

Notes on methodology, timing and equipment requirements for the Wannock River Dead Pitch.

The Wannock River, 6.5 km in length, flows westerly into the head of Rivers Inlet, draining 64 km long Owikeno Lake, in Fisheries and Oceans Canada Statistical Area 9. This broad and relatively stable system is under tidal influence to a point just above Oweekeno Village, approximately 2km. The river is navigable to small vessels (skiffs and jet driven riverboats) and flows through the Katit Indian Reserve. The population of Oweekeno Village numbers about 50 - 60 people.

Sockeye, Pink, Chum, Chinook and Coho salmon spawn in the Wannock River and on the flats along the lakeshore near the outlet of the lake. Salmon also migrate through the Wannock to river systems further up Owikeno Lake. Spawning usually takes place from mid-September to November. Glacial silt in the water limits visibility to approximately 80 to 100 cm. (using Secchi disc readings) thus making visual counts difficult except in very low water conditions.

Objectives of the Wannock River Deadpitch:

- To obtain an estimate of mark incidence (tags, punches and fin clips) from Chinook carcasses.
- To recover heads from all adipose fin clipped chinook. (where applicable)
- To obtain sex, length and age data from carcasses.
- To obtain estimates of tag loss. (where applicable)
- To obtain estimates of mark induced mortality. (where applicable)
- To utilize data collected as one indicator used to estimate Chinook escapement to the Wannock River.

Dead Pitch

The recovery of Chinook carcasses from the banks of the Wannock River (dead pitch) should take place from October 25 to December 2. The start and finish dates could be somewhat flexible depending on the incidence of carcasses and/or river conditions.

We usually have a team meeting on or about day 1 in order to go over the Statement of Work, scheduling and safety issues

The entire river should be inspected for carcasses daily. During the peak period of Chinook die off, which usually occurs around Nov 9 to Nov 15, it would be beneficial to have at least two people or, if possible, two crews of two each working the river.

The lower river and gravel bar at the mouth of the river should be checked out as close to low tide as conditions permit to maximize recoveries. The tide book should be consulted as there are usually very low tides during the time of the peak Chinook die off.

Equipment:

River boat: required to access river banks and the lake. The best type of vessel would be an aluminum, flat bottom "jet boat." This type, specifically an 18 foot Raider aluminum river boat powered by a 115 hp outboard motor equipped with a jet drive lower end instead of a prop unit, has been used quite successfully on the Wannock for a number of years now. Propellor driven skiffs are not suitable for the task.

- Gaff hooks, machetes and fish pughs
- Flexible metric measuring tapes
- Good waterproof notebooks and scale books
- Chest waders with felt soles, warm winter rain gear and life jackets
- Portable VHF radio for communications and safety
- 12 guage shotgun for bear protection.

Safety

Working on or around swift water in extreme north coast weather conditions in Grizzly Bear habitat can present a number of safety issues which the dead pitch crew should be aware of. Personal safety should be given the highest priority. Crew and especially new or inexperienced crew should dedicate time at the start of the project to a Safety Meeting. Crew members should always work in pairs or with a team.

Swift water: Wearing chest waders in a boat or in swift water can be dangerous. Approved Personal Flotation Devices (PFD) should be worn at all times. Fast moving water, even less than waist deep, can be deceptively dangerous. Training in a Swiftwater Rescue Technician course would be a valuable asset to crew safety.

Boat Safety: There is no substitute for experience when using boats on a river. Depending on river levels the Wannock can be a relatively easy river to work on with a jet boat. However at very low levels (below 7 ft. on the guage) there are numerous rocks which can cause damage to a small boat. Navigating through the shallow spots, rocks and rapids safely will come with experience. Several persons on the team should be able to operate the jet boat competently. Instruction from more experienced boat operators would prove helpful here. The boat being used should receive regular maintenance to ensure reliability. Some maintenance procedures for an outboard jet unit should include:

- a) keep gas clean and check daily for water by draining gas filter.
- b) check lube oil daily on oil injected outboards
- c) grease lower jet unit (1 fitting) daily, other fittings (steering & tilt pin) as required
- d) inspect bilge pump or self bailing system daily.

The most dangerous situation for a river boat is to get pinned broadside against rocks or a log jam in fast moving water. Paying attention to potential hazards and learning to "read" the river will enable crew to navigate the Wannock safely.

Guns, Bears and Radios: Grizzly bear encounters are not uncommon on the Wannock River. Grizzlies, especially sows with cubs, can be unpredictable and inadvertently startling them can very quickly turn into a dangerous situation. Both grizzlies and black bears can move, charge or run much faster than most people would expect. New crewmembers would benefit from a Bear Awareness and Gun Safety Course. Most experienced stream walkers carry 12 guage shotguns utilizing rifled slugs for ammunition. Some also carry bear spray. Crew should work in teams and should never be working alone along the riverbanks. Making noise while hiking the stream will make bears aware of your presence. Gun safety is important and crew members should not be carrying them until they can demonstrate their competence. It can be a matter of debate but many people prefer to carry their pump shotguns loaded but without a shell in the chamber. In order to fire the weapon it has to be pumped first. This way you don't have to fumble with the safety and if there is no shell chambered the gun cannot go off accidentally if a crew member falls or forgets to engage the safety lock. When a bear is encountered in close quarters - one quick pump and the weapon is ready to fire. When the situation is over and the crew feel confident that the bear has gone, then the guns should be checked and made safe again before carrying on. Any bear within 25 metres from you should be considered very dangerous.

Radio Communication can be an asset to a safer working environment. On the Wannock we usually carry a handheld marine VHF radio tuned to channel 6 (156.300 MHz) which can keep in touch with anyone in Oweekeno Village. The dead pitch crew should be familiar with the operation of the radio and know who to contact in case of an emergency. If the crew has to venture down into Rivers Inlet or up into Owikeno Lake, someone in Oweekeno Village should be contacted and informed as to destination and expected return time. In late fall the weather can be miserable to say the least and good protective clothing should be worn. It would be advantageous for someone in the crew to have first aid training and also be alert to conditions which could bring on hypothermia as well as how to treat hypothermia. A first aid kit should be part of the boat's equipment.

Daily Procedures for the Wannock River Dead Pitch.

Assuming that there are a minimum of 2 crew members

08:00 meet at the village dock. After consulting the tide book it should be decided whether or not to survey the lower (tidal) portion of the river. If the tide is lowest earlier in the morning then starting earlier may be appropriate although it is still dark around 07:00.

Check to make sure crew has all the necessary equipment.

- | | |
|---------------------|---|
| ✓ Lifejackets (PFD) | ✓ 2 metre flexible measuring tape |
| ✓ Chest waders | ✓ Scale books and tweezers |
| ✓ Gaff | ✓ Waterproof notebook and VHF radio |
| ✓ Machete | ✓ Bear protection (gun - bear spray etc.) |

The entire river (both banks) should be surveyed each day. The areas around the islands at the river mouth and the gravel bar should be checked at as low a tide as possible to maximize Chinook recoveries. These areas are best covered on foot at low tide. We usually make a sweep of the lower river at a higher tidal level as well to see if any Chinook floaters can be found.

The South shore from Nicknaquet Creek up to a point about opposite the village dock is best surveyed using the jet boat. From the village float to the upper range of the tidal influence spot checks by boat will work on any tide. The area further up from there will have to be either walked or spot checks made by boat depending on the river level.

One of the problems encountered when working close in to the shore with the jet boat is sucking up moss or grass into the jet unit rendering the boat almost powerless. This can be a problem in faster moving water where the boat doesn't have enough power to move forward upstream against the current, especially if there are rocks and rapids around. One solution is to tilt the motor and clean off the bottom of the jet unit before leaving the river bank and heading out into the mainstream or if necessary clean it while drifting down in deeper water. Another trick is to shut the motor off (if it is safe to do so) as soon as you feel you have accumulated some moss or grass as sometimes the debris will just fall off the jet unit.

Depending on the river levels there are not too many places on the south shore of the upper river where the jet boat can be beached. So walking is necessary for carcass retrieval. There is a spot just below the spring pool where a small tributary enters the Wannock. There is back eddy here and this is safe place to beach the boat while hiking down stream. Chinook often swim into calmer waters like this and die after spawning. The spring pool itself should be surveyed both by boat and on foot, again depending on river levels.

That portion of the river above the top rapids is a wider and slower moving part of the system and some Chinook carcasses have been found here. (usually on the south side)

The North shore from the village float up to the top end of the village can be surveyed on foot at the lower tides and by jet boat when the tide is high. From a point just at the upper end of the village to the spring pool the shore cannot be accessed readily by the jet boat and should be walked when the lake level gauge is reading 8 ft. or lower. There are numerous rocks and reefs well out into the river on this side.

Estuary and gravel bar The tidal flats at the river mouth, including the gravel bar, the slough and the area around the islands should be checked at as low a tide as possible each day. During peak carcass deposition (usually in mid-November) additional effort is to be made to count carcasses in the estuary and gravel bar during the extremely low tides, which at that time of year occur in early evening. Flashlights and extra crew are needed to maximize carcass recovery. The purpose of this additional effort is to assess the effectiveness of carcass recovery in the estuary at low tide; this will provide useful information for future mark-recapture studies. To work the gravel bar the team should consist of 5 people - 4 walking the perimeter and inside of the bar with one person operating the boat to pick up all carcasses found. They can be recorded and sampled the next morning in daylight. Crew should stay together for safety reasons after dark.

Chinook Carcass counts, field notes and bio sampling.

When checking Chinook carcasses, the following observations should be made and recorded in your field notebook for each Chinook:

- ✓ Check the fish to determine that is in fact a Chinook. Each fish to be numbered in report.
- ✓ Incise carcass to determine sex. Use **M** for male and **F** for female in your notes and report.
- ✓ Check for and note operculum punches, fin clips or tags. Collect tags and make note of any tag numbers.
- ✓ Measure the POH (post orbital to hypural pate) length, girth and adipose fin length in millimetres.
- ✓ Scale samples - 10 scale samples are to be collected from each of 400 fish. (or more if possible) Scales are to be collected in an unbiased manner so that samples collected are representative of the entire run.
- ✓ Take any bio samples as may be required. Keep all samples and scales relevant to fish # in notes.
- ✓ Estimate egg retention in females. (percentage)
- ✓ Note any other pertinent observations about the fish, general condition or abnormalities such as deformed jaw, fishing gear in mouth, scars, killed by predators etc.
- ✓ Note area in which was found. See map. N refers to North bank and S is the South. Area 1 is from Medowse Creek to the top rapids above the spring pool. Area 2 is from the top rapids downstream to the creek at the village. Area 3 is from the village creek to Katit Creek. Area 4 starts at Katit Creek and encompasses the lower flats and estuary. Recoveries from the gravel bar should be noted as GB. Chinook found in Rivers Inlet will be noted as inlet and any Chinook recovered above Medowse Creek will be coded "lake".
- ✓ After sampling cut the nose off the carcass before pitching the fish up the bank. This ensures that the fish will not be sampled again. Simply cutting the fish in half is not acceptable as we do recover many Chinook that are heads only. (noted as HO in field notes) The snout is usually the last part of the fish to deteriorate so heads found toward the end of the dead pitch in poor condition can be readily identified as to whether or not they have been counted if the snout is cut off.
- ✓ In field note book record these basic environmental and biological observations:
 1. Date; month, day, year - write the month to avoid confusion over a numbered date.
 2. Weather: eg. overcast, rain, wind NE 50 -60 etc.
 3. River/lake level - in feet & tenths of feet as recorded on staff guage at top of river.
 4. Water temperature to be taken in the spring pool.
 5. Air temperature.
 6. Secchi depth at spring pool in centimetres.
 7. Areas checked today - use map codes N2, S4 etc. Note any areas not covered and why.
 8. Note information on other salmon species as well as abundance of bears, eagles and seals.

Deadpitch Report:

All data is to be input electronically in Excel or Word format and backed up! A report is to be prepared in Word format similar to that produced previously and should include the following:

- A general commentary on the program.
- An estimate of total Chinook escapement to the Wannock River, including a detailed description of what factors were taken into account in deriving this estimate.
- A compilation of all environmental data, as well as daily Chinook carcass counts.
- Commentary on abundance of other salmon species.
- Commentary on predator abundance.

See pages showing examples of forms used to compile data.

This report, as well as all raw data sheets and scale books, are to be forwarded to the scientific authority upon completion of the project.

