MEMORANDUM

Date: January 18, 2020

To:
From: Scott Blankenship, Cramer Fish Sciences, GENIDAQS Division
Subject: CFS samples of interest from Caswell RST

GENIDAQS performed genetic analysis on length model proscribed tissues. All samples were genotyped using a panel of 96 SNPType genetic assays developed by NOAA-SWFSC. This panel contains 91 loci in common with the NOAA-SWFSC and UC Davis GVL reference genetic baselines. Individual assignment was performed using a partial Bayesian procedure implemented in the program ONCOR for samples with genotypes comprised of at least 75 loci. Each sample was assigned using the NOAA baseline.

Individual assignment results for **all Chinook salmon juveniles analyzed** are shown in Table 2 (Appendix II). For informational purposes, potential race assignments are shown. Assignment inaccuracy is a significant issue for spring-run and late fall-run populations.

Informal interpretation – None of the samples are winter-run in origin. The tissues assigning to Late Fall could be late fall or fall. Due to the existence of a hybridized FRH spring, spring-running fish may assign to fall with high posterior probability. Note that true fall run do not assign to spring with high posterior probability. I suspect that fish with low assignment probability to fall are actually spring run. The fish assigning to fall run with high posterior probability could be either spring or fall run. The spring-assigning fish is likely spring run.   To sum up, there is evidence for fall- and spring-run juveniles in the tissues collected from the RST.

Table 2 Genetic assignment of Chinook salmon collected at Caswell RST. ID, SampleDate, and ForkLength were obtained from collection envelopes. Julian Day count begins on July 1. Assignment refers to non-winter aggregation (i.e., Fall, Late Fall, and Spring) for individual fish assignments, with the associated aggregation of non-winter posterior probabilities. For informational purposes Reporting Group is shown, which pertains to potential race assignment of each fish. Associated posterior probability for Reporting Group assignment is shown. For informational purposes Reference stock is shown, which pertains to the baseline reference population having highest posterior probability. Associated posterior probability for Reference stock assignment is shown.

F	ID	SampleDate	ForkLength	Julian	Assignment	PosProb [1]	Reporting Group	PosProb [2]	Reference	PosProb [3]
	CFS02	3/8/2009	115	-	Non-Winter	1.000	Late Fall	0.547		
	CFS01	3/9/2009	150	-	Non-Winter	1.000	Late Fall	0.898		
	CFS09	2/21/2011	107	-	Non-winter	1.000	Fall	0.757		
	CFS10	2/21/2011	107	-	Non-winter	1.000	Fall	0.700		
	CFS07	3/22/2011	112	-	Non-Winter	1.000	Late Fall	0.601		
	CFS05	3/23/2011	134	-	Non-winter	1.000	Fall	0.565		
	CFS06	3/23/2011	134	-	Non-Winter	1.000	Late Fall	0.471		
	CFS04	6/17/2011	127	-	Non-winter	1.000	Fall	0.958		
	CFS11	12/20/2012	126	-	Non-winter	1.000	Fall	0.813		
	CFS12	12/20/2012	126	-	Non-winter	1.000	Fall	0.932		
	CFS13	1/22/2013	156	-	Non-winter	1.000	Spring	0.972		
	CFS15	3/15/2013	130	-	Non-winter	1.000	Fall	0.969		