

Pink Salmon Disaster Synthesis

Pink Salmon Disaster, Alaska, 2016

Alaska's 2016 pink salmon season reported alarmingly low runs throughout seven management areas located in the Gulf of Alaska: Prince William Sound, Kodiak, Chignik, Lower Cook Inlet, South Alaska Peninsula, Southeastern Alaska, and Yakutat. The outline management areas experienced an 84% decrease in ex-vessel pink salmon value, relative to the average value of the five even years from 2006 through 2014. The phenomenon was not explicitly traced to a sole cause, as scientists were wary to link the fishery disaster to climate change. In 2017, the United States Secretary of Commerce declared the 2016 Gulf of Alaska pink salmon fishery disaster under Section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act.

Congress appropriated a \$56.3 million distribution plan to restore the losses of impacted fisheries. The funds were allocated across four categories: \$3.63 million was allotted to research, \$31.8 million was distributed among fishery participants, \$17.7 million was distributed to processors, and \$2.4 million was distributed to municipalities affected by the disaster (Pacific States Marine Fisheries Commission).

Pink Salmon Fishing

Pink salmon have a fixed two-year life cycle. They are born in freshwater rivers or estuaries and migrate to the ocean immediately after birth. After spending 18 months feeding and maturing in saltwater, the salmon return to the river they were born in to spawn. The predictable two-year life cycle of pink salmon causes a genetic difference between odd-year and even-year pink salmon populations.

In 2016, the pink salmon returns were drastically lower than anticipated. Preseason predictions showed a year of high pink salmon returns. Poor escapement results and the interannual fluctuation of pink salmon from previous even years played a vital role in the low harvest. The low abundance of pink salmon led to reductions in commercial fishing and temporary fishery closures.

Eligibility Criteria for Fishery Participants

Strict eligibility guidelines and detailed paperwork made the aid application process a dismal experience for fishery participants, resulting in fewer applications. For Commercial Fisheries Entry Commission (CFEC) permit holders to be eligible for payment, the following criteria had to be met:

- (a) must have held a 2016 CFEC permit card for salmon,
- (b) must have fished for pink salmon in the affected areas in 2016,

- (c) CFEC permit holders in Prince William Sound, Kodiak, South Alaska Peninsula, and Southeast must have documented ADF&G fish ticket landings for at least 1,000 pounds of pink salmon caught in 2016, while permit holders in Chignik, Lower Cook Inlet, and Yakutat must have at least one 2016 pink salmon landing,
- (d) CFEC permit holders must demonstrate revenue loss in 2016 pink salmon ex-vessel value compared to the average of their pink salmon ex-vessel value during their previous five even years from 2006 through 2014 (Pacific States Marine Fisheries Commission).

In addition to the above criteria, permit holders were responsible for submitting the name, address, and crew share percentage for each crew member who participated in the 2016 pink salmon fishery. If the CFEC permit holder was deemed eligible for disaster funds, the crew members then must submit their own application. The crew members received a portion of the CFEC permit holder’s total payment based on the crew share listed on the permit holder’s application, which is illustrated in figure 1 below.

Permit holder's five even year adjusted exvessel value (2006-2014):	\$100,000		
Permit holder's 2016 exvessel value:	-\$60,000		
Demonstrated loss:	\$40,000		
Total loss to all Kodiak permit holders:	\$12,132,609		
Permit holder's loss as a proportion of the total Kodiak loss:	0.003297		
Remaining Kodiak area funds after minimum payments:	\$6,970,256		
Permit holder's percentage payment:	\$22,980		
Minimum payment:	+\$300		
Permit holder payment (before payments to crew):	\$23,280		
		Crew Share	Crew Payment
		Crew 1: 7%	\$1,630
		Crew 2: 10%	\$2,328
		Crew 3: 10%	\$2,328
		Crew 4: 11%	\$2,561
		Total: 38%	\$8,846
		Permit holder's final payment:	\$14,434

Figure 1: An example of the calculations for CFEC permit holder participated in the Kodiak pink salmon seine fishery in all five even years from 2006 through 2014 (2016 Gulf of Alaska Pink Salmon Fishery Disaster Relief).

Eligibility Criteria for Processors

30 of the 38 Alaskan salmon processors who applied for the aid were deemed eligible in accordance with the following eligibility criteria:

- a) Processed pink salmon in one or more of the affected management areas in 2016.
- b) Had 2016 pink salmon first wholesale value of \$10,000 or greater, determined based on Commercial Operator’s Annual Report (COAR) data.
- c) Have a demonstrated gross first wholesale revenue (value) loss in 2016 compared to the five even years average gross first wholesale value from 2006 through 2014 as calculated from ADF&G and CFEC landings and value data (Pacific States Marine Fisheries Commission).

The processor workers from the thirty eligible processors qualify for a total of 15% of the processing companies total disaster funds if they met the eligibility criteria listed below:

- a) Employed at an eligible plant, performing hourly work during any part of July and August of 2016 and listed as eligible for rehire

- b) Worked a minimum of 100 hours and a maximum of 420 hours during the months of July and/or August (Pacific States Marine Fisheries Commission).

Research and Municipalities Aid

Three research projects, focused on the understanding of the abundance and ecology of pink salmon, were the recipients of the fishery disaster aid. The Kodiak Pink Salmon Saltwater Marking Sampling Plan received \$450,000 to evaluate saltwater marked otoliths. The Alaska Hatchery Research Program obtained \$2,500,000 to further their studies on the interaction of hatchery fish straying into wild systems for both pink and chum salmon. Lastly, \$680,000 was allocated to the Southeast Alaska Coastal Monitoring Survey project focused on surveying the abundance of juvenile pink salmon from June through August. The efforts of the projects will further the understanding of what caused the 2016 pink salmon run failures and help to avoid future fishery disasters (Pacific States Marine Fisheries Commission).

Additionally, \$2,400,000 was appropriated for municipalities. According to Karla Bush, Alaska Department of Fish and Game's Federal Fisheries Coordinator, the payments to municipalities is based on the loss of fish taxes; however, NOAA and the U.S. Office of Management and Budget are working out the payment calculations (Lapidus, 2019).

Delayed Funds

On September 19, 2016, following the disastrous 2016 pink salmon season, Alaska's State Governor, Bill Walker, requested that the Secretary of Commerce, Penny Pritzker, declare a fishery disaster for the management areas impacted by the poor pink salmon returns. Governor Walker's request was approved by the Secretary of Commerce on January 18, 2017; however, the disaster aid was not distributed until July 1, 2019, roughly three years after the disaster occurred.

The payout delay was announced after the Alaska Department of Fish and Game (ADF&G) noticed an apparent underreporting of crew members by permit holders and a notable lack of permit holder applications. These two discrepancies would have excluded a large portion of crew members from receiving aid. As a result, the disbursement of disaster aid was delayed until after the new application deadline for crew members.

Fishing Community Impact

The Alaskan fishing community's livelihood heavily depends on the health of the fisheries. A bad fishing season financially jeopardizes more than just fishermen, it impacts processors and maritime industry workers. In some cases, after a bad season, some families are forced to exit the fishing industry in search of a more stable job. When disaster aid is not distributed until three

years after a disaster, the damage has already been done. While the aid is ultimately helpful for coastal Alaska, the process needs to be expedited to better support the communities (Welch).

When fishery disasters hit Alaska, the Alaskan communities are not the only ones affected. Alaska's fishing industry not only employs thousands of Seattle residents as crew members and processing workers, but Seattle-based vessels also make a living fishing in Alaskan's waters. According to an economic report released by the Port of Seattle, in 2016, 284 fishing vessels utilizing the Port of Seattle facilities were identified as actively fishing in Alaskan fisheries. The report also stated that in 2016, fishing vessels that anchor at Port of Seattle and operated in the Alaskan fisheries generated gross earnings of \$412.6 million dollars (Commercial Fishing, 2019).

Personal Reflection

The 2016 Gulf of Alaska pink salmon disaster has been an eye-opening case study to research and evaluate. The causation of the fishery disaster was never explicitly stated; however, the ADF&G and other agencies hypothesize that the poor returns were related to warmer waters and other environmental influences, such as toxicity from algal blooms and starvation caused by an increased metabolic demand linked to warm water, all climate change-driven impacts. These impacts will continue to become more severe as climate patterns become increasingly unstable.

The 2016 pink salmon disaster was not an isolated event, within the following two years, two more fishery disasters were declared: the 2018 cod collapse in the Gulf of Alaska and the 2018 sockeye salmon failure at Chignik. Both disasters were related to a decline in cod stock from increasing water temperatures (Earl 2019). Water temperatures are only going to rise and continue to put fishing communities in a vulnerable position.

In order to make fishing communities more resilient to fishery disasters, regulating a smaller number of CFEC permit cards, alternating between species, and having secondary sources of income may mitigate the need for government assistance. Government disaster aid helps boost the economy; however, as more and more disasters occur will the government be able to spend millions of dollars to continuously support communities?

References

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