

EDUCATIONAL FACILITIES AND PROGRAMS AT STATE AND FEDERAL FISH HATCHERIES IN THE SOUTHEASTERN UNITED STATES

D. L. GARLING, JR., Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061

L. A. HELFRICH, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061

G. D. HUTTON^a, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061

Abstract: In 1977, a 5 page questionnaire was developed and sent to hatchery managers in 11 southeastern states to characterize the status of current hatchery education programs. The survey indicated that approximately 1.4 million people visited the 55 hatcheries providing a unique opportunity to communicate directly with a large segment of the general public. A majority of the managers (98%) recognized the importance of public education and most (71%) felt that their current programs were in need of improvement. The programs relied heavily on self-guided tours, guided tours, an array of audiovisual aids, and publications. Although most managers (72%) felt they could justify increased budgetary allotments for educational program improvement, they did not expect increased funding. Integrating tours, audiovisual materials and publications into an effective program presenting an overview of the total fisheries management program will ultimately result in the greatest benefit to the agency and resource. In order to develop improved effective fisheries educational programs at government fish hatcheries, educational programs must be given a higher priority in terms of funding and manpower.

Proc. Ann. Conf. S.E. Assoc. Fish & Wildl. Agencies 32: 774-779

Fisheries agencies use 4 basic management strategies: regulations, stocking, habitat manipulation, and public education. In the past, management agencies have directed most of their efforts toward the first 3 of these strategies, while public education has been largely neglected. Through the years this critical deficiency has been recognized and the importance of public education and information programs in fisheries and wildlife management has been stressed (Gabrielson 1941; Leopold 1940; and King 1948). Today, most natural resource managers realize that favorable public opinion, by high-quality educational programs, are essential characteristics of effective fisheries management programs. Obviously, an educated citizenry is more receptive to wise resource use and sound management policies than an uneducated public. Growing concern about public education has prompted the establishment of Information and Education (I & E) sections within government fish and wildlife agencies and is reflected in the objectives of professional organizations dedicated to the conservation of fisheries and wildlife resources.

Despite the current emphasis and high priorities placed on public education, many professional fisheries managers continue to view public education as the sole responsibility of the I & E section. Public education, however, cannot simply be delegated to an individual or group of individuals. An effective fisheries educational program must be carried out by all employees including administrators, research biologists, hatchery managers, temporary laborers, etc. Every available public contact opportunity should be exploited.

The large network of state and federal fish hatcheries provides an ideal contact area for public education programs. Although the primary purpose of these facilities is to

^aPresent address: Louisiana Cooperative Fishery Research Unit, Louisiana State University, Baton Rouge, LA 70803.

provide fish for stocking programs, several factors combine to make fish hatcheries attractive as educational facilities. The fish hatchery can be a prime educational facility because its highly visible operations and end-products are attractive to large numbers of visitors. Since a fish hatchery is a permanent facility which is visited by the public, quality educational programs can be easily developed and conveniently maintained. Educational programs at hatcheries should present an overview of fisheries management policies and dispel popular misconceptions. These beneficial attributes of public fish hatcheries make them ideal focal points for the dissemination of current fisheries management information.

In the spring of 1977 a 5 page questionnaire was developed and sent to hatchery managers in 11 southeastern states. The purpose of this study was to characterize the status of current educational facilities and programs at state and federal fish hatcheries and to survey the attitudes of hatchery managers toward public educational programs.

RESULTS

Public Visitation

Visits to fish hatcheries were very popular with the general public. The total visitors/per year at the hatcheries surveyed was well over 1 million people (Table 1). Federal facilities were visited by 4 times as many people as visited state hatcheries. Four federal hatcheries reported annual visitation rates of over 100,000 people. In contrast, only 1 state hatchery reported annual visitation rates in excess of 100,000. Clearly, these numbers indicate a significant interest by the general public in hatchery operations.

We also surveyed the seasonal distribution of hatchery visits and the best months for observing hatchery activities to determine whether they coincided. Both visitation rates and hatchery activity periods peaked during May (Fig. 1). During the fall months (August through November) hatchery activities were high while visitor rates were low. Advertisement of hatchery activities could be used to increase visitation during periods of peak hatchery activity. However, our survey indicated that hatchery activities are rarely actively advertised (Table 2). Free advertising, including public service broadcasts, newspaper articles, and state conservation magazines were lightly used. The heavy dependence on passive advertising, such as road signs, indicates a major deficiency of hatchery educational programs in attracting the general public during optimum visitation periods.

Existing Educational Program

Our survey indicated that both guided and self-guided tours were the most widely used educational methods available at public fish hatcheries (Table 3). Most hatcheries, however, directed less than 30 scheduled tours annually. Based on visitor abundance and the number of guided tours conducted, it was evident that most visitors used self-guided tours. General or specific publications were another major educational method used at fish hatcheries while audiovisual methods (bulletin boards, display aquaria, films, and slide series) were used to a lesser extent.

The hatchery managers were asked to rank their attitudes towards educational methods employed in their hatcheries as: (a) extremely worthwhile; (b) useful; or (c) not worth the effort (Table 4). Guided tours, self-guided tours, and publications were favorably rated by most hatchery managers. Audiovisual methods, except bulletin board displays, were generally less favorably ranked by hatchery managers.

Although a majority of hatchery managers (98%) felt that educational programs at their hatcheries were worthwhile, most managers (72%) agreed that their programs were in need of improvement. Most of the managers (71%) felt they could justify the cost of improvements in educational programs to their administrators. However, 71% of the managers did not expect increased funding for educational program development, even

Table 1. Visitation at southeastern state and federal fish hatcheries during 1976-1977.

	<i>State</i>	<i>Federal</i>	<i>Total</i>
Hatcheries responding	33	22	55
Visitors/year	327,950	1,057,500	1,385,450
Average number of visitors/ year/hatchery	9,938	45,978	27,958

Table 2. Types of hatchery advertisements currently used by government fish hatcheries.

<i>Type</i>	<i>State</i>	<i>Federal</i>
Road signs	20	9
State conservation magazine	15	1
Newspaper	6	7
None	0	0
Other		

Table 3. Educational methods of government fish hatcheries available to the public.

<i>Method</i>	<i>Number of Hatcheries</i>	
	<i>State</i>	<i>Federal</i>
Guided tours	30	21
Self-guided tours	27	18
Publications	9	18
Bulletin boards	11	12
Display aquaria	7	12
Slide series	5	7
Films	3	1
Overhead projection	0	1

though 96% of the hatcheries surveyed used less than 5% of the total hatchery budget for educational purposes.

We also surveyed the seasonal distribution of hatchery visits and the best months for observing hatchery activities to determine whether they coincided. Both visitation and the degree of impact of 9 potential problems as: (a) no impact; (b) slight impact; (c) serious impact (Table 5). All 9 potential problems associated with public visitation were predominantly rated by hatchery managers as of slight or no impact. Interruption of work was considered to be the greatest problem, but only 10% of the managers ranked this as having a serious impact. When asked which problem was considered the most

Table 4. Attitudes of hatchery managers towards existing educational methods employed in their hatchery.

<i>Method</i>	<i>% hatchery managers responding</i>		
	<i>Extremely worthwhile</i>	<i>Useful</i>	<i>Not worthwhile</i>
Guided tours	42 ^a -32 ^b	37 ^a -55 ^b	21 ^a -9 ^b
Self-guided tours	8-18	76-55	16- 9
Specific publications	45-40	50-40	5-13
General publications	45-36	55	0-5
Bulletin boards	18- 9	66-77	16- 0
Display aquaria	34-59	23- 5	36-13
Films	26-13	21-41	55-27
Slide series	26-9	29-59	45-18
Overhead projection	3- 5	29-27	60-45

^aState

^bFederal

Table 5. The degree of impact of visitor-related problems on normal hatchery operation.

<i>Problem</i>	<i>Degree of impact (% respondents)</i>		
	<i>Serious</i>	<i>Slight</i>	<i>No impact</i>
Interruption of work	10	67	21
Disturbances to fish	7	40	53
Litter on hatchery grounds	7	55	38
Litter in ponds or raceways	4	49	44
Defacement of equipment	4	33	62
Destruction of equipment	2	16	78
Fish theft	2	31	67
Direct fish mortalities	2	9	89
Overcrowding by visitors	0	13	87

serious and why, 32% of the managers cited problems associated with the quality of educational programs as the most serious because of inadequate manpower and the lack of display items.

DISCUSSION

The results of this survey of educational programs at government fish hatcheries in 11 southeastern states indicate that a substantial number of visitors tour hatchery facilities each year. During 1977, approximately 1.4 million people visited the 55 hatcheries surveyed. This represents a 49% increase in the average visitation rate per federal hatchery since 1975 (U.S.F.W. 1975). Because of the strong and increasing popularity of fish hatcheries with the public, it would appear that comprehensive educational programs at fish hatcheries could provide a unique opportunity to communicate directly with a large segment of the general public. Too often fisheries managers have concerned themselves only with the biology or production of fish and

ignored opportunities to develop favorable public opinion. Leopold (1946) warned that conservation agencies can only operate up to the level of public opinion, but cannot proceed beyond that point. Today, successful fisheries management programs must be predicted on public understanding and appreciation.

A majority of the hatchery managers (98%) surveyed recognized the importance of public education, but most felt that their programs were in need of improvement. This is not surprising since the development of educational programs has not kept pace with the addition of scientific knowledge nor the evolution of educational techniques which are constantly being improved and are increasing in number. A variety of educational methods including both guided and self-guided tours and an array of audiovisual aids are currently being employed at fish hatcheries. Development of educational programs based on guided and self-guided tours can be very effective, particularly when accompanied by high-quality visual aids including films, slides, bulletin boards, display aquariums, etc. Visual aids combined with self-operated audioviewers, patterned after the types available at many national parks, are particularly valuable during periods of low visitation or peak hatchery activity periods when manpower is in short supply. These media and attention-grabbing techniques should not be used exclusively; the illustrated written word, made readily available to the public in the form of pamphlets and bulletins, remains the best method for providing lasting public information.

Effective publications are the most important component of educational programs. Hatchery publications can be general or specifically related to a particular hatchery program. Federal hatcheries distribute pamphlets with a general outline, but with slight variations in the material to describe the specific hatchery. Providing written materials is desirable for several reasons. The visitor is given a pamphlet that can be retained and may be read, reinforcing the educational experience. Although printed materials are mandatory for a self-guided tour system, they can also add an extra dimension to guided tours by disseminating important points to others (non-visitors) and by covering a range of topics far beyond those easily observed at the hatchery.

Integrating tours, audiovisual materials, and publications into an effective program presenting an overview of the total fisheries management program will ultimately provide the greatest benefit to the agency and the resource. To develop improved effective fisheries educational programs at government fish hatcheries, educational programs must be given a higher priority in terms of both funding and manpower. Federal hatcheries expend an average of 2% of their budget (0.06-29.3% range) for public education programs (U.S.F.W.S. 1975). Labor accounted for 43% of this budgetary allotment. Most state hatcheries do not match this level of funding for their educational programs.

Hopefully, the results of this survey demonstrate the current status of educational programs at government fish hatcheries in the southeastern states and emphasize the potential value of these programs in promoting an understanding of fishery management policies by the public. Fisheries administrators should be encouraged to facilitate effective educational programs at fish hatcheries through adequate budget allotments and by providing incentives to hatchery personnel to encourage their active participation in public education. Once effective programs have been developed, these programs should be actively advertised to attract all segments of the general public, particularly during periods of maximum hatchery activity. Effective educational programs will undoubtedly result in increased awareness and understanding of fisheries management programs and policies by the general public.

LITERATURE CITED

- Gabrielson, I. N. 1941. *Wildlife conservation*. Macmillan, New York. 250 pp.
King, F. 1948. *The management of man*. Wisc. Conserv. Bull. 13(9):9-11.

- Leopold, A. 1940. The state of the profession. *J. Wildl. Mgmt.* 4(3):343-346.
- _____. 1946. The deer dilemma. *Wisc. Conserv. Bull.* 11(8-9):3-5.
- U.S.F.W.S. 1975. Annual report fiscal year 1975, Division of Fish Hatcheries. Statistical Appendix. U.S. Dept. Interior, Fish and Wildlife Services. 25 p.