



Best Practices Workbook

For Boating, Fishing, and Aquatic
Resources Stewardship Education



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RBFF recruited 30 professionals from state and federal agencies, private boating and fishing organizations, and academia to provide guidance throughout the development of this *Workbook* and other tools developed as part of the Best Practices Project.

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About the Best Practices Project

RBFF developed this *Workbook* to provide guidelines for Best Practices in boating, fishing and aquatic stewardship education programs. In 2000, RBFF commissioned 11 aquatic, environmental, and outdoor education professionals to develop summaries of existing research and recommendations for the development of best professional practices for boating, fishing, and aquatic stewardship education. These professionals presented their findings to a group of 25 researchers and educators at a workshop in Alexandria, Virginia on March 11–12, 2001. The resulting document, *Defining Best Practices in Boating, Fishing, and Stewardship Education*, is the foundation of this *Workbook* (available at www.rbff.org).

The *Workbook* also contains additional research from various sources, and has been reviewed by 30 professionals with a variety of backgrounds including educators, researchers, administrators, and practitioners.

A series of additional materials have been completed as part of the Best Practices Project and have been designed to complement this *Workbook*:

- Information sheets
- PowerPoint presentation
- Trainer's guide
- Newsletter
- Education program database

Tools Are Available

The Workbook and all of the Best Practices tools are available (download directly at www.RBFF.org)

About RBFF

The mission of the RBFF is to increase participation in recreational angling and boating in a way that increases public awareness of and appreciation for the need to protect, conserve, and restore this nation's aquatic natural resources. RBFF is committed to accomplishing this mission in a way that ensures that fishing and boating are done in a safe, responsible,

inclusive, and sustainable way, and driven by an environmental ethic that places the resource and the best traditions of boating and fishing above mere personal gain, self-gratification, and individual need. This requires strong educational support and grounding in research-based practices.

In 2002, RBFF sponsored a National Aquatic Education Leadership Summit that included leaders in aquatic education from all over the country representing state and federal agencies, industry, and non-governmental organizations. Although the individual vision of each group may vary to meet their particular mission, all agreed on the following vision for the broad aquatic education community:

Aquatic Education Community Vision Statement

Aquatic education programs inspire individuals and families to embrace fishing and boating as a means to improve the quality of their lives, by providing:

- Physical, mental, and spiritual well-being.
- Quality time with family and friends, and oneself as an individual.
- Opportunities to help children develop essential life skills.
- Positive alternatives to inappropriate behaviors.
- Social, economic, and community health.

Because these individuals understand the vital roles that clean water, healthy watersheds, and quality fisheries have in their lives, they commit to protecting these resources.

For more information about RBFF, go to www.rbff.org. For a more detailed description of the steps that led to the Best Practices Project, go to www.rbff.org.



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The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. government.

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Introduction



What Are Best Practices?

A Best Practice is a program or practice with specific outcomes that has been clearly defined, refined, and evaluated through repeated delivery and supported by a substantial body of research. These practices represent the best knowledge available for use under specified circumstances. It's important to note that Best Practices may change over time. They are recommendations based on what has been observed or documented to be effective to date, but which may change given additional experience, evaluation, and research.

For state fish and wildlife agencies and organizations trying to educate people about boating, fishing, and stewardship of aquatic resources, the use of best educational practices is simply a matter of applying tested, science-based practices to educational efforts, the same way biologists apply science to the management of fish, wildlife, and other natural resources.

How Can Best Practices Help You?

Best Practices are meant to enhance, not replace, existing efforts.

This *Best Practices in Boating, Fishing, and Aquatic Resources Stewardship Education Workbook (Workbook)* and other Best Practices materials do not constitute a “program” unto themselves. Rather, they are tools you can use to make your existing (or developing) programs more effective.

Incorporation of Best Practices will maximize your effectiveness in:

- Planning, developing, and implementing programs.
- Conducting program evaluations at all levels of development and implementation.
- Providing ongoing professional development.
- Identifying relevant research to further understand and improve the educational process.

This *Workbook* contains a LOT of research-based and tested, effective ideas for improving education efforts. The primary audience for this *Workbook* is boating, fishing, and aquatic stewardship educators. References and examples from those areas have been

included wherever possible. References were taken from other related fields as well. The majority comes from environmental education, because it has been researched far more over the years than recreational fishing and boating education. Because the Best Practices discussed are process oriented, not content oriented, results should be highly interchangeable.

A brief understanding of how the environmental education field came to be what it is today can help you develop, prioritize, and position various elements of your program. Whether you are new to the field or a seasoned veteran, the brief history in Appendix A can solidify your understanding of and support for the use of Best Practices in all your educational efforts.

Need For Best Practices

Each year, millions of people attend boating, fishing, and aquatic stewardship education programs, but are these programs effective at achieving sponsor goals? How do they benefit fish, wildlife, and boating-related agencies and organizations? Outputs such as the number of participants often serve as the only measures of performance. Does this participation contribute to agency revenues, image, or mission; or to increased license sales; or to a greater stewardship ethic among participants? There is little direct evidence that these and other goals of boating, fishing, and stewardship education programs are being achieved. The aquatic education community has identified this as a major need and concern.



Measuring attainment of these goals often is difficult; however, to be accountable for their programs, educators need to use appropriate evaluation tools and methods to measure intended outcomes. Furthermore, programs need to be designed and evaluated based on the best information research and practical experience have to offer.

The Recreational Boating & Fishing Foundation (RBFF) and its partners have engaged in the Best Practices project for that reason. Tools developed in this project are designed to help educators build, enhance, and evaluate their programs based on research and practices shown to be effective.

A series of materials have been completed as part of the Best Practices project and have been designed to complement this *Workbook* (available from RBFF):

- **Information sheets** – 10 different information sheets that give a brief overview of various Best Practices and how they benefit educational efforts
- **PowerPoint presentation** – comprehensive presentation that includes segments on various aspects of the Best Practices; designed to be customized for use with numerous target audiences, to communicate the importance of Best Practices
- **Trainer's Guide** – “cookbook” for conducting a one- or two-day workshop that walks end users through the *Workbook* and motivates them to adopt Best Practices into their programs
- **Newsletter** – prototype newsletter that features case studies and articles about effective aquatic education programs, information on new resources and grant opportunities, etc.
- **Best Practices monograph** – A 190-page collection of research papers on Best Practices published by RBFF in 2001 (*Defining Best Practices in Boating, Fishing, and Stewardship Education*, Anthony J. Fedler, editor); available online at www.rbff.org

How to Use This *Workbook*

Best Practices are process-oriented. They do not suggest what content you teach, but rather how you plan it, approach it, teach it, and evaluate it. Thus, every chapter in this *Workbook* may contain information that could benefit your education efforts.

This *Workbook* was not designed for you to read from cover to cover (although it would certainly be beneficial to do so!). Rather, it was designed to make it easy for you to skip around and quickly find the sections that are most applicable to your situation.

Worksheets throughout the text give you the opportunity to apply the Best Practice information to your own situation. By completing these as you go, you'll have the basis for an outstanding educational program. You can also download the worksheets from www.rbff.org.

This *Workbook* has something for everyone. If you are starting a program from scratch, all chapters will be invaluable. They will help you make informed decisions on how to plan and implement your program and help you avoid pitfalls others have learned about the hard way.

Administrators of existing programs can go through each chapter to see how closely their programs meet the Best Practice guidelines. You may find valuable ideas that you want to add, holes in your program that you can fill, or scientific research to back up or justify what you've been doing all along.

The primary target audience for this *Workbook* is anyone who is developing or revising an educational program in boating, fishing, or aquatic stewardship.

Environmental Stewardship

For purposes of this Workbook, environmental stewardship is defined as informed, responsible action/behavior on behalf of the environment and future generations.

Materials and information in this *Workbook* pertain to all of these major subject areas, and they were developed with the recognition that different programs focus on different aspects of these subject areas, such as:

- **Stewardship only** – Some programs focus on stewardship of aquatic resources only, and do not involve fishing or boating.
- **Stewardship emphasis** – Some programs emphasize aquatic stewardship, but recognize the value of the experiential aspects of fishing/boating as a way to teach stewardship.
- **Fishing only** – Some programs teach only fishing, without incorporating boating or stewardship messages.
- **Fishing emphasis** – Some programs emphasize fishing, but recognize the need and value of instilling ethics and stewardship. Some also incorporate boating education as a way to help enhance an individual's ability to fish.

- **Boating only** – Some programs teach only boating (and some only boating safety) and do not involve stewardship or fishing education.
- **Boating emphasis** – Some programs emphasize boating, but incorporate stewardship education and/or educate individuals about how they can use the boat to fish.
- **Stewardship, fishing and boating** – Some programs incorporate all three.

Although each of these subjects can be taught independently, effective programs utilize a combination of subjects.

Your approach may vary within your overall educational efforts depending on your target audience. For example, if you are working with a teacher, your emphasis may be stewardship, but you may include fishing as a way to get students interested. If you are working with a physical education or drug prevention program, your emphasis may be fishing, incorporating stewardship and boating. Regardless of your approach, you'll find this *Workbook* helpful in developing or enhancing your program.

Chapters within the *Introduction* and *Elements of Effective Education Programs* sections of this *Workbook* cover topics that apply to all educational programs. If you are interested in developing/revising programs so they are as effective as they can be for your agency/organization, we recommend that you review each of these sections.

Chapters in the *Specific Opportunities* section provide guidance for a variety of specific applications. These are not stand-alone chapters. They provide specific considerations, examples and ideas for each topic area, but also make reference to the general topics of the *Workbook* where appropriate.

Education Versus Communication

There is a lot of confusion among agencies, organizations, and individuals as to what education is and what it is supposed to accomplish. That is, many people think of education and communication as the same thing, when in fact they are very different.

Many people mistakenly believe that simply delivering good information to their audience will result in behavior change. Sometimes information is designed to inform and influence consumer behaviors, and becomes part of a marketing or promotion strategy.

A Big Difference

The Random House Dictionary of the English Language, (1987) defines these words as follows:

Communication - the imparting or interchange of thoughts, opinions, or information by speech, writing, or signs

Education - the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life

In general, *marketing* is determining what consumers want and need and then providing it. Promotion is simply communicating to your audience that you have a product or service. Some people confuse marketing and promotion with education, and believe that marketing approaches will attract boaters and anglers and make them environmental stewards.

Certainly marketing, promotion, and communication in general are critical parts of the education process because they create awareness, keep participation and stewardship at the top of consumer minds, and influence participation through social awareness and support. However, communication without education ultimately will fail if the goal is behavior change. When marketing and promotion stop, if consumer attention is diverted, there is nothing left to sustain and support interest. It is like seed sown on thin soil. It will sprout with excitement of a new idea, but soon wither for lack of nourishment. Education is required to enable boating, fishing, and aquatic stewardship to grow and flourish over the long term.

Boating, fishing, and stewardship education programs can focus on short-term outcomes like changing awareness, knowledge, skills, or attitudes of participants. They also can address longer-term impacts such as changing individual conservation-related practices; decisions and behavior; or improving societal, economic, or environmental conditions. These will be discussed in later chapters of this *Workbook*. Whatever the goals of your program, base them on the understanding that transfer of information contributes to education, but usually does not result in education.

Behavior Changes

The goals of some programs are to increase boating and fishing participation and/or to increase stewardship of the aquatic resource. All require a change in people's behavior to accomplish. Teaching angling, boating, and/or stewardship skills alone will not necessarily result in someone making fishing, boating, or stewardship part of his or her life.

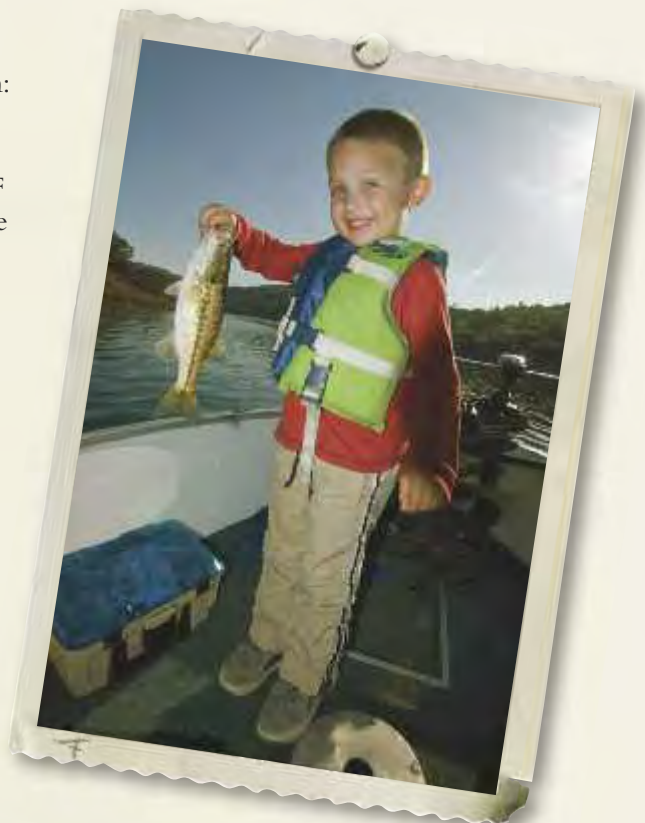
Education should not attempt to mold people. Learners should be involved in setting the learning agenda, and should be taught how to make informed, responsible decisions rather than how to think or act.

Individuals will not, in general, change many behaviors based on a single workshop or program. Changes in behavior will be achieved best through sequential, complementary education efforts, and may work best when learning occurs in a combination of formal and non-formal settings. More specific details are included in Chapter 2, and in the chapters on boating, fishing, and stewardship education.

Where are the Footnotes and Citations?

This *Workbook* and associated materials are based on hundreds of books, reports, research papers, journal articles, and other sources. Nearly every paragraph could contain one or more citations from the work of others. However, to make this document easier to read and use by practitioners, footnotes and citations have been omitted from the body of the text.

Original sources of information compiled in this *Workbook* can be accessed in the technical publication: *Defining Best Practices in Boating, Fishing, and Aquatic Resources Stewardship Education* (Fedler et al., 2001). This document is available at www.rbff.org. RBFF and its partners are deeply indebted to all who made this compilation possible.





Chapter 1

Plan Ahead for Success

If you are planning to implement an education program in boating, fishing, or aquatic resources stewardship, or if you are expanding or enhancing an existing program, this chapter will provide ideas for making the most of this opportunity. The things you do before you contact a single participant literally can be the difference between a program that is effective, engaging, and

exciting, and a program that perhaps makes you feel good, but does not achieve its objectives. The time you spend planning will greatly increase your success.

This chapter focuses on initial planning efforts, but the entire *Workbook* is essentially about planning. Programs—even longstanding ones—that follow Best Practices continually plan ahead—for the next year, the next cycle, the next learner.

Table 1 contains a list of Best Practices for program planning. Under ideal circumstances, many of these would be implemented simultaneously. However, it is critical that the first two precede the others. There have been cases where administrators of aquatic resource education programs have selected program tools (curricula, materials, instructors, etc.) before determining program purposes (mission, goals, and objectives).

A hallmark of effective programs is that they determine the program's purpose before doing anything else.

Best Practice: Effective programs are relevant to the mission of the agency or organization sponsoring the program.



Relevance helps justify your program and your funding, prevents the establishment of ineffective programs, and helps make your program more efficient and sustainable. In addition, it helps keep you on track and reminds you and your staff that what you are doing is important to the entire agency and its future.

How do you know if you've hit the mark? For starters, use your agency or organization mission statement. Then look at your agency or organization strategic plan. Programs that follow Best Practices can show clearly how their educational programs contribute to the mission and how they help achieve the goals and objectives in the strategic plan.

A fish and wildlife agency may have a broad, general mission such as “conserve the state's aquatic resources and provide recreational opportunities for the use and enjoyment of present and future generations.” In such a case, a stewardship program (with or without

Table 1: Best Practices for Program Planning

Effective Programs Using Best Practices in Initial Planning:

- Are relevant to the mission of the agency or organization sponsoring the program.
- Clearly define the “Educational Purpose,” which includes the program's mission, goals, and objectives, and assures that all are aligned with each other.
- Are based on and shaped by some form of needs assessment and/or logic model.
- Receive adequate support, resources, and staffing to become sustainable over time.
- Plan for program evaluation in the initial stages of planning.
- Rely on experienced, well informed, prepared, and ethical staff to develop, implement, and evaluate programs.
- Provide educational opportunities that are frequent and sustained over time.
- Involve stakeholders and partnerships at all levels of program development.
- Are inclusive of all audiences (accessible/available to anyone with an interest in participating).

fishing or boating components) may be appropriate, although more specific objectives to help you focus your efforts are beneficial. When a broad goal, such as “develop and maintain an effective aquatic and boater education program,” is supported by a more specific objective, such as “reach 10,000 new anglers and 10,000 new boaters with a standardized curriculum emphasizing responsible use and stewardship of aquatic resources,” you get a much clearer picture as to whether your program is helping the cause. The objectives are the measurable steps that get you to your goal.

Agency/organization administrators can help define goals and objectives best addressed through education. Involve them in development of the mission, goals, and objectives of the education program. This provides them ownership in your efforts and helps them understand the value of the programs that result.

If you have existing educational programs, look at your goals and objectives and consider how well they match up with the mission of your agency/organization and its strategic plan. Also, consider whether other agency/organization objectives or issues could be addressed through education. If you have not clearly communicated the relevance of your educational programs to your agency, plan to do so.

Worksheet 1-A

(Actual worksheet found in *Appendix B*)

List the mission, goals, objectives, and issues of your agency or organization that need to be addressed through educational programs.

Agency/Organization Mission:

Goal 1:

Objective:

Objective:

How does your program help achieve this goal/objective?

Goal 2: (repeat)

Best Practice: Effective programs clearly define the educational purpose, which includes the program’s mission, goals, and objectives, and assures that all are aligned with each other.



Defining the educational purpose of your program may be the most important step you can take in program planning, yet it is overlooked or not closely considered surprisingly often. Basically, the educational purpose defines what you are trying to accomplish with your program.

What Do You Call It?

There are myriad different terms used to describe the elements that make up educational purpose. Some of the more common ones include: mission, vision, goals, aims, guidelines, strategies, principles, purposes, objectives, and actions. Your agency or organization may have specific terms for these elements that it expects you to use. It’s not so important what you call these elements as it is that you consider what they represent, and clearly communicate that with your audience. Picture these terms as layers of a pyramid, and think of them in terms of the questions they answer.



First level (i.e., the mission)

Why is this program in existence? What is it trying to do?

This usually is called the mission statement. It is a broad, philosophical statement about what the program hopes to contribute. It provides overall guidance for program goals and objectives.

Second level (i.e., the goals)

Why are we doing this program?

The answers to this question provide the goals of the program. They help define how the program will help achieve the mission.

Third level (i.e., the objectives)

What, specifically, do we want to accomplish?

These elements are commonly called objectives. Another way to identify objectives is to fill in the blank on the following phrase: “As a result of this program, participants will be able to _____.”

Objectives should be measurable, and generally—though not always—are set up on a relatively short timeframe.

Sometimes, the differences between missions, goals, and objectives can get fuzzy, especially when you’re working in partnership with other organizations. Also, goals and objectives may overlap, which can add to the complexity. At times, you may be tempted to throw up your hands and forget the whole thing. Don’t do it!

The thing to remember is this: Regardless of what you call the various levels, it is critical to ask the questions “Why are we doing this program?” and “What do we want to accomplish with this program?” You can create missions, goals, objectives, and whatever other levels you want or need to clarify your answers or meet organizational requirements, but be sure to answer the basic questions.

Worksheet 1-B

(Actual worksheet found in *Appendix B*)

Given the mission, goals and objectives of your agency or organization (as you described them in the previous worksheet), describe for your education program:

Mission (what is its reason for being?)

(e.g., conserve aquatic resources and provide recreational opportunities for citizens.)

Goal 1 (why are we doing this program?):

(e.g., increase participation in angling)

Objective (what, specifically, do we want to accomplish):

(e.g., have 1,000 people attend a weekend fishing clinic; have 350 people fish again within 6 months of attending a clinic; train 200 volunteer boating education instructors, etc.)

Objective:

Objective:

Goal 2: (repeat)

Best Practice: Effective programs plan for program evaluation in the initial stages of planning.



Most people recognize that evaluation is a critical part of education programs, but many are not aware that, to be most effective, evaluation must begin before a program is implemented. Effective programs build evaluation into the program plan and budget. It is a core part of the program, not something extra funded only in years of plenty.

Effective programs conduct evaluations as they build the program. Far too often, educators think about evaluation only in terms of an after-the-fact judgment as to whether desired outcomes were achieved. This kind of evaluation is critical, but incomplete. Building evaluation into your program from the beginning can help you better develop your program, adjust it over time with stakeholder input, and achieve the end results you are looking for more effectively and efficiently. If you are trying to demonstrate positive outcomes, you have to have a “before picture” to compare with your “after picture.”

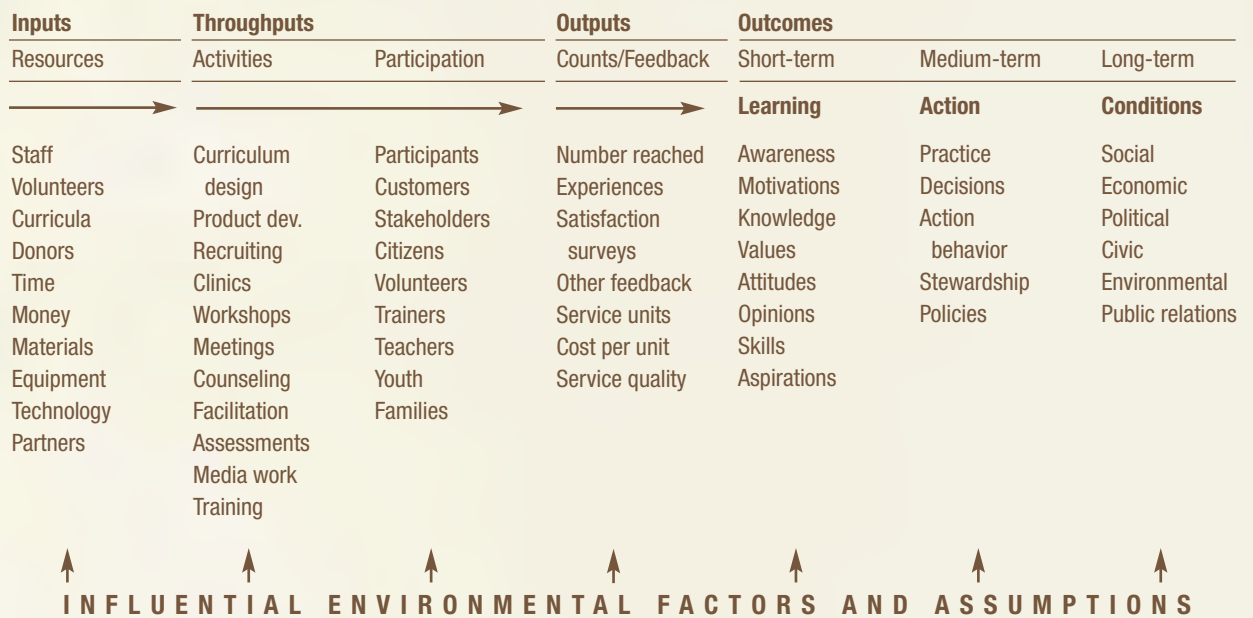
Chapter 4 is devoted to program evaluation. Be sure to review it before completing your program logic model or program plan.

There’s an old saying that goes: “If you don’t know where you’re going, any (and every!) road will get you there.” This is certainly true of education programs. If you don’t care where you’re going, then just start walking! But if you have a destination in mind (goals and objectives for your program), a program logic model is the road map to success.

Don’t be fooled by the fancy name. A program logic model is nothing more than a simplified, visual description of how different factors of the program are related. It helps you visualize how factors fit together and relate to each other. It also helps you think of questions you will need to answer concerning program design, implementation, and evaluation.

Do you need it?

The first question to ask, and probably the most commonly overlooked, is “Do we need the program?” Consider this question carefully before you do anything else. Perhaps your agency director, chapter executive committee, or school board said you must implement a program. In this case, the question may be moot.

Figure 1. Conceptual Logic Model for Program Development and Evaluation

Be proactive. Develop a needs assessment. The purpose of a needs assessment is to determine whether the activity you want to do is actually needed. Are other groups already doing this program? Does the target audience want it? Will it accomplish organization goals? Consider what you're putting into the program and what you will get out of it. The logic model on page 1-4 is a great tool to do this. It will show how well the proposed activity fits into the overall education program, how it impacts other programs, and how it impacts budget and staff. Perhaps you'll find the program is indeed a good fit. But even if not, at least the "powers that be" can make an informed decision.

Best Practice: Effective programs are based on and shaped by some form of needs assessment and/or logic model.



A basic program design strategy might ask:

- What are the expected outcomes of the program? These should be based on your objectives identified above.
- What methods are appropriate to achieve these outcomes?
- What resources are necessary to apply the methods?
- In what environment and setting will the program occur?

- How does the program meet the needs/wants of the target audience?

The simple logic model in *Figure 1* includes common program inputs, throughputs, outputs, and outcomes. These are fancy names for simple factors, but it's important to understand them so you can gain the full benefit of the process. Each component is explained below.

The same logic model you develop as a conceptual map for program design also can be used for evaluation purposes (see *Chapter 4*).

Understanding the parts of the model

Inputs are resources you must invest to implement a program. Inputs include staff, money, equipment, facilities, administrative approvals, budget authority, agreements with cooperating agencies, volunteer support, in-kind services, donations, and environmental and community resources. The model links these resources to specific activities designed for your target audiences.

Activities and their participants are viewed as **throughputs**. The term "participants" is not limited to educational program learners, but should include staff, administrators, and others who are themselves learners in training programs and educational briefing sessions.

Program **outputs** include things such as how many people would attend, how many would be reached

or exposed to a message, how satisfied participants would be with their experience, etc. If your program objective is only to provide satisfying experiences for participants or to convey information to the public, this may be all you need to consider.

Outcomes are results of a program beyond simple outputs. Successful outcomes include increased environmental awareness and knowledge, changed attitudes and opinions, or establishment of a foundation for responsible behavior toward the environment. For boating and fishing programs, outcomes can include increased knowledge of boating and fishing, changed attitudes about the value and benefits of fishing and boating to participants or their families, establishment of a foundation of boating and fishing skills (including problem solving and decision making) increased social support for fishing and boating, and increased participation. Measuring outcomes is more difficult than measuring outputs, and it is impossible without carefully planned programs and rigorous evaluation activities.

All model components described above are influenced by *environmental factors* and *assumptions* that can influence development, implementation, and success of a program. Examples include politics, socio-economic conditions, and institutional constraints. The ability to identify and control influential environmental factors (and the costs of doing so) is crucial to program success.

A fully developed program logic model helps you:

- Summarize key elements of your program;
- Clarify relationships between activities and intended outcomes of the program;
- Show cause-and-effect relationships among activities and outcomes – that is, which activities are expected to lead to which outcomes;
- Help identify critical questions for improving program design and evaluation;
- Provide opportunities for program stakeholders to discuss the program and agree upon its description; and
- Link program development and evaluation.

Modeling the bigger picture

You can expand and broaden the simple logic model in *Figure 1* to get a clearer picture of your organization's entire educational program. If your efforts are part of a larger agency or organization educational program (especially resource management agencies) see *Appendix C*.

Worksheet 1-C

(Actual worksheet found in *Appendix B*)

Complete a program logic model like *Figure 1* for your program (see Worksheet 1-C in *Appendix B*). If you are just developing a program, consider starting with the long-term outcomes you want and working backward. If you have a program already, complete the model and review how the pieces fit together and where there might be holes.

Best Practice: Effective programs receive adequate support, resources and staffing to become sustainable over time.



As you plan your educational efforts, make sure all elements of your program (including staff and evaluation) are considered to be core elements in your organization's or agency's budget.

Emphasize to administrators of your agency or organization that educational programs are long-term efforts. They cannot be cut to solve a funding problem, and then be expected to start up again at the same level in a year or two. Most successful educational programs involve partnerships with groups or volunteers that have made a commitment to assist the program. If your organization cuts programs it is involved in, it may lose trust and credibility with partners. It can take years to overcome those losses.

Your program logic model will help you create a budget. Work with your team to identify all the variables you need to consider. Look at what is feasible to fund over the long term and what is not. This will help avoid planning a program that takes more staff or resources than your agency/organization can fund. This process will help make the case that, in order for educational programs to be effective, educational staff must have support of the administration on several levels.

Obviously, financial support is critical. Just as important is that administrators see education as an integral part of doing business and that it is part of the strategic planning process. Encourage staff from education and related fields (fisheries, wildlife, enforcement, boating, information, and others) within the agency to constantly work together to enhance educational programs. Educational programs should be a conduit for resource and law enforcement

programs to attain the mission and goals of the larger organization or agency.

Examples:

1. Provide agency fisheries biologists training in how to effectively communicate the agency's role and efforts in maintaining a quality fishery and an opportunity to present this information in educational classes.
2. Involve conservation law enforcement in the application process of volunteer instructors such as recruitment, background checks, and agency interview processes. Provide opportunities for them to teach in classes about rules and regulations.
3. Involve communications and marketing staff in development of a marketing and communications strategy and in reaching key audiences during a national or local educational campaign.

Worksheet 1-D

(Actual worksheet found in *Appendix B*)

Based on your needs assessment or program logic model, list areas of support you need from your agency/organization.

For each program area that needs support:

Type of support needed (funding, staffing, etc).

Source of needed support.

Specific ways you might seek additional support.

Partners or other stakeholders who can assist you (other divisions within your agency/organization or partners from outside).

Best Practice: Effective programs rely on experienced, well informed, prepared, and ethical staff.

A key ingredient to any successful program is highly qualified, motivated, and well-trained staff (volunteer or paid) that provides leadership and works effectively with teachers/volunteer instructors and/or other learners in a socially supportive situation. You wouldn't hire an accountant to fill a fisheries biologist position. It is just as important to consider the professional background needed for your educational programs. Knowledgeable, committed, and ethical individuals capable of working with diverse groups are important keys to success.

Professional development and support

Effective programs plan ongoing professional development and support for staff. This is critical to sustaining effective programs over time. You may hire the best people when your program begins, but if you don't give them opportunities to keep up to date in their fields, you'll lose ground in the long run.

Clear understanding of agency goals and objectives

Everyone associated with the program must have a clear understanding of agency goals and objectives and how they relate to agency educational programs. If the educational staff is familiar only with the educational goals and not the agency/organization goals, they will not see the big picture. Understanding the big picture helps staff stay on track, be more effective, and carry that mission forward into the training of instructors and teachers.

Worksheet 1-E

(Actual worksheet found in *Appendix B*)

What staff positions impact your education program?

For each position, rate the person who currently holds that position in terms of potential to successfully implement the program:

Knowledge (poor, moderate, good, excellent)

Skills (poor, moderate, good, excellent)

Behavior (poor, moderate, good, excellent)

For each staff position that you did not rate as excellent, what would it take to help that person achieve an excellent rating?

How will you work to help them improve the rating?

In what ways will (do) you provide ongoing professional development for your staff?

Is education part of your organization's strategic planning process?

How would you rate the support that education receives in your organization? (poor, fair, excellent). What would it take to improve that rating?

How do you communicate goals and objectives to your staff?

Best Practice: Effective programs provide educational opportunities that are frequent and sustained over time.



One of the keys to achieving long-term behavior change in boating, fishing, and stewardship of natural resources is to provide opportunities for accessing and practicing new behaviors frequently, in a variety of ways, and over a long period of time. It also helps if the program or information is easily accessible and offered on a predictable schedule.

Newly acquired behaviors require follow-up support to maintain. Research clearly shows that, even when strong, short-term behavioral change occurs, long-term change is doubtful without continued reinforcement. For example, if you teach a group of second-graders about water pollution (or teach them to boat or fish), but then never do anything more with them over time (even if they left your program with new skills, knowledge and motivation) it is not likely they will maintain it without follow-up support. Apprenticeship experiences that the learner shares over time with a personally significant individual are one way (but not the only way) to encourage and maintain that follow-up support.

As you plan your program, consider how you might provide opportunities to reach a given target audience in multiple ways (such as through formal and as well as non-formal learning), as well as over a span of time. Realistically, this can be accomplished only through partnership efforts among schools, agencies, and nongovernmental organizations.

Worksheet 1-F

(Actual Worksheet found in *Appendix B*)

Given the stated goals and objectives of your program, list the different ways you currently reach your target audience with your messages. Then list as many opportunities as you can for expanding your reach (and your effectiveness).

Goals:

Objectives:

Current Efforts

Formal (in-school):

Non-formal:

Partnerships:

Opportunities

Formal (in-school):

Non-formal:

Partnerships:

Best Practice: Effective programs involve stakeholders and partnerships at all levels of their development.



Successful programs bring a coalition of stakeholders and partners together to design, implement, and evaluate a program that meets their mutual needs. Stakeholders are people who have some sort of a stake or interest in the program being developed. They care about a program and are willing to commit to it. Stakeholders might be teachers, sponsors (funding sources), agency supervisors, community leaders, landowners, extension workers, parents, curriculum developers, and/or targeted participants in the program. A careful needs assessment process will help identify potential partners.

Diverse stakeholders lend a variety of perspectives to the program, helping you shape the focus and audience for maximum benefit. Their participation also helps achieve buy-in early in the process, so the program is more likely to be used. Involving participants from your target audience (e.g., youth, women, ethnic groups, persons with disabilities) in the planning stage helps ensure success. During evaluation phases, stakeholders can offer input about what information to gather, how to gather it, and ultimately how to share it with important audiences.

Stakeholders also reinforce a sense of community partnership, ownership, and interest in the program. Research indicates that parental and community involvement in schools improves student learning. Community members and parents can be role models and mentors and serve as an additional layer of support for educators.

Tips for developing a team of stakeholders:

- Think about who will be the ultimate users of the results and try to structure your team so that the results are channeled directly to those end-user groups.
- Use community leaders to help identify groups and individuals to invite to your team.
- After identifying which groups should be represented on the team, select specific individuals to represent each group.
- Select team members who are enthusiastic, who are willing to represent their group, who are willing to commit to the project, and who have opinions but not “axes to grind.”

- Strive for diversity among team members. Don't limit members to those holding formal leadership positions within their groups or those who are the "most involved."

Once you have established a stakeholder team, communication is key. Clarify responsibilities early and often. Make sure your team knows they are acting in an advisory capacity and not in a decision-making capacity. Work with the team to identify rules and roles for smooth and effective operation.

Potential Stakeholders/Partners:

American Red Cross

Aquatic resource conservation organizations

Local businesses

Local law enforcement authorities and parks and recreation centers

Local government agencies

National, state, and local park services

National and state associations of health, physical education, recreation, and dance

River authorities

Lifeguard associations

Representatives from target audiences

Schools and church groups

YMCA and local community centers

State environmental education associations

U.S. Army Corps of Engineers

U.S. Coast Guard Auxiliary

U.S. Power Squadrons

Water safety councils/coalitions

Wildlife conservation organizations

Youth organizations

Worksheet 1-G

(Actual worksheet found in **Appendix B**)

In what specific ways can stakeholders assist you?
 What do you and your program have to offer them?
 Who are the end users for your program?
 What groups should be represented on your team?
 What individuals should be represented on your team?
 What are the specific roles and responsibilities of the stakeholders?
 Who can act as a facilitator for the team?

Best Practice: Effective programs are inclusive of all audiences (accessible/available to anyone with an interest in participating).



Making your program accessible/available to all individuals regardless of their race, gender, age, or physical characteristics is an important part of program planning.

Although no individual should ever feel excluded from a program, it is important to target certain segments of the public to accomplish your goal of inclusion. For example, to attract more women, Hispanics, African Americans, and other ethnic groups, it is important to develop elements of your program to specifically address the barriers and constraints these groups face. *Chapter 5* contains information that will help you plan your efforts to reach a diverse audience.

Whether your program is targeted to the general public or a specific segment of the public (women, youth, adults, or an ethnic group), consider the needs of persons with disabilities. You may need to adopt new adaptive technology, hire support staff, and/or provide special services to make your program accessible and welcoming. This is discussed in detail in *Chapter 6*.



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Chapter 2

Building Your Program

This chapter will help you develop the tools, implementation strategy and delivery systems to ensure the program you put in place is top-notch in every respect—to ensure it achieves the goals and objectives you set.

Have You Planned It Out?

Chapter 1 covers important information about initial planning. Defining your “Educational Purpose” and making certain it is relevant to the mission of your agency or organization are important steps that must be completed before you consider the tools to use. Some Best Practices need to be carried out simultaneously. For example, you don’t know how

large a staff you will need for a program until you identify the delivery system and tools. In addition, you have to consider your budget before a final decision can be made on the delivery system and tools. If you haven’t developed a program logic model and completed the planning steps outlined in *Chapter 1*, it will be much more difficult to get the maximum benefit from this chapter.

Best Practices for Development of Programs

Table 2 contains currently recognized Best Practices for program development and implementation. Following the table, each Best Practice is explained and worksheets throughout the chapter help you apply each practice to your own unique situation.

Table 2: Best Practices for Program Development

Delivery Systems

Effective Programs:

- Consider delivery systems and involve stakeholders during program development.
- Are relevant to the mission of the sponsors and to the educational objectives of the audience.
- Align curricula with national and state educational standards when appropriate.
- Recognize the critical role of ongoing professional development.

Developing Tools and Delivery Approaches

Effective Programs:

- Support, engage in, and make use of scientific, social, educational, and other appropriate research.
- Examine existing materials and resources before developing new ones.
- Present accurate and balanced information, incorporating many different perspectives.
- Are planned and carried out in a manner that clearly addresses safety and other regulations, and reduces real risks to everyone involved.

- Are experiential.
- Are relevant to the everyday life of the learner.
- Empower learners.
- Are learner-centered to provide collaborative learning opportunities and development of critical thinking skills.
- Are designed to match the developmental stages of the learners.
- Use multiple teaching methods to accommodate diverse learning styles.
- Use an interdisciplinary approach to help learners develop skills, formulate concepts, and examine issues.
- Consider the social context in which the education takes place and provide avenues to enhance the social support for learners.
- Identify and target one or more outcomes or skills, beyond the subject matter, that are broadly useful to the participant.
- Inventory and utilize a variety of educational resources and environments.

More on Learning

More information regarding the learning process can be found on the website for the North American Assoc. for Environmental Education

www.naaee.org/npeee/learner_guidelines.php

Best Practice: Effective programs are relevant to the mission of the sponsors and to the educational objectives of the audience.



Delivery Systems

Best Practice: Effective programs consider delivery systems and involve stakeholders during program development.



During initial planning, you identified educational goals and objectives for your program. Before you obtain or develop curriculum materials to meet these goals, you need to select the delivery system. Will the program be delivered at your own facility? Will staff deliver the program directly to learners? Will volunteers deliver it? Will it be delivered through the schools, 4-H, camps, scouts, community centers, churches, parks, or a combination of these?

If your program is going to be delivered by individuals beyond your immediate staff, you should involve key individuals—who will be involved in the administration or delivery of the program—in the planning of program materials and implementation strategies. See *Chapter 1* for more information on involving stakeholders.

Relevant to sponsors

If you plan to deliver your program through schools, 4-H, scout groups, community programs, or other outside organizations, you must be able to demonstrate how it is relevant to them. The key to doing this is in finding common ground among your agency or organization's mission/goals/objectives and those of the groups you want to conduct your program.

Based on the mission/goals/objectives you developed for your program in *Chapter 1*, ask the potential sponsor to help identify common ground. For schools, you might ask: "Is the program aligned with national and state education standards? Does it help them meet a need, such as providing a life skills activity, providing positive alternatives and youth development skills for their drug prevention needs, etc.?"

For 4-H or scout groups you might ask: "Does the program help them incorporate youth development or meet project requirements?" For churches or community programs ask: "Does it help bring families together?"

Relevant to educators

Unless you personally conduct the program you are planning, you must make it relevant to those who will be educating your learners. If you cannot convince educators that the program helps them meet their goals and objectives, they will not participate. If your staff is going to deliver the program, then your directive to deliver it may be enough to meet their objective. However, don't miss the opportunity to assess how well the program meets their broader teaching goals and objectives.

In some cases, the sponsors and the educators may be one and the same.

Worksheet 2-A

(Actual worksheet found in *Appendix B*)

Where will your program be delivered?

Who will deliver the program? (List all possibilities for each category).

Schools

4-H

Camps

Scouts

Youth organizations

How have you involved stakeholders in planning for program delivery?

How will you involve stakeholders you have not involved already?

Worksheet 2-B(Actual worksheet found in *Appendix B*)

Make a list of potential partners and how your program is relevant/beneficial to them.

Best Practice: Effective programs align curricula with national and state educational standards, when appropriate.



There are a large number of national, state, and district standards that formal educators use to guide their curricula. Standards are typically subject-specific; that is, there are standards for science, geography, mathematics, etc. Teachers know about and use standards, so they can help you identify appropriate ones for your program. (Check with your state office of public instruction.)

Guidelines for environmental education also exist. Guidelines/standards have been developed for environmental education materials, professional development, and environmental literacy (see www.naaee.org). Standards have also been established for boating education (see *Chapter 7*). Effective programs take these standards and guidelines into account during program development, regardless of whether the program is formal or non-formal. This will help make your program more relevant to a wider range of potential partners and/or delivery systems.

Worksheet 2-C(Actual worksheet found in *Appendix B*)

List the education standards and guidelines you have reviewed to incorporate into your program.

National:

State:

District:

School:

- ☐ North American Association of Environmental Education guidelines (www.naaee.org/npeee/)
- ☐ National Association of State Boating Law Administrators (www.nasbla.org) or related national boating education standards
- ☐ National Academy of Sciences—Science Education Standards (www.nationalacademies.org)

Best Practice: Effective programs recognize the critical role of ongoing professional development.



Teacher or instructor preparation and training is a must to assure the accurate and consistent use of curriculum materials. See *Chapter 3* for more details.

Developing Tools and Delivery Approaches

Most of the Best Practices in this section need to be applied both to the development of the tools and to how the materials are delivered. For example, when developing tools, you need to consider the age, development level, and background of your participants. However, instructors also need to understand how to teach different age groups, developmental levels, and backgrounds. Clarify what you expect from instructors in a manual or during professional development (see *Chapter 3*).

The following Best Practices are not stand-alone principles. They overlap and each one relies on the other to be truly effective. Consider all of them when you are developing tools and delivery approaches.

Best Practice: Effective programs support, engage in, and make use of scientific, social, educational, and other appropriate research.



Best Practices may change over time, and should be challenged continually by research, personal knowledge, and experience. The Best Practices provided in this *Workbook* are based on the best research and experience currently available, but they



should not be considered to be the “final word” on the subject. Effective programs allocate time for staff to follow (or participate in) related research, and provide latitude for program changes based on new information.

Best Practice: Effective programs examine existing materials and resources before developing new ones.



After you have identified the goals, objectives, and delivery mechanism for your program, you can select the tools you will need. Identify and review as many materials already in existence as possible before selecting or developing your own. Don't waste energy re-inventing the wheel. Conducting a needs assessment for tools can help you make more effective use of your money and time.

Worksheet 2-D

(Actual worksheet found in *Appendix B*)

Program Objective #1:

- List kinds of tools that can be used to meet objective.
- Existing tools/packages/materials that help you meet the stated objective.
- First choice of potential existing tools.
- Audience/agency/organization needs not addressed by first choice of existing tools.
- Resources you have to develop to fill these holes (or develop entire set of tools if none exists that meets your needs).
- Final choice of existing tools or description of what will be needed to meet the objective.

Program Objective #2: (repeat)

Best Practice: Effective programs present accurate and balanced information, incorporating many different perspectives.



In previous years, environmental education has been criticized for lacking credibility and accuracy. Detractors claim that children are being scared by misinformation, and that environmental education too often tries to convince learners that their environment is in imminent danger, and they must

save it. Some people fear that this can result in a feeling of hopelessness among learners.

In the mid-1990s, the Independent Commission on Environmental Education assessed about 70 different resources for science and environmental education produced by non-profit agencies, government agencies, business and industry, and private individuals. Their assessment, “Are We Building Environmental Literacy?” also challenges the credibility of some environmental education materials, primarily in how the materials treat controversial issues.

In response to this criticism, the National Environmental Education and Training Foundation prepared a report defending environmental educators and programs, pointing out that environmental messages are distributed by many sources with many agendas, and that not all of these should be considered environmental education. Some are simply casual information; others advocate specific issues or political viewpoints, etc.

Guidelines established by the North American Association for Environmental Education (NAAEE) help ensure balance and accuracy. Characteristics for environmental education recommended by the NAAEE's *Environmental Education Materials: Guidelines for Excellence* include:

- Factual accuracy – materials should reflect sound theories and well-documented facts;
- Balanced presentation of differing viewpoints and theories – differences of opinion and competing scientific explanations should be presented in a balanced way; and
- Openness to inquiry – materials should encourage students to explore different perspectives and form their own opinions.

The point to providing this background information is to encourage educators (formal or non-formal), to carefully consider the content and nature of programs and materials, to ensure they are technically accurate and balanced in view.



Worksheet 2-E(Actual worksheet found in *Appendix B*)

- ☐ Is your program based on sound science, relying on genuine data collected in rigorous ways and without foregone conclusions?
- ☐ Are your data above reproach in source, collection methods, and interpretation?
- ☐ How do you teach learners to use data to guide decision-making?
- ☐ How do you teach learners to select and evaluate information to make decisions?
- ☐ How do you use your subject matter as a vehicle through which growth and development of the learner occurs?

Best Practice: Effective programs clearly address safety and other regulations, and reduce real risks to everyone involved.



Effective programs are committed to the safety of participants and staff. Each aspect of the program (activities, facilities, related services) is reviewed and concerns addressed. Liability is also a concern that must be addressed. If you are in a large agency or organization, enlist the assistance of risk managers.

It is impossible to cover this huge topic in detail here. What follows is a very brief overview of issues to consider as you implement your program.

Safety

Safety is not optional in outdoor education. It is a must! Safety of participants and staff members is essential. Safety includes obtaining background information about participants, communicating program curriculum with participants, and having skills needed for the given activity. Staff needs to know the safety protocol of the organization and have written emergency plans accessible at all times. Safety includes training, communication, and preparation of all educators.

Just a few safety considerations for boating, fishing, and stewardship education include:

- Selection and inspection of waterfront sites, piers, break walls and docks
- Weather
- Dealing with cold, heat and sun
- Insects and wildlife (including handling fish)
- Safety in and around boats/motors
- Safety around hooks and casting
- Safety around knives
- Safety around streams/rivers (fast currents, slippery rocks, unexpected deep water)
- Safety around the surf (undertows, tides, large waves)
- Safety around lakes (wave conditions, underwater obstructions)
- Safety on ice (thin ice, weak spots, hypothermia, whiteouts)
- Supervision (two-deep instruction) and background checks on volunteers
- Age appropriateness of activity
- Safe transportation to and from activities

Regulations

Fishing and boating have specific regulations that must be met. These vary by jurisdiction, and must be identified, communicated to participants, and followed explicitly.

Liability

A few of the liability issues that need to be addressed include:

- Personal participant liability
- Personnel issues
- Automobile liability
- General liability and director's and officers' liability
- Liability associated with vulnerable volunteers or instructors (some may have mental, physical or emotional impairment making them unable or unlikely to report problems)
- Equipment and materials
- Accounts receivable

If your agency or organization does not have a risk management coordinator, consider hiring one to help you carefully analyze all risks associated with your program.

Worksheet 2-F(Actual worksheet found in *Appendix B*)

Who assisted you with risk management assessment of your program?
 What were/are the greatest areas of risk associated with your program?
 How are you addressing these risks?

Best Practice: Effective programs are experiential.



Experiential learning includes four important elements:

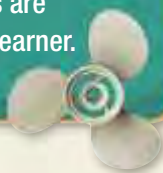
- Concrete experience – learner has a real-world experience relevant to learning outcomes.
- Process information – learner thinks about and reflects on what happened.
- Generalize – learners summarize what they’ve experienced and connect it to real-world examples (they answer the question “so what?”).
- Apply – learners apply what was learned to real-world and personally relevant examples (they answer the question “now what?”).

There are two basic types of experiential learning. One is education that occurs as a direct participation in the events of life. It doesn’t take place as part of a structured course—it occurs through reflection on everyday experiences. This is the way people do most of their learning.

The other type of experiential learning is related to education programs. It describes the sort of learning undertaken by students who are given a chance to acquire and apply knowledge, skills, and feelings in an immediate and relevant setting. Through practice, people actively learn, then share their experiences, reflect on their importance, connect them to real world examples, and apply the resulting knowledge to other situations.

To fully apply experiential learning, educational programs need to be relevant to the learner, be learner-centered and include other principles covered in this chapter.

Best Practice: Effective programs are relevant to the everyday life of the learner.



Making your program relevant to program sponsors and educators was covered earlier in this chapter. This Best Practice focuses on making it relevant to learners. For example, a program on endangered species would be more relevant to students in Florida if the manatee were used as an example,

rather than the Siberian tiger. This is especially true for younger learners. Children develop the ability to think concretely before they can think abstractly.

When programs move beyond what is relevant and meaningful, learners don’t have the chance to build their learning on what they already know, and learning becomes too abstract. When boating, fishing, and stewardship education is taught where they live and through real-world situations, learners’ own experiences become part of the education.

You also can make programs more relevant to learners by providing enjoyable learning experiences and locations. Many educators realize the value of learners having direct contact with nature. However, not all students have a comfort level with nature that promotes learning, and not all teachers are comfortable teaching outside the classroom. This is particularly true in multi-cultural contexts. One problem is that many teachers and learners don’t have these opportunities.

Wild places where people can explore are disappearing, and time to visit them is becoming rare, resulting in what has been called the extinction of experience.

You can prevent this extinction and increase teacher and student comfort levels by reintroducing them to their local area—exploring and experiencing it; learning about it and celebrating it. By doing so, you help learners develop or enhance a sense of wonder and a sense of place, fostering the awareness and appreciation that motivate them to further questioning, better understanding, and appropriate concern and action.

While enjoyable experiences in nature are a great addition to any program, recognize that they are not the only way to add relevance to the educational experience. Learners in an urban, industrial environment, for example, may become interested in the environment through efforts to create a schoolyard pond or wetland.

Give learners a real-world experience relevant to learning outcomes.

Worksheet 2-G

(Actual worksheet found in *Appendix B*)

List the target audience(s) for your program.
How is your program relevant to each audience?
How have you given your program a local context?
What real-world problems or issues does your program incorporate?
How does your program facilitate direct contact between learners and the outdoors?

Best Practice: Effective programs empower learners.



Internationally accepted objectives for environmental education (see Tbilisi Declaration in Appendix A) provide learners an opportunity to gain:

- **Awareness** – to acquire an awareness of and sensitivity to the total environment and its associated problems;
- **Knowledge** – to gain a variety of experiences in and acquire a basic understanding of the environment and its associated problems;
- **Attitudes** – to acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection;
- **Skills** – to acquire the skills for identifying and solving environmental problems; and
- **Participation** – to encourage citizens to use their knowledge to become actively involved at all levels in working toward resolution of environmental problems.

With slight modifications, these objectives can serve as overall guidelines for boating, fishing, and stewardship education as well.

Education is more than just the presentation of information. It helps learners achieve literacy in issues, working toward attitude and behavior changes in addition to knowledge. It seeks to give people the tools they need to weigh various sides of an issue to make informed and responsible decisions and engage in responsible behaviors. It also empowers them to seek out information and be able to participate in activities like fishing and boating on their own. How do you do this?

Teach them how to think

The key to empowering your learners is to teach them how to think not what to think. Rather than directing learners in a specific course of behavior, help them form the capacity to collect and analyze information, make informed decisions, and participate fully in civic life.

This requires more than the awareness and knowledge of boating, fishing, and stewardship processes and systems and positive attitudes toward them. It requires practical knowledge of how to bring about change, and citizen action skills needed to participate fully in civic life. You can help develop these by providing opportunities for learners to define an issue, determine if action is warranted, identify others involved, select appropriate action strategies, create and evaluate an action plan, implement the plan, and evaluate the results. You also can provide opportunities for participants to build skills in oral and written communication, conflict resolution, and leadership, as well as participate in the political or regulatory process, consumer action, and community service.

The key to empowering your learners is to teach them how to think not what to think..

In short, you can empower your learners by leading them from mere awareness of an issue to informed, responsible action.

The commitment and motivation a learner needs to take action often begins with awareness of the immediate surroundings. Educators can help foster learners' curiosity and enthusiasm, and provide continuing opportunities to explore and discover the world around them. As learners develop and apply analysis and action skills, as they make their own decisions and think more critically about their choices, and as they hear stories of success, they learn that what they do individually and in groups can make a difference. This internal locus of control, or sense that they have the ability to influence the outcome of a situation, is important in helping learners develop a sense of empowerment and personal responsibility—key elements in good education.

How educators present material can have a great impact on whether they are just conveying information or changing behavior.

Worksheet 2-H(Actual worksheet found in *Appendix B*)

What opportunities do you provide for learners to: define an issue; determine if action is warranted; identify others involved in the issues; select appropriate action strategies; create and evaluate an action plan; implement the plan; and evaluate the results? Outline the opportunities for each step.

What parts of your program provide opportunities for your learners to build skills in:

- Oral and written communication?
- Decision-making?
- Conflict resolution?
- Leadership?

More principles and guidelines regarding the learning process are available at:

- North American Association for Environmental Education (www.naaee.org/npeee/learner_guidelines.php)

Best Practice: Effective programs are learner-centered to provide collaborative learning opportunities and development of critical thinking skills.



Research from various disciplines suggests that education should focus attention on the learners, rather than on teaching, curriculum and instruction, or on the administrative structure of a school or educational program. But to accomplish this, teaching styles, the curriculum, and instruction itself must be focused on the learner (learner-centered).

In order for boating, fishing, and aquatic stewardship education programs to be effective in an educational sense, they must take into account the ways people learn. Understanding how people learn can help you tremendously in your efforts to build effective programs.

Much more than blank slates

For most of this century, educational practices were based on a model of learning that assumes that students are a blank slate on which the knowledge of others is written. Research since the mid-1970s suggests that learning occurs as a result of dynamic interactions between individuals and physical and social environments. Knowledge is actively built by learners based on their actions in the environment.

This development of knowledge is an ongoing process of construction and reorganization by the learner.

The most important factors influencing learning are what the learner already knows and the context in which he obtained that knowledge. Learning occurs when a learner weighs new information against previous understanding, works through any discrepancies caused by the new information, and comes to a new understanding based on the new and the old. Learning can occur only when the new idea or concept can be integrated into the learner's existing conceptual system.

If the learner cannot integrate the new material with previous knowledge, it is either rejected or rote learning occurs. To be most effective, your teaching methods need to be consistent with how students build knowledge, and the context or content must be relevant. Learning can be improved if you build upon your learners' existing knowledge about a subject, rather than assuming they don't have any. That is, don't start from where you think they are, start from where they truly are.

Researchers have described a three-stage process that can be used to achieve conceptual change:

- Phase 1. Preparation – learners begin to think about the new concept, discuss their own explanations, and become aware of the limitations of their naïve explanations.
- Phase 2. Presentation – teachers explain or provide and interpret experiences with key principles and theories.
- Phase 3. Application and integration – learners apply the scientific principles to new concepts and integrate those principles and theories into their personal knowledge.



Ages and Stages

Following is a generalized overview of developmental stages children go through from kindergarten through high school. Children develop at their own pace and all characteristics will not be observed in all children at the same age or at the same stage of development. However, the order of the stages does not change much. It is important to remember, however, that each child is unique.

Kindergarten - 3rd Grade: Five- to nine-year olds are optimistic, eager, and excited about learning. They have short attention spans. Five-year-olds can sit still and listen for 10-15 minutes; nine-year-olds for 20-30 minutes. They still think and learn primarily by experience. Rather than simply giving instructions verbally, demonstrate the activity. They enjoy doing, want to be active, and are always in motion. They are more interested in working on a project than completing it. Children this age need rules to guide their behavior, information to make good choices and decisions, and consistency once the rule is established. Provide small group activities and lots of opportunity for them to be active.

Grades 4-6: This is a period of slowed physical growth when a lot of energy goes into learning. Children 10-12 years old love to learn facts, especially strange ones, and they want to know how things work and what sources of information are available to them. They still think in terms of concrete objects and handle ideas better if they are related to something they

can do or experience with their senses. They are beginning to move toward understanding abstract ideas. They still look to adults for approval and need guidance to stay on task and to achieve their best performance.

They often are surprised at what they can accomplish, especially with encouragement from an adult.

Grades 7-9: Youth 13-15 years of age are in a period characterized by much "storm and stress." Although they look older, most remain emotionally and intellectually immature. Young teens move from concrete to more abstract thinking. They can be very self-conscious, and a smaller group usually is less intimidating. Help them get over inferiority complexes by concentrating on developing skills. They are ready for in-depth, longer learning experiences. They can begin to deal with abstractions and the future. Fitting in with friends is a controlling influence.

Grades 10-12: High school students are future-oriented and can engage in abstract thinking. Teenagers continue to be group-oriented, and belonging to the group motivates much of their behavior and actions. They have more time constraints such as work, social ties, or sports interests. They want to help plan their own programs. Involve them in the planning process. Use the discussion method when working with them. Instead of providing detailed instructions for how to put something together, provide suggestions and several alternatives.

Get learners involved

This process encourages programs that are learner-centered and involve active, experiential learning. This type of education is something students do, not something that is done to them. When learning is an active process, new experiences build upon previous experiences in a positive way, and incorporate interaction between the learner and the environment. Educational materials encourage positive attitudes toward learning by being presented in a fun, appealing, engaging, and challenging manner.

Teachers become facilitators, enabling students to use active techniques, such as experimentation and real-world problem solving to create knowledge. The students' newly created knowledge is based on asking questions, exploring, and assessing what they already know.

Inquiry-based learning (using hands-on and minds-on activities) produces high quality learning experiences in both the classroom and field. Understanding the process by which scientific knowledge is acquired is just as important as what

is learned. Your program will be most effective if you provide educators with access to current scientific information and technology and equip them to present science in an active learning environment where the learning process becomes more important than memorization of facts and figures.

Encourage educators to create opportunities for authentic learning based on students' interests, needs, and talents. Encourage them to define their students' intelligence broadly, and use all disciplines (including visual arts, music, and dance as well as science and math) to improve students' understanding of the real world.

In formal education, the concept of service learning (students conducting projects that are beneficial to the community and have direct links to the curriculum) gained attention in the late 1990s. In this technique, the first step is for the students to develop decision-making skills by assisting in the decision about what project should be done, and the consequences of each action. If students have a chance to practice the skills that can lead to environmental quality or protection or stewardship, they gain confidence in using those skills in other situations.

The most effective service learning projects for schools are those where students work closely with the community in a way that benefits the community and provides an education and service opportunity for the students, such as storm drain stenciling, flyers about control of exotic species, etc. The school is a place for learning, and when the school reaches out into the community, others learn too.

Worksheet 2-I

(Actual worksheet found in *Appendix B*)

How does your program incorporate collaborative learning and critical thinking skills?

How do you assess your learners' knowledge on your subject areas before instruction?

How have you incorporated active, experiential learning into your program?

Best Practice: Effective programs are designed to match the developmental stages of the learner.



Until about the 1930s, educators thought children learned in the same ways adults learn—that they differed only in the amount of knowledge they had learned. However, research shows that children think and learn differently from adults. As children develop, they reorganize and reconstruct their base of knowledge, replacing one set of assumptions with another.

This implies that children (or adults, for that matter) cannot learn if they cannot understand what they are being asked to learn. Real learning can occur only when the task is useful to the learner and when he/she is psychologically ready. Teaching is the act of creating environments that encourage learners to move from their current stage to the next—providing learning opportunities at a level just above a student's current cognitive level.

You will have greater success if you develop your program to facilitate stage-relevant thinking that allows students to discover for themselves the logical connections between objects or events. You might consider providing learners with choices about what to learn, because they tend to choose learning experiences appropriate for their cognitive levels. It also helps to provide students with many

opportunities to explore the natural world and think about it within their various stages of intellectual development.

Worksheet 2-J

(Actual worksheet found in *Appendix B*)

To what age group(s) is your program targeted?

How have you customized your program to that age group/developmental stage?

K-3:

4-6:

7-9:

10-12:

Best Practice: Effective programs use multiple teaching methods to accommodate diverse learning styles.



Learning styles

Researchers have described four major learning styles:

- Imaginative learners perceive information concretely and process it reflectively. They learn by listening, sharing ideas, and social interaction.
- Analytic learners perceive information abstractly and process it reflectively. They prefer sequential thinking, need details, and value what experts have to offer.
- Common sense learners perceive information abstractly and process it actively. They are practical and enjoy hands-on learning, looking for immediate use of what is learned.
- Dynamic learners perceive information concretely and process it actively. They learn by trial and error and self-discovery, being excited by anything new.

Not all students learn the same way. Intelligence is not unchanging, but can be learned, taught and developed. The content, teaching methods and assessment you use in your programs should allow students multiple ways of learning. It also allows them multiple ways to demonstrate what they have learned and can do.

Many teaching methods have been used over the years (lecture, panel of experts, brainstorming, videotapes/DVDs, small group discussion, case studies, role playing, guest speaker, cooperative

learning, experiential learning, Internet, among many others).

Each has strengths and appropriate applications. It is important to consider your learner-centered objectives and the ages and stages of your learners to help determine what teaching methods work best under varying conditions.

Researchers evaluating drug, alcohol, and violence prevention programs have documented the effectiveness of some approaches to character education.

Ineffective practices and strategies:

- Lecturing and moralizing.
- Use of charismatic hero figures to lead and inspire.
- Use of authoritarian teachers/leaders.
- Values clarification.

Effective practices and strategies:

- Small groups where learners help set their own as well as the group's agenda.
- Peer guidance and peer counseling approaches.
- Peer group activities involving problem solving and developing group norms and codes of behavior.
- Focusing on behavioral issues of relevance within the cultural context of the learners and their communities.
- Creating positive and mutually respectful learning climates.
- Establishing adults as participant-learners and guides in the ethics education process.

Teachers can be very effective as guides who help learners reflect on their experience, making it more personal and relevant, and ultimately more powerful and long-lasting. Educators are just beginning to understand the value of constructing meanings and interpreting connections for learners. Hands-on teaching techniques have been used in high quality education for decades. Recently, the term has been expanded to "hands-on, minds-on." The change points out that activity for activity's sake is not the goal, but use of active learning for engaging the mind on a task is the desired outcome. Hands-on techniques are particularly important for fishing, boating, and stewardship education.

More and more youth development educators are advocating strong youth-adult partnerships based on experiential learning. Non-formal educators, like those in Cooperative Extension, may be able to do this more easily than formal educators, for they are not burdened by the formal classroom and state-mandated education standards and accountability

measures. However, it is possible to incorporate these shifts into the classroom as well.

Cooperative learning is a teaching strategy that allows learners to work in small groups to explore a new idea, gather and share information, discuss ideas, apply concepts, and solve a problem. It emphasizes equal participation and accountability among members. Learners become actively involved in content, take ownership of their learning, and learn to resolve group conflicts and improve teamwork skills. Success depends on group accountability and individual responsibility. This approach gives learners the opportunity to gain communication skills, leadership skills, and the ability to work with others—all of which are important in helping them achieve life-long behavioral change.

Shifts in Learning

Researchers have identified eight shifts in learning that have been observed in schools across the nation. These eight shifts have resulted in gaps between how educators currently teach and how kids learn best. These eight shifts in interactive learning include:

- From linear to hypermedia learning – Most text books are written to be tackled from beginning to end. Youth today access information more interactively and non-sequentially as they surf channels and multi-task between many different software programs and websites.
- From instruction to construction and discovery – Try designing your curriculum in partnership with learners, or help learners design it themselves. Most people learn best by doing, especially if they can construct new knowledge based on their experience with abstract ideas and concepts.
- From teacher-centered to learner-centered education – Focus on creating the learning environment and providing resources.
- From absorbing material to learning how to learn – This means learning how to synthesize, not just analyze information.



- From schools to lifelong learning – Learning has become a continuous, lifelong process and really just begins after getting a formal degree or certificate.
- From one-size-fits-all to customized learning – Digital media allow individuals to find personal paths to learning based on their backgrounds, talents, and learning styles.
- From learning as tedious to learning as fun – The learner becomes the entertainer and is motivated, feeling responsible for learning.
- From the teacher as transmitter to the teacher as facilitator – Teachers need to act as consultants to teams of youth, facilitating the learning process by helping youth process the experience, as well as participating as a technical consultant on new media.

Worksheet 2-K

(Actual worksheet found in *Appendix B*)

To what age group(s) is your program targeted?
 How have you incorporated the four major learning styles into your teaching methods?
 What elements of your program incorporate hands-on techniques?
 What elements of your program incorporate cooperative learning techniques?
 What opportunities have you given your learners to access information interactively?
 Where have you made your curriculum a partnership with learners, or helped them design the curriculum themselves?
 How have you made your program learner-centered instead of teacher-centered?
 In what ways will you be teaching your learners how to learn (that is, how to synthesize, not just assimilate information)?
 How have you made use of digital media to allow every individual to find personal paths to learning based on their backgrounds, talents and learning styles?
 How have you incorporated fun into your program?
 How have you transformed your teachers from transmitters of information to facilitators of the learning process?

Best Practice: Effective programs use an interdisciplinary approach to help learners develop skills, formulate concepts, and examine issues.



Research shows that providing learners an avenue to explore connections between seemingly different topics and disciplines can improve learning. Boating, fishing, and the environment can be excellent

forums for integrating various subjects and curricula to enhance the learning experience. Educating learners about boating, fishing, and stewardship of resources requires consideration of interactions of the atmosphere, hydrosphere, lithosphere, and biosphere, with a broad range of positive and negative human activities. Therefore, your education program will, to some degree, have to have an interdisciplinary approach by its very nature.

Boating, fishing and stewardship can be used to enhance social studies, science, math, reading, physical education, art, literature and drug prevention. Outdoor environments and the local community allow students to construct their own learning, guided by educators using proven educational practices.

Research suggests a correlation between programs that use natural environments and interdisciplinary approaches and learner academic performance. Most children are naturally fascinated with natural settings and processes. This content focus in the classroom can improve students' acquisition of basic skills including language arts and math.

An example of how art can be blended with aquatic resources education is the activity "Downeaster Alexa," part of the Earth Systems Education ACES book (Activities for the Changing Earth System, 1993). This activity is named for a popular song by Billy Joel that describes a declining fishery and its impact on the life of a commercial fisherman. The song is the hook that engages interest in the activity, which deals with fisheries issues and development pressures on Long Island Sound. You could probably develop similar activities using "Big Two-Hearted River," "A River Runs Through It," and "Paddle to the Sea," among others.

Whole-school approach

Teachers in formal education settings may work together in the same building for years, but may have only sketchy knowledge of what is going on in each other's classrooms—especially across grade levels. With a whole-school approach, administrators and teachers coordinate a plan of study across disciplines and grade levels. You could create leadership teams of teachers within the school community to serve as liaisons between your agency/organization and the school. The team could serve as the peer trainer and facilitator of the program within the school. It's very helpful if you can establish strong connections with the school administration, who often are responsible for introducing innovations and who must support team teaching initiatives.

Developmental Assets

External Assets

The first 20 developmental assets focus on positive experiences young people receive from the people and institutions in their lives. Four categories of external assets are included in the framework:

Support - Young people need to experience support, care, and love from their families, neighbors, and many others.

They need organizations and institutions that provide positive, supportive environments.

Empowerment - Young people need to be valued by their community and have opportunities to contribute to others. For this to occur, they must be safe and feel secure.

Boundaries and expectations - Young people need to know what is expected of them and whether activities and behaviors are in bounds and out of bounds.

Constructive use of time - Young people need constructive, enriching opportunities for growth through creative activities, youth programs, and quality time at home.

Internal Assets

A community's responsibility for its young people does not end with external assets. There needs to be a similar commitment to nurturing internal qualities that guide choices

and create a sense of centeredness, purpose, and focus. Shaping internal dispositions that encourage wise, responsible, and compassionate judgments is particularly important in a society that prizes individualism. Four categories of internal assets are included:

Commitment to learning - Young people need to develop a lifelong commitment to education and learning.

Positive values - Youth need to develop strong values that guide their choices.

Social competencies - Young people need skills and competencies that equip them to make positive choices, to build relationships, and to succeed in life.

Positive identity - Young people need a strong sense of their own power, purpose, worth, and promise.

By considering how your subject matter can be used to help an individual develop these assets, you strengthen your program's overall impact on the individual's ability to participate in fishing, boating, or stewardship practices. For example, learning decision-making skills is essential to becoming a successful angler, boater, or steward of the resource. Decision-making skills learned through these outdoor pursuits can be applied in many other areas of the participant's life.

Worksheet 2-L

(Actual worksheet found in **Appendix B**)

How does your program incorporate subject areas beyond science/ecology?

If you have a formal education program, how have you involved a variety of teachers, subject areas, and grade levels?

Best Practice: Effective programs consider the social context in which the education takes place and provide avenues to enhance social support for the learners.

Research clearly shows that the social context in which education takes place is at least as important as the methods used to teach the concepts. In fact, the influence of the community within which the behavior will occur may be the strongest force

acting on the behavior, regardless of instruction or other treatment. If you do not incorporate the community and cultural context of your learners into your program, it is likely to remain abstract and outside their scope of experience.

Research also indicates that parental and community involvement improves student learning in formal education (schools). Whether your program is formal or non-formal, stakeholders and community groups are critical to help move learners past a mere understanding of concepts—to get them to change attitudes and cultural norms in the community.

Belonging to and identifying with a group or community is important for personal development—especially ethics and values. Community can include family, school, ethnic community, and groups such as 4-H or scouts. Family, peers, and others in the community transmit their attitudes, beliefs, and values to your learners. Group members can positively influence and actually initiate your learners into activities like fishing and boating, and can encourage or discourage stewardship behaviors associated with those activities.

This suggests that, to be most effective, boating, fishing, and stewardship education programs should incorporate relevant issues and active learning, and emphasize peer activities. Mentoring, clubs, and family programs implemented over the long term may build the kinds of communities that facilitate education. Therefore, programs will be most effective in reaching behavioral goals if they are designed to incorporate parents, family, and neighborhood as part of the learning community.

Worksheet 2-M

(Actual worksheet found in *Appendix B*)

What communities or groups do learners belong to?
 What are the primary social influences on learners?
 How can you enlist these influential groups to help?
 How have you incorporated small group activities into your program?
 How have you incorporated peer activities into your program?
 How have you incorporated action learning into your program?

Best Practice: Effective programs identify and target one or more outcomes or skills, beyond the subject matter, that are broadly useful to the participant.



By providing outcomes or skills beyond the subject matter, you provide skills for participants to develop and learn. These outcomes or skills may come from any source, such as life skills, workforce competencies, or internal assets. Life skills can be particularly important when working with youth who may not yet have developed them. Researchers agree that development of life skills such as goal-setting, decision-making, and problem solving is just as important as the acquisition of subject matter knowledge.

Over the last two decades the phrase “positive youth development” has become ingrained in the language of research and practice. One of the major forces in this movement was the work done by the Search Institute on developmental assets. At the heart of this work is the framework of 40 developmental assets—positive experiences, relationships, and opportunities that young people need to grow up healthy, caring, and responsible. The more assets a young person has, the more likely he/she will make healthy choices and avoid high-risk behaviors.

Worksheet 2-N

(Actual worksheet found in *Appendix B*)

Make a list of lessons within your program and how they include or how they can be modified to include the building of assets or life-skills.

Best Practice: Effective programs inventory and utilize a variety of educational resources and environments.



By inventorying resources in your area, including community resources (such as speakers and offices), and lab and field sites (such as hatcheries, marinas, ponds and lakes), you can more effectively utilize these resources to enhance your program.

Field studies make your program more meaningful and relevant to learners. Schools that use their own outdoor areas or visit parks and zoos report gains in learning. These gains are more permanent if out-of-class activities occur often and spontaneously, if specific tasks in the field are pre-assigned, or if the experience is designed to feed back into ongoing school programs.

Studies suggest that environmental sensitivity is developed through significant, positive contact with the outdoors over a long period of time. By inventorying resources in your area and making program partners/implementers aware of them, they are more likely to take advantage of them.

By making a speakers list or using positive role models as assistants, etc., you provide opportunities for diverse role models and diverse experiences.

Worksheet 2-O

(Actual worksheet found in *Appendix B*)

How does your program incorporate outdoor experiences?
 List the locations/facilities you will use to conduct your program.
 List community contacts who will help you deliver your program.
 List specific activities you will conduct in the field and/or incorporate into later classroom activities.



Chapter 3

Well-Trained Instructors

Programs can expand their capabilities by reaching out to partners and training teachers and other instructors. High quality professional development of instructors goes hand in hand with high quality curriculum materials. One without the other will more than likely lead to failure. The content, scope, and level of instruction may be (and probably should be) different for formal educators

(school teachers) than for non-formal educators (agency, staff, volunteers, etc.), but the Best Practices identified in this chapter are concerned with the process of professional development/training, which should be similar for both.

Teacher or instructor preparation and training is critical to assure the accurate and consistent use of curriculum materials. Program evaluations document that curriculum materials go unused unless supported with detailed in-service training and implementation support for users. Simply distributing free materials will not result in their use.

Without training in the use of curriculum materials or recommended teaching strategies, educators may not be able to achieve many of the goals or objectives you have set for your program. Effective training also reduces the possibility of teachers unintentionally misleading learners. Wherever possible, evaluate trainers in the field to ensure they are presenting the material as you intended.

Unfortunately, opportunities for educator preparation in boating, fishing, and stewardship education are limited. Most teachers have no formal training in fishing, boating, and stewardship education, and non-formal educators may have no training in teaching at all. All educators need professional development programs that focus on education processes and teaching methods, in addition to content. There are many ways you might prepare educators, including workshops, in-service training, mentoring, and other forms of professional development.

Lack of educator training is a common cause of program failure. Researchers urge the boating, fishing, and stewardship community to adopt extensive instructor training as a cornerstone of

Table 3: Best Practices for Professional Development

Planning

Effective Programs:

- Establish goals and objectives for training.
- Involve partners in educating/reaching a broader audience.
- Provide several layers of training.

Selection

Effective Programs:

- Recruit instructors with experience and knowledge in appropriate subject areas.
- Screen instructors.
- Inform potential teachers, instructors and volunteers of what will be expected of them prior to training.

Professional Development Workshops/Sessions

Effective Programs:

- Train instructors in education theory and models of good instructional practices.
- Model effective teaching methods during training.
- Incorporate social support into training.
- Discuss settings for instruction so instructors understand the importance of a safe and appropriate learning environment both indoors and outside.

Evaluation

Effective Programs:

- Provide appropriate models of and approaches to program evaluation.
- Include formative, summative, and long-term evaluation of the trainer, the program, and the trainee.

educational programs. The importance of the people who deliver your programs cannot be overestimated.

Table 3 contains currently recognized Best Practices for professional development. Following the table, each is explained, and worksheets throughout the chapter help you apply each practice to your own situation.

Planning

Best Practice: Effective programs establish goals and objectives for training.



What training do you currently provide? What do you want to accomplish with it? Effective programs establish clear goals and objectives for training just like they do for the program in general. Without goals and objectives you won't be able to evaluate whether or not your training activities have any impact on instructors and their ability to deliver your program.

Worksheet 3-A

(Actual worksheet found in *Appendix B*)

List goal(s) for your instructor training.
List specific objectives for your instructor training.
For each objective, list how you assess whether it is achieved or not.

Best Practice: Effective programs involve partners in educating/reaching a broader audience.



Agencies and organizations that rely solely on their staff for instruction limit the scope and potential of their educational programs. Involve staff in the development of partnerships with schools, communities, youth organizations and others, and then train teachers or volunteers to work with these groups to expand the number and diversity of individuals you can eventually reach. The cornerstone of successful partnership programs is professional development of teachers/volunteers

(addressed below) and the cornerstone of professional development is recruitment of qualified and motivated staff. It all works together.

Partnerships are good, but recognize that too much of a good thing can be detrimental. That is, evaluate each potential partnership for how it can benefit your program and the partner. Don't feel obligated to enter into partnerships just because someone makes an offer. Use the worksheet to help determine if the partnership is worthwhile.

Worksheet 3-B

(Actual worksheet found in *Appendix B*)

List partner organizations you work with to increase your instruction capabilities.
For each, how does the partnership benefit your program?
What must you do to maintain the partnership? (What will it cost to keep the partner happy?)
How might the partnership be improved?
List other organizations that might be willing to partner with you.
How might you pursue these new organizations?

Best Practice: Effective programs provide several layers of training.



Training includes basic orientation and exposure to program materials, processes, and mechanics, as well as additional training where instructors can receive in-depth exposure to specific program elements or new curriculum areas.

Effective programs encourage, facilitate, and support opportunities for continuing education. This includes opportunities to review and help update program materials and training procedures.

Consider when thinking about layers of training:

- Include basic and in-depth training modules and avoid brief, one-shot training sessions.
- Offer tiers of training to provide continuing education, gradually increasing learner knowledge and competency over time.
- Provide opportunities for learning to continue over an extended period (e.g., through innovative use of the Internet, list-serves, newsletters, and networking).
- Provide ways to update existing information and

disseminate it to educators and administrators.

- Inspire active, ongoing, lifelong learning by educators/instructors.
- Use experienced instructors and staff as mentors.

Worksheet 3-C

(Actual worksheet found in *Appendix B*)

List the kinds of training you currently provide your instructors (include workshops, newsletters, social events, updates, etc.).

Do these provide different layers of training (basic, in-depth, new areas, etc.)?

List additional levels of training that would help increase instructor effectiveness.

Instructor Selection

The following Best Practices refer to instructors who help deliver your programs, but who are not part of your staff.

Best Practice: Effective programs recruit instructors with experience and knowledge in appropriate subject areas.

You can train an instructor to deliver a simple introductory program to others. However, when you get beyond introductory programs, it's difficult to provide novice individuals the level of training they need to be effective. Recruit instructors with base experience and knowledge, then build on that. This results in more effective instructors and better implementation of your program, with less training time.

Worksheet 3-D

(Actual worksheet found in *Appendix B*)

Identify potential instructors, teachers, volunteers, or others who have experience in:

- Stewardship
- Boating
- Fishing
- Natural Resource Management (fish management, aquatic ecology, etc.)
- Teaching

Best Practice: Effective programs screen instructors.



Instructors who conduct your programs reflect on you, your program, and your organization. A teacher's knowledge, demeanor, ethics, and background can affect the credibility and even the existence of your program. You are not obligated to use an individual just because he volunteers to be an instructor. Develop guidelines for your program that address the types of instructors you want conducting your programs.

Actively recruit from trusted pools of people to improve your success at finding good instructors. For example, you might recruit from natural resources agencies/organizations (e.g., naturalists, biologists), reputable youth organizations (scouts, 4-H), teachers, etc.

After you identify potential instructors, criminal background checks are recommended where legal. This is particularly important when a volunteer will be working one-on-one with youth. Background checks are handled differently within each jurisdiction. Be sure to determine the laws, policies, and procedures used to conduct background checks on volunteers in your jurisdiction.

Whether or not you can do a criminal background check, it is important to interview instructors for potential motivations, commitment, ethical behavior, knowledge, and the ability to work with diverse groups. See *Figure 2* for a sample volunteer screening form.

Best Practice: Effective programs inform potential teachers, instructors, and volunteers of what will be expected of them prior to training.



You don't want to spend a lot of money training individuals who never use the training, and you don't want people leaving your training feeling they wasted their time. Avoid this by letting them know in pre-training advertisements, mailings, and/or conversations, what you expect from participants, and what outcomes you want to accomplish. For example, you may expect them to:

- Conduct programs after the training to... (this list might include such things as enhance stewardship

(continued on 3-5)

Figure 2. Sample Volunteer Application

Name/Contact information: _____ Date of birth: _____

Optional information: ☐ Female ☐ Male ☐ Asian Amer. ☐ African Amer. ☐ Caucasian ☐ Hispanic
☐ Native Amer. ☐ Other

Volunteer Level(Mark one)

☐ Sponsor (no training) ☐ Helper (1-2 hr training) ☐ Instructor (6-12 hr training):

Affiliation/Organization: _____

Position within affil/org.: _____ Staff _____ Volunteer _____ Other _____

I would like to work with groups (mark all that apply):

☐ through my affiliation ☐ general audiences ☐ on specific programs

Availability: Check all that apply

☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec
☐ Weekdays ☐ Weekends
☐ Morning ☐ Afternoon ☐ Evening ☐ Other

Skills/Interests: Check all that apply

<input type="checkbox"/> Art/Display construction	<input type="checkbox"/> Writing	<input type="checkbox"/> Equipment/Material development
<input type="checkbox"/> Donation coordinator/Solicitation	<input type="checkbox"/> Aquatic ecology	<input type="checkbox"/> Photography
<input type="checkbox"/> Environmental issues	<input type="checkbox"/> Marketing/Advertising	<input type="checkbox"/> Fish recipes
<input type="checkbox"/> Fishing(type):	<input type="checkbox"/> Plant/Animal identification	<input type="checkbox"/> Water quality
<input type="checkbox"/> Fish management	<input type="checkbox"/> Education	<input type="checkbox"/> Other:

Work Preference: Check all that apply

☐ Ages 7-14 ☐ Ages 15-19 ☐ Adults ☐ All

Experience working with: Check all that apply, list position and year

☐ Youth ☐ Persons with disabilities (☐Hearing ☐Physical ☐Visual ☐Mental)

Volunteer instructor applicants only:

Mark appropriate boxes:

Yes ☐ No ☐ Have you ever been convicted of a criminal offense?

If yes, include mo/day/yr and explanation: _____

Yes ☐ No ☐ Have you ever been arrested for the use or sale of drugs?

Yes ☐ No ☐ Have you ever been arrested or convicted of child neglect or abuse?

Yes ☐ No ☐ Has your driver's license been suspended or revoked within the past 3 years?

References: List two persons, not related to you, who have definite knowledge of your qualifications.

Include complete addresses.

Name: _____ Email: _____

Address: _____ Phone: _____

Name: _____ Email: _____

Address: _____ Phone: _____

I, the undersigned, understand that:

- The information that I have provided may be verified by contacting persons or organizations named in this application and I hereby release and agree to hold harmless from liability any person or organization that provides information concerning me to the _____ Department of Natural Resources.
- In signing this application, I swear or affirm that the information that I have given herein is true and correct, and understand any purposeful misrepresentation of facts shall be cause for non-acceptance as a program volunteer.

Applicant Signature: _____ Date: _____

Information asked for in this application will be used solely to determine the appropriate placement of you as a volunteer. It is understood that no discrimination is implied and the application will be handled in a confidential manner.

(Sample Screening Form provided courtesy of the Minnesota DNR MinnAqua Program)

Figure 3. Fish Iowa! Mentor Workshop Application for Participation

Name and full contact information:

Place an "x" on the line next to each statement below to indicate your agreement.

☐ I will attend the Fish Iowa! Mentor Training Workshop on (date).

☐ Upon completion of the training session I will assist another mentor with a session or workshop and conduct at least one session or workshop on my own prior to (date).

☐ I have enclosed a \$25 check payable to "DNR" as a deposit to reserve my space. (Note: This check will be returned at the workshop.)

I understand that I (or my agency) will be paid a stipend of \$150 to complete the mentor training and will be reimbursed for mileage to the workshop up to \$75.00. The Department of Natural Resources will provide meals during the workshop and free lodging will be available at the Conservation Education Center on (date).

Signature of Applicant: _____

(Sample Instructor Commitment Form courtesy of Iowa Department of Natural Resources)

of aquatic resources, enhance families fishing together, enhance youth development skills through fishing/boating/stewardship activities, etc.).

- Teach a minimum number of classes/hours.
- Submit reports (after classes, quarterly, etc).
- Attend additional training (annually/semi-annually, etc).
- Be a positive role model.

Some organizations, particularly those that conduct extensive trainings, have participants sign a commitment form or a job description (see *Figure 3*).



Professional Development Sessions/Workshops

Best Practice: Effective programs train instructors/educators on educational theory and models of good instructional practices.



Many non-formal educators have no formal training in teaching and many formal educators have no training in environmental or outdoor education. It is critical to design training programs to reflect participant needs.

Effective programs are built on sound instructional models that recognize the diversity in any group of learners. They utilize multiple methods of presenting information and incorporate active learning opportunities.

Educational theory and sound instructional practices include making information relevant to the learner, empowering learners, learner-centered approaches, accommodating diverse learning styles, using a variety of teaching methods, understanding developmental stages, and more. These subjects are covered in *Chapter 2*.

For formal and non-formal educators alike, professional development programs should focus on education processes and teaching methods, in addition to content.

Worksheet 3-E(Actual worksheet found in *Appendix B*)

List instructors who do not have any training in educational theory.

List instructors who do not have any training in boating, fishing, or stewardship education.

How can you provide the appropriate training to them?

Best Practice: Effective programs model effective teaching methods during training.

Trainers at professional development workshops must model effective teaching methods throughout the training session. High quality training must:

- Immerse participants in inquiry, questioning, and experimentation.
- Focus on process instead of content. An inordinate focus on science content only reinforces the inadequacy many instructors feel about their own science knowledge. When the focus is on process, instructors' hesitation to teach science is greatly diminished.
- Engage instructors in concrete teaching tasks based on experiences with students.
- Show instructors how boating, fishing, and stewardship education can be connected to specific standards for student performance or organizational goals (e.g., when working with school, 4-H, or drug prevention instructors, show how boating, fishing, and stewardship education can be used to enhance development skills).
- Be connected to other aspects of school/organizational change.
- Use attractive and appropriate training materials. Good training starts with good materials. Instructors are more likely to use materials if they are attractive, engaging, and easy to use.
- Provide hands-on exposure to materials to be used in the classroom. Give teachers opportunities to engage in boating, fishing, and stewardship projects, even if on a simplified basis. When teachers engage in projects themselves, they become more fully aware of project requirements, components, procedures, difficulties, and associated evaluation and grading procedures.

Worksheet 3-F(Actual worksheet found in *Appendix B*)

List the topics to be covered in your training sessions.

For each topic, identify the method to be used in the training.

For each method, identify whether it is instructor-centered or participant-centered (strive for more participant-centered activities so you model the way you expect them to teach).

List ways you emphasize process over content.

Create a brief agenda that shows what you will cover in your training.

Best Practice: Effective programs incorporate social support into training.

Three levels of social support need to be addressed. Two apply to instructors/teachers. If they feel isolated, it is harder for them to stay motivated. The first is the need for social support by the training organization. This could be in the form of site visits to end users after training sessions, and communication through emails, phone conversations, and newsletters—all of which are designed to maintain contact and provide support during their initial trial and improvement efforts.



The second level is for social support among instructors after the training. This type of social support can be advanced by:

- Incorporating peer teaching experiences.
- Providing ice breakers to encourage relationship development.
- Putting participants into teams during training exercises, providing opportunities for peer discussion, and then review during implementation planning.
- Providing opportunities to socialize.
- Requesting that participants come to training in teams, so they leave with “built-in” partners.
- Sharing names and emails of those attending the training and/or those who are conducting similar programs.

Social support among instructors also can be advanced through instructor recognition efforts. Most volunteers are motivated by a need to contribute. Certificates, award banquets, or other recognition may help keep them motivated and involved. Consider what motivations will best meet

the needs of your volunteers.

Social support is an extremely important process to help individuals see themselves as anglers, boaters, or stewards of aquatic resources.

These first two dimensions of social support can overlap, such as when a training organization invites teachers and instructors to follow-up sessions intending to provide both work-related and interpersonal interaction and support opportunities.

The third level of social support is for end users. Social support is an extremely important process to help individuals develop to the point where they see themselves as anglers, boaters, or stewards of aquatic resources. Give your instructors examples of how they can incorporate social support into their programs/classes, such as involving family members in the program, developing an after-school club for youth, making adult participants aware of clubs or organizations they can join, or incorporating positive role models.

Worksheet 3-G

(Actual worksheet found in *Appendix B*)

How do you provide social support for your instructors?

List your instructor recognition efforts.

List the opportunities for end user social support.

What type of social support do you require your teachers to incorporate into their teaching?

Are there other ways you could provide support?

(Ask instructors!)

Best Practice: Effective programs discuss settings for instruction so that instructors understand the importance of a safe and appropriate learning environment both indoors and outside.



Effective teaching programs identify, create, and use diverse settings appropriate to different subject matter and available resources (e.g., schoolyard, laboratory, swimming pool, stream/lake/pond, community, museums/aquariums, demonstration sites). Hold your training sessions in appropriate, engaging locations to make the instruction more effective and to model this behavior for your participants.

Environmental sensitivity is developed through positive contact with the outdoors over a long time. Direct experience with nature makes the learning process faster, what is learned is retained longer, and there is a greater appreciation for those things that are learned firsthand. Effective programs get instructors/teachers outdoors during training sessions whenever possible. Demonstrate a concern for learner safety in designing, planning, and implementing instruction, especially hands-on experiences that take place outside the classroom. Review safety guidelines for a variety of activities. Discuss liability issues instructors may encounter and how to minimize risks (See *Chapter 2* for more about safety).

Worksheet 3-H(Actual worksheet found in *Appendix B*)

List learning settings where you conduct instructor training.

List other settings that would be appropriate.

What are the barriers to using these settings?


What steps are necessary to make use of these settings?

List areas of your teacher instruction where you stress the importance of providing hands-on teaching methods in a variety of settings, particularly outdoors.

How do you address safety/liability issues? Do you model use of appropriate safety measures? Do instructors understand their liability?

Evaluation

Best Practice: Effective programs provide appropriate models of and approaches to program evaluation.



Instructors and educators in effective training programs possess the knowledge, abilities, and commitment to assess and evaluate their programs. Provide them tools for assessing learner progress and evaluating the effectiveness of their instruction and other features of the program.

All instructors that you train, whether on your staff or not, reflect on your program and organization, so it is necessary to evaluate and supervise your instructors.

Help instructors understand the importance of tying assessment to learning:

- State expected learner outcomes that are tied to the goals and objectives of the program.
- Identify national, state, and local standards that apply to stated learner outcomes and link assessment of fishing, boating, and stewardship education to these.

- Describe and use means for engaging learners in setting their own expectations for achievement. Discuss the importance of these abilities on learner-centered education and lifelong learning.

Familiarize instructors with ways to incorporate assessment into their programs:


- Make objectives and other expectations clear to students at the outset of instruction.
- Provide examples of and implement specific performance-based assessment such as open-ended questions, oral reports, group and independent research, other types of actual performance-oriented tasks, appropriate projects, and portfolios (collections of a variety of work products).
- Identify and use techniques that assess learners' baseline understandings and skills at the beginning of lessons, units, and other segments of instruction.
- Develop formative and summative assessment tools appropriate to specific instructional segments or projects.
- Discuss the importance of and identify techniques for encouraging learners to assess their own and others' work. Use these assessments to improve their learning experiences.
- Discuss how to organize, interpret, and use the results of differing kinds of assessment to help modify and improve future instruction.

Worksheet 3-I(Actual worksheet found in *Appendix B*)

How do you ensure that instructors understand the importance of tying assessment to learning?

How do your instructors incorporate assessment into their programs?

Best Practice: Effective programs include formative, summative, and long-term evaluation of the trainer, the program, and the trainee.



One of the most neglected components of education programs is evaluation. Many evaluation efforts rarely report more than program outputs such as the number of participants, participant satisfaction, or information exposure. Conversely, effective programs engage in evaluation of all aspects of the program. Evaluation is seen as a permanent, ongoing part of the education process.

Evaluation of the trainer

It is important that quality be reflected from the start. If your agency/organization trainers are not effective, it will trickle down and decrease the quality of the overall program. Have all training instructors be evaluated by their peers and by teachers/instructors attending the workshops.

Evaluation of the trainee

All instructors that you train, whether on your staff or not, reflect on your program and organization. An instructor's knowledge, demeanor, ethics, and background can affect the credibility of any project, and it is necessary to evaluate and supervise your instructors after they are enlisted and trained.

Even if you have effective training, you may occasionally have an educator or instructor who wanders astray. He or she may utilize other materials or examples that are incorrect or mislead an audience.

During a course given by one of the teacher/instructors, an agency instructor should observe the training and do a subjective evaluation of the instructor's ability to teach effectively. Some points to consider are:

- Did she understand the material well enough to teach it?
- Did he deviate unnecessarily from the lesson plan?
- Was she able to handle questions or communicate effectively?
- Did he stay on time?
- Were there credibility issues, egocentric behaviors, or other characteristics that would detract from the class, the program, the individuals involved, or the agency?

Ask students to fill out a course evaluation at the end of the course. If the student evaluations indicate problems, the agency trainer should discuss these with the instructor.

Evaluation of the program

You'll receive some evaluation from your instructors using the previous Best Practice, but an in-depth evaluation is important. Please refer to *Chapter 4* for details on how to evaluate your program.



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Chapter 4

How Do You Know If It's Working? Evaluation!

Probably the most neglected component of all educational programs is evaluation. Far too often programs are based, not on research evidence supporting their effectiveness or on accepted education theory, but only on what another program or agency is doing. And most evaluation efforts rarely report more than simple program outputs such as the number of participants at an

event, participant satisfaction, and cost of delivery. What do these simple outputs tell you about how well you are educating your audiences? If you are asked what kind of impact your program is having on the knowledge, attitudes, or behaviors of your audience, how will you answer?

The rarity of formal evaluations of the short- and long-term impacts of education programs is somewhat puzzling, given what evaluation has to offer. Programs that implement formal evaluation are successful (or on their way to success), because the evaluation process shows you what works and what doesn't. By building on what works and changing or removing what doesn't, you continually work toward and/or achieve your program goals and objectives.

Evaluation has an added benefit (as if more benefit were needed) in this day of accountability, as it provides tangible evidence that your education efforts are based on sound educational theory and are accomplishing agency/organizational goals and objectives.

Table 4 contains currently recognized Best Practices for program evaluation. These practices are based on the best research and experience currently available. Following the table, each Best Practice from the list is explained, and worksheets throughout the chapter help you apply each practice to your own particular situation.

More on Evaluation

More information regarding program evaluation can be found at the American Evaluation Association Web site: www.eval.org.

Best Practice: Effective program evaluation is based on program goals and objectives.



Table 4: Best Practices for Program Evaluation

Effective program evaluation:

- Is based on program goals and objectives.
- Is a systematic and ongoing process that begins when a program is being planned and carries through implementation.
- Receives administrative and financial support.
- Is used as a learning tool to support program reflection, decision-making, and improvement.
- Helps identify program outputs, such as number of participants and participant feedback.
- Explores and investigates the program's short-term learning outcomes.
- Explores and investigates the program's long-term benefits and impacts.
- Encourages the use of multiple and varied assessment methods.
- Uses national criteria to select, develop, and/or revise curriculum materials.
- Allows program staff to take advantage of professional development opportunities relating to evaluation.

Perhaps including this as a Best Practice is overstating the obvious, but everything else in this chapter is based to some degree on this simple assumption: In order to evaluate your program, you must have some standard(s) to evaluate it against. Your program goals and objectives are those standards.

Many education programs are conducted because they sound good or because they work well for someone else, without any consideration of their contribution to the agency's or organization's mission, goals, or objectives, or the needs of the target audience. If asked whether such a program was working or not, an educator would simply be giving an opinion based on some set of unspecified standards—a gut feeling. The whole purpose of program evaluation is to put aside gut feelings and get down to what really works (and does not work) to help you meet your goals and objectives.

What if you've been ordered to conduct a certain program that does not contribute to your organization's mission? Armed with the information in this chapter, you can at least demonstrate to the "powers that be" that evaluation is considered a critical component of effective programs and that evaluation is impossible without carefully articulated goals and objectives (for more information on setting goals and objectives, see *Chapter 1*).

Worksheet 4-A

(Actual worksheet found in Appendix B)

What is(are) the goal(s) of your program (immediate and long-term)?
 What are the specific, measurable objectives of your program (immediate and long-term)?
 How will you measure each objective?
 How will you determine whether you have met your objectives and achieved your goals (specific behaviors, knowledge base, indicators of success)?

Best Practice: Effective program evaluation is a systematic and ongoing process that begins when a program is being planned and carries through implementation.

Many people are not aware that, to be most effective, evaluation must begin before a program is implemented. This is called formative evaluation (that is, evaluation conducted during formation of the program). Far

too often, program coordinators only think about evaluation in terms of an after-the-fact judgment as to whether desired outcomes were achieved. This kind of summative evaluation (evaluation conducted as a sort of summary of the program) is critical, but incomplete. A systematic evaluation process can help you build your program correctly, adjust it over time, and ultimately achieve the results you are looking for more effectively and efficiently.

The first step is to evaluate whether the program is even needed. *Chapter 1* discusses program planning in detail, and the following discussion assumes you have already determined that the program is needed, and have developed a program logic model for it. Your model should be similar to (or have similar factors as) the conceptual model shown in *Figure 4*.

Your program logic model is an excellent tool for formative evaluation, because it forces you to quantify all the steps required for delivery of your program. Putting all the steps on paper can help point out where your program may need some adjustment.

Other tools or methods you can use to collect information as the program is being developed include comment or feedback forms, observations, interviews, focus groups, and surveys. These often are collectively called a program needs assessment. Use these with administrators, teachers, students, colleagues, or other stakeholders.

If you are not the only one who will be delivering your program, consider conducting focus groups and surveys of your teachers or instructors.

For example, you may conduct surveys or focus groups to ask:

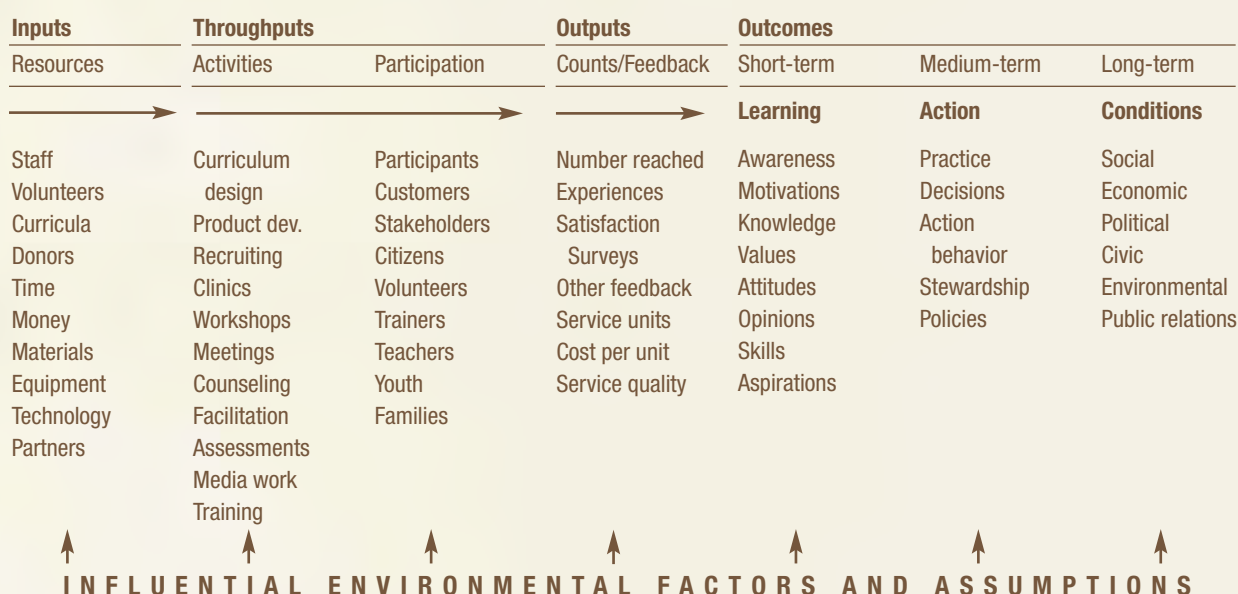
1. Do you currently teach [topic of interest]?
2. Why or why not?
3. If yes, what resources do you use/need?
4. If not, would you teach it if you had appropriate resources?

Worksheet 4-B

(Actual worksheet found in *Appendix B*)

List the ways that you evaluate your program:

- During the planning stage.
- During implementation.
- Upon completion.

Figure 4. Conceptual Logic Model for Program Development and Evaluation

Best Practice: Effective program evaluation receives administrative and financial support.



It is a common misconception that program evaluation is or should only be a periodic event. This reasoning suggests that educators should continue a given program as-is for a number of years, and then every once in awhile evaluate it to make sure it is on track. Unfortunately, the real world is not nearly so simple. Nearly all aspects of boating, fishing, and stewardship education programs are in a continual state of flux—educational theory, target audiences, social norms, and environmental conditions. Even the agencies and organizations implementing the programs are growing and changing. Evaluation is most effective—and offers the most benefits—when it is built into the program.

Making evaluation a permanent and integral part of your education program requires support at every level. Use the following points to help build, enhance, or maintain this support within your agency or organization.

Permanent, integral evaluation is:

- The only real measure of program effectiveness.
- The only way to be certain that a program is meeting agency goals and objectives and the needs of target audiences.

- The primary way you can demonstrate the value of the program to those to whom you are accountable.
- A learning tool that allows your program to adjust to changes and maintain effectiveness in the ever-changing world.
- A nationally accepted Best Practice for boating, fishing, and stewardship education programs. (It is a hallmark of “best” programs.)

Your agency or organization may not have the internal budget to fund full program evaluation. However, partners and outside funding sources can help, and indeed, often require evaluation of the projects they fund. Whenever possible, include evaluation components in your outside grant/funding proposals.


Faculty and graduate students at universities can be another source of evaluation for your program. They may be able to provide considerable assistance at low or no cost.



Worksheet 4-C(Actual worksheet found in *Appendix B*)

Is evaluation included in your program every year?
 Do you include funding for evaluation in your annual program budget?
 What administrative support do you have for your program?
 Do program administrators actively support and encourage the inclusion of and proper budgeting for evaluation in funding proposals you submit?
 List the program partners (such as university faculty and graduate students) who might assist with evaluation.
 Where is administrative support lacking?
 How might you address this lack of support?

Best Practice: Effective program evaluation is used as a learning tool to support program reflection, decision-making, and improvement.



When evaluation is an integral part of your program, it becomes a powerful learning tool that helps you make the program more effective. Imagine the value of receiving specific feedback on your program while it is ongoing as well as at the end of a cycle. You could make changes or adjustments to improve learning and better serve your constituents. You could make curriculum choices and other program decisions based on data, not on opinion. You could continually maximize your program's effectiveness at helping you achieve your organization's goals and objectives.


Here is another place where your program logic model can be helpful. Refer to the model as you proceed through the various steps and phases of your program. Use it to match and align program inputs (e.g., materials, resources) and processes (e.g., activities, services) with the outcomes you expect.

If your program or event is heavy on facts, your participants might come out of it with the short-term outcome of learning, whereas your goal may be action. In this case, you could revise your program to include more hands-on, skill-building, real-world examples that better prepare your students for taking appropriate actions upon completion of the program.

Worksheet 4-D(Actual worksheet found in *Appendix B*)

What information do you collect through evaluation that can help you in the program decision-making process?
 How do you incorporate evaluation results into decisions about your program?
 How often do you use evaluation results to guide decisions about your program materials? Delivery system? Other?

Best Practice: Effective program evaluation helps identify program outputs, such as number of participants and participant feedback.



A fault of some programs is that they collect information on program outputs (number of participants, participant feedback, cost per participant, etc.) as their only form of evaluation, neglecting to consider the outcomes, such as knowledge, attitudes, and behaviors. While collection of outputs alone is not sufficient, that is not to say that these measurements are not useful—they certainly are. In fact, in some situations, they can be of primary importance. For instance, if you plan a workshop or event for 50 people and only two show up (or if 300 show up), that alone is a very strong indicator that you need to work on matching your resources with the demand for your program. Likewise, a participant evaluation form distributed at the end of an event can give you a lot of good insight into how well your program met the immediate needs of the audience. This kind of output information is easy and inexpensive to collect, and it is an important piece of the evaluation puzzle.

Worksheet 4-E(Actual worksheet found in *Appendix B*)

Activity/event:
 Date:
 Location:
 Number of participants:
 Cost of event:
 Cost per participant:
 Participant satisfaction exit surveys:
 List other program outputs you collect:

Figure 5. Pre- and Post-Program Surveys

Pre-program Survey

1. Who brought you to this program? Please give relationship, not name (friend, mother, teacher, by self, etc.):
2. Have you ever fly-fished before?
☐ No - skip to Question 5. ☐ Yes - go to Question 2 below.
3. How many years have you fly-fished?
☐ Less than 1 year ☐ 1- 2 years ☐ 3 years or more
4. Who taught you to fly-fish? (friend, relative, learned yourself, etc.):
5. What are two of your other favorite hobbies or sports?
6. Did you know that there were fishing opportunities near your home?
☐ No ☐ Yes
7. Had you heard of Trout Unlimited prior to this program?
☐ No - skip to Question 9. ☐ Yes - go to Question 8 below.
8. Are you a Trout Unlimited member?
☐ No ☐ Yes
9. If you can, name 2 threats to trout habitat.
10. If you can, name 2 actions you or your family can take to help trout.
11. Have you ever done any of the actions you listed in Question 10?
☐ No ☐ Yes - If "Yes", which actions?
12. Have you ever done an environmental project before?
☐ No ☐ Yes
13. Name two older people who are important influences in your life.
 Please give relationship, not name (coach, grandmother, teacher, etc).

Name _____ Relationship _____

Name _____ Relationship _____

Post-program Survey

1. Do you think that you are going to fly-fish again?
☐ No ☐ Yes
2. Are you going to join Trout Unlimited?
☐ No ☐ Yes
3. If you can, name two threats to trout habitat.
4. If you can, name two actions you or your family can take to help trout.
5. Are you going to do any actions you listed in Question 4?
☐ No ☐ Yes
6. Do you want Trout Unlimited to mail you information about the next class or project?
☐ No ☐ Yes - if Yes, please provide your contact info below:
7. Would you be interested in fishing with a mentor from TU?
☐ No ☐ Yes

(Provided courtesy Trout Unlimited)

Assessing Program Outputs

A good way to assess program outputs is through use of pre- and post-program surveys (see Figure 5).

Best Practice: Effective program evaluation explores and investigates the program's short-term learning outcomes.



If your program is oriented toward fostering knowledge gains and/or skill acquisition (as opposed to behavioral change, which often comes over longer periods of time), it is important that this be done at the end of any training or program experience. Many audiences will want to know “What did we learn (or come away with)?” Effective programs determine and periodically assess short-term learning outcomes based on objectives and program experiences.

Short-term assessment can be accomplished with traditional assessment methods such as quizzes and tests, as well as alternative methods, such as journaling and responses to open-ended questions, oral question-and-response sessions, observations of performance, papers and projects, etc.

Worksheet 4-F

(Actual worksheet found in *Appendix B*)

What are the short-term outcomes you want from your program? (Refer to your program logic model.)
What methods do you use to accomplish this assessment?

Best Practice: Effective program evaluation explores and investigates the program's long-term benefits and impacts.



Although collection of program outputs such as number of participants is important, effective program evaluation goes beyond that as well. The conceptual program logic model in *Figure 4* includes sample short-term, medium-term, and long-term outcomes such as knowledge, attitudes, and behaviors that lead to improved social conditions. These specific outcomes

will vary based on the goals and objectives of your program.

Educators in effective programs identify the outcomes they expect and continually assess their program's impact on achieving them. A good way to begin this process is to consider all the potential impacts of the program. Then select from this list those that are most likely or plausible. These are the impacts that should be assessed. The methods to be used for assessment will vary from one kind of impact to another (see the following section for more information).

Assessing Long-term Impacts—an Example

In an attempt to assess long-term impacts of an aquatic field experience on the science attitudes of 6th graders, a university master's degree student is asking program participants now in the 7th, 9th, and 12th grades what they remember about the experience and whether it has had any influence on their choices of courses, hobbies, or career plans.

Worksheet 4-G

(Actual worksheet found in *Appendix B*)

What are the possible long-term outcomes of your program?
What are the long-term outcomes you want from your program? (Refer to your program logic model.)
Potential survey questions you could ask your program graduates after completion:

- Have you fished/boated/participated in a stewardship activity (clean-up day, recycling, advocacy, etc.)?
- Have you bought a fishing license?
- Have you purchased your own equipment?
- Have you joined an angling, boating, or conservation organization?

Best Practice: Effective program evaluation encourages the use of multiple and varied assessment methods.



Reliably assessing program outcomes such as the knowledge, attitudes, intentions, and behaviors of participants is difficult. Many methods and techniques are available, and each has strengths and weaknesses.

Not all assessment methods need to be quantitative, or have the rigor of a university research project. Don't be afraid to use less formal methods at times. However, whatever methods you choose, be sure they are based on the systematic collection of data and that the data is credible and dependable. Information gathered randomly or haphazardly will not be useful and may be misleading. You might consider contacting a university or professional marketing firm to help you conduct long-term evaluation.

When you use multiple assessment methods, you gain a much clearer picture of what is actually going on than when you rely on any single method.

Multiple and varied methods increase your confidence that you have a valid and reliable "reading" of what has been learned/acquired. Some learners have high levels of test anxiety and will rarely be able to fully demonstrate what they have learned through testing, while others will test well. Similarly, some learners need to be able to do something to demonstrate what they have learned. In these cases, a test or language-based assessment method will not work well. Multiple and varied methods accommodate the capacity of learners to document or demonstrate what they have acquired.

The same purposes hold true in program evaluation. You may want teachers and content experts to review a piece of curriculum, each with different questions in mind (e.g., usability vs. content accuracy), and then run a field test of this curriculum in a similar setting to determine how well it works in action. These different methods increase confidence that the curriculum is sound and can help learners achieve the objectives (or anticipated learning outcomes).

If you assess or evaluate something using several different methods, you can compare results from these different methods. If the results agree, you gain confidence in them. If they do not, then you can explore why (e.g., a learner doing poorly on a test but performing well in natural settings may indicate test anxiety). The use of two or three separate methods allows you to triangulate results. The methods don't have to be conducted at the same time or in the same way. The use of multiple and varied methods is highly recommended.

Following are some assessment methods commonly used to evaluate boating, fishing, and stewardship education programs. Some are best suited for formal education settings (schools). Others are best suited for non-formal education settings. Some can be used

in either. There may be some overlap among the methods. These methods are not listed in any particular order.

Surveys

A survey is a series of questions to be asked of a sample group of people. It can be conducted by telephone, e-mail, mail, or in-person interviews. On-site interviews are an effective way to gain information such as extent of fishing and boating activity, social group size and composition, and other participation characteristics. However, on-site survey samples exclude non-participants. That is, if you are interviewing people at a boat ramp, you are not likely to include any non-boaters in your survey. For some surveys this may be fine; but often you will want to compare and contrast participants and non-participants.

Population surveys that are national, regional, or statewide in scope can be designed to include subgroups of participants and non-participants. Population surveys allow you to determine specific rates (as percentages of the population) of boating, fishing, and involvement in stewardship activities. Large population studies are necessary for establishing trends and baseline information. The National Survey on Recreation and the Environment and National Survey of Fishing, Hunting, and Wildlife-Associated Recreation are important for this reason.

Note: If you evaluate a program targeted at minority populations in urban, inner-city areas, you will need to adjust the standard survey technique. Minorities in inner-cities generally are regarded as "hard-to-reach" populations with characteristically low response rates.

Testing

Testing is commonly associated with school programs, although it can be used in many settings. Test questions must be specific enough to target some difference that will be measurable and enough students must be involved to find significant differences. Further, to measure the impact of the program, you must be able to compare students who participated in the program with students who did not (experimental and control groups), or compare students' knowledge at two different times—before and after the program (pre-test/post-test). Some programs use both strategies to reduce the problems associated with each. That is, they assign equivalent classes in the same school to be control and experimental; inform teachers of



their role in the evaluation process; carefully select teachers and schools to provide a realistic cross-section of the school situation; and accept that there will be some factors that cannot be controlled.

Focus groups

Focus groups consist of a small number of individuals assembled to discuss a topic of interest to an evaluator or to an agency. Focus groups produce qualitative data through a focused discussion among individuals who may possess some common attributes.

Advantages of the focus group method include:

- 1) allows the interviewer to probe;
- 2) usually not expensive; and
- 3) provide timely results.

The major disadvantages are that data derived from the discussion are qualitative and may be difficult to analyze, and there often are problems with logistics—getting individuals together and finding a setting conducive for conversation.

Ethnographic method

Another qualitative alternative to surveys is the ethnographic method. Ethnographic research differs from traditional survey research by placing the researcher inside the community being studied. The advantage of an insider's view is being able to see how a leisure activity, such as boating or fishing, is connected to the daily patterns and routines of an ethnic community. This approach to evaluation holds potential for understanding how members of ethnic communities define fishing, boating, and stewardship in relation to their own culture.

Information gathered this way can be used to tailor programs to meet needs of particular ethnic communities. Success depends on four factors:

1. Ability of a researcher to establish an identity within an ethnic community
2. Project based on community need rather than agency priority
3. Recognition that relationships are the most important task in the process
4. Remembering that community members are the experts on their culture

(More information on working with diverse audiences is included in *Chapter 5*.)

Longitudinal studies

Program evaluations should employ longitudinal designs to track participation over time and to observe long-term changes in behavior. Longitudinal designs rely on panels of participants, a fixed number of individuals who respond to questions over time (weeks, months, or years, depending on study design). In contrast, cross-sectional designs are based on measurements taken at only one point in time. The greatest advantage of a longitudinal design is the ability to examine enduring participation in an activity. Disadvantages of this design approach include the large effort required to recruit and retain individuals. Mortality, in terms of refusals to participate in subsequent measures, change of residence, death, and other factors, also are disadvantages. This approach appears to be most effective for evaluating long-term participation in boating and fishing.

Experimental methods

Experimental methods are arguably the most effective tools for determining whether a specific program leads to a particular outcome. In controlled laboratory experiments, the effect of manipulating an independent variable on a dependent or outcome variable can be observed while the effects of other relevant factors are minimized.

However, many variables of interest such as skill development, attitudes, and program leaders cannot be controlled and manipulated in experimental designs. Tightly controlled experiments are difficult to employ, but field experiments can be conducted in realistic or natural settings. Field experiments appear more suitable for relating the effects of educational program components to boating, fishing, and stewardship outcomes.

Figure 6: Sample rubric for use in evaluating individual student research projects.

Instructions: For each task listed on the left, indicate level of attainment from one to ten. Brief descriptions on scoring are listed to the right of each task.

Task	1	5	10	score
Research Time Utilization	Student needed continual reminders to get back to work. Work may be inappropriate to project.	Student usually on task, but needed an occasional reminder to get back to work. All work appropriate.	Student was always on task and did not need reminders to get back to work.	
Participation in Project	Student does not add an equitable amount of work to the project and does not meet all requirements for the length of presentation.	Student adds an equitable amount of work to the project, but may not meet all requirements for the length of presentation.	Student adds an equitable amount of work to the project and meets all requirements for the length of the project.	
Accuracy of Information During Presentation	Student's information was lacking in content and was not factually correct in many places. Information may not be pertinent to the presentation.	Student's information is for the most part factually correct. Information may not be pertinent to the presentation.	Student's information is factually correct and pertinent to the presentation.	
Clarity of Presentation	Student's work not well planned. Student confused by much of the information. Student not clear in explaining topics.	Student's work is well planned. There seemed to be some confusion or misinterpretation of information.	Student's work well planned and clearly explained. Student showed clear command of information.	
Visual Aid Worksheet, or Simple Demonstration	Device was not used at a timely place in the presentation, had little bearing on the presentation, or was absent.	Appropriate device. Could have been used more appropriately. Design may not have maximized learning.	Use of device was timely and appropriate. Design of the device maximized learning.	

(Source: Mayer and Fortner 1995)

A major advantage of experimental designs is that the variables in question are specified prior to the study. In survey research, it is common to collect large amounts of data and then identify operational definitions “after the fact.” Developing definitions prior to testing forces researchers and sponsors to

consider what particular outcomes are most relevant for evaluation.

Apart from the technical aspects of program evaluation, having to define the meaning of effectiveness or success may cause agencies and program providers to reflect more deeply on the goals of boating, fishing, and stewardship education. This may serve to clarify an agency's mission with regard to educational practices and may result in a higher level of service for the public.

Portfolios and journals

Portfolios and journals are valuable grading tools that give insight into student growth in thinking and skill development. Journals can be based on the student's ongoing work that leads to a project (a diary of sorts), or on his thinking and pursuit of



information about a subject area. A journal is a work in progress. In rare cases a journal is more personal, with reflections on nature or critical thinking about a class process. This type of journal may be reviewed but not graded; suggestions from the teacher are acceptable.

Portfolios are collections of student work that demonstrate increasing proficiency. A portfolio should be able to demonstrate what kinds/qualities of student work are valued, since the student selects what is included. In the cases of journals and portfolios, attention to the contents and quality of work demonstrated are the basis for evaluation. Rubrics (specific guidelines given to students ahead of time that show how the teachers will allocate points) are critical to the effectiveness of this tool.

Projects

Projects are the most common forms of outcome for cooperative learning. Communication skills for the projects are valued along with the science. The format may vary widely—a display, a videotape simulating a news broadcast, a group presentation with PowerPoint, a lesson for a younger group of students, or other medium prescribed by the teacher or selected by the students. Projects encourage cooperation, working toward a goal, and the importance of clarity of results. Students may be required to defend the information they are presenting as well. Projects are best evaluated with a rubric.

The evaluation technique should be in the same format as the treatment, so giving a multiple-choice test after a cooperative learning exercise is inappropriate. In fact, the most appropriate techniques for evaluation of boating, fishing, and stewardship programs may be the ones considered alternatives to traditional testing. Rubrics can work well if you need to assign numbers to levels of attainment (*Figure 6*), so long as they are based on clear goals.

Typically, the numbers indicate the relative value placed on different tasks within a project. For example, if data use is the main purpose of an investigation, data points might equal 30 of 50, while communication/interpretation skills rate 10 and group interaction 10. A new rubric should be constructed for each project type. Simpler rubrics list only the total points per component, while others break down intermediate steps toward excellence.

Worksheet 4-H

(Actual worksheet found in *Appendix B*)

Check each method you (plan to) use and identify what you will assess with each.

- Surveys (describe)
- Testing (describe)
- Focus groups (describe)
- Ethnographic method (describe)
- Longitudinal studies (describe)
- Experimental methods (describe)
- Portfolios and journals (describe)
- Projects (describe)
- Other (describe)

Have you discussed evaluation procedures with a professional in this field?

Best Practice: Effective program evaluation uses national criteria to select, develop and/or revise curriculum materials.



There is a tremendous amount of curriculum material available on boating, fishing, and stewardship education. How do you know if the materials you want to use are suitable? Review the materials against national standards that have been developed for each area, such as:

- North American Association of Environmental Educators;
- American Fisheries Society;
- National Association of State Boating Law Administrators;
- Other organizations of education experts.

These organizations have evaluated several nationally available materials already, so be sure to check with them before you begin your review.

Worksheet 4-1

(Actual worksheet found in *Appendix B*)

Name of Material.

Source/date/version.

Educational criteria you have assessed the materials against.

Weaknesses or holes identified.

How you plan to address the weaknesses.

Best Practice: Effective program evaluation allows program staff to take advantage of professional development opportunities relating to evaluation.



One limitation of many educational programs is the lack of trained staff that can plan and carry out evaluations. Thus, allowing (and encouraging) program staff (including administrators, coordinators, and instructors) to take advantage of professional development opportunities in the areas of assessment and evaluation builds greater capacity for staff to become directly involved in these activities and applying the results to your program. If your agency or organization lacks this capability, consider building partnerships with institutions, agencies, and consultants with experience in conducting formal evaluations. For much more information on Best Practices in professional development, see *Chapter 3*.



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Chapter 5

Expanding Your Reach: Diverse Audiences

Substantial segments of the population encounter barriers and constraints to participation in boating and fishing, which impact the number of individuals who become stewards of the resource.

Research indicates that, compared to the majority of the population, racial and ethnic minority groups are less likely to participate in many forms of natural resource-

based recreation activities and are especially less likely to participate in water-based recreation. And only 26 percent of anglers are female.

Why should you help these groups overcome barriers and constraints to participation? Consider:

- Racial and ethnic minority populations, particularly Hispanic populations, will dramatically increase their share of the U.S. population over the next several decades. In states like Texas and California, the current population characterized as “minority” will become the “majority” population by 2020. In New Mexico, Hispanics could become the “majority” in a few years. Delaying the process of involving these groups in boating, fishing, and stewardship only compounds the problem as they become a more significant portion of the U.S. population.

- The number of females exceeded the number of males in this country as of July 1, 2001. Women today have more freedom than they did in previous generations to explore recreational choices. African American families tend to be matriarchal, where the women make the decisions for family outings and budget. Hispanic families tend to be patriarchal, but because they do activities more socially and with family, Hispanic women are very important to the decision-making process as well.
- Based on trends of participation, the demand for resource-based activities of interest to fisheries, boating, and stewardship professionals may decrease. As a result, the cost of providing fishing, boating, and stewardship education and opportunities will be increasingly shared by a smaller segment of the population. This impact could be particularly severe in regions or states with substantial racial and ethnic minority populations.
- Working with diverse groups provides opportunities to broaden the base of political support for boating, fishing, and natural resource stewardship.

Table 5 contains currently recognized Best Practices for expanding your reach with diverse audiences. These are based on the best research and experience currently available. Following the table, each is explained. Worksheets throughout the chapter help you apply each practice to your own situation.

Table 5: Best Practices for Expanding Your Reach with Diverse Audiences

Effective Programs:

- Involve the minority population being addressed in all aspects of planning.
- Lessen or remove barriers that constrain access.
- Reflect the culture of those being served.
- Develop a network of social support.
- Reduce boundaries that can occur when members of two or more cultures meet.
- Make members of minority groups feel welcome.
- Provide positive role models.
- Are instructionally sound.
- Use evaluation to determine whether their objectives are being achieved.

Best Practice: Effective programs involve the minority population being addressed in all aspects of the planning process.



One of the best ways to understand what barriers or constraints a group may have and how to most effectively work with that group is to invite representatives to discuss the issue with you. Have representatives or a community group assist when planning and implementing programs.

When you first sit down with representatives, make sure they understand what you are trying to accomplish. It is just as important that you also find out what they would like to accomplish by working with you.

Worksheet 5-A

(Actual worksheet found in *Appendix B*)

Identify your minority target audience.
Identify key representatives from this target audience.
Invite representatives to serve as advisors to help plan and implement programs.
Define what you want to accomplish. Define what each target group wants to accomplish.
Establish meeting dates.

Best Practice: Effective programs lessen or remove barriers that constrain access.



Educators must seek to understand and identify barriers that constrain access, design programs to minimize or eliminate them, and then provide continued reinforcement. Barriers and constraints might include: feeling unsafe or uncomfortable; feeling unable to perform a behavior; lack of skills, confidence, opportunity, or place to perform the behavior; having someone who is discouraging them from taking part; not having someone to share the activity with; lack of time or money. You can identify these constraints by involving representatives in your planning. You also can conduct focus groups and surveys to learn more about constraints.

Social-economic barriers

Current data on household income by race and ethnicity show significant gaps (see *Table 5a*). Incomes for African American, Hispanic, and American Indian households are significantly less than for white, Asian, and Pacific Islander populations. African American households earn less than all others. Income may be a significant barrier to consider in planning education programs, especially for less affluent African Americans.

Table 5a: Household Income by Race and Hispanic Origin: 2007 Median Income

Race/Ethnicity	Median Income
White	\$53,714
Black	\$34,001
Hispanic	\$40,766
Asian	\$66,935
American Indian & Alaska Native	\$35,343

Source: U.S. Census Bureau, 2007 American Community Survey

Examples of how you can surmount the economic barriers include offering programs free or at reduced costs, providing necessary equipment and gear, and/or providing transportation. As of 2000, 54 percent of all African Americans in the U.S. lived in the central cities of the largest metropolitan areas, so be sure to look for urban fishing or boating opportunities.

Some agencies provide grants to local communities to introduce youth to boating, fishing, and stewardship through hands-on experiences. Grants to local communities can be used to increase access through construction of fishing piers and educational signs. To encourage long-term participation, consider tackle and/or boat loaner programs for the community, and opportunities (possibly stewardship/ local environmental work) for participants to earn their own tackle and boats.

Worksheet 5-B(Actual worksheet found in *Appendix B*)

What barriers constrain access for each of your target audiences?

How will you address each barrier?

Does your minority target audience have economic barriers?

If lack of funds is a barrier, how will you address:

Equipment needs at the event.

Long term-use by participants?

Transportation needs to get to the event?

Long term access needs of participants?

Other program costs?

characterized as deficient in their knowledge of outdoor activities.

Worksheet 5-C(Actual worksheet found in *Appendix B*)

What are the cultural factors you must address to better meet the needs of your target audience?

Norms

Beliefs

Value Systems

Socialization practices

How can you modify your program to make it more meaningful to the culture of your target audience?

Best Practice: Effective programs reflect the culture of those being served.



Cultural factors such as different norms, beliefs, value systems, and socialization practices may be even more significant than socioeconomic constraints. For example, for many people, the joy of going out onto the ocean to wrestle with bluefish comes from the contact with nature. However, for the Hispanic population, that joy may be justifiable only when they can help their community, such as by giving fish to family and neighbors. This may legitimize as well as intensify the natural experience for them. Contrast that with many white anglers, for whom the ultimate destination of the fish is unimportant compared to the contest itself. Another cultural difference is that females favor cooperation rather than competition, and enjoy participating in activities as part of a group.

Educational practices sensitive to cultural influences might include opportunities for family participation and opportunities that support or reinforce cultural identity. Programs designed and/or implemented by staff that include women and members of the racial and ethnic group being served can be very effective.

Planning fishing and boating education activities as part of established ethnic community activities (such as festivals) rather than sponsoring stand alone agency events can send positive messages to minority communities. The stand alone events can be labeled as paternalistic and condescending, especially when it might appear that racial and ethnic minorities are



Best Practice: Effective programs develop a network of social support.



Look for ways to provide social support for boating, fishing, and stewardship activities within the community you are targeting. Even if a person attends your aquatic education program, if friends and family are negative or indifferent toward fishing, the chances of that person participating declines with every negative reaction received. You must help support participants beyond your program.

Start by involving the group most influential to your learners. If they are younger than 11, the most influential group may be their parents, so involve parents in your activity. For teenagers, try to involve other teens. Establish boating, fishing, and stewardship clubs after school or on weekends to provide the social support they need to stay involved. For adult women, set up an Internet list-serve where they can communicate with other women who are anglers, boaters, and stewards. Conduct programs through a group already established within a community (such as a church or boys/girls club) to provide an immediate mechanism for social support.

Worksheet 5-D

(Actual worksheet found in *Appendix B*)

What individuals or groups could provide social support for your target audience beyond our program?
What will you do to involve that support group in your program?

Best Practice: Effective programs reduce boundaries that can occur when members of two or more cultures meet.



Asia and Latin America account for 84 percent of immigrants to the U.S., so the vast majority of “new Americans” comes from countries where English is not the primary language. Where possible, provide bilingual information, preferably oral communication rather than written. For example, if your instructor can speak both English and Spanish for a group of Hispanic students, this would help break down a major barrier.

Instructors from within the culture of the target audience can help reduce boundaries. They also can help you consider the cultural factors that may impact communication.

Worksheet 5-E

(Actual worksheet found in *Appendix B*)

What boundaries, barriers, or constraints prevent your program from achieving maximum effectiveness with your audience?
What steps can you take to overcome these?

Best Practice: Effective programs make members of minority groups feel welcome.



Managers and providers of boating, fishing, and stewardship education must be aware of the social climate their settings create. Consider potential issues such as instructor behavior, facility personnel behavior, potential behavior of participants, and potential interaction with other individuals at the location where instruction will take place. Taking it one step further, you might consider the behavior of retailers of fishing and boating products.

Eliminate all interpersonal discrimination, which refers to actions carried out by members of the dominant group that have differential and negative impacts on the minority group. These actions can range from nonverbal cues and verbal harassment, to physical gestures, assaults, and harassment.

Some issues are handled more easily than others. Staff who are racially, ethnically, and gender-diverse are more likely to attract and engage a diverse audience. However, even if your program is a success, if participants have a bad experience with facility personnel, field staff, or enforcement officers after they leave, it can undo all the good work you did. Monitor personnel and correct any negative situations immediately.

The same is true for retailers. Nothing turns women off more than walking into a fishing or boating retail store and being ignored or not taken seriously. Contact retailers in your area and let them know you are having classes for different minority groups, and help them understand how to effectively work with these groups. If you know a particular retailer that does a good job at this, you may want to refer your students to that retailer.

Worksheet 5-F(Actual worksheet found in *Appendix B*)

Who are the individuals with whom your participants are likely to come in contact as a result of your program?

How will you sensitize these individuals to make sure your participants always feel welcome?

Best Practice: Effective programs provide positive role models.



Recruit people who represent your target audience to assist in delivering your program. These role models are not celebrities, but everyday people from the community who love fishing and/or boating and are good stewards of the resource. If you are working with women, seek the assistance of women who enjoy the activities and who can motivate other women to give it a try. The same is true for African American audiences, Hispanic audiences, or any other target group.

Worksheet 5-G(Actual worksheet found in *Appendix B*)

List some positive role models for your target audience. When and how will you invite them to participate in your program?

Best Practice: Effective programs are instructionally sound.



Chapter 2 describes how to make your program instructionally sound. Review those recommendations again now, with diverse audiences in mind. Understanding your audience's background and what helps them learn will enhance your program. For example, women tend to learn better in environments that favor cooperation rather than

competition. Explicit directions and guidelines make women more comfortable in the class, and they need the opportunity to ask questions. All groups want to be addressed respectfully and not feel like the instructor is being condescending. Most groups want to know more than how to do something; they also want to know why it should be done a certain way.

Worksheet 5-H(Actual worksheet found in *Appendix B*)

Who is your target audience?

What instructional strategies work best with your target group? (If information is not available, incorporate suggestions from members of the target group about how they like to learn.)

What instructional strategies can you incorporate into your program?

Best Practice: Effective programs use evaluation to determine whether their objectives are being achieved.



This section briefly covers how the different methods described in *Chapter 4* can be used for programs that target minority populations.

Survey methods

Much of the research on recreation participation of racial and ethnic minority groups is based on survey samples. Surveying minority populations in urban environments can be difficult. Members of minority groups who live in inner-city areas generally are regarded as hard-to-reach populations with characteristically low response rates. On-site interviews with minority participants can provide important information such as extent of fishing and boating activity, social group size and composition, and other participation characteristics.

Focus groups

Focus groups are being used more frequently in outdoor recreation research as an alternative and complement to surveys. The U.S. Army Corp of

Most groups want to know more than how to do something; they also want to know why it should be done a certain way.

Engineers Waterways Experiment Station experienced success in using a series of focus groups to gain insight into African American and Native American water-based recreation preferences. The Texas Parks and Wildlife Department also has used this method to gauge minority participation in outdoor activities.

Ethnographic methods

Ethnographic research places the researcher inside the community being studied. Although this may be beyond the scope of a single agency, it could be the subject of collaborative regional or national research. The advantage of having an insider's view is being able to see how a leisure activity, such as boating and fishing, is connected to the daily patterns and routines of an ethnic community. This approach to evaluation holds potential for understanding how members of ethnic communities define boating, fishing, and stewardship in relation to their own culture. Information gathered in this way can be used to tailor programs to meet needs of a particular ethnic community.

Worksheet 5-1

(Actual worksheet found in *Appendix B*)

How have/will you address any special challenges of assessing components of your program that target different ethnic groups or cultures?



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Chapter 6

Expanding Your Reach: Persons With Disabilities

Including people with disabilities in your program strengthens the community and the individuals.

People with disabilities have long been hindered from participating in outdoor recreation activities like fishing and boating because of structural and social barriers. As a result of changing attitudes, legislation, technological developments, and education

within the past decade, significant progress has been made to include people with disabilities in outdoor recreation programs and improve access to related facilities and lands.

Research on people with disabilities shows they have the same motivations and educational needs as others participating in outdoor recreation activities. With the use of assistive devices, universal design, and some additional planning, you can make your boating, fishing, and stewardship education programs available to everyone.

According to the U.S. Department of Commerce's 1997 report, approximately one out of every five Americans has a serious disability. Persons with disabilities are found in every socioeconomic, age, ethnic, and religious group. They also are found in every geographical area, and are of both genders.

With the general aging of the population and with technological advances, the number of persons with disabilities is expected to increase.

Persons with disabilities represent a wide variety of conditions. The basic categories are:

- 1) Physical disabilities – including sensory (vision, hearing) mobility, and motor impairments;
- 2) Cognitive disabilities – including mental retardation, autism, Alzheimer's disease, and learning disabilities;
- 3) Mental health impairments – including bi-polar, eating disorders, and depression;
- 4) Chronic health impairments – including respiratory disease, cardiac disease, and AIDS;
- 5) Multiple disabilities/impairments – or a combination of any of the above.

Each category includes wide variation. Persons may be considered to have a temporary, episodic, or permanent disability present at birth or due to an accident or illness. By using your imagination and input of participants, you can overcome most obstacles and barriers so everyone has a fun and meaningful experience participating in boating, fishing, and/or stewardship activities.

Table 6 contains currently recognized Best Practices for expanding your reach with persons with disabilities.

Table 6: Best Practices for Expanding Your Reach to Persons With Disabilities

Effective Programs:

- Include persons with disabilities and individuals who work with them in the design and implementation of the program.
- Are inclusive.
- See people with disabilities as people first and use appropriate terminology, which conveys a sense of inclusion.
- Strive to make boating, fishing, and stewardship activities accessible to all individuals.
- Work to eliminate or lessen constraints on involvement.
- Conform to appropriate legislation.
- Provide pre-training and continual training of staff.
- Provide appropriate ratio of instructors to students.
- Include accessibility information in all marketing and informational material.

Best Practice: Effective programs include persons with disabilities and individuals who work with them in the design and implementation of the program.

One of the best ways to assure that your program can accommodate persons with disabilities is to invite individuals with disabilities to assist you in planning all phases. Also include individuals who work with persons with disabilities. Both can help you look at every aspect of the program—from facilities, to instruction, to activities—to ensure that each is welcoming and appropriate for people with disabilities.

There are numerous places you can find individuals to serve on your planning team. Most states have a commission on disabilities or similar entity. Look to federal, state, and local rehabilitation centers, local independent living centers, Paralyzed Veterans of America, human service agencies dedicated to specific disabilities (e.g., Arthritis Foundation, United Cerebral Palsy) therapeutic recreational professionals, universities, and fishing or hunting organizations dedicated to disabilities such as Wheelin' Sportsmen.

Worksheet 6-A

(Actual worksheet found in *Appendix B*)

Do you have persons with disabilities on your planning team?

Do you have individuals who work with persons with disabilities on your planning team?

If not, list people you can recruit to help.

How can you enhance their involvement in the planning process to make people with disabilities feel welcome in all of your programs?

Best Practice: Effective programs are inclusive.

The principles of inclusion are:

- More than integration and accessibility – inclusion does not happen just because persons with disabilities and persons without disabilities are in the same program or at the same place, nor does an accessible environment ensure inclusion. The following points are critical.
- Celebrate diversity – rather than trying to fit everyone into the same mold, recognize and appreciate differences (including unique characteristics) as well as contributions of everyone. Focus on providing support (rather than on eliminating the disability) so individuals can fully engage in activities of their choosing.
- Respect differences – look at a disability as a form of diversity, rather than a negative attribute. Toss out the word normal and avoid labeling people.
- Interdependence – create situations where individuals work cooperatively, interrelate, and function together. Encourage individuals to support one another and to work in teams as equals.
- Participation and cooperation – enable everyone to be an active participant and participate according to desire and abilities. Offer choices and promote a variety of ways to participate, including partnership with others.
- Supportive relationships – develop/facilitate relationships that support the individual's ability to engage in the activity on an equal basis according to the individual's needs and desires.
- Friendships – create a feeling of belonging and an environment that makes no one feel excluded or inferior, so friendships develop among persons with differences.

The recent trend in recreation and education is to provide opportunities for persons with disabilities to participate with everyone else. This means programs that are socially integrated as well as physically integrated.

Many individuals with disabilities still prefer programs designed specifically for them and offered in a segregated format. Consider offering a segregated format if people in your community request it and you have the resources to do so in addition to inclusive programs. Remember the resources of your partners and look to create new partners. Train instructors at the school for the blind, school for the deaf, and other schools, rehabilitation centers, and institutions dealing with persons with severe impairments on how to teach boating, fishing, and stewardship.

Research indicates that students want all students to be treated the same, yet they accept and recognize individual learning differences and styles. Students do not perceive instructional adaptations and accommodations to meet the special needs of selected students as problematic.

Worksheet 6-B

(Actual worksheet found in *Appendix B*)

How does your program:

- Celebrate diversity?
- Respect differences?
- Promote interdependence?
- Foster participation and cooperation?
- Foster supportive relationships?
- Foster friendships?
- Go beyond integration and accessibility?
- How might you better incorporate the principles of inclusion in your program?

Best Practice: Effective programs see people with disabilities as people first and use appropriate terminology, which conveys a sense of inclusion.



Your first priority in any activity should be to demonstrate respect for and maintain the dignity of all participants. Focus on the individual and his ability and functioning. Functioning can include more than just the ability to function physically. It can include the person's ability to function cognitively, socially, and emotionally.

Some people consider themselves as having a disability, whereas others with similar conditions do not consider it a disability. Regardless of a person's self-definition, the key is to focus on the person and her functioning first, and avoid labels.

Talk directly to the person with the disability, not to a third party. Even when an interpreter (such as for an individual with a hearing impairment) is present, be sure to speak to the person, not to the interpreter.

Make sure language used by those involved in your program is humanizing versus dehumanizing. Focus on the person first.

Worksheet 6-C

(Actual worksheet found in *Appendix B*)

- How does your program treat people with disabilities as people first?
- How does your instructor training sensitize your instructors to this issue?
- Is language in your program materials humanizing?
- Do you incorporate a discussion of humanizing language into your training?
- What changes are needed?

Humanizing Language

Do not use dehumanizing language	Use humanizing language
The person who is crazy	The person with a mental illness
The person who is wheelchair bound	The person who uses a wheelchair
The person confined to a wheelchair	The person who uses a wheelchair
The deformed person	The person with a physical impairment
The cripple	The person with a physical impairment
The blind	The person who is blind or the person with a visual impairment
The retarded	The person with mental retardation
The person who is a stroke victim	The person who had a stroke
Deaf and dumb/mute	The person who is deaf and does not speak or hear. The person with a hearing impairment



Best Practice: Effective programs work to eliminate or lessen constraints on involvement.



Constraints to involvement in general (and in outdoor recreation in particular) for persons with disabilities tend to involve attitudes and resources.

Attitudinal barriers for persons with disabilities include their own attitudes about leisure participation, as well as attitudes of their significant others, the community or society at large, and activity providers. One way to help overcome attitudinal barriers is with media exposure. Include a person with a disability participating with persons without disabilities. For example, show a grandparent in a wheelchair or with a walker fishing with his grandchild; show someone with a speech communication device talking via her device about the enjoyment of boating or conservation. This helps people with disabilities see themselves participating in the activity. It also helps the family and community realize persons with disabilities can be involved in outdoor recreation.

Resource barriers can include:

- Finances;
- Transportation;
- Assistance or support of another person;
- Leisure partner;
- Knowledge and skills; and/or
- Functioning.

If you get individuals to your programs, overcoming the barriers of knowledge and skills is relatively easy. Providing free programs and providing transportation to programs will help persons with disabilities

participate initially. However, consider how to overcome barriers so they can participate on their own. For example, develop a fishing equipment loaner program (including adaptable equipment) and provide ideas about how individuals can obtain their own equipment (perhaps through local donations). Encourage persons with disabilities to bring others to your program; train all of them in boating, fishing, and/or stewardship so they can participate together in the future.

There are specific constraints inherent with each disability. For people with physical disabilities (neurological, muscular, auditory, or visual) allow extra time and consider transportation from one physical space to another. For people with cognitive disabilities (conditions that affect processing of information and/or perception of the world around them) keep directions basic, break everything into small steps, repeat as needed, and be specific. For people with learning disabilities (have average or above intelligence but difficulty processing information) first remember these people are smart. Secondly, present information in different ways such as visual and auditory cues and physical demonstration.

Time also can be a significant constraint to many people with disabilities. It may be more difficult for them to be spontaneous, their actions may require more planning and effort, and it often takes more time for them to complete activities. This will vary depending on the type and severity of the disability, but always allocate extra time.

Worksheet 6-D

(Actual worksheet found in *Appendix B*)

How does your program address attitudinal barriers for persons with disabilities?

How does your program address resource barriers (finances, transportation, knowledge and skills, etc.)?

What might you include in program materials/training to help persons with disabilities overcome or eliminate barriers?

Best Practice: Effective programs strive to make boating, fishing, and stewardship activities accessible to all individuals.



Standards exist for making physical structures such as bathrooms, education centers, and boat ramps accessible, but few standards apply to the natural environment.

Effective programs work to make all programs and opportunities inclusive and accessible. Facilities and access areas may not be your direct responsibility as an educator, but as you help develop your organization's strategic plan, you will want to have input since it impacts your ability to offer inclusive programs.

For fishing activities:

- Make sure all piers and other structures comply with the recommendations currently being advanced by the Federal Access Board (see sidebar).
- For bank fishing locations, clear away undergrowth at key locations to provide access for people with mobility impairments. Select banks where this will not cause environmental problems (increased erosion, removal of rare or endangered species, or fundamental alteration of the natural environment or recreational experience). For boating activities, assure that all docks and piers comply with recent additions to the Americans with Disabilities Act Accessibility Guidelines.

For people with mobility impairments, review the site. Utilize areas of your facility that are wheelchair accessible first. Try to enable individuals with mobility impairments to participate in all activities. Temporary adaptive devices such as portable ramps are available to extend wheelchair accessibility.

Accessibility also applies to printed and audio/visual materials. For printed materials, consider large print, Braille, and audio tape versions. For video, use captions for persons with hearing impairments, and use narrative descriptions of the scenes, setting, and clothing for persons with significant visual impairments (offer as an option via a headset). For your website, follow the World Wide Web Accessibility Standards (see sidebar). Keep materials simple and concise, and use a combination of words and pictures so individuals with cognitive impairments can comprehend. Anything too busy or crowded will be difficult to decipher. Remember that some people are colorblind; typical color blindness involves the inability to distinguish or see items as red/green. Finally, make materials easy to handle so anyone with a physical impairment such as arthritis may manipulate and read it.

Worksheet 6-E

(Actual worksheet found in *Appendix B*)

Are your boating, fishing, and stewardship activities accessible to people with disabilities?

What changes are you going to make to enhance accessibility?

Best Practice: Effective programs conform to appropriate legislation.



There are federal, state, and local regulations and mandates regarding accessibility. It is important to know and understand these in order to maximize opportunities for all participants. *Chapter 10* of the Defining Best Practices in Boating, Fishing, and Aquatic Resources Stewardship Education report by Jo-Ellen Ross summarizes the federal legislation.

Worksheet 6-F

(Actual worksheet found in *Appendix B*)

Have you reviewed federal, state, and local regulations and mandates regarding accessibility?

List the changes needed in your program to meet these mandates.

Best Practice: Effective programs provide pre-training and continual training of staff.



Continually prepare and train your staff to effectively engage persons with disabilities. Include basic information about disabilities and how to interact effectively. Provide information about assistive devices and resources (agencies, organizations, manuals, websites) they might consult.

Assessability Information

Accessibility guidelines and assistance are available at the following websites:

- www.access-board.gov (Federal Access Board)
- www.adata.org (ADA Technical Assistance Program)
There is one for each region of the country.
- www.ncaonline.org (National Center on Accessibility)
This site provides technical assistance regarding accessibility standards, including those related to boating, fishing, and aquatic environments, as well as information about equipment for fishing.

Adaptive equipment is available for a variety of disabilities. The following websites offer adaptive equipment:

- www.abledata.com
- www.accesstr.com
- www.assistivetech.net

Websites that provide information on developing media-related information include:

- www.lighthouse.org/color_contrast.htm. This site provides information on designing for people with partial sight and color deficiencies.
- <http://ncam.wgbh.org>. This site provides information on media access equality for people with disabilities.
- www.w3.org/WAI. This site provides information on accessibility of the web for people with disabilities.
- www.tracecenter.org. This site provides information regarding products, particularly technology/computer-related products.

Provide sensitivity and awareness training for staff. Following are very general guidelines for working with visitors with disabilities:

- Relax. You are merely meeting a new person.
- Communication is important. Use the same communication skills you use with all visitors, adjusting as necessary for persons with hearing and visual impairments.
- Make initial contact with each participant as they arrive.
- Ask them if they would like assistance and to suggest specific ways for you to assist. Some may need assistance throughout the day, and others may have special (including personal) needs at different times of the day. Allow the person to instruct you on the best way to provide assistance.
- Talk directly to the person with the disability, not to a third party.
- If you feel you need to find out more about a person's disability in order to assist them, say, "Can you explain your disability so I can be of further assistance to you?"
- Do not underestimate a person's abilities.

Individuals make their own decisions about what they can or cannot do. (However, the instructor's responsibility is to maintain a safe environment; so if the instructor believes the activity would be unsafe to the individual or others, he/she must make the

decision and discuss it with the individual with the disability.)

- Speak clearly. Even for participants without hearing impairments, the spoken word may be difficult to hear or understand.
- The decision to participate in your program is left up to each individual. If a participant is uncomfortable doing a certain part of the program, he should be offered an alternative activity for that section of the day. Some people may just want to watch. Let them choose.
- Provide plenty of drinking water and sunscreen.
- Make staff aware of adaptive devices and how to use them.

Worksheet 6-G

(Actual worksheet found in *Appendix B*)

How does your staff and instructor training for working with persons with disabilities include:

Communication techniques:

Information on adaptive devices:

Interaction skills:

Best Practice: Effective programs provide an appropriate ratio of instructors to students.



The number of instructors needed to effectively deliver a program will vary according to the age of the participants and the severity of their disabilities. Additional support staff or volunteers can assist in various ways. Partnering with agencies or institutions that provide service to persons with disabilities is an excellent way to ensure appropriate ratio of instructors/helpers to students as well as to provide knowledgeable support.

Worksheet 6-H

(Actual worksheet found in *Appendix B*)

Have you provided guidelines to your staff for determining appropriate staff-to-student ratios (i.e., determine participants' ages and type and severity of their disabilities)? What resources might staff utilize to determine appropriate ratios of instructors/helpers to students? Who might staff recruit to assist with presentations/activities to ensure appropriate staff-to-student ratios?

Best Practice: Effective programs include accessibility information in all marketing and informational materials.



Accessibility information in your promotional material lets people with disabilities know they are welcome to attend your events and activities. Use the correct terminology and make materials available in accessible formats. Promote that your facility meets accessibility standards and any other assistance you can provide, such as adaptive fishing equipment or a sign language interpreter. Offer a variety of means of registering.

Worksheet 6-I

(Actual worksheet found in *Appendix B*)

List the promotional materials you distribute for your programs. For each, list changes you can incorporate to make the materials more welcoming to persons with disabilities.



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Chapter 7

Enhancing Boating Education Programs

Most boater education programs differ from other programs discussed in this *Workbook* because their emphasis is on safety. Certainly, all education programs must consider safety, as was discussed in *Chapter 2*. But regardless of whether a boating course is called boating safety or boating basics (canoe, kayak, sail, or power boat), most boater education programs have safety as their primary focus.

More than 8,000 boaters lost their lives during the 1990s. Nearly 80 percent of all boating fatalities occurred on boats where the operator had no formal boating instruction. Education and enforcement are the two basic approaches to reducing fatalities, injuries, and property damage related to boating. Education is fundamental and lays the foundation for safe boating behavior.

Very little field research has been done to evaluate boater education programs. Therefore, at present, the Best Practices in boater education are defined primarily in terms of consensus of professional judgment or frequency of use.

Recreational boating education in the United States is offered through a longstanding partnership

between the federal government, state and local government agencies, and a vast collection of non-governmental organizations. Just a few of the non-governmental organizations that focus on boating safety and/or education are listed below. Review the websites of each organization for additional information.

Boating Organizations

American Canoe Association - www.acanet.org

National Association of State Boating Law Administrators - www.nasbla.org

National Safe Boating Council - www.safeboatingcouncil.org

United States Power Squadrons - www.usps.org

Table 7 contains currently recognized Best Practices in boating education. Following the table, each is explained. Worksheets throughout the chapter help you apply each practice to your own situation.

Table 7: Best Practices in Boating Education

Effective Programs:

- Utilize partnerships to ensure easy and convenient access to educational opportunities.
- Carefully define the content of boating education experiences.
- Ensure quality by careful selection, preparation and training of instructors.
- Utilize a variety of approaches to increase participation in boater education.
- Provide multiple ways for people to act on what they've learned.

Best Practice: Effective programs utilize partnerships to ensure easy and convenient access to educational opportunities.



Boater safety education is offered in every state, although the agencies responsible for this function and methods of delivering it vary considerably from state to state.

Some states offer their own courses through a designated boating education agency. Others accept courses offered by various organizations or cooperate with these organizations to deliver state-specific versions of a basic boating course. Still others use a combination of approaches.

Partnering with other organizations provides more opportunities to get important messages to a wider range of individuals. *Chapters 1 and 2 of the Workbook* lead you through the process of setting goals and objectives for your program and involving stakeholders and partners to help you meet your goals and objectives. The boating community offers numerous opportunities for partnerships. The introduction to this chapter lists several organizations that currently offer boating education programs. Both the boating-related industries themselves and their trade associations are active players in boater safety education.

Boating programs should be offered frequently and on a predictable schedule, and promotion is critical. How are people going to find out about your courses?

Depending on the goals and objectives of your program, consider offering various types of courses and instruction in different formats, including classroom and field-based seminars, multi-lesson courses, self study, and on-line courses.

You may have a variety of goals and objectives for your programs. One of your goals may be to introduce youth to the fun (and safety) of paddle sports; another may be to offer a boating safety course to help individuals meet mandatory boating education requirements. These courses will be quite different, but it is important to have the content of each well defined.

Worksheet 7-A

(Actual worksheet found in *Appendix B*)

Where will your program be delivered?

- Classroom
- Field-based
- Self-study
- On-line

Who will deliver the program?

- Staff
- Professional contractors
- Volunteers
- Partners (other organizations, camps, etc)

How will you promote your programs?

Best Practice: Effective programs carefully define the content of boating education experiences.



Standards for boating education for operators of recreational motorized boats and sailboats were developed by the National Association of Boating Law Administrators (NASBLA). The standards are intended to show the minimum content of the course materials to be included in an approved boating safety course. Course developers, boating instructors, boating professionals, and organizations are encouraged to go beyond the standards when, in their judgment and experience, it assists the

boat operator to boat more safely and responsibly. A list of the topics included in NASBLA's National Boating Education Standards is included in *Figure 7*.

Although all boating courses include safety, they do not have to be limited to safety. Do you want boaters to be stewards of the aquatic resource? Do you want to introduce them to how and where to boat? Do you also want to introduce them to how to fish from a boat? Define your goals and then clearly establish the content of your programs to meet those goals.

Effective programs provide more than just the presentation of information; they help learners achieve knowledge in issues involving boating and boating safety.

Figure 7. Summary of Topics Included in NASBLA National Boating Education Standards

Section 1: The Boat

- Standard 1.1 - Boat Capacities
- Standard 1.2 - Boat Registration Requirements

Section 2: Boating Equipment

- Standard 2.1 - Personal Flotation Device Types and Carriage
- Standard 2.2 - Personal Flotation Device Sizing and Availability
- Standard 2.3 - Wearing Personal Flotation Devices
- Standard 2.4 - Personal Flotation Device Serviceability
- Standard 2.5 - Fire Extinguishers
- Standard 2.6 - Back-Fire Flame Control Device
- Standard 2.7 - Ventilation Systems
- Standard 2.8 - Navigation Light Equipment
- Standard 2.9 - Sound Signaling Equipment

Section 3: Trip Planning and Preparation

- Standard 3.1 - Checking Local Weather and Water Conditions
- Standard 3.2 - Checking Local Hazards
- Standard 3.3 - Filing a Float Plan
- Standard 3.4 - Boat Preventative Maintenance
- Standard 3.5 - Transporting and Trailing
- Standard 3.6 - Fueling Procedures
- Standard 3.7 - Pre-Departure Checklist and Passenger Communication

Section 4: Marine Environment

- Standard 4.1 - Environmental Laws and Regulations
- Standard 4.2 - Human Waste Disposal
- Standard 4.3 - Disposal of Toxic Substances

Section 5: Safe Boat Operation

- Standard 5.1 - Operator Responsibilities
- Standard 5.2 - Influence of Drugs and Alcohol on Boat Operation
- Standard 5.3 - Navigation Rules of the Road
- Standard 5.4 - Aids to Navigation
- Standard 5.5 - Docking and Mooring
- Standard 5.6 - Anchoring

Section 6: Emergency Preparedness

- Standard 6.1 - Rendering Assistance
- Standard 6.2 - Communication Procedures
- Standard 6.3 - Capsizing Emergencies
- Standard 6.4 - Falls Overboard Emergencies
- Standard 6.5 - Hypothermia Prevention
- Standard 6.6 - Fire Emergency Preparedness
- Standard 6.7 - Running Aground Prevention and Response
- Standard 6.8 - Accident Reports
- Standard 6.9 - Boating Accident Report Form

Section 7: Other Water Activities

- Standard 7.1 - Personal Watercraft and other Jet Propelled Watercraft
- Standard 7.2 - Water Skiing
- Standard 7.3 - Diving and Snorkeling
- Standard 7.4 - Hunting and Fishing

Section 8: Boating Education Practices

- Standard 8.1 - Continuing Education
- Standard 8.2 - State Specific Boating Information

Worksheet 7-B

(Actual worksheet found in *Appendix B*)

- What are the goals and objectives of each of your boating courses?
- What important information must be included in each course? (Develop a course outline.)
- If you are offering a boater safety course for certification, does it meet the standards for boater safety education?
- If you are offering a general boating course, list the safety information that must be incorporated.

Best Practice: Effective programs ensure quality by careful selection, preparation, and training of instructors.



Instructor selection, preparation, and training are critical to ensure accurate, consistent use of boating program materials. With training in the use of curriculum materials and teaching strategies, instructors are more likely to achieve your program goals and objectives.

A prime boating example of training the trainers is the National Safe Boating Council's Boating Safety Instructor Certification Course. The purpose of this training is to educate instructors on both the NASBLA minimum standards for boating education and on effective boating education methods. The course objective is to identify and clarify the knowledge and skills needed to present an effective boating safety curriculum to entry-level students.

It is important to establish objectives for each training program. In addition to training the trainers for entry-level programs, you may have other trainings for advanced programs. Training will be different for programs that focus on introducing individuals to the fun of boating rather than teaching boating safety alone.

Refer to *Chapter 3* on Well-Trained Instructors for general details on selecting, training, and evaluating instructors.

Worksheet 7-C

(Actual worksheet found in *Appendix B*)

What goals and objectives for each type of training do you plan to offer?
How do you plan to select instructors for your program?
How does your training program meet the Best Practices provided in *Chapter 3*?

Best Practice: Effective programs utilize a variety of approaches to increase participation in boater education.

Many boating accidents would be avoided if boaters followed safe boating practices. Therefore, it is important to look at opportunities that motivate individuals to obtain boater safety education. Following are some approaches to consider.

Make boaters aware of programs

Some boaters look for safety courses when they first get a boat so they can learn to be safe on the water. This group is motivated, but programs must be available and easily accessed at the time the boater is interested. Others may not be aware of the courses, or may not see the need for them. Public awareness campaigns can assist in these cases.

These can include:

- TV, radio, and print advertisements;
- Visible print or video programs at boating retailers;
- Information that goes with the purchase of a boat (point of purchase);
- One-on-one information from retailers to the purchaser of a boat (or from partner organizations that inform new members); and/or
- Public relations efforts through newspaper articles, television appearances, etc.

Make boater safety mandatory

Each year more states enact laws requiring education for boaters. Some of these laws pertain to particular segments of boaters, such as youth or personal watercraft operators. More than half of the states currently have some form of mandatory boating education. Nationally, a general consensus exists among boating safety educators and organizations that a reduction of recreational boating fatalities, injuries, and property damage might best be accomplished by mandating boat operators to participate in a boating safety course.

Offer incentives

Many insurance companies offer discounts on boat insurance to individuals who successfully complete boating safety courses. This is a strong motivation for boaters to seek formal boater education.

Offer other benefits

Many people who don't think they need boater education will come to an event that offers other benefits. Consider offering programs such as "Discover the Fun of Kayaking," or "Learn the most effective ways to fish from your boat," etc. You can include boater safety information in these courses, and you can tell participants the value of getting a certification in boater safety.

Offer a variety of information

Even if individuals receive a certification in boater safety, it is important to keep boater safety information in front of them. Manufacturers or retailers can include boater safety information with each boat purchase. Videos can provide a variety of information (such as rules of the road, judgment on the water, operating a boat, backing a trailer, maintenance, and navigation), which individuals can view at their leisure. The state of Utah mailed a video about personal watercraft safety to every household in

the state with a registered personal watercraft. It has been documented that people learn material by taking tests without prior study. Many boating websites include practice tests that boaters can take at any time to prepare for a certification test or just learn about boating safety.

Worksheet 7-D

(Actual worksheet found in *Appendix B*)

How do you plan to make people aware of:

The need for boating safety?

The time and place of local boating safety courses?

Besides courses, what other ways will you help individuals obtain boater safety information?

What benefits/incentives can you provide to encourage individuals to participate in boater safety education?

Best Practice: Effective programs provide multiple ways for people to act on what they've learned.



Chapter 2 Building Your Program addresses many of the topics necessary to get people to act on what they learn. Although all of the Best Practices in *Chapter 2* are important, a few will be reviewed here for extra emphasis.

Effective programs are designed to match the developmental stages of the learner. Real learning occurs when the task is useful to the learner and when he or she is psychologically ready. Most people recognize that you cannot offer children the same level of instruction as adults. The majority of courses in boater safety education are designed for adults. However, in recognition of the fact that boating is usually a family activity, effective programs also offer boating education for children of various ages and look for ways to get all participants to practice their new knowledge and skills.

Effective programs are relevant to the everyday life of the learner. Unfortunately, a high proportion of boating deaths occur because anglers do not see themselves as boaters. Personal watercraft operators also may not see themselves as boaters, etc. Help individuals recognize their application of boating and provide specific examples of how to apply safety principles to their situations.

Effective programs empower learners. Effective programs provide more than just the presentation of information; they help learners achieve knowledge in issues involving boating and boating safety. They help them work toward attitude and behavior changes; they empower them to weigh various sides of an issue to make informed and responsible decisions; they seek to empower them to seek out information and be able to safely boat on their own because they have learned “how to think” not what to think.

Effective programs consider the social context in which the education takes place and provide avenues to enhance the social support for the learners. The other people surrounding a boating experience can either positively or negatively affect what an individual learns at a boater safety education program. If the participant watches or hears her experienced boating friends say, “Oh, you really don’t need to wear your PFD,” or sees professionals on television not wearing their PFD, what she learned in the class may go out the window.

Working with local groups to talk favorably and strongly about the importance of following safety procedures can work to reinforce and get people to act on what they learned in classes. An example of this is when a fishing club requires its members to wear PFDs (at least when the motor is running) and fines each member caught without their PFD one dollar. The amount of the fine is not a deterrent—it’s the thought that your friends don’t accept your behavior. You also can encourage television personalities that you have contact with to follow boating safety standards and help them understand the impact they have on attitudes toward boating safety.

Worksheet 7-E

(Actual worksheet found in *Appendix B*)

How do you plan to design your course to match the developmental stages of the learner?

How do you plan to make your programs relevant to the learner?

How do you plan to empower learners?

How do you plan to provide a positive social culture for boating and boating safety?

Complete worksheets in *Chapter 2*, if you haven’t already.



Chapter 8

Enhancing Fishing Education Programs

Fishing is a wonderful, wholesome, almost magical activity that offers so much to individuals, the resource, and society as a whole. Families and friends who fish together develop special bonds and have quality time together. Fishing can provide people with an awareness and appreciation of the need to protect and conserve our natural resources.

The decline in fishing participation is a missed opportunity for people to share these benefits. It also threatens fish and wildlife agency funding and fisheries management, impacts regional economies, and may ultimately diminish public advocacy for the protection of aquatic resources. As a result, more agencies and organizations are focusing efforts on recruitment, training, and retention of anglers.

All chapters in this *Workbook* will help you achieve Best Practices in fishing/angler education, but this chapter covers specific research important to angler recruitment and retention education. It does not cover all elements of Best Practices. Therefore, use it as a reference as you work to incorporate all the Best Practices recommended in *Chapters 1-6*, as well as other chapters that are relevant to your program.

Table 8 contains currently recognized Best Practices for enhancing fishing education efforts. Following the table, each is explained. Worksheets throughout the chapter help you apply each practice to your own situation.

Best Practice: Effective programs clearly define the educational purpose.



It is important to clearly decide what you want to accomplish with your program. *Chapter 1* discusses the planning process in detail. Refer to it as you work through this process.

Your goal may be to increase fishing participation. This can be achieved in a number of ways. If your objective is to increase the number of days a particular angler fishes and/or encourage lapsed anglers to return to fishing, a marketing/promotion approach may suffice. However, if your objective is to recruit new anglers, using marketing approaches only without education will lead to failure.

Also, you need to decide if your goal is to merely increase fishing participation, or to increase fishing participation while developing ethical anglers who

Table 8: Best Practices for Enhancing Fishing Education Programs

Effective Programs:

- Clearly define the educational purpose.
- Use the Recruitment-Training-Retention Intervention Model.
- Assure the safety of all participants and instructors.
- Develop partnerships to strengthen fishing programs.
- Incorporate stewardship of aquatic resources.
- Address components of the recruitment and retention model relevant to each age group and develop programs accordingly.
- Utilize well-trained instructors.

are stewards of aquatic resources. Most programs work for the latter. However, without clearly defining what you want, you may miss important elements and/or opportunities.

One approach to developing Best Practices is to consider what you want the learner to be able to do, or to be like after completing your program. The following list is a good place to start.

After completing this program, learners will have:

- An understanding of how to participate in fishing.
- The physical skill necessary for successful participation in fishing (and boating) activities.
- The ability to use information to build knowledge to become a successful angler.
- An understanding of how to overcome barriers to participation.
- Developed a socially supported environment.
- An understanding of the importance of using knowledge to support and provide a rationale for their attitudes and behaviors.
- Developed the critical thinking, judgment, and decision-making skills to be able to identify, use, and act appropriately on good information.
- Become ethically competent.
- An understanding of the roles of local, state, and federal agencies and organizations that are involved in protecting and managing aquatic habitats and recreation.
- The ability to make their views known to the appropriate people in these organizations and agencies.
- The ability to affect positive changes and the recognition that they can make a difference with their informed participation and actions.

For ideas on more specific learning objectives and outcomes, refer to www.futurefisherman.org.

Worksheet 8-A

(Actual worksheet found in *Appendix B*)

What is the goal of your fishing education program?
 What are your objectives to achieve that goal?
 What do you want your learners to be able to do after completing your program?

Best Practice: Effective programs use the Recruitment-Training-Retention Intervention Model.



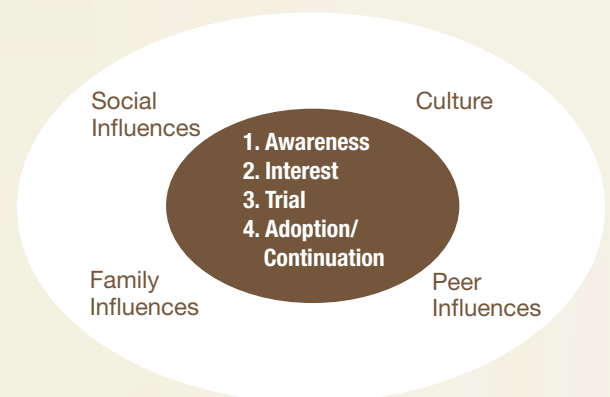
How an individual becomes interested in and ultimately identifies herself as an angler is a complex process, influenced by numerous variables. Using the Recruitment-Training-Retention Intervention Model, you should be able to better develop effective strategies targeted at specific stages in recruitment.

Don't let the fancy name scare you off! This model is simply a way to organize your thinking, and it may enable you to assess the direction and focus of existing programs as well as identify where gaps exist, taking steps to intervene where appropriate.

Research shows that anglers often pass through a four-stage process while continually being affected by social-cultural influences (see *Figure 8*). Keep in mind that in some cases, a person may go through two or more of these stages simultaneously. The stages are:

- Awareness;
- Interest;
- Trial;
- Adoption/continuation.

Figure 8. Four-phase process of fishing adoption



Failure to understand which strategies are most likely to have the desired outcomes may result in a mismatched, ineffective program, and ultimately

failure. Failure to target strategies at each of these stages also may weaken the entire recruitment and retention process.

It is important to understand that the entire recruitment and retention process is couched in a supportive, socio-cultural environment. Though not always mentioned, this socio-cultural context is the glue that holds the entire process together, continuously reinforcing participant attitudes and choices. A supportive environment is the most critical element in retaining anglers.

The thicker the glue, the more likely the desired outcome will be achieved. In fact, in those traditional communities and families where fishing is an honored tradition—where youngsters are encouraged and expected to become anglers—very little outside intervention is necessary. However, in communities that do not have shared values, attitudes, and stories revolving around fishing, a significant barrier exists in the development of anglers.

A socially supportive environment must exist or be created for both entry into and progression through the four-part model.

Awareness phase

Individuals must be aware of the opportunity to participate in fishing activities. Typically this phase involves promotional campaigns and activities that will help individuals understand:

- The benefits of participating (fishing is fun and provides quality time with friends and family, etc.).
- Fishing is available to them (it is something they can do).

Opportunities include National Fishing and Boating Week, National Hunting and Fishing Day, free fishing days, conservation field days, mass media strategies, bumper stickers, magazine ads, mall displays, etc. This stage also is likely assisted through exposure to television programs.

Interest phase

Initial interest is developed through exposure to a threshold experience or series of experiences where the individual directly participates. These occasions do not necessarily require catching fish. They can involve elements of the fishing experience such as casting or simply sitting around the dinner table sharing stories and experiences. This also can be a family member or friend taking a person fishing for the first time.

Interventions at this phase are focused on media and events—efforts to get participants involved in threshold experiences. Program examples include fishing clinics, casting instructions or contests, Passport to Fishing and Boating, and Take a Kid Fishing events. They also include introduction to fishing programs through conservation camps, 4-H, and scouts. A media example would include the encouragement of anglers to introduce a newcomer to fishing. With proper social support, these threshold experiences may lead to the trial phase.

Don't fall into a "Field Days - Feel Good" trap. Great effort often is expended and large numbers of participants are reached in these single-day events. Short-term evaluations generally reflect positive outcomes, and event organizers are proud of their accomplishments. But a glance at the model shows that without efforts focused on moving participants further along the continuum toward trial and adoption, simply generating interest does little more than make event organizers feel good.

Trial phase

The trial phase occurs as a person participates in the activity to see how well it fits. The person invests time, energy, and resources in efforts to learn the ropes. Intervention strategies involve educational programs with opportunities for repeated participation, and with a focus on eliminating or minimizing barriers that include a lack of:

- Skills – lack of basic skills such as casting, handling fish, and rigging lines can be a barrier for entry. Participants need opportunities to learn, time to practice, feedback and reinforcement from an instructor/mentor, and instruction on how to build on that skill.
- Knowledge – newcomers need knowledge such as fishing regulations, how to fish for different species of fish, how to handle fish, and how to be a good steward. They also need to be taught how to access information on their own so they can continually learn more.
- Equipment – newcomers need equipment to participate on their own. Setting up loaner programs for fishing equipment is one strategy

Without efforts focused on moving participants toward trial and adoption, simply generating interest does little more than make event organizers feel good.

to address this barrier. Another is to hold a class in a retail outlet and help participants understand how to shop and what type of equipment to shop for.

- Fishing access – newcomers need to know what waters are available to them, how to get there, how to find accessible fishing spots, and how to obtain permission to use non-public waters.
- Social support – social support is important at the trial stage. You can assist by encouraging participants to bring their families or friends to the program.

The more programs that assist in each of these areas, the greater chance the individual will become an active angler.

An understanding of behavioral expectations also must occur at this stage. Ideally, interventions include multiple opportunities to engage in a series of in-depth experiences involving the points mentioned above.

The development of apprentice-mentor programs, school curriculums, and other longer-term efforts clearly indicate opportunities for other partners in the process. This may include cooperative programs with schools (e.g., Hooked On Fishing – Not On Drugs, fishing as a lifetime activity for PE), summer camps, scouts, 4-H, other youth organizations, community service groups, churches, libraries, conservation and fishing organizations, women's groups, and others.

Opportunities also can include a call to action to anglers in your area to introduce and mentor at least one person (someone they know) annually to fishing. Research shows that an invitation from a friend or request from a child is the highest motivator for individuals to fish more often.

Adoption/continuation phase

Adoption/continuation choices are made based on participant satisfactions and benefits as well as the elimination of barriers. Participants begin to identify themselves as anglers. Intervention strategies focus on retention.

This is the phase in which social factors clearly play the most important role. Program strategies designed to build and reinforce this social support take time and are difficult to evaluate. However, if adoption of fishing is a desirable outcome and the requisite social support is not forthcoming from families, schools, or communities, then intervention strategies offering this social support must come from somewhere else.

Effective programs emphasize building a long-term apprentice-mentor relationship. Although one-on-

ones provide individual attention, apprentice-mentor relationships also can be achieved through group settings with leaders and/or teachers focusing on fishing (e.g., teachers with after-school programs, 4-H leaders, scout leaders, etc.).

Social support also includes peers. When someone has a friend or relative to participate with, the potential for continuation is much greater. Encourage participants to invite friends to attend the program with them. Having friends attend together provides the first phase of social support for the activity and someone to go fishing with.

Peer social support also can be accomplished through a club setting. An after-school fishing club not only provides opportunities to learn more and improve skills, it provides a tremendous amount of social support. Adults can join a local fishing club or groups such as B.A.S.S., Trout Unlimited, or an outdoor women's group.

If a participant's immediate family and/or social peer group does not support fishing, it creates a much more complex set of circumstances to address, and may be outside the scope of your efforts. However, the more social support you can provide a participant, the greater chance that individual has of seeing him/herself as an angler. As you review the partner benefits section of this chapter, consider the opportunity to bring in partners such as schools, community groups, churches, and other organizations that can provide social support.

Another part of retention is providing advanced training. Once someone has learned the basics, they

Social support is critical. When someone has a friend or relative to participate with, the potential for continuation is much greater.



may want to try their hand at fly fishing, bass fishing, float fishing, saltwater fishing, etc. Programs that either offer an array of activities and/or help lead anglers to new activities can go a long way in keeping their interest year after year and motivating them to participate.

Looking at all four phases

The lines drawn between the four phases frequently are quite blurred. For example, an angler education course may bring a person to the interest stage as well as play a role in the trial stage. The *Becoming An Outdoors Woman* and *Women In the Outdoors* programs may provide an initial experience, provide a trial, or both. Connections built by participants may contribute to the adoption/continuation process. Mentoring is likely an extremely important factor during both the trial and adoption phases.

Using this model enables you to better understand the recruitment and retention process, and thereby enables you to develop strategies that target gaps or weaknesses in your programs. If recruitment and retention of anglers are important, individuals must have full access to each stage.

Different audiences require different combinations of recruitment and retention strategies. Effective programs that target women are not based on assumptions that hold true for traditional, white, male constituent groups. Women have different motivations and are constrained differently from participating in outdoor activities. African, Asian, and Hispanic Americans may each require different strategies to move through the four-stage process. Just getting these audiences to try fishing may require a look at why they have not participated in the past and addressing the personal barriers or constraints they face.

Individuals with disabilities face different sets of constraints. Refer to *Chapters 5 and 6* for more

information on working with diverse audiences and persons with disabilities.

All groups should feel welcome at any program. However, there are times when it is necessary to customize your programs to fit a particular audience. Seeking input from diverse audiences at all phases of program planning and service delivery can troubleshoot problems before programs are implemented.

Worksheet 8-B

(Actual worksheet found in *Appendix B*)

For each target audience addressed by your program, is there social support for participating in fishing and stewardship?

If your audience has little or no social support, what steps will you take to help create this support?

What are you doing currently to create awareness of fishing with the target group?

What are some additional ways you can create awareness with the target group?

What are you doing currently to create interest in fishing with the target group?

What are some additional ways you can create interest with the target group?

What are you doing currently to create trial opportunities with the target group?

What are some additional ways you can create trial opportunities for the target group?

What are you doing currently to assist the target group with the adoption/continuation phase?

What are some additional ways you can assist in the adoption/continuation phase?

What are you doing currently to break down barriers to participation for the target group?

What do you plan to do in the future to break down barriers?

Best Practice: Effective programs ensure the safety of all participants and instructors.



Fishing can and should be a very safe activity. However, those who believe fishing is risk-free are likely to find out the hard way that serious injuries can occur. Just a few safety concerns include water depth and current, bank conditions (can the bank give way, or are there rocks or holes), hooks, use of lead products, weather, dehydration, hypothermia, handling fish, and cleaning fish.

Boating is a potential element of fishing that brings with it additional safety concerns. Although you may not teach boating in every program, help participants in every course understand that when they use boats they become boaters and must understand all aspects of boating safety. A high proportion of boating deaths occur because anglers do not see themselves as boaters. If you teach individuals to fish from a boat, refer to *Chapter 7, Enhancing Boating Education Programs*, which includes standards for boating safety.

Issues concerning hooks are usually the first thing that come to mind when you think about fishing safety. It is important to have a procedure for instructors and program administrators to know and follow should a hook become embedded in a person during an activity. The procedure should include when and how a hook can be removed, and when and where a person should be taken to receive professional medical attention. Avoid any incidents to begin with by providing instructors, participants, and observers with specific instruction such as:

- All participants, instructors, and observers must wear glasses. You might also require everyone to wear a brimmed hat with the brim worn over the glasses to provide added protection for the eyes and head. If participants do not have prescription glasses or sunglasses, have safety glasses available.
- Make sure all anglers hear and understand how to handle and operate the rod and reel. Do not use hooks when teaching casting.
- Make sure there is adequate supervision (a reasonable instructor-student ratio) so dangerous situations and behaviors can be avoided. Instructors/supervisors should constantly reinforce safety.

Instructors should provide students with the following instruction:

- Hooks are sharp. Be careful when handling, casting, and retrieving hooks and removing them from fish.
- Always look behind, above, and around you to make sure people, animals, or obstructions such as trees or power lines are not in the way of your back or side cast. (Remember, your line can extend far behind you.)
- If your bait or casting plug gets stuck, do not jerk it. It can fly back at you like a bullet and hurt you or someone else.
- Form a safety circle around you by holding your rod straight out in front of you and then turn in a circle. If your rod touches another person, move further away.

Chapter 2 provides additional information on safety concerns in general. There are too many safety concerns regarding fishing to be covered adequately in this *Workbook*. The level of fishing instruction will determine the type of water you are fishing, which will determine the safety concerns regarding the water. The types of weather you encounter (extreme heat, freezing cold, thunderstorms) will present different safety concerns. Other outdoor safety concerns will vary according to your part of the country, such as fire ants and cottonmouth snakes in the South.

Instructors should have first-aid kits and water for all participants. At a minimum, give your instructors these instructions:

- Tell participants what to wear to stay safe (glasses, type of shoes, clothes).
- Review instruction areas for potential safety hazards prior to event/instruction.
- Know how to contact emergency medical assistance and where the nearest phone is located.
- Know procedures for handling situations (hooks, insect/snake bites, scrapes, injuries, etc.).
- Keep control of the group (e.g., when teaching casting, have a line that all participants must stay behind; when fishing, tell participants the areas that are in and out of bounds).
- Review any other safety procedures that should be followed for the specific activity.

Worksheet 8-C

(Actual worksheet found in *Appendix B*)

How is safety addressed in your teaching materials?

How are emergency procedures addressed in your teaching materials?

How is safety addressed in instructor training?

How are emergency procedures addressed in training?

What additional information and/or training might you provide to instructors?

Best Practice: Effective programs develop partnerships to strengthen fishing programs.



The recruitment and retention of anglers requires more than a single agency/organization response. Partnerships with other agencies, organizations, businesses, universities, and communities are essential to success. Avoid the temptation to go it alone. There is absolutely no room for turf battles, departmental infighting, or agency provinciality.

To develop effective partnerships, the fishing education program must be relevant to the partner. Some people make the mistake of thinking their partners must have an interest in fishing, but that is not necessary. Fishing offers much more than catching fish. Multiple benefits can attract diverse partners (see sidebar).

Benefits of Fishing

Fishing:

- *Is an equalizer—an activity that anyone can participate in equally, regardless of size, age, strength, gender, or social status.*
- *Is fun.*
- *Is a lifetime activity.*
- *Is an activity people can do with friends and family.*
- *Is an activity that people can do alone without feeling lonely.*
- *Is an activity that provides quality time with families and friends.*
- *Is an activity that bonds families and provides memories that last a lifetime.*
- *Helps youth develop life skills/assets such as decision-making skills and high self-esteem.*
- *Helps youth develop respect and responsibility.*
- *Provides youth a positive alternative to drugs, alcohol, and violence.*
- *Helps individuals become more connected to the natural resources.*
- *Helps people become better stewards of aquatic resources.*
- *Can turn students on to learning about biology, ecology, conservation, and other subjects.*
- *Can raise attendance at school (when used as part of a school curriculum).*
- *Can provide appropriate physical therapy exercises for certain types of surgeries (through casting).*

Churches, schools, family counseling groups, youth groups, city parks, community groups, and numerous others could benefit as a partner in your fishing education program.

Worksheet 8-D

(Actual worksheet found in **Appendix B**)

Make a list of your potential partners and how your fishing education program is relevant to their missions.

List how the partnership can benefit your program

List the costs of maintaining the partnership

Best Practice: Effective programs incorporate stewardship of aquatic resources.



People who fish are more likely to increase their awareness of and appreciation for the need to protect and conserve natural resources. However, they may not feel they have the knowledge and skills necessary to play a part in protecting those resources. Therefore, effective programs incorporate ethics-based stewardship education into angling classes and activities.

In-depth stewardship education often is overlooked at the awareness and trial stages, but seeds of thought can be integrated even into short, introductory angling courses. All angling courses should make participants aware that good anglers have a responsibility to do more than simply obey fishing regulations. Help them understand that all good anglers share in the responsibility of respecting our country's water resources and the future of the sport.

For example, anglers must:

- Act responsibly and govern their own behavior to sustain and nurture the environment.
- Always obey fishing regulations.
- Never litter.
- Dispose of fishing line properly.
- Never waste fish.
- Appropriately handle and release fish or clean and prepare for eating.
- Be advocates for responsible use of our waterways and do what they can to stop projects, practices, and proposals that destroy them.

- Act with consideration for others.
- Respect the rights of other anglers.
- Respect the landowner.
- Respect the rights of non-anglers.

Angling courses that are longer in length, and/or intermediate and advanced classes can provide more in-depth knowledge and skills on how to be an ethical angler who is a good steward of the resource. These courses can get participants involved in protecting areas around the water or enhancing the resource. They can help anglers understand that as they learn more about the resource to become better anglers, they also learn to monitor the health of a stream, lake, coastal area, or entire watershed. Courses also can provide anglers the knowledge and skills of action strategies to help them get more actively involved in issues that affect the aquatic resource.

Chapter 9 covers aquatic stewardship in detail and should be referred to in addition to the information presented here.

Worksheet 8-E

(Actual worksheet found in *Appendix B*)

How do your courses incorporate ethics-based stewardship? List the ethics-based stewardship characteristics that you want covered in an:

- Introductory angling course
 - 1-Day
 - Multiple Days:
- Intermediate angling course.
- Advanced angling course.

Best Practice: Address components of the recruitment and retention model relevant to each age group and develop programs accordingly.



As you select your target audience(s), consider how age (youth through adults) impacts the process of becoming an angler. Available research can help you determine where your programs should be focused.

Importance of youth

Research indicates that nearly two-thirds of all anglers started fishing before their ninth birthday, and only six percent learned after they turned 21. So clearly,

reaching youth is a critical element in recruitment. However, programs that target only youth under 10 years of age are missing an important ingredient in retention, because participation during the teen years significantly influences whether or not youth continue participating and/or how avid they are as adults.

Some programs assume that youth from single parent families should be addressed specifically. However, research shows that there is little significant difference in participation rates of youth from single parent families as compared to two-parent families.

When working with youth, it is important to consider the various stages of youth development. Please see *Chapter 2* for details.

Importance of adults

While youth audiences make the most sense for recruitment efforts, adults cannot be forgotten for recruitment or retention opportunities.

- The fact that there will be a higher percentage of older Americans in the future would indicate some attention (particularly for retention) should be directed in this area.
- Programs that teach youth and parents provide social support for the youth and provide more opportunities for them to participate. They also provide parents with the confidence and knowledge to facilitate future trips.
- Opportunities exist to break through barriers and constraints that affect women and ethnic groups (including the increasing number of immigrants). These groups may not have had the opportunity to learn as youth, but would now like to learn to fish.
- Since adults are required to purchase licenses, introducing adults to fishing and retention of adults through various outreach or educational programs can mean immediate revenue to an agency.

Importance of families

Educators who focus exclusively on youth or adults or any single audience may be missing an opportunity to increase their effectiveness at recruiting and retaining anglers. Expanding audiences to include families is a strategy that is well supported in Best Practices.

Worksheet 8-F(Actual worksheet found in *Appendix B*)

What age groups do your fishing education programs currently target? Why?

What other age groups would your agency or organization benefit from targeting?

How would targeting these various age groups benefit your program (help better reach your stated goals)?

Best Practice: Effective programs utilize well-trained instructors (paid or volunteers).

Refer to *Chapter 2* for information on how to make your program instructionally sound, and refer to *Chapter 3* for selecting, training, and working with volunteers. Those chapters provide the foundation for this Best Practice. However, elements important in teaching a skill-based activity such as fishing are not covered in those chapters. Some important elements for success:

- Keep it fun – participants will relax and enjoy the experience if you're having fun. No need to turn people into pros overnight. It's far more important for them to have a good experience.
- Instill basic safety – it is important that participants do not endanger themselves or others. Always review basic safety procedures.
- Instill basic etiquette – it is important that others view participants positively. Help participants understand the etiquette and ethics fundamental to fishing.
- Be positive – if you build the participant's self-esteem and confidence as you progress, it is more likely that he will enjoy the activity and want to go again. Instructors can provide constructive comments without being critical. A well-timed compliment can go a long way.
- Start with the basics – if your instructors started fishing when they were young, everything may come instinctively to them now. Provide an outline for them to follow when teaching. Make a conscious effort to explain and demonstrate step-by-step.
- Create immediate success – have instructors start with something simple where participants can

achieve success easily. Having someone operate a fishing reel or make a simple cast allows for immediate success. Add increasingly challenging opportunities for success by setting large targets at five, ten, and twenty yards.

- Provide hands-on-activities – participants want to handle equipment and put new skills into practice. Provide hands-on opportunities throughout the entire learning process.
- Involve participants – the more an instructor involves participants in decision-making and helps them understand how to participate in the activity on their own, the greater the chance they will do it again. Provide them with information on how a decision was reached. For example, instead of saying, "This would be a good place to fish," explain how you came to that decision such as, "A largemouth bass likes cover and that log provides perfect cover." Have participants begin to look for good habitat. This involves them more deeply in the activity and later helps them make the decisions on their own.
- Teach problem solving – help participants learn to solve problems they may encounter along the way. For example, if someone's worm keeps coming off the hook, show her how to better put the worm on the hook. If someone gets a tangle in his line, untangle it together, showing him how to get the tangle out and how to avoid getting tangles in the future.

Create instructors/volunteers who are mentors, not fishing guides. Fishing guides do everything for their customers except reel in the fish. They put bait on the hook, find the fish, sometimes even make the cast, unhook the fish, and clean and/or release the fish. Some volunteers want to help so much that they become guides and ultimately make their students dependent on someone else to fish. Mentors teach their protégés how to do these activities for themselves.

Worksheet 8-G(Actual worksheet found in *Appendix B*)

Review your current instructor training. Does it cover the topics in *Chapter 3* and the skill-based elements presented here?



Chapter 9

Enhancing Aquatic Stewardship Education

As expansion of human development puts more pressure on aquatic resources, it is critical that people practice, on an increasing basis, stewardship of our natural resources.

For the purposes of this *Workbook*, environmental stewardship is defined as:

Informed, responsible action/behavior on behalf of the environment and future generations.

Aquatic stewardship education is a process to help individuals acquire and learn to apply stewardship skills and capacities needed to enable them to make informed choices and take environmentally responsible actions.

The terms ethics, morals, and character are used interchangeably here to refer to the same concept—an internal system that determines socially acceptable behavior. A stewardship ethic is at work when a person feels an obligation to consider, not only his own personal well-being, but also that of his surroundings and human society as a whole.

Researchers have come to three important conclusions about environmental education:

1. Ecological awareness and knowledge are not enough to cause long-lasting behavior changes,

but they can provide a basis or readiness for subsequent learning and participation.

2. Ownership (a personal connection with one or more natural areas, and knowledge of and/or investment in problems/issues) is critical to responsible environmental behaviors.
3. Instruction and experiences intended to foster ownership and empowerment (a sense of being able to make changes and resolve important problems, and use critical issues investigation skills to do so) often permit individuals and groups to change their behavior.

The Best Practices discussed in *Chapters 1-6* apply to stewardship education. Following are additional Best Practices that relate specifically to stewardship. Some overlap from initial chapters is necessary to discuss specific stewardship points.

Best Practice: Effective programs have mission, education program goals, and instructional objectives aligned with one another to reflect stewardship education.



This subject is covered in detail in *Chapter 1*. Effective programs clearly state the organization's mission, program goals, and instructional objectives.

Table 9: Best Practices for Stewardship Education

Effective Programs:

- Have organizational mission, education program goals, and instructional objectives aligned with one another to reflect stewardship education.
- Address a progression of entry-level variables, ownership variables, and empowerment variables.
- Consider the role that ethical principles and reasoning can play in supporting stewardship.
- Provide opportunities for individuals to have positive contact with the outdoors over a long period of time.
- Provide avenues to enhance social support for learners.
- Help learners consider all aspects of the aquatic resource issue of interest (including historical, social, scientific, political, and economic).
- Encourage long-term stewardship behavior.
- Develop curricula for stewardship education that are structured to give learners a well thought-out and data-supported sequence of stewardship opportunities.

Further, these are aligned with one another to clearly reflect the nature and purpose of stewardship education.

Who is the good steward you are striving to develop? What characteristics do good stewards have? As part of your program outcomes and impacts, develop a list of characteristics a good steward would have. Some examples are listed below, although your list may be different.

A good steward:

- Understands that humankind is a part of and not apart from the natural world and that stewardship entails, not preservation, but informed and ethical choices regarding the size and scope of human activity in the natural world.
- Has knowledge of ecological, aquatic resource, and fisheries management concepts.
- Has knowledge of pertinent problems and issues.
- Feels a personal connection to natural resources.
- Can identify, analyze, investigate, and evaluate problems and solutions.
- Understands beliefs and values (beliefs are what individuals hold to be true, and values are what they hold to be important regarding problems/issues and alternative solutions/action strategies).
- Seeks to understand all aspects of an issue (e.g., environmental, scientific, social, political, historical, and economic).
- Participates actively through outdoor activities such as boating or fishing.
- Has acquired a knowledge of and demonstrated skill in using action strategies essential to sound stewardship.
- Reflects a sense of obligation to future generations and the earth.
- Accepts responsibility because a steward knows he/she impacts the environment through every action.
- Understands the difference between intention and consequence (does the action truly have the desired effect?).
- Has an internal locus of control (the belief and/or feeling that working alone or with others, an individual can influence or bring about desired outcomes through his/her actions) and takes personal responsibility.
- Acts in an informed and responsible manner.
- Is willing and able to pass stewardship concepts to peers and others.

Goals and objectives of effective programs are covered in the Best Practices that follow.

Worksheet 9-A

(Actual worksheet found in *Appendix B*)

How does your program define the characteristics of an environmental (or aquatic resource) steward? List the characteristics.

List the mission, goals, and objectives of your program related to stewardship.

Stewardship Mission.

Stewardship Goal 1.

Stewardship Objectives.

Stewardship Goal 2.

Stewardship Objectives.

Best Practice: Effective programs address a progression of entry-level variables, ownership variables, and empowerment variables.



These three sets of variables—entry-level, ownership, and empowerment—contribute to environmentally responsible behavior.

Entry level

Entry-level variables include a person's environmental sensitivity and knowledge about ecology. When individuals have little knowledge of or sensitivity toward the environment, programs must provide information and teach basic ecological concepts. Without some understanding about the environment, individuals most likely will not progress to the ownership stage. People who enter a program with a lot of knowledge have less to gain from this level, but they will have the foundation upon which to guide new learning.



Ownership level

Ownership variables are those that permit individuals and groups to personalize environmental problems and issues, so they take ownership of them. These variables include a personal connection with one or more natural areas, an in-depth understanding of the issues, and personal investment in and identification with an issue.

Research indicates that when people directly experience the destruction of natural areas with which they are intimately familiar, they develop a sense of ownership for those areas. Perhaps more importantly, when individuals and groups are able to expand and apply knowledge/skills by investing their own time, energy, and resources in addressing a particular problem/issue, they often develop a sense of ownership for that problem/issue.

Empowerment level

Empowerment variables give people a sense that they can make changes and help resolve important environmental issues. Empowerment variables include perceived skill in using environmental action strategies and skills, knowledge of action strategies, an internal locus of control, the intention to act, and assumption of personal responsibility. To promote/foster empowerment, programs should:

- Help participants develop guidelines and foster internal motivations for responsible behavior toward other people and the natural world while fishing and/or boating.
- Help participants develop guidelines and foster internal motivations that will serve as a foundation for responsible behavior toward the natural world beyond the specific context of fishing or boating.

Stewardship is a long-term process. It calls for a series of complementary education efforts and may work best when learning takes place in a combination of formal and non-formal learning environments.

Worksheet 9-B

(Actual worksheet found in *Appendix B*)

How does your program address and how can you enhance:
 Entry level stewardship variables?
 Ownership variables?
 Empowerment variables?
 How does your program dovetail with other programs that may contribute to a sequential stewardship education experience?

Best Practice: Effective programs consider the role ethical principles and reasoning can play in supporting stewardship.



In addition to developing critical thinking and decision-making skills and giving learners the tools they need to take action, stewardship education should consider how ethics support environmental stewardship. Ethics-based stewardship is a process of developing ethical competence. Ethical competence involves certain skills, including the:

- Sensitivity to recognize when a situation poses one or more ethical considerations.
- Knowledge of what behaviors are legal versus what behaviors might be ethical in a situation.
- Willingness to contribute, participate, and act.
- Judgment to weigh various considerations where there are no laws or guidelines.
- Humility to seek advice and additional knowledge to guide one's action.

Worksheet 9-C

(Actual worksheet found in *Appendix B*)

What is your program doing currently to help participants gain the skills of ethical competence?
 How might your program be enhanced to help participants become more ethically competent?

Best Practice: Effective programs provide opportunities for individuals to have positive contact with the outdoors over a long period of time.



Environmental sensitivity refers to an increased level of empathy toward the natural environment. Research shows that environmental sensitivity is developed through significant, positive contact with the outdoors over a long period of time. For example, adults who are leaders in conservation or involved in environmental careers usually share a common set of experiences involving the outdoors that include fishing and boating when they were youngsters.

To have a meaningful environmental ethic, a person must have a fundamental sense of affection for and identification with nature, and see himself as an integral, obligate member of the ecological community. Unethical behavior often is associated with feelings of alienation from nature, which allows an individual to abuse and exploit the resource without feelings of personal guilt or long-term responsibility. Fishing and boating are outdoor activities that may help individuals develop a deeply personal connection with nature.

Activities such as fishing and boating motivate individuals to continually return to the outdoors.

Worksheet 9-D

(Actual worksheet found in *Appendix B*)

List ways your program can provide positive contact with the outdoors.

What might you include in your program so participants are comfortable returning to the outdoors?

What might you include in your program to encourage participants to return to the outdoors?

Best Practice: Effective programs provide avenues to enhance the social support for learners.



The social context in which the education takes place is at least as important as the methods by which stewardship concepts are taught. If not grounded within the particular community and cultural context of the learner, stewardship education will remain abstract, outside the scope of experience of the learner, inconsistent with cultural norms, and ultimately irrelevant.

Family, peers, and others in the community transmit their attitudes, beliefs, and values to participants in

stewardship programs. Group members can encourage or discourage stewardship behaviors.

Aquatic stewardship programs are most effective in reaching behavioral goals if designed to incorporate parents, family, and neighborhoods as part of the learning community. Also, participants can be given guidance on how to involve family and other peers in stewardship behavior.

The influence of the social context also may explain why the most effective service learning projects for schools are those that share information from the class curriculum with the community (a science class doing storm drain stenciling, or a social studies class making flyers about control of exotic species).

Worksheet 9-E

(Actual worksheet found in *Appendix B*)

List ways your program can help create social support for participants' actions.

Best Practice: Effective programs help learners consider all aspects of the aquatic resource issue of interest (including historical, social, scientific, political, and economic).



Effective programs help participants look at and review all sides of an environmental issue. It is just as important that individuals understand and weigh the historical, social, political, and economic aspects of an issue as it is for them to understand the scientific and environmental issue itself.



Worksheet 9-F(Actual worksheet found in *Appendix B*)

How does your program currently incorporate the influence of social, scientific, historical, political, and economic implications on environmental issue decisions?

How might you better address social, scientific, historical, political, and economic implications on environmental issue decisions?

Best Practice: Effective programs encourage long-term stewardship behavior.

Effective programs utilize strategies that result in long-term stewardship behavior. Many contemporary stewardship education efforts seem to take the form of short-term program modules or individual lessons. These piecemeal approaches need to be replaced with in-depth and sustained programs. Program developers need to be aware that some strategies provide for only short-term behavior changes.

Research indicates that goal-setting, commitment, and demonstration strategies are most effective in encouraging environmentally responsible behavior. Feedback, rewards, and penalties can produce short-term behavior change. However, when these consequence conditions are removed, people immediately return to their original behavior patterns. These may have some promise for stewardship education, but by themselves, are not likely to produce lasting behavior change or development of environmental citizenship.

Also, there is very little evidence that mass media campaigns promoting conservation—even intensive mass media campaigns—have appreciable effects. Information alone is not enough to change behavior.

Some effective strategies include:

- Getting the learner to commit to doing one or more target behaviors,
- Getting the learner to select a personal or team goal related to target behaviors, and
- Engaging the learner in group competition related to these target behaviors.

Also, to obtain long-term results, educators must seek to understand and identify constraints and then design programs to minimize or eliminate them.

Sample constraints include:

- Not feeling able to engage in or perform the activity or behavior due to lack of knowledge, skill, and/or confidence.
- Not having others with whom to engage in or carry out the activity or behavior, or having others who are discouraging them from taking part.
- Lack of time, money, or access.

To create long-lasting outcomes, stewardship programs must be sustained over time. There must be follow-up support to help maintain change. Even when strong, short-term behavioral change occurs, long-term change still is highly doubtful without continued reinforcement. Programs should include ongoing evaluation to determine if long-term behavior change is occurring.

Worksheet 9-G(Actual worksheet found in *Appendix B*)

How does your program:

Get the learner to commit to doing one or more target behaviors?

Get the learner to select a personal goal related to target behaviors?

Engage the learner in group competition related to target behaviors?

What changes need to be made in your program (if any) to:

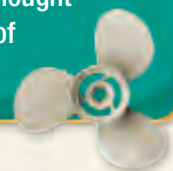
Get the learner to commit to doing one or more target behaviors?

Get the learner to select a personal goal related to target behaviors?

Engage the learner in group competition related to target behaviors?

How does your program help participants overcome constraints?

How might your program better address constraints?

Best Practice: Effective programs develop curricula for stewardship education that are structured to give learners a well thought-out and data-supported sequence of opportunities.

It is important to provide learners a well thought-out sequence of opportunities to help them develop, build upon or practice, and eventually apply their awareness, knowledge, skills, and participation strategies. Develop curricula that will:

- Result in an in-depth knowledge of issues.
- Teach learners the skills of issue analysis and investigation as well as provide the time needed to learn to apply these skills.
- Teach learners the citizenship skills needed for issue remediation and provide the time needed to learn to apply these skills.
- Provide an instructional setting that helps learners develop an internal locus of control.
- Include other Best Practices mentioned above.

Stewardship-oriented curricula that are project-driven can be set up so learners are adequately prepared to take each step. They also can be set up so teachers can prepare learners and guide them through the entire process. These strategies take into consideration the learners' developmental level(s), prior knowledge and experience, and aptitude. These opportunities should be challenging, but within the participants' reach.

Effective programs periodically review and revise curricula to reflect recent feedback from teachers and learners, results of evaluation and research, and other sources. Refer to *Chapter 4* for details on program evaluation.

Worksheet 9-H

(Actual worksheet found in *Appendix B*)

How does your curricula give learners appropriate sequences of activities that build on one another?



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Chapter 10

Let Research Help

Research can tell us a lot about boating, fishing, and stewardship education and how to improve it. Unfortunately, existing research goes largely unused by the aquatic education community, and there are many research needs that have yet to be addressed. For example, the question, “Are we having an impact with our programs?”

largely is unanswered. The broader environmental education

literature has provided the guidance to develop the Best Practices in this *Workbook*.

As for the research that hasn’t been done, one of the major reasons for its absence has been a lack of capacity by sponsoring agencies and organizations to conduct educational research. Few state agencies or conservation organizations know how to identify research needs and design and complete appropriate studies. As a result, the Best Practice recommendations for educational research (*Table 10*) focus on capacity building within organizations.

This does not necessarily mean aquatic education researchers need to be hired. It does mean that program staff should be able to recognize and communicate the value of and need for research that is relevant to their programs. Awareness of existing research, and research experience will allow program staff to incorporate research findings into their programs. It also will help them identify gaps in existing research and additional research needs.

The authors of *Defining Best Practices in Boating, Fishing, and Aquatic Resources Stewardship Education* have identified a variety of specific research needs.

Best Practice: Effective programs allow staff to recognize and explore the value of and need for research that is relevant to their programs.



Best practices are recommendations based on what has been observed or documented to be effective to date, but which may change given additional experience, evaluation, and research. It is critical that staff (or anyone associated with delivery of educational programs) understand the importance of research regarding education in general and their program specifically.

Worksheet 10-A

(Actual worksheet found in *Appendix B*)

How do you emphasize the importance of research to your staff?

Table 10: Best Practices for Research Effective Programs:

Effective Programs:

- Allow staff to recognize and explore the value of and need for research that is relevant to their programs.
- Provide opportunities for staff to become aware of and familiar with collections, reviews, and summaries of research relevant to their programs.
- Encourage staff to incorporate research findings into the design, development, implementation, and evaluation of their programs.
- Allow staff to take advantage of professional development opportunities that enhance their research skills and strengthen their capacity to become meaningfully involved in the research process.

Best Practice: Effective programs provide opportunities for staff to become aware of and familiar with collections, reviews, and summaries of research relevant to their programs.



Effective programs encourage and provide mechanisms for staff to remain up to date with current research. You can find opportunities through publications, newsletters, websites, training, etc.

Worksheet 10-B

(Actual worksheet found in *Appendix B*)

List the ways that you make your staff aware of research relevant to their programs.

List the ways that you enable your staff to become familiar with research relevant to their programs.

Best Practice: Effective programs encourage staff to incorporate research findings into the design, development, implementation, and evaluation of their programs.



It is not enough for staff to merely be aware of or know where to find research information regarding their education programs. The best research in the world will remain useless unless it is incorporated into programs to make them more effective at achieving their objectives. At all levels, the program should encourage staff to continually upgrade their efforts based on pertinent research findings.

Worksheet 10-C

(Actual worksheet found in *Appendix B*)

How do you encourage your staff to incorporate research findings into:

- Program design?
- Program development?
- Program implementation?
- Program evaluation (before, during, and after implementation)?

Best Practice: Effective programs allow staff to take advantage of professional development opportunities that enhance their research skills and strengthen their capacity to become meaningfully involved in the research process.



With continuing professional development/training regarding research, staff can become a powerful force for the improvement of the program and of boating, fishing, and stewardship education in general. With training, they are able to recognize, explore, and share gaps in existing research and additional research needs. This is very valuable to researchers who look to practitioners for insight into the areas in greatest need of exploration. Over time, this feedback loop between practitioners and researchers works to tremendous advantage to both.



Professional development regarding research also can enhance staff abilities to understand the implications of research for their program and strategies for making use of it. Even if you encourage staff to seek out research results, if they cannot apply the information, your program has little to show for their efforts. A basic understanding of research methods and terminology can make a big difference in their ability to effectively use the information. For more information on other aspects of professional development, see *Chapter 3*.

Worksheet 10-D

(Actual worksheet found in *Appendix B*)

What opportunities do you provide for staff to gain greater knowledge and understanding of research processes?



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Glossary

assessment - Collection of information (from program participants and other sources) to determine if stated program objectives have been met

assumptions - The beliefs we have about the program, the participants, and the way we expect the program to operate; the principles that guide our work

attitudes - To acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection

awareness - To acquire an awareness and sensitivity to the total environment and its allied problems

Belgrade Charter - Adopted in 1975 at a United Nations conference in the former Yugoslavia, provides a widely accepted goal statement for environmental education

belief - What individuals hold to be true

Best Practice - A program or practice that has been clearly defined, refined through repeated delivery, and supported by a substantial body of research [These practices represent the best knowledge available for use under specified circumstances. It's important to note that Best Practices may change over time. They are recommendations based on what has been observed to be effective to date, but which may change given additional experience, evaluation, and research.]

communication - The imparting or interchange of thoughts, opinions, or information by speech, writing, or signs

cooperative learning - The teaching strategy that allows learners to work in small groups to explore a new idea, gather information, discuss ideas, apply concepts and solve a problem

curriculum - A plan of instruction that details what students are to know, how they are to learn, and what the teacher's role is

education - The act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life

empowerment - A sense of being able to make changes, resolve important problems, do it independently of others

environmental education - The goal of environmental education is to "Develop a world population that is aware of, and concerned about, the total environment and its associated problems, and which has the knowledge, attitudes, skills, motivation, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones." (UNESCO-UNEP, 1976)

environmental sensitivity - An increased level of empathy toward the natural environment

environmental stewardship - For the purposes of this Workbook, environmental stewardship was defined as informed, responsible action/behavior on behalf of the environment and future generations

A more detailed definition: "Stewardship is the moral obligation to care for the environment and the actions undertaken to provide that care. Stewardship implies the existence of an ethic of personal responsibility, an ethic of behavior based on reverence for the Earth and a sense of obligation to future generations. To effectively care for the environment, individuals must use resources wisely and efficiently, in part by placing self-imposed limits on personal consumption and altering personal expectations, habits and values. Appropriate use of natural resources within the stewardship ethic involves taking actions that respect the integrity of natural systems."

ethics - An internal system that determines correct behavior

ethnographic method - A research method in which the investigator resides within the community being studied

evaluation, formative - Evaluation that occurs while the program or materials are being developed/produced—focusing on improving their effectiveness

evaluation, program - The systematic collection and scrutiny of information about the activities, characteristics, and outcomes of programs to make judgments about the program, improve program effectiveness, and/or inform decisions about future programming

evaluation, summative - Evaluation that occurs after the program or materials are completed/implemented—proving that they achieve their stated performance outcomes

experimental methods - The effect of manipulating an independent variable on a dependent or outcome variable that can be observed while the effects of other relevant factors are minimized

focus groups - A small number of individuals assembled to discuss a topic of interest to an evaluator or to an agency/organization

inclusive - Encourages participation by minorities and people with disabilities

inputs - The resources you would need in order to implement a program including staff, money, equipment, facilities, administrative approvals, budget authority, agreement with cooperating agencies, etc.

interdisciplinary - Programs or efforts that encompass multiple educational disciplines (such as a fishing education program that includes mathematics, social studies, and science)

interpersonal discrimination - Actions carried out by members of the dominant group that have differential and negative impacts on the minority group (These actions can be nonverbal cues, verbal harassment, physical gestures, assaults, and harassment.)

journal - The student's ongoing work that leads to a project (a diary of sorts), or on his/her thinking and pursuit of information about a subject area

knowledge - To gain a variety of experiences in and acquire a basic understanding of, the environment and its associated problems

locus of control - The attribute of a person who senses that he or she has the ability to influence the outcome of a situation

longitudinal studies - Panel of participants, a fixed number of individuals, who respond to questions over time (weeks, months, or years, depending on study design)

marketing - Determining what consumers want and need and then providing it

National Environmental Education Act of 1970 - This act stated that environmental education "is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life"

outputs - Includes things such as how many people would attend, how many would be reached or exposed to a message, how satisfied participants would be with their experience, etc.

outcomes - Things such as increased environmental awareness and knowledge, changed attitudes and opinions, and establishment of a foundation for responsible behavior toward the environment

participation - To encourage citizens to use their knowledge to become actively involved at all levels in working toward resolution of environmental problems

portfolio - Collection of student work that demonstrates increasing proficiency

program logic model - Simplified, visual description of how different factors of the program are related

promotion - Communicating to your audience that you have a product or service they may want

rubrics - Specific guidelines given to students ahead of time that show how the teachers will allocate points to assess their work

service learning - Students conducting projects that are beneficial to the community and have direct links to the curriculum

skills - To acquire the skills for identifying and solving environmental problems

stakeholders - People who have some sort of a stake or interest in the program that is being developed; people that care, are willing to develop a commitment and are best able to offer input

stewardship - See environmental stewardship

stewardship ethic - When a person feels an obligation to consider not only his own personal well-being, but also that of his surroundings and human society as a whole

surveys - A series of questions to be asked of a sample group of people

Tbilisi Declaration - In 1977, representatives from 68 nations gathered for the world's first intergovernmental conference on environmental education. This conference, held in Tbilisi in the former Soviet Republic of Georgia, led to the release of an official statement on environmental education—the Tbilisi Declaration. Built on the Belgrade Charter, the Tbilisi Declaration acclaimed the important role of environmental education in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities

values - What individuals hold to be important regarding problems/issues and alternative solutions/action strategies

Appendix A

A Brief History of Environmental Education

1890s

Nature study movement (John Muir and Enos Mills)

Wilbur Jackman wrote *Nature Study for the Common Schools*—aimed to educate urban dwellers who had lost touch with the natural world.

Junior naturalist program at Cornell University taught students about the natural world in the context of rural agriculture.

1900s

The *Handbook of Nature Study* published for teaching natural history.

Nature study movement contributed ideals for education that are still important in modern elementary science education—inquiry and discovery with first-hand observation.

1930s

Conservation education movement began in response to the soil erosion, dust storms and flooding disasters.

Goal of the movement was to awaken Americans to the importance of conserving various natural resources to avoid further destruction.

Laws were passed that gave land to schools for use in nature study.

Camps sponsored by churches and agencies used recreation to help promote an understanding of the natural world.

Progressive education movement focused on learning by doing.

1950s

Outdoor education focused on learning outside the school building. Concerns that urban youth were not experiencing direct contact with the natural environment.

1960s

Rachel Carson published *Silent Spring*.

People began to notice human impacts on the environment.

Environmental movement began.

1970s

Environmental movement expanded development of environmental education.

Earth Day celebrations were a landmark expression of public support for a realignment of values and a new respect for the environment.

Set the stage for the transition of education *about* the environment and *in* the environment to education *for* the environment.

U.N. Conference on the Human Environment in Stockholm, Sweden, recommended establishment of international environmental education programs.

U.N. Educational, Scientific, and Cultural Organization (UNESCO) sponsored a series of international EE workshops and conferences.

Belgrade Charter (1975) provided a widely accepted goal statement for EE:

“The goal of environmental education is to develop a world population that is aware of, and concerned about, the total environment and its associated problems, and which has the knowledge, attitudes, skills, motivation, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.” (UNESCO-UNEP, 1976).

1970s continued...

World's first Intergovernmental Conference on Environmental Education held (1977). Tbilisi Declaration built on the Belgrade Charter, established objectives of EE:

- Awareness - to acquire an awareness and sensitivity to the total environment and its allied problems;
- Knowledge - to gain a variety of experiences in and acquire a basic understanding of the environment and its associated problems;
- Attitudes - to acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection;
- Skills - to acquire the skills for identifying and solving environmental problems; and
- Participation - to encourage citizens to be actively involved at all levels in working toward resolution of environmental problems (UNESCO, 1978).

United States passed the National Environmental Education Act of 1970, reflecting a national commitment to environmental education.

This act stated that environmental education:

“is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life.”

1990

National Environmental Education Act reaffirms the purpose of the earlier act. Focuses on schools as the place for effective EE, although it recognizes the importance of non-formal (outside the formal school system) avenues for educating citizens, communities, and the workforce.

1996

The North American Association for Environmental Education (NAAEE) publishes *Guidelines for the Initial Preparation of Environmental Educators* and *Environmental Materials: Guidelines for Excellence*.

1999

NAAEE publishes *Excellence in Environmental Education—Guidelines for Learning (K-12)*, establishing standards for quality environmental education.

Appendix B

Worksheets

The following worksheets can be completed on your screen before printing:

Worksheet 1-A	Relevance to the agency/organization mission	Worksheet 4-I	Use national criteria to assess curricula
Worksheet 1-B	Program educational purpose	Worksheet 5-A	Involve minority population in planning
Worksheet 1-C	Plan for program evaluation	Worksheet 5-B	Barriers to access
Worksheet 1-D	Adequate support, resources, and staffing to become sustainable	Worksheet 5-C	Reflect the culture
Worksheet 1-E	Experienced, well informed, prepared staff	Worksheet 5-D	Network of social support
Worksheet 1-F	Frequent and sustained educational opportunities	Worksheet 5-E	Address the barriers
Worksheet 1-G	Involve stakeholders and partnerships	Worksheet 5-F	Make them feel welcome
Worksheet 2-A	Consider delivery systems and involve stakeholders	Worksheet 5-G	Positive role models
Worksheet 2-B	Relevance to sponsors and educators	Worksheet 5-H	Instructionally sound
Worksheet 2-C	Align curricula with accepted standards	Worksheet 5-I	Special challenges
Worksheet 2-D	Review existing materials before creating new ones	Worksheet 6-A	Involve persons with disabilities in program design
Worksheet 2-E	Present accurate and balanced information	Worksheet 6-B	Make program inclusive
Worksheet 2-F	Model effective teaching methods	Worksheet 6-C	Treat them as people first
Worksheet 2-G	Make relevant to the learner	Worksheet 6-D	Eliminate or lessen constraints
Worksheet 2-H	Safe and appropriate learning environment	Worksheet 6-E	Make accessible to all
Worksheet 2-I	Make program learner centered to provide collaborative learning	Worksheet 6-F	Conform to appropriate legislation
Worksheet 2-J	Match the developmental stages of your learners	Worksheet 6-G	Provide instructor training
Worksheet 2-K	Use multiple teaching methods	Worksheet 6-H	Provide appropriate instructor ratio
Worksheet 2-L	Interdisciplinary approach	Worksheet 6-I	Accessibility information in promotional material
Worksheet 2-M	Consider the social context	Worksheet 7-A	Utilize partnerships
Worksheet 2-N	Consider outcomes or skills beyond the subject matter	Worksheet 7-B	Define the content
Worksheet 2-O	Utilize a variety of resources	Worksheet 7-C	Careful selection of instructors
Worksheet 3-A	Establish goals and objectives	Worksheet 7-D	Promote your program
Worksheet 3-B	Involve partners to reach a broader audience	Worksheet 7-E	Provide pathways for learners to practice
Worksheet 3-C	Provide several layers of training	Worksheet 8-A	Define the educational purpose
Worksheet 3-D	Recruit experienced instructors	Worksheet 8-B	Use the Recruitment-Training-Retention Model
Worksheet 3-E	Train instructors in educational theory	Worksheet 8-C	Ensure safety
Worksheet 3-F	Model effective teaching methods	Worksheet 8-D	Develop partnerships
Worksheet 3-G	Incorporate social support	Worksheet 8-E	Incorporate stewardship of aquatic resources
Worksheet 3-H	Safe and appropriate learning environment	Worksheet 8-F	Target appropriate age groups
Worksheet 3-I	Appropriate approaches to evaluation	Worksheet 8-G	Utilize well trained instructors
Worksheet 4-A	Base evaluation on program goals and objectives	Worksheet 9-A	Align goals and objectives
Worksheet 4-B	Make evaluation systematic and ongoing	Worksheet 9-B	Address a progression of variable
Worksheet 4-C	Administrative and financial support	Worksheet 9-C	Consider ethical principles and reasoning
Worksheet 4-D	Evaluation as a learning tool	Worksheet 9-D	Positive contact with the outdoors
Worksheet 4-E	Identify program outputs	Worksheet 9-E	Enhance social support
Worksheet 4-F	Short term learning outcomes	Worksheet 9-F	Consider all aspects of the issue
Worksheet 4-G	Long term benefits and impacts	Worksheet 9-G	Encourage long-term stewardship
Worksheet 4-H	Multiple and varied assessment methods	Worksheet 9-H	Sequence of opportunities
		Worksheet 10-A	Importance of research
		Worksheet 10-B	Familiar with research
		Worksheet 10-C	Incorporate research
		Worksheet 10-D	Professional development

Worksheet 1-A Relevance to the agency/organization mission (p. 1-2).

List the mission, goals, objectives, and issues of your agency or organization that need to be addressed through educational programs:

Agency/organization mission:

Goal 1:

Objective:

Objective:

How does/will your program help achieve this goal/objective?

Goal 2:

Objective:

Objective:

How does/will your program help achieve this goal/objective?

Worksheet 1-B Program educational purpose (p. 1-3).

Given the mission, goals and objectives of your agency or organization (as you described them in the previous worksheet), describe for your education program:

Mission (what is its reason for being?):

Goal 1 (why are we doing this program?): (e.g., increase participation in angling)

Objective (what, specifically, do we want to accomplish): (e.g., have 1,000 people attend a weekend fishing clinic; have 350 people fish again within six months of attending a clinic; train 200 volunteer boating education instructors, etc.)

Objective:

Objective:

Goal 2:

Objective (what, specifically, do we want to accomplish): (e.g., have 1,000 people attend a weekend fishing clinic; have 350 people fish again within six months of attending a clinic; train 200 volunteer boating education instructors, etc.)

Objective:

Objective:

Complete a program logic model like Figure 1 for your program. If you are just developing a program, consider starting with the long-term outcomes you want, and working backward. If you have a program already, complete the model and review how the pieces fit together and where there might be holes.

[illegible]

***Worksheet 1-D Adequate support, resources, and staffing
to become sustainable (p. 1-6).***

Based on your needs assessment or program logic model, list areas of support you need from your agency/organization.

For each program area that needs support:

Program 1:

Type of support needed (funding, staffing, etc.):

Source of needed support:

Specific ways you might seek additional support:

Partners or other stakeholders who can assist you (other divisions within your agency/organization or partners from outside):

Program 2:

Type of support needed:

Source of needed support:

Specific ways you might seek additional support:

Partners or other stakeholders who can assist:

Program 3:

Type of support needed:

Source of needed support:

Specific ways you might seek additional support:

Partners or other stakeholders who can assist you:

Worksheet 1-E Experienced, well informed, prepared staff (p. 1-6).

What staff positions impact your education program?

For each position, rate the person who currently holds that position in terms of potential to successfully implement the program:

Knowledge (poor, moderate, good, excellent)

Skills (poor, moderate, good, excellent)

Behavior (poor, moderate, good, excellent)

For each staff position that you did not rate as excellent, what would it take to help that person achieve an excellent rating?

How will you work to help them improve the rating?

In what ways will (do) you provide ongoing professional development for your staff?

Is education part of your organization's strategic planning process?

How?

How would you rate the support that education receives in your organization? (poor, fair, excellent).

What would it take to improve that rating?

How do you communicate agency/organization goals and objectives to your staff?

(Duplicate for each staff member involved in each individual program)

Worksheet 1-F Frequent and sustained educational opportunities (p. 1-7).

Given the stated goals and objectives of your program, list the different ways you currently reach your target audience with your messages.

List as many opportunities as you can for expanding your reach (and your effectiveness).

Goals:

Objectives:

Current efforts:

Formal (in-school):

Non-formal:

Partnerships:

Opportunities:

Formal (in-school):

Non-formal:

Partnerships:

(Duplicate as needed)

Worksheet 1-G Involve stakeholders and partnerships (p. 1-8).

In what specific ways can stakeholders assist you?

What do you and your program have to offer them?

Who are the end users for your program?

What groups should be represented on your team?

What individuals should be represented on your team?

What are the specific roles and responsibilities of the stakeholders?

Who can act as a facilitator for the team?

Worksheet 2-A Consider delivery systems and involve stakeholders (p. 2-2).

Where will your program be delivered?

Who will deliver the program? (List all possibilities for each category).

List how you have involved stakeholders in planning for program delivery:

List how you will involve any stakeholders you have not involved already:

Worksheet 2-B Relevance to sponsors and educators (p. 2-3).

Make a list of potential partners and how your program is relevant/beneficial to them.

Partner	Program benefit/relevancy to partner

Worksheet 2-C Align curricula with accepted standards (p. 2-3).

List the education standards and guidelines you have reviewed to incorporate into your program:

National:

State:

District:

School:

☐ North American Association of Environmental Education guidelines (www.naaee.org/npeee/)

☐ National Association of State Boating Law Administrators (www.nasbla.org) or related national boating education standards

☐ National Academy of Sciences-Science Education Standards (www.nationalacademies.org)

Other

Worksheet 2-D Review existing materials before creating new ones (p. 2-4).

Program Objective #1:

List kinds of tools that can be used to meet objective:

Existing tools/packages/materials that help you meet the stated objective:

First choice of potential existing tools:

Audience/agency/organization needs not addressed by first choice of existing tools:

Resources you have to develop tools to fill these holes (or develop entire set of tools if none exists that meets your needs):

Final choice of existing tools or description of what will be needed to meet the objective:

Program Objective #2: (repeat)

List kinds of tools that can be used to meet objective:

Existing tools/packages/materials that help you meet the stated objective:

First choice of potential existing tools:

Audience/agency/organization needs not addressed by first choice of existing tools:

Resources you have to develop tools to fill these holes (or develop entire set of tools if none exists that meets your needs):

Final choice of existing tools or description of what will be needed to meet the objective:

Worksheet 2-E Present accurate and balanced information (p. 2-5).

Is your program based on sound science, relying on genuine data collected in rigorous ways and without foregone conclusions?

Are your data above reproach in source, collection methods, and interpretation?

How do you teach learners to use data to guide decision-making?

How do you teach learners to select and evaluate information to make decisions?

How do you use your subject matter as a vehicle through which growth and development of the learner occurs?

Worksheet 2-F Address safety and regulations (p. 2-5).

Who assisted you with risk management assessment of your program?

What were/are the greatest areas of risk associated with your program?

How are you addressing these risks?

Worksheet 2-G Make relevant to the learner (p. 2-7).

List the target audience(s) for your program:

How is your program relevant to each audience?

How have you given your program a local context?

What real-world problems or issues does your program incorporate?

How does your program facilitate direct contact between learners and the outdoors?

Worksheet 2-H Empower learners (p. 2-8).

What opportunities do you provide for learners to define an issue, determine if action is warranted, identify others involved in the issues, select appropriate action strategies, create and evaluate an action plan, implement the plan, and evaluate the results? Outline the opportunities for each step.

What parts of your program provide opportunities for your learners to build skills in:

- Oral and written communication?

- Decision-making?

- Conflict resolution?

- Leadership?

More principles and guidelines regarding the learning process are available at:
North American Association for Environmental Education (www.naaee.org/npeee/learner_guidelines.php)

Worksheet 2-I Make program learner centered to provide collaborative learning (p. 2-10).

How does your program incorporate collaborative learning and critical thinking skills?

How do you assess your learners' knowledge on your subject areas before instruction?

How have you incorporated active, experiential learning into your program?

Worksheet 2-J Match the developmental stages of your learners (p. 2-10).

To what age group(s) is your program targeted?

How have you customized your program to that age group/developmental stage?

K-3:

4-6:

7-9:

10-12:

Adults:

Worksheet 2-K Use multiple teaching methods (p. 2-12).

To what age group(s) is your program targeted?

How have you incorporated the four major learning styles into your teaching methods?

What elements of your program incorporate hands-on techniques?

What elements of your program incorporate cooperative learning techniques?

What opportunities have you given your learners to access information interactively?

Where have you made your curriculum a partnership with learners, or helped them design the curriculum themselves?

How have you made your program learner-centered instead of teacher-centered?

In what ways will you be teaching your learners how to learn (that is, how to synthesize, not just assimilate information)?

How have you made use of Internet and other technology to allow every individual to find personal paths to learning based on their backgrounds, talents and learning styles?

How have you incorporated fun into your program?

How have you transformed your teachers from transmitters of information to facilitators of the learning process?

Worksheet 2-L Interdisciplinary approach (p. 2-13).

How does your program incorporate subject areas beyond science/ecology?

If you have a formal education program, how have you involved a variety of teachers, subject areas, and grade levels?

Worksheet 2-M Consider the social context (p. 2-14).

What communities or groups do learners belong to?

What are the primary social influences on learners?

How can you enlist these influential groups to help?

How have you incorporated small group activities into your program?

How have you incorporated peer activities into your program?

How have you incorporated action learning into your program?

Worksheet 2-N Consider outcomes or skills beyond the subject matter (p. 2-14).

Make a list of lessons within your program and how they currently include or how they can be modified to include the building of assets or life-skills.

Lesson	Assets or life-skills

Worksheet 2-O Utilize a variety of resources (p. 2-14).

How does your program incorporate outdoor experiences?

List the sites/locations/facilities you will use to conduct your program:

List local community contacts you have identified to help you deliver your program:

List specific activities you will conduct in the field and/or incorporate into later classroom activities:

Worksheet 3-A Establish goals and objectives (p. 3-2).

List goal(s) for your instructor training.

List specific objectives for your instructor training.

For each objective, list how you assess whether it is achieved or not.

Worksheet 3-B Involve partners to reach a broader audience (p. 3-2).

List partner organizations you work with to increase your instruction capabilities.

For each, how does the partnership benefit your program?

What must you do to maintain the partnership? (What will it cost to keep the partner happy?)

How might the partnership be improved?

List other organizations that might be willing to partner with you.

How might you pursue these new organizations?

Worksheet 3-C Provide several layers of training (p. 3-3).

List the kinds of training you currently provide your instructors (include workshops, newsletters, social events, updates, etc.):

Do these provide different layers of training (basic, in-depth, new areas, etc.)?

List additional levels of training that would help increase instructor effectiveness.

Worksheet 3-D Recruit experienced instructors (p. 3-3).

Identify potential teachers, instructors, or volunteers who have experience in:

Stewardship

Boating

Fishing

Natural Resource Management (fish management, aquatic ecology, etc.)

Teaching

Worksheet 3-E Train instructors in educational theory (p. 3-6).

Make a list of instructors/teachers who do not have any training in educational theory:

Make a list of instructors/teachers who do not have any training in boating, fishing, or stewardship education:

How can you provide the appropriate training to them?

Worksheet 3-F Model effective teaching methods (p. 3-6).

List the topics to be covered in your training sessions:

For each topic, identify the method to be used in the training:

For each method, identify whether it is instructor-centered or participant-centered (strive for more participant-centered activities so you model the way you expect them to teach).

List the ways that you emphasize process over content:

Create a brief agenda that shows what you will cover in your training.

Worksheet 3-G Incorporate social support (p. 3-7).

How do you provide social support for your teachers/instructors?

List the opportunities for end user social support.

What type of social support do you require your teachers to incorporate into their teaching?

Are there other ways you could provide support to instructors and/or end users? (Ask instructors!)

Worksheet 3-H Safe and appropriate learning environment (p. 3-8).

List learning settings where you conduct instructor training.

List other settings that would be appropriate.

What are the barriers to using these settings?

What steps are necessary to make use of these settings?

List areas of your teacher instruction where you stress the importance of providing hands-on teaching methods in a variety of settings.

How do you address safety/liability issues? Do you model use of appropriate safety measures? Do instructors understand their liability?

Worksheet 3-I Appropriate approaches to evaluation (p. 3-8).

How do you ensure that instructors understand the importance of tying assessment to learning?

How do your instructors incorporate assessment into their programs?

Worksheet 4-A Base evaluation on program goals and objectives (p. 4-2).

What is (are) the goal(s) of your program (immediate and long-term)?

What are the specific, measurable objectives of your program (immediate and long-term)?

How will you measure each objective?

How will you determine whether you have met your objectives and achieved your goals (specific behaviors, knowledge base, indicators of success)?

Worksheet 4-B Make evaluation systematic and ongoing (p. 4-2).

List the ways that you evaluate your program:

During the planning stage.

During implementation.

Upon completion.

Worksheet 4-C Administrative and financial support (p. 4-4).

Is evaluation included in your program every year?

Do you include funding for evaluation in your annual program budget?

What administrative support do you have for your program?

Do program administrators actively support and encourage the inclusion of and proper budgeting for evaluation in funding proposals you submit? Comment:

List the program partners (such as university faculty and graduate students) who might assist with evaluation.

Where is administrative support lacking?

How might you address this lack of support?

Worksheet 4-D Evaluation as a learning tool (p. 4-4).

What information do you collect through evaluation that can help you in the program decision-making process?

How do you incorporate evaluation results into decisions about your program?

How often do you use evaluation results to guide decisions about your program materials? Delivery system? Other?

Worksheet 4-E Identify program outputs (p. 4-4).

Activity/event:

Date:

Location:

Number of participants:

Cost of event:

Cost per participant:

Participant satisfaction exit surveys:

List other program outputs you collect:

Worksheet 4-F Short term learning outcomes (p. 4-6).

What are the short-term outcomes you want from your program?
(Refer to your program logic model.)

What methods do you use to accomplish this assessment?

Worksheet 4-G Long term benefits and impacts (p. 4-6).

What are the possible long-term outcomes of your program?

What are the long-term outcomes *you want* from your program?
(Refer to your program logic model.)

Potential survey questions you could ask your program graduates after completion:

Have you fished/boated/participated in a stewardship activity (clean-up day, recycling, advocacy, etc.)?

Have you bought a fishing license?

Have you purchased your own equipment?

Have you joined an angling, boating, or conservation organization?

Worksheet 4-H Multiple and varied assessment methods (p. 4-10).

Check each method you (plan to) use and identify what you will assess with each:

☐ Surveys (describe)

☐ Testing (describe)

☐ Focus groups (describe)

☐ Ethnographic method (describe)

☐ Longitudinal studies (describe)

☐ Experimental methods (describe)

☐ Portfolios and journals (describe)

☐ Projects (describe)

☐ Other (describe)

☐ Have you discussed evaluation procedures with a professional in this field?

Worksheet 4-I Use national criteria to assess curricula (p. 4-11).

Name of curriculum materials:

Source/date/version:

Educational criteria you have assessed the materials against:

Weaknesses or holes identified:

How you plan to address the weaknesses:

Worksheet 5-A *Involve minority population in planning (p. 5-2).*

Identify your minority target audience.

Identify key representatives from this target audience.

What representatives will you invite to serve as advisors to help plan and implement programs?

Define what you want to accomplish.

Define what each target group wants to accomplish.

Establish meeting dates.

Worksheet 5-B Barriers to access (p. 5-3).

Identify barriers that constrain access for each of your target audiences.

How will you address each barrier?

Identify whether your minority target audience has economic barriers.

If lack of funds is a barrier, how will you address:

Equipment needs at the event:

Long-term use by participants:

Transportation needs to get to the event:

Long-term access needs of participants:

Other program costs:

Worksheet 5-C Reflect the culture (p. 5-3).

What are the cultural factors you must address to better meet the needs of your target audience?

Norms

Beliefs

Value Systems

Socialization practices

How can you modify your program to make it more meaningful to the culture of your target audience?

Worksheet 5-D Network of social support (p. 5-4).

Identify the individuals or groups that could provide social support for your target audience beyond your program.

What will you do to involve that support group in your program?

Worksheet 5-E Address the barriers (p. 5-4).

What boundries, barriers, or constraints prevent your program from acheiving maximum effectiveness with your audience?

What steps can you take to overcome these?

Worksheet 5-F Make them feel welcome (p. 5-5).

Who are the individuals with whom your participants are likely to come in contact as a result of your program?

How will you sensitize these individuals to make sure your participants always feel welcome?

Worksheet 5-G Positive role models (p. 5-5).

List some positive role models for your target audience.

When and how will you invite them to participate in your program?

Worksheet 5-H Instructionally sound (p. 5-5).

Who is your target audience?

What instructional strategies work best with your target group? (If information is not available, incorporate suggestions from members of the target group about how they like to learn.)

What instructional strategies can you incorporate into your program?

Worksheet 5-I Special challenges (p. 5-6).

How have/will you address any special challenges of assessing components of your program that target different ethnic groups or cultures?

Worksheet 6-A Involve persons with disabilities in program design (p. 6-2).

Do you have persons with disabilities on your program planning team?

Do you have individuals who work with persons with disabilities on your planning team?

If not, list people you can recruit to help.

How can you enhance their involvement in the planning process to make people with disabilities feel welcome in all of your programs?

Worksheet 6-B Make program inclusive (p. 6-3).

How does your program:
Celebrate diversity?

Respect differences?

Promote interdependence?

Foster participation and cooperation?

Foster supportive relationships?

Foster friendships?

How might you better incorporate the principles of inclusion in your program?

Worksheet 6-C Treat them as people first (p. 6-3).

How does your program treat people with disabilities as people first?

How does your instructor training sensitize your instructors to this issue?

Is language in your program materials humanizing?

Do you incorporate a discussion of humanizing language into your training?

What changes are needed?

Worksheet 6-D Eliminate or lessen constraints (p. 6-4).

How does your program address attitudinal barriers for persons with disabilities?

How does your program address resource barriers (finances, transportation, knowledge and skills, etc.)?

What might you include in program materials/training to help persons with disabilities overcome or eliminate barriers?

Worksheet 6-E Make accessible to all (p. 6-5).

Are your boating, fishing, and stewardship activities accessible to people with disabilities?

What changes are you going to make to enhance accessibility?

Worksheet 6-F Conform to appropriate legislation (p. 6-5).

Have you reviewed federal, state, and local regulations and mandates regarding accessibility? Which ones apply to your program?

List the changes needed in your program to meet these mandates:

Worksheet 6-G Provide instructor training (p. 6-6).

How does your staff and instructor training for working with persons with disabilities include:
Communication techniques:

Information on adaptive devices:

Interaction skills:

Worksheet 6-H Provide appropriate instructor ratio (p. 6-7).

Have you provided guidelines to your staff for determining appropriate staff-to-student ratios (i.e., determine participants' ages and type and severity of their disabilities)?

What resources might staff utilize to determine appropriate ratios of instructors/helpers to students?

Who might staff recruit to assist with presentations/activities to ensure appropriate staff-to-student ratios?

Worksheet 6-1 Accessibility information in promotional material (p. 6-7).

List the promotional materials you distribute for your programs.

For each, list changes you can incorporate to make the materials more welcoming to persons with disabilities.

Worksheet 7-A Utilize partnerships (p. 7-2).

Where will your program be delivered?

Who will deliver the program?

How will you promote your programs?

Worksheet 7-B Define the content (p. 7-3).

What are the goals and objectives of each of your boating courses?

What important information must be included in each course? (Develop a course outline.)

If you are offering a boater safety course for certification, does it meet the standards for boater safety education?

If you are offering a general boating course, list the safety information that must be incorporated.

Worksheet 7-C Careful selection of instructors (p. 7-4).

What goals and objectives for each type of training do you plan to offer?

How do you plan to select instructors for your program?

How does your training program meet the Best Practices provided in Chapter 3?

Worksheet 7-D Promote your program (p. 7-5).

How do you plan to make people aware of:
The need for boating safety?

The time and place of local boating safety courses?

Besides courses, what other ways will you help individuals obtain boater safety information?

What benefits/incentives can you provide to encourage individuals to participate in boater safety education?

Worksheet 7-E Provide pathways for learners to practice (p. 7-5).

How do you plan to design your course to match the developmental stages of the learner?

How do you plan to make your programs relevant to the learner?

How do you plan to empower learners?

How do you plan to provide a positive social culture for boating and boating safety?

Complete worksheets in Chapter 2, if you haven't already.

Worksheet 8-A Define the educational purpose (p. 8-2).

What is the goal of your fishing education program?

What are your objectives to achieve that goal?

What do you want your learners to be able to do after completing your program?

Worksheet 8-B Use the Recruitment-Training-Retention Model (p. 8-5).

For each target audience, what kind of social support do they have for participating in fishing and stewardship?

If your audience has little or no social support, what steps will you take to help create this support?

What are you doing currently to create awareness of fishing with the target group?

What are some additional ways you can create awareness with the target group?

What are you doing currently to create interest in fishing with the target group?

What are some additional ways you can create interest with the target group?

What are you doing currently to create trial opportunities with the target group?

What are some additional ways you can create trial opportunities for the target group?

What are you doing currently to assist the target group with the adoption/continuation phase?

What are some additional ways you can assist in the adoption/continuation phase?

What are you doing currently to break down barriers to participation for the target group?

What do you plan to do in the future to break down barriers?

Worksheet 8-C Ensure safety (p. 8-6).

How is safety addressed in your teaching materials?

How are emergency procedures addressed in your teaching materials?

How is safety addressed in instructor training?

How are emergency procedures addressed in training?

What additional information and/or training might you provide to instructors?

Worksheet 8-D Develop partnerships (p. 8-7).

Make a list of your potential partners and how your fishing education program is relevant to their missions.

Partner	Program benefit/relevancy to partner

List how the partnership can benefit your program:

Partner	Benefit to your program

List the costs of maintaining the partnership:

Worksheet 8-E Incorporate stewardship of aquatic resources (p. 8-8).

How do your courses incorporate ethics-based stewardship?

List the ethics-based stewardship characteristics that you want covered in an:
Introductory angling course

1-Day

Multiple Days

Intermediate angling course.

Advanced angling course.

Worksheet 8-F Target appropriate age groups (p. 8-9).

What age groups do your fishing education programs currently target?

Why?

What other age groups would your agency or organization benefit from targeting?

How would targeting these various age groups benefit your program (help better reach your stated goals)?

Worksheet 8-G Utilize well trained instructors (p. 8-9).

Review your current instructor training. Does it cover the topics in Chapter 3 and the skill-based elements presented here?

Worksheet 9-A Align goals and objectives (p. 9-2).

How does your program define the characteristics of an environmental (or aquatic resource) steward? List the characteristics.

List the mission, goals, and objectives of your program related to stewardship.

Stewardship Mission:

Stewardship Goal 1:

Stewardship Objectives:

Stewardship Goal 2:

Stewardship Objectives:

Worksheet 9-B Address a progression of variables (p. 9-3).

How does your program address and how can you enhance:
Entry Level Stewardship Variables?

Ownership variables?

Empowerment Variables?

How does your program dove-tail with other programs that may contribute to a sequential stewardship education experience?

Worksheet 9-C Consider ethical principles and reasoning (p. 9-3).

What is your program doing currently to help participants gain the skills of ethical competence?

How might your program be enhanced to help participants become more ethically competent?

Worksheet 9-D Positive contact with the outdoors (p. 9-4).

List ways your program can provide positive contact with the outdoors.

What might you include in your program so participants are comfortable returning to the outdoors?

What might you include in your program to encourage participants to return to the outdoors?

Worksheet 9-E Enhance social support (p. 9-4).

List ways your program can help create social support for participants' actions.

Worksheet 9-F Consider all aspects of the issue (p. 9-5).

How does your program currently incorporate the influence of social, scientific, historical, political, and economic implications on environmental issue decisions?

How might you better address social, scientific, historical, political, and economic implications on environmental issue decisions?

Worksheet 9-G Encourage long-term stewardship (p. 9-5).

How does your program:

Get the learner to commit to doing one or more target behaviors?

Get the learner to select a personal goal related to target behaviors?

Engage the learner in group competition related to target behaviors?

What changes need to be made in your program (if any) to:

Get the learner to commit to doing one or more target behaviors?

Get the learner to select a personal goal related to target behaviors?

Engage the learner in group competition related to target behaviors?

How does your program help participants overcome constraints?

How might your program better address constraints?

Worksheet 9-H Sequence of opportunities (p. 9-6).

How does your curricula give learners appropriate sequences of activities that build on one another?

Worksheet 10-A Importance of research (p. 10-1).

How do you emphasize the importance of research to your staff?

Worksheet 10-B Familiar with research (p. 10-2).

List the ways that you make your staff aware of research relevant to their programs.

List the ways that you enable your staff to become familiar with research relevant to their programs.

Worksheet 10-C Incorporate research (p. 10-2).

How do you encourage your staff to incorporate research findings into:
Program design?

Program development?

Program implementation?

Program evaluation (before, during, and after implementation)?

Worksheet 10-D Professional development. (p. 10-3).

What opportunities do you provide for staff to gain greater knowledge and understanding of research processes?

[illegible]

Appendix C

General Logic Model for Resource Education Programs

