Implementing an Effective NPS Pollution Education Program

MRI

FLORIDA COMMUNITY COLLEGE

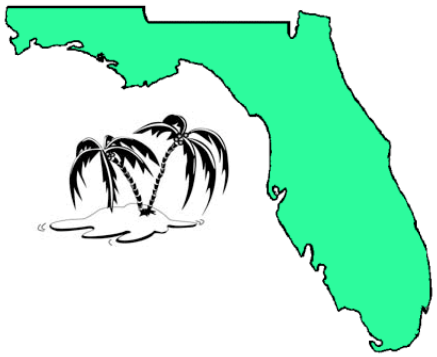
CONSORTIUM *for* POLLUTION PREVENTION EDUCATION

DEPARTMENT OF ENVIRONMENTAL PROTECTION FLORIDA

EPA

Table of Contents

Preface: Florida's Threatened Water



Water is everywhere in Florida! With more than 8,400 miles of tidal shoreline, 8,000 lakes, 20 major rivers and estuaries, and the largest underground aquifer in the United States, Florida has an abundance of water resources. In addition, Florida receives approximately 50-65 inches of rainfall from about 120 storms in an average year.

The residents and visitors of Florida depend upon these water resources for agriculture, industry, and a variety of recreational activities such as fishing, boating and swimming. Most importantly, we depend upon it for our drinking water. More than 90% of the state's drinking water is drawn from underground aquifers. With these abundant resources, it would seem that there is an unlimited supply of usable water. However, this is NOT true. Our water supply, arguably Florida's most valuable resource, is threatened.

Today, the leading threat to Florida's water resources and quality of this resource is nonpoint source (NPS) pollution, often referred to as ***pointless personal pollution***. Pointless personal pollution does not originate from a single, specific source but is generated by a variety of activities spread over a broad area.

Everyone contributes to pointless personal pollution in many different ways. Driving an automobile, maintaining a flower garden, mowing the grass, or walking a dog are just a few of the activities that can contribute to NPS or personal pollution. Every time it rains, pollutants such as soil particles, pesticides, fertilizers, oil, grass clippings, and waste are released into our waterways from plowed fields, streets, rooftops, and neighborhood yards.

These items are pollutants? You bet!

- Soil particles or sediments and other organic materials such as leaves and grass clippings can reduce water depth, smother aquatic organisms and reduce photosynthesis, which in turn decreases the amount of oxygen in the water. It basically destroys aquatic habitat.

- Chemical nutrients in fertilizers, detergents and sewage cause excessive plant growth and algae blooms. Overgrowth of aquatic plants and algae can clog navigational waterways, impair recreational activities, block sunlight from penetrating the water column, and reduce dissolved oxygen levels resulting in fish kills. High nutrient levels in groundwater can also be a principal cause for closing potable wells and for methemoglobinemia (blue baby syndrome).

- Bacteria, waterborne viruses, and pathogens from septic systems, livestock, and pets cause illnesses such as cryptosporidiosis that can result in the closure of swimming areas and shellfish beds.

- Toxins, including heavy metals, pesticides, and organic chemicals from farms, lawns, city streets, driveways, and landfills can pose serious human health risks when they contaminate fish, shellfish, and drinking water wells.

The threat of nonpoint source pollution is real. Everyday, thousand of pounds and millions of gallons of nonpoint source pollutants are entering and deteriorating our water resources in Florida and throughout the United States. It has been reported (1) that:

- Each year, over 132 millions gallons of used motor oil are poured down storm drains or disposed of in landfills nationwide.

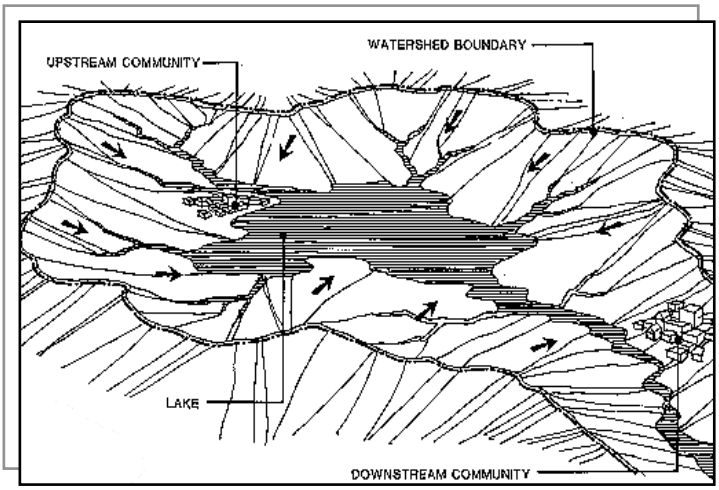
- Approximately 1,000 pounds of lead, zinc, cadmium and other toxic metals from streets and parking lots are introduced into receiving waters from a single rainstorm.

- More than 70 million pounds of pesticides are used on lawns and golf courses annually.

- Approximately 80 million septic systems in the United States discharge 8 billion gallons of wastewater annually into soil and groundwater.

Unfortunately, most people do not understand the threat of nonpoint source pollution to our water resources. They do not realize that everyday activities such as over fertilizing the lawn and applying fertilizer minutes before a rainstorm can contribute to water pollution. Many people do not believe that their preventive actions can really make a difference, but they can! This is why implementing an effective educational program on pointless personal pollution is so important. Once everyone realizes how they contribute to the problem and that they can be part of the solution, the threat of nonpoint source pollution will decline.

Step 1: Research Your Watershed



One of the initial steps to designing an educational program is researching the watershed to be targeted. Thoroughly understanding the watershed includes knowing the boundaries of the watershed, how it functions as a drainage system, and how humans interact with the system.

A watershed is essentially a drainage basin or an area of land containing tributaries such as rivers, streams or lakes that ultimately drain to a larger body of water. Watersheds vary in size from small local drainage basins with a single tributary to the enormous Mississippi River basin, which has tributaries in many cities, counties and states. Because geologic features such as ridges and high areas, topography, and soil type define watersheds, their boundaries usually differ from politically set jurisdictional boundaries.

Geological features that influence watershed boundaries are as follows:

- Ridges and high areas of the land outline the general watershed boundary, determine the source of the watershed or headwaters, and identify the municipalities, counties, and/or states within the watershed.

- Topography determines how quickly surface water will drain from the land and the areas where surface water is likely to accumulate. This information provides valuable information on flood zones and erosion potential.

- Soil type dictates the extent that surface water infiltrates or percolates to the groundwater. Water that does not percolate through the soil contributes to surface water volume. Sandy soils in coastal and central Florida allow greater percolation then clayey soils found in Northern Florida or organic soils associated with wetlands. The less the soil percolates, the more surface water accumulates.

After defining the boundary and drainage dynamics of the watershed to be addressed, study the land use features and human impacts to the watershed, so that educational materials can be tailored to meet specific needs. Consider how different types of land use may impact the watershed such as natural areas like wetlands and forests, mining and farming activities, and urbanized areas. Study the areas zoning districts, historical information, scientific data on water quality, and human population projections for insight to current and future watershed impacts. Understanding human impacts to the watershed justifies and clarifies the type of education program needed.

It is also important to identify the different jurisdictions operating within the watershed area and to encourage them to participate in education program activities. A shared watershed can make educational efforts challenging if an area wide program isn't supported. For example, City A implements an effective educational program as well as pollution prevention practices to improve water quality conditions in a local water body. City B located within the same watershed does not join in on the pollution prevention efforts and continues to pollute the water body. The efforts of City A are ineffective due to the lack of participation by City B because pollution from City B continues to contaminate the water body resulting in poor water quality for both cities. Municipalities and other governments within a watershed must work as a team to be effective.

IDEAL SIZE FOR AN EFFECTIVE NPS POLLUTION EDUCATIONAL PROGRAM

The ideal size for an effective NPS pollution education program, where results can be noticed, is approximately 50,000 acres or less (2). With larger watersheds, results may not be as noticeable.

Researching the watershed is a very important step. Use the information to learn about the past and present water quality problems, to define target audiences, locate resources, and develop key partnerships. Watershed identification and land use information can be obtained by contacting local colleges and universities, county planning offices, water control districts, county extension services, water management districts, and the Florida Department of Environmental Protection and other state agencies. These agencies may even be able to provide you with Geographic Information System (GIS) images and maps of your local watershed.

The Internet is another good source for watershed information. Included in Appendix A is a list of websites and resources that may assist in researching watersheds and watershed protection.

Activities:

1) Create a list of favorite websites and bookmark them in your website browser.

2) Start a binder to keep watershed articles, newsletters, and other sources of information handy and organized.

Step 2: Coordinating an Advisory Committee

One of the most valuable assets of an effective NPS pollution educational program is the advisory committee. Members not only provide creative thinking and input for the program but also can be your greatest advocates. A strong committee should include members that hold varying interests within your watershed community, such as representatives from governmental agencies, civic organizations, environmental groups, farmer workers, homeowners, business and industry, teachers, students and retired persons.

CONTRIBUTIONS OF THE ADVISORY COMMITTEE

Modified from *Building Local Partnerships-A Guide for Watershed Partnership* (3)

Government Agencies	Credibility and visibility for programs Knowledge of land use and flood zones Knowledge of stormwater controls Knowledge of natural resources Funding sources
Civic Organization	Ongoing program activities Interest in and concern for the community Fundraising skills
Environmental Groups	Knowledge of environmental issues Committed and knowledgeable members
Farmers	Credibility and visibility for programs Sponsor for field trips and demonstrations Knowledge of water use and drainage
Business/Industry	Credibility and visibility for programs Distribute information and influence decisions Sponsor for field trips and demonstrations
Teachers	Ability to shape future generation Sources of education information
Students	Influence effort in the future Time and energy for program tasks
Retirees	Time and talent for teamwork Understanding of local conditions Credibility in the community

Committ

ee Selection

An individual's reason(s) for joining an advisory committee will vary from person to person. The occupation of some individuals may require a role in community partnerships, while other individuals may seize membership in the committee for professional growth and networking opportunities. The selection of committee members should be based on the type of contributions (skill, expertise, funds) that they can bring to the program as well as the satisfaction the member receives for participating.

There are several different methods of selecting members for the committee. You may choose to use one or a combination of different methods.

- **Hand-selection** of committee members is the selection of members that you have had previous contact with and knowledge of their professional or personal interests. The advantage of hand-selecting your committee is that you may already have their support for the program. The disadvantage is that you might miss out on possible new information or viewpoints that could improve your education program. Recommendations by peers and other selected members can be an efficient way of expanding the number of "hand-selected" task force members while providing opportunities for new viewpoints.

- **Open invitation** for interested committee members can be announced as a public service announcement on the radio or in the newspaper. The broad distribution of the invitation is likely to reach all facets of the watershed and provide you with a more diverse committee. However, your group may become too large to effectively work together and not everyone on the committee may be supportive of your program.

- **Letters of request** for participation as a member of the advisory committee may be sent to various local agencies/organizations. These letters are usually read and discussed at the organizational meetings. Although you can target organizations you wish to be represented on the committee, you typically will not have a choice of who will be assigned to attend your meetings.

Committee's Role

To help the committee run smoothly, operating procedures and officers should be established. A chairperson, usually from the lead agency, develops and distributes the agenda, in advance, and leads the meetings. Good communication skills are a must for the chairperson, as he or she could "make or break" the effectiveness of the committee. In addition to the chairperson, a secretary is also recommended. The secretary's responsibility is to take attendance and record minutes at each meeting and distribute them to the committee members for approval. The minutes can also serve as a reminder to complete action items identified during the meeting.

The key to an effective advisory committee is keeping members informed and actively involved in the program. It is best to conduct at least quarterly meetings throughout the duration of the program. Members need to constantly review program initiatives,

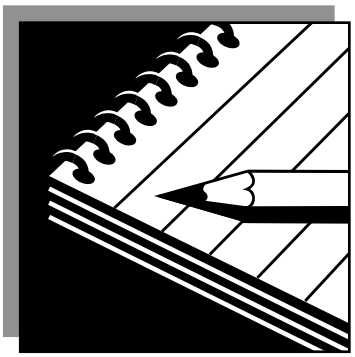
accomplishments and evaluate successes and failures. The involvement of many facets of your watershed community throughout the entire educational process will keep the program fresh, coherent and effective.

Activities:

1) **Make a list of stakeholders who can provide assistance and advice for program development and implementation.**

2) **Write a contact list of people and programs that can assist with examples of materials and ideas.**

Step 3: Planning the Program Goals & Objectives



A successful education program plan clearly identifies goals and objectives. Goals and objectives define the direction of the program and provide the means to evaluate program effectiveness. This chapter will describe goals and objectives and provide examples used by successful nonpoint source pollution education programs.

Goals are statements that describe what the program hopes to successfully accomplish through implementation. They are broad reaching, long-term program aspirations. Goals can be set to enhance public awareness of NPS pollution, to encourage stewardship of natural resources, to change business practices, to encourage partnerships, to implement management plans, or to invoke citizen action.

Several examples of general goals are provided for your review. These examples of nonpoint source pollution education program goals should be modified to your specific watershed and education program needs.

- Heighten community awareness and understanding of the local watershed, its water quality problems, and the need to better manage water resources especially by reducing nonpoint source pollution.

- Instill a sense of respect and stewardship for the natural resources within the Indian River Lagoon (Tampa Bay, Suwannee River, Apalachicola Bay, Florida Bay, or other local watershed).

- Achieve widespread participation in, and support for the Comprehensive Conservation and Management Plan (CCMP) through the involvement of diverse groups.

- Develop and maintain a clear understanding of the actions set forth in the Comprehensive Conservation and Management Plan to be taken by rural and urban landowners and users, watershed committees, community leaders and other groups.

- Optimize the use of rural and urban nonpoint source pollution control measures through voluntary cooperation and through improved effectiveness of state, district, and local stormwater and pollution management programs.

- Coordinate and cooperate with other federal, state, and local programs to promote appropriate implementation strategies that achieve water quality improvements.

Once goals are established, committee members can help develop the program objectives. Objectives are short-range, action statements that indicate successful steps to

reaching goals and a means to evaluate program success. Usually, several objectives are needed to accomplish each goal. Objectives should include measurable limitations to provide greater assistance in identifying specific tasks and to evaluate the program. The statements should answer the questions: Who? What? Where? And When?

For example, one of the goals previously suggested will be broken down into two measurable objectives.

Goal: Heighten community awareness and understanding of the local watershed, its water quality problems, and the need to better manage water resources especially by reducing nonpoint source pollution.

Objective 1: Within the next year, X County Stormwater Education Program will conduct at least eight (8) Florida Yards and Neighborhoods presentations and distribute educational materials to neighborhood associations that are in closest proximity to the areas of "Y" watershed that exhibit the highest nutrient levels.

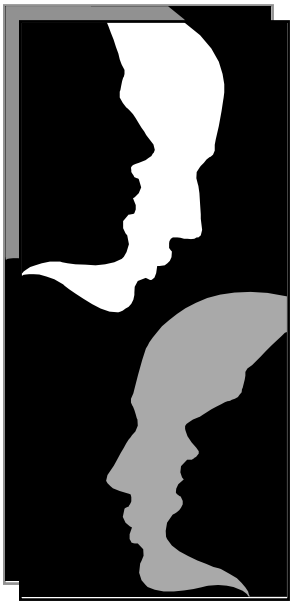
Objective 2: Within the next year, X County Stormwater Education Program will solicit participation from at least two (2) neighborhood associations where at least 75% of lot owners will participate in a Florida Yards and Neighborhoods evaluation of their yards.

Once goals and objectives are established, it is important that your advisory committee and other project partners thoroughly understand them. Remember that goals and objectives should not be rigid, but reviewed and updated throughout the program.

Activities:

1) **Write a mission and goals for your NPS Pollution Education Program.**
2) **Identify several measurable objectives for each goal.**
3) **List strategies and tasks to achieve the measurable objectives.**
4) **Assign resources needed to achieve goals.**

Step 4: Defining Your Target Audience



Different audiences will have varied interests in the NPS pollution education program and require different types of information. For example, an elected official will need a different level of information on implementing a stormwater program than a homeowner wanting to have an environmentally-friendly yard. Define the target audience or group(s) of people that you wish to reach through the NPS pollution education program so that their specific needs and interests can be appropriately met.

In general, NPS Programs involve three broad audiences: business and industry, government personnel, and the general public. Each of these broad categories can be further broken down into smaller target audiences. You may decide to target one of these broad categories or portions of several for your program. Be careful in considering the size of your audience. A very large audience makes it difficult to reach the entire population adequately with the educational message and too small an audience might not result in a significant impact.

Business and Industry

The business and industry audience includes people who contribute to pollution problems in the daily operation of their businesses as well as those who have an interest in preserving water quality. They have an important role in developing and implementing pollution prevention solutions. This audience consists of industrial producers, marinas, developers, automotive and fleet maintenance yards, farmers, fishers, pool cleaners, pressure washers, painters and restaurant owners to name a few. Many of these businesses and industries are affected by federal and state NPDES regulations that require the implementation of pollution prevention practices. Accordingly, they will welcome the assistance of an effective education program.

There are various means of reaching businesses and industries with educational messages. The easiest means of contacting them is through partnerships formed through the advisory committee. Other methods of contact may include presentations and displays at trade and professional meetings, workshops and demonstrations of best management practices, and BMP flyers provided with occupational licenses. The challenge of educating this audience is not reaching them with educational materials, but changing their behavior. A “Green Business” program that promotes businesses that prescribe to pollution prevention best management practices is one method to not only reach this audience but encourage their participation.

Local Government Personnel

Local government personnel include elected officials, staff members, and their consultants. These people are the key decision-makers in the community and have the greatest influence on the political and financial implications of nonpoint source pollution. This audience can also provide technical, financial, and political support for an education program.

Because government personnel have the power to shape public growth and housing development through planning codes and policymaking, targeting them with NPS pollution prevention information can result in large-scale improvements. An effective NPS pollution education program can change the way stormwater systems are planned, built, and maintained; influence land development and landscaping rules; and improve local environmental and resource protection policies. To affect government policymakers, include information on how the education program improves quality of life for residents and results in reduced fiscal impacts in the long run.

When presenting the NPS Education Program to government policymakers, they may be interested in the following types of information:

- ✓ Data that supports the need for NPS pollution prevention.
- ✓ Community benefits of proper stormwater management and low impact development principles.
- ✓ Examples of applicable regulations and programs being conducted in similar demographic areas.
- ✓ A breakdown and comparison of education program costs vs. waterway/habitat restoration costs.
- ✓ Potential funding sources for water quality protection and improvement programs.
- ✓ Recent and historical water quality data.
- ✓ Socio-economic impacts resulting from poor water quality such as impacts to fishing and eco-tourism industries.
- ✓ Documented public health hazards resulting from poor water quality.
- ✓ Regulatory requirements for program implementation

Effective methods to reach government personnel include: providing information at public workshops, presenting at Board and Council meetings, conducting meetings with key staff members and directors, speaking directly with public officials, or direct contact through telephone, email or correspondence.

General Public

For the purposes of this document, the general public consists of just about everybody within the watershed that is not a specified business or industry and that is not involved with governing pollution prevention policies. This audience consists of homeowners, vehicle drivers, students, teachers, retirees, pet owners, gardeners, waterway users, watershed area residents, and visitors. This huge audience is also comprised of persons with various interests. Some are interested in preserving the natural habitat for fisheries

or endangered species preservation; some are interested in protecting water resources, while others want to maintain the aesthetic quality of the watershed, and some just want to save tax money. The challenge is to develop an educational message that will reach and affect the behavior of this large and diverse audience. One method to increase the number of people reached with your NPS pollution educational message is to solicit "missionaries" to deliver educational messages to specific audiences. Teachers, homeowner associations, volunteers, and students can act as missionaries by teaching others what they have learned about pointless personal pollution.

The following represent a few education program ideas to reach the general public:

- ✓ Provide teachers with classroom curricula that apply to Florida testing requirements while teaching about NPS pollution prevention.
- ✓ Distribute education packages to homeowners associations that outline how to be a responsible homeowner/gardener.
- ✓ Print NPS Pollution fact sheets that can be mailed out with utility bills.
- ✓ Implement a Florida Yards and Neighborhoods Program in cooperation with your local county extension service.
- ✓ Conduct an annual Children's Water Festival
- ✓ Air NPS Pollution Education video public service announcements on local government television channels.
- ✓ Create interest specific PowerPoint presentations to present to environmental clubs, classrooms, civic groups, gardening clubs, boaters associations, and homeowners associations.
- ✓ Design an interactive presentation board and participate in local festivals and events.
- ✓ Develop hands-on learning activities, comic books, or coloring books for children to play with while they learn.
- ✓ Implement a NPS Pollution Education Telephone Hot Line that provides NPS pollution information or an instrument for reporting illicit pollution discharges.
- ✓ Organize and manage a local water quality volunteer program.
- ✓ Print water quality data sheets and share them with clubs interested in water recreational activities along with information on preventing pointless personal pollution.
- ✓ Coordinate an annual "Trash Bash" type volunteer litter reduction event.

Background Information

Once target audiences are selected, additional background information can be gathered to learn how to accurately and effectively reach the greatest number of individuals in each audience. This information includes demographics, knowledge of issues, attitudes or perceptions, and different communication channels. Gathering this information will assist you to tailor your education program to fit the audience needs and concerns. The following will briefly describe these four key categories of information.

- ❖ What are the demographics or characteristics of your target audience? Characteristics include gender, age, race, socioeconomic level, education level, organizational affiliations, spending patterns and other population indicators. This information helps to establish a sampling profile for surveys and to better understand the personality of the target audience.

- How much does your target audience understand about NPS pollution? Can they define terms such as watershed, BMPs or nonpoint source pollution? Understanding their level of knowledge allows you to tailor educational media to meet their needs.

- What are their attitudes and/or perceptions of water pollution problems? Do they believe that a water pollution problem exists? Answers to these questions provide information to further refine educational materials. The target audience may know about water pollution, but not realize how their actions impact it.

- How does your audience receive environmental information? What are the appropriate communication channels? Is it the newspaper, radio or television? The most efficient methods of disseminating the information can be determined from this information.

Target audience information can be collected by surveying audience representatives, conducting focus group interviews, or researching government records and other references. Survey information can be very useful for evaluating the program as well as defining the target audience.

Activity:

1) Write down the target audience(s) you would like to reach with your educational materials and break each audience down into its many groups and subgroups.

2) Determine whether you have adequate information to design appropriate materials to reach the targeted audience and if not, what methods for collecting information you may need to employ.

Step 5: Creating A Message

Once you have established goals and objectives and defined target audiences, the next step is to create educational messages. For this section, messages are short, often single line statements that people can associate with your program.

The message should prompt action that will achieve the objective(s) of the program and it should be repeatedly used and visible to your target audience. The following are examples of a few common messages used by environmental educational programs:

- ✓ Stop pointless personal pollution!
- ✓ Florida's water: it's worth saving!
- ✓ Give a hoot, don't pollute!
- ✓ Keep Florida Beautiful! (In this case, the organization's name is personified by its message.)
- ✓ Dilution is not the solution!

Use the themes, mascots and materials from existing NPS pollution education programs to expand the audience reached with a consistent message. If you have more than one audience, different messages may need to be developed to effectively reach and educate each audience. Your message to homeowners may cover basic concepts and simple solutions to reducing pointless personal pollution while the message for government officials may cover stormwater management planning tools or financing methods.

The message must be positive and motivating, understandable, and written to address the interests of the target audience. Use the message to suggest actions for solving problems and consider how the target audience perceives the problem. Make sure that each segment of your target audience understands how they can benefit from the message. This can be accomplished by incorporating the things they value into the message such as saving money or time, convenience, health improvements, or quality of life. For example, *Having Your Soil Tested Can Save You Money* or *A Clean River is Good for Business*. Also consider the primary language used by the target audience. It may be necessary to print some copies in both Spanish and English to reach targeted audiences.

After the messages are created, you should evaluate them on their timeliness, degree of controversy, general appeal, emotional impact, clarity and accuracy.

- ❖ Timeliness - Is there an urgent need to clean up a lake or river? Is the message important at this particular point in time?
- ❖ Degree of controversy - Will the message alienate particular groups within the watershed?

- General appeal – Does the message fit the audience? Is it appropriate for the attitudes, beliefs and concerns of the audience?
- Emotional impact – Does the message provoke the support and involvement of an educational program?
- Clarity - Is the message stated clearly?

Once the messages are evaluated, they can be used for a variety of outreach purposes - newspaper headlines, printed on T-shirts, pencils, banners, letterheads, and business cards, added to the footer of documents and letters, and posted on your website. After creation of educational messages, is then time to package them into complete educational outreach materials.

Activity:

1) **Create a message to promote your NPS pollution education program.**

2) **Decide what types of promotional materials will be used to promote the message you just created.**

Step 6: Designing Educational Materials

Before creating your own educational materials, locate and review existing published materials that address the same issues. Using or modifying existing materials saves time, money, and energy and presents a consistent message. Contact the organization or agency that produced the materials and request permission to reprint the publication or use some of its information. Be sure to credit the organization if you use their images or specific text. Publications by government agencies are public domain and can be reproduced without violating copy write laws.

Whether you are modifying an existing publication or developing something entirely new, you will need to understand and use different design elements (fonts, layout designs, and graphics) that are utilized in effective education materials.

Design Elements

The creative tools used by graphic designers include typography or text, white space, and artwork. Properly using these tools insures that your targeted audience will be attracted to and read your educational materials.

Typography is the most important part of the document and should be designed so that it is both legible and readable. Legibility refers to the speed and ease that text can be recognized. Readability refers to the likelihood that the reader will pick up and read the material in its entirety. The following are recommendations for making your educational materials both legible and readable:

1. Too many font types will distract the reader - only use two or three different fonts or typeface within a document.

2. Don't use font that is too small. Font size between 9-12 pt is best for text associated with the body of the material. It is difficult to read font smaller than 10 point.

3. To increase readability, use San serif type fonts for headings and Serif type fonts for body text.

4. Avoid using all capital letters.
   WRITING IN ALL CAPS IS VERY DIFFICULT TO READ ESPECIALLY WHEN THERE IS MORE THAN ONE LINE.

COMMON FONTS

For headlines & subheadings:
- Arial
- Bookman Old Style
- Antique Olive

For blocks of text:
- Times New Roman
- **Century Old Style**

Layout is another important element of graphic design. When laying out the text and graphics on the page, it is as important to consider the symmetry of the page and the visual syntax. In symmetrical pages, the layout is equally balanced from left to right and top to bottom. Asymmetrical pages achieve a balanced design through the use of

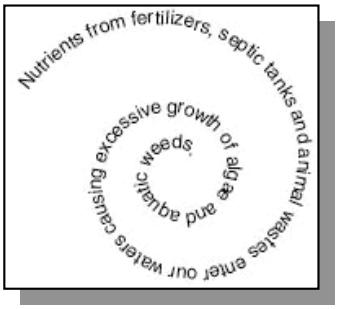
shapes, white space, and color. The more noticeable an item is on the page, the more visual weight it conveys. Weight objects on the page as follows:

- The upper left quadrant of the page has more optical weight than any other area of the page.
- The larger the item, the more it is noticed
- Darker items carry more weight
- Color conveys more weight than black and white
- Squares, circles, cubes and other shapes carry more weight than rectangles
- White space draws the eye toward and balances out the non-white space

White space refers to the amount of space on the page that is left blank. Each page should contain a minimum of 15% white space although 20-25% is optimum. If the page does not have enough white space, the reader may become overwhelmed and discouraged from reading further.

Visual syntax refers to the method that the reader reviews the page. Generally, the visual path begins at the upper left corner and goes to the right, then transversely down to the bottom left corner and straight across to the right, making a "Z" pattern. Place the test or image that will be the most enticing in the upper left corner of the page to draw the reader into the rest of the page. Use numbers, bullets, arrows, and columns to draw the reader's eye to different areas of the page.

Text on the page should be laid out to optimize readability. Left justified text is the easiest to read. Center justified text creates rivers of white spread that draw the eye down the column and right justified text is very difficult to read. Do NOT organize the text into crazy shapes if you expect people to read the content.



Graphics, artwork, photos and logos are a perfect way to break up blocks of text and dress up the material. They also depict a lot of information in a small space. Use your pictures and images sparingly and be consistent with the type of graphics to maintain a professional look.

Printing

Educational materials can be printed and reproduced in house or contracted to a printer. To save resources, combine jobs together to print entire sheets of paper, if the final sizes will be smaller than a typical sheet.

If printing in house, check that the printer has sufficient toner by printing a solid rectangle and confirming that the color is uniformly dark. Use a computer with a lot of memory and a printer that has a large buffer. A precision knife and metal straightedge are useful to accurately trim edges. If printing brochures, have a folding party and invite co-workers to help fold brochures over lunch or snacks.

If sending materials out to printers, be sure to get at least three quotes to compare costs and completion times. To insure that printers are bidding on the same scope of work, fax them a written request for bid that includes the following information:

- ✓ A summary of the job
- ✓ Quantity needed
- ✓ Special services needed - folding, stapling, collating
- ✓ Type of paper - weight, color, gloss
- ✓ Bleed – Color all the way to the edge of the paper
- ✓ Ink color - 1-color, 4-color, etc…
- ✓ Trim size - final production size
- ✓ Shipping arrangements
- ✓ Photos and screens
- ✓ Bluelines - outline of the page
- ✓ Overrun costs
- ✓ Contact name

TIPS FOR PRINTED MATERIALS
(The Council of State Governments, undated (6)*)*

- Use colored or textured paper
- Explore various sizes of paper and folds
- Collect and review samples to get an idea of what you do and do not like
- Use of varying shades of colored ink can result in interesting combinations
- Leave plenty of white space
- Include a variety of interesting designs, but watch out for "busy" appearances
- Use subheadings to break up massive blocks of text
- Use bullets for quick and easy reading
- Ask for opinions from colleagues of varying professional backgrounds to edit, critique and proofread
- Avoid acronyms and technical jargon
- Do not forget to include an address and contact number for more information.

NPS Pollution Education Materials

There are many different types of educational materials ranging from manuals and brochures, to videos and bookmarks. Each can play a significant part in reaching the target audience if appropriately designed and distributed. The most beautifully designed brochure does not reach the target audience if it stays in the box. This section will describe types of educational materials and suggest ideas for their distribution.

Printed Materials

Printed materials such as brochures, flyers and manuals are the most commonly used educational tools. They are easy and relatively inexpensive to create, they can be referenced indefinitely as information resources, and they are easily duplicated for distribution. Distribute the posters, pamphlets and fliers in a variety of ways to increase the exposure of your message throughout the community. If planning to reproduce printed materials with a copy machine, use light color backgrounds and avoid the use of

photographs in the design to preserve the quality of reproductions. High quality, full color materials can be expensive to reproduce.

- **Fact Sheets**
  Fact sheets are usually a single sheet in length and provide a quick overview of one topic. A series of consistently designed fact sheets can be developed on related topics. This provides unity and identity to the materials and reduces development time. Fact sheets should be designed so that they photocopy cleanly and legibly. Fact sheets can be distributed at events and workshops, or can be used to provide basic information to volunteers or policymakers. Fact sheets can also be designed as mail outs to residents or businesses.

- **Brochures**
  Brochures provide a detailed description of a topic or project, corresponding photos and illustrations, and contact information. Brochures are usually printed on large sheets of paper folded three, six or more times. The brochure may include maps, images, statistics, and public interest stories. Try not to make them too text heavy, however, as the public is more stimulated by images in a brochure then text. The color and folding can be expensive, so to save resources, plan the brochure information so that it is applicable to a large audience. A "What is a watershed" brochure can include a map of the local watershed and integral watershed protection strategies that could apply to a large audience. Distribute brochures at events and presentations.

- **Posters**
  Posters are an effective way to deliver a simple educational message and increase awareness for months or even years. Their design should use colorful images that are descriptive of the problem and visually appealing. Animals, land- or seascapes, and entertaining anecdotes are good images for posters. They should be printed on relatively heavy paper to preserve their quality during distribution and should be trimmed to a standard framing size. Printing costs can be expensive, especially for full color, glossy posters, so plan to distribute the poster to a smaller audience. Posters make excellent awards for participation in program activities or distributed to businesses and government agencies to advertise the program.

- **Newsletters**
  Newsletters provide a continued stream of watershed information that can be updated regularly. They can be used to remind targeted audiences about watershed issues, update them on regional and local program activities and events, advertise participating businesses, and recruit volunteers. A committee can be established to assist with the publication by soliciting and providing articles, editing, and providing images and information. Create a newsletter distribution list that includes targeted stakeholders and interests. To reach the public, request people sign-up to receive the newsletter during events and festivals.

- **Calendars**
  Calendars are popular and practical educational tools that provide a monthly reminder of watershed issues as well as significant dates. To personalize the calendar, run an art contest in the local school system, and select the artworks that best illustrate watershed protection. Calendars should be completed in time to distribute them in the early fall. Before deciding to print a calendar, investigate whether other organizations are planning to do the same. It is a good idea to distribute calendars to discreet groups such as schools, businesses, and homeowners associations or provide them at specific events.

- **Manuals and Handbooks**
  Manuals and handbooks are good "how-to" guides for watershed protection practices. They can describe step-by-step methods for accomplishing major projects such as planting an environmentally friendly garden, being a good watershed steward, or acting as a responsible business. Consider hosting a seminar or workshop that explains the manual and ensures dissemination of the materials to the targeted audience.

- **Flyers**
  Flyers are very inexpensive to print. They are typically small in size (8 _" x 3 2/3") and as such they contain limited information. They are useful as announcements, reminders, and hand-outs. Flyers can be printed front and back, with an image on one side and text on the other or mailing information. Flyers can be used to target businesses with specific BMP information and may be distributed to businesses with occupational licenses and during inspections, or to the public during events and presentations.

Displays

Displays at festivals, conferences and seminars are an effective means of distributing information (such as brochures and fact sheets) and building public awareness of pointless personal pollution. The display should be attractive, creative and visually describe your program. Design the board specifically for the audience and use illustrations and text that can be read easily from at least three feet away. Consider the same design elements of laying out a printed page when designing your display board. Interactive displays such as a light-up, question and answer board or a waterscape model are very appealing.

Give-A-way Promotional Items

Give-a-ways such as Frisbees, magnets, bookmarks, key chains, pencils, and etc…attract people to your display, are appreciated by the public, and are an inexpensive way to market your message. Give-a-ways can be purchased for as little as 10 cents to as much as $5.00 an item, depending upon the quality of the item and the quantity of your order. Include contact information along with a short, consistent message on the give-a-way items. If you have a program mascot such as a frog or a fish, use it as a theme for designing give-a-ways. Make sure the give-a-way does not send a contradictory message or have excessive packaging that will likely be dropped on the ground.

Internet Website

Government agencies, environmental groups, students, teachers, and some businesses regularly use the Internet. Hosting a website can be an effective method to share information, resources, and local watershed data worldwide. Consult other websites for development ideas. A list of excellent websites is referenced in the Appendix of this document. Link your website to those of other organizations and consider establishing an e-mail list serve that will inform subscribers about issues, events and recent developments. Website development can be costly to design and host, so get a number of bids and compare cost.

PSAs and Press Releases

Public Service Announcements (PSAs) are not-for-profit television or radio advertisements that are meant to provide the audience with beneficial information. They can be thirty seconds long to accommodate regular commercial length time slots, or longer for instructional purposes. Radio PSAs can often be aired at no cost on public broadcasting stations and college stations.

Televised PSAs can usually be aired on government television stations, public broadcasting stations, and college stations at minimal or no cost. They are also aired for free on regular network television stations, but often at the lowest viewing times (like 3:30 a.m. on Sunday morning). Purchasing airtime insures that the content of the PSA is not altered and that it will be aired to target a specific audience. Instructional length PSAs can be shown during meetings, conferences, workshops and school presentations. PSA development expenses include actors, studio time, and editing. To reduce development costs, use student actors and community college studios for editing services.

Newspapers are the best form of free advertising although getting your story printed can be a challenge. Learning to write attractive and informative press releases increases the chance of getting printed. Send press releases to the major area newspapers as well as the community newspapers at least ten days prior to events or program activities. Some suggestions for writing a good press release include:

- ✓ Appeal to the public love of wildlife by including images of dolphins, manatees, and turtles that could be affected by pollution.
- ✓ Include a story about a local character such as a politician or cleanup volunteer that is dedicated to the program.
- ✓ Clearly explain what the program hopes to achieve and what you need from the public. Include contact information and a website address.
- ✓ Format the press release so that it is visually appealing - double-spaced and at least 12-point font. Make sure the press release is no more than 1-1 _ pages long with additional resources attached as needed.

- ✓ Send an emotional photograph and caption to one of the newspaper's photographers for a short "snapshot" of coverage.
- ✓ Write your own quotes so that they are clear and understandable (and spelled correctly).
- ✓ Try not to direct the reporter away from a potentially heated or controversial issue. Admit to the negative issue, provide your input as positively as possible, and move on quickly. Denying the reporter information can ruin a trusting relationship.

SAMPLE NEWS (OR PHOTO) RELEASE

TO: Appropriate newspaper, section or editor.

FROM: You

RE: One or two sentences summarizing the story you are suggesting; event you would like a reporter or photographer to cover; or other purpose of release

TIME/DATE: Specific time and date of event

LOCATION: Specific location of event

WHY: Reason for the story or event, and why it merits media coverage

CONTACT: Name and phone number of someone the news editor or reporter can contact for more information or quotes. Be sure to include daytime and evening phone numbers.

Step 7: Disseminating Information

Communities are comprised of a variety of people with different ages, backgrounds, education levels and interests. Using a variety of methods to reach target audiences insures that educational materials will motivate members of the entire community. This chapter will discuss several different methods to reach targeted audiences with educational materials.

- ➢ **Direct Mailings**

Direct mailings sent to residents in the watershed are an inexpensive method of communicating volumes of information such as newsletters and brochures. Using the US Postal Service bulk mail system will reduce postage rates below first class, but advanced preparations and strict adherence to Postal Service guidelines are required. Items may need to be presorted by ZIP code, state, or carrier route and arranged in bundles and often the level of presorting will determine the rate paid. In addition, qualified non-profit organizations are eligible to mail third class at special rates that are lower than bulk rates.

➢ Door-to-Door

Door-to-door distribution of materials is a very effective means of educating target audiences but, it is also very labor intensive. Walking neighborhoods, knocking on doors, and talking to homeowners require experience, skill and planning. Walkers are not allowed to place materials in mailboxes although door hangers or a bag of materials hung on doorknobs are permissible. Volunteers traveling in teams of two or more should follow a planned route, be knowledgeable about the contents of the educational material and must be prepared to deal with challenges of working a neighborhood. Civic or community organizations may be called upon to assist with the distribution of the education materials.

➢ Business Participation

Businesses will often participate in distributing educational materials, especially if you offer to include the name and phone number of the sponsor with the materials. For instance, brochures on oil recycling can be distributed at an auto parts store or a fact sheet detailing water conservation tips can be posted in home improvement stores.

➢ Presentations

Presentations can be an effective mechanism for relaying information to any type of audience. Presentations should be more than "dropping slides into a projector." Each presentation should tell a good story and engage the audience. The speaker should be knowledgeable, experienced and able to relate to the audience. A good speaker can also provide credibility to the program and subject matter.

➢ Youth Program

Youth programs are a long-term investment in producing informed voters and decision-makers. Working with youth has the added benefit of informing their parents and siblings and influencing decisions on purchases as well as everyday actions such as recycling. Youth programs also generate opportunities for media attention and public support.

➢ Community Events

TIPS FOR A GOOD PRESENTATION

- Gear your presentation in content and style to each of your target audiences
- Develop a rough outline to keep the presentation on topic
- Avoid reading the text on your slides. Instead, discuss and expand on the concept
- Use humor
- Make slides easy to read and liberally use graphical illustrations
- Break down charts into several slides

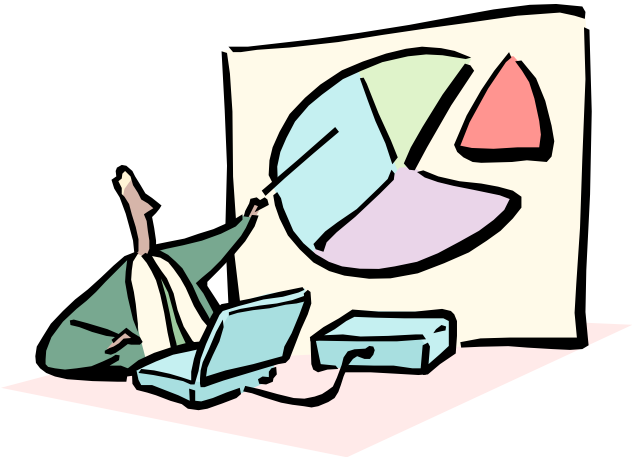
Community outreach events, such as festivals, workshops, clean-up projects, volunteer water quality monitoring, and watershed tours are great forums to involve and inform the general public. Like youth programs, community outreach events are fun and can also attract the media which further promotes your message.

Community events require time and effort from a large number of people to successfully plan and conduct these events. If planned early, these events can set a positive tone for the rest of the program.

- **Informational Signs**

Informational signs are a passive but visible method of informing the general public about activities occurring in the watershed. For instance, a sign posted adjacent to a newly installed BMP can describe the significance of the project, funding sources, partnerships and improvements made to the watershed.

Step 8: Developing a Budget



When creating the budget for your NPS Pollution Education Program, it is important to have a thorough understanding of your resource needs. Consult annual goals and objectives for and start assigning specific tasks and resources needed to achieve them. Examples of resources include personnel, presentation equipment, office supplies, give-a-ways, printing costs, postage costs, and other items to suit your program's particular needs. Estimate budget amounts to cover hidden costs such as printing over-runs, unplanned equipment expenses, and reproduction costs.

It is useful to develop two separate budgets: a basic budget that meets annual essential needs and a long-term budget that includes purchase and replacement of capital items such as digital projectors, computers, and cameras. The following budget is provided as a template to help you create a specific budget that meets your program goals.

Funding Sources

- Creating a Stormwater Utility – In 1986, Florida law was changed to allow local governments to implement stormwater utilities to provide a dedicated source of funding for stormwater management. Implementing a legally sound stormwater utility requires the collection of data that include average parcel size, average impervious surface area, and specific data for nonresidential sites. Credit programs can be developed for improved properties with a maintained stormwater system and for agricultural properties that work with the Natural Resources Conservation Service on a runoff plan. Additionally, ordinances must be adopted and public education programs implemented to successfully implement a stormwater utility. The benefits are worth the effort, as the generated stormwater fees can range from $0.50 - $7.50 per residential unit per month. The Florida Department of Environmental Protection has created a mechanism to encourage the creation of stormwater utilities.
- Chapter 319 Grants - The Florida Department of Environmental Protection Stormwater/Nonpoint Source Management Section administers grant money it receives from EPA through Section 319(h) of the Federal Clean Water Act. These grant funds can be used to implement projects or programs that will help to reduce nonpoint sources of pollution. Projects or programs must be conducted within the state's NPS priority watersheds, which are the state's SWIM watersheds and National Estuary Program waters. All projects must include at least a 40% nonfederal match.

  Examples of fundable projects include: demonstration and evaluation of Best Management Practices (BMPs), nonpoint pollution reduction in priority watersheds, ground water protection from nonpoint sources, public education programs on nonpoint source management, etc. All approved projects will be contracted with the Department of Environmental Protection and managed by the staff of the Stormwater/Nonpoint Source Management Section. Project proposals are due each year in early July with project selection completed by September. To be included on the 319 mailing list, please email us or give us a phone call. The Environmental Protection Agency has the program's guidelines available on the Internet at http://www.dep.state.fl.us/water/stormwater/319h.htm

Community Support and Participation

At this point, you may find yourself thinking. "If only we had $10,000." Don't get trapped into thinking that money will solve every problem or that it is a necessary first step to achieving your goals. Many other types of support are available from your community that are just as important to achieving program goals.

Community support and participation comes in many forms. Each community has different resources to contribute to your effort, so it is vital to be creative in discovering and recruiting these sources of support. Specific sources to consider include:

- **Individuals** (more than 90 percent of all charitable contributions made in the United States come from individuals)
- **Businesses**
- **Foundations**
- **Government** at all levels
- **Fundraising events** (river celebrations, tax-advantage trusts, sale of products to publicize your program)

As you work with supporters, make sure you know their desires and needs and they know yours. Your exchanges and communications should start small and informally as you work toward more complex and costly commitments.

Types of Community Support

Recognition and Motivation – An effective way to develop a partnership is to ask the cooperating party to help with a student recognition and motivation program. By acknowledging student achievement, donor financial and time commitment will be minor, yet their understanding of your goals and effectiveness can be great. They will also get a sense of the needs of your project and can help you fill them through further donations or by suggesting other groups that can help meet these needs. Examples might include a local newspaper that donates space for an article and advertisement on a river cleanup day; radio and television stations donating time for public service announcements, and interviews with program participants, such as students and community leaders; displaying student artwork and other materials in business and civic buildings to enhance community awareness of the program.

Advice and Technical Expertise – Recruit community groups, agencies, colleges and/or individuals that have the expertise your project requires. A donation of time and knowledge often is as useful as the money that would be needed to purchase the equivalent in consultation. Many people are willing to commit time when they recognize the value of the program's goals and understand that dollars are in short supply.

"In-Kind" Services – Local civic groups are often willing to offer their services on workdays associated with your project. A local company may provide a boat and captain for your water testing day; maybe your trash hauler can donate a dumpster for a cleanup day. An advertising or news agency or university journalism professors and student may help in developing media releases and offer advice for effective interviewing. Community groups often provide training in organizing skills. Companies are often sources of volunteers, as well as providers of services such as printing, office support, space, and equipment donations. Not only will you get your work done, but the liaisons you develop lead to additional commitments among community members. Do not overlook connections with parent-teacher organizations at your participating schools. Encourage teachers to help in recruiting the support from these organizations.

Materials Donations – Individuals, businesses, consulting firms and agencies may have materials, even outdated sampling equipment, that would work well for your students or your project. A local supplier or fishing group could donate hip waders, for example. These donations can be mutually beneficial by giving you the things you need and giving the donor a valuable tax deduction. Ask teachers and students to participate in identifying possible sources of donations.

Specific Project Funding – Small contributions may fit the capacities of many of your local supporters. As your financial needs are defined, the committee can identify specific, small-scale requirements. A request of $100 for native plants from a neighborhood garden club would be a logical contribution, as would a donation from an optometrist to purchase safety glasses.

Grants – While large grants are enticing because they may provide most or all of your financial needs from a single source, the amount of time required to write a large grant request and the difficulty of locating potential funders whose interests match your needs can be overwhelming. Grants can expand a program considerably, but the support is usually for a short duration. Plan for sustainability after the life of the grant expires.

Step 9: Evaluating the Program

This section was included with permission from: Sourcebook for Watershed Education. Global Rivers Environmental Education Network (GREEN). 1996. Written by: Sally Cole-Misch, Larry Price and David Schmidt.

Public agencies are being called upon more and more to demonstrate success at reaching program goals. The public wants to know that their tax dollars are being used appropriately and policymakers need outcome numbers to better make policy and budget decisions. Program evaluation demonstrates responsibility to the public interest, provides a method to assess whether specific program strategies are effective, and validates the program need to stakeholders.

A Model Matrix for Evaluation

The following matrix is provided for collecting information and organizing ideas that join assessment of watershed education and environmental action. The matrix design recognizes that not everyone has a lot of time to think about assessment, and that many have perceptions of assessment and evaluation that discourage giving attention to this important area. Yet assessment is critical to improving the program's quality and illustrating its value to the community.

The matrix is divided into the various levels of any educational program: inputs, activities, participation, reaction, KASA (knowledge, attitudes, skills, aspirations), practice change, and end results. The outputs for each level should include those for students, teachers, community partners or institutions, and for the environment. To obtain a full copy of the evaluation matrix, including greater detail on the amount of time and effort needed to collect information required to assess your program, please see the *Global Rivers Environmental Education Network* (GREEN) Resources Catalog, available through the GREEN office (7).

Taking Steps Toward Assessment: A Framework and Methods for Assessing Community-Based Watershed Education

➢ INPUT

Information being collected: How much time, money and other resources are going into the program?

Basic questions: How do the actual amounts of these inputs compare to the estimates at the beginning of the program? For example, were our costs greater than we expected? Did we under-utilize our in-kind assistance?

Methods: Assessing this information comes through conducting preliminary estimated of costs (the budget) and then comparing with post results, i.e. what actually happened.

➢ ACTIVITIES

Information being collected: What and how many activities did we conduct? What were the objectives of the activities? What did participants do?

Basic questions: What worked well, what didn't work so well? What would we do differently next time?

Methods: Keep a timeline/record of what happened: start dates, ending dates, duration. Using a Captain's logbook naturally weaves content and process.

➢ PARTICIPATION

Information being collected: How many people participated? Where did they come from? What are the participants like?

Basic questions: Whom are we reaching? Are these the audiences we intended to address? Did the numbers of participants match our expectations?

Methods: Record numbers of grade levels, teachers, students, businesses, agencies, schools, etc. Include demographic and other descriptive information.

➢ REACTION

Information being collected: Audience response to the activities. Personal reactions to the activities. The emotional setting for learning.

Basic questions: Did participants feel positive about the event or activity? Did participants perceive the activity as useful? Did they get excited about the project? Do they want to continue participating? Did the participants believe the objectives of the activity were achieved?

Methods: Use standard evaluation for finished projects, as well as consultations with participants, list level support given to schools and project from businesses, other supporters, level of press coverage.

➢ **KNOWLEDGE, ATTITUDES, SKILLS, ASPIRATIONS (KASA)**
Information being collected:
Change in knowledge, attitudes, skills and aspirations of participants. The questions one asks will vary greatly depending on:

- The audience being considered.
- Whether one is seeking information on knowledge, attitudes, skills, or aspirations.
- The objectives of the program.

➢ **Basic questions:** What are the knowledge, attitudes, skills and aspirations of our participants? What new knowledge do students, teachers or community partners

have about their watershed? What skills do students, teachers or community partners have now that they didn't seem to have before? For example:

- Students: ability to read maps; skill at communicating complex reasoning
- Teachers: ability to import knowledge to students about the land use issues in the watershed; ability to facilitate problem solving
- Community Partners: greater belief in the benefits of a watershed education effort; ability to explain the program to theirs and their rationale for participating.

➢ **Methods:** Because the KASA questions can vary widely for the reasons bulleted above, the methods can show great variety as well. In the context of "crawling," "walking" and "running," two dimensions exist when assessing KASA outcomes for community projects.

The first dimension emphasizes the degree of detail for one audience. For example, to assess student outcomes in KASA, simpler to more complex methods could be used to collect data. Similarly, a range of crawling to running options exists for assessing teacher knowledge, attitudes, skills, and aspirations. The same is true of assessing community partners at the KASA level. The matrix from crawl to run would be based in one audience.

In the second dimension, the range from crawl to run spans a number of audiences. For example, project evaluation focuses on student outcomes for starters. Walking means reaching out to collect on teacher outcomes in addition to student outcomes. Running covers even more ground by collecting information not only about students and teachers, but about community partners, as well.

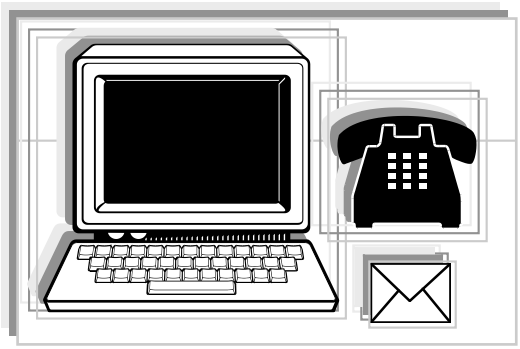
➢ **END RESULTS**

Information being collected: Indications that environment is improved. Indicators that education is more effective.

Basic questions: Is the environment better? Is knowledge improved for the long term?

Methods: Record actions that indicate improvement in environmental quality, i.e. number if miles revegetated, miles of stream rehabilitated, number of trees planted, etc. Interview participants re: Do you feel the environment is better off? What constitutes improved environmental quality to you? Track administrative support for education reform measures: Is innovation by teachers supported? Are school schedules different, enabling block courses, team teaching, etc? Do teachers have more planning time? Are there more interdisciplinary course offerings?

Step 10: Gathering Information



There are several methods of gathering information about your target audience. This can be accomplished through mail and phone surveys, focus groups or through existing demographic databases. This section will discuss each method in greater detail.

Developing Surveys

Surveys are tools that can gather specific information from a large number of people (i.e. your target audience) by asking them a series of questions. The first step in developing a survey is determining the sample size (a subgroup of the actual population) and sample error (the possible difference between your findings and the true results) of the study. In general, larger sample sizes will produce smaller sample errors. Sample sizes greater then 1,000 are rarely needed for a sound watershed survey.

It is important to consider the response rate needed to obtain your sample size. If 500 responses are required for a significant survey analysis and a 50% response rate is estimated, then 1,000 people should be surveyed. Once the sample size and error are determined, start developing the survey. Keep in mind that a good survey is relatively short, easy to read, and understandable.

Open the survey by describing **who** you are, **what** you are doing, **where** the survey is being conducted, **how much time** the survey will take, and **why** the survey is important. This opening statement provides the audience with enough information to comfortably complete the survey. An example of a telephone survey introduction is provided below:

> "Hello my name is (*first name*). I am calling from (**Who:** *sponsoring organization*) in (*City and, if helpful, state*). I am **What:** conducting an awareness survey **Where:** in your (*city*, c*ounty*, *neighborhood*, or *community*) regarding water pollution and its effects on the environment. This survey is short and should take only 5 to 10 minutes to complete and the results will be used to help develop effective statewide educational programs."

Desi

gn survey questions so that they provide information integral to identifying the target audience and evaluating specific objectives. Make sure that the questions are appropriately worded for the target audience and not too complicated. Avoid biased words and double negatives that can sway or confuse answers. Organize questions by

theme and put the most difficult questions first, when the surveyor is ready to dedicate some time to the effort. Easy questions like demographic information can be placed at the end of the survey. It is important that the survey is pilot tested with a small sample of the target audience to evaluate its effectiveness and determine if any questions are confusing. A variety of survey question types can be used.

- **Well-defined, closed-ended questions** provide the respondents with only two choices to answer, either "Yes" or "No." These questions are easy to tabulate and analyze. However, these questions are often not very interesting and there is often a gray area within the question. For instance, the respondent answers "No" to the question below but would like to comment that although his community does not have a water pollution problem, the neighboring community does.

  Example: Do you think your community has a water pollution problem?
  A. Yes
  B. No

> ➢ **Tips for a Good Survey**(5)
>
> - Keep it short and straightforward
> - Make it easy to read with simple vocabulary
> - Make sure only one question is stated at a time
> - Keep the design and questions interesting
> - Clearly define all terms that could be misunderstood
> - Write unbiased questions
> - Design the survey to yield solid data that are easy to analyze

- **Multiple choice questions** provide the respondents with a selection of answers. Multiple choice questions are good for collecting factual information and are easy to analyze. The challenge is to include all possible answers without having too many. More than 6 answers will often confuse the respondent and result in responses that are too diverse. It is important to clarify that only one answer must be selected.

  Example: Where do you receive most of your environmental news?
  A. Newspaper
  B. Television
  C. Newsletters
  D. Signs
  E. Radio

- **Open-ended questions** have no correct answer. These questions allow the respondent to explain their answers and provide insight into personal beliefs and perceptions. They can provide good "quotes" for reports and presentations. Open-ended questions are primarily used when there are more than six answers to a question. However, open-ended questions require more work for the respondent to complete and as a result they often leave the question blank. Responses to these questions are difficult to read, categorize, process and analyze.

Example: What do you think is responsible for the water pollution problem in your community?

_____

_____

- **Likert rating scale** is one of the most commonly used rating scales. The scale ranks the respondent's answers on a 1-5 scale that either agrees or disagrees with a statement (**1 Strongly Disagree**, **2 Disagree**, **3 Neutral**, **4 Agree** and **5 Strongly Agree**). Respondents are usually familiar with this scale and find the questions easy to complete. In addition, Likert scale statements allow answers to be compared within the scale and can be quickly analyzed. However, Likert scale statements can only measure attitudes and opinions, not factual information.

  Example: New taxes should cover the cost of stormwater management improvements within the community?

SD	D	N	A	SA
1	2	3	4	5

Telephone Surveys

The use of telephone surveys is an excellent tool for soliciting immediate responses from a large number of people. However, they greatly reduce the amount of time for participants to think about their answers and exclude people who will not respond to unsolicited calls. Phone surveys utilize a large amount of resources (such as computers, surveyors, and phones), which could result in relatively high costs.

Mail Surveys

Mail surveys can reach a large number of people, plus provide additional time for participants to think about their answers before responding. However, these surveys have a potential for a low response rate and also result in costs associated with printing and postage.

Mail surveys should include the same amount of information as telephone surveys but should be presented somewhat differently. In addition to the questions, the survey should contain a survey title, sponsor, directions for completing the survey, and a closing statement. The title and sponsor should appear on each page, even if they are identified in accompanying materials. The title and sponsor will give the survey a professional look and encourage the respondent to take it seriously. Directions should be short and simple, encouraging the respondent to answer the survey truthfully. The directions should also boldly state the deadline date for the return of the survey. Finally, the closing statement should thank the participant for their time and repeat directions on how to return the questionnaire.

The ideal size of a mail survey is a folded, double postcard that detaches to allow the return of one side. If more space is needed, a tri-folded 8.5" x 11" sheet of paper can be used. Usually, one sheet of paper is sufficient. Paper size can vary from 8.5" x 11" to 11" x 17" and can be printed on both sides, depending on the length of the survey. The paper size of the survey will often determine the probability of the survey being completed. Using more than one piece of paper will discourage respondents and often produces a low response rate.

A personalized cover letter and a self-addressed, postage-paid return envelope should accompany mail surveys. The cover letter should state the importance and subsequent benefits of the survey, encourage an immediate response (set a deadline), address issues of confidentiality, and provide contact information. As incentive to complete the survey, promotional items or a copy of the results may be offered to the respondents.

To ensure an adequate response rate, mail surveys are often conducted in three stages. The first stage is the survey package, stage two is a postcard reminder sent two weeks later, and for respondents who have not yet replied by the deadline, another postcard reminder is sent as the third and final stage.

Focus Groups

Another method of collecting information on target audiences is through focus groups. Focus groups are made up of randomly selected people from a targeted audience who are afforded the opportunity to expand on their comments and/or ideas about survey topics. Focus groups can provide additional insight to the composition, perceptions and beliefs of the target audience. They can also provide interaction among participants and provide support for further outreach. The negative aspects of focus groups are that they accommodate so few participants that they do not represent diversity and they require that participants commit of several hours to the process.

Participants for the focus groups can be randomly selected through the mail and phone surveys. Typically, a focus group contains twelve participants and the questions usually last approximately one to two hours. Select a proper time to meet with the group after considering any external conflicts such as jobs or school schedules. It is best to solicit an outside facilitator for the focus group to avoid any bias. Be careful with this selection, as the facilitator can "make or break" the success of the group's efforts.

Demographic Databases

If you do not have the funding or the time to conduct surveys, you can still gather background information on your target audience. The U.S. Bureau of Census can provide consolidated demographic data that are updated every ten years. These data can be sorted by different parameters, but will take some time to manipulate. The database can be found at http://www.census.gov or at your local library. In addition to the U.S.

Bureau of Census, marketing classes at local community colleges or universities may already have demographic databases that can be used in your program.

Summary

A few of the costs of NPS pollution

- Nationwide impact of pollution increases annually and costs amount to $billions
- Decline in fish and other important resources can dramatically impact local economies
- Closed beaches due to bacterial contamination and other pathogens cause recreational industry to suffer
- A cost cannot be assigned to the loss of wetlands and other fragile resources - considerable costs are incurred for restoration activities such as those in the Florida Everglades

Objectives common to all pointless personal pollution education programs

- *Problem recognition*: Raise public awareness of NPS pollution causes and solutions
- *Resource appreciation*: Develop a greater appreciation for environmental resources
- *Program understanding*: Both the stormwater management/permit program for governments/industry and the overall watershed and state/federal programs for the public
- *Solutions acceptance*: Increase acceptance of and appreciation for NPS pollution controls and pollution prevention practices among all target audiences
- *Skill development/Technical assistance*: Help all target audiences develop necessary skills and knowledge to effectively implement a NPS pollution management program
- *Effectiveness/impact evaluation*: Assess the overall "environmental effectiveness" of the program

Use this manual and a pointless personal pollution education program to:

- Get your community to buy in to pollution prevention
- View education and public involvement as necessities, not luxuries - if a key audience is left out, they may become involved later as vocal opponents
- Get an up-front commitment of both time and money from community leaders
- Specifically tailor your message and format to each audience
- Learn to anticipate and recognize common reactions - prove the problem exists - know the answers to encourage support

- Use education as a solution to personal pointless pollution problems
- Gain a commitment to solving nonpoint source pollution problems immediately - it takes time to recognize the benefits associated with pollution prevention
- Encourage individuals to believe they too can make a significant contribution to the reduction of pointless personal pollution.

Literature Cited

1 The National Geographic Society, The Conservation Fund. Undated. Water: Taking A New Track on Nonpoint Source Pollution. Terrene Institute. Washington, D.C.

2 Puget Sound Water Quality Authority. 1993. Managing Nonpoint Pollution an Action Plan Handbook for Puget Sound Watersheds. Olympia, Washington.

3 Building Local Partnerships – A Guide for Watershed Partnership

4 Johnson, C. 1989. Milwaukee River Program, Urban Water Quality Information and Education Strategy. Wisconsin Nonpoint Source Water Pollution Abatement Program.

5 Suskie, 1992

6 The Council of State Governments. Undated. Getting In Step: A Guide to Effective Outreach in Your Watershed.

7 Misch, S., Price, L. and D. Schmidt. 1996. Sourcebook for Watershed Education. Global Rivers Environmental Education Network (GREEN).

Other Sources

Murray, D. and C. Johnson. 1994. Spreading the Word On Storm Water: A Strategy for the Milwaukee Area. Southeast Area Water Quality Education, University of Wisconsin-Extension.

Hansen, N. 1991. Experiences from Puget Sound. In Nonpoint Source Watershed Workshop Seminar Publication (pp. 131-134). U.S. Environmental Protection Agency. EPA/625/4-91/027.

State of Florida. 2000. Nonpoint Source Pollution. http://www.myflorida.com

U.S. Environmental Protection Agency. 1990. Urban Runoff and Stormwater Management Handbook.

Florida Department of Environmental Regulation. Undated. Florida State of the Environment-Stormwater Management.

Florida Conservation Foundation. 1993. Guide to Florida Environmental Issues and Information. Winter Park, Florida.

Florida Department of Environmental Regulation. Undated. Stormwater Management A Guide For Floridians. Stormwater/Nonpoint Source Management. Tallahassee, Florida.