

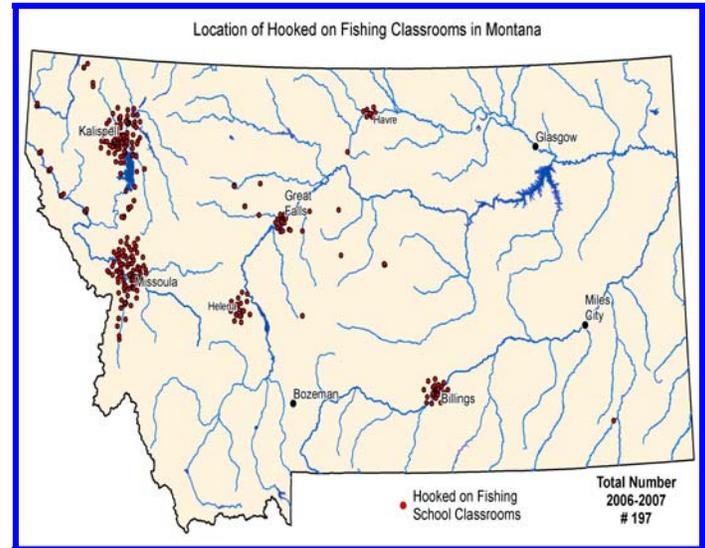
Summary of Research



An Evaluation of the Hooked on Fishing Program

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Introduction

Fish and wildlife agencies and conservation organizations are questioning whether their education programs are meeting program goals and objectives. As a result, they are interested in surveying participants to determine the extent to which those goals are being met.

In May of 2005, the Montana Fish, Wildlife & Parks (FWP) aquatic education coordinator held a workshop with a group of teachers and instructors participating in its Hooked on Fishing (HOF) program to discuss the need for an evaluation of the program.

The purpose of the evaluation was to determine the effectiveness of the program for teachers and their students and make recommendations for future changes.

What is the Hooked on Fishing program?

One of over 400 conservation education programs implemented by state fish and wildlife agencies is the national Hooked On Fishing - Not On Drugs® (HOFNOD) program developed by the Future Fisherman Foundation. Across Montana, upper elementary students are participating in an interactive yearlong fishing education program called HOF, which is modeled after the national program. Begun in three Montana classrooms in 1996, HOF is currently conducted in nearly 200 classrooms involving approximately 2,500 students annually.

The goals of the HOF program are:

- (1) to introduce students, teachers, and parents to the fish and aquatic resources of Montana;
- (2) to promote fishing and outdoor recreation.

The objectives of the HOF program are:

- (1) to help students develop awareness and appreciation for the fish and aquatic resources in Montana;
- (2) to help students develop an interest in fishing and outdoor recreation;
- (3) to teach safe and responsible outdoor skills;
- (4) to help teachers develop skills and interest in teaching natural resource topics.

Students take part in a variety of activities, both inside and outside the classroom. Lessons are designed to cover a variety of subjects in the curriculum, including science, math, reading, geography, writing, and art.

The lessons are taught by instructors who visit the school, and in some cases lessons are also taught by the classroom teacher. In addition to the classroom activities, students take part in open water fishing and/or ice fishing field trips. Parents and others often volunteer to assist on field trips and with classroom activities.



Why did FWP decide to evaluate the Hooked on Fishing program?

Hooked on Fishing was in its 10th year in Montana schools, and a formal evaluation had never been done. The program manager and the instructors wanted to know if the program was effectively meeting program outcomes, and how HOF could be improved for teachers and students.

How was this Evaluation Done?

The population for this evaluation included three subgroups: 2277 3rd - 10th grade students, 114 teachers, and 16 instructors. Students and teachers were all in mainstream public and private schools. The instructors were all either full-time or contracted employees of FWP.

At the beginning of the academic year, students received a pre-survey, followed by a post-survey at the end of the year, and finally, an extended post-survey 12 - 14 weeks after the program was completed. Teachers of these students participated in an Internet survey, and HOF instructors participated in a structured telephone survey.

Response rates for this evaluation were high. On average 2000 students (88%) participating in HOF took part in the pre- and post-survey; 155 (7%) took part in the extended post-survey; 101 teachers (89%) participated in the Internet survey; and all 16 instructors (100%) participated in the telephone interview.

In order to compare experimental results from students who participated in HOF to students who did not participate, a "comparison" group consisting of 229 4th and 5th grade Montana students who had not participated in HOF was also surveyed.

Surveys were administered to the students in their classrooms. Each school visit took approximately 30 minutes from the time of arrival to the time of departure. It took about 20 minutes for students to complete the survey, depending on the grade level, and whether or not the survey was read to the students.

Because surveys were conducted at least twice in most classrooms, opportunities were available to

observe diverse fish art projects, bulletin boards with photos from fishing trips, realistically colored and identified three dimensional fish hanging from classroom ceilings, and read journal entries describing HOF outdoor experiences. These projects added a valuable perspective to the evaluation process that could not have been gained through paper and pencil surveys alone.

In some cases, HOF instructors helped administer the student surveys in their complimentary classrooms. It was encouraging to note when students saw their HOF instructors they were excited and full of questions like, "what are we going to do today, dissect fish?", or "where are we going today?". This enthusiastic response by diverse groups of students was observed repetitively. These experiences demonstrated how motivated and eager the students were to participate in program activities with the instructors.

What did the teachers say about the program?

More than 100 HOF teachers wrote comments that were exceptionally positive:

- "I found this program to be the single most influential experience my students were exposed to. They learned, they grew as students, and they gained confidence as they experienced nature and developed new skills. They also developed teamwork and a sense of responsibility. I found lots of opportunities to spin other academics from their interest in fishing."
- "This is an awesome program and hope that it can be continued. My students look forward to it every year."
- "...it is one of the special things we can offer here in Montana which has a lasting impact on students and the environment. It also involves parents in ways that I have not seen in any other program during my 20+ years in education, and it involves parents who may not normally volunteer in school/classroom activities."





Are students learning about Montana's fish and aquatic resources?... Questions which were statistically significant and displayed a positive direction of change were:

- "know the different names of fish found in Montana waters"
- "things that make good habitat for fish"
- "importance of clean water to people, plants, and animals"
- "body parts of a fish, and what they do for the fish"
- "jobs that people have that work with fish and wildlife in Montana"

How can HOF be improved?... Seventy-four teachers gave suggestions. One innovative recommendation was to have classes adopt and care for a local fishing access site, or help restore a stream reach or wetland area. These types of activities could be incorporated as future HOF field experiences. That is, if, supporting resources (i.e., financial support for transportation, personnel to assist activities, and local access to field sites) are available.

What are the key evaluation findings?

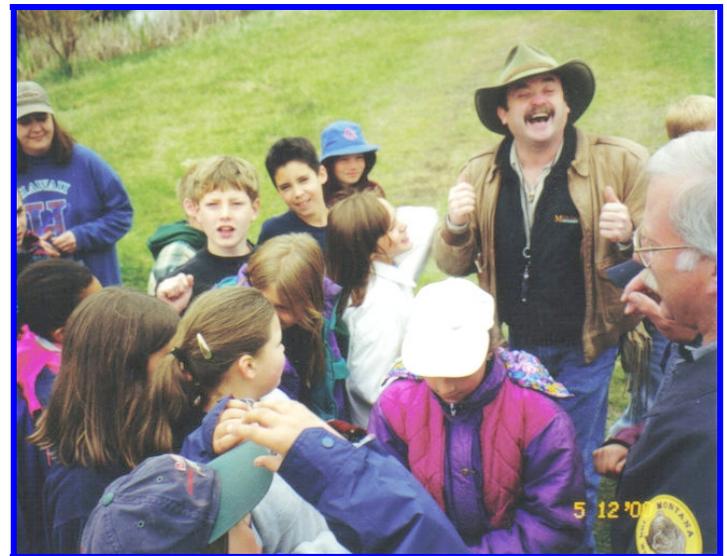
Are FWP and the HOF instructors doing a good job conducting the program for school teachers, their students, and involved parents and community partners?... Yes! The HOF program benefited classroom teachers by providing "instructors with expertise", "great supplies and materials", and "classroom support" to do "alternative activities" with the students.

98% of responding teachers felt HOF benefited students by providing "outdoor activities" and "opportunities to fish with parents and others" in a "positive and safe environment", and to "learn about fish".

91% of responding teachers said that these benefits have "somewhat" to "strongly" increased the amount of time they spend teaching their students about fish, wildlife, and natural resources.

Are students learning about fishing and other outdoor skills?... Evaluation questions which focused on student skills and showed positive change and statistical significance ($p \leq 0.05$) from pre- to post-survey were: "cast fishing line into the water"; "tie good fishing knots in fishing line"; "clean up area where you fish"; and "follow fishing laws when fishing".

Most teachers (78%) rated the value of their HOF field trips and outdoor experiences for themselves as "high", and most (75%) rated the same experiences for their students as "high".



Is there value in providing outdoor experiences for HOF students and teachers?

This research question considered whether the frequency of outdoor experiences (field trips) significantly affected students' knowledge about fish and their habitats, fishing skills, attitudes about natural resources, and intended stewardship behaviors.

The frequency of more than one outdoor field experience did have statistically significant and positive effects for improving knowledge and skills for HOF students. This was found to be highly significant in classrooms which had 2 - 3 outdoor experiences during the school year. This supports the program requirement that teachers arrange at least one outdoor field trip as part of their HOF program during the school year - and shows clearly that several trips (2 - 3) were superior to a single trip.

In its present form, HOF is focused on entry-level variables (awareness, appreciation, knowledge, and skills). This implies that an increase in knowledge about fish, aquatic habitats and associated natural resources, and outdoor fishing and recreational skills have been gained through participation in the program. If, FWP desires responsible conservation and stewardship behaviors for participating students, then, ownership (personal investment) and empowerment (sense that positive environmental changes can be made) variables will need to be considered in the development of future programming. It is important that situational factors - social pressures, economic constraints, opportunities - are realized, and considered, due to the influences they have on how individuals choose to act.



Implications

In the present educational environment, there are intense demands on teacher and classroom time in order to meet academic standards prescribed by local districts, as well as state and federal testing requirements. There are also a very large number of conservation education programs such as HOF in existence, all of them competing for classroom time. In order for a program to be accepted and used in a school, it must not only be of high quality, but it must also be shown to provide outcomes desired by all participants. The results of this evaluation show that HOF meets both the needs of the schools for an academically sound, yet enjoyable program for students and teachers, as well as the need of FWP to provide an educational program to build citizens who are safe, informed, skilled, and responsible users of the States' aquatic resources.

Recommendations

This study has demonstrated that HOF can significantly and positively change students' knowledge and skill outcomes regarding fish, aquatic resources, and outdoor recreation. Suggestions to improve the program include:

- Incorporate activities which involve adopting and caring for local fishing sites;
- Continue to offer the program spread out over an entire academic year instead of a shorter block of time;
- Develop objectives and lessons to affect student attitudes and stewardship behaviors towards fishing and conservation;
- Continue program evaluation to determine long-term trends in student outcomes.
- Continue recruiting, training, and maintaining high quality instructors. (One of the greatest strengths of the program is the quality of the instructors.)

ACKNOWLEDGMENTS

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Where does the funding come from to sustain the HOF program in Montana annually?

- Funding for Montana's HOF Program comes from a federal grant. Money in this grant comes from an excise tax placed on fishing tackle and equipment, and the money is distributed back to state fish and wildlife agencies with a percentage used to fund angler education programs. No state tax money or FWP license funds are used.

For more information about the Hooked on Fishing Program and this Evaluation:

<http://fwp.mt.gov/education/fishingeducation/hooked.html>

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