## BUCK FOR WILDLIFE'S VOLUNTEER FISHERIES

#### HABITAT ENHANCEMENT PROGRAM

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#### ABSTRACT

The Buck for Wildlife Program of the Alberta Fish and Wildlife Division has recently expanded its efforts to develop a volunteer based fisheries habitat enhancement program. Twenty-nine projects, with an estimated value of \$161 400 were carried out by volunteer groups in southern Alberta in 1986. A wide range of proven enhancement techniques were successfully applied and the initial evaluation of selected projects demonstrates positive habitat gains. However, the ability of volunteer groups to sustain this program over the long term has not been demonstrated to date.

#### INTRODUCTION

Although the Buck for Wildlife program has been actively working on the reclamation and enhancement of the fish and wildlife habitat in Alberta since 1973, the involvement of members of the public in an organized volunteer enhancement program has only recently been developed. The volunteer program commenced in 1984 with the introduction of the Alberta Fish and Game Association habitat program, followed shortly by the start up of the Wetaskiwin Conservation Corps wildlife project. In late 1985, a program was put in place designed to provide liaison and leadership to Trout Unlimited, Alberta Fish and Game Association clubs and other interest groups in southern Alberta in the enhancement of fisheries habitat. My discussion today will be directed mainly toward the development of this last program - the enhancement of the fisheries resources in southern Alberta.

The purpose of this program is to encourage members of fishing clubs and conservation organizations to actively undertake hands-on fisheries habitat enhancement projects that will directly benefit the aquatic resource. Some of the benefits of public participation in this type of program are expected to include:

- An increased level of maintenance and enhancement of both wild and hatchery fish stocks;
- An opportunity to develop, within the user group, a greater awareness of the habitat and management needs of the aquatic environment;
- 3. The promotion of stewardship of the fisheries resource;
- Improved communication between the Fish and Wildlife Division and user groups; and
- 5. Increased angling opportunities for the general public.

Funding for this new program was provided almost exclusively by the provision of grants to participating clubs and organizations that had completed and received approval for specific project proposals. Projects were carried out throughout southern Alberta and included work in the Oldman, Bow and Red Deer River watersheds.

#### PROGRAM REVIEW

A total of 29 projects commenced in the 1986 field season as part of the volunteer fisheries enhancement incentive. Grant requests to the 1986 Buck for Wildlife program totalled \$85 600; however, approximately \$58 500 was actually spent since groups were often able to replace part of the Buck for Wildlife grant with donations. Substantial cost savings were received during the final planning and implementation phases of the projects in the form of direct contributions, reduced equipment rates, material and equipment supplied by the volunteers, etc. The value of the projects, calculated by totalling expenditures to date, the estimated value of professional staff time, and donations in the form of goods and services, is approximately \$161 400.00. In fact, if the actual expenditure to date by Buck for Wildlife is compared to the total estimated value of the projects, Buck for Wildlife funding made up only 36% of that total. The positive cost benefit ratio for the Fish and Wildlife Trust Fund - Buck for Wildlife program of volunteer involvement is therefore readily apparent.

With the completion of the 1986 projects, it is estimated that over 130 km of stream or river will have been enhanced along with 54 ha of pond or lake fisheries. It should also be noted that 72% of all projects were involved with the enhancement of habitat for wild trout. Over the long term, enhancement of wild fish stocks will help to maintain high quality fisheries for Albertans, thereby, partially reducing the ever increasing demand for high cost fish stocking programs.

#### FIELD APPROACH

A variety of stream enhancement techniques were successfully used as part of the 1986 volunteer fisheries program (Table 1). It was felt that significant long term gains could only be obtained by applying proven, sometimes relatively complicated, stream enhancement methods in the first years of the program. Achievements for the 1986 field season include:

- The testing of the suitability of established techniques (e.g., rock or upstream "V" log sills) for practical field application by volunteer groups;
- The construction of demonstration projects, both for the volunteer groups and the general public, and the compilation of a project related photographic slide file that can be used as a teaching aid; and
- 3. The provision of a variety of on-site training situations with an opportunity to identify potential volunteer leaders.



By the end of the 1986 field season projects designed to determine volunteer capabilities and establish demonstration projects were in place. However, the ability of individual groups to effectively use these projects to train volunteers and to increase levels of awareness and enthusiasm was quite variable. Because of this, the direct technical support and training of volunteer leaders seems to remain critical for the advancement of the program. Whether this will change in the future is unknown.

#### PROJECT EVALUATION

The importance of documenting the direct resource benefits that can be achieved by this enhancement program has been recognized by Fish and Wildlife. Although, it will not be possible to obtain meaningful data from all of the smaller, widely dispersed projects, attempts have been made to evaluate larger projects and to select test streams that can be used as benchmarks of success over the long term.

I would like to briefly present some preliminary results from a volunteer project on the Crowsnest River and results from Fish and Wildlife's work on the North Raven River in the 1970s to illustrate the gains that can be obtained by enhancing Alberta streams.

Studies carried out in 1980 in a channelized section of the Crowsnest River within the town of Blairmore indicated that fish holding areas were limited. A two phase habitat enhancement project was undertaken to address this problem. In 1985, a volunteer group placed approximately 250 large boulders in the section to increase trout rearing areas. In 1986, five rock ledges were installed to further enhance the area for larger fish. Electrofishing studies, designed to assess the effectiveness of the boulder placement and to provide baseline data prior to the ledge construction, demonstrated positive results. Baseline population estimates (L. Fitch, Fish and Wildlife Division, pers. comm.) indicated that there were 1100 (95% CL: 600-1600) rainbow trout in the study section in 1980. In 1986, it was estimated that the study section contained 3824 (95% CL: 2476-8389) rainbow trout (R.L. & L. Environmental Services Ltd., 1987). At least a part of this substantial increase in the number of rainbow trout can be attributed to the enhancement of fish habitat. Studies can now be implemented that will assess the effectiveness of the second phase of the project. I anticipate equally encouraging results. Fisheries enhancement work, including streambank fencing, bank stabilization and channel narrowing, was carried out by the Fish and Wildlife Division on the North Raven River in the mid-1970's. Baseline trout population estimates were obtained in 1973 for areas to be reclaimed and for control areas. Estimates were again obtained in 1985 (Table 2).

The results demonstrate both the effectiveness of the habitat enhancement and the decline of the fishery in the unprotected (control) stretch of the stream. The trout population decreased by 47% in the unprotected area due to ongoing deterioration of habitat, while the population increased by 51% in the enhanced area.

	1973		1 985		
	No./km	kg/ha	No./km	kg/ha	
Control (unprotected) Section	1180 <u>+</u> 158	50.4	624 <u>+</u> 108	11.5	
Enhancement	996+158	32.7	1505+141	75.3	

Table 2.	Trout population	estimates	on	the	North	Raven	River,	1973	and	1985.

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The positive results of the Crowsnest and North Raven enhancement projects clearly indicate the benefits that can be realized and should serve to encourage increased efforts towards reclaiming and enhancing streams in Alberta.

#### CONCLUSION

Although the volunteer program was accepted as positive in 1986 and has commenced actively in 1987, the future is still unknown. The next challenge will be to maintain the program over the long-term and perhaps to expand both the scope and effectiveness of the volunteer groups. Clearly, there are a number of obstacles yet to be overcome before the program will be really viable. Problems that can be identified at this time include:

- The ability of volunteer groups to develop strongly motivated leaders and to sustain enthusiasm and volunteer involvement. The opportunity for groups to maximize educational benefits and act as advocates of the resource is considerable, but long-term individual and group dedication will be required to attain any measure of success.
- 2. At present, government regulatory requirements (i.e. water resources permits, licence of occupation, etc.) tend to inhibit the expansion of volunteer habitat enhancement projects. Only special interest groups, with a strong commitment to the resource and adequate financial backing, can develop project proposals acceptable to the various referral agencies. This limitation will continue to hamper the program unless referral agencies accept the challenge and use whatever means are at their disposal to facilitate habitat enhancement projects. I am confident that this can be achieved without compromising the effectiveness of the regulatory process and that the benefits are worth the effort required to achieve this goal.

#### LITERATURE CITED

- R.L. & L. Environmental Services Ltd. 1987. Fish population survey of the Crowsnest River at Blairmore, August 1986. Prep. for Alberta Environment, Planning Division, Draft Report.
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- and -

to the Hon. Ken Kowalski, Minister of Environment, for delivering the opening address.

#### MESSAGE FROM THE ORGANIZING COMMITTEE

Reclamation practitioners and researchers have gone a long way to solving the problems posed by such disturbances as mining, drilling and pipeline construction. The future challenge for reclamation lies in applying our expertise in other areas such as industrial site decommissioning, habitat creation and restoration, and urban design.

The Symposium was designed to expose participants to a wide variety of "new" areas where reclamation science could be applied. These were the "targets" referred to in the Symposium title. The speakers did an excellent job in meeting this goal. Some of the participants felt the Symposium had not provided enough information on new methods to be employed in reclaiming these new disturbance types. While this was not the goal of the Symposium it remains a valid concern that should be addressed in a future symposium.

Finally, the Hon. Ken Kowalski, Minister of Environment, encouraged all participants to get out and preach the need for, and successes of, reclamation, and indeed all environmental programs. Telling ourselves in conferences how wonderful we are is preaching to the converted. We need to let those who benefit from our labours, that amorphous group known as the public, know what we have done for them. This, too, should be the topic of a future symposium.

The papers in this proceedings have been edited and retyped into a common format. The contents of the papers are essentially unchanged from the submitted manuscripts of the authors.

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