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Summer 2019 Issue

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# Takshanuk Watershed Council

## *The Current* - Summer 2019

[www.takshanuk.org](http://www.takshanuk.org) 907-766-3542 HC 60 Box 2008, Haines Alaska 99827



## **TWC IS HIRING!**

We are seeking an experienced leader to serve as the next Executive Director of the Takshanuk Watershed Council. Visit [www.takshanuk.org](http://www.takshanuk.org) for the full announcement. Applications are accepted until June 15th, 2019.

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# Spring Planting

Students in kindergarten to sixth grade kept their hands dirty this spring as they helped start seedlings for Starvin' Marvin Garden. In March and April, each class spent two different days mixing potting soil, making soil blocks and planting seeds. The students monitored and watered their seedlings while at school. In May, the 100's of healthy plants made their way to SMG for hardening off and planting. Each class walked over to the garden, first to plant carrots, peas and potatoes, and again to transplant their seedlings. It is wonderful to walk into the garden and realize that everything growing there started from a seed planted by a student.



**Clockwise from the top: Kindergarten students learn about seed starting, Students learn about making soil blocks for seed starting, transplanting sunflowers in Marvin Garden, and a happy group of spring planters.**

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5th Grade plants at Starvin' Marvin Garden.

## Starvin' Marvin Compost

Composting at the Haines Borough School finished up the school year as a huge success! At every school lunch, students separated their food waste from their trash and diverted 2,837 pounds of compost from the towns' landfill. Every week, a dedicated group of sixth graders hauled the compost buckets to the garden, where they worked together to weigh and compost all of the material. All their hard work produced huge payoffs for the garden. This year is our first year that we will produce all of our own compost for making potting soil and amending garden beds. This milestone means that we no longer have to purchase compost in plastic bags shipped to Haines.



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Clockwise from the top: A special visitor helps with compost duty, students help turn the compost, and a student helps haul the compost from the school cafeteria.

## Summer Garden Club

Summer Garden Club at Starvin' Marvin Garden is under way! We meet at the garden every Thursday from 11:00 to noon and work on different garden projects. This week the nine participants finished transplanting the remaining seedlings, including tomatoes, basil, flowers and summer squash. Come join us for an hour of garden activities, games and Popsicle eating!





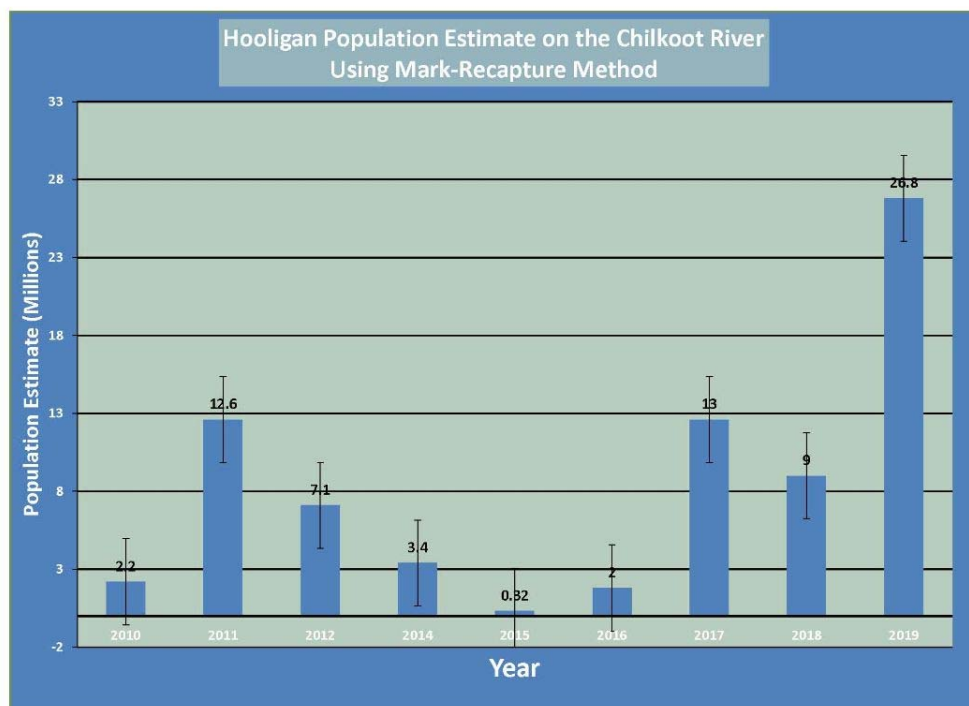
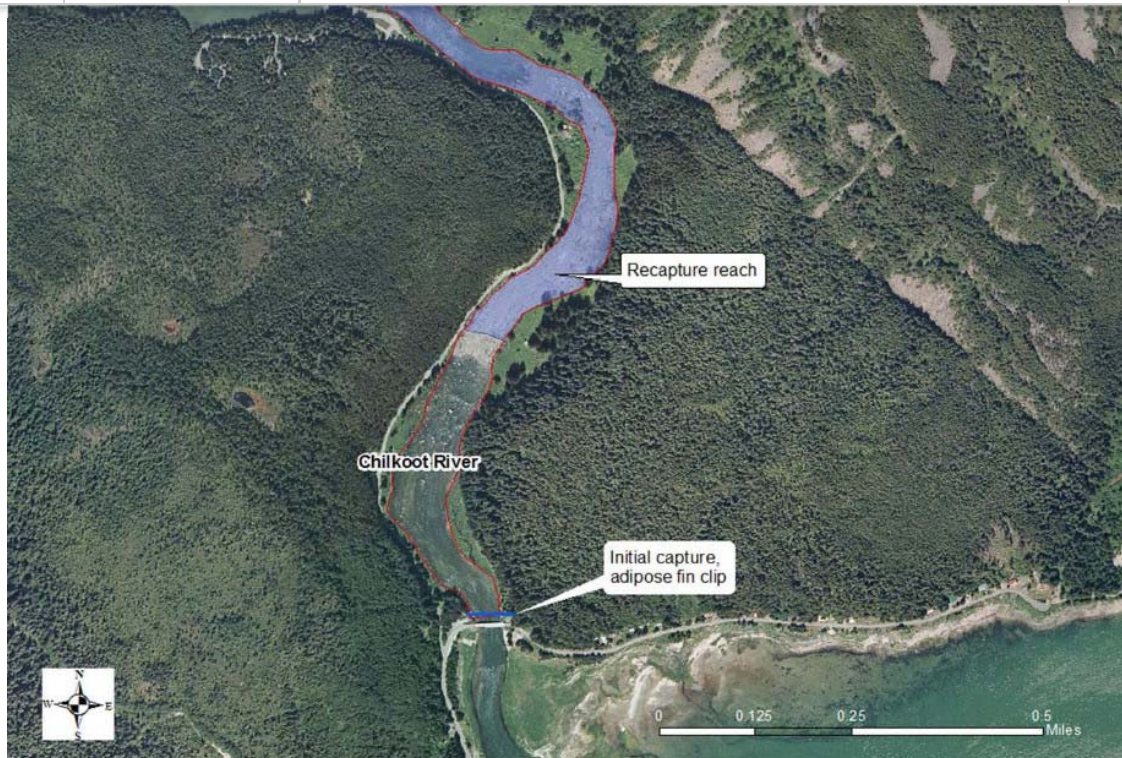
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## Eulachon Population Monitoring

TWC has been partnering with the Chilkoot Indian Association (CIA) on a eulachon population monitoring project since 2010. The 2019 season was the third year of our expanded regional study looking to gather eulachon population data from across northern Lynn Canal .

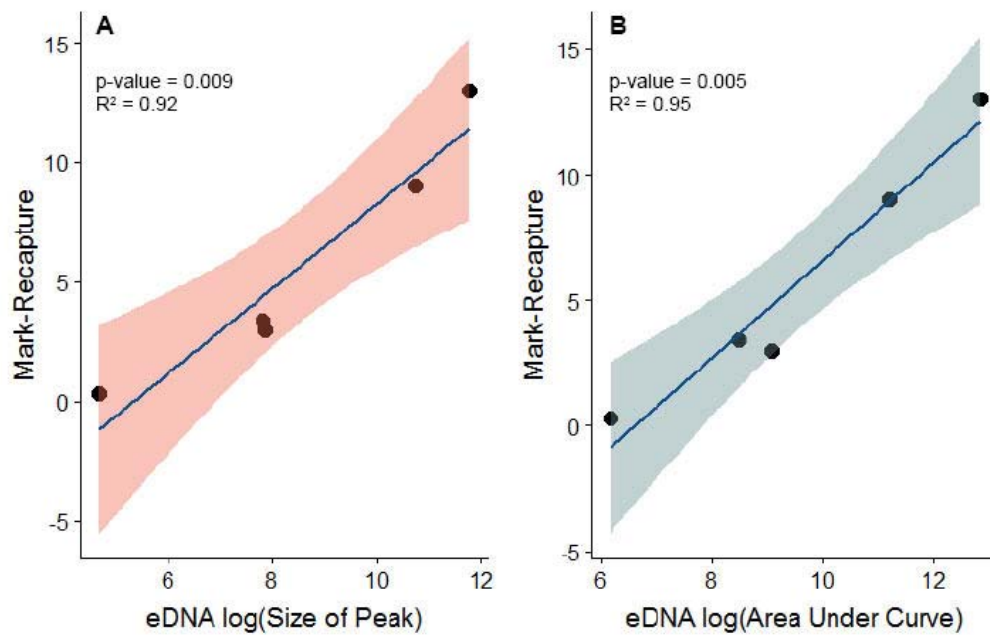
Our longest running method has been the mark-recapture technique utilized at the Chilkoot River since the project's beginning in 2010. For this method, a trap is placed near the Chilkoot River Bridge, fish are captured in the trap, and the adipose fin is clipped. The fish are released back into the river to continue their spawning migration upstream. Above the Chilkoot River weir, fish are recaptured using dip nets, cast nets, or through subsistence fishermen. These fish are counted and the adipose fin is examined to see if it had been clipped. The mark-recapture formula accounts for the proportion of fish counted that are clipped initially, recaptured without a clip, and recaptured with a clipped fin. The 2019 Chilkoot mark-recapture population estimate was the largest we've seen since this monitoring began in 2010.

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In 2014, through a partnership with Oregon State University, we began using a new technology, environmental DNA (eDNA) as a means of determining a population index from the amount of DNA found in a 1-liter water sample. The DNA concentration compared

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invasive, and inexpensive method for determining eulachon population estimates.



Results of linear regression models relating log-transformed mark-recapture population estimate to the flow-corrected natural log of eDNA rate size of peak (A) and natural log of eDNA rate -area under the curve (B).





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Top left: Students from Haines and Klukwan learn about eulachon at the Chilkoot River. Top right: Crews at the Chilkoot clip the adipose fin as part of the mark-recapture protocol. Bottom left: Crews at the Chilkoot recapture eulachon above the weir. Bottom right: Crews at the Katzehein collect water for eDNA samples.



## Palmer Mine Project Monitoring

In April, Constantine Mining applied for State of Alaska development permits which would allow the construction of a 1.25-mile-long mine access tunnel, a wastewater treatment facility, and a potentially acid-generating (PAG) waste rock dump. The Takshanuk Watershed Council submitted comments on this permit application to the Alaska Departments of Environmental Conservation and Natural Resources (ADEC, ADNR), as well as to the Haines Borough.

[View TWC's letter to ADEC and ADNR](#)

[View TWC's letter to the Haines Borough Assembly](#)

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Of primary concern to TWC is the fact that once tunnel excavation begins, and wastewater starts flowing out of the tunnel entrance, it is very difficult to stop. There are ancient Roman mine sites in Britain, for example, that are still generating acid mine drainage today (<https://eic.rsc.org/feature/acid-mine-drainage-a-legacy-of-an-industrial-past/2020087.article>).

Metals and other pollutants coming from a mine can negatively affect fish and other aquatic organisms in a variety of ways. Copper is particularly damaging to salmon because it impairs their ability to find their natal spawning grounds, and it also reduces the ability of juvenile fish to avoid predators.

Constantine predicts that the water coming from their tunnel will not meet ADEC water quality standards, and in the permit application they propose discharging that water underground via a Land Application Disposal (LAD) system. Due to the local geology, this contaminated water is likely to enter both ground and surface water. (See [TWC's letter to ADEC and ADNR](#) for a more thorough discussion of this topic.)

**See <https://www.takshanuk.org/research-and-restoration> for more information.**

or contact [derek@takshanuk.org](mailto:derek@takshanuk.org)





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## Temperature Monitoring

TWC is monitoring water and air temperature at 15 sites throughout the Chilkat and Chilkoot valleys. At each study site, we deploy three HOBO Water Temp Pro v2 data loggers, two submerged in the water and one suspended in the air. Field loggers are checked and calibrated against NIST-certified loggers semi-annually. During site visits the data is field-downloaded to a portable shuttle, or the loggers are swapped out and the data downloaded back at the office. Basic water quality parameters are also recorded using a YSI Pro-DSS multi-parameter instrument. Temperature loggers record continuously at 30-minute intervals. All data is shared via the [Alaska Online Aquatic Temperature Site \(AKOATS\)](#) maintained by the University of Alaska.

TWC is working in collaboration with a research team that includes scientists at the US Forest Service, the University of Alaska, and the [Southeast Alaska Watershed Coalition \(SAWC\)](#). This team is developing a model that will explore the potential effects of climate change on salmon production throughout the region. The model will rely heavily on temperature data collected through local grassroots organizations and efforts, and multiple years of data are critical for understanding variability. The researchers are focusing their efforts on anadromous systems that are important for subsistence, e.g. the Chilkat River and its tributaries. The model will be used to inform management measures that will seek to minimize adverse impacts from a changing climate and help to maintain healthy runs of wild salmon into the future. ( <https://seagrant.uaf.edu/research/projects/summary.php?id=1084> )



Temperature logger housings ready for deployment to the field

See <https://www.takshanuk.org/research-and-restoration> for more information

Or contact [derek@takshanuk.org](mailto:derek@takshanuk.org)



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[4th of July Rubber Ducky Race: 2:30pm at 7.5 mile Lutak Rd.](#)

**Buy a duck for \$5 and watch it race to the finish line. Winning duck gets \$250, last duck gets a dinner at the Pilotlight Restaurant**

[4th Annual Garden Party Fundraiser: August 23rd at the Starvin' Marvin Garden. Details TBA.](#)

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## **Check out our YouTube Channel**

**Now you can watch all the great TWC videos from over the years in one place!**



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## **Become a Friend of the Watershed** **Check out our new t-shirts and hoodies!**

Without membership: \$50 for hoodies, \$25 for t-shirt

With membership: \$75 for hoodies, \$50 for t-shirt

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