



January 21, 2016

MINUTES

The meeting was called to order by Genevieve Singleton at 9 am.

In attendance

Meg Loop (CLT), Keith Lawrence, Nino Morano, Ian Morrison, Kerry Davis, Klaus Kuhn (CVRD), Ted Brookman (BCWF), Parker Jefferson (One Cowichan), Eric Marshall (CVNS), Bob Crandall (CLSES), Shaun Chadburn (North Cowichan), Genevieve Singleton (Nature interpreter), Jean Atkinson and Leroy Van Wieren (CLRSS), Barry Hetschko (SMWS), Ken Clements & Claude Theirault (Sidney Anglers), Natalie Anderson, Tracy Flemming, and Helen Reid (Cowichan Tribes), Jennifer Hermary (MP's office), Tom Rutherford (DFO), James Craig (BCCF), Cheri Ayers, Katie Fulton & Irv Banman (NCC), Goetz Shouholtz (CERCA), Dennis Popplestone (Catalyst), Ray Demarchi, Lorne Duncan, Todd Carnahan. Cheri Ayers, Ben Nelson

Regrets: Brain Houle, Swarn Leung, Don Closson, Shawn Kerr

Approval of Minutes

The minutes from the December meeting were circulated and approved.

Roundtable updates

James Craig – Cowichan Watershed Basin report ready. South Side spur dyke complete, culvert cleaned twice, and open for down streaming chinook fry 7 km off channel habitat. Start monthly monitoring in March for 4 months. Work with Tribes to get a water license for 40L per second to keep the channel wetted this summer. Year 3 of 3 chinook pit tag program going through. Should see a semi-permanent pit tag array to remunerate juveniles and adults returning. Working with owners in the lower river on some riparian habitation. Broadway live staking, haven't had a chance to go see with the rain, its doing quite well.

Ted Brookman – SIA soil dump is very important. An application to put in another soil dump next to the Shehalus (mainland). A plastics company was given permission to dump "warm water" but it's between 75 to 85 C and it's killed the entire river below, salmon couldn't spawn.

Dennis Popplestone – Talking to the main pump operator, looking at doing a program to teach the entire crew the packing flow for the pumps to reduce flow use. A lot of the workers are keen on the "adopt a plot" knotweed treatment project.

Helen Reid – Cowichan Tribes in Land Code as part of the by-law process. Identifying all the soil contamination sites and getting assessments.

Cheri Ayers – Cowichan Watershed Health and Chinook Initiative, two meetings planned in next month. 1st Jan 29th working group to generate straw-dog update to the critical limiting factors. Summarizing the results that have happened since 2013, relate to factors affecting the health of chinook. On Feb 6th an experts meeting to review updates. Have attending the Koksilah watershed group meetings, mostly ad hoc, relatively small group. Hasn't been formalized yet as a committee, but having the discussion of where to go from here. Need to find the issues facing the Koksilah, looking at perhaps a literature review or others. Connect the Koksilah to the link to the Cowichan initiatives. Ask for a formal inclusion of updates at the CSRT, Leuchim Charlie to present in the spring.

Barry Hetschko – water quality monitoring to resume on Somenos system.

Eric Marshall – Update on the railroad herbicide spraying, recommended the steam generator but replied that steam produced "too many greenhouse gasses". Christmas bird count, 3029 individual birds, 1200 species, 3 western bluebirds so they now appear on the list, and 1 arctic gull. Numbers posted on the Birds

Canada website. Continued doing the swan and goose count, seeing lots of geese and swans on the Dinsdale property.

Katie Fulton – NCC, work on projects within the Cowichan: Garry Oak Preserve, Chase Woods, Somenos, Mount Tzouhalem Ecological Reserve. Interested in fostering more partnerships with local groups and accessing local expert knowledge.

Irvin Banman – NCC, ecosystems restoration. Looking to doing work on NCC portion of the creek at Khenipsen.

Tracy Flemming – Referrals coordinator for Cowichan Tribes. Parrot Feather is highly invasive and totally clogging up Somenos Creek, need to act quickly upon it.

Keith Lawrence – Watershed Characteristic Mapping, thematic maps around a number of characterizes (hydrology, reservoirs, land cover and use, water use, waste treatment, stewardship and community). Scale is qualitative at the watershed level; can we narrow down to sub basin level? Perhaps further down the road, the goal is to get the watershed level and identify risks. Looking at acquiring high-resolution ortho photos. Flood Protection works ongoing. Invasive Plants by-law available for comment to the public up until next week. It focusses on Giant Hogweed, but perhaps will be expanded to other species. Snow Pillow is up, small glitch in the recording. The data is still up on the website, but there is some error with the number but not sure how much.

Genevieve Singleton – Eagle Heights is moving along, HSP grant in went in with CLT and CVNS. Hosted an evening on the Walbran logging issue.

Parker Jefferson – TAC, two 40 inch steelhead have been caught in the river. It is very busy for steelhead fisherman, looks like we have a good return. Many people come to the region to fish, a precious economic resource. The watershed board is creating a presentation to present to the BC government for local control over water issues. One Cowichan will work to create public awareness around the request going forward.

Klaus Kuhn – Applications for Sunfest and Rock of the Woods both were approved.

Bob Crandall – Sent out the eggs to all schools for the Salmon in the Classroom projects. Working hard at the Shawnigan SIA site. There is alleged trespass of the leachate trail onto Malahat Tribes land. This issue was in the BC Supreme Court last week and this week for an injunction against the soil dumping permit. Looking at soil samples, not just water samples and we can see the cumulative effect with samples over time. Not just industrial waste, but biohazardous waste. There is a petition available to sign. For each 25 signatures on a petition seat, the person submitting gets to ask 1 question to the minister and has interesting ripples within the parliamentary process.

Day Demarchi – About 50% of the Koksilah estuary is dyked, a lot of work has happened to remove dykes and restore land, and would like to return to more options. Under an operational plan, but would like to have a holistic assessment of the practices and determine what is best over whole.

Sidney Anglers – working on 2016 fishing derby.

Tom Rutherford – Major release strategy is to release the juveniles from the hatchery upstream to imprint on the way down. Last two years, repeat this year, to assess how many juveniles make it from upstream release site to make it down to the lower river. Looks to be about 1 in 5 or 20%, with pretty good confidence levels. Looking at changing the release strategy to test some other strategies. Hopeful that there are some institutional changes that give DFO more flexibility in its ability to work within the communities.

Goetz Shouholtz – Financial partnership with Island Savings for the Nature Trail with Western Stevedoring starting next month. Restoration will take place on the slough along the causeway to sample the water to test for heavy metals and other water and soil contaminates before connecting to the estuary again. Have a new website up www.cowichanestuary.com. Planning a workshop to produce 100 nesting boxes for swallows for the nature trail and Mariners Island. Looking at hosting another symposium in September, Climate Change and Economy, one keynote speaker confirmed. Blue Carbon project, mapping scale of 1:3000 habitat mapping based on previous mapping to update. Take blue carbon samples within the mudflats, partnering with Project Watershed and VIU.

Leroy Van Wieren – Wrapping up reports and results from year 2 of shoreline project, ramping up for year 3 and securing more funds. We participated in the Dec 11 workshop up at the lake, really great presentation on the importance of the riparian zone at the lake.

Jennifer Hermary – Requests for letters of support, may not be able to write all of them, but open to writing for grant supports. The Shawnigan Lake Petition to the Federal Government, so it is different than the previous petition to the Province. The Federal Government doesn't have jurisdiction, so action may not be able to be taken as this is a Provincial matter. Looking at options for private members bills, and looking at revamping and improving some of Jean Crowder's bills.

Ian Morrison – Waiting for the announcement of the infrastructure funding. New committees at the CVRD, with new chairs. Cynthia Lockery new manager for communications.

Business

Impacts of Harbour Seal Predation on Juvenile Salmon in the Strait of Georgia – Ben Nelson

First rigorous impact assessment on marine mammal predation. Taking the previous assessment on fecal matter for fish content and species to put numbers to that.

1970s Pinniped protection measures went in place and many species have recovered well. In the Salish Sea there were 5,000 in 1970, in 2008 around 40,000. Puget Sound has a 7 to 10 fold increase. Over the same time we have seen profound drops in marine survival in the Salish Sea (coho, 10-15% down to 5%. Chinook 3% to 1%. DFO reduced harvest to nearly zero, but no increase in marine survival. Is this correlation or causation? The recovery of pinnipeds leading to decline in salmon? Most research has looked at seal predation on the returning adults, but this study is looking at juvenile predation. The limiting factor for population returns is the first 3 months of marine survival for smolts.

For adult fish, the hard part analysis is ok, but for juveniles the bones do not stay long and it is difficult to get a number. New methods for seal diet quantification, allows identification of different species and age category. A seal needs to eat 2kgs of food a day, which is about 1 adult salmon or between 100-400 smolts per day. Applied these methods to Comox Harbour, Cowichan Bay, the Fraser River Delta, and a small island in the Gulf.

The take home message is that juvenile salmon make up 2-4% of the diet for harbor seals, it takes a lot of small fish to make up that 2-4% for a large mammal. Coho: About 55% of the mortalities are due to seals, in April to May is the peak mortality rates. About 2/3 of the population is lost to seals in the first marine year. Chinook: about 45%, Peak seal mortality occurs in July for the fish to hit 10-15cm and the size seals seem to target most.

Head Tag Study: want to address the statistical bias to cross check the results. Affixed a pit tag reader to the head of 20 harbour seals in the Big Qualicum River to see if can detect the number of PIT tagged fish a seal is eating. 4 of 20 seals had detections, all from the estuary. Estimated about 100 seals in the study area. 24,000 smolts of 385,000 or 4% mortality. This is one small seal population in the entire Strait.

Conclusions: Using these lines of evidence, the harbor seal predation is likely a significant source of natural mortality in the early marine stage for coho and chinook. Seals target smolts at a certain size. Seals have a prey template, or where they learn to target a specific prey. Our sample sites were in estuaries, other sites such as rocky haul outs and reefs are difficult to sample. The North East, Central deep rocky areas may have fewer salmon, so mortality may be less, but the future research needs to be more comprehensive. These high estimates of mortality is the first step, this is the first study, so this is not an exact representation. There is a high uncertainty around the 50% mortality, but it shows that it is possible and indicates a need for more research.

The models used to monitor fish stocks are not very complete. We feel that natural mortality has increased and hope to use this research to make better management tools for fish populations. The mitigation options are difficult, is this evidence for a need for a cull or predator management? Skeptical that predator removals would work, if we took the harbor seal population down to half of what it is, another predator may step up to fill the same role as the seals. Would like to explore other options, such as changing the way hatchery fish are released; two schools of thought around hatchery fish. 1 is the masking hypothesis, if you put in a lot more hatchery fish then the wild fish can sneak through the mass of hatchery and reduce the predation on wild. By increasing the fish, you are increasing the amount of food available and may trigger the predators to further hone in on the fish versus other prey.

Another issue can be the presence of log booms and the fact that they provide artificial habitat and could be increasing stress upon the fish within the estuary. May turn out that no action is needed, there are a lot of transient killer whales that are feasting upon all these seals, with no trends showing any slowing down, so the system may achieve a balance.

Questions:

- There are many factors that may have not been considered. Related the fish juvenile survival to the habitat field. Ie Cowichan Bay is lacking eelgrass to hide in, so very open to predation. How can we increase survival from better habitat alone?
 - o We acknowledge that for future research we will be considering habitat types etc. The goal of this study was simply to establish a mortality rate. Salmon mortality is very multifaceted, ie sick fish unable to swim quickly, habitat loss, etc. Seals can just be taking advantage of degraded systems. These ecosystem questions are the targets of future sites.
- We have well over 145 salmon enhancement groups that are pumping out coho and chinook, and there are seal haul outs right where we are putting out fish. This could mean the groups need to adjust how we release salmon.
 - o This study is to prioritize more empirical, experimental, field based research. There are a lot of hatcheries, to embark on this large scale ecosystem based question would be to target the current infrastructure and create controls with hatcheries in the Strait of Georgia.
- Do we understand the drastic drop of salmon population around 1995?
 - o The precipitous declines are not due to seals alone. The magnitude of decline is likely a "death by a thousand cuts" compounding effects. Ie, toxins, all levels of habitat loss, disease. Seals are one piece of that puzzle.
- Does research lead management or does research follow management? Everyone has their own pet theories. Would there be that many seals in Cowichan Bay if the log booms were there? There are the prey-predator cycles. We are "better" at managing the predators than the prey, and right now the predators are on top. Are we harming populations further without management strategies?
 - o Ben saw at most 200 seals. DFO has done studies on how many are at sea at a given time, so thus there are about 330 seals at the haul out.
- Are there any estimates of the history of seal populations? We have an idea of historic salmon population, is there the same for salmon?
- Well documented that hatchery salmon survive less than wild. If we flood the system with more fish, the harbor seals may be encouraging offspring to specialize on smolts further.
- Are there other like studies on similar issues around the world?
 - o To the Salish Sea, the trends of harbor seals increase and salmon decrease. There is tight synchronicity in the Puget Sound, so we conclude relevancy. In terms of around the world, this has happened with Atlantic Sampling in England, in the Baltic Sea in Sweden and grey seals. In the 70s marine mammals became protected, so there are a lot of studies on the same dynamic.
- Reconfirm your 55% coho and 45% chinook. Do you have confidence intervals around those numbers?
 - o Yes we include uncertainty in the formal analysis, on the low end between 25-35% and as high as 65%. General conclusions remain the same.
- What are your top 2 assumptions?
 - o Sampling sites are perhaps not representative of the entire Strait of Georgia. The few similar studies have shown similar numbers to lend confidence.
 - o How many fish are in the system to start with? It is impossible to get a census of the number of fish each year. We have reasonable estimates of wild populations and can know hatchery populations.

Evans – Nino Morano

Evans Ready-Mix on Koksilah River and Calvin Creek. Every community has some challenge with contaminated sites. Made a zoning amendment to prohibit contaminated soil from entering the property. In 2008 the Province issued permits for a biocell for them to accept contaminated soil. In any dispute between a province, feds, or municipality, the higher levels of government will win every time. A biocell is a paved area to contain the soil, for its treatment. Historically the site was a gravel pit; the contaminated soil is a new addition. According to the professionals, the soil is completely contained and will not leach into the system. The site slopes to the creek, the flat spot was built for the soil.

There are a couple different classifications of contaminated industrial soil and can take it to permitted industrial sites to receive according to the thresholds set. Some soil exceeds these thresholds and has been caught and nasty letters sent. Some things have been under the threshold and you don't need a permit for. They have a permit for a special permit to dump soils that exceed the threshold or contains worse contaminants and require prescriptive treatments, ie hydrocarbons, until they get under the limits of industrial thresholds. 50 year business plan for site remediation for industrial fill on an industrial site.

The material on the pad above the threshold waiting to be buried. Outside of the biocell, there are liners in the treatment locations and filter stops. The filters discharge into Calvin Creek, they must have a discharge permit. This is not a by-law issue. This is a Ministry of Environment issue to monitor, and we are unsure of the enforcement and monitoring process by the province.

Tribes had done some monitoring, and we know that MoE with Deb Epps had been doing test sites on the Koksilah and Calvin Creek. The chief at the time provided support to the CVRD for opposition.

This area is known as an unconfined aquifer, and the Province relies on the professional to say its ok, and the permits go through.

The area is zoned for that purpose; CVRD has some issues with the treatment. When you get a mining permit, you can get it for a residential zoning. When you get a mining permit it can't be considered under bylaws. The province then considers it industrial.

Next Meeting
February 18, 2016