



PEACE/WILLISTON  
FISH & WILDLIFE  
COMPENSATION  
PROGRAM

**BChydro** 



# **Peace/Williston Fish and Wildlife Compensation Program Annual Report 2004/05**

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M.D. Wood and B.G. Blackman  
June 2005

The Peace/Williston Fish & Wildlife Compensation Program is a co-operative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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# PEACE /WILLISTON FISH AND WILDLIFE COMPENSATION PROGRAM

## ANNUAL REPORT 2004/05

### STEERING COMMITTEE:

Ted Down (MWLAP) – Chair  
Uli Bergmann (BC Hydro)  
Kevin Conlin (BC Hydro)  
Don Cadden (MWLAP)

### FISH TECHNICAL COMMITTEE

Ted Zimmerman (MWLAP) - Chair  
Gerry Leering/Nick Baccante (MWLAP)  
Alan Laidlaw (BC Hydro)  
Cynthia Powell (BC Hydro)  
Ken Ashley (MWLAP - Technical Advisor)

### WILDLIFE TECHNICAL COMMITTEE

Doug Heard (MWLAP) - Chair  
Rod Backmeyer (MWLAP)  
Alan Chan-McLeod (BC Hydro)  
Ed Hill (BC Hydro)

### FISH BIOLOGISTS:

Brian Blackman (BC Hydro) - Senior Biologist  
Dawn Cowie (BC Hydro)  
Arne Langston (BC Hydro)  
Randy Zemplak (BC Hydro)

### WILDLIFE BIOLOGISTS:

Mari Wood (BC Hydro) - Senior Biologist  
Fraser Corbould (BC Hydro)

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## **PROGRAM ADMINISTRATION**

Membership on the Steering Committee (SC) remained the same as last year, with Ted Down (MWLAP) serving his second as SC chair. Membership on the Wildlife Technical Committee (WTC) changed with John Elliott (MWLAP Ft. St. John) being replaced by Rod Backmeyer. Membership on the Fish Technical Committee (FTC) also changed with Gerry Leering sharing duties with Nick Baccante (MWLAP Ft. St. John). Doug Heard (MWLAP Pr. George) and Ted Zimmerman (MWLAP Pr. George) served their second consecutive years as chairs of the WTC and FTC respectively.

Fish biologists Brian Blackman, Arne Langston, and Randy Zemlak, and wildlife biologists Mari Wood and Fraser Corbould, continued as full-time staff responsible for administering, managing, and conducting program projects and activities. Full-time temporary fish technician Dawn Cowie finished her 3<sup>rd</sup> year with the program, leaving at the end of March 2005.

Administrative activities included preparation of the 2003/04 Annual Report (Blackman and Wood 2004), tracking program expenditures, managing contracts, preparing quarterly reports on program activities, preparing performance review plans, and updating staff safety training. Program staff participated in monthly safety meetings and developed hazard identification and safe work procedures for various program activities. A number of consulting firms and contractors were employed to undertake work on a variety of projects.

## **PROGRAM PLANNING**

The Fish Program (Technical Committee members and staff biologists) held an in-person meeting to discuss technical issues in May. Two additional in-person meetings were held in the fall to discuss the current year's projects and finances, and prepare a budget for 2005/06 for submission to the SC. The Wildlife Program (Technical Committee members and staff biologists) held one conference call in November to discuss 05/06 budget issues, an in-person meeting (also attended by the SC chair and program manager) in January to discuss Wildlife Program issues, and an in-person meeting to discuss project-specific issues in February. The Wildlife technical committee also met separately to discuss budget issues in Nov/Dec through conference calls.

Senior biologists and TC chairs from the Fish and Wildlife programs attended the annual January SC meeting in Prince George to present their respective 2005/06 budgets. All program biologists and some TC members attended the second day of SC meetings. Three presentations were given by staff members on current projects: Pygmy Whitefish (Randy Zemlak), Peace Stone's Sheep (Mari Wood), and Dinosaur Reservoir Habitat Enhancement (Brian Blackman). Informal meetings were held with individuals, consultants, and stakeholder representatives to discuss current and potential projects for the future.

## **PUBLIC CONSULTATION**

### **Program Staff**

Wildlife biologist Mari Wood delivered powerpoint slide presentations on the Ospika Goat Project at the 1<sup>st</sup> BC Mountain Goat Workshop in Prince George (March 2005) and the Peace Stone's Sheep Project at the Wild Sheep Societies' AGM in Kamloops (March 2005). Fish Biologist Brian Blackman gave a presentation at an MSRM workshop held at Tsay Keh Dene.

The PFWWCP co-sponsored the 1<sup>st</sup> BC Mountain Goat Workshop with the Ministry of Water, Land and Air Projection in Victoria, which was held in Prince George, 1-2 March 2005. Proceedings of the workshop were posted to the PFWWCP website: <http://www.bchydro.com/pwcp/>. Program staff coordinated with UNBC

personnel, the first in a series of annual lectures at the university, which will consist of presentations by a guest lecturer and by a UNBC student, whose research was funded through the PFWWCP .

The PFWWCP and specific fish and wildlife projects were discussed through informal meetings and talks with industry representatives, club members, guide outfitters, trappers, contractors, students, tourists, and other government agencies. Detailed project information and technical reports were also discussed with, and disseminated to consultants, biologists, and researchers.

Program biologists also contributed to PFWWCP public consultation activities handled by BC Hydro's Public Affairs department (see below) including drafting and editing project articles for *Natureline* (the PFWWCP's official newsletter), and providing input to the development of the 2004/05 Public Consultation Plan.

### **BC Hydro Public Affairs**

Additional program reports were posted to the PFWWCP website (<http://www.bchydro.com/pwcp/>). Advertisements for the PFWWCP were placed in the 2004/05 Freshwater Fishing Regulations Synopsis, and the 2004/05 Hunting and Trapping Regulations Synopsis. The previously drafted 13<sup>th</sup> issue of *Natureline* was published and disseminated.

# **FISH PROGRAM**

By: Brian Blackman

## 2004/2005 PROJECT LIST

Map	Task #	Project	Location
1	04-01	Project Maintenance (WSC)	Parsnip
2	04-02	Stocking Program	Watershed
	04-03	Report Writing Previous Years	Office
4	04-04	Classroom Kokanee * (DFO)	Watershed
5	04-05	Dinosaur Reservoir Char	Dinosaur
6	04-06	Dinosaur Reservoir Habitat Improvements	Dinosaur
7	04-07	Small Lake Stocking Evaluations	Watershed
	04-08	Pygmy Whitefish Report Publication (UBC)	Office
9	04-09	Ingenika Adult Grayling Overview	Finlay
10	04-10	Bull Trout Index(WLAP)	Finlay/Parsnip
11	04-11	Kokanee Escapement Survey	Watershed
	04-12	Grayling Recovery Plan Workshop (WLAP)	Office
	04-13	Review of Stream Access Problems	Reservoir
	04-14	UNBC Research Lecture Series(UNBC)	UNBC
ENTRENCHMENT FUND PROJECTS			
	04-15	Williston Reservoir Journal Article	Office
16	04-16	Embayment Habitat Characteristics Study	Reservoir
17	04-17	Grayling Fry Distribution Nation River	Parsnip
18	04-18	Pygmy Whitefish Distribution	Parsnip
	04-19	Technical Assistant	Watershed
20	04-20	Grayling Movements using Elemental Signatures (UNBC)	Watershed
	04-21	Freshwater Fishes of BC – Book Publication (HCTF)	Office (UBC)
	04-22	Project Evaluation	Office

(Co-operative projects with:)

DFO Dept of Fisheries and Oceans, Habitat Conservation Trust Fund, Mackenzie Nature Observatory, Mackenzie Fish and Game Association, Canfor Ltd., BC Hydro office at the W.A.C. Bennett Dam  
Lions club of Hudson's Hope and the Hudson's Hope Rod and Gun Club.

UBC University of British Columbia – DR. D. McPhail co author

WLAP Ministry of Water Land and Air Protection - funded by PFWWCP

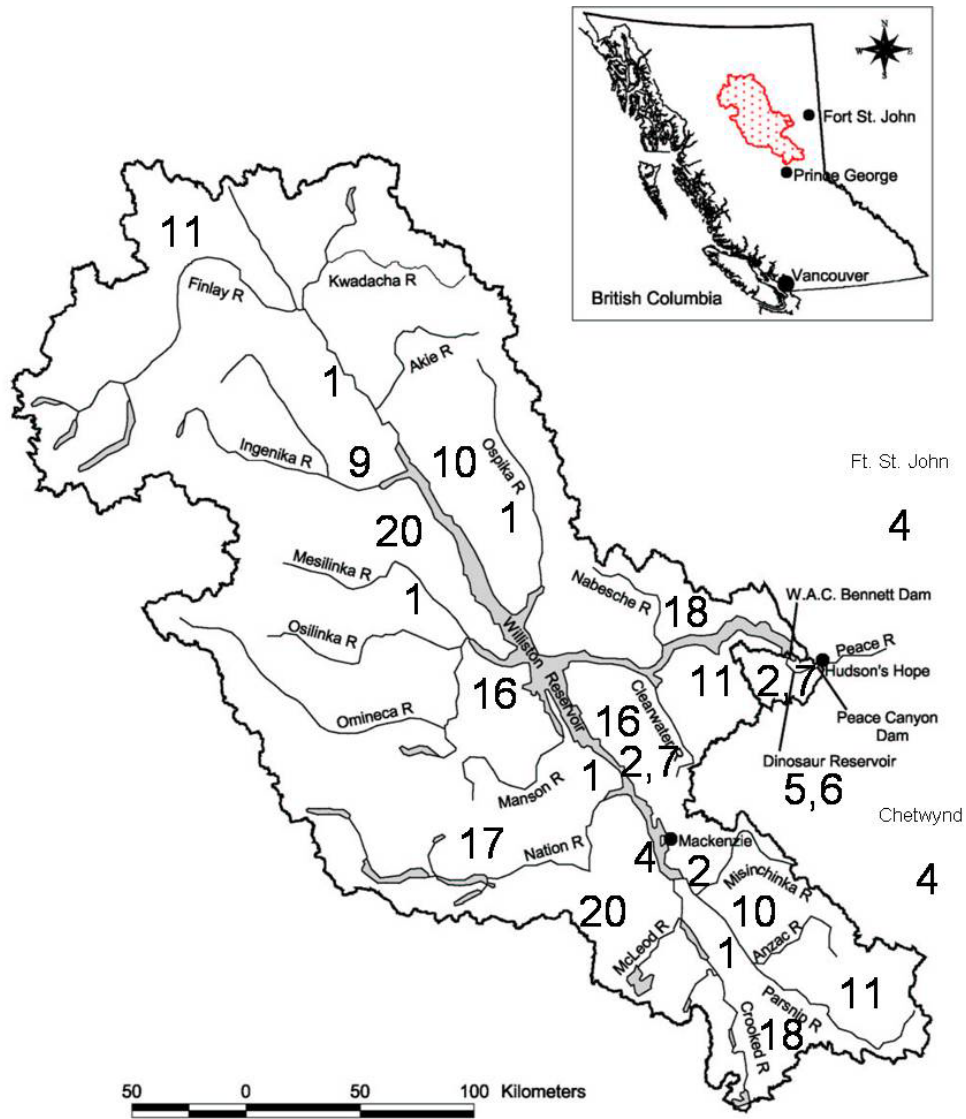
UNBC University of Northern B.C. graduate student funded by PFWWCP

WSC Water survey of Canada

BCH B.C. Hydro

HCTF Habitat Conservation Trust Fund, BC Hydro, Freshwater Fisheries Society





### 2004/2005 Fish Field Project Locations

- |  |  |
|--|--|
| 1. Project Maintenance                     | 10. Bull Trout Indexing                              |
| 2. Stocking Program                        | 11. Kokanee Spawner Dist. Survey                     |
| 4. Classroom Kokanee                       | 16. Embayment Hab. Char. Study                       |
| 5. Dinosaur Reservoir Char Assessments     | 17. Grayling Fry Dis. Nation River                   |
| 6. Dinosaur Reservoir Habitat Improvements | 18. Pygmy Whitefish Distribution                     |
| 7. Small Lake Stocking Evaluations         | 20. Grayling Movements Using<br>Elemental Signatures |
| 9. Grayling Abundance Ingenika River       |  |

# **PROJECT SUMMARY**

## **1. PROJECT MAINTENANCE (#04-01)**

### Objective:

- To provide maintenance of the Dina Creek and Dina Lake #3 inlet spawning habitat improvement projects.
- Costs of temperature sensor maintenance by Water Survey of Canada,
- Collection of temperature data from thermographs placed in the Parsnip River and its tributaries.

2004/05 (Year 8 of ongoing): Habitat complexing was completed on Dina Creek and Dina Creek #3 and ongoing beaver problems were addressed. Project biologists assisted with the Dina Creek Field Day, where local students learn about stream ecology. Benthos baskets were installed in preparation for the 2005 field day. Raw water temperature data for 2004 was received from Water Survey of Canada. The errors from the raw data from 2002-04 has been corrected and analyzed. There were problems at three of the 10 stations in 2004 and several months of data were lost. Two sensors and cables were replaced with funding from WLAP (Ft. St. John). Additional thermographs have been placed at the water survey of Canada stations to document differences in water temperature across the stream profile and at different depths. These thermographs have been downloaded and the analysis of the data has been completed. The thermographs on the Parsnip River tributaries have been pulled and the data incorporated into our stream temperature records database. This project meets the Program Strategic Objectives of monitoring global warming, public awareness and appreciations of northern ecosystems.

## **2. STOCKING PROGRAM (#04-02)**

Objective: To provide funds to cover the costs, to the Freshwater Fisheries Society for the rearing and release of fish for PFWWCP stocked lakes.

2004/05 (Year 16 of ongoing): 10,000 fish were released into four small lakes (Bruce, Dina #3 & #7 and Wright Lakes, and the requests for the 2006 stocking program have been submitted. R. Zemlak attended the Provincial Small Lakes Committee meeting to learn about Provincial Stocking strategies and stains of fish available and provided a presentation on pygmy whitefish. This project meets the Program Strategic Objective of increasing recreational opportunities.

## **3. REPORT WRITING PREVIOUS YEARS (#04-03)**

Objective: To provide staff time and funds for the completion and distributions of reports from previous years and to have them placed on the Program website.

2004/05 (Year 7 of ongoing): Reports completed and incorporated into the report series this year include:

- No. 291 2003 Arctic grayling (*Thymallus arcticus*) fry surveys in the Ingenika River. D.M. Cowie and B.G. Blackman. April 2004. 19 pp plus appendices.
- No. 292 Dinosaur Reservoir and Peace River Volunteer Creel Summary 2003. D. M. Cowie. June 2004. 8 pp.
- No. 294. Peace/Williston Fish and Wildlife Compensation Program Annual Report 2003/04. B.G. Blackman and M.D. Wood. June 2004. 23pp.

- No. 296. 1997 Arctic grayling distribution and habitat use in the Table and Anzac rivers with ancillary information on other associated fish species. B.G. Blackman. October 2004. 34pp plus appendices.
- No. 297 Dinosaur Reservoir 2002 fish collection summary. E.B. Murphy, B.G. Blackman, D.M. Cowie and D. Baccante. November 2004. 19pp plus appendices.
- No. 298. 2003 Dinosaur Reservoir littoral fish population and habitat enhancement assessments. B.G. Blackman, E.B. Murphy and D.M. Cowie. November 2004. 13pp plus appendices
- No. 299 2004 Assessment of habitat improvements in Dinosaur Reservoir. B.G. Blackman, and D.M. Cowie January 2005. 9 pp
- No. 301 Fish stocking assessment of Pete Lake, 2003. R.J. Zemplak and D.M. Cowie. April 2005. 13pp plus appendices.

This project meets the Program Strategic Objective of sharing information.

#### **4. CLASSROOM KOKANEE (#04-04)**

Objective: To coordinate a program to raise kokanee in a classroom environment, as an educational tool, in Mackenzie (3 schools), Hudson's Hope, Chetwynd and Ft. St. John schools.

2004/05 (Year 9 of ongoing): This project was conducted in conjunction with the local School District. The Department of Fisheries and Oceans, Habitat Conservation Trust Fund, Mackenzie Nature Observatory, Mackenzie Fish and Game Association, Canfor Ltd., BC Hydro office at the W.A.C. Bennett Dam, Lions Club of Hudson's Hope, and the Hudson's Hope Rod and Gun Club were all partners in the initiation of the project. In May and June of 2004, kokanee reared in classrooms the previous winter were released into local streams. Art contest winners were selected and prizes awarded. Clearwater Trout Hatchery (Freshwater Fisheries Society) provided 50 kokanee eggs per school this year. Program staff delivered the eggs to the schools in Ft. St. John, Hudson's Hope, Chetwynd and Mackenzie. Local Television coverage of the project was provided in the Ft St John, Dawson Creek and Chetwynd areas, and radio and newspaper coverage was provided in the Mackenzie area. This project meets the Program Strategic Objective of encouraging the public to participate in program activities in increases public awareness of the program and general fisheries issues.

#### **5. DINOSAUR RESERVOIR CHAR ASSESSMENT (#04-05)**

Objective: To gather baseline information on lake trout in Dinosaur Reservoir to provide specific life history information in order to develop species specific management plans for Dinosaur Reservoir.

2004/05 (Year 3 of 3): In 2003, acoustic radio tags were implanted into nine mature (>50 cm) lake trout from Dinosaur Reservoir. These fish were tracked on a monthly basis throughout the year and on a weekly basis during late September and October. The fish remained for the most part near the tailrace of W.A.C. Bennett Dam. No discernible movement pattern was noted that would indicate movements to possible spawning areas. The acoustic tracking was continued in 2004 with the addition of night tracking sessions during the spawning season. The patterns remained the same with almost no movement away from the immediate vicinity of the dam. The night tracking did not show any new movement patterns. There were some brief downstream movements into the canyon Two of the lake trout were not located after mid October but essential none of the tagged lake trout moved out of the reservoir into the Peace River in two years. The volunteer creel, conducted using local anglers provided age samples for another 21 lake trout. The draft report was received on time, has been reviewed and final revisions are under review. This project meets the Program Strategic Objective to evaluate the status of fish and their habitat.

## **6. DINOSAUR RESERVOIR HABITAT IMPROVEMENTS (#04-06)**

Objective: To provide improved habitat in Dinosaur Reservoir through the addition of cover in the form of woody debris, floating platforms and aquatic vegetation.

2004/05 (Year 6 of 7): Two structures from previous years required repairs (cable clamps let go) and additional woody debris was added to all existing structures. Sixteen new structures were installed at new three locations. These new structures (narrow and extending out from shore rather than along the shoreline) were designed to allow for easier sampling by boat electrofisher. It was decided at the spring Technical Session to evaluate the use of the woody debris sites using trap nets, “G” traps and angling rather than boat electrofishing. This assessment found five times greater numbers and biomass of fish at the enhanced sites vs the controls. Bull trout showed the greatest response with 13 captured at the enhanced sites vs 0 at the controls. The final report has been completed, approved and has been added into the report series. This project meets the Program Strategic Objective to undertake and evaluate habitat enhancement projects, as well as evaluate the status of fish and their habitat.

## **7. SMALL LAKE STOCKING EVALUATIONS (#04-07)**

Objective: To evaluate the fish populations in small lakes that PFWWCP stocks and ensure the goals of the stocking program are met. The 2004 objective was to evaluate the fish populations (native and introduced) of Butternut and Wright Lakes and seek out potential enhancement opportunities.

2004/05 (Year 6 of ongoing): The evaluations of Butternut and Wright lakes were completed on schedule. Few fish were captured in Butternut Lake and an additional trip was required to obtain sufficient samples. The report on Butternut has been completed and submitted for comments/approval. The report on Wright lake is in progress. Recommendations to change the “strain” of rainbow trout were made. This project meets the Program Strategic Objective of evaluating enhancement projects.

## **8. PYGMY WHITEFISH REPORT PUBLICATION (#04-08)**

Objective: To produce a second scientific journal report on the two year study of pygmy whitefish in Dina Lake.

2004/05 (Year 2 of 2): The second publication titled “Foraging ecology of pygmy whitefish in a mesotrophic lake ”is being written in conjunction with Mike Stamford (UBC). The intent of this report is to determine food preferences of Pygmy Whitefish with respect to food availability and gill raker counts. The first manuscript has been completed, and Dr. McPhail will do one final review before submission this fall. This project meets the strategic objective of information sharing.

## **9. OVERVIEW OF ADULT GRAYLING RELATIVE ABUNDANCE (INGENIKA RIVER) (#04-09)**

Objective: To determine the distribution and relative abundance of Arctic grayling in the Ingenika River in order to determine if and where in this system adult index sites could be established.

2004/05 (Year 1 of 1): The water of the Ingenika River was cold but very clear, which makes underwater counts more effective. The numbers of all fish species were low with 180 grayling, 23 bull trout and 24 rainbow trout counted in the 17 sites that were surveyed. These sites covered 44.7 km, and were distributed over the 143 km length of the Ingenika River. The grayling population was concentrated (~14/km) in a five km section downstream of an area of difficult passage at km 95, but throughout the rest of the river numbers

averaged less than three grayling per km. The report for this project has been completed, reviewed, amended, and is awaiting final approval. This project meets the Program Strategic Objective to evaluate the status of fish, particularly those that may have been negatively impacted by the reservoir.

## **10. BULL TROUT REDD COUNT INDEXING (#04-10)**

Objective: To monitor and compare bull trout redd counts at strategic index sites for a five year period with the intent of enabling input into management, protection and enhancement plans for Williston Reservoir bull trout.

2004/05 (Year 2 of 5): The ground and aerial counts of the index sites in Davis River were higher than previous years but aerial counts will not be undertaken in the future. Annual variation in conditions (ie turbidity, light, or discharge) and redd location (undercut banks overhanging vegetation) makes sightability from the air inconsistent and there appears to be no consistent relationship between ground and aerial counts. To determine the feasibility of the Misinchinka River as an index site, 15 radio tags were implanted into bull trout spawning in that system. Telemetry flights were conducted to identify spawning locations and aerial and ground based redd counts were conducted. Redds were only identified by the ground surveys. A base station was set up to monitor fish returning to the reservoir after spawning to confirm the fish are adfluvial. A second year of tagging is required because only six tagged spawners could be used to confirm the adfluvial status of the fish. This project meets the Program Strategic Objective to evaluate the status of fish and their habitat.

## **11. KOKANEE SPAWNER DISTRIBUTION SURVEY (#04-11)**

Objective: To determine if a viable hatchery introduced population of kokanee has been established in Williston Reservoir. Document current spawner distribution and identify high use spawning areas

2004/05 (Year 3 of 5): On September 9<sup>th</sup> a kokanee enumeration training session was conducted with Grant Thorpe (15+ years of experience enumerating kokanee in the Columbia Kootenay systems) to ensure consistency and accuracy of the counts. The actual counts were conducted from September 13 to 17 (the 2002 peak spawning period) and distribution was similar to 2002 and 2003. The 234,000 kokanee observed in 2004 was similar to the 199,000 in 2003, but up from 81,000 in 2002. Again the system with the most kokanee was Osilinka with 117,000. This was followed by the Omineca with 70,000 (all in the tributaries, the mainstem was too dirty for observations) and the Ingenika River and its tributaries were up to 35,000. The number of kokanee observed in the streams where they were originally stocked were very low. This project meets the Program Strategic Objective to evaluate the status of fish and their habitat and evaluation of enhancement projects.

## **12. GRAYLING MANAGEMENT RECOVERY PLAN (#04-12)**

Objective: To provide an acceptable framework for a “recovery plan for Arctic grayling in the watershed which is aimed at protecting and enhancing the remaining stocks or habitats and conceivably reintroducing stocks back into areas where they have been extirpated.

2004/05 (Year 2 of ongoing): A workshop was held in December with the objectives to: (a) review the data analysis and conclusions reached by Regional staff regarding the status of grayling; (b) table WLAP’s analysis of various management strategies; (c) review federal and provincial listing criteria ; (d) clarify baseline units for grayling management; and (e) discuss the utility of various modeling approaches to grayling management. This project meets the Program Strategic Objective of contributing to the management of fish and their habitat.

### **13. STREAM ACCESS DEVELOPMENT PLAN (#04-13)**

Objective: The long term objective of this project is to identify possible stream access problems and deal with them by preventing blockages through the placement of structures at the stream mouths and by developing a maintenance schedule. In 2004 the objective was to collect the available fisheries information on potential problem streams as identified in previous surveys.

2004/05 (Year 4 of 4): We searched the Provincial fisheries databases with the assistance of regional staff but were unable to find any new fisheries information on the potential problem streams. This project should meet the Program Strategic Objective to protect or enhance stocks or habitats which have been impacted by the reservoir.

### **14. UNBC RESEARCH LECTURE SERIES (#04-14)**

Objective: This project will support an annual lecture at UNBC to promote research on Northern Aquatic ecosystems as provided in the PFWWCP Legacy Fund Agreement.

2004/05 (Year 3 of ongoing): Dr. Eric Taylor (UBC) presented the lecture “Genetic and faunal analysis of BC freshwater fishes: implications for conservation of a faunal legacy.” The lecture was preceded by a brief overview of the PFWWCP (by D. Cadden) and was followed by a “meet and greet session” with a Program display and where program biologists were available to answer questions. This project meets the Program Strategic Objective of sharing information.

## **04/05 STRATEGIC ENTRENCHMENT FUND PROJECTS**

### **15. WILLISTON RESERVOIR JOURNAL ARTICLE (#04-15)**

Objective: This project supported the preparation of a journal manuscript which combines information from previously conducted projects on reservoir fish populations and limnology for publication in 2004 in a scientific journal.

2004/05 (Year 1 of 1): The manuscript “The limnology of Williston Reservoir: British Columbia’s largest lacustrine ecosystem” authored by John Stockner, Arne Langston, Dale Sebastian and Greg Wilson was published in Water Quality Research Journal of Canada. Volume 40, No. 1 28-50. This project meets the Program Strategic Objective of sharing information.

### **16. EMBAYMENT HABITAT CHARACTERISTIC STUDY (#04-16)**

Objective: The long term objective of this project is to understand the role of embayments in the ecology of Williston Reservoir by examining the status of fish and their habitat within a representative embayment. This year is a scoping exercise intended to identify an embayment suitable for a multi year detailed research project.

2004/05 (Year 1 of 1): Limnological stations were established in Omineca, Manson, Nation, and Clearwater embayments and samples were collected at the stations three times during the summer. The data collected included plankton, water chemistry, oxygen, temperature profiles, and primary productivity. Bathymetric data was also collected for three of the embayments to develop bathymetric maps. The data has been processed and the report is near completion. This project meets the Program Strategic Objective of understanding more about northern reservoirs.

## **17. DISTRIBUTION OF GRAYLING FRY IN THE NATION RIVER (#04-18)**

Objective: (1) To determine the distribution and relative abundance of Arctic grayling fry in Williston Reservoir tributary streams; (2) to map potential spawning areas for possible future study based on the distribution of 0+ grayling; (3) and to compare habitats used with those described in the Table/Anzac studies. Surveys were conducted in the Omineca in 2001, Osilinka in 2002, Ingenika in 2003, and Nation in 2004 and are planned for the Parsnip Tributaries 2005.

2004/05 (Year 1 of 1 Nation River): Seventy-two open electrofishing sites, which covered 8.8 km of shoreline were sampled and 90 Arctic grayling fry were captured from 29 of the sites. Grayling fry were captured in the mainstem Nation River from river km 6.3 (from mouth) to river km ~80 (downstream of the confluence with Sylvester Creek). Philip and Rainbow creeks were the only tributaries grayling fry were captured. The grayling fry were larger than those captured in previous surveys and many of the fry were captured from deeper and higher velocity areas compared to other systems. Fry were also captured in areas that did not have the low velocity, small gravel substrates typical of most grayling spawning areas. However, it was noted that many of the areas with cobble / boulder substrates had very low compaction. Two electrofishing sites were conducted upstream from Tchentlo Lake but no grayling fry were captured. There have been reports from long time local residents that historically there had never been grayling in that area, but since the grayling transplants into Little Calais Lake (projects #92-06 & 93-08) a small number of grayling have been captured in Tchentlo Lake. The draft report has been completed but we are waiting for temperature data from Water Survey Canada. This project meets the Program Strategic Objective of the conservation of species impacted by the reservoir.

## **19. PYGMY WHITEFISH DISTRIBUTION STUDY (#04-19)**

Objective: To determine the distribution and possibly the status of pygmy whitefish within the Williston watershed and ensure longevity of the species. To verify the presence of Pygmy whitefish in a number of small lakes confirming historical data and collection of additional life history information.

2004/05 (Year 2 of 2): There are 18 historical locations of pygmy whitefish within the watershed. In 2003 the most northern distribution in Quentin and Weissener lakes were verified. In 2004 the most eastern distribution in the Peace Reach and the most southern distribution in the Tacheeda Lakes were verified. Samples and basic life information was collected from both locations. An overall distribution report will be completed in 2006 once the western distribution (2005) has been confirmed. This project meets the Program Strategic Objective to evaluate the status of fish and their habitat.

## **20. DISCRIMINATION OF ARCTIC GRAYLING MOVEMENT PATTERNS USING ELEMENTAL SIGNATURES (#04-20)**

Objective: To determine the best method of discriminating grayling habitat utilisation and movement patterns. Water samples and a small number of samples of an abundant resident fish species (sculpin) were analysed to identify unique elemental signatures that correspond to specific locations within tributaries of the Williston reservoir. Year two of this project will utilise the chemical signatures determined to provide the highest spatial and temporal resolution and arctic grayling samples will be collected and analysed.

2004/05 (Year 2 of 2): The analysis of data collected in year one has shown that distinct elemental signatures can be determined for the various streams throughout the watershed and that these signatures are reflected in the bony structures of fish species rearing in those waters. In 2004 ten grayling samples were collected from each of the Table, Anzac, Nation, Omineca, Osilinka, Mesilinka, and Ingenika systems. The analysis showed good resolution between systems. Some grayling moved extensively between adjacent watersheds while others remained in their natal streams. The elemental signatures in both otolith and fin ray samples show

good co relationships with stream water chemistry but scales did not. The report has been completed and is under review. This project meets the Program Strategic Objective of undertaking applied research and partnering.

## **21. FRESHWATER FISHES OF B.C. BOOK (#04-21)**

Objective: To contribute to the production of a book which will be the most up to date and detailed reference for the identification of fish species of British Columbia which should become the standard for all professional biologists field workers and students. Confirm and coordinate contributing partners/agencies involvement/funds, develop terms of reference for publications to three academic presses and award the contract. Work with the authors to complete the book.

2004/05 (Year 1 of 2): Inquiries and formal applications were submitted to potential funding sources. Bridge Coastal and Columbia Basin Compensation Programs declined the opportunity to participate in the project. The Habitat Conservation Trust Funds committed \$30,000 in April 2005. We also have confirmed \$10,000 PFWWCP, \$25,000 BC Hydro, and \$5,000 Freshwater Fisheries Society/MWLAP Environmental Stewardship Biodiversity Branch, for a total of \$70,000 which is sufficient to have the book published. The manuscript is tentatively scheduled for completion by June 2005. Discussions are in progress with the author and various academic presses as to the final format and content. Due to the delay in acquiring adequate funds this project has been delayed. This project addresses the strategic objectives of sharing information and developing partnerships.

## **22. PROJECT EVALUATION OF CARBON CREEK SIDE CHANNEL (04-22)**

Objective: To ensure the achievement of the PFWWCP strategic objectives related to evaluation and accountability by ensuring projects address strategic priorities identified for the Fish Program. This will be achieved by the evaluation of the Carbon Creek Sidechannel Development Project to determine if the project met its objectives, contributed to meeting Program Objectives, and to outline how the process of project development can be improved.

2004/05 (Year 1 of 1): Terms of reference were developed with input from the Technical Committee and a contract was tendered to undertake the evaluation. Program staff provided the contractor with all the pertinent background documents and participated in interviews to provide additional information. The report has been completed and is under review. This project deals specifically with the strategic objectives of project evaluation and accountability.

## **23. FISH RESOURCES CATALOGUE (#00-09 AND # 01-12)**

Objective: To catalogue all available historical data relating to fish resources located in the Williston and Dinosaur watersheds and have it easily accessible through a user friendly PC Program. These records will also include information from the U.B.C. Fish Museum.

2004/05 (Year 5 of 6): This project is nearing completion. Currently, this 450 page interactive CD outlines the geological history of both Williston and Dinosaur Reservoirs and life history information for all 23 fish species known to inhabit both Watersheds. In addition, historical information from the University of British Columbia was incorporated. Dr. J.D. McPhail completed the first draft and submitted it for review in June 2004. Staff and Technical Committee members then reviewed the entire CD and provided comments back to Dr. McPhail in March 2005. The final completion date is anticipated for June 2005. Once completed, the information will be posted on the Program's website. This project meets the Program Strategic Objective of sharing information.



## **FISH PROGRAM – FINANCIAL SUMMARY**

Funds available for the Fish Program in 2004/05 were \$612,892 and expenditures during the fiscal year totalled \$584,096. Projects accounted for \$328,116 or 56% of the expenditures and 49% of staff time. Administration costs were \$157,595, (27%), which was slightly lower than budgeted because \$70,434 in contingency costs were included in the original budget. Planning costs were \$91,887 or 16% of expenditures. Public Consultation costs were \$6,498 (1%), with an additional \$12,272 from the base fund, which would bring the value up to 3% of the program expenditures. This year entrenchment fund projects costs were \$178,819. *(This cost includes staff time/wages, vehicle, and equipment costs.)*

Staff time commitments were 29% (276 days) for Administration, 20% (194 days) for Planning, 2% (16 days) for Public Consultation and 50% (479 days) for Projects (including entrenchment fund projects).

Monies spent from the Entrenchment Fund to date include:

\$165,033 in 00/01

\$295,167 in 01/02 (\$900,167 less the base);

\$114,267 in 02/03 (\$725,146 less the base)

\$309,574 in 03/04 (\$933,559-less the base) ;and

\$150,023 in 04/05 (\$762,915 less the base)

for a total of \$1,034,062.

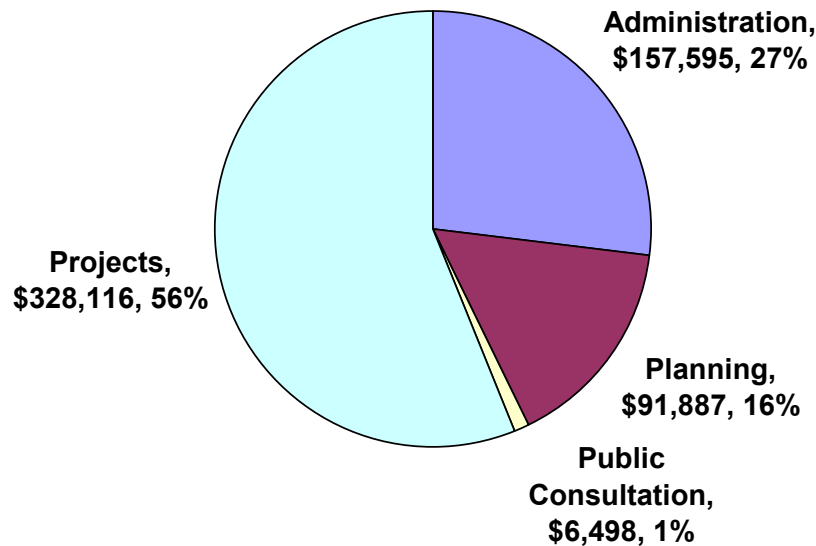


Figure 1. Fish Program expenditures for the 2002/03 fiscal year.

an additional \$22,313 from the overall fund was spent on Public consultation, 55% of which would be Fisheries share or \$12,272, which would bring this task up to 3%

Table 1. Detailed Fish Program budget expenditures for the 2004/2005 fiscal

Cost category	Task	Specific Project	Project Cost	Total Expended	% Expended	% Budgeted
Administration	Base 1			\$157,595	27%	30%
Planning	Base 2			\$91,887	16%	11%
Public Consult'n	Base 3			\$6,498	1%	1%
Projects				\$328,116	56%	58%
	04-01	Project Maintenance		\$23,025		
	04-02	Stocking Program		\$14,734		
	04-03	Report Writing (Previous Years)		\$19,878		
	04-04	Classroom Kokanee		\$9,526		
	04-05	Dinosaur Reservoir Char Assessment		\$19,193		
	04-06	Dinosaur Reservoir Habitat Improvements		\$46,276		
	04-07	Small Lake Stocking Evaluations		\$17,849		
	04-08	Pygmy Whitefish Manuscript #2		\$9,228		
	04-09	Ingenika Adult Grayling Overview		\$48,816		
	04-10	Bull Trout Indexing		\$63,331		
	04-11	Kokanee Spawner Distribution Survey		\$46,039		
	04-12	Grayling Recovery Plan		\$4,063		
	04-13	Review of Stream Access Problems		\$1,950		
	04-14	UNBC Research Lecture Series		\$4,206		
<b>BASE + PROJECTS TOTAL</b>				<b>\$584,096</b>		

Administration: includes staff wages, office rent, MWLAP administrative support, equipment and supplies and vehicle costs

Planning :staff wages, travel, Technical Committee travel, vehicle costs

Public Consultation: staff wages, travel, vehicle costs. BC Hydro activities such as Natureline, web site maintenance etc were \$22331, and come directly from the base fund and are not included here

Project Costs : operational costs, staff wages and travel, equipment/supplies and vehicle costs

#### ENTRENCHMENT FUND PROJECTS

Cost category	Task	Specific Project	Project Cost	Total Expended	% Expended	% Budgeted
	04-15	Williston Reservoir Journal Article		\$5,926		
	04-16	Embayment Habitat Characteristics Study		\$59,677		
	04-17	Grayling Distribution Nation		\$54,341		
	04-18	Pygmy Whitefish Distribution		\$12,506		
	04-19	Technical Assistant	*			
	04-20	Grayling Movements Elemental Signatures		\$37,811		
	04-21	Freshwater Fishes of BC Book Creation		\$2,022		
	04-22	Project Evaluation		\$6,536		
<b>TOTAL ENTRENCHMENT COSTS</b>				<b>\$178,819</b>		

\* Technical Assistant costs \$74,732 were charged to the projects

# **WILDLIFE PROGRAM**

By: Mari D. Wood

## 2004/05 PROJECT LIST

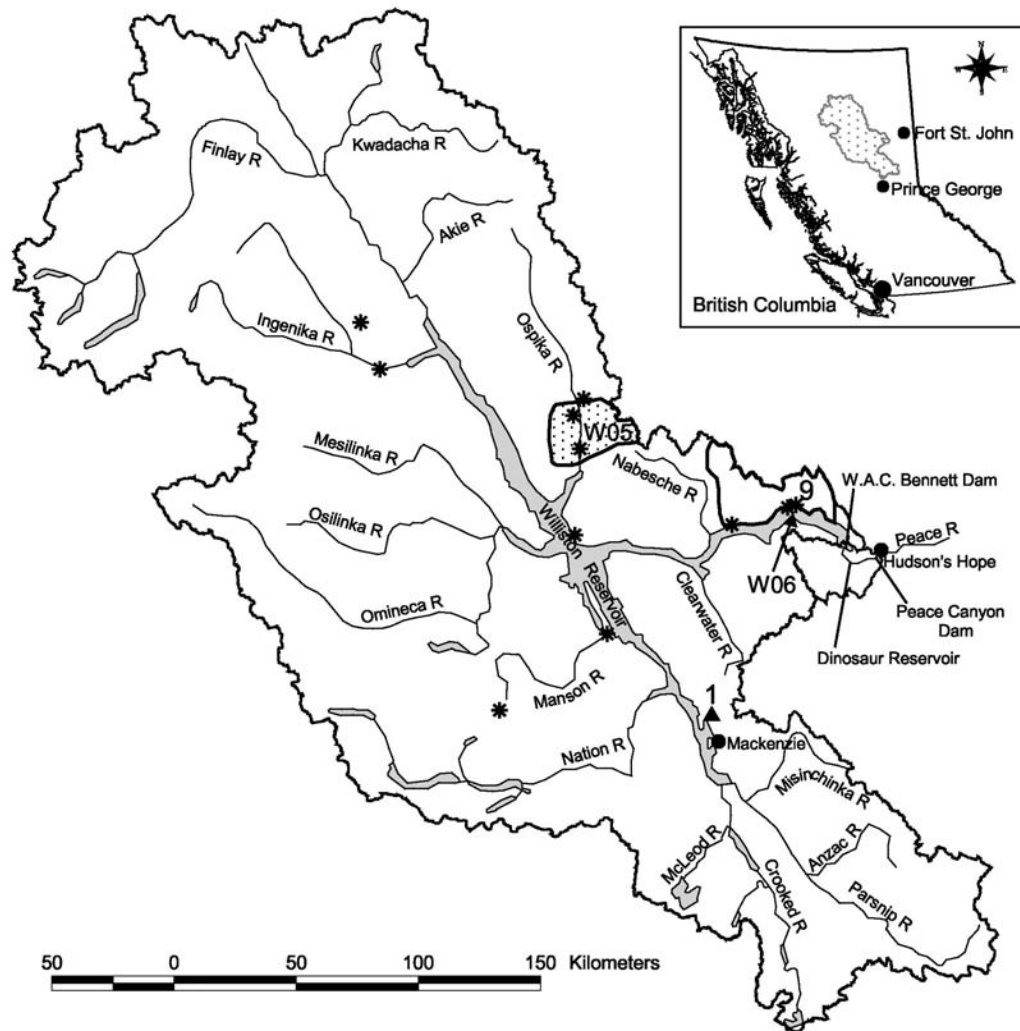
PROJECT	TASK #	LOCATION
<b><i>WILDLIFE BASE PROJECTS</i></b>		
1 Mackenzie Migratory Songbird Monitoring (Funded Project <sup>1</sup> )	04-01	Parsnip
2 Environmental Monitoring – Climatic	04-02	Watershed
3 Cottonwood Tree Enhancement	04-03	Parsnip
4 Nabesche Goats & Licks	04-04	Peace
5 Donna Creek Forestry/Biodiversity	04-05	Parsnip
6 Fisher Habitat Use Project	04-06	Parsnip
7 20 Mile Point Stone's Sheep	04-07	Peace
8 McLeod Lake Grizzly Bear Behaviour	04-08	Parsnip
9 Peace Arm Stone's Sheep Demographics	04-09	Peace
10 North Peace Prescribed Burns	04-10	Peace
11 Wildlife Extension	04-11	Office/Watershed
12 Data Analyses/Report Writing	04-12	Office
<b><i>STRATEGIC ENTRENCHMENT FUND (SEF) PROJECTS</i></b>		
13 Ospika Goat/Mineral Lick Project	SEF-W05	Finlay
14 Peace Land Acquisition	SEF-W06	Peace
15 Project Evaluation – Weather Monitoring	SEF-W08	Office
16 Caribou Recovery Planning (Funded Project <sup>1</sup> )	SEF-W09	Parsnip/Finlay

<sup>1</sup>“Funded Projects” are projects that are administered and conducted by other agencies, but funded by the PFWFCP.

### **Abbreviations used for Agencies/Clubs:**

Agencies and clubs that are partners on PFWFCP projects are listed in brackets at the end of each project's objective. The following abbreviations are used -

ABIT: Abitibi Consolidated (Mackenzie)	MNO: Mackenzie Nature Observatory
CWS: Canadian Wildlife Service	MOF: Ministry of Forests
CANFOR: Canadian Forest Products	MWLAP: Ministry of Water, Land & Air Protection



PROJECT NAME & NUMBER

04-01 Mackenzie Migratory Bird Monitoring  
 04-02 Weather Monitoring Stations (\*)  
 04-09 Peace Arm Stone's Sheep Demographics

SEF-W05 Ospika Goat/Mineral Lick Project  
 SEF-W06 Peace Land Acquisition

## **PROJECT SUMMARIES**

### **1. MACKENZIE MIGRATORY BIRD MONITORING (CO-OP PROJECT) (#04-01)**

Project Objectives: To determine the population status and trends of neotropical migratory songbird populations in the northern Rocky Mountain Trench, and to identify those species that may be at risk from habitat loss and degradation. This is a long-term initiative of the Canadian Wildlife Service to monitor trends of songbird populations throughout North America, to which the PFWWCP contributes annual funding support. [CWS, MNO, PFWWCP, SG, ABIT]

2004/05 (Yr 10 of 11): The mist-nets and banding station at Mugaha Marsh were re-established, and a master bander was hired for the fall migration season. Volunteers from the MNO, other organizations, and the general public provided assistance on a full-time basis. Capture and banding took place between mid-July and mid-September. The PFWWCP once again provided funding support for this co-operative project.

### **2. ENVIRONMENTAL MONITORING - CLIMATIC (#04-02)**

Project Objectives: To obtain baseline snow depth and other microclimate data from various sites throughout the Williston Reservoir watershed that will supplement current projects, and help assess site suitability for past and future enhancement projects. [PFWWCP]

2004/05 (Year 7 of ongoing): Winter data from 8 remote stations located throughout the watershed were downloaded in the spring. Five of these stations were also maintained in the summer period to collect microclimate data for the Ospika Goat and Peace Sheep projects. In late fall, the 5 summer stations were downloaded and all 8 stations were again activated for the winter period. Data collected between 1998-2004 were summarized and analyzed, and a report was prepared.

### **3. COTTONWOOD TREE ENHANCEMENT TRIAL (#04-03)**

Project Objectives: To determine if an access route (drilled hole), created through the outer sapwood of mature cottonwood trees, will hasten the establishment of heartrot and result in the creation of internal chambers that are useable by secondary cavity-using wildlife. [PFWWCP]

2004/05 (Year 3 of 6): The second of 2 consecutive years of scheduled assessments of the drilled holes (Yrs 2 & 3) was deferred to 05/06 (Yr 4) resulting in a new bi-annual monitoring schedule (Yr 2, Yr 4, Yr 6).

### **4. NABESCHE GOATS & LICKS (#04-04)**

Project Objectives: To improve the distribution of minerals throughout the range of suitable goat terrain in the Nabesche River drainage through the establishment of artificial mineral licks, and as a result, expand the current range and population of goats in the drainage. [PFWWCP]

2004/05 (Year 7 of 11): Plans to apply a Mountain Goat Habitat Supply Model to the Nabesche drainage were cancelled since the model was still undergoing development and testing, and was not yet available. The model was to be used to determine if the artificial salt treatment areas fell within suitable year-round escape terrain for goats.

## **5. DONNA CREEK FORESTRY/BIODIVERSITY PROJECT (#04-05)**

Project Objectives: To develop alternative forest harvesting techniques designed to benefit wildlife that utilise tree cavities (e.g. woodpeckers, red-breasted nuthatch, marten), and to monitor wildlife use of the harvested treatments at successive seral stages (i.e. approx. every 10 years) over the next 60 to 100 years. [PFWWCP, SG]

2004/05 (Year 13 of ongoing): Study site access issues were investigated with Canfor. The Request for Proposals for 2 consecutive years of point count bird surveys in 2005 and 2006 was deferred to the 05/06 fiscal (with bird surveys to occur in 2006 & 2007).

## **6. FISHER HABITAT USE PROJECT (#04-06)**

Project Objective: To obtain a better understanding of fisher ecology and population dynamics in the sub-boreal forests that will lead to the design and implementation of future enhancement and protection activities. [PFWWCP, FRBC, MWLAP, CANFOR, ABIT]

2004/05 (Year 9 of 9): Work on the Final 5-year Project Report was continued with completion scheduled for 05/06. A paper on the study area's fisher density estimate was finalized and submitted for publishing.

## **7. 20 MILE POINT STONE'S SHEEP (#04-07)**

Project Objectives: To define the winter tick infestation in Stone's sheep wintering at low elevation on 20 Mile Point, north side of the Peace Arm, including determination of the cause of the problem, and the extent to which it affects herd health and productivity. [PFWWCP, MWLAP Victoria]

2004/05 (Year 6 of 6): Data were summarized and methods/results written for the 4-year 20 Mile Point Stone's sheep/winter tick study. A decision was made to defer completion of the report until 05/06, and combine the 4 years of data with an additional 2 of years data collected under the Peace Stone's Sheep Demographics Project (#04-09) into a 6-year Final Peace Sheep Project Report.

## **8. MCLEOD LAKE GRIZZLY BEAR BEHAVIOUR (#04-08)**

Objectives: To classify the behaviour of individual grizzly bears (and by extension, the behaviour by age, sex, and reproductive status), into bears that become a threat to humans after closure of a landfill, and bears that do not. To assist with improving the decisions made by the Conservation Officer Service (COS) of when and which bears to remove from landfill sites, and which bears to ignore and let live. [PFWWCP, MWLAP].

2004/05 (Year 5 of 5): Work continued on the "post-landfill closure movements" report. Completion of the report was deferred indefinitely due to other higher program priorities.

## **9. PEACE ARM STONE'S SHEEP DEMOGRAPHICS (#04-09)**

Project Objectives: To determine differences in lamb survival rates and mortality causes between low and high elevation-wintering subpopulations of Stone's sheep along the Peace Arm, and to address mortality issues and/or develop management prescriptions based on study findings. [PFWWCP]

2004/05 (Year 2 of 3): Three lambs were captured and fitted with expandable radio-collars in this second year of lamb capture. All 3 lambs survived to at least 10 months of age at which point one dropped its collar,

one died of unknown causes (though likely from coyote predation), and one was undetermined (either a dropped collar or predated). Fixed-wing radio-telemetry flights continued throughout the year to monitor seasonal habitat use and movements of all radio-collared sheep. Blood and fecal samples collected from adult sheep captured in March 2004 were analyzed. Summarization and analysis of data was initiated, and report sections were combined with the 4-year 20 Mile Point Stone's Sheep Project (#04-07) to form the basis of a 6-year Final Peace Sheep Project Report. The Final Report will be completed in 05/06. Preliminary results from the 6 years' research were presented at the Wild Sheep Society in Kamloops in March 2005.

## **10. NORTH PEACE ARM PRESCRIBED BURNS (#04-10)**

Project Objectives: To enhance forage for ungulates (primarily elk) and bears, and to provide foraging and breeding habitat for many wildlife species that require early seral habitats. [PFWWCP, MWLAP, MOF]

2004/05 (Ongoing): In spring 2003, a fireguard was cut along the top of East Branham cliffs, and brush was piled in preparation for burning. Burning of the piles was attempted in fall 2003 but wet conditions prevented the pile from burning completely. Plans to burn the piles in fall 2004 were deferred due to unsuitable weather conditions for burning. An attempt will be made to burn the piles in fall 2005, followed by broadcast burning of the standing conifer trees within the fireguard in spring 2006. The objective of this conifer conversion burn adjacent to the cliffs is to expand the grassland area for a wintering Stone's sheep population.

## **11. WILDLIFE EXTENSION (#04-11)**

Project Objectives: To provide data and expertise on wildlife management issues and planning processes in BC. [PFWWCP]

2004/05 (Ongoing): Input to various planning processes, wildlife management issues, and other wildlife research projects was provided throughout the year including review and comment on: 3 oil & gas proposals in the Peace Arm area, a domestic sheep grazing application in the Moberly drainage, the draft of the NE BC Stone's Sheep Problem Analysis, the Stone's sheep populations in the Williston watershed for the BC Thinhorn Mapping Project, ungulate habitat enhancements conducted by PFWWCP for the Alberta Conservation Associations provincial strategy, proposed fisher WHA's, the Background Report for the new Omineca River Park, and remote monitoring techniques for a snowmobile-caribou project proposal in Ft. St. James. The PFWWCP also organized and co-sponsored the 1<sup>st</sup> BC Mountain Goat Workshop held in Prince George, March 2005.

## **12. DATA ANALYSES/REPORT WRITING (#04-12)**

Project Objectives: To analyse data and complete reports from previous fiscal projects. [PFWWCP]

2004/05 (Ongoing): No backlog reports were completed this fiscal. Reports on *current* projects are discussed under applicable project summaries elsewhere in this document.



## **2004/05 STRATEGIC ENTRENCHMENT FUND PROJECTS**

### **13. OSPIKA GOAT/MINERAL LICK STUDY (SEF-W05)**

Project Objectives: To determine the impacts of different forest harvesting options on mountain goat behaviour related to low-elevation mineral licks and trails. [PFWWCP, SG]

2004/05 (Yr 3 of 6): The use of 4 low-elevation mineral licks by radio-collared goats was monitored again between April and November by remote telemetry and camera stations; all sites were visited and data downloaded on an approximately biweekly basis. Three new goats and 2 previously radio-collared goats were fitted with new collars in March/April 2005. Photo cataloguing, data management, and data summarization was completed for 2003 and 2004 data, analysis of 2002 telemetry and camera data continued, and preliminary report sections for the final project report were written. Three project presentations were given to MoF, WLAP, and forest licensees in April 2004. A project presentation was given at the 1<sup>st</sup> BC Mountain Goat Workshop in Prince George in March 2005. Mountain Goat Management Team meetings were held periodically to discuss study design and other project issues. PFWWCP also assisted with the refinement of mountain goat habitat supply models through a series of workshops with Canfor and other MGMT members. An updated version of the Goat Habitat Supply Modeling Report was drafted by Canfor and PFWWCP biologists in March 2005.

### **14. PEACE LAND ACQUISITION (SEF-W06)**

Project Objectives: To secure, and thus protect from development, privately-owned parcels of land of high value wildlife habitat within the Williston watershed. [PFWWCP, Nature Trust]

2004/05 (Yr 2 of 2): A private parcel of land owned by the Rocky Mountain Elk Foundation along the north shore of the Peace Arm of the Williston Reservoir was appraised and purchased in 2004. The 51 ha property is situated in the foothills of the Rocky Mountains where snow accumulations are relatively low due to the rainshadow effect and frequent Chinook winds. The property is used extensively by Rocky Mountain elk year round, and by mule deer, white-tailed deer, moose, and Stone's sheep. The Nature Trust of BC conducted negotiations with RMEF and an offer was made and accepted on behalf of the PFWWCP. The PFWWCP transferred funds to the Nature Trust to complete the transaction. The title of the property is held by the Nature Trust of BC, and the property was leased back to MWLAP on a 99-year lease for management purposes.

### **15. PROJECT EVALUATION (WEATHER MONITORING) (SEF-W08)**

Project Objectives: To review a project or suite of projects (in this case, ungulate translocations) to ensure achievement of the PFWWCP strategic objectives related to evaluation and accountability, and to ensure that the PFWWCP is effectively addressing strategic priorities identified for the Wildlife Sub-program. [PFWWCP]

2004/05 (Yr 1 of 1): A decision was made to defer evaluation of the PFWWCP's weather monitoring program until 05/06.

### **16. CARIBOU RECOVERY PLANNING (SEF-W09)**

Project Objectives: To develop a Recovery Plan for northern-ecotype caribou in the North-central BC area of the Southern Mountains National Ecological Area. [MWLAP, PFWWCP]

2004/05 (Yr 1 of 2): Funding was provided to support the regional Northern Caribou Recovery Implementation Group (RIG) tasked with developing a Recovery Plan for north-central BC caribou.

## WILDLIFE PROGRAM - FINANCIAL SUMMARY

The annual Wildlife Program budget in 2004/05 was \$462,495 plus an additional \$219,000 in carry-over funds from the 2003/04 fiscal, resulting in a fiscal budget totalling \$681,495. Wildlife program expenditures in the 2004/05 fiscal year amounted to \$308,198, 73% (\$225,169) of which was spent on wildlife research, enhancement, and evaluation projects (Figure 2, Table 2). Under-expenditures on some budgeted projects and the deferral of other projects to 05/06 resulted in a cost savings of \$377,800 which was carried over to the 2005/06 fiscal.

The original Strategic Entrenchment Fund (SEF) budget for the Wildlife Program was \$855,000. Annual SEF expenditures include \$257,256 in 2001/02, \$221,137 in 2002/03, \$186,734 in 2003/04, and \$225,489 in 2004/05 (Table 3). The SEF budget was overspent by \$35,616 and no monies remained in the SEF budget at the end of the fiscal year.

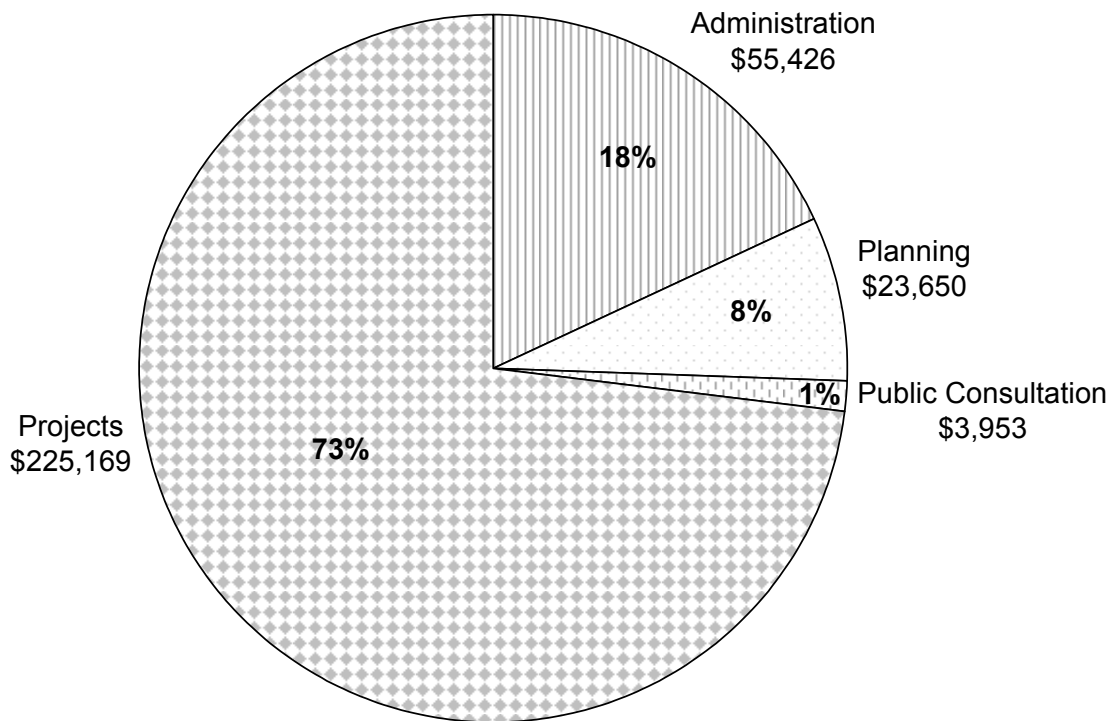


Figure 2. Wildlife Program expenditures in the 2004/05 fiscal year<sup>1</sup>.

<sup>1</sup> Does not include additional monies spent from separate Public Consultation Program budget delivered directly through BC Hydro, or operational costs for SEF projects.

Table 2. Detailed Wildlife Program budget expenditures for the 2004/05 fiscal.

COST CATEGORY	TASK #	SPECIFIC PROJECT	PROJECT COSTS <sup>1</sup>	TOTAL EXPENDED	% Expended	% Budgeted
Administration <sup>2</sup>	04-B1	Base Costs	55,426	55,426	18% <sup>x</sup>	12%
Planning <sup>3</sup>	04-B2	Base Costs	23,650	23,650	8%	6%
Public Consult <sup>4</sup>	04-B3	Base Costs	3,953	3,953	1%	1%
Projects	04-01	Mackenzie Migratory Bird (Co-op)	7,000			
	04-02	Weather Monitoring Stations	29,023			
	04-03	Cottonwood Tree Enhancement	53			
	04-04	Nabesche Goats & Licks	0			
	04-05	Donna Creek Forestry/Biodiversity	3,810			
	04-06	Fisher Habitat Use	15,191			
	04-07	20 Mile Point Stone's Sheep	14,885			
	04-08	McLeod Grizzly Bear Behaviour	419			
	04-09	Peace Stone's Sheep Demographics	86,915			
	04-10	North Peace Prescribed Burns	1,090			
	04-11	Wildlife Extension <sup>5</sup>	4,074			
	04-12	Data Analyses/Report Writing <sup>6</sup>	105			
	SEF	Strategic Entrenchment Fund Projects <sup>7</sup>	62,604	225,169	73%	81%
<b>TOTAL</b>				<b>\$308,198</b>	<b>100%</b>	<b>100%</b>

<sup>1</sup> Project Costs: includes operational costs, staff wages and travel, equipment & supplies, and vehicle costs.

<sup>2</sup> Administration: includes staff wages, office rent, BCE administrative support, office supplies, vehicle costs.

<sup>3</sup> Planning: includes staff wages & travel, Technical Committee travel, vehicle costs.

<sup>4</sup> Public Consultation: includes operational costs, BCH wages, program staff wages & travel, vehicle costs.

<sup>5</sup> Wildlife Extension: includes staff wages for input to wildlife species and habitat protection/management activities and assistance on non-PFWWCP projects.

<sup>6</sup> Data Analyses /Report Writing: includes consultant and staff wages for completion of previous project reports.

<sup>7</sup> Strategic Entrenchment Fund Projects: includes staff wages, travel, and vehicle costs associated with the Ospika Goat and Project Evaluation projects; Operational costs are reported separately under Table 3.

Table 3. Strategic Entrenchment Fund (SEF) operational expenditures for the 2004/05 fiscal (hard costs only).

COST CATEGORY	TASK #	SPECIFIC PROJECT	PROJECT COSTS <sup>1</sup>	TOTAL EXPENDED	% Expended	% Budgeted
Projects	SEF-W05	Ospika Goat Project	179,847	179,847	80%	
	SEF-W06	Peace Land Acquisition	40,462	40,462	18%	
	SEF-W09	Caribou Recovery Planning	5,180	5,180	2%	
<b>TOTAL</b>				<b>\$225,489</b>	<b>100%</b>	

<sup>1</sup> Project Costs: hard costs only (see Table 2 for staff wages and travel, minor equipment & supplies, and vehicle costs associated with the delivery of SEF projects).

