



Cooke Aquaculture Pacific

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January 28, 2021

Ken Warheit, Ph.D.
Washington Dept. Fish and Wildlife
P.O. Box 43200
Olympia, WA 98504-3200

Mr. Sean Carlson
Washington Dept. of Natural Resources
Orca Straits District
5310 Eaglemont Road
Chimacum, WA 98325

Re: Cooke Aquaculture Pacific- 2020 Annual Accidental Fish Release Report and Annual Biomass, Feed Use and Disease Control Summary Reports-

<u>Facility Name</u>	<u>NPDES Permit</u>
Port Angeles-	WA 004089-4
Cypress Island Site 1-	WA 003156-9
Cypress Island Site 3-	WA 003158-5
Hope Island Site 4-	WA 003159-3
Clam Bay-	WA 003152-6
Fort Ward-	WA 003153-4
Orchard Rocks-	WA 003154-2

Fish Release Summary

The were no incidences of damage to the fish stock containment nets or to the fish pen structures that were raising fish during 2020 that would have caused a fish escapement event. Additionally, there were no observations of Atlantic salmon swimming outside of the stock containment nets by the farm staff that would have indicated a fish escapement had occurred. Subsequently there were no reports of fish escapes in 2020. During the past year, only two of the Cooke fish pen sites, the Hope Island and Orchard Rocks fish pens, were actively raising fish.

The other fish pen sites were fallow throughout the entire 2020 year. Orchard Rocks harvested the generation of Atlantic salmon they were raising by August of 2020, while the Hope Island fish pens finished harvesting their remaining Atlantic salmon stocks by October of 2020. This was the last generation of Atlantic salmon smolts planted by Cooke Aquaculture Pacific in their marine fish pens. The company is transitioning their fish aquaculture operation towards a future of cultivating native Pacific Northwest fish species. The Orchard Rocks, Fort Ward, Clam Bay and Hope Island farms that have received their operational permits to begin growing triploid all-female native steelhead stocks are currently fallow at the time of this report. Restocking of the fish pen facilities with the triploid steelhead trout is expected to begin in 2021.

The Port Angeles fish pens have been fallow since 2019, and the Cypress Island Site 1 and Site 3 fish pens have remained empty since 2018. During 2020, the company made the operational decision to remove both the Port Angeles fish pens structures and the Cypress Site 3 fish pens and the associated mooring equipment from those locations. The Port Angeles fish pens were no longer going to be used for growing fish and have been decommissioned. The Cypress Site 3 fish pens are capable of being reused in the future as a net pen rearing facility and have been placed into dry storage for maintenance.

Summary 2020 Fish Production and Disease Control

As noted above, there were no observations of damage to fish stock containment nets or the net pen structures themselves at the Orchard Rocks or Hope Island fish pens that would be reason to believe fish escapement occurred in 2020. As discussed in prior reports, the smolts are enumerated using an electronic fish counter at the hatchery when they are loaded into the tanker trucks for transport and eventual stocking into the fish pens. The electronic counter used at the hatchery is accurate to within $\pm 2\%$. When calculating inventory variances, the standard industry practice is to look at the entire generation of fish raised at the farm site from smolt planting to the final harvest piece count. The Global Aquaculture Alliance Best Aquaculture Practices has set a certification standard of $\pm 3\%$ inventory variance for the entire generation of fish grown at a single net pen farm site.

Review of the fish inventory for the Orchard Rocks fish generation indicates the total population variance was positive 0.69% from the hatchery count. Only four out of the twelve individual fish pens which were stocked at the Orchard Rocks site had inventory variances greater than $\pm 3\%$. Pens R-11 and R-12 were negative 4.68% and 6.88% respectively, while pens R-5 and R-10 had positive inventory variance of 3.62% and 3.42% respectively. Neither of the negative variance pens (or any pen at this facility) had any issues with containment nets or maintenance that could have led to a fish release. All four of these pens had higher percent fish mortalities that were above the average mortality percentage for the entire population and may explain the larger positive and negative variances in these pens. Increased mortality events can increase the chances of counting errors during mortality retrieval dives and enumeration by the dive team and tenders that can lead to larger inventory variances at the end of the growing cycle. Pens R-10, R-11 and R-12 had elevated post entry mortalities during the first months after saltwater entry caused by bacterial stomatitis or yellow mouth disease. The condition is caused by the filamentous bacterium, *Flexibacter maritimus* and can occur in post entry smolts as they transition from the freshwater hatchery environment to the marine net pen environment.

Filamentous bacteria such as *F. maritimus* is a secondary opportunistic bacterium commonly occurring in temperate marine waters. The bacterium can quickly take advantage of mechanical damage to the epidermal tissue and primarily exploits oral areas in the jaw which have less mucosal protection. Post seawater transferred Atlantic salmon smolts can incur mechanical damage to the mouth during the freshwater handling and fish transport process from the hatchery into the fish pens. Mechanical damage can also occur during the initial acclimation period from freshwater to the saltwater net pens, especially if the fish nose into the fish pen netting. Strong tidal currents during the acclimation period can also push fish into the net wall surface causing external abrasion. This bacterial disease can be controlled using antibiotics administered through the fish feed when the fish are actively feeding and achieving expected daily feed intakes. The initial feed response of newly entered smolts however can be slower than expected as the smolts acclimate to seawater and learn to locate feed pellets in the larger rearing space of the fish pens. Fish which have more advanced *F. maritimus* infections in the mouth will tend to have reduced or no feed appetite and generally succumb quickly to the infection.

The overall survival to harvest for the Orchard Rocks cohort was 76%, or conversely a 24% mortality percentage for the entire cohort. The lowest mortality percentage by pen was 15% in pen R-3, while the highest mortality was 32% in pen R-5, and 31% in both pens R-10 and 11. As mentioned previously pens R-5, 10 and 11 had inventory variances greater than +/-3% that were likely the result of mortality counting errors by farm employees. The Orchard Rocks cohort was held at the facility several months longer than had been planned due to the global COVID 19 pandemic and the subsequent effects on the U.S. economy and the domestic seafood market during the first half of 2020. The normal production cycle for winter entry smolts is approximately 18 months of growth in the fish pens from smolt entry to final harvest. The Orchard Rocks cohort were planted in the fish pens during December of 2018 and should have been completely harvested out around the end of June 2020. Harvesting began in January of 2020 but was abruptly stopped for the next several months because of the COVID pandemic. The interruption to the harvesting schedule required the farm to hold and continue to grow the fish at the site several months longer than planned and contributed to the additional mortality for this generation.

The Hope Island site had a variance of negative 0.73% from the hatchery count for the entire cohort. This is within the margin of error of the electronic counting machine used to calculate the inventory stocking number and well within the GAA Best Aquaculture Practices standard of +/-3% variance for the entire farm site. Three out of the ten individual pens of fish reared at the site had inventory variances of more than +/- 3%. Pen 1 had a positive variance of 3.23% while pens 6 and 10 had a negative inventory variance of 3.97% and 5.42% respectively. These single pen downward variances are counterweighted by positive variances in Pens 1, 8, and 9 and regular inspections of the Hope Island facility revealed no events that would have led to an escape. After reviewing the inventory data and looking for possible reasons for these variances, the variance in pen 6 may be explained by an accounting error coming from the fish processing plant. Fish were harvested from both pen 6 and pen 4 on the same day and were transported to the processing plant in separate fish holds on the harvest vessel. Due to either an error in

communication between the processing plant and the harvest manager, or from human error at the processing plant during the offloading and fish cleaning process, the processing plant failed to keep the fish separated into two individual batches during processing. The fish from this harvest were subsequently comingled which resulted in only one harvest piece count coming from the processing plant. This is a rare occurrence but if it does happen, an individual piece count for each fish pen is allocated using the estimated piece counts that come from the mechanical counters which are used on the harvest vessel during the fish harvest loading process. The mechanical counters are connected to the fish stunners and count the number of times each stunner is triggered. These counters are used primarily for getting an approximate number of fish into each fish hold for proper vessel loading and refrigeration purposes. These counters are not relied upon to give the final inventory piece count. The harvest piece count occurs when the fish are in the processing plant and are individually counted during processing and packaging. The information from the mechanical counters used during harvesting and the associated fish pen numbers are recorded on a sheet which is sent by the harvest manager to the fish processing plant on the day of harvest. The final individual harvest piece count comes from the processing plant in the form of a harvest report that is sent back to the farm and that information is then entered into the fish inventory system. For inventory purposes, pen 6 and pen 4 harvest piece counts for this harvest had to be allocated by using the information from the mechanical counters on the fish stunners and the combined total harvest piece count that came from the plant. The estimated distribution that was used for splitting this harvest could account for the -3.97% variance in pen 6 while the inventory variance in pen 4 was only -0.43%. Cooke management has reiterated to the processing plant operator that maintaining accurate and separate batch numbers for the different pens being processed on the same day is extremely important to the company.

The generation of fish reared at the Hope Island facility had an overall survival to harvest of 87%, or conversely the entire cohort had 13% mortality over the entire marine growth cycle. The highest survival rate by individual pen was 90% and the lowest was 86%. This generation did not require any medicated feed treatments and likely would have had an even higher survival rate to harvest during a more normal production cycle. Harvesting of this generation was also delayed because of the pandemic's effect on the seafood markets. Fish were held and grown at the Hope Island site approximately 4 months longer due to the delayed harvest schedule.

Sea lice levels on the reared fish stocks at the Orchard Rocks and Hope Island fish pens remained low to non-existent which is consistent with our past experiences in culturing salmon in the Washington fish pens. There was no need for any treatment for sea lice at either of these sites in 2020 and as just mentioned, the Hope Island generation went through the entire production cycle from hatchery to harvest without any medicated feed treatment. This is not unique in the history of salmon production at the Washington fish pens, but it is worth mentioning because it is one of the goals for an aquatic farmer. Healthy fish populations grow faster, have a lower cost of production, and ultimately allows the farmer to bring more product to market. The company will continue to utilize proper biosecurity measures, the single cohort production strategy, and the routine fallowing of sites to minimize disease risk and facilitate the growing of healthy fish. The 2020 annual summary of biomass, feed usage and disease control chemical use reports are included with this report in Appendix A.

2021 NPDES Permit Modifications for Growing Steelhead

As the company transitions in 2021 to raising native all-female triploid steelhead trout at the marine fish pens, an electronic fish counting system will be used to count the fish while they are being offloaded from the transport vessel and into each fish pen. The number of fish pumped into each pen, as recorded by the fish counter, will be the beginning stocking number for each pen. It is anticipated that the average weight for the steelhead trout at entry will be much larger than has historically been the entry size for Atlantic salmon smolts planted into the pens. Atlantic smolt were generally put to sea at approximately 85 to 120-grams in average weight. The company is targeting an entry weight for the steelhead trout of approximately 150 to 200 grams at seawater entry. There are several biological reasons for this, but the net effect is expected to be a shorter production cycle from initial plant to final harvest for the triploid trout production cycle.

NPDES permit modifications for raising native steelhead trout at the Clam Bay, Orchard Rocks, Fort Ward and Hope Island net pen operations were issued by Ecology on January 6, 2021. The modified permits incorporate a series of improved protections and requirements designed to further monitor for and reduce potential environmental impacts from Washington marine fish pen operations. The modified permits also require additional reporting in 2021 that will continue to facilitate the transparency of the marine fish growing process. Minor updates to the Cooke NPDES permit plans are expected to be completed in March and drafts of the updated plans will be sent to the agencies for review. The company is looking forward to continuing to grow fish in Washington and to continue creating a healthy and sustainable seafood production system for the future.

Sincerely,

A handwritten signature in blue ink, appearing to read 'K. Bright', with a stylized, cursive script.

Kevin Bright, Cooke Aquaculture Pacific
Permit Coordinator

cc: Jim Parsons, General Manager- CAP,
Eric Kinne-WDFW,
Doug Steding, NW Resource Law

Appendix A