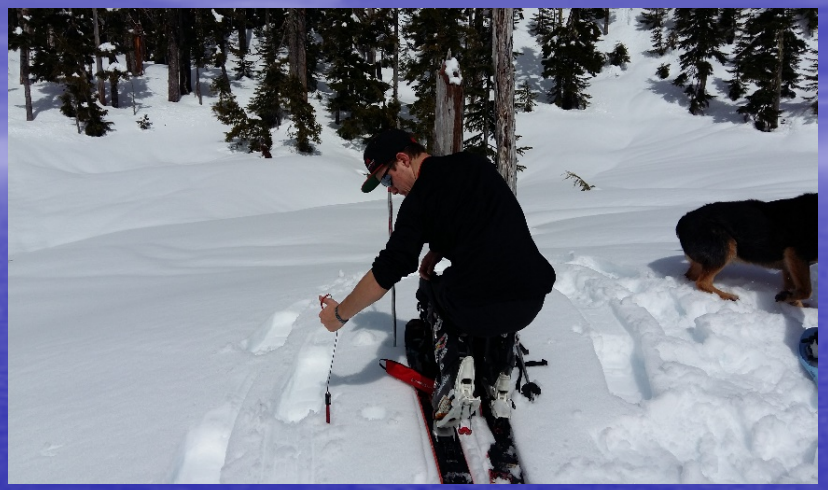
Cowichan Water Use Plan
Public Advisory Group

The Cowichan Watershed – An Ecological perspective….

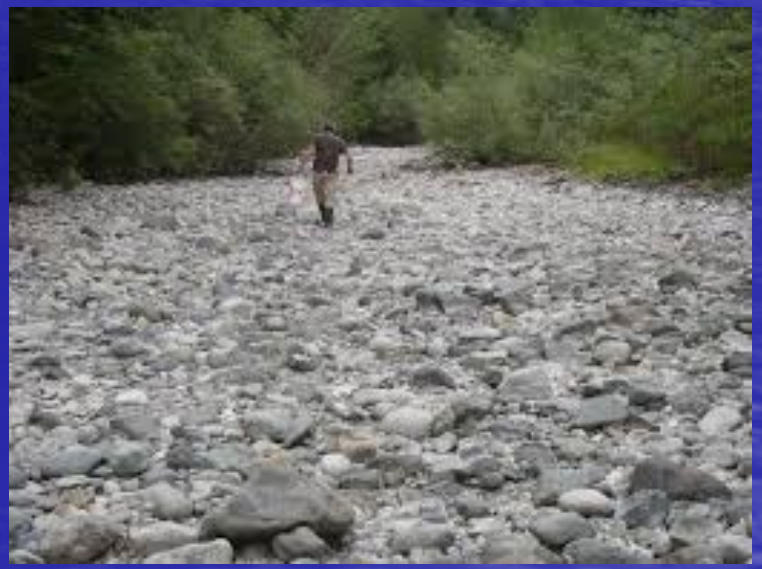
The Next 20 minutes…

- Climate change, Hydrology (water) and the Cowichan Valley
- Quick look at some keystone species and their relationship to water flows
- Why should we care…?

Climate Change in the Cowichan Valley

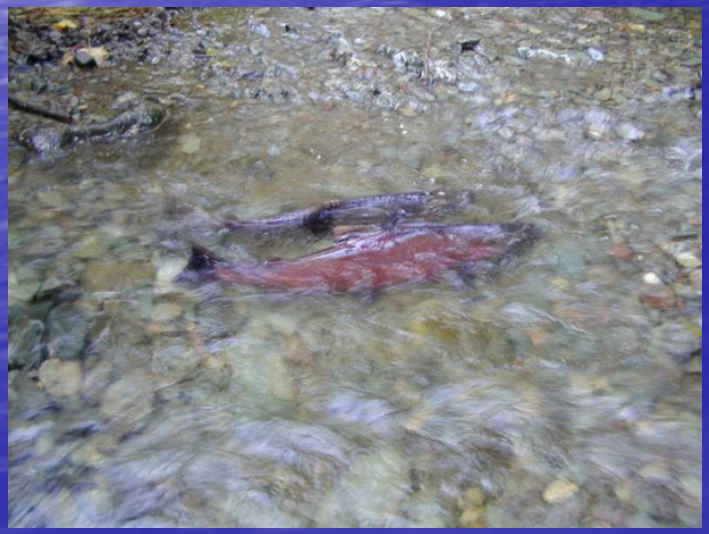


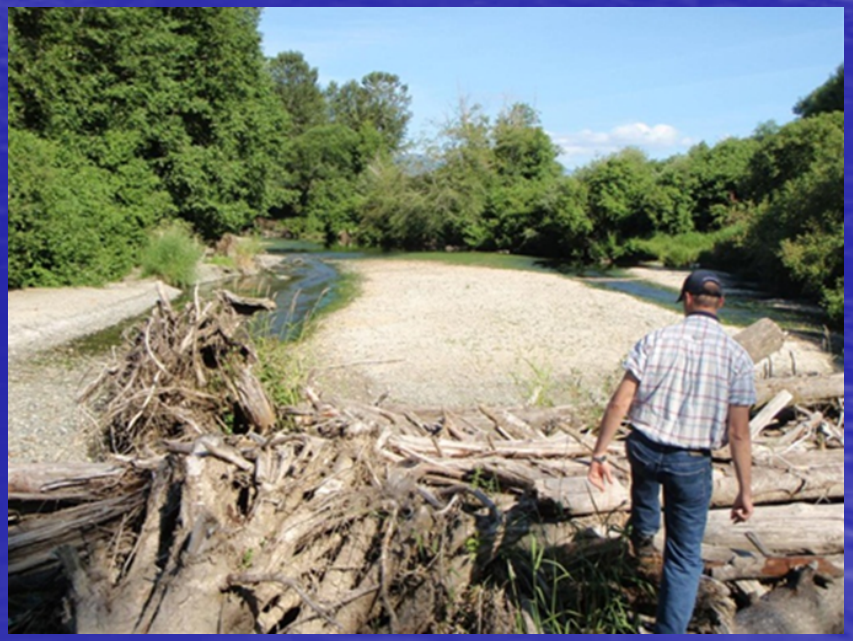
- More precipitation in winter with warmer temperatures
  - Less snow (natural storage), more freshet conditions
- Hotter and drier in the summer (no snow melt to augment flows)
- No longer about avoiding impacts - about minimizing impacts (doing a really bad job so far) and mitigating/managing the effects



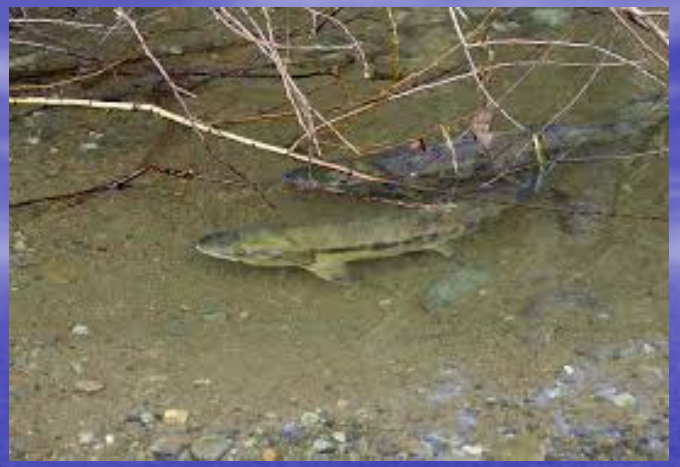
Environmental Values…

- We are lucky enough to live in a watershed that supports a complex and diverse ecosystem…
- With a changing climate many of the things we take for granted are being threatened
- Changing conditions in the Cowichan River are having real impacts…





A small miracle…



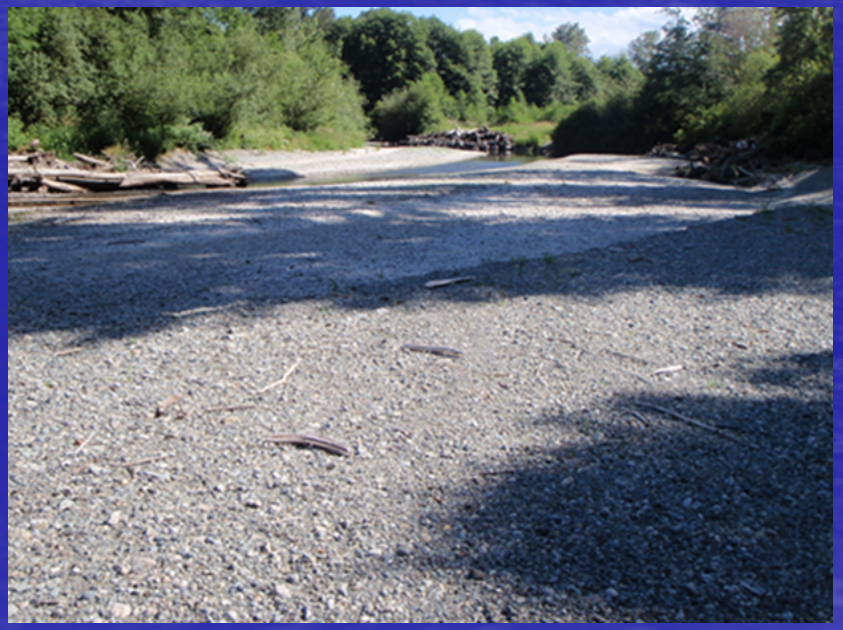
- Salmon are a keystone species and ecological driver in Cowichan Watershed – 5 species of anadromous salmonids
- Stable Chum salmon populations inject almost 2 million pounds of marine captured nutrients into the Cowichan Watershed every year
- These nutrients contribute to a complex and vibrant ecosystem - can even be traced to the riparian forest growth

Chinook Salmon…

- "Key Stream" Indicator for Canada/US salmon treaty
  - Drive Canadian and US access to Chinook salmon
- Key Limiting Factor to success of Southern Resident Orca Pod
  - Limited by availability of chinook
- We are still learning about the relationship between river flows and Cowichan Chinook….
- Different life history phases have differing needs and limiting factors
- For Example….

Upstream Migration

- River flows key to providing upstream access to both spring and fall runs of chinook
- Different challenges depending on timing…
- Eg. Predation, access to cool summer holding refugia



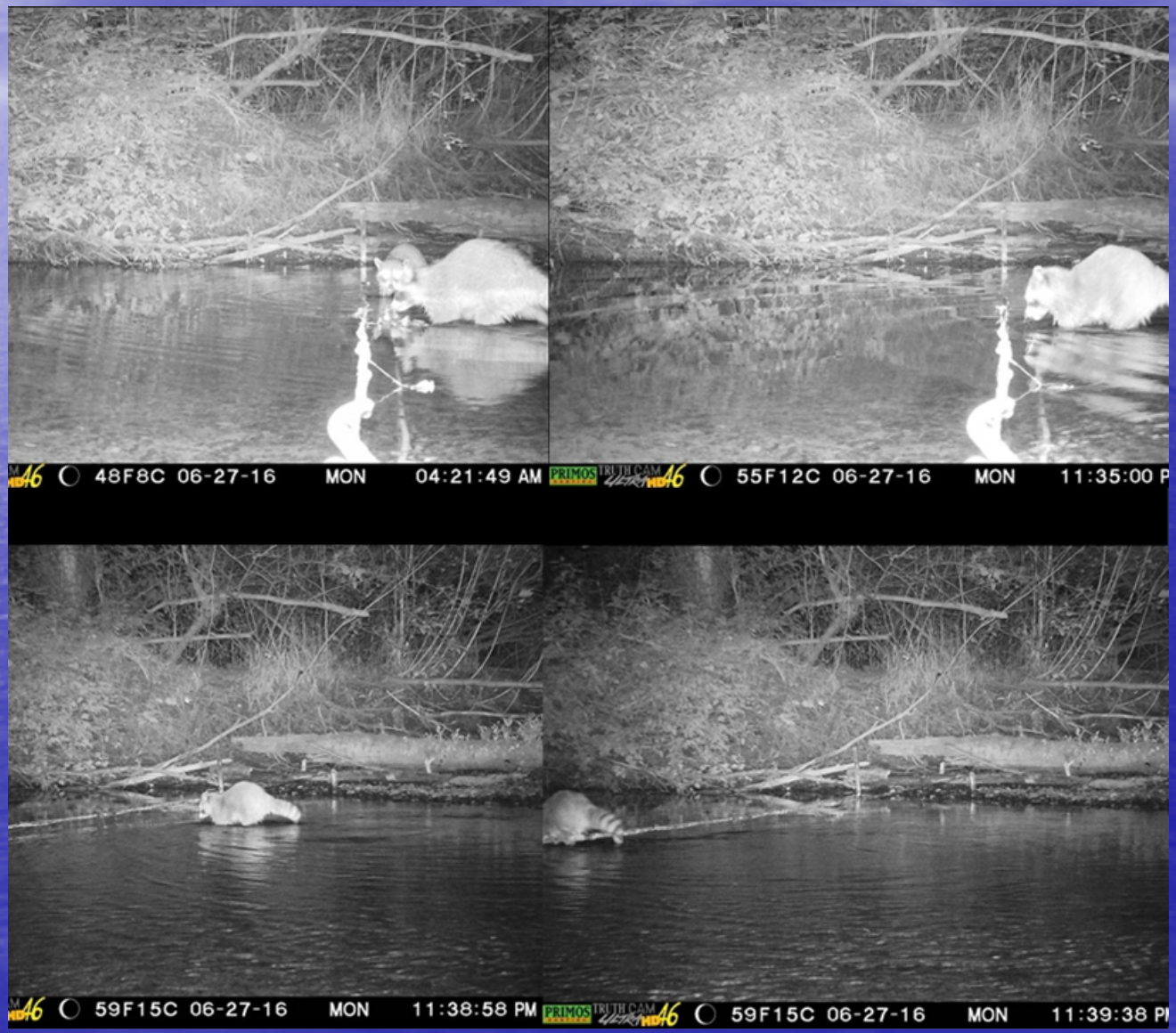
Downstream migration

- Juvenile chinook start their migration in March and must have access to specific habitats in order to grow to a critical size before entering the estuary
- The availability of these habitats depends on river flow….

PIT Tagging Studies

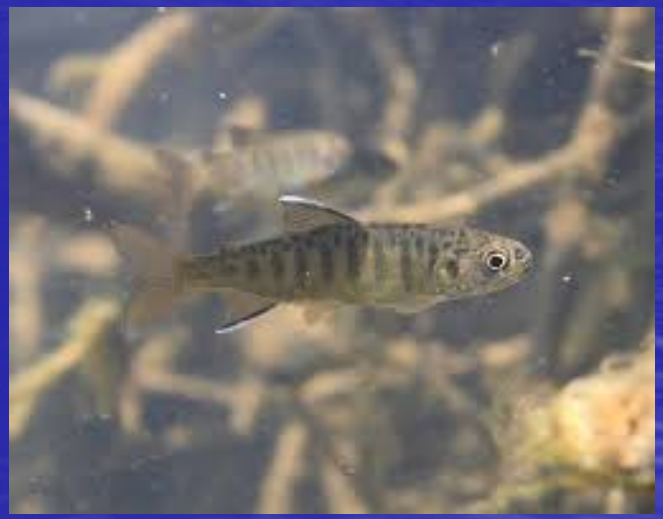
- Have revealed a strong relationship between spring flows and downstream migrating juvenile chinook
- May 2016 – low flows in river – 80% attrition from upstream release site to downstream array site
- May 2017 – higher flows – over 80% survival from upstream release site to downstream array site….

Strange behaviour….



Water levels in the lake are also important….

- SARA listed "Cowichan" Lamprey
- Lake tributary Coho with unique lake dependent life history
- Cutthroat trout and kokanee
- The shallow vegetated "edge habitat" around the lake is key for these species



Bottom Line

- We are facing unprecedented challenges with respect to managing our water resources
- We have an opportunity to make adjustments in the way that water is managed to benefit the unique and critically important environmental values that are becoming increasingly threatened in the Cowichan Watershed as a result of significant hydrological changes caused by climate change
- The decisions we make will affect the things that matter to us, including the environment in the river and the lake

Thanks!