

RIVERS SMITH SALMON ECOSYSTEMS PLANNING SOCIETY
TECHNICAL ADVISORY COMMITTEE MEETING

January 31, 2005

1:00 p.m. to 9:00 p.m.
Pacific Salmon Boardroom
1682 West 7th Ave
Vancouver

Present:

Rick Routledge, Sandy MacLaurin, Karl Wilson, David Stevenson, Allan Kenny, Richard Bussanich, Garry Taccogna, Miranda deVisser

Start meeting 1340

INTRODUCTION

The objective of this meeting was to discuss the past works and accomplishments of 2004, as well as the proposed changes and projects for 2005. The conclusions of this discussion will then be presented to the board at the Annual General Meeting scheduled for February 1, 2005.

REVIEW OF 2004 PROJECT OUTCOMES

Early Marine Ecology for Juvenile Sockeye Salmon in Rivers and Smith Inlets:

Rick Routledge

The Early Marine Ecology study is currently in its third year of operation. From the migration information that has been gathered thus far, data suggests that juvenile sockeye tend to congregate in the inlet where the first abundant food source is encountered. Food availability is critical, and it has been speculated that the nutrient-poor freshwater entering the inlet potentially shuts off subsequent primary productivity. Growth rates can be very rapid in the inlet, and circumstantial evidence suggests that larger fish have a higher survival rate during their transition to salt water. The timing of this freshwater outflow pattern thus influences the marine survival of out-migrating fish. High marine survival rates have historically been absent during periods of high early spring runoff. It is believed that marine survival would increase if smaller outflows occurred during the early spring period.

Consistently warmer and wetter climates have caused a general change in flow patterns. There is now less of a tendency for a significant spring–early summer outflow of water; instead, the flow has become more consistent throughout the season. This has resulted in a stronger, more even freshwater presence within the inlet during the time sockeye smolts are migrating.

Sediment cores taken from Wyclees Lagoon and Owikeno Lake have been used to analyze the historical levels of marine-derived nutrients (and hence sockeye population levels). Marine derived nutrient levels were expected to drop dramatically during the onset of the commercial fishery; however, no significant changes were measured until the 1930s. Changes in lake ecology have been attributed to the declines noted around the 1930s. As the measured marine-derived nutrients began to decline, simultaneous

declines in the key food species for sockeye were also noted. Changes in prey morphology indicate a change in predation pressures.

The top priority for this project is to begin to understand the dynamics of the phytoplankton blooms during the the spring migration, in addition to continuing with the current sampling. A crude estimate of fish timing and numbers, as well as detailed water chemistry and phytoplankton information is needed.

In an attempt to nutrify the outflow waters into the inlet, the idea of lake fertilization was discussed. This idea was quickly abandoned as it was mentioned that very little of the nutrients travel out of the lake; most have been consumed by the time the outflow reaches the inlet. It was also mentioned that food-limitation must be present in the lake in order for nitrification to have any effect. The reservoir of nutrients at the bottom of the lake is slowly being depleted.

The following cost-reducing efforts were proposed: ceasing fish sampling and reducing the number of sampling sites. Ceasing fish sampling was not recommended as run timings do not always remain consistent with previous years. Also, focusing solely on plankton studies does not account for any top-down predator interactions. It is believed that top-down interactions were an important mechanism in the crash during the early 1990s. Reducing the number of sampling sites would save a small amount of money; however, there are many fixed costs that must be taken into account regardless of the number of sites visited. The boat, transportation costs and the net are a few of these costs. The potential for securing additional funding sources (outside of PSF funds) was discussed, and it was decided that additional sources should be researched.

This project presents the potential to produce an improved forecast for returns, which would be of value for fishery management and recovery planning. There is a strong suspicion that there is an element of climate change that cannot be controlled; however, it may lead to an explanation about the mechanisms driving these stocks and help in the effective management of these stocks in the future.

It was concluded that the continuation of this project be recommended at the Annual General Meeting. Additional funding sources will be researched to account for this year's reduced PSF budget this year.

***Wannock River Hydroacoustic Enumeration Project Evaluation & Future Direction:
Richard Bussanich***

A complete and independent review of the Wannock River hydroacoustic enumeration project was needed to determine the future direction of this project. Richard Bussanich of LGL Limited Environmental Research Associates, and Donald Degan of Aquacoustics Inc., performed this review and presented a report of conclusions and recommendations for the board to discuss.

The objective of this review was to evaluate the following issues with the current Wannock River hydroacoustic program: species composition, milling behaviour, data processing techniques, local training, and technology options. It was concluded that at this time, the current technologies cannot be used to enumerate adult salmon in the Wannock River. The main problem with the technology is fish exhibiting milling behaviour; accurate separation between fish moving upstream and fish milling is not

possible at this time. Statistical figures do not provide enough precision to be of use in this system.

The characteristics of a good acoustic site were discussed. Uniform coverage, minimal water level variation, non-turbulent flow, gentle slope, and a gradual downstream widening are needed for an effective hydroacoustic evaluation site. The Wannock River has a few of these characteristics; however, the milling behaviour of the fish has rendered the site inefficient for acoustics.

A clear stream index related to fall sockeye fry abundance was discussed as a potential project. Suggestions were made to work up the current available data to determine if a correlation exists.

Genesee Creek Adult Sockeye Enumeration Fence Pilot and the Owikeno Basin Enhancement Evaluation Program
Sandie Maclaurin

The purpose of the Genesee Creek and Owikeno Basin enumeration projects was to collect data in order to evaluate the efficiency of fry augmentation.

Genesee Creek:

The objective of the Genesee Creek enumeration fence was to collect sockeye samples and absolute abundance information. The overall goal of obtaining absolute abundance figures was compromised by the fence installation timing. Due to logistical and communication problems, the fence was installed on September 18 (well past the initial run migration) and operated until October 14, the end of the fall survey program.

The fence, a wooden broomstick fence, was similar to the ones used in Bella Coola. In addition to the fence an electrified parameter fence was installed to protect the equipment from grizzly bears. A total of 46 adults and 76 post-season adults were counted out of the trap box throughout the duration of the evaluation. It should be noted that the goal of obtaining absolute abundances was compromised by the fence installation timing.

A total of 76 otolith samples were collected in order to determine the contribution of hatchery fish in the returning adult population. These otoliths are currently waiting for lab processing. Indications show that the enhanced fry composition could be as much as 35%.

Two other systems were chosen for evaluation, the Inzianna and Amback Rivers. These systems were chosen based on system accessibility, ability to obtain thorough stream walk data, ability to obtain reliable under the curve estimates, and the availability of carcasses in the system. Both the target number of stream walks and sample targets were achieved in each system. These otoliths are also currently waiting for lab processing.

Presently, Fisheries and Oceans has allocated sufficient funds for otolith reading; however, these funds are fiscally restrained. It was suggested that the board re-allocate the DFO funds to fund some of this year's projects, while using the surplus RSSEPS funds to pay for the otolith reading.

Continuation of the Genesee Fence program was not recommended. It was thought that the Fence did not provide a basin-wide estimate; instead, it provided a tributary-specific estimate. These numbers are not useful to the entire basin in question.

It was recommended that the Inzianna and Amback River evaluations continue for another year. Varying conditions between brood years could greatly affect the results, and not provide a complete picture; therefore, additional information is needed to create a more complete data set.

In order to achieve the goal of a cost-effective monitoring program and a reliable indicator of total returns, a combination of the following three projects was discussed: fall fry acoustics, ocean test fishery, and a mark recapture project for the whole system. All parties agreed that these projects should be considered for the upcoming year. A mark recapture project was discussed. If the run is 150,000 sockeye, you would need to capture and mark 3,000 fish during the 3 weeks at the peak of the run. A tangle net could be used for capturing, marking and releasing the fish. It is estimated that the cost for 2 people for 3 weeks would be from \$45,000 to \$60,000. Bob suggested that in order to monitor abundance we would need in addition to clear stream estimates, a Fall fry acoustic program, and a test fishery in the Inlet. Assessment programs need to match treatments and so far except for the egg-take program we are not doing any treatments. Bob recommended a system wide mark recapture program for 2005. The years 2004 and 2005 offer the best opportunities to estimate the impact of the hatchery program on adult abundance.

Creel Survey Report

It was not recommended that the Creel Survey continue for the following year. It was agreed that the survey is more of a fisheries management tool, and the group felt that the RSSEPS is not in a fisheries management position. Also, the escapement for the Wannock Chinook is unknown, rendering the survey less effective than if escapements were known. All parties agreed that a creel survey had value but it was inappropriate for RSSEPS to continue funding this survey.

It was suggested that we need only measure the angler effort by counting boats in the water at the peak of the season and assume that lodge and non-lodge boats were equal in their catches. We need to avoid what happened in 1999 when only 500 Wannock Chinook returned but 2500 were caught by the sports fishers. Sandie suggested that a mark recapture program for the Wannock Chinook be reconsidered using lodge clients to mark fish.

The meeting was adjourned for supper.

The meeting reconvened at 6:15 p.m.

The following people were in attendance: Alan Kenney, Bruce Burrows, Bob Bocking, Karl Wilson, Gary Taccogna, Sandie MacLaurin, and David Stevenson

The discussion continued on how to best measure adult abundance of sockeye. There were 3 projects suggested. 1) One would be an adult mark recapture program. It would involve using tangle nets to catch 3,000 returning sockeye. It would need to be done for 3 years and the results correlated with the stream walk estimates. 2) In order to get in-season abundance estimates we would need an in-season test fishery. An earlier sounding program was discontinued for lack of funds. It was thought to be a reliable indicator of fish abundance. 3) Fry abundance estimates from the lake would also be useful to correlate with the first 2 projects. It was agreed that it would be necessary to get

the results from Kim Hyatt's work on fry surveys. Discussion continued on the value of increasing the effort into the fry survey.

Action: Karl agreed to follow up by contacting Kim and trying to get past data collected from the fry surveys.

Discussion continued on the dead pitch survey on the Wannock and the Creel survey. Bruce said he would not use the AFS budget to fund the dead pitch again. Gary asked if the Chinook population was a conservation concern since the exploitation rate is only at about 20%. Last year the Creel survey focused on assessing the one rod policy as a means of reducing pressure on the Chinook. It was agreed that both the Creel Survey and the Dead Pitch projects were worthwhile doing but it was not appropriate for RSSEPS to fund them. Sandie pointed out that we have invested money marking Chinook so we need to continue with a concentrated dead pitch count. Perhaps the lodges should take on the cost of the dead pitch as they are already invested in enhancement activities.

Docee Fence Co-management and Capacity Building Project

Karl pointed out that the fence is traditionally a sockeye counting fence and in addition it was funded to increase the involvement of the Gwa'sala Naxwada'xw and to enumerate Coho. One issue is the high travel costs. Gary asked if there was a schedule for the capacity building part of the project. We need to determine how long the GN needs in order to learn how to run the fence. We need to determine the length of the Society's commitment to funding this project. This is an issue between the GN and the DFO Stock Assessment to sort out. Treaty outcomes may be an issue in this discussion. This pilot project was to build some confidence and consistency in the GN crew. There is the problem of how to determine species as the fish cross the fence. Bob suggested that a video camera could provide this information. Gary asked for a multi-year plan to show when the GN can take over the operation of the fence. Discussions need to be initiated between GN and Stock Assessment staff

Expert Advisory Committee

In the last TAC meeting it had been suggested that we form an Expert Advisory Committee to discuss abundance targets for a commercial fishery. Bob pointed out that for an EAC to be worthwhile it would need some data on escapement and marine survival. Bruce expressed the concern that next year the number of returning salmon may result in a commercial fishery. We need to determine what fishing levels we are comfortable with amongst ourselves first. Karl asked how the fishery manager currently decides to initiate a fishery when target escapement numbers are not certain. The abundance target for Owikeno Lake is 1 million; 500,000 is the minimum escapement for Owikeno and commercial fishing may occur at lower levels. The formula used is to triple the clear water estimates. Bruce suggested a test fishery in the Inlet plus a sounding program would be a good way to provide reliable data. It was suggested that we invite Gordie McEachen and or Lyle Enderud to our next TAC meeting instead of forming an EAC. We need fresh water fry Fall data, a mark recapture program, and we need to discuss the decision rules for a commercial fishery. It was agreed that a

Action: Gary will ask Gordie to attend the next TAC meeting.

Action Sandie will talk to Lyle about attending the next TAC meeting.

Action Bruce will do a proposal for a gill net test fishery for Rivers Inlet.

Action Sandie will do a literature search for data on previous test fisheries.

It was suggested by Sandie that we hold our next TAC meeting be held at the Genesee Creek camp in Owikeno Lake. The first of March was suggested as a suitable date. We will need our information on the productive capacity review from Doug before this meeting.

Gary suggested that a Critical Habitat Review was an important priority to determine if the rearing capacity of the rivers and creeks has been impaired. Bruce said that there was some information on critical habitat in the Wuikinuxv Land Use Plan. The issue was raised whether or not we should ask Interfor for a copy of their logging plans to review. Gary suggested that we identify critical habitat first and then make sure the forest companies know about it.

The meeting was adjourned at 9:00 p.m.