

Coho CWT Sampling Program Hand- held Equipment Replacement - Canada

Purpose of the Project / Expected Results

The Pacific Salmon Treaty, signed by Canada and the United States in 1985, provides the framework through which the two countries work together to conserve and manage Pacific salmon. Underlying the Pacific Salmon Treaty is the bi-lateral coded-wire tag (CWT) program. This program relies upon bi-lateral standards for:

- tagging and marking Chinook and Coho
- recovery of CWTs from fisheries and escapement
- extraction and reading of CWTs
- data management and data sharing
- analysis

The purpose of this project was to develop training and replace out-dated hand-held electronic CWT detection equipment for recovery of CWTs from Fisheries & Oceans Canada (DFO) Coho escapement programs with the new Northwest Marine Technology Inc. (NMT) T-wand to increase accuracy in sampling of CWTs. T-wands are required in Canadian hatcheries and stock assessment programs to acquire CWTs from escapement for wild indicator programs and double index tag (DIT) programs and as a back-up tool in hatcheries that primarily use R8000 or R9500 tube detectors. Deployment of this new equipment advances the management of Coho fisheries, allowing for increased confidence in Interior Fraser Coho escapement estimates and run timing which may allow for increased exploitation on other Pacific Salmon stocks.

This project is the first year of a planned 2 year project. The first year of the project covered the purchase of 15 T-wands, the development and delivery of training, and the deployment of equipment to Coho escapement CWT sampling programs in hatcheries and on spawning grounds. The second year of the project will cover the purchase of additional T-wands for training and deployment in First Nations and DFO research sampling programs.

Project Implementation

Purchasing of T-wands

15 T-wands were purchased for this project. Because of a significant increase in the Canadian-US dollar exchange rate, the PSC Southern Fund grant amount was only sufficient to cover the cost of 12.82 wands. DFO opted to supplement the grant funds to acquire the planned 15 T-wands.

Standard Operating Procedures

DFO standard operating procedures were developed prior to the grant period by Doug Herriott and Erik Grundmann, DFO senior fisheries technicians, after receiving direct training and conducting a T-wand study with Geraldine Vander Haegen, NMT. DFO standard operating procedures are based on the NMT T-Wand User's Guide (<http://www.nmt.us/products/cwt/TWandInstructionsDec2014.pdf>) but differ for quality assurance in two ways:

1. NMT instructs that a single up/down pass across the back of the head is all that is required for Coho and most Chinook but that male Chinook larger than one metre require a up/down pass

across the back of the snout and on both sides of the head. DFO standard operating procedures are to make a single up/down pass across the back of the head and on each side of the head for all fish to reduce potential field errors by ensuring sampling instructions are consistent for all fish.

2. The back of T-Wand sensor head is marked with a large recessed arrow to indicate the side of the wand to use in contact with the fish and the direction and minimum length of the pass. Because this T-wand appears to be reversible and this arrow marking is not a different colour, DFO uses permanent markers to 'colourize' the side of the wand that must be in contact with the fish as a quality control measure.

NMT provides a detection range T-Wand Standard with every wand and instructions to test the T-Wand using the T-Wand Standard, prior to sampling to ensure the wand is operating correctly. DFO provided feedback to NMT that the standard did not provide consistent feedback, using NMT instructions for its use. As a result, in December 2014, NMT modified their instructions for use of the T-wand standard. This modification will improve confidence and use of the wand throughout Canada and US sampling programs.

Development of Training Curriculum

The DFO T-wand training curriculum was developed by Doug Herriott and Erik Grundmann. The training has the following 4 components:

1. Instructional – Instructor provides specific direction and demonstration on use of the T-wand and T-wand standard
2. Hands-on – Sampler is provided T-wand to use in passing the T-wand over the the T-Wand standard and over whole Chinook or Coho, with direct support from instructor
3. Testing – Sampler is required to successfully use T-Wand standard and successfully detect CWTs in sample of tagged and untagged Chinook or Coho
4. Handout – DFO standard operating procedures is provided to samplers and laminated copy is provided to be kept in T-Wand case.

Training & Deployment of Equipment to Regional Programs

The training and deployment of the new equipment was performed by Doug Herriott and Erik Grundmann in August and September at Puntledge River Hatchery and the Pacific Biological Station in Nanaimo, BC. Fifteen DFO personnel were trained in total, representing Puntledge River Hatchery, Robertson Creek Hatchery, Quinsam River Hatchery, Big Qualicum River Hatchery and South Coast Regional stock assessment staff.

Expenditures

This project was over-budget by approximately \$7,500 Can. The PSC Southern Fund grant amount was only sufficient to cover the cost of 12.82 wands because of a significant increase in the Canadian-US dollar exchange rate. DFO opted to supplement the grant funds with an additional \$7,528.56 in-kind to acquire the planned 15 T-wands.

DIRECT COSTS				
Category	Item	Planned Cost	Actual Cost	Variance
Site / Project Costs	Travel	2,000.00	2,019.41	-19.41
Administrative Costs	Shipping, Customs	1,000.00	261.12	738.88
Capital Costs / Assets	12.82 T-Wands	43,500.00	44,219.47	-719.47
Total		46,500.00	46,500.00	0

DFO IN-KIND				
Category	Item	Planned Cost	Actual Cost	Variance
Labour	Wages & Salaries	19,200.00	19,200.00	0
Site / Project Costs	Small Tools & Equipment	500.00	500.00	0
Small Tools & Equipment	Site Supplies & Materials	500.00	500.00	0
Capital Costs / Assets	2.18 T-Wands	0	7428.56	- 7,528.56
Total		\$20,200.00	20,200.00	- 7,528.56

GRAND TOTAL		\$66,700.00	74,228.56	- 7,528.56
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Discussion

This project provided an opportunity for DFO to replace outdated equipment and provide feedback to the manufacturer and other agencies. The project deliverables were met, as 15 wands were purchased, training was provided, and the T-Wands were deployed in 2014 for DFO Coho escapement programs.

A second year of funding for this project is desirable to replace outdated equipment in DFO research programs and to expand sampling in First Nations catch monitoring programs.

Project Evaluation

1. Did the intended activities take place within scope, within budget?

All intended activities took place as planned, within scope. This project was over-budget by approximately \$7,500 Can. because of a significant increase in the Canadian-US dollar exchange rate. The PSC Southern Fund grant amount was only sufficient to cover the cost of 12.82 wands. DFO opted to supplement the grant funds with an additional \$7,528.56 in-kind to acquire the planned 15 T-wands.

2. *Were the resources allocated in the most efficient and effective manner, or given the results would a different allocation have been more appropriate, and if so will be considered for any potential future projects as applicable?*

The resources were allocated efficiently and effectively. Shipping costs were over-estimated and funds were re-allocated to the purchase of T-wands.

3. *Were the milestones achieved?*

Yes.

4. *Were the deliverables of the project delivered?*

Yes.

5. *Did the collaboration achieve its purpose?*

Yes.

6. *Were there any difficulties encountered within the performance of the project and if so, how were they managed to achieve resolution?*

No.