

**ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF COMMERCIAL FISHERIES  
NEWS RELEASE**



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**2008 TOGIAK HERRING FORECAST**

The 2008 Togiak herring forecast and harvest allocation is listed below for the Togiak District sac roe fishery and the Dutch Harbor food and bait fishery, given a maximum 20% exploitation rate of the projected run biomass:

*Harvest Allocation of the 2008 Forecasted Pacific Herring Run Biomass, Togiak District, Bristol Bay*

	Biomass (Short Tons)	Harvest (Short Tons)
Forecasted Biomass for 2008	130,516	
Exploitation @ maximum 20% for Total Allowable Harvest		26,103
Togiak Spawn-on-Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		24,603
Dutch Harbor Food/Bait Allocation (7.0% of the remaining allocation)		1,722
Remaining Allowable Harvest for Togiak District Sac Roe Fishery:		22,881
Purse Seine Allocation 70.0%		16,017
Gill Net Allocation 30.0%		6,864

**2008 TOGIAK HERRING FORECAST SUMMARY**

The Pacific herring population is forecast to be 130,516 tons in the Togiak District during 2008 (Figure 1). Herring returning from the 1997 and 1998-year classes (Age-11 and -10) are expected to comprise 37.3% of the biomass (Figure 2). The remainder of the herring population is expected to be comprised of ages 4–5 (4.9%), ages 6–7 (30.9%), ages 8–9 (16.4%), and ages 12+ (10.5%) herring. The forecasted individual average weight of herring in the harvest biomass is 394 g.

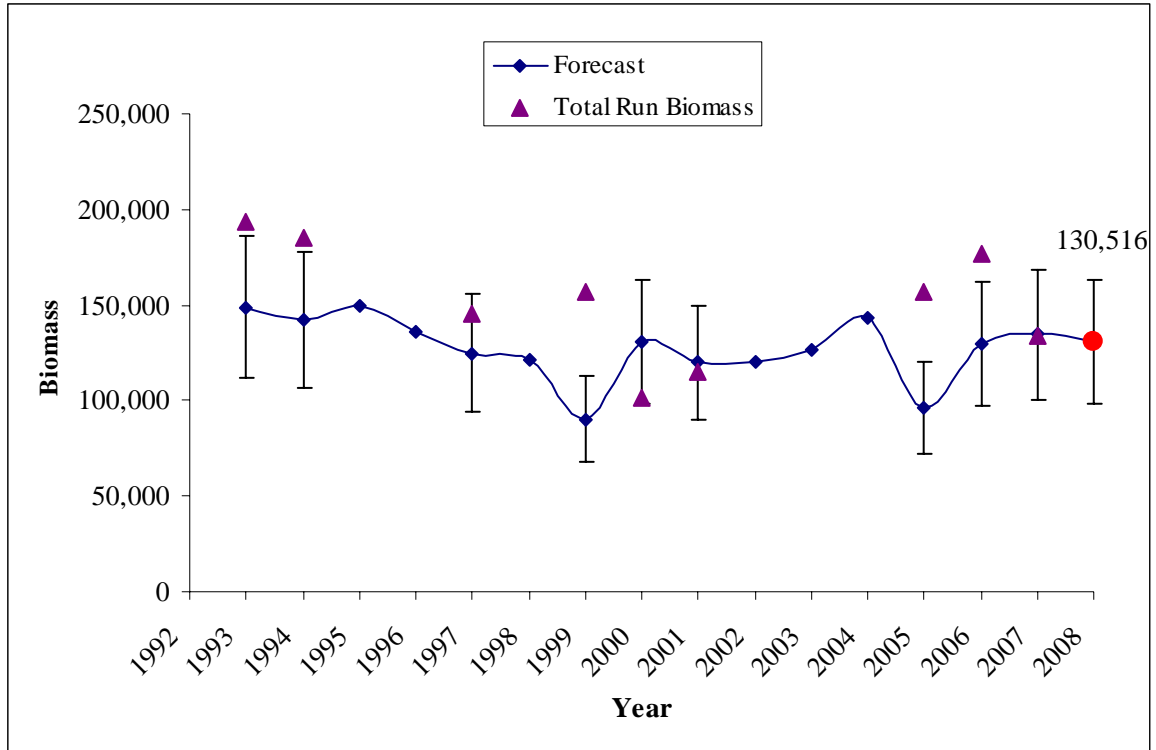
We used an age-structured analysis (ASA) model to forecast the Togiak herring population using catch and age composition data and aerial survey biomass estimates. The ASA model integrated data from purse seine fishery age compositions (1978–2007), total run age compositions (1978–1995, 1997, 1999, 2001, and 2005–2007), and aerial survey biomass estimates (1981, 1983, 1992–1994, 1997, 1999–2001, and 2005–2007). The model estimates were generated and compared to observed data. Samples from non-selective gear (commercial purse seine) were used to assess the age composition of the total run biomass. Commercial purse seine catch samples ranged from age-4 to age-20. Age-4 herring weight for 2008 was predicted using the recent 4 year average. Simple linear regression models were used to forecast the weight of age-5 through age-15 herring based on their weight the previous year.

A temporal change in age composition from older to younger herring typically occurs in the fishery each year. Age-9 and -10 herring predominated in 2007, comprising 46.0% of the total commercial purse seine harvest by weight. As the season progressed, younger age-5 and -6 herring began to comprise a larger portion of the daily commercial purse seine harvest. This may signify the beginning of a recruitment event. However, assessing younger age classes of herring is difficult as they typically do not show up until the later part or after the fishery. In addition, ADF&G no longer conduct post-fishery sampling that occurred during the 1980's.

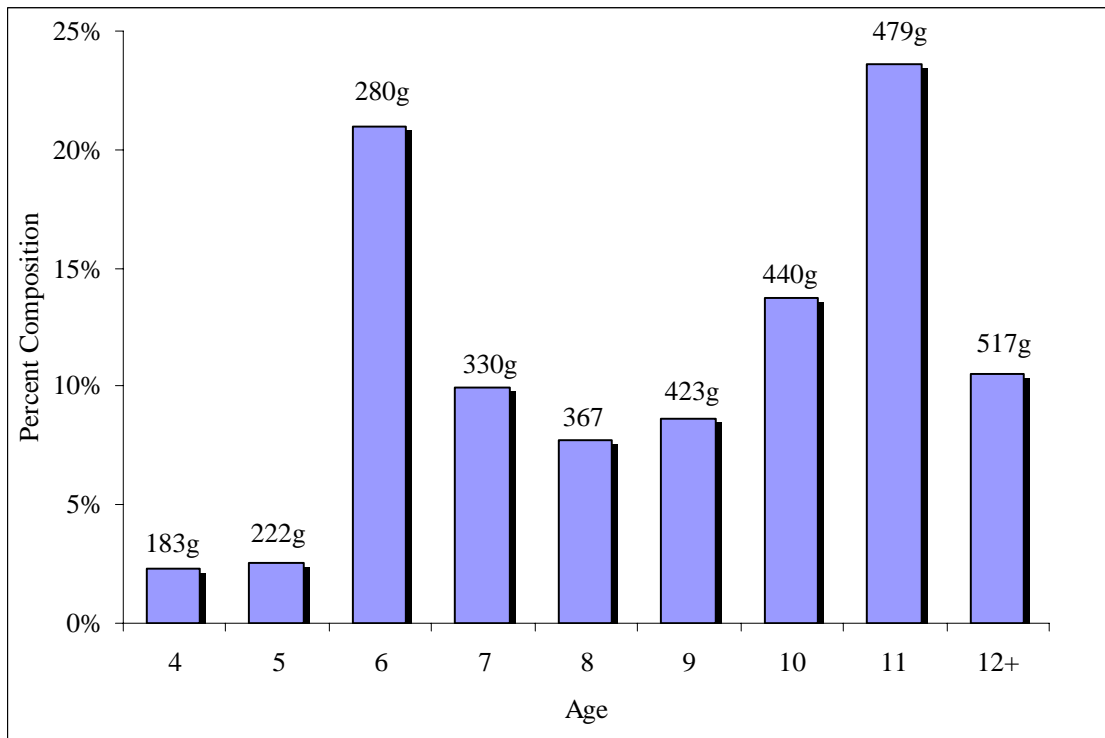
The Togiak District herring biomass was estimated to be 134,221 tons in 2007. This was the sum of the peak biomass aerial survey estimate of 84,101 (tons) observed on 17 May, and the aerial biomass estimate of 50,120 (tons) observed on 29 May. Herring were first reported in the district on 6 May, when approximately 68 tons were documented. The peak biomass was observed on 17 May, with a majority of the estimated 84,101 tons concentrated in the Togiak section (71.3%). The biomass of the Togiak herring spawning population has been estimated with aerial surveys since the late 1970's, concurrent with the development of the sac-roe fishery. Large recruitment events have been observed approximately every 8 to 10 years in the Togiak herring population with the most recent events occurring from the 1996 and 1997-year classes.

There is always uncertainty in forecasting the Togiak District herring biomass and predicting the 2008 run is no different than previous years. The performance of the ASA model has had a tendency to forecast low since its inception in 1993. However, the model accurately forecasted (134,566 tons) the total run biomass of 134,221 tons in 2007. The mean percent error (MPE) was -24.8% for years with reliable total run biomass estimates (Figure 1). The accuracy or mean absolute percent error (MAPE) of the ASA model has been 22.3%. The range for the 2008 forecasted total run biomass is from 97,887 tons to 163,145 tons based on a MAPE of ~25%. ADF&G considers the Togiak herring population to be healthy and sustainable.

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**Figure 1.**—Observed Togiak herring total run biomass estimates and previous preseason forecasts based on the ASA model. Mean absolute percent error (MAPE) of 25% around the forecast is also shown for years with a reliable total run biomass estimate.



**Figure 2.**—Forecasted age composition by weight for the 2008 Togiak herring return. Forecasted average weight (grams) by age is also presented.