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

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2019 TOGIAK HERRING FORECAST

The 2019 Togiak herring forecast and harvest allocations are listed below for the Togiak District sac roe and spawn-on-kelp fishery, and the Dutch Harbor food and bait fishery. At the 2018 Bristol Bay Board of Fish meeting, the gear group allocation found in the *Bristol Bay Herring Management Plan* 5AAC 27.865(b)(5) was changed from 70% purse seine and 30% gillnet to 80% purse seine and 20% gillnet. The following represents the allocations and quotas based on updated regulations and a 14% exploitation rate.

Table 1.–The 2019 Togiak District Pacific herring biomass and harvest forecast and allocation by fishery and gear.

	Biomass (Short Tons)	Harvest (Short Tons)
Biomass Estimate	217,548	
Total allowable Harvest (14% exploitation rate)		30,457
Togiak Spawn on Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		28,957
Dutch Harbor Food/Bait Allocation (7% of remaining allocation)		2,027
Togiak District Sac Roe Fishery		26,930
Purse Seine Allocation (80%)		21,544
Gillnet Allocation (20%)		5,386

2019 TOGIAK HERRING FORECAST SUMMARY

The 2019 forecast uses a 14% exploitation rate because of three consecutive years of missing or poor aerial survey data. The Togiak mature herring population biomass has been estimated with aerial surveys since the late 1970s. Peak biomass estimates from these surveys, combined with population age data, are the basis for the model used to generate the annual forecast. No peak biomass estimates are available from 2016, 2017, and 2018 because of budget cuts and poor weather. No population age data was collected in 2016 as well. Without aerial survey biomass data from the last three years, model-estimated biomass and recruitment estimates from 2016 to 2018 were calculated from pre-2016 data. This data gap creates uncertainty in the 2019 forecast. There is precedent within the Alaska Department of Fish and Game and flexibility in the *Bristol Bay Herring Management Plan* (5AAC 27.865) to take a conservative approach to herring exploitation when data uncertainty exists. The department intends to implement a 2% reduction in the exploitation rate for each consecutive year in which there is poor or missing aerial survey biomass data. A 2% reduction per year over the last three years translates to a 14% exploitation rate of the forecasted 2019 mature herring biomass. A 14% exploitation rate is within the range of current exploitation rates used for herring around Alaska and British Columbia and provides a gradual approach for being more conservative with a multi-year absence of reliable survey biomass information. Fishery assessment funding has been restored and the department anticipates consistent collection of aerial survey and age class data in the future.

The 2019 mature herring biomass forecast is 217,548 tons (Table 1 and Figure 1). Under a 14% exploitation rate, the 2019 potential harvest is 30,457 tons in all fisheries and 26,930 tons in the Togiak sac roe fisheries (purse seine and gillnet). A harvest of this size would be ~131% of the recent 10-year average sac roe harvest. The increase in forecasted biomass for 2019 compared with previous years is due to the high percent of partially mature age classes (age-4 and age-5 fish) observed in 2018. These cohorts are projected to comprise an even larger portion of the population in 2019 due to increasing maturity (Figure 2). Age 4–6 herring are expected to comprise 50% of the biomass, age 7–10 herring are expected to comprise 32% while the remaining 18% are expected to be age 11+ of the run by weight. The projected average weight of a fish in 2019 harvest is 318g.

An age-structured assessment (ASA) model is used to forecast the Togiak herring population. The ASA model utilizes time series of catch, age composition of the purse seine harvest, age composition of the mature population, and aerial survey biomass estimates plus catch data from 1980 forward. Samples from the entire commercial purse seine harvest are used to estimate age composition of the seine harvest. Sample groups from the commercial purse seine harvest that include the peak-run survey and the post-fishery survey as well as harvest prior to the peak are used to estimate age composition of the mature population biomass. Aerial survey biomass estimates plus pre-survey harvest are used to estimate mature biomass. This model uses between-dataset weighting and variable weighting within the aerial survey dataset to reflect the confidence staff has in the respective datasets and the confidence staff has in the individual aerial survey estimates based on the number of surveys, timing of surveys, weather and water conditions. The forecasted average weight at age of herring for 2019 was calculated as the most recent two-year average.

Herring are detected in our sampling effort when they recruit into the fishery; a process that begins around age-4 and is fully complete by age-9. Large recruitments in this population generally occur every eight to ten years and typically last one or two years. The last large

recruitment event experienced by the Togiak herring population was the 2005 year-class, which was detected in 2009 when the age-4 fish recruited to the fishery. Biological sampling in 2018 suggests both the age-4 and age-5 recruit classes may be larger than the past few years. It should be noted that measuring contributions of younger age classes is difficult because these fish are not fully recruited (available) in the harvest and often arrive on the spawning grounds near the end of the fishery.
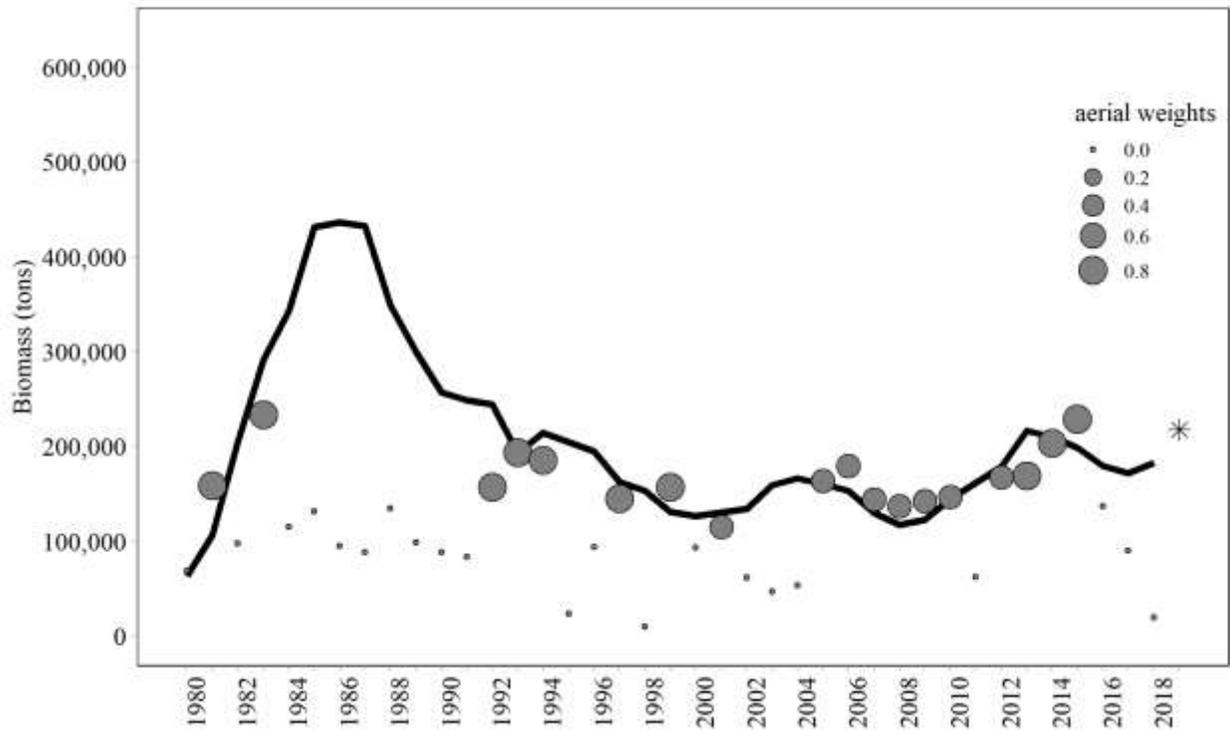

Figure 1.–Model-estimated mature biomass (black line). Annual abundance estimates with confidence weighting (black dots) ranging from 0 (very low confidence) to 1 (full confidence). Estimated mature biomass forecast for 2019 indicated by black star.
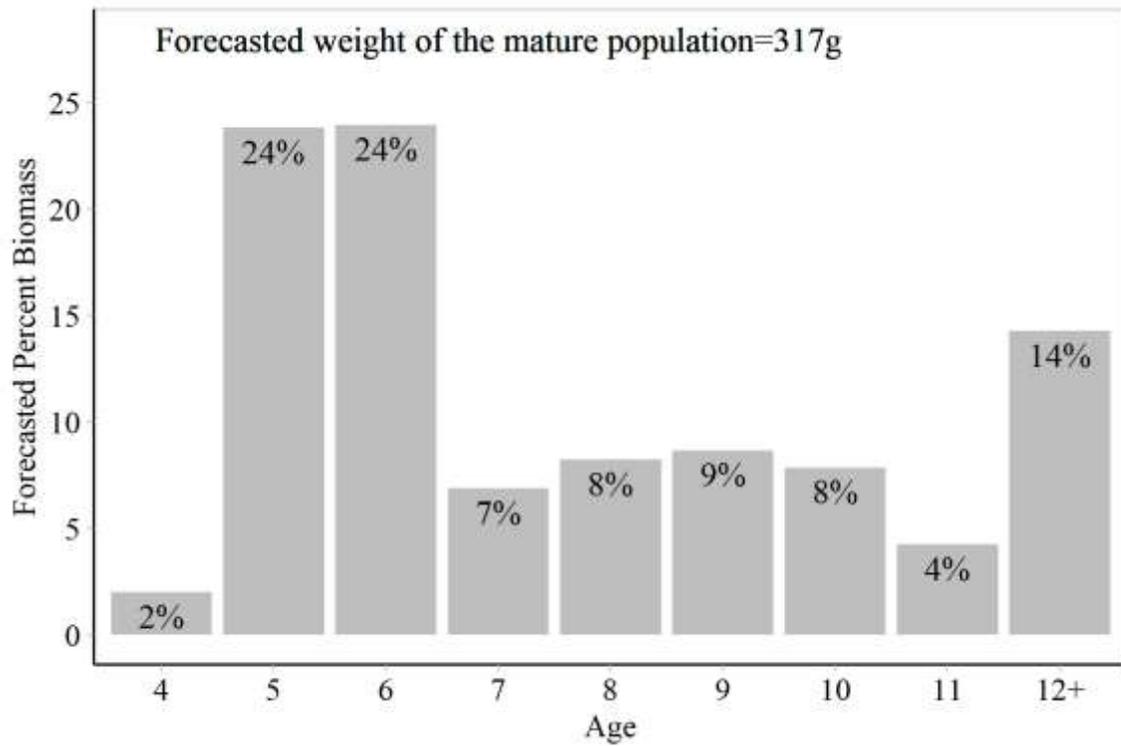
Figure 2.–Forecasted age composition and average weight (grams) for the 2019 Togiak mature biomass.