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Advisory Announcement

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2020 TOGIAK HERRING FORECAST

The 2020 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 (Table 1). At the 2018 Bristol Bay meeting of the Alaska Board of Fisheries, 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 20% exploitation rate.

Table 1.–The 2020 Togiak District Pacific herring biomass and harvest forecast and allocation by fishery and gear.

	Biomass (Short Tons)	Harvest (Short Tons)
Biomass estimate	215,826	
Total allowable harvest (20% exploitation rate)		43,165
Togiak spawn on kelp fishery (fixed allocation)		1,500
Remaining allowable harvest		41,665
Dutch Harbor food/bait allocation (7% of remaining allocation)		2,917
Togiak District sac roe fishery		38,749
Purse seine allocation (80%)		30,999
Gillnet allocation (20%)		7,750

2020 TOGIAK HERRING FORECAST SUMMARY

The 2020 forecast uses a 20% exploitation rate because the department has greater confidence in the 2019 aerial survey biomass estimate than those of the last three years. The Togiak mature herring population biomass has been estimated with aerial surveys since the late 1970s.

The 2020 mature herring biomass forecast is 215,826 tons (Table 1 and Figure 1). Under a 20% exploitation rate, the 2020 potential harvest is 43,165 tons in all fisheries and 38,749 tons in the Togiak sac roe fisheries (purse seine and gillnet). A harvest of this size would be ~188% of the recent 10-year

average sac roe harvest. The 2020 forecasted biomass should be similar in size to the 2019 biomass and, like 2019, be dominated by partially mature age classes (age-6 and age-7 fish). These cohorts of young fish are projected to comprise an even larger portion of the population in 2020 due to increasing maturity (Figure 2). The forecast percent age composition of the mature population is comprised of mostly age-6 and age-7 fish by both number (39% and 27%, respectively) and biomass (33% and 27%, respectively). The projected average weight of a fish in the 2020 harvest is 329g.

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 and gillnet 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. Peak-run aerial survey biomass and post-fishery aerial survey biomass estimates are combined with pre-survey harvest to estimate mature biomass. The ASA 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. Confidence in the individual aerial survey estimates is based on the number of surveys, timing of surveys, weather and water conditions. The forecasted average weight-at-age of herring for 2020 was calculated as the most recent two-year average from the purse seine fishery.

Herring are detected in our sampling effort when they recruit into the fishery; a process that begins around age-4 and may not be fully complete until approximately age-9. Large recruitments in this population generally occur every eight to ten years and typically last one or two years. Recent biological sampling suggests the 2013 and 2014 year-classes (age-5 and age-6 fish in 2019) may be a new large recruitment event. 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, or after, the fishery.

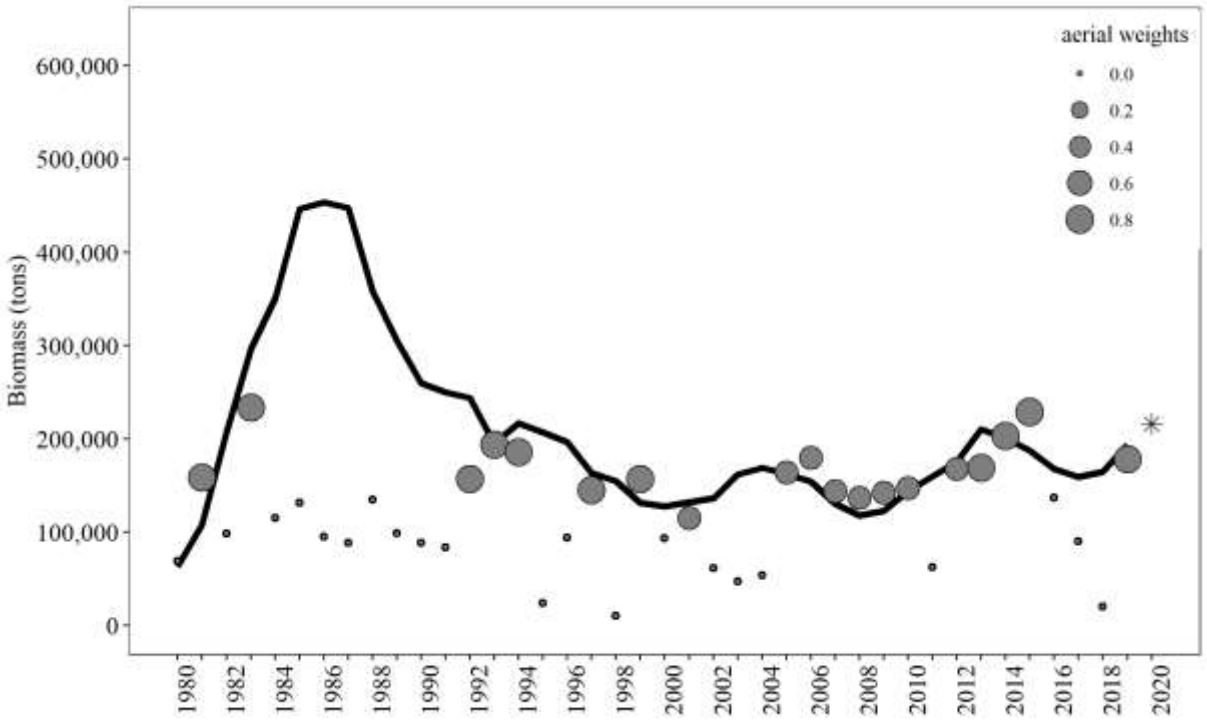

Figure 1.–Model-estimated mature biomass (black line). Annual abundance estimates with confidence weighting (black dots) ranging from 0 (very low confidence) to 1 (full confidence). The estimated mature biomass forecast for 2020 is indicated by a black star.

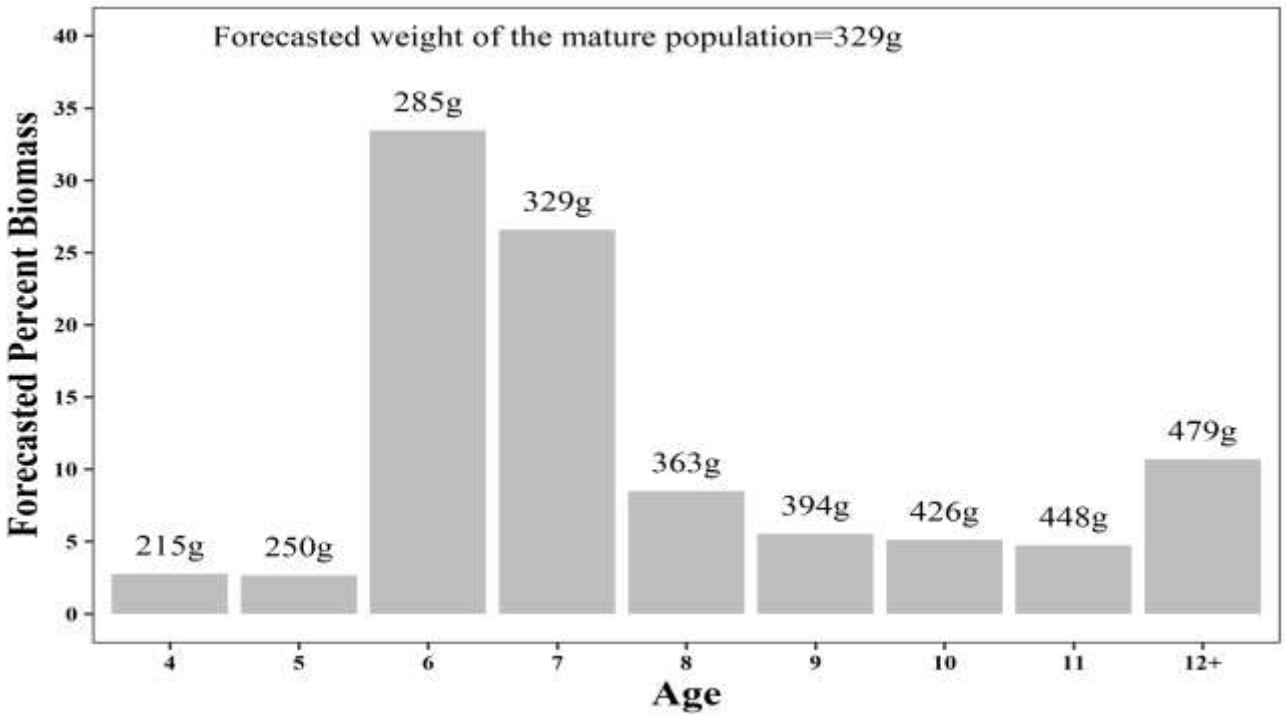

Figure 2.–Forecasted percent mature biomass by age with average weight (grams) for each age class as well as the average weight of the forecasted 2020 mature biomass as a whole (329g).