

Fraser Salmon & Watersheds Program



Fraser Basin Council



2009/10 FINAL REPORT

FSWP File Number*	Project # 07350-35/FSWP 09 D SIFM 93
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* Please use the FSWP File Number provided in previous FSWP project correspondence.

1. Project Information

1.1. Project Title

System-wide DIDSON estimation of sockeye salmon escapement in the Quesnel River system

1.2. Proponent's Legal Name

Upper Fraser Fisheries Conservation Alliance

1.3. Project Location

Quesnel River: 1 kilometre downstream from UNBC Quesnel River Research Centre

1.4. Contact for this report

Name: Pete Nicklin

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1.5 Funding Amount

Original Approved Grant Amount:	Total FSWP Expenditures:	Final Invoice Amount:	Final Non-FSWP leveraging, including cash and in-kind:
\$114,890.40	\$114,890.40	\$22,890.40	\$275,945.69

2. Project Summary

Please provide a single paragraph describing your project, its objectives, and the results. As this summary may be used in program communications, clearly state the issue(s) that were addressed and avoid overly technical descriptions. Maximum 300 words.

The Quesnel River DIDSON project assessed the feasibility of using DIDSON technology in the Quesnel River to enumerate the total sockeye escapement to the Quesnel Lake system in 2009. The objectives included: DIDSON site selection in the Quesnel River, installation/operation of two DIDSON systems throughout the sockeye migration period, generation of a sockeye escapement estimate from the project with comparison to upstream spawning ground escapement estimation, and the establishment of a collaborative capacity building/transfer relationship between project partners. The Quesnel DIDSON project estimated $157,541 \pm 14,477$ (9.5%) sockeye past the site, compared to the *DFO Near Final Estimate* of 149,467 sockeye escapement to the Quesnel Lake area. As a feasibility study all project objectives were met, and the project partners considered the project a success.

OPTIONAL Please give a short statement (up to 100 words) of the most compelling activity or outcome from your project.

As a feasibility study, the Quesnel River DIDSON project met all Project Objectives, and was a successful collaborative partnership between the UFFCA, NSTC and DFO from an administrative and operational perspective. All project partners indicated the experience resulting from the implementation and completion of this project has provided an excellent foundation from which to base future technical project partnerships.

3. Final Project Results and Effectiveness

3.1 Copy EXPECTED OUTCOMES from your detailed proposal and insert into this section. Add additional rows as needed. Then please list the FINAL OUTCOMES (the tangible end products resulting from this work) associated with expected outcome.

If FINAL OUTCOMES differ from the original EXPECTED OUTCOMES please describe why, and the implications for the project.

EXPECTED OUTCOMES	FINAL OUTCOMES
1. To establish a suitable site location for the proposed DIDSON project, which if proven successful, would be utilized as the standardized location for DIDSON deployment in future years.	The Project met this Outcome. A suitable DIDSON site location was established. The Right Bank DIDSON site will be moved slightly downstream (approximately 10 metres) to improve the hydroacoustic profile for future projects.
2. To generate a precise estimate of total escapement for the Quesnel Lake sockeye Conservation Unit, and compare to upstream spawning ground enumeration estimates.	The Project met this Outcome. The final DIDSON estimated sockeye escapement to the Quesnel Lake CU was $157,541 \pm 14,477$ (9.5%). This is comparable to a DFO <i>Near Final Estimate</i> of 149,467 sockeye escapement to the Quesnel Lake area.
3. To develop a multi-partner technical DIDSON team experienced in all aspects of DIDSON operations and analysis through the development and transfer of capacity to First Nations field technicians.	The Project met this Outcome. NSTC fisheries technicians worked with the DFO Project Supervisor throughout the field operations. UFFCA and DFO Biologists completed site selection, set-up and operational support. DFO provided a technical workshop summarizing analysis of results for UFFCA, NSTC and DFO.
4. To generate a final report detailing the project's technical results, and description of the multi-partner capacity building and sharing framework, lessons learned and recommendations.	The Project met this Outcome. A final report describing all technical results and discussion of Project Objectives was submitted with this template report.
5. To improve stock abundance estimation in the Quesnel system by improving the accuracy of the escapement estimate as well as providing greater resolution between populations, specifically the lakeshore spawning component.	The Project generally met this Outcome. The Quesnel River DIDSON project should be compared to the sum of upstream high precision estimates for Mitchell and Horsefly Rivers and a low precision estimate in Quesnel Lake and tributaries. In 2009, only the Mitchell River estimate was high precision.

3.2 Please evaluate the EFFECTIVENESS of your project in achieving Project Objectives. Please identify the indicators you have used to measure the effectiveness of your project. Please include any notable successes or challenges.

In general the Quesnel River DIDSON project was very effective in achieving the Project Objectives. The indicators used to measure the effectiveness were the Project Objectives as outlined in the final report.

1. DIDSON site selection: Identification and utilization of the best possible DIDSON field site for producing a total Quesnel Lake system sockeye escapement estimate in 2009.
2. Installation and operation of 2 DIDSON systems (one on each river bank, directly opposite) for the entire sockeye migration period, including on-site visual counts.
3. Generation of a total 2009 Quesnel Lake system (Quesnel Lake sockeye Conservation Unit) sockeye escapement estimate, and comparison to the upstream estimates of spawning escapement.
4. Establishment of a capacity-sharing relationship between the UFFCA, NSTC and DFO providing experience for First Nations fisheries technicians on all aspects of a DIDSON project, from concept to completion phases.

All Project Objectives were achieved, although Objective 3 was somewhat constrained by the inability to compare the Quesnel DIDSON project results to a combined cumulative estimate of high precision upstream estimates in Mitchell and Horsefly Rivers and a low precision escapement estimate in the Quesnel Lake area. The Horsefly River mark & recapture project was cancelled due to the much lower than expected Fraser sockeye return and overall funding pressures, and replaced with a low precision visual estimate. For this reason the Quesnel River DIDSON project is considered a feasibility study rather than a proven escapement estimate. As stated in the previous section, future Quesnel River DIDSON projects should be compared to simultaneous upstream high precision escapement estimates in the 2 of the 3 main spawning components (Horsefly and Mitchell rivers), along with a low precision estimate for the Quesnel Lake spawning component.

3.3 REQUIRED: attach all DOCUMENTATION of Final Outcomes, and LIST attachments here. These may include technical reports, maps, photos, evidence of communications, lists of meeting participants, etc.

A final report was completed and submitted with this report. The final report documented a complete description of the Project, Results, analysis and discussion of the Project Objectives, and a presentation developed and delivered at the Fraser Watershed Joint Technical Forum/UFFCA meetings in March 2010. The report included a stand-alone technical report authored by DFO as an Appendix.

3.4 Please describe how the benefits of this project will be sustained and/or be built upon into the future. What are the planned next steps, or recommendations for further work, if applicable?

The Project results indicate the Quesnel River DIDSON site has the potential for providing a precise, accurate and cost-effective method for providing an overall sockeye salmon escapement estimate for the Quesnel Lake Conservation Unit. The next step is to obtain funding for 2010 in order to refine the methods and compare the results to high precision upstream estimates (partial project funding was approved by FSWP in March 2010).

3.5 What are the top three lessons learned from this project that could be useful to communicate to others doing similar work in the Basin?

1. A mechanism for transfer of funding between project partners - particularly to Government agencies such as the Department of Fisheries and Oceans – needs to be developed to facilitate completion of collaborative fisheries projects.
2. Liability issues related to operational field projects need to be fully addressed prior to implementing collaborative field projects.
3. Project success stems from a “can do” attitude and open lines of communication between project partners.