



THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

**R222**  
Fish and Game

DIVISION OF COMMERCIAL FISHERIES  
Southeast Region Office

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## Department of

March 11, 2013

Michael Baines, Council Chairman  
Sitka Tribe of Alaska  
456 Katlian Street  
Sitka, AK 99835

Dear Mr. Baines,

Thank you for your letter concerning the 2013 Sitka Sound herring sac roe fishery guideline harvest level (GHL). As you know the preliminary GHL was set at 11,055 tons with an ASA model forecast of 74,694 tons of mature herring expected to return in the spring of 2013. This amounts to a 15% harvest rate of the model forecast. As described in a news release announcing the preliminary GHL dated December 12, 2013, the department has chosen to set a precautionary GHL that was calculated by reducing the ASA forecast GHL by 25%. This approximates the harvest level that would be available if the survival rate between 2012 and 2013 is similar to a lower survival rate estimated by the ASA model for the period 1980-1998. The department does not believe additional conservative measures are necessary at this time.

The 2012 return of herring to Sitka Sound was well below what was forecast to return based on the results of the 2012 spawn deposition survey and subsequent ASA model population estimate. This shortfall was recognized inseason and the sac roe fishery was closed after a harvest of approximately 13,000 tons of the 28,000 ton GHL. The department will take similar management actions in 2013 should they be deemed necessary in 2013.

The estimated biomass of herring that escaped the fishery and spawned in 2012 was approximately 68,000 tons resulting in a harvest rate of 16%. Though sampling error may explain some of the shortfall, the department's conclusion is that a natural and unpredictable abrupt change to the population may have occurred between 2011 and 2012. What specifically has affected the Sitka herring population between 2011 and 2012 is not known at this time. Herring are known to periodically exhibit rapid changes in abundance driven by changes in the environment that affect survival and recruitment trends. The department is taking precautionary action by adjusting the GHL in case the population experienced lower survival rates between 2011 and 2012 and that is the basis for the precautionary adjustment to the GHL. This adjustment recognizes that the current ASA model estimated survival rate may not adequately reflect a sudden change in survival rates until there are additional years of supporting data.

With regards to the survival rates of juvenile herring, the ASA model is not used to estimate survival of juvenile herring, but instead estimates the abundance of age-3 herring which is the result of juvenile abundance and survival. Estimating the survival of juveniles would require a sampling program that

provides an estimate of the abundance of juvenile herring. The department is not aware of any assessment programs on the west coast capable of providing reliable estimates of juvenile herring abundance. In British Columbia, the Department of Fisheries and Oceans does conduct a trawl survey each year that provides an index of abundance of juvenile herring. This index is used to qualify subsequent recruitment of age-3 recruits as either strong, average or weak and this is used to help refine their forecast of age-3 recruits.

The department currently is using a Ricker-recruit function in the ASA model to forecast recruitment of mature age-3 herring. The Ricker-recruit function generally follows recent trends in recruitment for the forecast. It is important to note that over the past 10 years, the forecast of age-3 recruits has averaged about 5% of the total mature biomass. At this level, even if there was no real recruitment of age-3 herring it would not explain discrepancies between the forecast and the subsequent return, nor does it pose a significant risk to over-forecasting the population. The age-composition data collected in 2012 indicated a continued modest level of age-3 recruits that has characterized recruitment trends in Sitka for the past 20 years. Also, the forecast age composition and the observed age composition were quite similar in 2012. These data do not support the conclusion that the shortfall seen in 2012 was due to poor recruitment.

It is generally accepted by the scientific community that the current policy allowing for up to a 20% harvest rate of the mature biomass and having threshold stock levels below which no commercial harvest is allowed, provides adequate protections to herring stocks. Also keep in mind that a substantial portion of the stock consists of juvenile herring (age-1, age-2 and majority of age-3) that are not part of the assessed biomass nor are they targeted in commercial fisheries. This provides further reduction to risks of over-harvesting.

The impact of increasing abundance of humpback whales on herring populations is of importance. The mortality of Sitka Sound herring due to whales is accounted for in the ASA model estimated natural mortality rate. The results of recent research confirms that whale predation on herring in Prince William Sound is potentially quite high. Sitka Sound was also studied as part of this research and the results indicated that the effect of whale predation on Sitka Sound herring was relatively low due, in part, to the seasonal availability of krill, potentially a preferred prey species over herring. [*Significance of Whale Predation on Natural Mortality Rate of Pacific Herring in Prince William Sound*; EVOS Restoration Project: 100804, Final Report].

With respect to the Lenfest Forage Fish Task Force report titled "Little Fish, Big Impact", the department is in the process of reviewing this extensive report to determine the applicability of the Task Force's recommendations to the management of herring in Southeast Alaska.

The department is fully committed to providing for sustainable harvesting opportunities that are important to subsistence harvesting activities and the economies of coastal communities in Alaska while maintaining healthy ecosystems.

Sincerely,

Dave Gordon  
Sitka Area Management Biologist

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Michael Baines

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March 11, 2013

Division of Commercial Fisheries

Cc: Cora Campbell, Commissioner  
Chairman Johnstone, Alaska Board of Fisheries