

Bill Rublee presentation to the SWOA Board – September 29, 2010

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Science of fish habitat protection

Area of expertise is fish biology, in the past worked primarily conducting fish studies focusing on sockeye and chinook. Now due to government direction for use of Qualified Environmental Professionals has become more involved consultation for development activities and permitting. Has familiarity with Shuswap Lake fish biology due to a 2 year project conducted throughout the Shuswap/Thompson drainage in the mid 1980 assessing impacts of hatchery releases on wild salmon fry.

For transparency, there needs to be more scientific support for habitat sensitivity habitat sensitivity ratings. The assumption seems to be that any change to natural habitat has a negative consequence, but this has not been tested and may in fact not be true. It is well understood that changes to critical habitats will risk production but modification on non-limiting habitats may not have measurable negative consequences. There is a disconnect between the message we are getting on habitat degradation and the current state of salmon runs even though we have increasing numbers of docks, groynes and concrete boat ramps.

Previous studies by DFO (Russel et al 1979) and a consultant report (Stewart et al 1989) indicate high use of rearing Chinook in sandy beach areas and areas which are experiencing anthropogenic activity. Some shoreline modification may not be overly detrimental to overall productivity. Dock and buoy regulations are possible adapted from on research from other aquatic systems. For example, the concern from grounding of floating docks in the marine environment covering eel grass is a valid concern as the activity is associated with daily events from tidal rise and fall. It is difficult to understand how the seasonal grounding of docks in the Shuswap has anywhere near the same level of concern or potential for impact. During the open water rearing period water docks are generally floating and are not creating impedance to rearing fish movements. In addition the concerns for increased risk of predation to out-migrating salmon fry seems to be based at least in part on a study from Lake Washington. Shuswap salmon migration behavior is not such that near shore docks would likely create a situation as seen in Lake Washington.

The role of Shuswap Lake in salmon freshwater life history is largely for rearing. Shore spawning sockeye are found in Shuswap Lake and issues that reduce the quality of this habitat must be avoided. Similarly spawning lake char habitats would be considered critical habitats and require protection. Sockeye salmon rear in near shore area in the spring but are pelagic (mid-lake at depth) for the rest of their year in fresh water. Chinook have an affinity for lake margins but use deeper cooler water off-shore when near shore water temperatures exceed 16 °C. Juvenile chinook salmon are very plastic and opportunistic in their habitat use. Unlike stream rearing, chinook predator protection results largely from aggregation and schooling. Recent Shuswap Chinook stock returns have been increasing, therefore it is understandable to question the effect of minor shoreline modification on rearing habitat productivity..

Shuswap Lake is generally considered to be oligotrophic or nutrient poor with the exception of Salmon Arm which currently is mesotrophic or moderately enriched. This years high return of salmon should provide enrichment for the Shuswap Lake from inputs of nitrates and phosphates from rotting carcasses, generally viewed as a biological bonus.

In regard for habitat sensitivity for char spawning, char do not spawn near the shore so will not be affected by docks – trenching a waterline would create an negative impact but methods such as “pushing” under the lake bed would mitigate this risk.

Protection on the riparian zone is a sound and understood ecological principle, but the need to have the foreshore as a no touch zone may not be necessary. Management of a portion of the riparian area and of the foreshore, will not likely result in fish and fish habitat risks, and would be acceptable to the majority. Conditions such as the requirement for shading on small streams or temperature sensitive watercourses are understandable. The same conditions for a large lake such as Shuswap, to the best of my understanding, have no basis in the scientific literature. It is one of the failings of trying to apply a “one size fits all” to regulations.

People need to understand which activities result in negative impacts to fish and fish habitat, based on recognized scientific reports. Regulations need to be reasonable and make sense based on the best science at hand. Overly onerous regulations that don’t make sense will lead to anarchy.