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South Coast Salmon
Strait of Georgia Stock Assessment
Final 2019 Escapement Bulletin– Area 18 Cowichan River

Updated September 2020

Summary

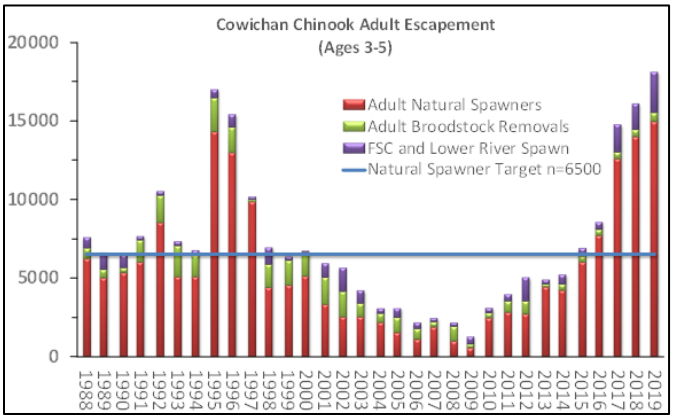
This bulletin summarizes salmon stock assessment and research activities conducted in the Cowichan River watershed by a variety of organizations including Cowichan Tribes, DFO, contractors and academic institutions.

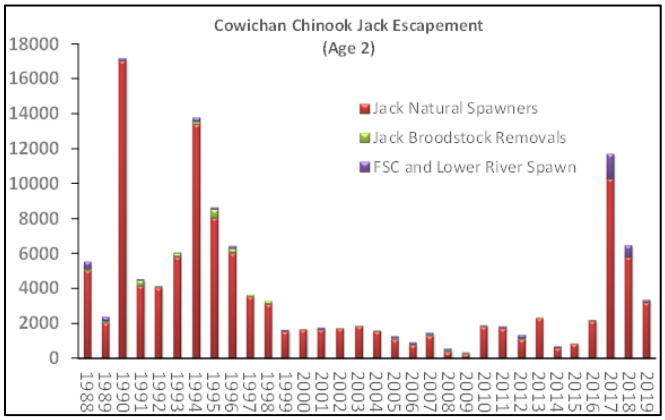
Final 2019 Escapement Summary

The fence in the 2019 season ran from 4:00 PM on September 9th to 2:00 PM on October 17th. A total of **11,827 Chinook (10,527 adults and 1,300 jacks)** were recorded through the fence. Counts differ from the final 2019 Bulletin due to a change in species composition following post-season review. Expansions suggest a total escapement of **21,591 Chinook (18,267 adults, 3,324 jacks) including 18,258 natural spawners (15,103 adults, 3,155 jacks)**. Hatchery contribution to the natural spawning population was estimated at 12.5% for jacks and 11.4% for adults based on adipose clips.

In addition, a total of **2,872 Coho (2,556 adults, 316 Jacks)** were recorded through the fence in 2019 along with **205 Chum and 60 Pink**.

Counts from the first full season operation of the Skutz Falls fishway camera were **3,589 Chinook (2,962 adults, 627 jacks) 9,077 Coho (8,271 adults and 806 jacks) and 4,448 Chum**. PIT tag based expansions of the Coho counts produced an escapement estimate of **16,543 adults and 1,613 jacks**. The camera was operational from October 7th to December 19th.





2019 Operations

Key infrastructure upgrades at the enumeration fence have included a new anchor rail in 2017, a new building and bulkhead in 2018, and modifications to the enumeration equipment in 2019.

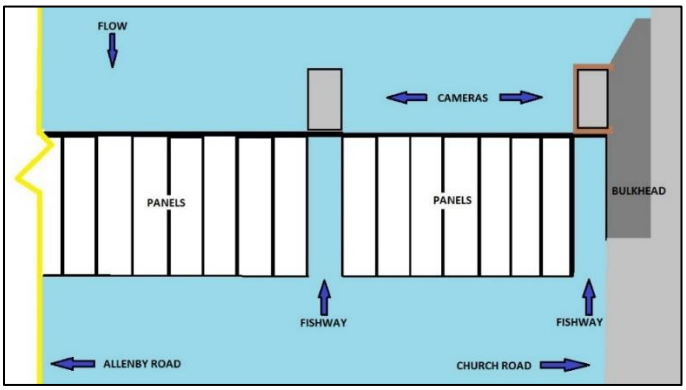
Two passageways, one located against the bulkhead and one mid-river, have replaced traditional camera boxes to improve fish migration. Results from 2018 and 2019 indicate that fish strongly prefer the wider

passages compared to the traditional camera tunnels. Each passageway is instrumented with two under water cameras with motion detection capability as well as LED lights for night time operation.

Escapement Monitoring Methods

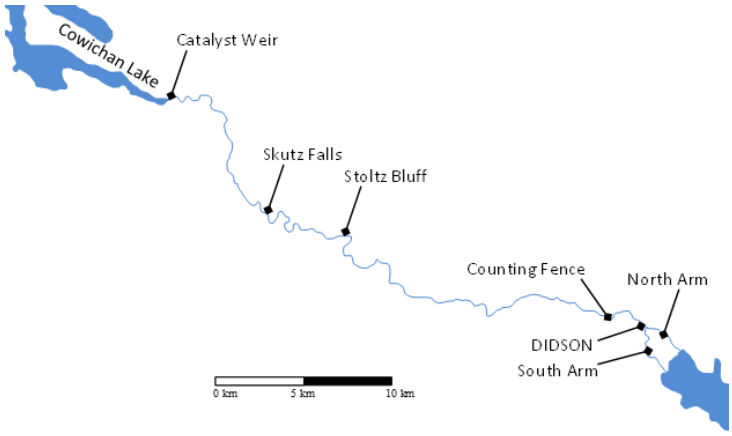
Counting Fence

The counting fence is located 150 m downstream of the Allenby Road bridge crossing and is accessed via Church Road on Cowichan Tribes land. The fence funnels migrating fish through two passages where species, size and origin can be evaluated. The camera is set to record each migration event based on a motion trigger such that data can be reviewed. Crews are present at the fence 24 hours per day to enumerate fish as they move past the cameras as well as to clear debris and maintain equipment as required. The floating panels pivot based on water levels and are expected to remain operational through mid-October. The fence is not designed to withstand high flows and will be removed when the discharge exceeds 30 m^3/s.

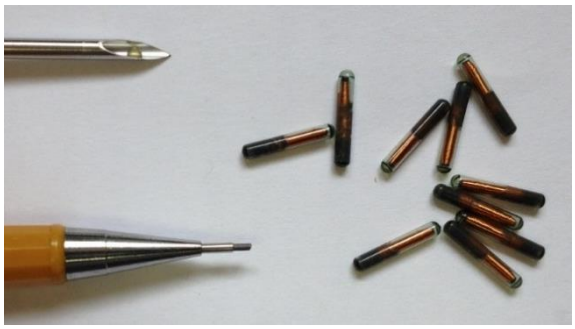


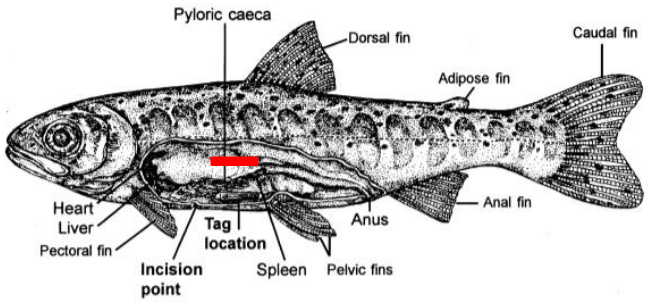
PIT Tags

Returning chinook will also continue to be scanned for PIT tags using the in-river arrays at the counting fence and Skutz Falls, as well as during brood stock collection. Temporary arrays have also been installed in the south and north arm channels in order to better understand lower river migration behavior. Over 65,000 juveniles have been implanted with tags since 2014 with funding from the Pacific Salmon Foundation as part of the Salish Sea Marine Survival Project and more recently the Pacific Salmon Commission. Tag detections will provide information on survival rates for groups tagged in the river, Cowichan Bay and the Gulf Islands throughout their first year of life.



The tags operate on Radio Frequency Identification (RFID) technology and do not have a battery. They can be read at short distances (50-150 cm) with an antenna that both charges the tag with a magnetic field and listens for the response. Tag detections are linked to a tagging data base which provides information on the time, location, origin and size of each fish on the day it was tagged. The proportion of tags in the population passing through the fence and/or in brood sets can be used to expand the number of detections on the permanent arrays to a total run size. This can particularly useful in years when the operation of the fence does not cover the entire run time (installed late or removed due to high water).





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