



Pacific Fisheries Resource Conservation Council
Conseil pour la conservation des ressources halieutiques du pacifique

23 September 2005

Minister Geoff Regan, PC, MP
Fisheries and Oceans Canada
200 Kent Street, Ottawa Ontario
K1A 0E6

Via courier

Dear Minister Regan:

**Re: Pacific Fisheries Resource Conservation Council information on costs
to acoustically tag Cultus Lake sockeye salmon**

This is further to my letter of September 16th and the earlier request you made of the Pacific Fisheries Resource Conservation Council (PFRCC) to provide you with information on the cost to acoustically tag and monitor Cultus Lake sockeye smolts.

The Pacific Ocean Shelf Tracking Project (POST) is currently the only methodology that might provide real-time and relatively non-intrusive data on the spawning migration of Cultus sockeye. The POST project currently monitors the Cultus sockeye smolt movements from the lake into the ocean and up the Pacific coast (and in some cases the in-lake movements of Cultus sockeye that reside there rather than out-migrating). To follow fish movements the project records signals from high-tech acoustic tags, developed exclusively in Halifax for the project. R&D work is underway by POST on a “sleeper tag” that monitors out-migration movements, then goes into a dormant period (to extend battery life) and that can then be turned on at the time of the return migration to monitor adult migration movements. “Sleeper tags” have been inserted into Sakinaw sockeye, but have yet to be activated. They have not been used yet for Cultus sockeye. If the POST program is expanded and “sleeper tags” are used, data obtained via POST has the *potential* to provide the information needed to more precisely manage Cultus sockeye in the late-run Fraser River sockeye fishery.

In order to gather our information on potential costs we invited Dr. David Welch, chief Scientist of POST to our Council meeting held September 16th. What follows is based, in part, upon that session and is necessarily provisional at this time. In brief, we estimate the cost of running POST for Cultus sockeye to be approximately \$1.3M per year. Information on our cost estimate follows:

Background

- Acoustic tag modifications (i.e. R&D) may be required to ensure there is no “leakage” of the casing material into the fish (tags are surgically implanted) given that for such a program to work the tags will be within the fish with no adverse impacts to the fish for a two year period.
- At this time, only relatively large smolts can be tagged, meaning in the case of the Cultus sockeye that the only suitable smolts for tagging are those raised in a hatchery. The wild smolts are too small to receive the acoustic tags from POST.
- There are surgical costs etc. associated with tag insertion.
- Currently between 100 and 465 Cultus fish have been tagged per year. Only a portion of those will survive to the adult return stage. Accordingly, to make use of the POST project for management purposes we suggest, at this time, that a minimum of 2000 smolts should be tagged.
- To produce 2000 hatchery smolts for tagging, hatchery facilities need to be upgraded (capital improvements) and there will also be higher associated operating costs. We understand that DFO is planning to do this upgrade regardless, so we are not building those costs into the

estimate we provide to you below.

- There are animal care permits and data write-ups required.
- While the ocean arrays (listening devices) needed to detect Cultus sockeye are currently in place there are yearly operational costs associated with the arrays. POST would benefit from a DFO contribution to the total array operational budget if DFO wants to pursue its role in Cultus sockeye management.
- As evidenced by our introductory remarks, POST is in many ways still in a R&D mode with yearly costs in the \$1M range. It might be appropriate for DFO to pick up a portion of those R&D costs if Cultus sockeye data and associated POST advancements are desired.
- Finally, given the sockeye salmon life cycle, including smolt migration, adult ocean growth and return spawning migrations, it will take two years from the time of tagging (first possible tagging would be for the 2006 out-migration) to the time data might be useable. The program would need to be carried out every year in order to have year-by-year data suitable for making fishery management decisions and the earliest that data would be available is 2008.

Cost summary:

- Tags: \$400 x 2000 fish = \$800,000
- Increased hatchery costs = not costed since DFO covering separately
- Surgical and handling costs and POST staff costs: \$60 fish x 2000 = \$120,000
- Animal care permit submissions and technical write-ups = \$40,000
- DFO proportion of total ocean & freshwater array operation costs = \$100,000
- DFO proportion of R&D work = \$200,000
- Database management and analytical and report writing costs = \$40,000

Cost Total: \$1,300,000 per year

One obvious advantage in proceeding with the project, despite its costs, is that it has the potential to allow some fisheries to occur where currently this is not appropriate in a conservation-based fishing approach. Of course, prior to any adoption of such an approach it would be prudent to evaluate the likelihood of success. Such an evaluation would relate not only to the POST methodology but also to fisheries management and the practicality of any necessary changes to allow the fisheries to respond in a timely fashion to POST information. If you are thinking of proceeding I also recommend that DFO undertake further discussions with POST to firm up the costs. We expect that costs will be close to our estimate, provided DFO agrees with the appropriateness of covering a portion of the operational and R&D costs.

I hope you find this useful. Please contact me if you wish any further analysis by the PFRCC on this interesting concept.

Sincerely yours,



Dr. Paul LeBlond
Interim Chairman
Pacific Fisheries Resource Conservation Council

Encl.

Cc: Council Members
Mr. Larry Murray, Deputy Minister, DFO
Mr. Paul Sprout, Regional Director General, DFO Pacific Region
Ms. Mary Hobbs, A/Regional Director Policy Branch, DFO Pacific Region