Haida Gwaii Creel Program Equipment Upgrade and Training 2006

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Executive Summary

During 2006, the Haida Fisheries Program developed and tested a digital data entry system in the Haida Fisheries Creel Survey in Areas 1 and 2W. LGL Limited, who originally designed the Haida Gwaii Creel Survey, designed digital interface software for personal digital assistants (PDAs). Haida Fisheries Creel Monitors were trained in their use and then commenced the season recording all creel interview data on both traditional paper format and digitally via PDAs. Data collected via the traditional paper method was used for analysis of catch for 2006 creel reports to maintain consistency with previous years. Data collected via the PDAs was used to assess the functionality of the digital interface software. Programming changes were made to the software throughout the season to improve its operability and functionality. The final version of the digital interface was completed after the 2006 seasons test and prepared for use in the 2007 Haida Fisheries Creel season. The new digital interface system is expected to increase efficiency by eliminating the paper to digital data entry step and allow for faster data transfer times allowing for improved inseason Haida Gwaii Creel reporting.

Introduction

Many of the chinook and coho stocks returning to British Columbia, Washington, and Oregon pass by Haida Gwaii (the Queen Charlotte Islands) during their return migration to their natal streams. As they pass the islands, these fish are targeted by both commercial and recreational fisheries. Commercial catch is monitored by DFO through a program of over flights, landing slips, log books, and phone in hails. Since 1995, the Haida Fisheries Program (HFP) has monitored the recreational fishery in Area 1 and 2W through a creel monitoring program designed by LGL Environmental Research Associates Ltd that provides both catch and release estimates for target species.

In recent years, the North Coast Stock Assessment Division of Fisheries and Oceans Canada, has utilized the Haida Gwaii Creel Program as an in-season indicator of salmon abundance for management of commercial fisheries. Catch and effort data collected during the first half of the season (June to mid July) in Area 1 is currently forwarded to North Coast Stock Assessment to provide estimates of both overall recreational catch and Skeena chinook and coho stock strength. In addition, Haida Fisheries has been working with North Coast Stock Assessment Biologists to collect scales, DNA samples, and adipose fin clip rates to assist in identification of passing stocks and their migratory timing past Langara Island.

Haida Gwaii creel data has been traditionally collected on paper data sheets. Currently, it is difficult to transfer hard-copy data sheets from isolated field camps, key the data into electronic databases, error-check the databases, run the analyses programs and prepare a report in a timeframe that allows for in-season management decision to be made. In 2006, The HFP received Northern Fund funding from the Pacific Salmon Commission to develop and purchase digital creel data interface software, and hardware (personal digital assistants (PDAs), and laptops), as well as train Creel Program staff.

The two primary objectives of the project are to:

1. Upgrade equipment and staff training available to the HFP Creel Program in order to increase efficiency.
2. Collect in-season recreational catch and effort data through direct digital capture methods, therefore improving delivery of Area 1 & 2W recreational salmon catch and effort statistics to DFO North Coast Stock Assessment.

Methods

The Haida Fisheries Creel Program was initially designed by LGL Limited in 1994, reviewed by DFO's Pacific Science Assessment and Review Committee, and implemented beginning in 1995 (G. Searing and R. Bocking, 1997). The HFP has managed the program successfully since then with technical assistance from LGL Limited. All data collected from the program is analyzed by LGL Limited and forwarded to all participating parties, including North Coast Stock Assessment, on a monthly basis from June to September each year.

Prior to the start of the sport fishing season 2006, the HFP purchased and forwarded digital data capture equipment to LGL Limited (Summarized in Table 1). A LGL software developer used Visual CE Professional Edition (By Syware Inc.) to program the digital interface for the PDAs. The P.D.A. software was then tested before the start of the season.

Gary Searing of LGL Limited delivered the equipment, with loaded software, to the HFP during the first week of June. Mr. Searing trained the HFP Creel Monitors and staff before crews left for the remote camps to start the season. Training was over 1 day in the office and 3 days in the field. Training at the office consisted of and introduction to the equipment / software and a series of mock interviews with other monitors. Training in the field consisted of creel monitors using the PDAs to collect actual creel data from interviews at dock facilities of various fishing lodges with direct supervision and assessment by Mr. Searing. Once training was complete, creel monitors completed the remainder of the season collecting creel data with both the traditional paper interview sheets and the digital interface via PDAs.

As the season progressed, Peter Katinic of the HFP, visited the camps and HFP Creel Monitors weekly during the crew changeovers. Creel data from the P.D.As. was uploaded to a laptop computer for delivery to Masset via boat and then transfer to LGL Limited. Logistics and functionality of the digital interface software was discussed with the creel monitors. In this manner, problems were identified and then rectified with hardware or programming changes. Creel interface software was upgraded in the field during the season as upgrades became available from LGL limited.

Results

Equipment purchased to upgrade the Haida Gwaii Creel Program is summarized in Table 1. Detailed costs are summarized in Appendix 1. PDAs were deployed in the first week of June 2006. Creel monitors entered creel interview and boat count data using a digital interface on PDAs for the entire 2006 season. Digital creel data was also successfully transferred to LGL Limited via email from Masset.

Table 1. Summary of hardware purchased in 2006.

Quantity	Item Description	Make and Model	Approximate Unit Cost
10	P.D.A.	HP iPAQ rx1955	$250
10	P.D.A. memory card	Vivitar SD 256 MB	$30
6	Portable HDD / card reader	Smart Disk Photo Bank #PB40	$300
3	Laptop computer + software	IBM / Lenovo Z60T	$1,800
2	portable power source	Honda Generator 1100	$1,200
10	P.D.A. waterproof case		$50
3	Laptop case	Pelican 1490	$260

Testing of the digital creel data capture system during the 2006 season resulted in the following operational procedure for collecting and transferring creel data.

1. Charge P.D.A. batteries using Honda generator prior to work day.
2. Commence shift and enter all fishermen interview & boat count data into the digital interface software on the P.D.As.
3. All data is saved to the SD flash memory card within each P.D.A.
4. Upon the completion of a shift, all data on the SD flash memory card (in each P.D.A) is copied to a portable hard drive as a daily back up.
5. During each shift change (once a week), all data from each P.D.A. and the backup hard drives is uploaded to a laptop.
6. Once data is uploaded to the laptop, all data on each P.D.A. is deleted prior to starting of the next week. All data is maintained on the portable hard drives at each camp as a backup.
7. Uploaded data is delivered to the HFP office in Masset on the day of the shift change.
8. The week's worth of data is copied to a hard drive at the Masset office and digital files checked for quality control purposes.
9. Data will then be transferred via email to LGL Limited in Sydney, B.C. for analysis and completion of the monthly Haida Gwaii Creel reports.

Discussion and Conclusion

During the 2006 season, the HFP successfully upgraded Haida Fisheries Program Creel Monitoring equipment and trained staff in equipment operation. The equipment upgrades allow creel monitors to record creel interview and boat count data directly on to P.D.A. via a digital interface designed by LGL Limited. Creel data is then transferred from the field to the office via portable laptop computers and HDDs and then sent to LGL Limited via email.

Recording creel data directly onto PDAs will increases program efficiency. Recording creel data onto paper interview sheets requires that a technician check all data sheets and then transfer the data into a computer database. The new digital system eliminates the need to enter the data into the data base. Instead a technician will be required to check, and organize all digital files and then forward them to LGL Limited where the data will be imported directly into a database for analysis. It is estimated that the digital data entry system will save approximately 2 days a week of technician time that would have been spent transferring data from paper forms to the database. This translates to an increased efficiency of 28-30 person days over the course of a season.

The Haida Gwaii Creel Program Equipment Upgrade and Training project has met its two primary objectives for 2006. It is expected that in-season reporting of recreational catch and effort statistics of Area 1 & 2W will improve as this digital system is proven in the coming years.

Recommendations

1. Implement digital interface as primary data capture system for 2007 season.
2. Follow operational procedures (outlined in results) developed during 2006 season.
3. Once system is in full operation and proven to be effective over long term, revisit strategies to improve efficiency such as investment in satellite upload equipment to allow daily data transfer from remote sites.

Reference

G. Searing and R. Bocking. 1997. Haida Gwaii Creel Survey of Ocean Sport Fisheries in Area 1, 2E, and 2W 1995-1996. Consultant's report prepared for the Haida Fisheries Program by LGL Limited Environmental Research Associates, Sidney, B.C.

Appendix 1. Project Expenditure Report

Project Budget Summary

Name of Project: Haida Gwaii Creel Program Equipment Upgrade and Training

Labour

Wages & Salaries

Position	Proposed Budget Total	Proposed Budget In-Kind & Cash	Proposed Budget PSC Amount	Actual Spent Total	Actual Spent In-Kind & Cash	Actual Spent PSC Amount	PSC Amount Variance
HFP Biologist	1600		**1600**	6177	1305	**4872**	**3272**
sub total	1600	0	**1600**	6177	1305	**4872**	**3272**

Subcontractors & Consultants

LGL Software Developer	6000		**6000**	4703		**4703**	**-1297**
LGL Biologist	13875		**13875**	13885		**13885**	**10**
sub total	19875	0	**19875**	18589	0	**18589**	**-1286**
Total Labour Costs	21475	0	**21475**	24766	1305	**23461**	**1986**

Site / Project Costs

Items / Description	Total	In-Kind & Cash	PSC Amount	Total	In-Kind & Cash	PSC Amount	PSC Variance
Air Fair (Victoria to Masset)	2000		**2000**	708		**708**	**-1292**
Vehicle Rental	360		**360**	383	383	**0**	**-360**
Accommodations	1120		**1120**	460		**460**	**-660**
Meals	525		**525**	394	320	**75**	**-450**
Laptop Pelican Cases	660		**660**	812		**812**	**152**
PDA Waterproof Cases	500		**500**	494		**494**	**-6**
Misc. Equipment	500		**500**	629		**629**	**129**
Total Site / Project Costs	5665	0	**5665**	3880	703	**3177**	**-2488**

Training

	Proposed Budget			Actual Spent			PSC
Name of course	Total	In-Kind & Cash	PSC Amount	Total	In-Kind & Cash	PSC Amount	Amount Variance
PDA Equipment Training	13000	13000		13000	13845	**0**	**0**
Total Training Costs	13000	13000	**0**	13000	13845	**0**	**0**

Overhead / Indirect Costs

Office space; including utilities, etc.	200		**200**	213		**213**	**13**
Insurance	0		**0**	0		**0**	**0**
Office supplies	400		**400**	426		**426**	**26**
Telephone & long Distance	100		**100**	107		**107**	**7**
Photocopies & printing	400		**400**	426		**426**	**26**
Other overhead costs	500		**500**	533		**533**	**33**
Total Overhead Costs	1600	0	**1600**	1704	0	**1704**	**104**

Capital Costs / Assets

			In-Kind &			In-Kind &		PSC
Items / Description	Unit Cost	Total	Cash	PSC Amount	Total	Cash	PSC Amount	Variance
PDA + Software	500	5000		**5000**	3107		**3107**	**-1893**
Laptop + Software	2500	7500		**7500**	5500		**5500**	**-2000**
Portable HDD backups		0		**0**	1869		**1869**	**1869**
Honda Generators		0		**0**	2422		**2422**	**2422**
Total Capital Costs		12500	0	**12500**	12898	0	**12898**	**398**
Project Total Costs		54240	13000	**41240**	56248	15853	**41240**	**0**

Sources of PSC Amount Variance

Labour: # of field visits and office support days for HFP Biologist were underestimated.
HFP Biolgist also completed some tasks originally budgeted for subcontractor.

Project Costs: Savings in airfare. HFP provided portion of accommodation, car, and living expenses through existing creel project.

Capital Cost: Cost of technology reduced significantly between proposal and purchase dates.
Portable HDDs and generators were an oversight in proposed budget.

GST: **Proposed budget did not include GST while PSC project total includes GST.**