

Bedwell MT.

MT fish.



MT fish in sampling bin.

Most WCVI ocean type wild suuhaa (chinook) migrate from streams and rivers to the sea in the Spring at around 40-55mm in size to take advantage of the better food supply and environmental conditions compared

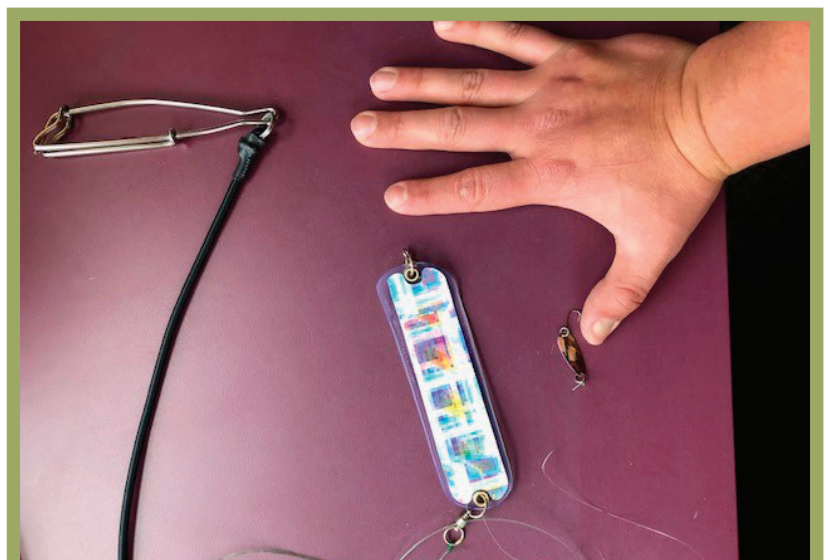
to the streams they left. Past investigations have shown juvenile suuhaa are still around the WCVI offshore area about a year after entering the sea. What is not understood is where these fish are in the time before they are found offshore. It is thought they stay in the inlets but how far they range and the types of near shore habitats they utilize and what factors influence their survival during this period is a mystery. To begin understanding this critical life stag of WCVI suuhaa, Uu-a-thluk biologists are piloting a microtrolling project to capture and sample juvenile suuhaa that should begin shedding light on this mystery.

Microtrolling is basically using modified recreational fishing gear. Lines with a small 5" flasher followed by a light leader with a small 1" Gibbs Mini G2 spoon are clipped directly to a downriggers line. This method was termed "microtrolling" to reference the deployment of the very small ("micro") trolling gear and was first pioneered by William Duguid in 2014 when sampling suuhaa in the Strait of Georgia. Microtrolling is relatively low cost, compared to using trawling and seining methods and the fish caught can be sampled and returned live to the water.

All captured juvenile suuhaa are brought onto the vessel and put to sleep in an anesthetic bath. Once asleep, the fish are sampled for length, weight, scales for age, tissue samples for DNA and disease screening and their general condition is assessed (i.e. pale gills, fin/skin erosion). Most sampled fish are placed into a cool well-oxygenated cooler to wake up, recover and be released. A small number of fish are sacrificed, frozen in liquid nitrogen so the its overall

health can be assessed. All samples are sent to the DFO Molecular Genetics Lab at the Pacific Biological Station in Nanaimo.

The Genetics Lab will analyze the samples using a wide range of novel techniques and technologies. The DNA samples will be used to identify which population or geographic region the fish came from. By comparing the presence and absence of populations within the Sounds over the winter months, we can begin to piece together which stocks are utilizing these areas and for how long. The lab will also be analyzing tissue samples to detect the presence and levels of 47 infectious agents known or suspected to cause disease in salmon. Furthermore, histology work on the whole frozen Suuhaa samples will be conducted to diagnose and study any diseases found throughout the fishes body. Finally, tissue samples will be analyzed using salmon "Fit-Chips" technology. Fit-Chips are a collection of molecular biomarkers that identify which genes are being activated in response to specific known stressors such as dissolved oxygen levels, temperature, and pathogens. Think of it as a switch where if a young suuhaa faces thermal stress from increased temperature for example, certain genes will switch on in response to the temperature induced stress. Overall, this research will help us identify which stocks are inhabiting the WCVI Sounds over winter along with which pathogens and stressors they may experience providing insight to the potential limiting factors to suuhaa production and ultimately how to mitigate these risks and work towards rebuilding WCVI suuhaa populations.



MT gear.