

Comments on companion RC#_____: *Effectiveness of Gillnet Mesh Sizes in the Nushagak District Commercial Sockeye Fishery Based on Selectivity Curves Developed from the Port Moller Test Fishery.*

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This RC is to highlight a key message from the technical analysis above and highlight the proposals currently before the Board of Fisheries to which the work is relevant. The technical analysis showed how smaller mesh sizes affect the fleet's ability to harvest surplus and often very abundant Wood River sockeye. It may be difficult to interpret the technical analysis for those seeing it for the first time; hence this companion RC.

We have studied the effectiveness of different gillnet mesh sizes to capture different size and age sockeye salmon in the Port Moller Test Fishery (PMTF) for 9 years and in 2018 began studying it in the Nushagak District commercial salmon fishery. The original impetus was to make the PMTF net less selective and more representative of the passing sockeye salmon to better forecast returns to the Bay. Results from this research has allowed quantification of how capture efficiency changes across various fish and mesh size combinations, which we term "selectivity curves". These curves have utility to fishery managers and the fishing fleet by helping to address a mixed-stock fishery issue we have had for many years, and one that the Board of Fisheries has grappled with since the implementation of the 235k OEG for the Nushagak River sockeye and the Wood River Special Harvest Area in the late 1990s, and a 4 ¾" mesh option in 2012.

We conclude that restricting the maximum mesh size in the Nushagak commercial sockeye fishery to 4 ¾" will likely improve the ability of the fleet to catch more of the often-abundant Wood River fish with little or no risk of foregoing harvest in years in large-fish runs. As an example of the potential effects of smaller mesh, we estimated that in 2018 the effect of restricting the mesh to 4 ½" could have potentially yielded 3.5 million more Wood River sockeye salmon in the harvest.

In addition to potentially increasing annual Sockeye harvests and providing more representative aged escapements, reducing the upper limit of mesh size can be expected to help with the following issues raised in the proposals before the board.

Reduce frequency of the Wood River Special Harvest Area (proposals 38, 39, 40). Any increase in the harvest rate on sockeye in the traditional commercial district will translate into less use of the WRSWA.

Reduce the bycatch of Chinook salmon (proposals 41, 42, 43). Vulnerability of King Salmon to gillnets decreases as mesh sizes decrease. Also, more effectively controlling the Wood River sockeye escapement will translate into less fishing time in the district in at least some years. Less continuous fishing effort lets unfiltered escapement of King (and Sockeye) Salmon to the Nushagak River.

Existing mesh regulation – Since the 2012 Board meeting, the management plan gives ADF&G the ability to limit mesh size to 4 ¾" to delay going into the WRSWA, but currently it is only considered once escapements exceed (Wood River) or fall short (Nushagak River) of inseason targets and has never been implemented and the WRSWA has been used 3 times since 2012. **Potential Change** – We suggest the Department and the Board simply consider being more proactive in implementing the mesh-size limit at the outset of the season to reduce the frequency of getting well behind or ahead of river-specific escapement curves. ADFG should still retain the ability to eliminate the mesh restriction by E.O. should the run characteristics and/or escapement levels deem it unnecessary.

How Significant or Subtle a Change? Modest. We estimate that the *average* mesh used by the fleet is ~4.8" mesh; some use larger mesh and some smaller. Making 4 ¾" the *maximum* mesh size at the outset of the season can be expected to be substantially beneficial in some years of large numbers of smaller, younger fish (2018), and while not appreciably reducing catch in larger, older fish runs (2011).