November 21, 2003

Watershed Talk

Volume VII
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A weekly Aboriginal fisheries newsletter for fisheries representatives and their organizations

Several weeks ago the Vancouver Sun ran an article on PCB transport within aquatic ecosystems. Thank you to Rob Macdonald of the Institute of Ocean Sciences for putting together an article for us regarding this important problem.

CONTAMINANT TRANSPORT BY SALMON

During the past 5 decades, humans have released millions of tonnes of pesticides and industrial organochlorine contaminants to the environment. Many of these contaminants have now been banned or restricted, in large part a result of Canada's Arctic research. Some of the contaminants have long since been degraded or otherwise removed from the environment and one might expect that, provided we stop releasing them to the environment, dilution and degradation would soon put these contaminants out of harm's way. Unfortunately, some of the chemicals are remarkably persistent and nature has a number of powerful concentrating mechanisms an important one being aquatic food webs. The release of semi-volatile chemicals like PCBs (polychlorinated biphenyls) has set in motion a grand global transport scheme involving soils, atmosphere, vegetation and surface water (lakes and oceans). It is this latter reservoir – water – that has caused the greatest concern because many of the organochlorines like to transfer out of water and into fat. The global contamination of surface water together with aquatic foodweb concentrating mechanisms mean that top predators in aquatic systems are especially vulnerable to these contaminants – animals like polar bears, seal and killer whales have all proven to contain high concentrations of fat-soluble contaminants even in remote locations.

Fish, which are usually lower in the foodweb than bears, seals or mammals, are subject to lower contaminant burdens. Indeed, the contamination of fish by globally cycling semi-volatile organochlorine contaminants has been viewed as much less of a concern than the contamination of marine mammals or predatory birds. However, because Pacific salmon feed at about the middle of the marine food web, they accumulate some of these chemicals. Although these relatively low contaminant burdens might pose little risk to individual fish out in the ocean, nature has provided a subtle way in which anadromous fish can put lake ecosystems and their own reproduction at risk. It has simply to do with the power of mass transport – when millions of fish leave the ocean and converge on specific lakes or rivers to spawn and die, they also bring back the contaminants they've collected up while feeding in the ocean. For lakes with exceptionally high fish returns (e.g., 40,000 fish per square km), PCBs supplied by fish may exceed the more common route of input by direct atmospheric deposition to the watershed by a factor of almost 10. To understand how the fish returns and contaminant burdens are linked to one another, we've been collecting sediment cores in lakes distributed throughout BC and Alaska. We have dated these cores and are analyzing them for contaminants and for indicators that reflect the strength of the fish returns. Records like these will allow us to compare and assess the fish contaminant exposure route with the atmospheric exposure route on a wide scale from BC to Alaska

Through evolution, salmon have developed a way to advantage their reproduction – through their carcasses they supply nutrients to nutrient-starved watersheds and this ensures foodwebs rich enough to support the next year's offspring. Pesticides and other industrial contaminants released by human activities have entered this nutrient cycle providing as yet unknown risks to salmon and the ecosystems they support.

What can we do? Presently, we do not have sufficient information to say how big a risk these 'anadromous' contaminants are. If we are able to establish clear links between contaminants in returning fish and effects on lake ecosystems, we may then consider whether remediation is required or possible. But there is a lesson here. When we

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produce and release chemicals like PCBs in megaton quantities, the consequences extend far in space, long in time and often we discover unpleasant surprises. Presently, we seem to be repeating history by releasing large and growing quantities of PBDEs (polybrominated diphenylether flame retardants) which look suspiciously similar to PCBs. Perhaps it is time to consider prevention of a problem that may come to plague us for decades down the road.

For further information contact, Rob Macdonald, Department of Fisheries and Oceans, Institute of Ocean Sciences, PO Box 6000, Sidney BC, V8L 4B2

NEW POSITION FILLED AT THE CSTC

By Margo French

I am a woman of a First Nation with 16 years working experience in the fisheries field and have completed post secondary education at NVIT. I will be interacting closely with each band in regards to managing their own resources. Office work is new to me; so please be patient while I learn to be effective. My future goal is to involve as many youth and elders to participate in the gathering of important data with respect to all resident and anadromous (sea going) fish usage within each community. The resident stocks are by and large not actively managed. CSTC members would like to eventually manage all fisheries and make the information available to the province; this will allow the CSTC to actively manage fisheries within our tribal territories.

Since coming on board, I have had to attend many meetings; it has been overwhelming. I have attended two Upper Fraser Fisheries Conservation Alliance meetings, and these have been very interesting to me because of the proximity to my own watershed. The UFFCA has made a lot of headway toward the implementation and solidification of a strategic framework which includes the following: a DRAFT MOU, DRAFT Vision Statement, and an overall DRAFT Strategic Plan. Collectively we must formalize all these documents within each of the five watershed areas. The CSTC and other UFFCA First Nations must move forward now by formalizing the body. The five watershed areas within the Upper Fraser Conservation Alliance are as follows:

1 Stuart/ Nechako
2 Bowron
3 Blackwater
4 Horsefly
5 Chilcotin

Each community should have input to express their concerns with respect to buy–in and process, training and capacity building, and finally management. These processes must start from the ground up. We must work together and ask more questions to the appropriate governments. There will be an onslaught of community consultations starting in the new year for each community (Jan, Feb, & March). The CSTC is in support of the strategic plan.

In conclusion, I feel this is an important step toward development of a strong First Nations management table, which may allow us, collectively, to have a greater say in regional management issues. I look forward to working with the individual community groups and band members if required to do so.

Over the past number of years, I have had the privilege of working with Margo, a member of the Takla Band and employee of the Carrier Sekani Tribal Council, on a variety of fisheries projects. I would like to congratulate Margo on her new position with the CSTC, wish her luck and welcome her to the Fraser watershed fisheries community.

Jason Yarmish

Upcoming Meetings

January 6&7/04: Fraser Sockeye Longterm Escapement Initiative Workshop #4. Details to follow.

January 23/03: FWAFF Meeting, Kamloops. Details to follow.