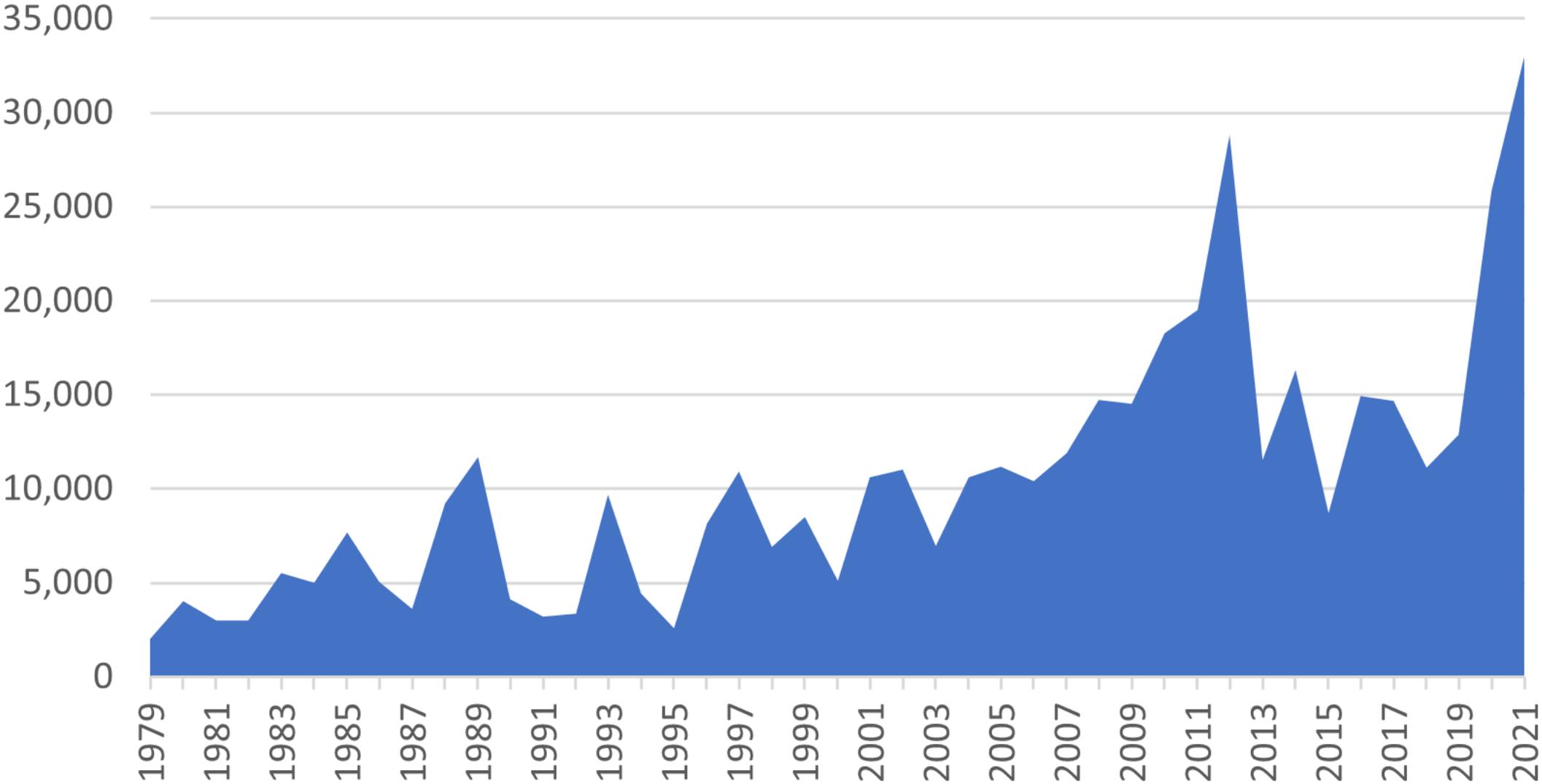


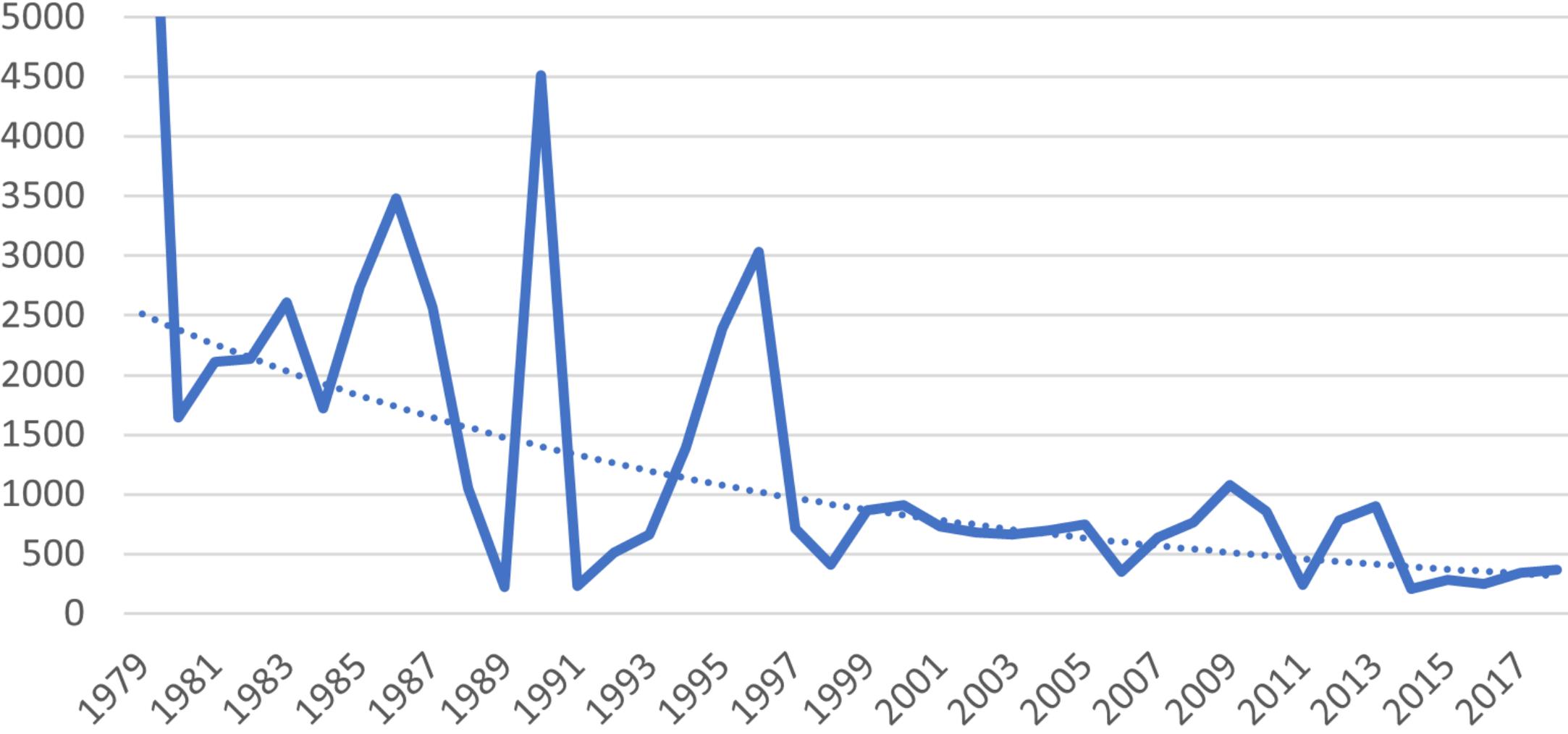
Several reasons that inflation has occurred over time in ADF&G's assessed abundance of herring in Sitka Sound:

1. Nobody tried to know the approximate total biomass of spawning herring in Sitka Sound until the mid-late 1980's – ADF&G's attempts to do so retroactively are based on improper use of available data and should be considered *unsubstantiated and conjectural*
2. 1970's study focused on specific wintering populations in small areas using hydroacoustic gear; study did not encompass the entire area
3. Sitka Sound sac roe seine fishery rapidly accrued new areas following Limited Entry
4. Management became more obligated to support the value of the fishery with time by helping find more bigger older fish, especially with a) limited entry and b) the 1992 regulatory change
5. Survey effort has expanded in time and space
6. Overfishing and market conditions transformed this from a luxury fishery to a volume fishery
7. Key biological assumptions like fecundity, maturity, and survival have shifted
8. Version Control / Selective Alterations to recent years
9. Technological evolution

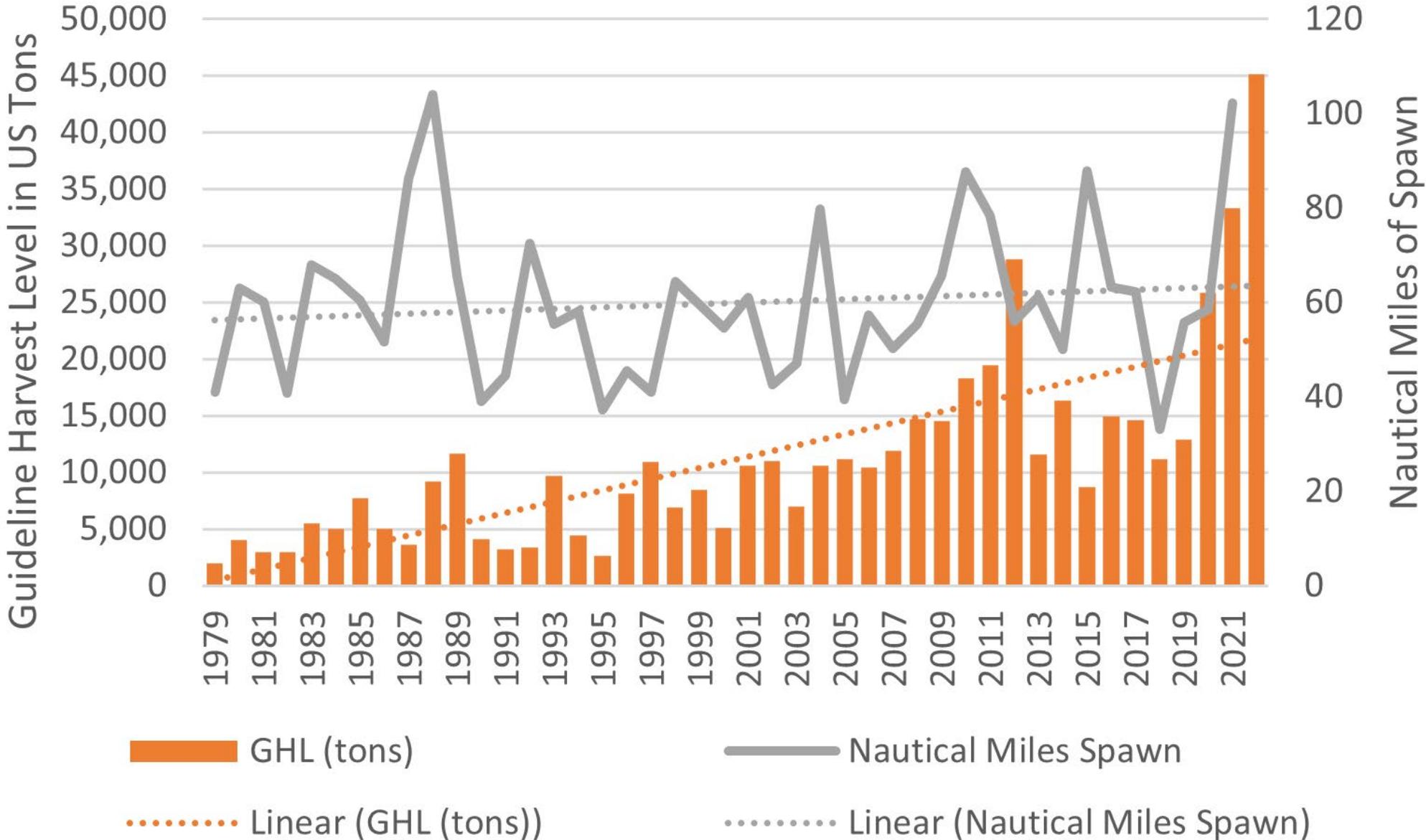
Guideline Harvest Level (Tons)



CPI-adjusted (to 2021) Exvessel Value (\$) per Ton Sitka Sound Sac Roe Herring Seine Fishery



Guideline Harvest Level vs Miles Of Spawn

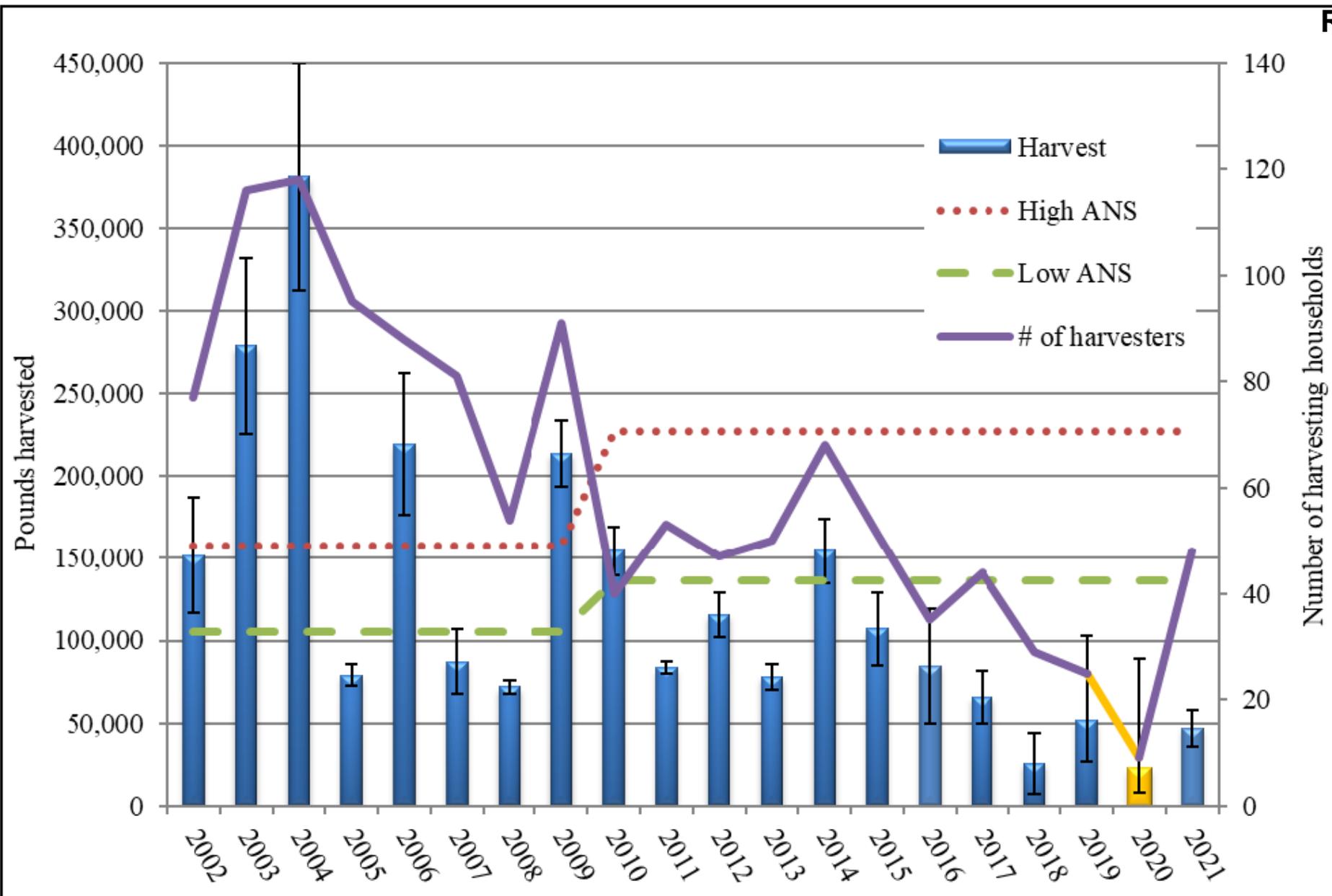


DFO // Canadian Science Advisory Secretariat Pacific Region Science Response 2021/039

Pacific Herring status in 2021 and forecast for 2022 (from p6)

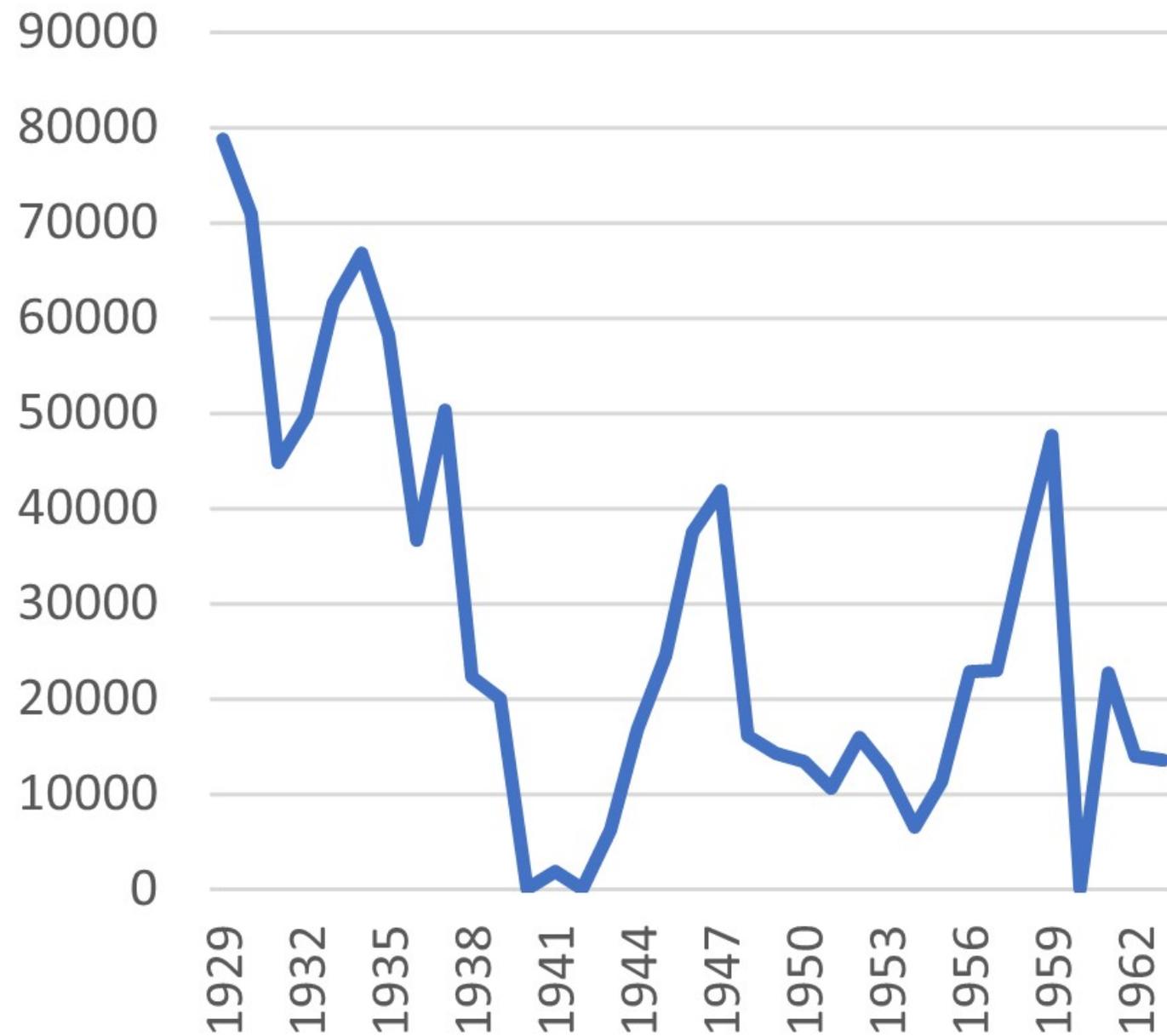
- “Reduction in harvest rate from 20% to 10% was the most effective means of mitigating stock assessment errors by reducing the absolute size of the catch. The use of a catch cap, implemented as a maximum annual catch level, is an effective model-free way to further mitigate assessment errors at very high biomass levels. Simulation analyses additionally showed that outcomes are insensitive to the choice of operational control points (OCPs) in the HCR when a low harvest rate (HR) and catch cap are applied. This occurs because low biomass levels (associated with the lower OCP) are avoided for these MPs.”

- April 12, 2012 - "The Sitka Sound sac roe herring fishery closed today for the season, with a total catch less than half of 28,829-ton guideline harvest level. It was the first time in the history of the fishery that such a large share of the guideline harvest level was left on the table."
- April 4, 2013 - "Extensive air and water surveys failed to locate any more areas for competitive fishing, and on Tuesday the permit holders voted among themselves to fish cooperatively after Fish and Game said this would be the only method to continue harvesting to capture the remaining half of this year's quota. After the day-long cooperative fishery held Wednesday in the waters between Salisbury Sound and Aspid Cape netted only 250 tons, [Area Management Biologist] announced that fishing was over for the season. A few successful sets were made Wednesday, but other sets turned up a large number of unmarketable and small fish."
- Mar 31, 2014 - "The fish really cooperated this year," [Area Management Biologist] said.
- Mar 27, 2015 – [Area Management Biologist] said the fishermen harvested good quality herring, with an average mature roe content of between 11 and 12 percent. He said there were times during the opening when it was difficult to find the larger fish, perhaps because of the tides. "The fact that there is a lot of little fish suggests we have good recruitment of herring into the population, but we won't know to what extent (until later)," he said.
- March 29, 2016 - "An increasing mix of smaller herring decreasing the value of additional harvest," [Area Management Biologist] summarized in a report today. [...] After test samples taken Monday on large groups of herring in Salisbury Sound failed to yield marketable fish, Fish and Game consulted with industry representatives and decided to call it a day."
- March 27, 2017 – "I spoke to a lot of people, and all had positive comments about the fishery, about the quality, very few, if any, negative comments."
- April 4, 2018 (from KCAW) – "The Sitka sac roe herring fishery has shut down early this year, falling 8,330 tons short of this year's guideline harvest level. The fish gradually got smaller as the opening went on, so we closed the fishery. We just weren't able to find any marketable fish at that point," [Area Management Biologist] said.
- March 26, 2019 - Alaska Department of Fish and Game biologists were searching again today for an area in Sitka Sound with a sufficient volume of marketable fish for an opening in the annual sac roe herring fishery, but there were increasing indications that this may be a year without an opening.
- February 28, 2020 – "The Sitka Sac Roe Herring Fishery likely won't happen this year. That's according to a statement released Friday (2-28-20) by the Alaska Department of Fish and Game. Weak markets and smaller-than-average fish — two factors in the premature closure of last year's fishery — are being blamed for the move,"
- April 12, 2021 – "What I would class as being kind of unusual was how long marketable herring was available to the fishery – that was unusual." [Area Management Biologist]

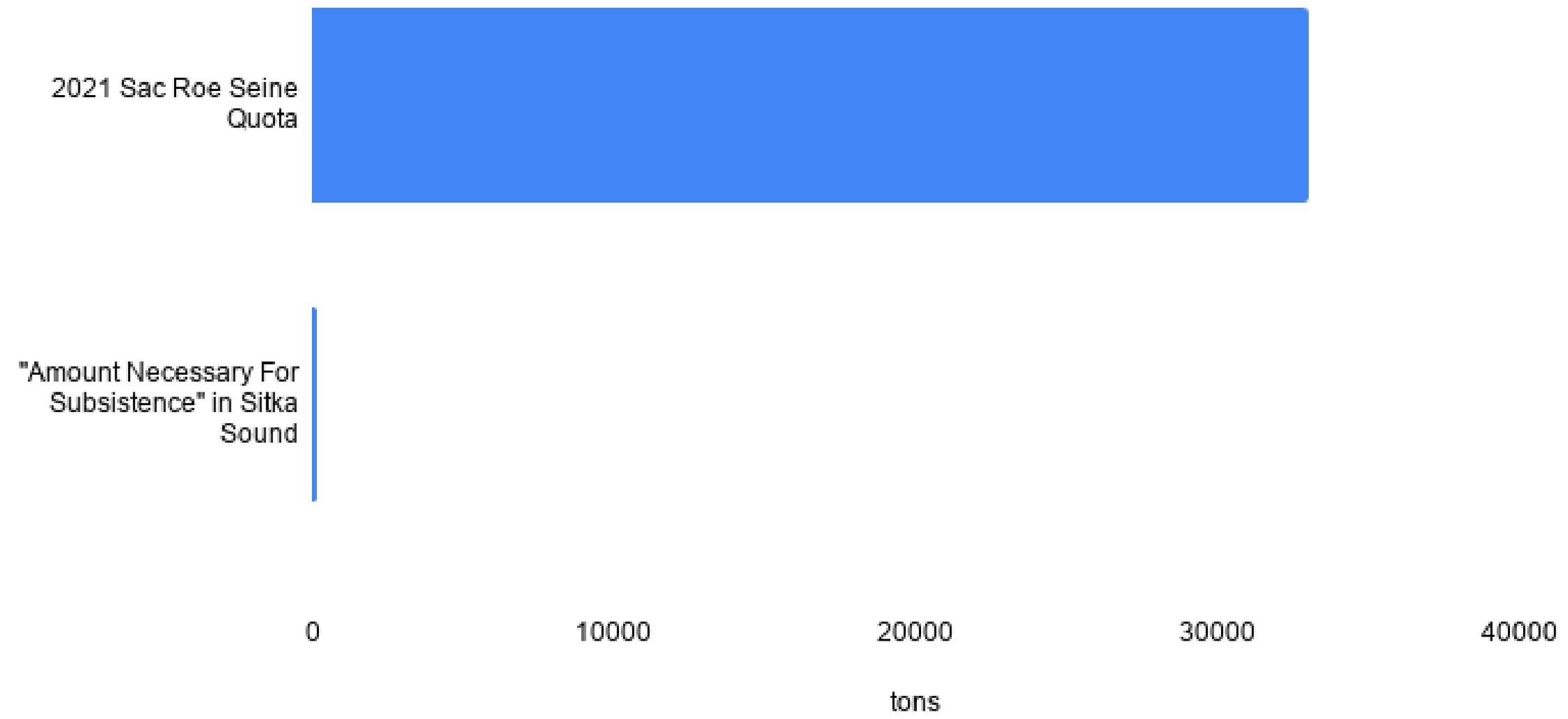


Note The 2020 harvest is shown in yellow to reflect an atypical harvest year, perhaps due to the COVID-19 pandemic.

Reduction
Fishery Catch
Records (US
tons) for
Southeast Alaska
– notice what
has happened
following years
of catches over
15,000 tons.



Sitka Sound Sac Roe Seine Quota vs "Amount Necessary For Subsistence"



§ 5 AAC 27.059. Management guidelines for commercial herring sac roe fisheries

(a) If the department has adequate information, and if department management programs are in place, the department may manage commercial herring sac roe fisheries, to enhance the value of the landed product as follows:

(1) fishing periods may be established by emergency order in areas and during times when sampling has demonstrated, or when other factors indicate, that the herring roe content of the catch is likely to be highest;

(2) fishing periods may be established by emergency order in areas and during times when sampling has demonstrated, or when other factors indicate, that the catch is composed of the maximum average size of herring available for the stock;

(3) in a preseason management plan, the department shall specify the particular herring fisheries that are to be managed to enhance the value of the landed product.

(b) The department may modify herring sac roe fishing periods and areas to minimize the harvest of recruit-sized herring during the conduct of a sac roe fishery that targets post-recruit herring.

(Eff. 5/2/92, Register 122)

§ 5 AAC 27.195. Sitka Sound commercial sac roe herring fishery **RC 042**

(a) In managing the commercial sac roe herring fishery in Section 13-B north of the latitude of Aspid Cape (Sitka Sound), the department shall

(1) manage the fishery consistent with the applicable provisions of [5 AAC 27.160](#) (g) and [5 AAC 27.190](#);

(2) distribute the commercial harvest by fishing time and area if the department determines that it is necessary to ensure that subsistence users have a reasonable opportunity to harvest the amount of herring spawn necessary for subsistence uses specified in [5 AAC 01.716](#) (b).

(b) In addition to the provisions of (a) of this section, the department shall consider the quality and quantity of herring spawn on branches, kelp, and seaweed, and herring sac roe when making management decisions regarding the subsistence herring spawn and commercial sac roe fisheries in Section 13-B north of the latitude of Aspid Cape.

Eff. 4/14/2002, Register 162 **Authority:**AS 16.05.251

Spawning Biomass vs. Miles of Spawn, 1979-2020

