomass as multiple of threshold
(i.e. 1, 2, 3...times threshold)

Allowable harvest rate

- NO FISHERY
- Sitka
- All other areas
- Far Above Threshold

At Threshold

Southeast Herring Oral Report RC3, Tab 22
Thresholds

• Goals
  – Allow stock to rebound more quickly when at low levels
  – Provide spawning base for reproduction / future recruitment
  – Use with corresponding appropriate harvest rate

• Established based on one of two approaches:
  – 25% of estimated pristine biomass, a commonly used approach
  – Set based on estimates of historical abundance and data quality

• Recent research suggests thresholds above 25% of pristine biomass may be necessary for other species, and to allow low productivity stocks to recover
Effect of Commercial Fishery on Subsistence Opportunity

• Big question – do commercial openings affect spawning behavior, and/or subsistence fisheries and if so, how much? (Props 104-106)

  – Potentially, but difficult to determine if it is happening, how, or to what extent

  – Ways fishery could affect spawning or subsistence

  – Does spawn happen because of the location of fishery or does the fishery happen because of the location of spawn?
Sitka Sound 2017 Spawn and Fishery Areas

- Proposals 104, 105, 106

- Map shows:
  - subsistence closure area (light blue)
  - 2017 areas of commercial openings (gray)
  - Shoreline with spawn (red line)
SOK Fishery

* Requires careful handling of herring to transfer to pounds.
* Release herring alive after spawn but before SOK harvest.
* No opportunity to measure quantity of herring in pounds.

Kelp and herring

Dead loss

Anchor
Spawn on Kelp Fisheries

• Kelp allocations
  – Means to control herring usage
  – Allocation tables with incentives to form groups

• Estimates of herring use
  – Difficult to determine accurately
  – Partially based on results from PWS and Southeast AK
  – Estimate average of 20 tons used per pound

• Estimates of dead loss
  – Assume 75% mortality (15 tons per pound)
  – True mortality unknown, but 75% assumed