

RC RC 42
Submitted By: 

The attached RC is submitted in support of Proposal 61. It contains an economic analysis conducted by The McDowell Group in April 2019 calculating how many sockeye salmon Chignik would need to harvest in 2020 in order to equal the inflation-adjusted revenue associated with the harvest of 300,000 sockeye salmon in the late 1970's currently included in the Cape Igvak Salmon Management Plan.

- A dollar is worth one-third its value in 1978.
- Between 1978 and 2017, inflation has increased faster than the average price of sockeye salmon.
- In 1978, Chignik sockeye was priced at \$1.26 per lb. The 2017 equivalent of that 1978 price is \$3.93. However, the actual price paid for sockeye in Chignik in 2017 was \$1.33.
- Based on an estimated price of \$1.26 per lb in 1978, harvest of 300,000 sockeye weighing an average of 7.9 lbs would generate \$2.9 million. Adjusting for inflation, that is equivalent to \$9.29 million in 2017.
- Harvest of 300,000 in 2017, with a declining average weight of 6.13 lbs and an ex-vessel price of \$1.33 million per lb, would only generate \$2.34 million. The harvest of another 893,000 sockeye would be required to equal the value of sockeye harvested in 1978.
- A harvest of 1.1 million Chignik sockeye (893,000 sockeye in addition to the 300,000 estimated harvest) would be required today to generate the same value for fishers as the harvest of 300,000 sockeye did in 1978.



Date: April 8, 2019
To: Chuck McCallum, CRAA Executive Director
From: McDowell Group
RE: Chignik Sockeye Value Analysis

McDowell Group was asked to consider how many Chignik sockeye salmon would need to be harvested today to equal the inflation-adjusted revenue associated with harvest of 300,000 sockeye in the late-1970s. This analysis focuses on the Chignik seine fleet operating with a S 01L limited entry permit.

Analysis

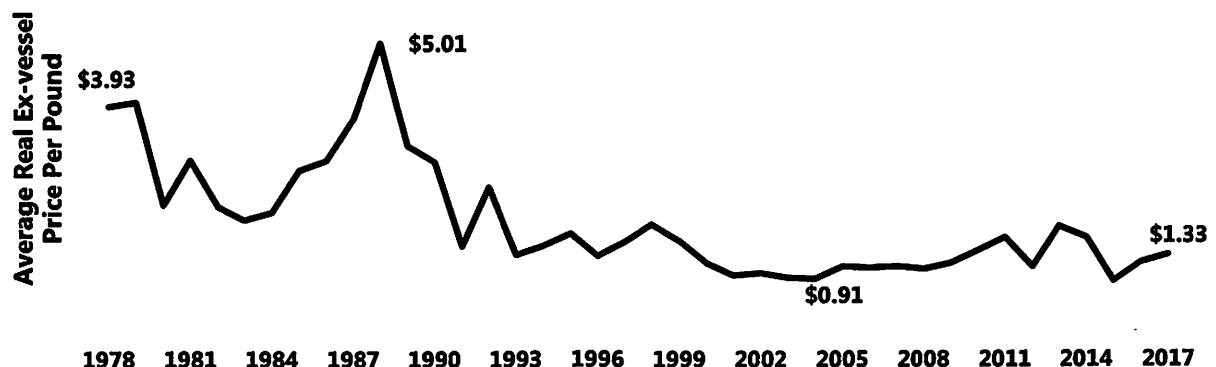
This analysis investigates how the per-fish value of sockeye has changed over the past 40 years relative to changes in the cost of living in Alaska as measured by the Bureau of Labor Statistics Urban Alaska Consumer Price Index (CPI). This is the best available measure of inflation trends in Alaska.

The Urban Alaska CPI increased from 70.2 to 218.9 between 1978 and 2017. That means the dollar in 2017 was worth about one-third of the dollar in 1978, in terms of purchasing power.

Inflation has increased much faster than the average price of sockeye salmon over the 1978 to 2017 period. With inflation averaging 2.9 percent annually over that period, ex-vessel sockeye prices in real (inflation-adjusted) dollars declined at an average rate of 2.7 percent annually. In 1978, Chignik sockeye was priced at \$1.26 per pound (in 1978 dollars). The 2017 equivalent of that 1978 price is \$3.93, however, the actual price paid in 2017 was \$1.33.

The highest real (2017 dollars) price observed over this 40-year period was \$5.01 per pound in 1988. The 2017 value of \$1.33 per pound is above the period-low of \$0.91 in 2004, but well below the 1978 price (in 2017 dollars) of \$3.93.

Average Estimated Real Ex-vessel Price (in 2017 dollars) per Pound of Sockeye Harvested by Chignik Seine Fleet, 1978-2017



Note: Due to confidentiality restrictions, data for some years is not available. McDowell Group estimated the value for these years using other publicly available data.

Sources: Alaska Department of Labor and Workforce Development, Cost of Living Information; Alaska Department of Fish and Game, Commercial Fishing Division; McDowell Group calculations.

Results

Based on an estimated price of \$1.26 per pound in 1978, harvest of 300,000 sockeye weighing an average of 7.90 pounds would have generated \$2.98 million in total ex-vessel value. Adjusting for inflation, this revenue is equivalent to \$9.29 million in 2017 dollars.

An analysis of per-fish value change over time must also reflect the declining average weight of Chignik sockeye. The average weight in 2017 was 6.13 pounds, about 22 percent lower than the 1978 average.

Harvest of 300,000 in 2017 — with an average weight of 6.13 pounds and ex-vessel price of \$1.33 per pound — would have generated \$2.43 million in total ex-vessel value. To maintain equivalency with the value of salmon harvested in 1978, harvest of roughly 839,000 additional salmon would have been required in 2017. In other words, a harvest of approximately 1.139 million sockeye salmon would be required in 2017 to generate the equivalent of the 1978 ex-vessel revenue of \$9.29 million.

Other scenarios are detailed in the following table.

Equivalent Harvest Volume and Values Between 1978 and 2017

Number of fish in 1978	1978 Nominal Ex-vessel Value	Equivalent 2017 Real Ex-vessel Value	Number of Fish Required in 2017 to Produce Equivalent Value, at 2017 Price
300,000	\$2,979,000	\$9,289,000	1,139,000
600,000	\$5,958,000	\$18,577,000	2,279,000
900,000	\$8,938,000	\$27,866,000	3,418,000
1,200,000	\$11,917,000	\$37,155,000	4,557,000

Note: values have been rounded.
Source: McDowell Group estimates.

Sources

Data on ex-vessel salmon prices and average weight of sockeye salmon harvested in the Chignik seine fishery are from the Alaska Department of Fish & Game. Inflation adjustments are based on the Urban Alaska Consumer Price Index from the United States Bureau of Labor Statistics.