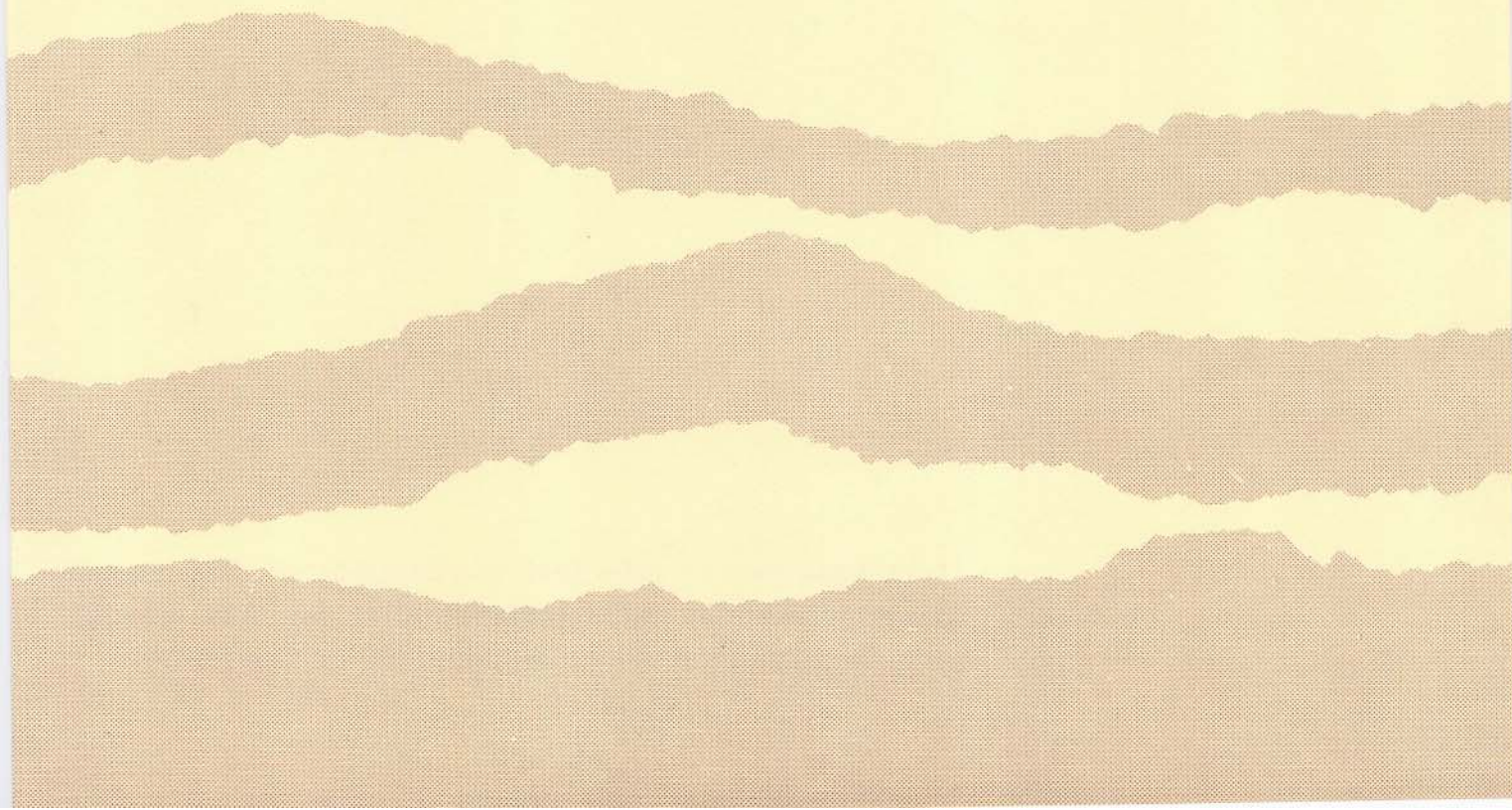


RIVERWORK BOOK

U.S. Department of the Interior
National Park Service
1988

prepared by
Mid-Atlantic Regional Office
Division of Park and Resource Planning



It is important to note that the contents of this document do not necessarily reflect the official positions of the National Park Service or the Secretary of the Interior.

Acknowledgements

The RIVERWORK BOOK has been prepared by the Division of Park and Resource Planning, Mid-Atlantic Regional Office, National Park Service. The following people assisted with the preparation of the book: J. Glenn Eugster, Division Chief; Evelyn Swimmer, Project Leader; Robert Potter, Editor; Joan Batory, Lisa Dewey, Joseph DiBello, David Lange, and Andrew Raddant, Project Planners; Julie Bell, Production; Connie Estrada and Vaneeda McDonald, Typing. Ann Daniels, Peter Fine, Ann Froehling, Martha Hollis, Sharon Hucks, Alicia Kale, Kathy Kester, Louvinia Madison, Dixie McKinnon, Valerie Ross, Delores Sciulli, and Gay Sprowal also contributed to the book.

Advisors for the project included William Spitzer, Chief of the Recreation Resource Assistance Division, Washington Office, National Park Service; Chris Brown, Program Manager for River Conservation Assistance Program, Washington Office, National Park Service; Bern Collins, Recreation Planner, Washington Office, National Park Service; Rolf Diamant, Landscape Architect, North Atlantic Regional Office, National Park Service; Ralph Goodnoe, Jr., Former Executive Director, Housatonic Valley Association; Suzanne Wilkinson, Director of River Protection, American Rivers; Chuck Hoffman, Hoffman, Williams, Lafen and Fletcher Consulting.

CONTENTS

INTRODUCTION	vi
Chapter 1: RESOURCES	3
1.1 Focus Your Information Gathering	
1.2 Get Resource Information	
1.3 Document Your Resource Information	
Case Example	
References	
Chapter 2: ISSUES	13
2.1 Identify the Issues	
2.2 Analyze the Issues	
2.3 Decide Which Issues to Resolve First	
Case Example	
References	
Chapter 3: PUBLIC INVOLVEMENT	23
3.1 Understand Your Public	
3.2 Choose Your Techniques	
Case Example	
References	
Chapter 4: GOALS	39
4.1 Get People Together	
4.2 Collect Ideas	
4.3 Set Goals	
4.4 Choose an Approach	
Case Example	
References	
Chapter 5: ALTERNATIVES	49
5.1 Identify Alternative Actions	
5.2 Evaluate the Actions	
5.3 Select the Most Appropriate Actions	
Case Example	
References	
Chapter 6: ACTIONS	65
6.1 Create the Action Agenda	
6.2 Determine the Sequence of Events	
6.3 Follow Up	
Case Example	
References	
Chapter 7: RIVER PRIMER	79
CONCLUSION	95

RIVERWORK CONTENTS

River Notes

Chapter 1:	Resource Categories	7
	Using Resource Information to Make Planning Decisions	9
	Federal Agencies Providing Resource Information	10
Chapter 2:	Issues to Actions	19
	Techniques for Exploring Issues	20
Chapter 3:	Setting Up a Public Meeting	33
	Writing a Press Release	34
	Mail Survey Sample Questions	35
Chapter 4:	Issues to Actions	45
	Goal Setting Process	46
	Approaches: Where to Focus Your Efforts	47
Chapter 5:	Issues to Actions	57
	Selected Programs to Manage River Resources	59
Chapter 6:	Issues to Actions	71
	Sample Action Agenda	72
	Getting Things Done	73
	Funding Hints	75
	Preparing a Proposal	76

Checklists

Chapter 1:	Resource Categories	5
Chapter 2:	Sample Issues	16
Chapter 3:	Potential Advisory Committee Members	28
	Public Involvement Techniques	32
Chapter 5:	Identifying Alternatives	53

Introduction: Why Rivers?

Rivers shape the earth's surface and man's life on earth. Throughout history human settlement has followed water courses and where fresh water is abundant civilizations have flourished. Not only do rivers have great economic value, they provide pleasure, link us to our past and offer opportunities for rejuvenating the spirit. Yet it is economics that often takes precedence as America's rivers are used more and more each year for water supply, commerce and industry. As the uses of rivers multiply so do the conflicts among their users. Advocates of river conservation are growing in numbers, but often lack information about the steps necessary to begin and sustain an effective river conservation effort.

In response to this need, the National Park Service has developed a River Conservation Workshop Program for local governments, citizens organizations and individuals. This assistance is provided through the State and Local River Conservation Assistance Program authorized under the provisions of Section 11 of the National Wild and Scenic Rivers Act. This program is designed to stimulate wider recognition and appreciation of local river resource values and to help organize and direct all levels of government and the private sector toward focused conservation actions.

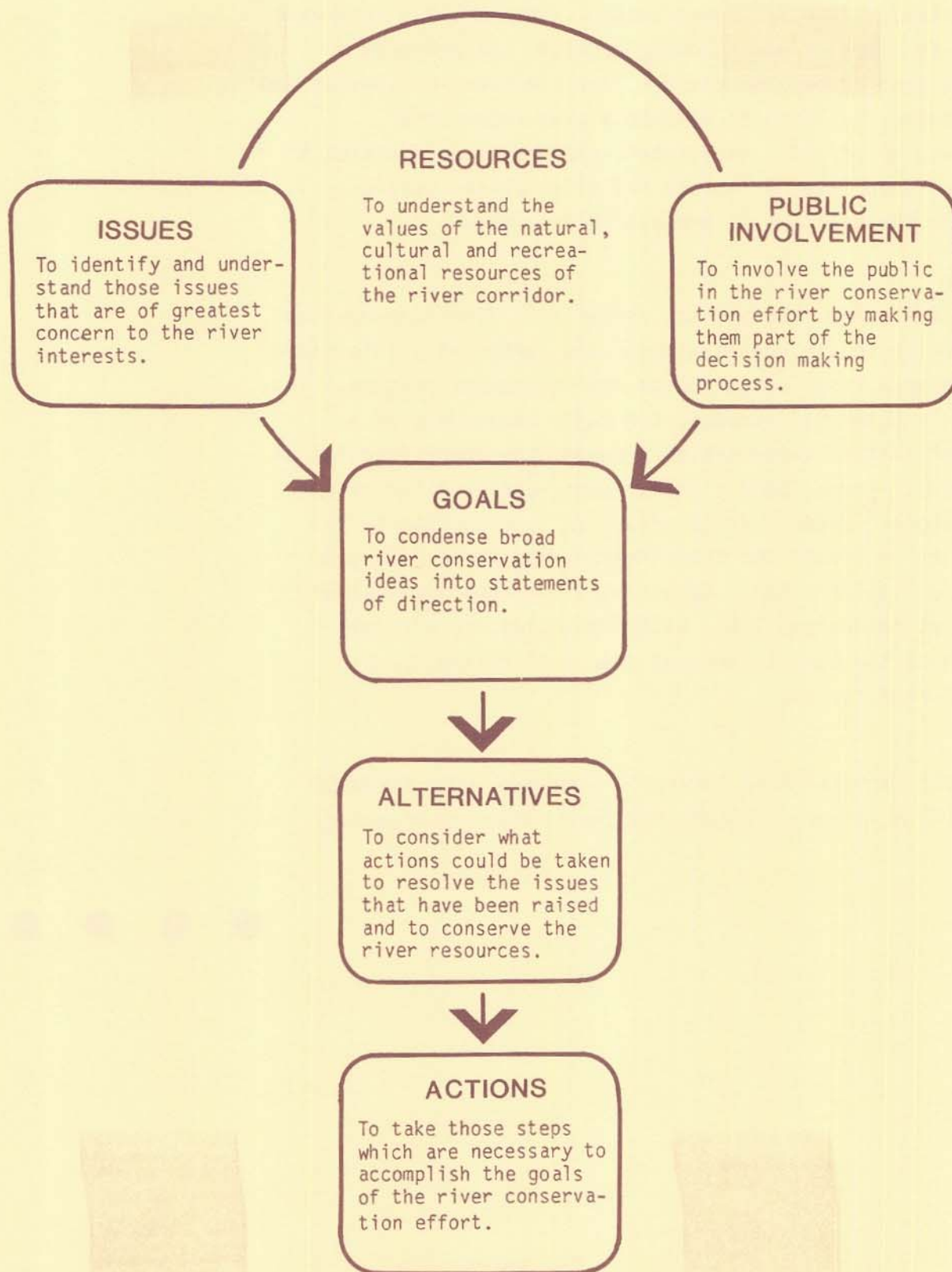
The RIVERWORK BOOK and its accompanying slide show are used for workshops in river conservation. It is also a reference manual for local river planning efforts. It presents a process that emphasizes citizen participation, networking and constituency building to develop a grassroots river conservation effort. The process encourages communities to consider a variety of factors and alternatives before choosing the best way to protect their river.

In the following chapters the reader will find step-by-step instruction in the organizational and technical skills needed to develop a river conservation and management program. The first six chapters introduce the major components of a successful river conservation program: the identification of resources, issues, public involvement, goals, alternatives and actions. Chapter seven offers an introduction to the functions of rivers for those readers who would like some background information. Each of the chapters includes an annotated reference list. RIVERWORK Notes are arranged throughout the book to present practical advice in an easy-to-read format.

It is the National Park Service's hope that this RIVERWORK BOOK will help you to accomplish your river conservation goals.



River Conservation: the process



1. RESOURCES

Getting to know your river resources is the key to well-informed decision-making. Each resource, whether natural, cultural or recreational, is an opportunity for conservation and enhancement of the river corridor. Resources are the foundation of river conservation.

The values placed on resources are based upon people's perceptions and attitudes. Therefore, understanding the river in the context of its community is a means of identifying these important values, attitudes and issues. People generally take pride in the place where they live. Knowing the special values which their river possesses can induce them to take an active role in conserving these resources.

Process steps • • • • •

Focus Your Information Gathering

Get Resource Information

Document Your Resource Information

Focus Your Information Gathering

1.1

Your resource assessment does not have to be a major data gathering exercise. A wealth of information is usually available about the resources of a river. Before you run out the door and try to collect it all, stop for a moment and ask yourself the following questions:

What is the purpose of your river planning effort?

If you intend to end up with a comprehensive plan for the river, you will probably need to gather a wide range of information. But if your group is focusing on only one or two key river issues, you may need much less data.

What areas of the river are you concerned about?

Recognize that you may have to set some limits on the river area for which you gather information. One way is to define the width of a river corridor - the land adjacent to both banks. A quarter mile on each side of the river is a commonly established distance. Another approach, more sensitive to the changing river landscape, defines a river corridor based on the presence of certain natural boundaries, such as floodplains, drainage area or topography.

What resources are recognized as important by government legislation or programs?

Some government programs provide for special protection of resources like endangered species, natural landmarks or floodplains. While developing a conservation strategy for your river, you may want to research whether any of these recognized resources are present in the river corridor.

1.2

Get Resource Information

Before undertaking any major resource gathering effort it would be useful to get some professional planning guidance, either from a county, state or federal planning office or from a private consultant.

Much resource information is available through government agencies. Many agencies are responsible for collecting, analyzing and updating resource information which they make available at little or no cost. Many times existing information needs only collecting and organizing.

Look into ways that you can get other people to actively help you with your information gathering. A county or regional planning commission or students of landscape architecture, design or city and regional planning at a local college or university may do resource mapping for you.

Remember, each person views a river resource differently and values it differently. A successful river conservation program will define the resource and its values objectively and as thoroughly as possible. All interests, economic, recreational and environmental, should be considered.

Document Your Resource Information

1.3

Once you have gathered information about important resources in your river corridor, you will want to put it in a form that can be easily used. Some information will be in written form and other information will be on maps. Decide how you intend to present your resource information because this will help determine data needs and presentation costs. This is an important first step that will direct your efforts so that you won't spend time and money on something you may not use later.

Resource information can be used for project planning, promotion/education and institutional applications. In planning your project you will want to key resource information to your specific purposes and objectives. If you are focusing on wetland preservation you may want wetland and groundwater hydrology maps and perhaps soil and zoning maps. These can be prepared on transparent overlays to reveal resource locations and overlaps. You may also want to research federal, state and local ordinances and regulations which apply to wetlands.

If promotion or public education is your objective, design and publish posters or brochures describing key resources and values. Guidebooks or maps can also be a means of communicating your message.

Institutional applications of resource data include revision of land use ordinances, development of more protective legislation and setting government policy. Detailed descriptive reports of resource data and analysis of impacts caused by government action or inaction can be prepared for review by decision-makers. Maps, charts, and references should be included in this type of report.

CHECKLIST

Resource Categories

- ☐ Bedrock
- ☐ Topography
- ☐ Soils
- ☐ Groundwater
- ☐ Surface water
- ☐ Vegetation
- ☐ Wildlife
- ☐ Fisheries
- ☐ Historic/cultural
- ☐ Recreation
- ☐ Land use
- ☐ Human resources

Case Example

The Wood-Pawcatuck Rivers Study demonstrates how resource values can establish a framework for the planning process. Rhode Island's least developed and most rural rivers are the 33 mile Pawcatuck River and its major tributary, the 20 mile Wood River. These rivers are recognized for their high quality resources which make them both regionally and nationally significant. The goal of the study was to conserve the resources in a way which was balanced with the enhancement of economic growth and vitality.

To do this, the newly formed Wood-Pawcatuck Watershed Association, the Rhode Island Department of Environmental Management, the National Park Service, and the nine towns along the two rivers entered into a cooperative agreement. An advisory committee was formed to assist in the formulation of a resource protection strategy. The study team was able to divide the river corridor into seven "planning units," based on the resources of each section: Estuary, Urban, Urban Fringe, Mill Village, Wetland, Wooded Rural and Wildland.

The outcome of the study was a set of recommendations and actions for each planning unit in five management categories: land conservation, water quality protection, education, coordination and policy. A number of actions have been taken based on these recommendations. For example, the State of Rhode Island allocated \$150,000 for a Pawcatuck River Basin Plan, and agreed to offer workshops on land management techniques to riverfront landowners. A river education program for high school students was initiated with the help of the canoe association, and a land trust program was begun by the watershed association. The voters of Rhode Island recently approved a \$1 million bond issue for implementation of some of the study's recommendations.

Resource Categories

The following is a list of possible resource categories which you may want to use for gathering information about the river you have selected for action. The actual data that you gather will be used to make decisions at future stages of the RIVERWORK process: setting the goals of your planning effort, and identifying the specific issues you are trying to address, the types of actions you envision, and the river areas for which you are planning.

Bedrock in the form of steep slopes and outcrops can create waterfalls, whitewater rapids, cliffs, canyons, and gorges, usually with high scenic values. The depth of soil to bedrock can also determine suitability for building foundations. Aquifers (bedrock units which store water) are a major source of drinking water supplies.

Bedrock

The general form of the landscape - its slopes and elevations - is important in determining areas suitable for development and for recreation.

Topography

Characteristics such as soil composition, fertility, permeability and depth to water table can be used to identify suitable areas for development, agriculture, recreation and forestry.

Soils

Information about the quality and quantity of groundwater, land areas that recharge groundwater, and the yield from specific water-bearing geologic formations, can be crucial factors in determining suitable land uses for an area.

Groundwater

The size of a watershed, quantity and quality of streamflow and location of water bodies and floodplains constitute important planning information, especially in areas where flooding or drought is an issue.

Surface Water

A description of major plant communities in a region is useful in determining the presence of rare and endangered plant species or in assessing wildlife habitat.

Vegetation

NOTES

Wildlife

Information on major game and non-game species, diversity of wildlife habitat, and rare and endangered species can all be used to identify sensitive environments.

Fisheries

Fishing is often a major economic activity as well as a recreational one. Information on anadromous, estuarine and freshwater species may include the identification of important habitat, ongoing stocking programs and the amount of recreational demand for fishing.

**Historical
and
Cultural**

Buildings, structures, sites or even whole landscapes recognized as having historic significance should be identified. Their locations in a river corridor can help to determine the location, type, and density of future development that is appropriate.

Recreation

Identifying existing land and water-based recreation sites on public and private lands can help to determine whether the recreational demands of residents and visitors for such facilities are currently being met. The income generated by recreational activities may make up a significant sector of the local economy. This income can be weighed against the economic value of competing uses (which could cause losses in recreation-related revenues).

Land Use

The ways in which land is used by its owners, renters or visitors can be catalogued to assist in understanding the landscape. Land uses can include the entire range of human activity, from private residences to public access sites, from pasture land to industrial complexes. If one is likely to propose changes in land management, it is important to know how the land is being used.

Census

Data collected by the U.S. Census Bureau can be very useful in developing a composite statistical picture of the river area. Population data include density information, occupational types, population movement, and education and income levels. This information can help you anticipate the nature of the community you may be working with.

Using Resource Information To Make Planning Decisions

The process of collecting and interpreting resource information can help to reach goals, make decisions, develop awareness, and build support. The overlay method for determining the best locations for a particular land use has proved valuable in river planning.

STEPS:

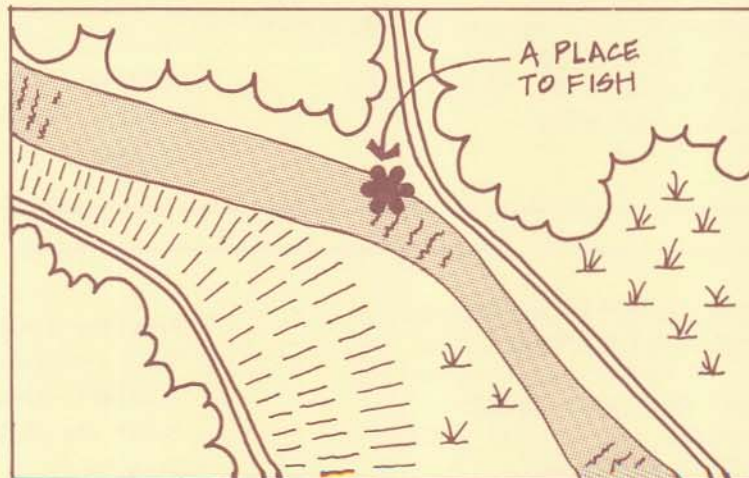
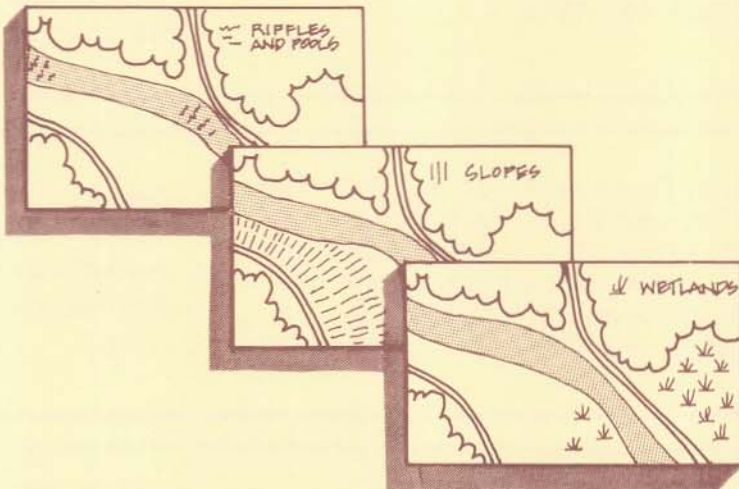
1 Develop a set of resource criteria for the land use under consideration.

2 Map each resource on a separate mylar base map. Then place maps one atop another (overlay method).

3 Areas suitable for a particular land use are revealed to the decision maker.

EXAMPLES:

Mitch is looking for a place to fish. He asks a neighbor who is a member of Trout Unlimited and is told "where the riffles and pools are." The town engineer says "look for a flat place so you can park your car." A friend who is active in The Nature Conservancy knows of a wonderful place but wouldn't mention it because it is a wetland area that has an endangered plant growing in it.



NOTES

Federal Agencies Providing Resource Information

U.S. Geological Survey
Hydrologic Information Unit
420 National Center
Reston, Virginia 22092

Questions about water resources in general and about the water resources of specific areas can be directed here.

U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 2890
Washington, DC 20013
(202) 447-4543

Provides resource data and technical assistance in soil and water conservation through local conservation districts. Publishes Soil Surveys, which provide detailed soils information for most counties.

U.S. Department of the Interior
Fish and Wildlife Service
Division of Planning and
Information Management
Washington, DC 20240
(202) 653-8791

Generates scientific information on the characteristics and extent of U.S. wetlands. The National Wetlands Inventory provides detailed wetland maps for many geographic areas.

U.S. Department of the Interior
Inter-Agency Resources Division
P.O. Box 37127
Washington, DC 20013-7127
(202) 343-9500

Provides the name, address and phone number for each State Historic Preservation Office, which maintains a listing of all properties in their state on the National Register of Historic Places. The office will also have information on properties of state historical importance.

U.S. Geological Survey
National Cartographic
Information Center
507 National Center
Reston, Virginia 22092
(703) 860-6045

Provides a nationwide information service for U.S. cartographic data. Information is available about maps and charts, aerial and satellite photographs, and map data in digital form.

References

Atlanta Regional Commission. 1975. Chattahoochee River Corridor Study. Atlanta Regional Commission, 100 Edgewood Avenue, Suite 1801, Atlanta, Georgia 30335. A resource evaluation and land use suitability of the Chattahoochee River corridor north of Atlanta, Georgia.

Berger, Jonathan and Sinton, John W. 1985. Water, Earth, Fire. Baltimore, Maryland: The John Hopkins Press. Ecological planning in the New Jersey Pinelands with an emphasis on human cultural resources.

Jones, Grant R. and others. 1973. A Plan for the Nooksack. Jones and Jones, 105 South Main Street, Seattle, Washington 98104. A documented approach to the inventory and evaluation of a river system for recreational use and ecosystem management.

Marsh, William M. 1978. Environmental Analysis for Land Use and Site Planning. New York: McGraw Hill Book Company. Describes key aspects of environmental analysis for planning and design with emphasis on the processes of landscape formation.

McHarg, Ian L. Design With Nature. 1969. Philadelphia, Pennsylvania: The Falcon Press. The cornerstone of the ecological planning method eloquently written.

U.S. Department of the Interior, National Park Service. 1982. Maine Rivers Study: Final Report. Philadelphia, Pennsylvania. An inventory and analysis of important river areas in Maine, based on significant natural and recreational resource values.

U.S. Department of the Interior, National Park Service. 1984. Maryland Rivers Study: Final Report. Philadelphia, Pennsylvania. A resource inventory and assessment of the natural, cultural and recreational resource values of 25 Maryland rivers.

U.S. Department of the Interior, National Park Service. 1982. Nationwide Rivers Inventory. National Park Service, 18th & C Streets, NW, Washington, D.C. 20240. The document describes the results of a nationwide study of rivers and identifies rivers that meet the minimum criteria for further study and/or potential inclusion into the National Wild and Scenic Rivers System.

U.S. Department of the Interior, National Park Service. 1986. Pacific Northwest Rivers Study. National Park Service, 83 King Street, Seattle, WA 98104. A cooperative resource assessment prepared by states, federal agencies and Indian tribes for Idaho, Montana, Oregon and Washington rivers and streams.

2. ISSUES

Effective river conservation measures are those which respond to local needs and resolve local problems. At the heart of river conservation are issues: those matters whose solutions are of public concern and which involve some difference of opinion about how they should be resolved.

Understanding issues is a challenging task because it involves not only a knowledge of the resources but of the local community and its economy as well. The process at this stage is to determine which river issues are of greatest concern to the community so that an informed approach to problem-solving can be taken.

Understanding the key issues is one way to make your RIVERWORK vital and relevant.

Process steps • • • • •

Identify the Issues

Analyze the Issues

Decide Which Issues to Resolve First

Identify the Issues

2.1

River conservation is generally motivated by one or more specific needs or problems. These problems in turn are related to the river resources and how they are being used.

The first step when investigating issues is to identify the river-related needs, concerns and problems perceived by the people of the region. This is not the time to suggest final solutions to problems. Explore each issue carefully to develop a broad range of alternative solutions from which to choose. A variety of people can and should be involved, including area landowners, people who use the river, local, state and federal decision-makers and others affected by the use and management of the river. Several techniques such as brainstorming, key informant interviews and newspaper analysis are particularly helpful for identifying issues. Group the related issues together in order to construct the broadest possible set of issues, encompassing all the minor points raised by participants.

Issues can be identified in many ways. Meetings with local governments or community groups generally revolve around current issues. Surveys can frequently be used to elicit information on issues as well. When your list of issues has been gathered from a variety of sources, grouped together according to topic or subject, revised and refined as a final set of issue statements, then move on to the next step, analysis.

CHECKLIST

Sample Issues

- | | |
|---|---|
| <input type="checkbox"/> Water quality | <input type="checkbox"/> River awareness |
| <input type="checkbox"/> Streambank erosion | <input type="checkbox"/> Scenic qualities |
| <input type="checkbox"/> Flooding and flood control | <input type="checkbox"/> Economic development |
| <input type="checkbox"/> Siltation | <input type="checkbox"/> Government regulation |
| <input type="checkbox"/> Agricultural runoff | <input type="checkbox"/> Land use |
| <input type="checkbox"/> Urban runoff | <input type="checkbox"/> Water rights |
| <input type="checkbox"/> Industrial pollution | <input type="checkbox"/> Mineral extraction |
| <input type="checkbox"/> Wetland degradation | <input type="checkbox"/> Public use of private land |
| <input type="checkbox"/> Septic tank leakage | <input type="checkbox"/> User conflicts |
| <input type="checkbox"/> Boating safety | <input type="checkbox"/> River access |
| <input type="checkbox"/> Tourism | <input type="checkbox"/> Hydropower development |
| <input type="checkbox"/> Trespassing | <input type="checkbox"/> Stream diversions |
| <input type="checkbox"/> Littering | |

2.2

Analyze the Issues

Once issues have been identified and stated in a clear and comprehensive way, they are ready to be examined. Issues must be thoroughly understood if they are to be used effectively to resolve problems. You will want to examine the elements of an issue, its immediacy, and its causes and effects. A journalistic approach will help here - for each issue find out who, what, where, when and why.

Let us say there is a rapidly increasing demand for water to supply new housing in your community. In response to this need, community leaders are considering water diversion or construction of a new reservoir as a solution.

who

People and agencies responsible for making the proposed changes.

what

Scope of the plans and how they will affect the river environment.

where

What portion of the river corridor will be affected.

when

Determine the time schedule for the project.

Other considerations include:

- Does the project serve the needs of the community?
- Does the public perceive a negative impact on the river resources?
- Is there political and public support for the project?
- Have alternatives been evaluated by the authorities?
- Does the project conform with local land use controls?
- Can developers, governments and landowners be persuaded to work together to conserve the river resources.

2.3

Decide Which Issues to Resolve First

When a group of people identify and analyze river related issues, a lot of issues will usually surface. Because issues are often problematic or controversial, resolving them can be a complex business. Therefore, it can be useful to rank the issues in the order in which they can be addressed. There are three factors to consider when ranking or prioritizing issues.

1. **Magnitude** - Which issues are likely to have the greatest impact on the resource. On the river community? Issues such as dam and diversion projects can have immediately visible impacts on a resource. Recreation use, shoreline development and non-point sources of pollution may appear to be less dramatic issues but will have a more pervasive impact over time.

2. **Attitude** - You will want to understand how attitudes toward the use of a resource differ. If the public does not readily respond to a problem that you recognize, an educational effort may be necessary. This approach can build support and even a constituency for resolving the issue.

3. **Time Frame** - Which issues are imminent or have already had impacts on the resource? On the river community? If a survey is used as part of the information gathering process, people can be asked to rank the original list of issues according to which is more important or should be addressed first. When interrelationships occur between several issues, it is sometimes possible to resolve more than one issue at a time.

Issues To Actions

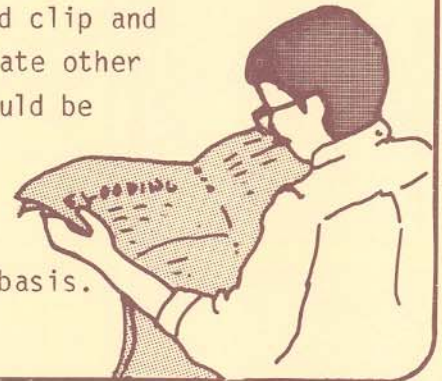
RESOURCE ISSUES	GOALS	ALTERNATIVES	ACTIONS
Faulty Septic Systems	To raise the standards for septic tank installations and maintenance	Consider education and assistance to septic system owners and revision of regulations	Provide low interest loans to upgrade septic systems
Shoreline Erosion	To improve development practices on floodplains and steep slopes in the watershed	Select design guidelines for landowners and developers	Secure private or grant funding to have a publication written and produced for distribution to landowners and developers
River Corridor Development	To ensure that development will not degrade the corridor's resources	Consider zoning techniques that will protect the river corridor	Revise existing zoning ordinances to eliminate inconsistencies and improve river protection measures
Inadequate Historic Site Protection	To protect significant river corridor historic sites	Evaluate benefits of federal, state, and local designation programs	Identify program(s) with best potential and conduct survey to identify sites for inclusion
Lack of Recreation Access	To provide river access that distributes river use and lessens its impacts and conflicts	Evaluate techniques for providing access including acquisition or easements on private land	Create a land trust to acquire riverfront lands from riparian landowners

NOTES

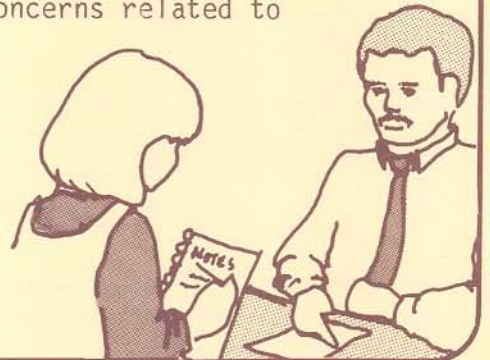
Techniques For Exploring Issues

Newspaper Analysis

Many of us use this method already in an informal way. However, a concentrated effort to read several local papers and clip and catalog relevant articles can enhance and substantiate other information-gathering techniques. The articles should be reviewed and analyzed by as many people as possible. Information documented in this way and shared with the public has the advantage of being written by and for local people on a regular basis.

**Key Informant Interview**

Interviews with community leaders and other authorities can yield a wealth of first-hand insights into local problems and concerns related to the river corridor. Ask questions that provoke thought, giving the interviewee an opportunity to state opinions and share facts. Interviews should be used to supplement other types of information-gathering techniques, such as workshops, meetings and public surveys.

**Brainstorming**

This group exercise emphasizes free thinking, and requires a group of people who are informed about the project. A moderator asks the group to identify issues related to the use and management of the river corridor and records the responses. All suggested issues are recorded with no judgements made. The philosophy of brainstorming is that quantity breeds quality; the more suggestions, the better. The list that is generated should be summarized by grouping related issues under major category headings.



References

Emrich, Wendy. 1980. New Approaches to Managing Environmental Conflict: How Can the Federal Government Use Them? Washington, D.C.: Council on Environmental Quality. A discussion of approaches to resolving conflict over environmental issues.

Fisher, Roger; Ury, William. 1981. Getting to Yes: Negotiating Agreement Without Giving In. Penguin Books. Discussion of how to use negotiation in reaching agreements.

The Conservation Foundation. Resolve: A Quarterly Newsletter on Environmental Dispute Resolution. Washington, D.C.: The Conservation Foundation. 1717 Massachusetts Avenue, NW, Washington, D.C. 20036. Regular updates in the development of environmental issues resolution.

Mernitz, Scott. 1980. Mediation of Environmental Disputes. New York: Praeger Publishing. Discussion of mediation process in environment issues.

U.S. Department of the Interior, National Park Service. 1984. Boquet River Study: Issue Assessment. Philadelphia, Pennsylvania. An assessment and inventory of the major river-related issues along the Boquet River.

U.S. Department of the Interior, National Park Service. 1984. Wood-Pawcatuck Rivers Study: Technical Report 2: Issue Assessment. Philadelphia, Pennsylvania. An inventory and assessment of issues in the Wood-Pawcatuck Rivers Study.

an ISSUES Case Example. . . .

The Connecticut Valley Action Program was a comprehensive study which focused on the resolution of a number of river-related issues.

The program was initiated by the Massachusetts Department of Environmental Management and the Connecticut River Watershed Council. Its chief goal was to prepare a comprehensive long-term strategy with specific programs and actions for encouraging land and water use practices compatible with the values of the river.

Based on meetings with community officials, various interest groups and other government agencies, seven major river resource issues were identified as those which should be dealt with through the action program. These issues were: agricultural land protection; river-related economic development; water quality improvement; recreational use and safety; natural habitat protection; streambank stabilization; and cultural resource protection. The design of specific implementation policies and programs for these issues was guided by a "coordinating committee" comprised of representatives from 19 towns, and from government agencies and private organizations.

Some of the actions selected to address the issues include land acquisitions with creative financing between state agencies and private non-profit groups; the preparation of a river safety education program; formation of a riverfront bikeway committee; and increased river safety measures (financed in part through a \$10,000 state grant).

3. PUBLIC INVOLVEMENT

Involving the public throughout your RIVERWORK can be the cornerstone of success. Public involvement is a means of building support and developing a constituency for your cause. The value of public involvement lies in sharing responsibility with those who will strongly influence the success or failure of your conservation effort. Involving a broad cross-section of interested individuals and organizations is a way of collecting good ideas and suggestions and ensuring that the community will view your goals as relevant to their needs. Furthermore, strength in numbers will increase the chances for lasting accomplishments.

Process steps • • • • •

Understand Your Public

Choose Your Techniques

Understand Your Public

3.1

To make public involvement work effectively you will want to know which members of the public you want to reach, and how to involve them in the decision-making process. Consider the following questions before choosing your methods.

Who is the public? Who are the interest groups you may want to involve in your project? Should landowners, recreationists and local business people be included? Does the public include state and local officials? Private interest groups and organizations?

What do you want from the public? Do you need technical expertise or information? Public opinions or attitudes about the river? Volunteers to assist you in your project tasks?

What will you give to the public? Will you give them a real voice in the development of your project? Will they have the power to advise and make suggestions? Will you prepare them to accept some degree of responsibility for river conservation?

How much do you want to involve the public? Is there a particular role you want the public to play? For example, will the public be called upon to make decisions, to approve them, or merely to review them? How much is 'too much' public involvement?

When is public involvement appropriate or most effective? Are there any events to keep in mind when scheduling public involvement activities? Any elections, festivals, or holidays which can influence the best time to hold a meeting or release a report?

3.2

Choose Your Techniques

The quality of information received from a citizen participation process is only as good as the techniques or combination of techniques used to obtain it. Different information-gathering techniques are appropriate for different needs. To decide on the best combination for your particular situation, you will need to weigh the appropriateness of the techniques discussed below. No matter which techniques you choose, remember that a steady, consistent education and consensus-building program will help ensure successful public involvement.

ADVISORY COMMITTEES

An advisory committee can be characterized as a citizen's task force established to participate in and oversee the development of a river conservation effort. The committee should generally be composed of a broad cross-section of the river community, and should include all those interests who have a stake in the results of the effort. For example, riverfront landowners, local officials, recreationists and other key interest groups should be represented. Membership may be open-ended or selective, although it is advisable to make all meetings open to the public.

What you call your committee (or council, task force, panel) is far less important than having a clear purpose and function for it. The primary functions of an advisory committee are:

- To provide direction to the river conservation effort by assisting in decision-making.
- To inform the groups that committee members represent about the progress of the effort.
- To lend their skills to the effort, in the form of technical expertise, political support, financial assistance, or other voluntary contributions.

Although the council will probably have to deal with controversial issues, it is important to remember that everyone, whether they are interested in fisheries, hydropower, canoeing or motorboating, all have a common interest, the river. Rather than avoiding conflict, it can be a good idea to include representatives of groups you might consider opponents. Involving them early in the process can help address their concerns, and may help to defuse their opposition in the future. It also avoids the risk of appearing to ignore their concerns.

CHECKLIST

Potential Advisory Committee Members

- | | |
|---|---|
| <input type="checkbox"/> Legislators | <input type="checkbox"/> Riverfront landowners |
| <input type="checkbox"/> Local officials | <input type="checkbox"/> Conservation groups |
| <input type="checkbox"/> State & federal agency officials | <input type="checkbox"/> Recreation groups |
| <input type="checkbox"/> Business people | <input type="checkbox"/> Historical & cultural groups |
| <input type="checkbox"/> Community organizations | <input type="checkbox"/> Scientists, engineers, lawyers & other technical experts |

MEETINGS

The centerpiece of a typical public involvement strategy includes a series of meetings. Meetings can serve many purposes:

- conveying information
- reporting results
- sharing and developing ideas
- demonstrating causes and views
- helping people to make decisions

Meetings serve as a means of getting people together. There are many types of meetings - public hearings, workshops, forums, committee meetings and so on, each with a different purpose and format. For example, informal meetings with small groups or individuals can help you get to know and understand public opinions and attitudes about the river and

its uses. A larger meeting such as a workshop can help you identify specific goals and issues and explore in depth the possible actions that could be taken to address them.

Whatever type of meeting you hold, defining its purpose and objectives and developing an agenda will help it run more smoothly and effectively.

Surveys can be thought of as tools for networking as much as for data collection. Through surveys you can communicate with a broad or narrow spectrum of the public.

SURVEYS

You can reach the general public, or selected interests such as landowners, river recreationists, or local officials. People who will never show up at a meeting can be reached by a survey which elicits their ideas and concerns about the river's resources. By conducting such a survey you will expand your sources of information and, more importantly, you will communicate to the public that their concerns are important and their opinions count.

Although a survey is an effective way to involve the public and a quick way to collect a lot of data, it is also a complex and labor-intensive technique to design and interpret. A systematic approach will help you decide what information you need and the best way to obtain it.

There are some important considerations to keep in mind as you prepare to conduct a survey.

- Make sure your sample is representative of the entire population of your project area or at least of the groups you wish to reach. Tax rolls are generally the most reliable source of addresses. Remember that the riparian landowners (owners of land adjacent to the river) will generally have the most interest in your survey.

- Keep your questions clear and unambiguous; try to avoid jargon or technical language. Be aware of the dangers of influencing a response by your choice of words.
- Pre-test your questions using a group of your supporters to ensure that they are clear and understandable. Revise them if necessary.
- As you design your survey, think about how you will tabulate and analyze it. Here is one area where access to a microcomputer can be invaluable. The assistance of a local academic institution (college, university, or even high school) may be one way of gaining computer access and technical expertise.

A mail questionnaire is an excellent means of obtaining information on people's preferences relatively quickly and inexpensively. It also has the potential of representing all the people in a community or in a particular group. To claim that the results of a mail survey are representative of a community or group, it must be sent to a true random sample, sometimes a difficult task if no complete directories exist for a group or community. However, for river conservation projects, a mail survey can be sent to as many people as are known and still provide valuable contacts and information. In this case, it is important to make it clear that your survey is not representative.

Survey respondents should always be asked if they would like a copy of the results of the survey, which should always be summarized in a brief factsheet or report. This assures the respondents that their answers will be used in a meaningful way. The questionnaire can also ask people if they would like to receive the project's newsletter or other pertinent information. Again, the survey enables you to keep people involved and informed as your project progresses.

PERSONAL INTERVIEWS

In situations where issues are complex and where many open-ended questions need to be asked (ie., questions where more than a yes/no or multiple-choice answer is expected), a personal interview is one of the best information gathering tools available. A personal interview provides respondents an opportunity to fully explain the complexities of an issue, whereas a mail or telephone questionnaire restricts such discussion.

Personal interviews have a second advantage over mail or telephone questionnaires because the researcher can meet the respondents on a one-to-one basis. But to keep your investment of time and money down, you may wish to concentrate your efforts on interviews with community leaders and other local authorities.

MASS MEDIA

Informed use of the media not only publicizes your efforts, but can build a constituency for them. By informing the public, you are involving the public. The power of the press, if used correctly, can benefit your project. Local newspapers and radio and television stations should always be informed of your meetings and events.

Providing a press release or press packet is the best way to ensure that the correct information gets into print or on the air. If you can get acquainted with local reporters and contact them regularly throughout the project, good coverage is even more likely. When you are being interviewed, keep in mind that quotes taken out of context can be dangerous. Caution, not concealment, is often advisable. Sometimes in spite of your best efforts, an utterly misleading story comes out. If so, a well prepared rebuttal, such as a letter to the editor, is probably your best strategy.

NEWSLETTERS

Newsletters, posters, and even stationery can all be effective ways of getting your message across. A project newsletter can do more than keep people informed about the progress of a single river conservation project; it can report on the river-related activities of other organizations, and on any other relevant news within the region. This broad perspective can help to build a constituency among other organizations. More importantly, it will make the newsletter far more readable and entertaining to the general public.

POSTERS FLYERS PROJECT STATIONERY

Posters and small flyers can be used effectively to announce events, while project stationery is an inexpensive way to publicize your efforts. Project stationery is particularly useful when two or more agencies or organizations are collaborating on a project.

CHECKLIST

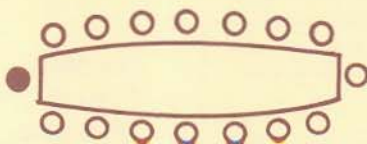
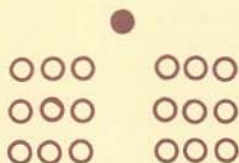
Public Involvement Techniques

- | | |
|---|---|
| <input type="checkbox"/> Meetings | <input type="checkbox"/> Newsletters |
| <input type="checkbox"/> Advisory Committees | <input type="checkbox"/> Posters and flyers |
| <input type="checkbox"/> Surveys | <input type="checkbox"/> Stationery |
| <input type="checkbox"/> Interviews | <input type="checkbox"/> River festivals |
| <input type="checkbox"/> Media coverage | <input type="checkbox"/> Boating events |
| <input type="checkbox"/> Public service announcements | <input type="checkbox"/> Clean-up days |
| <input type="checkbox"/> Letters to the editor | <input type="checkbox"/> School programs |

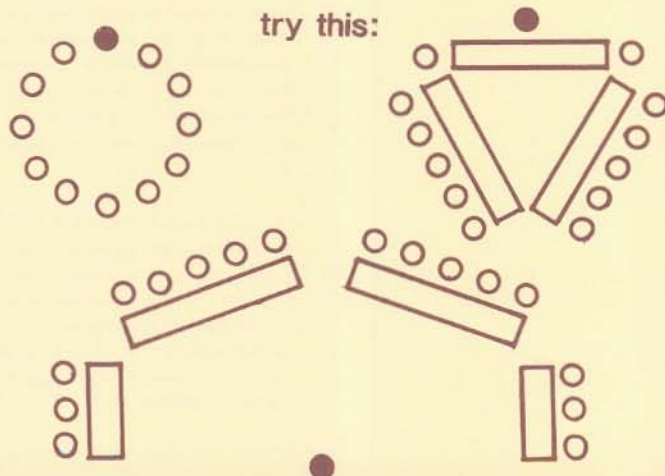
Setting Up a Public Meeting

- Determine the most convenient time for your meeting. Try to avoid important dates like holidays, elections or other public meeting dates.
- Arrange to hold meetings at a centrally-located facility. School auditoriums, town and church halls, and libraries are all possible sites.
- Prepare materials such as agendas, outlines, surveys or worksheets to be distributed before the meeting begins.
- Provide refreshments and breaks, especially if you are conducting a longer workshop or seminar.
- Arrive early for your meeting. This will allow you to arrange the room and set up. This is also a good time to meet and talk with people as they arrive, which can help both you and the audience to relax.
- Rearrange the seating to accommodate your meeting format. For example, a semi-circular arrangement can help involve people in a discussion.

instead of this:



try this:



NOTES

Writing a Press Release

A good press release should give the most important information about your event in short, readable sentences. Attract an editor's attention by emphasizing the unique aspects of the event.

- Keep the release under two pages - one is even better.
- Put contact name, address and phone number in the upper left-hand corner.
- Place "For Immediate Release" or date of future release in upper right near headline.
- Type double space with side margins and end each page with a complete paragraph.
- Include your own headline to get the editor's attention and provide your own emphasis.
- Design a press release letterhead to attract attention. Your news will have competition on the editor's desk.



WOOD PAWCATUCK RIVERS STUDY

NEWS RELEASE

CONTACT: Evelyn Swimmer, Project Leader
Mid-Atlantic Regional Office, National Park Service
600 Arch Street, Philadelphia, PA 19106
(215) 597-1967

FOR IMMEDIATE RELEASE

RIVER STUDY CITES CONSERVATION NEEDS AND URGES SHARED MANAGEMENT RESPONSIBILITY

The Wood-Pawcatuck Rivers Study Advisory Committee held its final meeting Wednesday night at the W. Alton Jones Environmental Center as a joint meeting with the Wood-Pawcatuck Watershed Association. The National Park Service, at the request of Senator John Chafee, has worked for over a year with the Rhode Island Department of Environmental Management and the Office of State Planning, the Watershed Association and the towns of Charlestown, Exeter, Hopkinton, North Stonington, Richmond, West Greenwich and Westerly.

The product of the study is a set of recommendations for river conservation in the 53 miles of corridor along the two rivers. The report, entitled a Press Executive Summary, urges shared responsibility for management between the private and public sectors, and between the towns and the state. It addresses the need for land use policies in the corridor which both accommodate growth and are compatible with natural, rural, recreational and historic values. The report also recommends that water quality be maintained in the rivers to protect wetlands, drinking water supplies, recreation, aesthetic values and the state fisheries program.

Sample
Press
Release

Sample Survey Questions

The following questions are typical of mail surveys conducted by local watershed associations. Questions can be open-ended or close-ended, and can be formatted in many ways.

Q-1 Which of these activities do you presently enjoy on your property and the adjacent river?

☐ hunting ☐ fishing ☐ swimming
☐ tubing ☐ canoeing ☐ hiking
☐ _____ other (please specify)

Q-2 How often do you or members of your family use the river area for the following activities?

Activity	Amount of Use			
	Never	Rarely (Once/ Season)	Occasionally (Several Times/ Season)	Frequently (One or More Times/Week Season)
Fishing	1	2	3	4
Hunting	1	2	3	4
Canoeing/ Boating	1	2	3	4
Swimming	1	2	3	4

Q-2 provides a much greater range for responses than Q-1. In addition to writing a close-ended question well, you should have a good idea of what answers to expect on any given question.

A pre-test of a small group of people will give you some good insights on what responses are most likely. You can incorporate these into your multiple choice close-ended questions.

continued

Q-3 What qualities of the river are most important to you?

This kind of question is excellent when you want people to write anything - and everything - they wish. One disadvantage, however, is that open-ended questions are difficult and time-consuming to analyze. Furthermore, it takes respondents longer to answer open-ended questions, so that if there are too many such questions on a questionnaire, it is easy for them to become discouraged and not complete it. Therefore, close-ended questions are frequently used. For example, the question above may be rewritten as:

Q-4 Which of the following qualities of the river are most important to you? (Please circle your answer)

- a) scenic qualities
- b) recreational opportunities
- c) wildlife
- d) cultural/historic resources
- e) natural areas

The answers to this question will be easier to analyze than those to Q-3, but Q-4 doesn't allow respondents any choices other than those which are listed. This presents a problem; if respondents don't see an answer they can mark down, they are likely to skip the question entirely. Q-4 can be changed to a "partially open-ended question" by providing respondents a designated place to write in their own answers.

Q-5 Which of the following qualities of the river are most important to you? (Please circle your answer)

- a) scenic qualities
- b) recreational opportunities
- c) wildlife
- d) cultural/historic resources
- e) natural areas
- f) other _____

Partially open-ended questions are very useful, but the analysis of them is still time-consuming. Generally, the more close-ended questions you use, the more efficient your analysis and the better your chances for a high response rate. (This is especially true with a large number of mailings.)

How a question is asked is important.

Notice the difference between Q-3, Q-4 and Q-5.

Case Example

The Battenkill River is one of America's premier trout fishing streams, and flows through one of Vermont's most scenic river valleys, between the imposing Taconic and Green Mountain ranges. Anglers from around the world are drawn to its waters; canoeing is also an increasingly popular sport. The Bennington County Regional Planning Commission asked the National Park Service for assistance in developing a river corridor plan for the Battenkill, to be used as part of the county's regional plan.

The development of the plan has been largely accomplished through the efforts of the project's Advisory Committee, a 35-member volunteer group. Committee membership and meetings have been open to the public. Because of its size, the committee agreed to split up into four subcommittees, each of which would address a particular river issue.

Although the planning effort is not yet complete, the subcommittees have made substantial progress. The Water Quality Subcommittee has investigated sources of pollution and is planning to institute a sophisticated water quality monitoring system, using foundation funds and assistance from high school classes. The Soil Erosion/Streambank Stabilization Subcommittee has identified erosion problems along the river and potential solutions. The Recreational Conflicts Subcommittee has developed recommendations for recreation management, including voluntary limits on canoeing hours and better boating safety and law enforcement. Finally, the Public Access Subcommittee is looking into the possibility of forming a permanent watershed association for the Battenkill. Committee members have been individually active as well, writing grant proposals, doing field surveys, and writing a monthly guest column for the local paper.

References

- Bailey, Kenneth D. 1982. Methods of Social Research (2nd ed.). New York: The Free Press. A text on various social research methods, including surveys.
- Bradburn, Norman, Seymour Sudman & Associates. 1979. Improving Interview Method and Questionnaire Design. San Francisco: Jossey-Bass. Various aspects of interviewing and questionnaire construction.
- Dillman, Don A. 1978. Mail and Telephone Surveys: The Design Method. New York: John Wiley and Sons. Procedures for doing mail and telephone surveys; excellent examples of sample questions and survey format.
- Lemire, Robert A. 1979. Creative Land Development. Boston, Massachusetts: Houghton Mifflin Company. Describes a creative and economically oriented process to protect natural resources at the local level while releasing land needed for development.
- Institute for Participatory Planning. 1981. Citizen Participation Handbook: for Public Officials and Other Professionals Serving the Public. University Station, Box 4068, Laramie, Wyoming 82071. Principles, programs and techniques for involving citizens in the planning process.
- Lincoln Filene Center for Citizenship and Public Affairs. Citizen Participation. Tufts University, Medford, Massachusetts 62155. A news magazine available by subscription, which reports what is happening in communities, agencies, and organizations throughout the country.
- Marsh, Elizabeth R. 1981. Cooperative Rural Planning - A Tug Hill Case Study. Temporary State Commission on Tug Hill, State Office Building, Watertown, New York 13601. A description of efforts of the Tug Hill Commission to assist elected officials in the Tug Hill region of New York State to develop their own land use controls.

4. GOALS

Goals are a means of guiding you toward specific accomplishments and of keeping you on track as you proceed. When plans and actions are based on clear goals, they are more likely to be successful at meeting river needs. By developing a set of brief, positive goal statements, your community can express the kind of action it would like to accomplish and the direction it should take in its RIVERWORK. Goals are based on both issues and resources, and should reflect the attitudes of the people who live and work in the river area, as well as those who visit the area for recreation. The process of goal-setting helps to create consensus out of contrasting opinions, and to involve all these interest groups in the decision-making process.

Process steps • • • • •

Get People Together

Collect Ideas

Set Goals

Choose an Approach

Get People Together

4.1

Usually a handful of individuals initiate a river conservation project. They begin to define their common purpose and to look for others who share their concerns. Within this core group, the original idea takes form. From this point, it is important to construct a framework for turning the idea into real actions. Goals are an essential part of this framework.

Goals have a greater chance of resulting in action if they are statements of true consensus among individuals and organizations who will be involved in the actions, or who will be affected by them. For this reason, meetings with community leaders, elected officials and agency representatives are essential. Bringing everyone together at one meeting to discuss goal-setting is often beneficial.

Collect Ideas

4.2

One way to develop goals is to get people together and generate a list of ideas which may include needs, concerns, desires, problems, issues and even solutions. This is a time to add ideas together and to discover creative ways for agencies, organizations and people to satisfy needs and solve problems. Just collect the ideas now, organize and narrow the field later. When you feel you have listed all contributions, it is time to sort through and focus the ideas.

4.3

Set Goals

Now group your ideas under common themes and begin rephrasing them in terms of directions and destinations - what do you hope to achieve? Where will these ideas take you? Make sure your goals are statements of what you realistically can accomplish.

Concerns and issues, often expressed negatively, can be made affirmative by stating them as goals. Goals are statements of what is important to the group. They turn resource information and recognized issues into constructive opportunities for work and progress. Goals often set the stage for clarifying tasks, calculating timetables and deciding on actions. Finally, they can be used to measure the success of completed actions.

4.4

Choose an Approach

Goals can be realized if an appropriate and realistic approach is selected for accomplishing them. River conservation efforts can be grouped into three broad types or scales of approaches.

1. **Single purpose approach:** addresses a specific need, like creating a river park, stopping the construction of a dam or establishing safety standards.
2. **Multi-purpose approach:** works simultaneously to meet several needs; for example, improvement of water quality plus development of several access points for recreation.
3. **Comprehensive approach:** views the river corridor, or in many cases the entire watershed, as an interrelated environment. This approach attempts to satisfy numerous needs while utilizing a long-range planning philosophy. A management plan for the river system often results from this broad-based effort.

a GOALS Case Example • • • • •

The Boquet River Study was guided by the development of a publicly-generated and supported set of goals. The Boquet River Valley is a remote, rural and pristine area within New York's Adirondack Park, which contains a mix of public and private lands. In 1983 the Adirondack Park Agency requested that the National Park Service work with the residents of the Boquet River area. Meetings were held with town officials from five communities along the river to determine the degree of support for a project on the Boquet. From these initial meetings, it was clear that there was concern about issues affecting the Boquet, and a strong desire by local people to become more involved in decision-making about the river.

A turning point in the study was a public meeting of the Advisory Committee at which individuals from the community were encouraged to state their concerns and address the major river-related issues. They then were asked to turn these concerns into positive statements of goals for the river corridor. In this case the community members themselves supplied the wording for the study goals. It was this public action which persuaded many to lend their support to the project.

The major objective of this study was to identify a broad range of conservation actions that could be taken by river-front landowners, town governments and private organizations. To this end, a local advisory committee to guide the development of a river action plan was formed. The NPS study report presents the resource findings and recommendations of the committee. Most significantly, the committee recommended that a permanent advisory council be formed to oversee implementation of the action plan.

"A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it."

Justice Oliver Wendell Holmes

"There is a quality about water which calls to the most deep rooted and atavistic part of our nature."

Lawrence Halprin

"With good management and human commitment, nature often takes over and heals itself."

Rene Dubos

Issues To Actions

RESOURCE ISSUES	GOALS	ALTERNATIVES	ACTIONS
Faulty Septic Systems	To raise the standards for septic tank installations and maintenance	Consider education and assistance to septic system owners and revision of regulations	Provide low interest loans to upgrade septic systems
Shoreline Erosion	To improve development practices on floodplains and steep slopes in the watershed	Select design guidelines for landowners and developers	Secure private or grant funding to have a publication written and produced for distribution to landowners and developers
River Corridor Development	To ensure that development will not degrade the corridor's resources	Consider zoning techniques that will protect the river corridor	Revise existing zoning ordinances to eliminate inconsistencies and improve river protection measures
Inadequate Historic Site Protection	To protect significant river corridor historic sites	Evaluate benefits of federal, state, and local designation programs	Identify program(s) with best potential and conduct survey to identify sites for inclusion
Lack of Recreation Access	To provide river access that distributes river use and lessens its impacts and conflicts	Evaluate techniques for providing access including acquisition or easements on private land	Create a land trust to acquire riverfront lands from riparian landowners

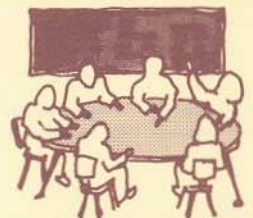
Goal Setting Process



- 1.** Each individual writes down ideas for goals.



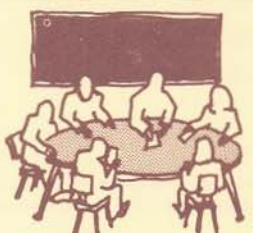
- 2.** The group records each individual's ideas.



- 3.** The group discusses and clarifies the ideas presented.



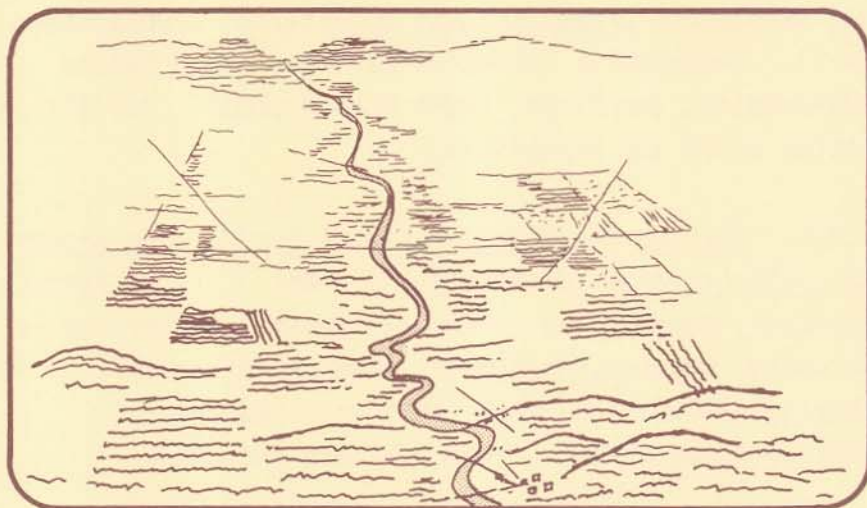
- 4.** The group votes to establish which goals are most important.



- 5.** The group further clarifies the goals into a short list.

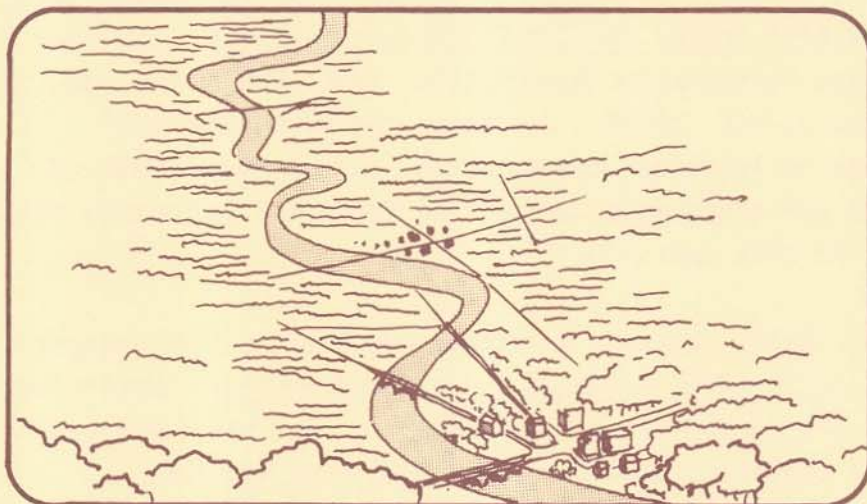
Result: positive statements about what can and will be done, not about problems that need correcting. Once stated, goals lead directly to consideration of how they will be accomplished. Goal statements give a special emphasis and life to your riverwork because people will better understand your purpose and support your ideas.

Approaches: Where To Focus Your Effort



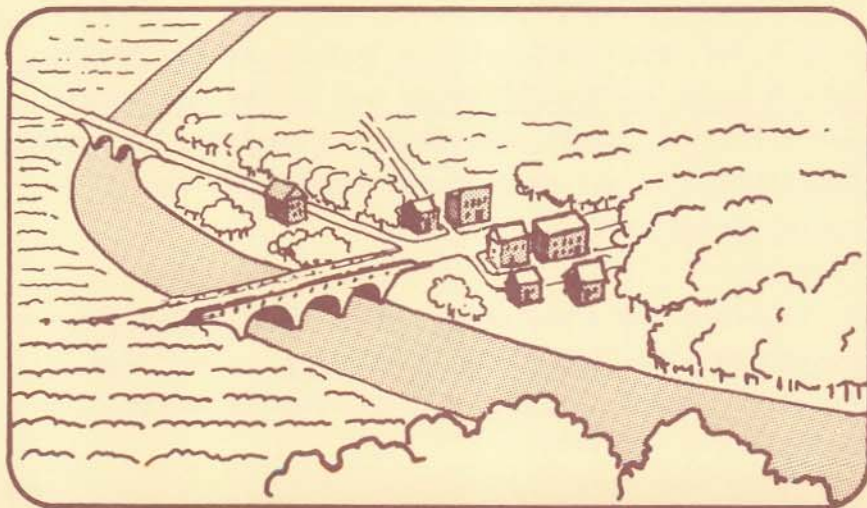
Comprehensive Approach

- many actions
- broad focus
- watershed management
- involves all interests, resources and issues



Multi-Purpose Approach

- several actions
- multiple focus
- corridor management
- involves various interests, resources and issues



Single Purpose Approach

- few actions
- most focused
- site management
- involves specific interests, resources and issues

References

Bateman, Arnold J. Organizational Objectives. Publication No. EC-723. Cooperative Extension Service, South Dakota State University, Brookings, South Dakota 57007. Guidelines for setting goals and objectives.

Biagi, Bob. Working Together: A Manual for Helping Groups Work More Effectively. Citizen Involvement Training Project, 138 Hasbrouck, Cooperative Extension Service, University of Massachusetts, Amherst, MA 01003. Chapters discuss facilitating, motivation, membership vs. leadership, consensus decision making. Exercises are included.

Corbett, Marjorie R., Editor. 1983. Greenline Parks: Land Conservation Trends for the Eighties and Beyond. National Parks and Conservation Association, 1701 18th Street, NW, Washington, D.C. 20009. Discusses the greenline park approach to landscape conservation. Gives an overview of history and precedents, as well as terms and techniques found useful in this approach.

Diamant, Rolf; Eugster, J. Glenn; and Duerksen, Christopher. 1984. A Citizen's Guide to River Conservation. Washington, D.C.: The Conservation Foundation. Guidelines for starting a river conservation effort; includes case studies, references and contacts.

Debecq, A.L., et. al. 1975. Group Techniques for Program Planning - A Guide to Nominal Group and Delphi Processes. Glenview, Illinois: Scott, Foresman and Company. A manual which details the Delphi process and techniques for facilitating group work.

Halprin, Lawrence and Jim Burns. 1974. Taking Part: A Workshop Approach to Collective Creativity. Cambridge, Massachusetts: M.I.T. Press. A discussion of means of stimulating group activity.

5. ALTERNATIVES

Once you have defined the important facts regarding your river's resources, identified the key issues and goals and established your public involvement program, you are ready to consider a spectrum of action alternatives to resolve your resource issues or achieve your goals. The identification and assessment of alternatives improves decision-making because it allows you to explore a wide range of actions and then choose the most effective from among them. The process involves assembling information to identify the range of action alternatives. You are then in a position to evaluate the possibilities using a set of criteria or guidelines to determine which actions will best meet your goals.

Process steps • • • • •

Identify Alternative Actions

Evaluate the Actions

Select the Most Appropriate Actions

Identify Alternative Actions

5.1

Considering the most valued river resources, the most pressing issues, the strongest public concerns and your major goals can help to indicate a broad range of possible actions. Alternative actions are simply the various ways of moving from a problem to its solution, or from an opportunity to its realization.

One way to begin identifying these alternatives is to examine the various public and private river-related programs that can help you get started. Government or institutional programs are found at the federal, state and local levels. Most are within the public sector but many private foundations fund environmentally-related projects as well. Find out who they are and whether they can help your effort. Programs have been established to meet many needs similar to yours, and may offer direct solutions to your problems.

Programs fall into three broad categories: regulatory, assistance and incentive.

1. **Regulatory programs**, such as zoning and subdivision ordinances or wetland management regulations, use legislative and police powers of government to control or manage land use. An example of an action in this category would be the inclusion of floodplain zoning in a town's land use ordinances. The intention would be to protect vulnerable riparian land and to prevent future property damage from flooding.

2. **Assistance programs** offer either financial or technical assistance to governments, organizations or individuals. An example of this type of action would be a town receiving assistance from government program specialists in the preparation of a river-corridor management plan, or a non-profit group receiving funds to acquire land for a riverfront park. Assistance programs can also include educational resources such as workshops, guidebooks, films, slide shows and other audiovisual materials.

3. **Incentive programs** generally consist of tax credits or deductions for donations of land or for the restoration of historic resources. They also include formal recognition of special features through designation or registration. One example would be legislative provision for tax incentives to property owners who donate easements along the river's edge. Other types of incentive actions would include national or state historic register status for buildings, landmarks or districts, or designation of a river segment into the National Wild and Scenic Rivers System.

Looking at available programs may give you ideas for actions you can take independently or in concert with other groups or agencies. Collecting information about what others have done to conserve rivers in their areas can give you other ideas for action. Feel free to design your own alternatives as well - there is always room for new ideas.

Get a group of interested people together and brainstorm to generate a long "wish list" of all the action alternatives you can think of. Good ideas often generate other good ideas. Be practical, but also be open to new ways of solving problems. Try out anything in your minds and don't hastily reject a potential action from your list. The next step is to weed out the impractical ideas.

CHECKLIST

Identifying Alternatives

- ☐ Assess river resources to determine specific needs.
- ☐ Analyze the river-related issues to decide where action is most urgently needed.
- ☐ Use public involvement to generate a wide range of ideas.
- ☐ Let your established goals be your guide.
- ☐ Examine institutional programs for the opportunities they offer.
- ☐ Look at examples of what other river organizations have done.

5.2

Evaluate the Actions

At this point your wish list should be a broad array of action alternatives - the broader the better. Allow yourselves the luxury of having a large supply of opportunities to choose from. Your challenge now is to find the small group of actions best suited to meet your immediate needs.

To evaluate your alternatives you can group similar actions by resource, issue or goal categories, or you can simply proceed down the list action-by-action. Some method of comparing one action with another is advisable. For example, a framework of guidelines or criteria can help you evaluate each action. The following guidelines could be applied:

Type of Action: What type or types of actions are needed? Will they be regulatory, technical assistance or incentive program actions? Grassroots organization and mobilization? Are you considering direct intervention? Fund-raising activities? Will they be a mixture of these types? Your goals and your review of institutional programs can help you determine the answers.

Responsibility: Is there a potential individual or group that could take responsibility for implementing this action? This information should have surfaced during public involvement and issue analysis activities. Is there an existing administrative entity or institution (public or private) that can implement this action? Does enabling legislation exist which relates to this action, or would new legislation be needed?

Supportability: How many interest groups are likely to support this action? Would the general public, landowners, recreationists, business owners, politicians and community leaders support it? Information gained through public involvement and issue assessment can help with the answers.

Effectiveness: To what extent is this proposed action likely to be successful? Will it meet your river resource needs? How well has this type of action worked elsewhere? Has it worked under similar conditions? Your research into examples of what others have done and your resource assessment will be of assistance in this case.

Timing: How quickly do you need to act to address an important issue or avert a threat to the river's resources? Which actions will produce quick results? Which will be most effective in the long run? Achieving a balance between long and short term actions can help create a comprehensive strategy.

Feasibility: How much would implementation of this action cost, both in human resources and money? Are funding sources available? Are volunteers available to participate? How much time and effort would this action require? How practical is it? Your program review, examples of what others have done and your own experience with the people and organizations in your community will help answer these questions.

5.3

Select the Most Appropriate Actions

The evaluation exercise will leave you with a list which should be a good foundation for decision-making. You know the situation well, you are equipped with a list of carefully evaluated alternatives and you are in a position to make the right choices.

Your alternatives list (no longer merely a "wish list") is reduced in size. But it may still be larger than you can reasonably handle. If so, it is time to make a further cut. Which actions will best protect your river? Which are most appropriate for use in your community? Select the few high priority actions that seem the most likely to succeed, and reserve the rest for consideration at a future date.

The longer your final list, the more important it may be to consider a balanced approach. Consider a mix of regulatory, incentive, assistance and grassroots actions. Try to bring together as wide a range of community representatives as possible. Including as many interests as possible in the selected actions helps ensure that many people have a stake in the outcome.

Issues To Actions

RESOURCE ISSUES	GOALS	ALTERNATIVES	ACTIONS
Faulty Septic Systems	To raise the standards for septic tank installations and maintenance	Consider education and assistance to septic system owners and revision of regulations	Provide low interest loans to upgrade septic systems
Shoreline Erosion	To improve development practices on floodplains and steep slopes in the watershed	Select design guidelines for landowners and developers	Secure private or grant funding to have a publication written and produced for distribution to landowners and developers
River Corridor Development	To ensure that development will not degrade the corridor's resources	Consider zoning techniques that will protect the river corridor	Revise existing zoning ordinances to eliminate inconsistencies and improve river protection measures
Inadequate Historic Site Protection	To protect significant river corridor historic sites	Evaluate benefits of federal, state, and local designation programs	Identify program(s) with best potential and conduct survey to identify sites for inclusion
Lack of Recreation Access	To provide river access that distributes river use and lessens its impacts and conflicts	Evaluate techniques for providing access including acquisition or easements on private land	Create a land trust to acquire riverfront lands from riparian landowners

*"A river's language is learned
like a Roman's, by diligent
application to the easy por-
tions first, and careful
advances into the more diffi-
cult. Thus, to translate one's
love for a river requires
learning.*

E. Perry

*"The road the human being
travels,*

*That on which blessing comes
and goes, doth follow,*

*The river's course, the
valley's playful windings,*

*Curves round the cornfields and
the hills of vines.*

Coleridge

Selected Programs To Manage River Resources

LEGEND: Programs



Regulatory



Incentive



Assistance

Local Programs

Zoning Ordinances



The building blocks of land use regulation, zoning ordinances may be present in all or some of a river corridor's jurisdictions. Some questions to ask: How is riverfront land zoned? Industrial, residential, agricultural? (This is one area in which great inconsistency can exist among towns.) Does existing zoning seem adequate to conserve the river's resources? Does each town have floodplain zoning? Does it meet Flood Insurance Administration standards? How consistently are zoning ordinances being enforced?

Subdivision Ordinances



Subdivision ordinances affect development over a certain size -- sometimes anything more than one dwelling unit, sometimes 5 or more. Are subdivisions permitted within a river corridor? Are setbacks of buildings from the river required? What controls are placed on stormwater runoff? On retention of vegetation? On erosion control during construction? Do developers get incentives such as density bonuses for good design, stormwater management and so on?

Local Health and Sanitation Codes



How are septic tanks regulated? Are livestock practices like manure disposal regulated? How effectively are these regulations enforced?

Local Comprehensive Plans



Do towns, cities or counties in your area have comprehensive plans to direct future growth? If so, what sort of growth is planned for the river corridor area? For example, are new sewer lines or highway improvements planned? Have the impacts of this type of growth on river resources been considered?

continued

RIVERWORK NOTES

Regional/County Planning Agency Programs



Planning agency functions differ from one region of the United States to another, but generally include planning of regionwide systems like sewer, water and highway systems, and the review of preliminary plans for subdivisions and other large developments. Can a planning agency assist local governments or private groups in obtaining funding for projects? Can it provide advice or assistance with gathering of resource information? Does it review local zoning ordinances for completeness and legal defensibility? Does it administer specific grants programs?

State Programs

Scenic River Programs



More than half the states in the United States now have some type of scenic rivers program, or at least some type of legislation encouraging river conservation. If your state is one of these, how does the program operate? Is assistance or funding available for local river corridor plans? Does the program provide for local government or private group initiatives? What are the implications of scenic river designation?

Other Resource Management Programs



Some states have programs for the protection of other river-related resources, such as coastal or inland wetlands. Programs may be implemented by local governments or by a state agency. Massachusetts' Wetlands Protection Act, for example, gives town Conservation Commissions the authority to prohibit construction activities that may damage critical floodplains or wetlands. Oregon offers tax incentives to riparian landowners who implement stream management programs. If your state has such programs, can they be used to manage land or water use?

Farmland Protection Programs



Most states offer some form of property tax relief to working farms. Others have programs for the purchase of development rights on farmland, for agricultural districts, state tax credits or the creation and support of farmers markets. If such programs are available, are farmers in the region adequately informed about them? Has prime farmland in the county or state been identified? Do other state agencies consider the impacts of their proposed activities on prime farmland? The federal Soil Conservation Service, with its many regional offices, is a good source of information on this topic.

Federal Programs

It is hard to draw the line between state and federal programs because, in keeping with the current trend toward an increase in state government responsibilities, most federal funding programs are administered by state agencies. The line drawn here is legislative: if federal legislation exists, either mandating or authorizing a program in some or all states, it is described here.

Wild and Scenic Rivers Act (Public Law 90-542, as amended)



The National Wild and Scenic Rivers System offers the strongest protection available to a river by prohibiting federal licensing, assistance or construction of any water project that would alter a river's free flowing condition or diminish its outstanding values. Guidelines to prevent any uses or development proposals which might affect a river's values are established for not only federal agencies, but for state and local governments as well.

The Wild and Scenic Rivers Act was passed by Congress in 1968. The intent of the Act is to protect selected free flowing rivers with unique natural, cultural and recreational features for the benefit and enjoyment of present and future generations. Congress envisioned the creation of a national system as a cooperative effort which relies on the actions of private individuals and groups, as well as all levels of government.

How do you pursue designating a river into the National Wild and Scenic River System? The Wild and Scenic Rivers Act provides some different options.

Section 5(a) of the Act enables Congress to authorize the Secretary of the Interior, for the National Park Service or Bureau of Land Management and/or the Secretary of Agriculture, for the U.S. Forest Service, to study a river as a potential addition to the system. When the study is completed, the authorized Secretary reports to the President on the eligibility and suitability of the river for addition to the national system and recommends management options.

Rivers may also be designated through Section 2(a)(ii) of the Act following an official decision by state legislature. A river management plan will be developed by state and local governments and community citizens, with possible assistance from the National Park Service or the U.S. Forest Service. The plan identifies the river's resource characteristics and suggests management alternatives to conserve the area's unique values. The Governor submits the management plan to the Secretary of the Interior. Also included is a report on the progress being made to implement the plan and a request to add the river to the national system. The Secretary will determine if the river meets federal eligibility criteria and evaluate the river conservation plan in terms of its potential to effectively protect the corridor's outstanding values.

continued

NOTES

The river is added to the national system by publishing a notice in Federal Register. With this method of designation, the river is administered by an agency or political subdivision of the state or states affected.

Congress, at the request of local interests, can amend Section 5(a) of the Wild and Scenic Rivers Act and authorize the Departments of the Interior or Agriculture to do a study with local and state governments and area citizens to determine a rivers potential for the national system. The community's involvement in the study process provides an opportunity to examine river conservation alternatives and develop a comprehensive plan addressing future uses and development in the area. When the study and plan are complete, the Secretary's report to the President and Congress will include not only whether the river is eligible, but also whether the river should be federally administered or protected by state and/or local authorities. Final designation requires an act of Congress or a request by the Governor of the state to the Secretary of the Interior to officially add the river by publishing a notice in the Federal Register.

How do you decide what step to take? The following questions may help.

Will national designation meet the goals and objectives the community has decided upon for the river and its related lands?

Does the river flow on land already owned by the federal and/or state government, or does it flow through mostly private lands?

Is there support by state and local officials, community leaders, landholders, or others who live along or recreate on the river for a study and possible designation?

Will your Congressional delegation be willing to introduce and support legislation authorizing the river or river segments you are seeking protection for on Capitol Hill?

There is much more to learn about the National Wild and Scenic Rivers System, the congressional study process, the classification of wild, scenic and recreational, conservation alternatives and management options. For more information, contact the National Park Service, Planning and Special Studies, 18th and C Streets N.W., P.O. Box 3727 - No. 3230, Washington, DC 20013-7127.

National Register of Historic Places



The State Historic Preservation Office is generally responsible for reviewing the nominations of historic properties to the National Register of Historic Places. Will this office fund local governments or organizations to research and document such properties? Does your state encourage local governments to form their own historic districts, and can it provide guidelines on how such districts can be formed? (Designation to the National Register can offer numerous advantages to historic town centers or river-related structures like bridges, mills and canals; chief among these is the federal 20% Investment Tax Credit for rehabilitation expenses on such structures.) For more detailed information contact your State Historic Preservation Office.

Land and Water Conservation Fund (L&WCF)



The L&WCF, administered by the National Park Service, Department of the Interior, is the major source of federal funding for outdoor recreation planning and project development. The L&WCF provides a 50% matching grant to states to support: 1) outdoor recreation planning, including preparation of statewide comprehensive outdoor recreation plans (familiarly known as "SCORPs"); 2) acquisition of land for recreational use; and 3) development or rehabilitation of outdoor recreational facilities that serve the general public. How does your state administer the program - i.e. what criteria are used, and how are projects selected and managed? (Appropriations to the L&WCF have been reduced in recent years, but it is still used to fund many state and local projects.) For more information contact your state department of parks and recreation.

Coastal Zone Management Program (CZM)



Authorized and funded by the federal government (through the National Oceanic and Atmospheric Administration, Department of Commerce) but administered by the majority of the coastal states (including those along the Great Lakes coastline), the CZM Program uses an innovative cooperative approach to planning and management of coastal resources. The federal agency funds the development of a state coastal zone management plan and, once it has approved the plan, will partially fund and monitor its implementation. Does your state administer a CZM program? If so, how does it define the coastal zone - that is, how far upriver and inland from the coast? Coastal zone programs are generally administered by the state Department of Environmental Protection - or its equivalent - which should be contacted for more information.

continued

RIVERWORK NOTES

State and Local River Conservation Assistance Program (SLRCAP)



Administered by the National Park Service under the provisions of Section 11 of the National Wild and Scenic Rivers Act, this program assists local, state and federal government agencies and private groups in the preparation of river conservation plans. All projects involve cooperation between all levels of government and the private sector. This workbook is one product of this program. What type of assistance can SLRCAP offer in your region? Can it assist with statewide river inventories and assessments? With development of management plans for a specific river corridor or river segment? With assistance in seeking National Wild and Scenic Rivers designation for a river area? With river conservation workshops? Contact the Recreation Resource Assistance Division, National Park Service, 1100 L Street, NW, Room 2326 Washington, D.C. 20013, for more information on this program.

Private Programs

Land Trusts and Conservancies



Private non-profit land trusts can provide alternatives to public acquisition and management in the river corridor. Private trusts use a variety of approaches to land conservation. Leases, bargain sales, donations from landowners, and limited development (involving the acquisition of land with valuable resources, and then resale of the land with permanent restrictions on its use) can all be employed to protect a significant property. Are there established land trusts in your state or region that may be interested in working with landowners along a river corridor? Is it possible for a local community organization such as a watershed association to incorporate as a land trust? (The Land Trust Exchange, 1017 Duke Street Alexandria, VA 22314, is a good source of information on land trust activities.)

Private Foundations



Private charitable foundations can be a valuable supplementary source of support for a river conservation effort. Foundations can provide one-time funding for a specific project, or seed money to a beginning organization. Which foundations are likely to fund projects in the conservation field in your region? Many states have foundation directories which provide this information. The nationwide Foundation Directory and the National Data Book, often available at a local library, are also useful sources.

Conservation Organizations



Private non-profit groups whose focus is the conservation of natural or recreational resources can be very helpful to a river conservation effort when such issues are involved. Many such groups are national in scope, and familiar with national legislation and programs, but have extensive experience with grassroots organizations as well. American Rivers Inc., (801 Pennsylvania Avenue, S.E. Suite 303, Washington, DC 20003) is one national group that specializes in river-related issues, and has been instrumental in many river conservation efforts.

an **ALTERNATIVES** Case Example

The White Clay Creek Study exemplifies an evaluation of alternatives to achieve a particular goal. The DuPont Company of Delaware contacted the National Park Service and asked for assistance in the identification and assessment of various conservation alternatives for its property on the White Clay Creek, on the Delaware-Pennsylvania border. The Company owned 1700 acres of land along eight miles of the creek in the heart of the watershed. The property was the key to the future of the entire White Clay corridor. The company was considering donating the land to the government for conservation and recreation. Helping DuPont carry out this idea became the goal of the National Park Service project.

NPS staff assessed the valley's resources and researched a range of federal, state and local government and private sector alternatives for donating, developing and maintaining the land. Each of the alternatives assessed was discussed with representatives of the DuPont Company and other state and local government agencies. An effort was made to determine which alternatives would be most appropriate for the property and acceptable to all the major organizations with an interest in the area. Alternatives included administration of the property as a bi-state park, a state scenic river, a game preserve or a national park.

The result was the donation of the property to both the State of Delaware and the Commonwealth of Pennsylvania as a bi-state preserve. An agreement between the two states and the company was signed, transferring the property into public ownership. Under the direction of an advisory committee of public and private interests, a management plan for the preserve is being prepared.

References

Fletcher, Keith; Hoffman, Robert C. 1984. America's Rivers: An Assessment of State River Conservation Programs. River Conservation Fund, 322 4th Street, NE, Washington, D.C. 20002. A survey and appraisal of river conservation activities in all fifty states.

Hoose, Philip M. 1981. Building an Ark: Tools for the Preservation of Natural Diversity Through Land Protection. Peublo, California: Island Press. An overview of the tools being used in various parts of the U.S. to protect lands; most are applicable to river related areas.

Lemire, Robert A. 1979. Creative Land Development. Boston, Massachusetts: Houghton Mifflin Company. Describes a creative and economically oriented process to protect natural resources at the local level while releasing land needed for development.

Natural Lands Trust. 1982. A Handbook for the Landowner: The Use and Protection of Privately Held Natural Lands. 1031 Palmers Mill Road, Media, PA 19063. Planning approaches for preserving the natural resources of private property.

New York State. Department of Environmental Conservation, Division of Water Resources. 1985. Stream Corridor Management: A Basic Reference Manual. 50 Wolf Road, Albany, New York 12233. Identifies the various approaches, opportunities and techniques which can be employed to restore, protect and enhance streams which flow through communities.

U.S. Department of the Interior, Office of the Assistant Secretary for Fish and Wildlife and Parks. 1982. New Tools for Land Protection: An Introductory Handbook. Washington, D.C. A catalogue of land protection and management techniques.

6. ACTIONS

Before you begin work on the high priority actions you have just selected, make sure you have decided who will take responsibility for each action, and when and how the action will be accomplished. These basic questions are useful tools for "packaging" your actions into a concise action agenda. The action agenda will enable you to summarize your entire strategy, to view it at a glance and to direct you towards future RIVERWORK. Using the action agenda as a quick, general reference, it is then possible to achieve results. You can also use it to break any complex action down into a sequence of steps, making it simpler to monitor your progress. Finally, while these actions are going on it is important to keep evaluating the success or failure of each one and modifying your strategy accordingly.

Processsteps • • • • •

Create the Action Agenda

Determine the Sequence of Events

Follow Up

C Create the Action Agenda

6.1

For each action, come up with preliminary answers for the following questions, remembering that none of them are carved in stone, but can be changed as needed.

Who will take responsibility for initiating and implementing the action? One group could take the lead role, or the work could be shared among a number of groups or individuals. If no firm commitment to take a leadership role exists, consider ways of generating interest in carrying out this action in the future, rather than immediately.

How will the action be taken? Break it down into main components. For example, creating a river-front bike trail could involve meeting with elected officials, fundraising, preparing a slide show to publicize the effort, and asking a local university for design assistance.

When will the action be taken? Sometimes a fixed deadline is approaching that will determine your timeframe. For instance, a hearing date may be scheduled for a proposed hydropower or water diversion project. In other cases you may need to know only that a given action, such as a water quality monitoring program, should be accomplished within the next year or by the end of the following summer. Perhaps one action will begin only after another is completed. These timeframes provide a general guide for planning your work.

6.2

Determine the Sequence of Events

The action agenda outlines a framework for taking actions in a logical sequence leading to the fulfillment of your river conservation goals. An effective action agenda will show concisely the scope of your whole effort, but it is not specific enough to include all the tasks that will actually go into the work. Organizing your time, resources and people is often necessary to make actions come to life. Not every action or event will require a detailed list of tasks, but in many cases a complex project becomes more manageable when broken down in this way.

This list can include such day-to-day tasks as determining what supplies are needed and getting them, setting up work space, preparing mailings, writing news releases, flyers or handouts for river events, applying for grants, holding meetings, and so on. Major actions from your action agenda may become small projects in their own right. Each requires careful management to ensure that all the parts fit together. Some of this work can be anticipated; some of it will have to be managed spontaneously as events unfold.

What you can do to get started is to make lists of everything and everyone you will need as part of the major actions. These lists can be arrayed on a time-line by weeks or months, and ordered in a logical sequence. People can be assigned to the tasks and deadlines can be set for each step. Once you're satisfied that this process will lead you in the right direction - producing the maximum results with the minimum effort - you are set to begin.

This is where talking and planning end and action takes over. Your assessment of river resources and issues, your public involvement efforts, goal-setting and selection of alternatives have led you to this point. You have given form to your ideas and you are ready to achieve results.

Follow Up

6.3

Once an action is begun, it generates its own momentum, and its success is sometimes difficult to evaluate objectively. It is important to keep track of your progress to be sure that you are accomplishing your river conservation goals, as outlined in the action agenda. Are you meeting the timeframe that you expected? Are the responsible parties continuing to carry out their actions? If not, should responsibilities be shifted or shared with another group?

While monitoring your work, it is also important to continue to publicize your efforts, with an eye toward continuously expanding your base of support. Periodic public events - an annual river festival, a travelling slide show, a clean up day - are a good way to achieve this purpose, and to keep the public aware of the river as a valued resource. Events also serve as a way to celebrate your progress and show appreciation for those who have worked with you.

an ACTIONS Case Example

Though surrounded by urban and industrial development, the Borough of Bristol, on the Delaware River in Pennsylvania, has significant natural features: a tidal marsh, adjacent to the business district, the river itself, and a large, forested undeveloped island that parallels its shoreline. Along with these natural resources, Bristol has considerable historic, recreational and commercial resource potential. Out of this potential was born the interest in revitalizing the community's riverfront.

The borough's Congressman, Peter Kostmayer, recognized Bristol's needs and potential, and requested the National Park Service to prepare a strategy for riverfront revitalization. The purpose of the Bristol project was to bring about direct visible actions. Through a waterfront survey, a public design workshop, and a series of meetings with town government officials, organizations, and a project advisory committee, a range of potential actions was agreed upon and organized into an action agenda. An improved riverfront park with shoreline riprap and bulkheading, an environmental park in the tidal marsh, a commercial revitalization effort, a gateway project, and a coordinated walkway and trail system along the waterfront were the outstanding components of the action agenda and strategy. The borough government, with the help of a number of committees and private organizations within the community, has begun implementing these recommendations.

Issues To Actions

RESOURCE ISSUES	GOALS	ALTERNATIVES	ACTIONS
Faulty Septic Systems	To raise the standards for septic tank installations and maintenance	Consider education and assistance to septic system owners and revision of regulations	Provide low interest loans to upgrade septic systems
Shoreline Erosion	To improve development practices on floodplains and steep slopes in the watershed	Select design guidelines for landowners and developers	Secure private or grant funding to have a publication written and produced for distribution to landowners and developers
River Corridor Development	To ensure that development will not degrade the corridor's resources	Consider zoning techniques that will protect the river corridor	Revise existing zoning ordinances to eliminate inconsistencies and improve river protection measures
Inadequate Historic Site Protection	To protect significant river corridor historic sites	Evaluate benefits of federal, state, and local designation programs	Identify program(s) with best potential and conduct survey to identify sites for inclusion
Lack of Recreation Access	To provide river access that distributes river use and lessens its impacts and conflicts	Evaluate techniques for providing access including acquisition or easements on private land	Create a land trust to acquire riverfront lands from riparian landowners

NOTES

Sample Action Agenda

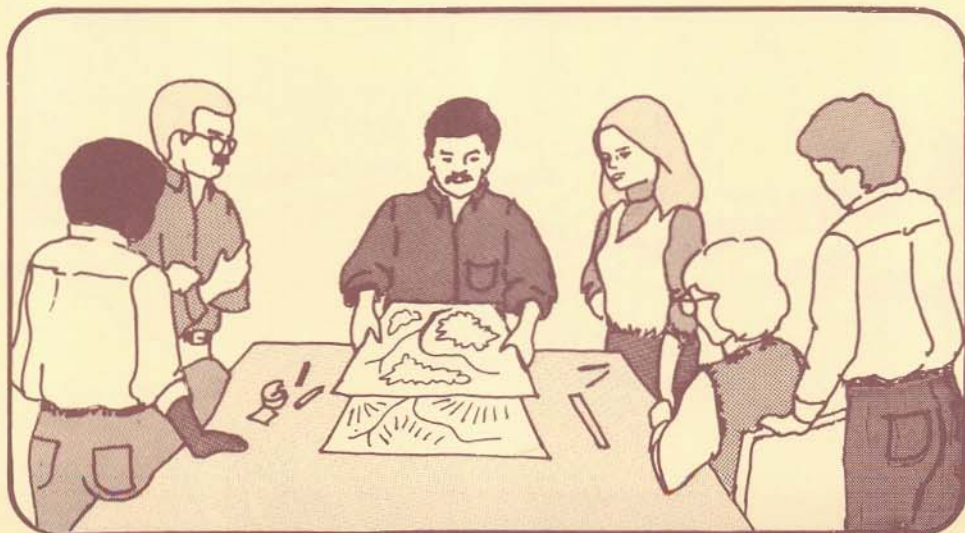
ACTION	WHO	HOW	WHEN
MARSH PRESERVE Programs <ul style="list-style-type: none"> ● Signs ● Headquarters ● Trails ● Observation deck 	Nature Conservancy Bristol Borough Private Foundations	L&WCF grant PA Coastal Zone Management (CZM) grant Volunteer help	Spring 1986
SHORELINE IMPROVEMENTS Bulkhead Project Improve Riprap Floating Boat Dock Improve Fishing Access Boat Ramp Guard House	Bristol Borough Private Foundations Corporations Bristol Borough Organizations Individuals Bristol Borough PA Fish Commission	PA Recreational Improvement & Rehabilitation Act (RIRA) grant CZM grant Matching private funds Part of RIRA grant application for bulkhead project Consider fishing pier Consider boat dock Station guard Boat launching fee Improve Fish Commission ramp	Summer 1986 Fall 1986 Spring 1986
WATERFRONT PARK Enlarge Lion's Park <ul style="list-style-type: none"> ● Lighting ● Seating ● Plantings ● A place for events Extended Park Area <ul style="list-style-type: none"> ● Landscaping ● Picnicking ● Lighting ● Seating ● Events 	Lion's Club Bristol Borough Bristol Borough Organizations Private Foundations	Fund raising Volunteer work Design assistance Develop concept Design assistance Apply for L&WCF, CZM grants Fund raising Volunteer work	Summer 1986 Fall 1986

Source: Adapted from The Bristol-Delaware River Strategy: Actions for Riverfront Revitalization.

Getting Things Done

Actions often require a series of steps or tasks. For example, if you are planning a RIVER CONSERVATION WORKSHOP, you might follow this sequence of tasks:

- 1** Three months in advance, make up a list of participants and start recruiting them.
- 2** Organize your volunteer help and divide up the work.
- 3** Arrange for use of a space (library, school, etc.) for the workshop.
- 4** List needed supplies.
- 5** About six weeks in advance, prepare and circulate publicity material to the public through the print and audiovisual media. Follow up with phone calls.
- 6** Try to use the event for publicity purposes by inviting the local press to attend. Also see that the event is documented with tapes, photos and a written description of the meeting.
- 7** Follow up with letters of thanks to the speakers and perhaps a workshop summary to participants.



NOTES

A CANOE TRIP might require this sequence:

- 1** Several months in advance, form a committee to organize the event and carry out the tasks.
- 2** Select a season of the year that is most suitable for the event. Select an alternate date in case weather is unsuitable on the planned date.
- 3** This type of event is an excellent one to invite local and state officials to be your guests.
- 4** Plan an event or ceremony at the beginning and/or end of the canoe trip such as a picnic, guest speakers, etc.
- 5** Contact the local canoe club(s) to co-sponsor the event with your group.
- 6** Call upon the local American Red Cross Chapter for safety guidance; they often can make volunteers available on the day of the event.
- 7** Make arrangements for any necessary equipment; some people will need canoes available for their use. See if a local canoe livery would be willing to lend canoes in return for publicity.
- 8** Publicize the event well in advance through flyers, newspaper articles, local radio and TV announcements, etc.
- 9** Invite the press to attend the event so that the public will be made aware of your effort and activities.

Not every action or event will require a detailed list of tasks, but in many cases a complex project becomes more manageable when broken down in this way.



Funding Hints

- Once potential funding sources are identified, make yourself known to the person administering the program, and request current information and application procedures.

- Use fundraising as an opportunity to raise the visibility of your organization. Publicizing your accomplishments will make future fundraising easier.

- In your research and cultivation of possible funding sources, start with a central clearinghouse or directory of programs or foundations for your state or region.

- Stay well informed about funding programs so you can take advantage of new appropriations or new directives on the use of specific funds.

- Don't limit yourself to the usual sources of funding such as public and private grants. Think about membership drives, fund-raising events, in-kind contributions from businesses and other sources of income. Reach out to the general public whenever possible.

- Get the backing of your elected officials, including local, state and federal officials. Their support not only lends credibility to your cause, but helps gain access to those who make the funding decisions.

Preparing a Proposal

Formal proposals are required when applying for grants from public and private sources. Target potential donors and tailor your request to meet their area of interest. Sell the value of your river and your project. You are giving people an opportunity to contribute to a vital cause. Your proposal helps to satisfy the needs of corporations and foundations for good community relations and tax deductible contributions.

In general, a well-written proposal won't necessarily win you that important grant, but a bad proposal will most certainly lose one. Writing a proposal doesn't have to be an overwhelming process. The following are a few suggestions to make the going easier.

Be Comprehensive

Supply all the information that the potential funding source requires. A complete proposal demonstrates that careful thought and planning has been given to the proposal. Describe in detail the river resource values, the problem to be addressed, the project objectives, the plan of action, and the costs.

Be Persuasive

Demand for grant dollars far exceeds their supply. Don't expect the funding sources to be an expert on river conservation projects. You need to persuade them that your project is important and well conceived. Demonstrate that your organization has the needed skills to make the project successful. Emphasize your past accomplishments.

Sample Proposal Outline

I. TITLE PAGE

II. PROPOSAL ABSTRACT

III. BACKGROUND INFORMATION

Statement of Need
Description of Your Organization

IV. PROJECT DESCRIPTION

Tasks
Time Line

V. PROJECT BUDGET

Line Item Accounting
Amount Requested From Donor
Monetary Value of In-kind, Volunteer Work
Amount Sought From Other Sources

VI. CONCLUSION

VII. ATTACHMENTS

IRS Tax-Exemption Letter
Group's Annual Report, Brochure, etc.
Letters of Support
News Articles About Problem and/or Group

References

Commonwealth of Pennsylvania, Department of Environmental Resources. 1984. Schuylkill River Design Guide. Harrisburg, PA. An illustrated guide to riverfront design in rural, village and urban settings.

King County, State of Washington. Jones and Jones, Consultants. A River of Green! 105 South Main Street, Seattle, Washington. Well-illustrated study of the resources of the Green River which points out river problems and solutions.

Small, Stephen J. 1985. The Federal Tax Law of Conservation Easements. Land Trust Exchange, Box 364. Bar Harbor, Maine 04609. Comprehensive and easy to understand book on IRS regulations on conservation easements.

U.S. Department of Agriculture, Forest Service. 1977. Proceedings: River Management and Research Symposium. North Central Forest Experiment Station, U.S. Department of Agriculture, 1992 Folwell Avenue, St. Paul, Minnesota 55108. A collection of river recreation papers from a 4-day gathering of 400 river interests from 44 states and 5 Canadian Provinces.

U.S. Department of the Interior, National Park Service, Mid-Atlantic Regional Office. 1984. The Bristol-Delaware River Strategy: Actions for Riverfront Revitalization. Philadelphia, PA. A report on the recommendations, action agenda and concept plan for the revitalization of the riverfront area in Bristol, Pennsylvania.

Conference of Upper Delaware Townships. 1986. River Management Plan Upper Delaware Scenic and Recreational River. Conference of Upper Delaware Townships P.O. Box 41, Fosterdale, NY 12735. Prepared in cooperation with the conference of Upper Delaware Townships, the plan outlines the management structure for this river in New York and Pennsylvania.

_____. 1984. Boquet River Study. Philadelphia, PA. Report on the conservation planning study for the Boquet River in New York.

_____. 1985. Farmington River Study. Philadelphia, PA. Report on a cooperative state and local government and private sector conservation study for the Farmington River in Connecticut and Massachusetts.

_____. 1984. Schuylkill River Greenway Study: Executive Summary. Philadelphia, PA. Report on the findings and recommendations for locally-initiated conservation action on the Schuylkill River near Reading, Pennsylvania.

_____. 1984. Wood-Pawcatuck Rivers Study: Executive Summary. Philadelphia, PA. Summary report of the conservation strategy and management recommendations for the Wood and Pawcatuck Rivers in Rhode Island and Connecticut.

U.S. Department of the Interior, National Park Service, Mid-Atlantic Regional Office; Weems Creek Conservancy. 1982. A Greenway Strategy for Weems Creek. Philadelphia, PA. Report on the strategy to conserve Weems Creek, a tributary of the Severn River in Maryland.

7. RIVER PRIMER

The earth's surface is the result of a long history of continents moving, mountains uplifting and being worn away and plant and animal communities thriving and disappearing. Aristotle, Ancenna and others first realized that rivers shaped the earth. But it was not until the 18th century that natural scientists, Guettart, Desmarset and deSaussure developed the idea that rivers shaped valleys over time. Many of the unique and valued qualities of our rivers are the result of the changes in the landscape created by water and other related geologic and hydrologic processes.

A river is a dynamic environment which can often be difficult to understand, let alone plan for. This river primer provides basic information to help expand the reader's awareness of riverine processes.

Primerparts • • • • •

Hydrologic Cycle

Watersheds

River Channels

Drainage Patterns

Channel Shapes

River Channel Habitats

Adjacent Landforms

River Valleys

Floodplains

Oxbow Lakes

Gorges and Cascades

Wetlands

Mangrove Swamps

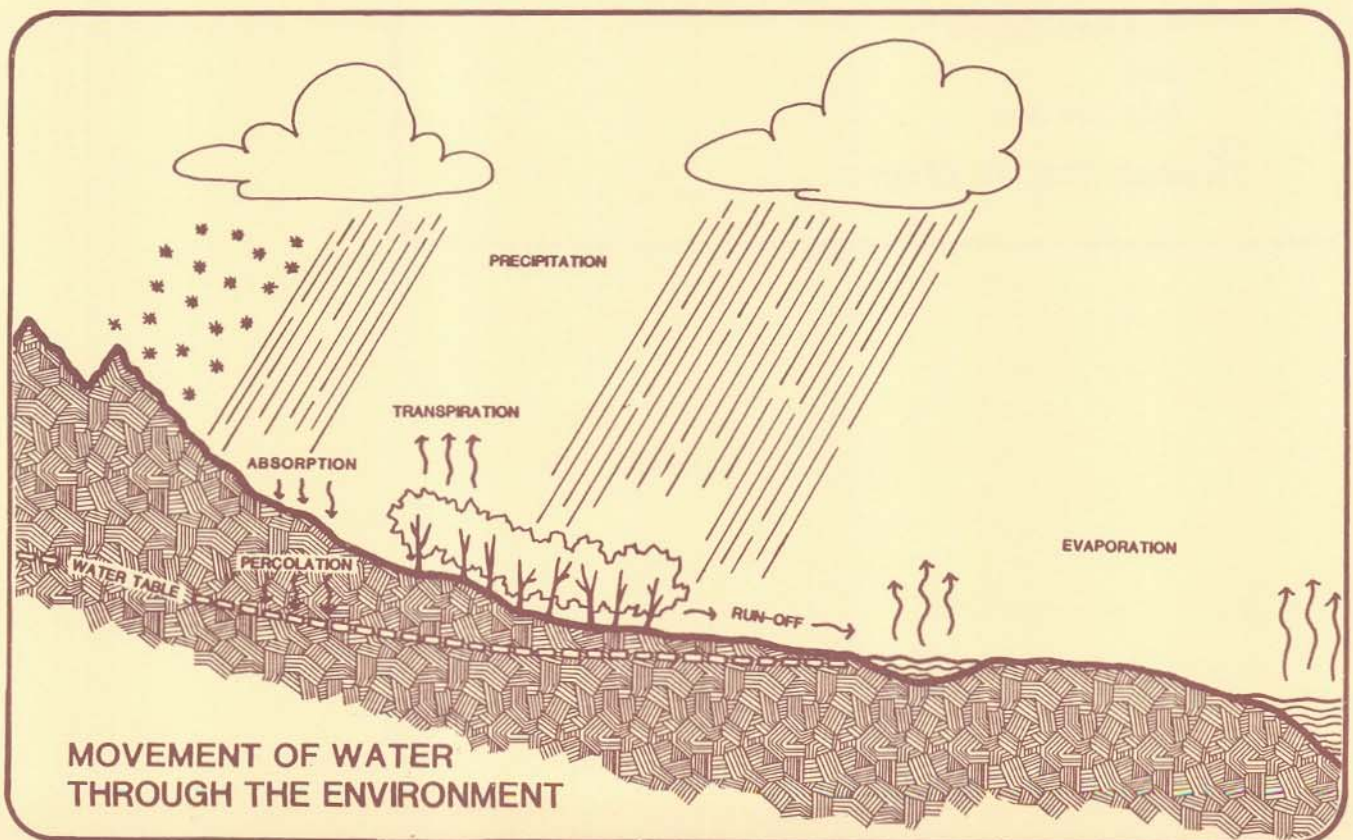
Bogs

Salt Marshes

Human Use of Rivers

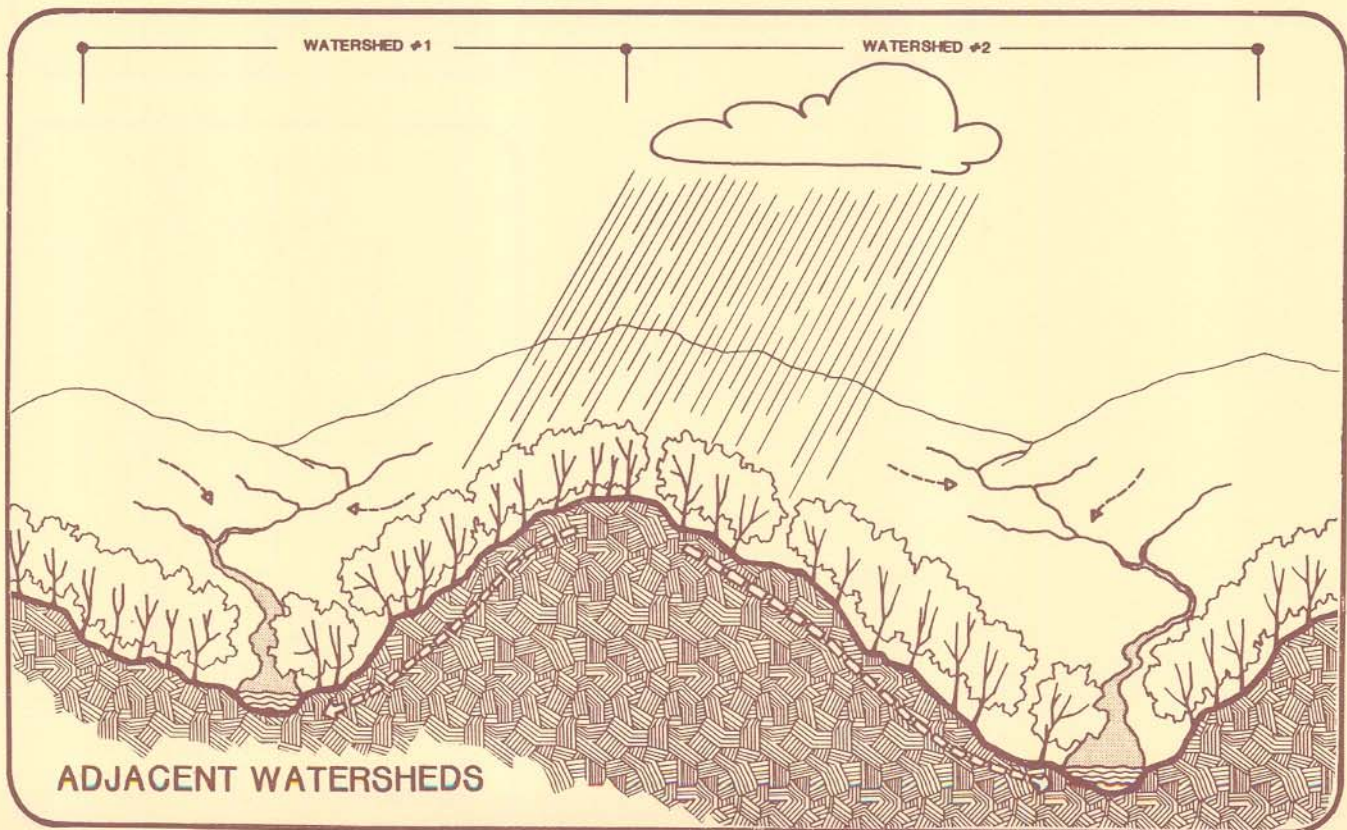
Hydrologic Cycle

The hydrologic cycle is a term that describes the way water moves throughout the environment. When precipitation falls to the earth it either reaches the ground or is intercepted by vegetation which returns it to the atmosphere. Rain that reaches the ground is either absorbed into the soil or runs off over the surface of the earth into surface water bodies like lakes and streams. Some of the water that is absorbed into the soil is taken up by trees and plants. The rest seeps into the deeper soil where it is temporarily stored as groundwater. Groundwater moves slowly through underlying soil or bedrock layers and replenishes underground aquifers or surface streams during periods of low flow. Under natural conditions only a very small fraction of precipitation becomes runoff. This occurs mostly in swampy areas or where the water table is very close to the surface. A small fraction is stored temporarily in streams and lakes and eventually flows into the ocean where it evaporates, continuing the cycle.



Watersheds

A watershed, also referred to as a drainage basin, represents the area of land drained by a river and its tributaries. It is separated from adjacent watersheds by a ridge or drainage divide. Watersheds appear in a variety of shapes and sizes which result from the influence of climate, rock and soil types. A watershed is similar to the branching patterns of trees, blood vessels in animals and other natural networks. In the case of rivers, small creeks join to form large streams and these finally join streams of equal or larger size.

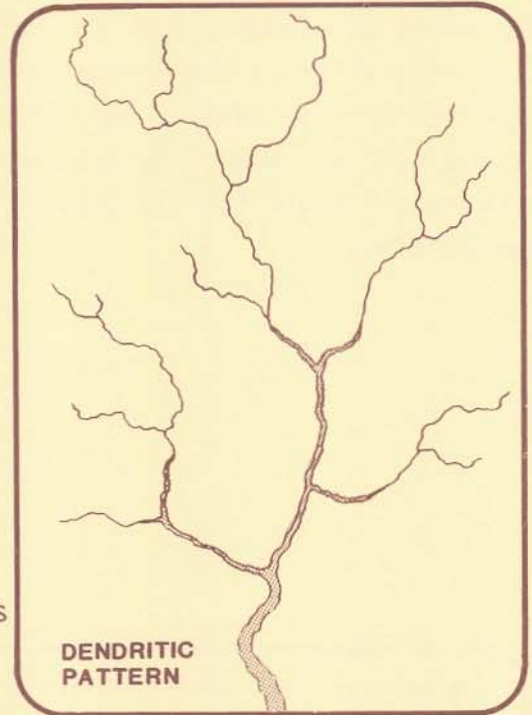


River Channels

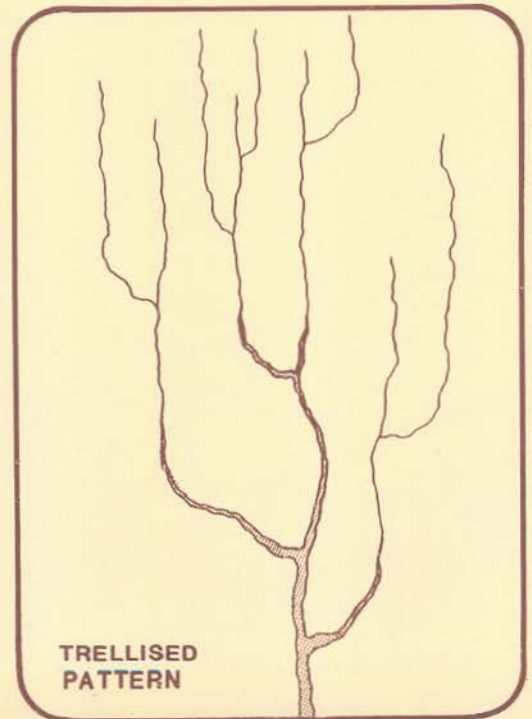
Drainage Patterns

The influence of rock structure causes the tributaries of a river basin to develop a drainage pattern. These patterns are usually either dendritic or trellised.

A dendritic pattern develops on fairly uniform, flat lying rock.

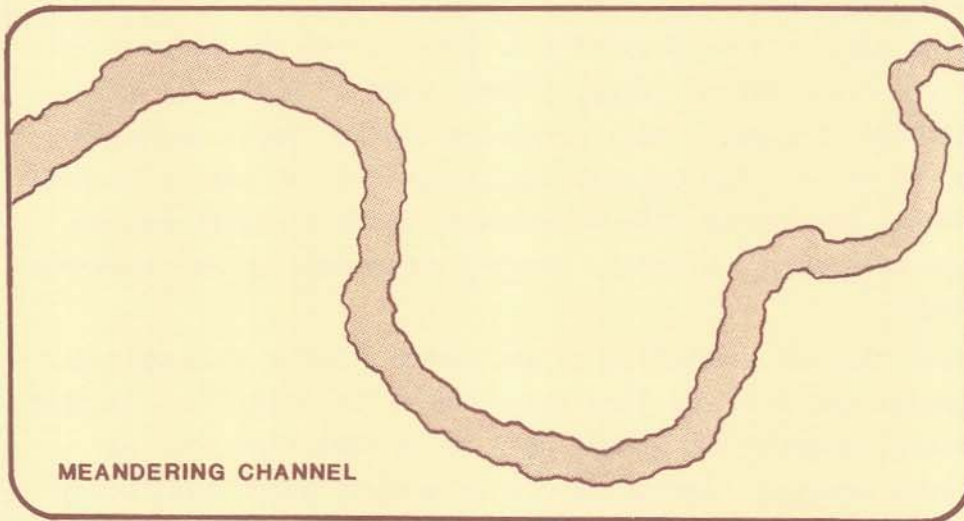


Trellised patterns develop where alternating beds of weak and resistant rocks occur.

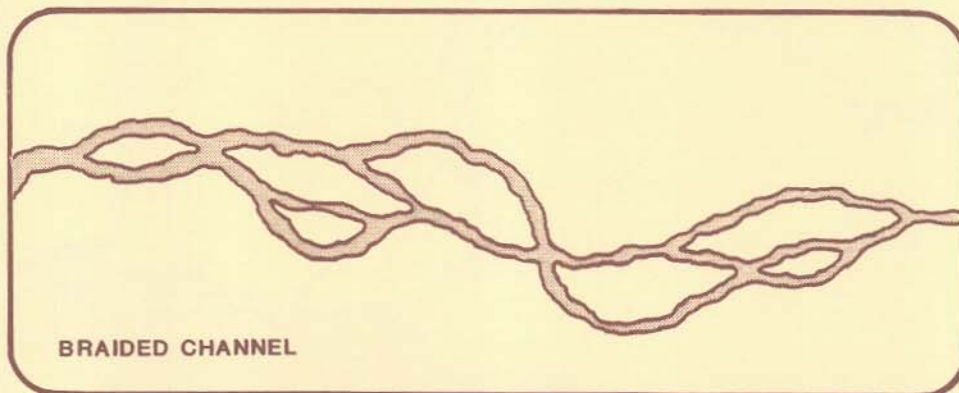


Channel Shapes

On a map or from an airplane, rivers usually appear as either straight, meandering or braided. Many rivers display each of these patterns along their courses. A straight channel (most often found in mountainous areas) may be relatively stable but subject to frequent flooding.



A meandering channel indicates sideways movement resulting in eroded banks. A meandering stream creates broad, sweeping curves as it winds its way through floodplain sediments. The inner sides of bends are areas of deposition, while the outer edges are places of erosion.



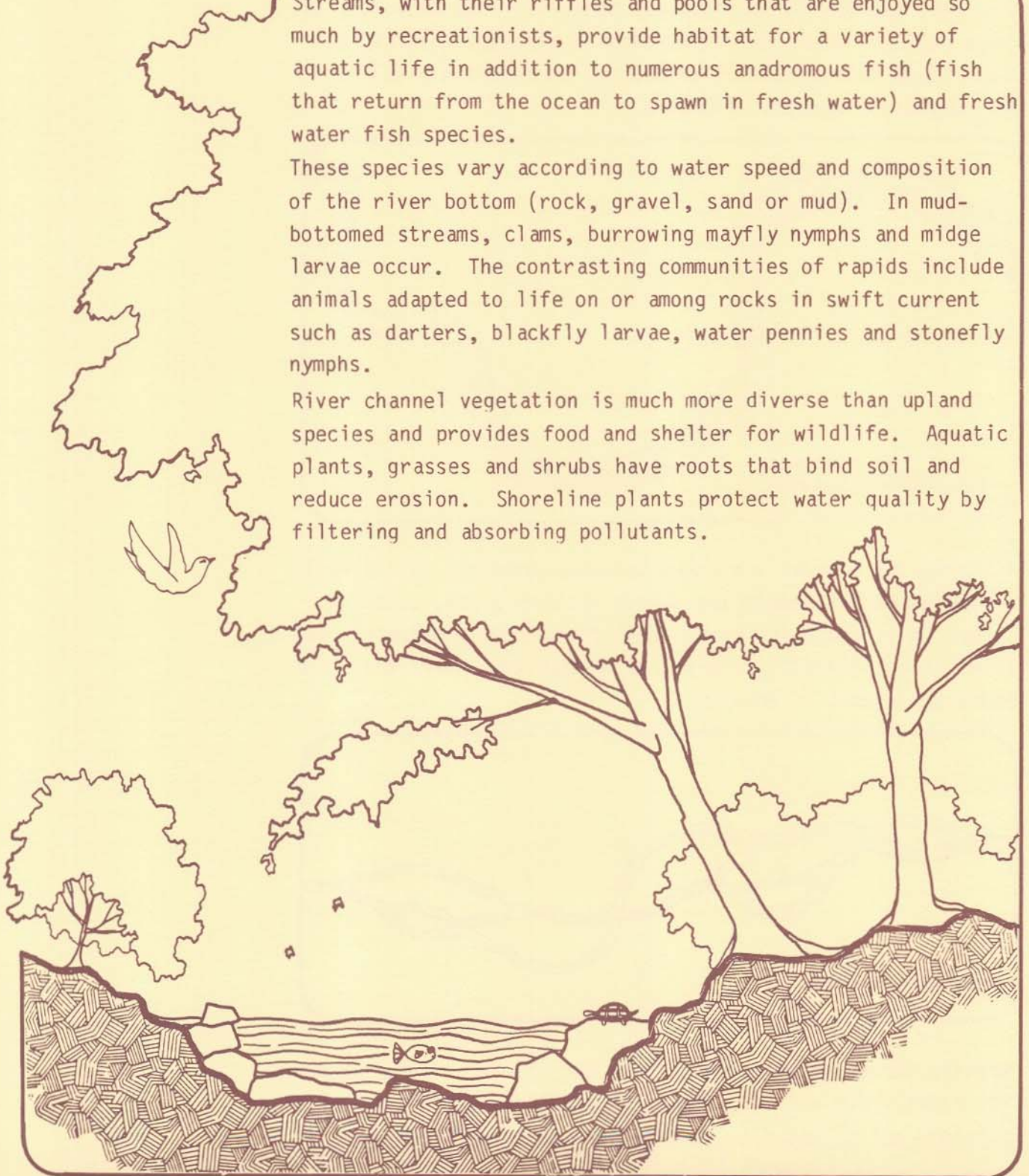
Braided stream patterns occur when the channel widens because its banks erode easily. The stream is then unable to maintain sufficient flow to transport rocks and gravel.

River Channel Habitats

Streams, with their riffles and pools that are enjoyed so much by recreationists, provide habitat for a variety of aquatic life in addition to numerous anadromous fish (fish that return from the ocean to spawn in fresh water) and fresh water fish species.

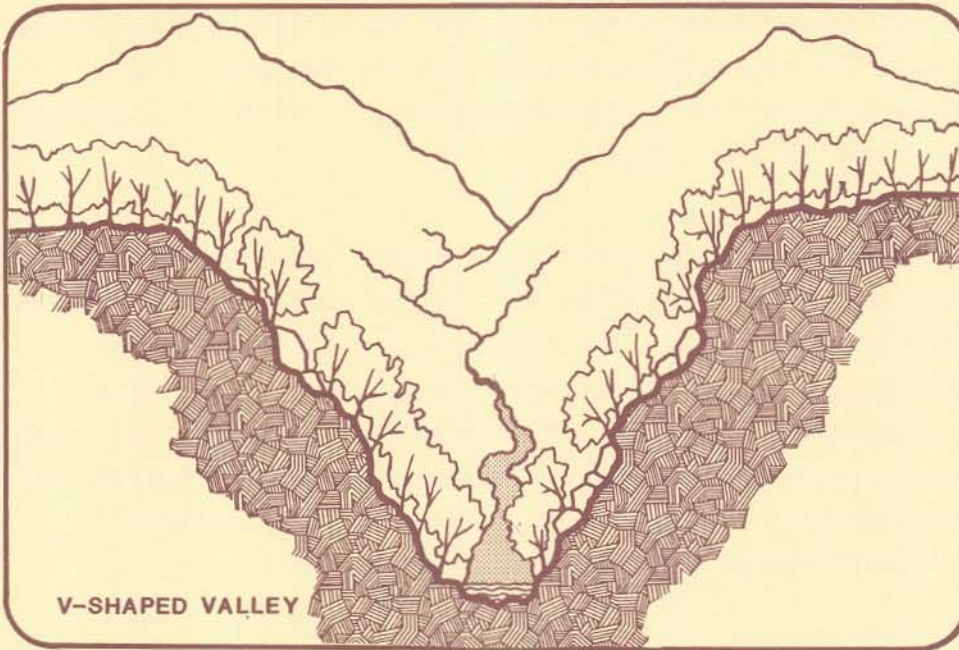
These species vary according to water speed and composition of the river bottom (rock, gravel, sand or mud). In mud-bottomed streams, clams, burrowing mayfly nymphs and midge larvae occur. The contrasting communities of rapids include animals adapted to life on or among rocks in swift current such as darters, blackfly larvae, water pennies and stonefly nymphs.

River channel vegetation is much more diverse than upland species and provides food and shelter for wildlife. Aquatic plants, grasses and shrubs have roots that bind soil and reduce erosion. Shoreline plants protect water quality by filtering and absorbing pollutants.

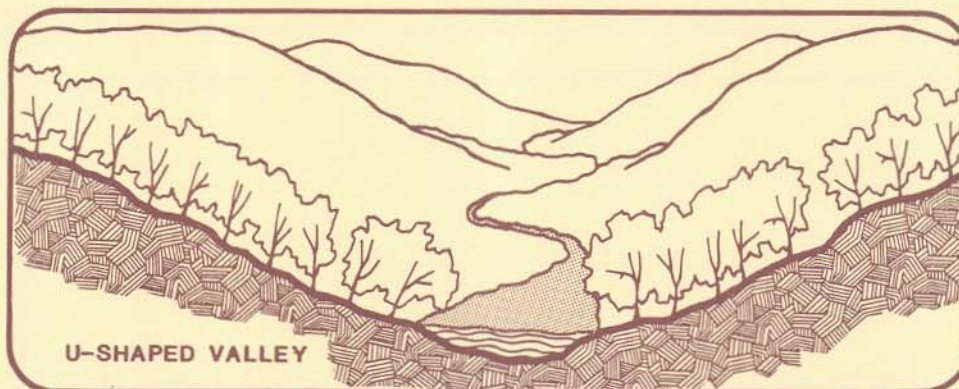


River Valleys

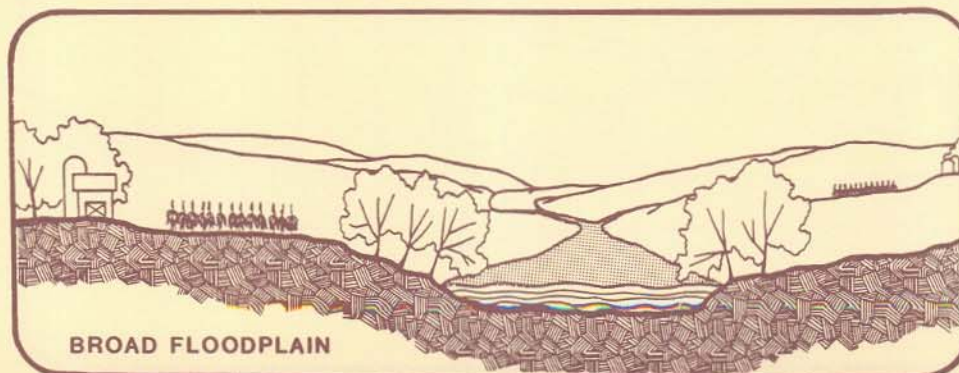
Many landscapes are formed primarily by the movement of precipitation across them. River valleys are shaped by the quantity and velocity of moving water and the composition of the land over which it flows.



Upstream tributaries usually flow over steep slopes with a strong current, cutting narrow V-shaped valleys and carrying and depositing large rocks in their channels.



When these tributaries join each other they widen, begin to meander and erode sideways and carve broader U-shaped valleys which they fill with small rocks and soil.



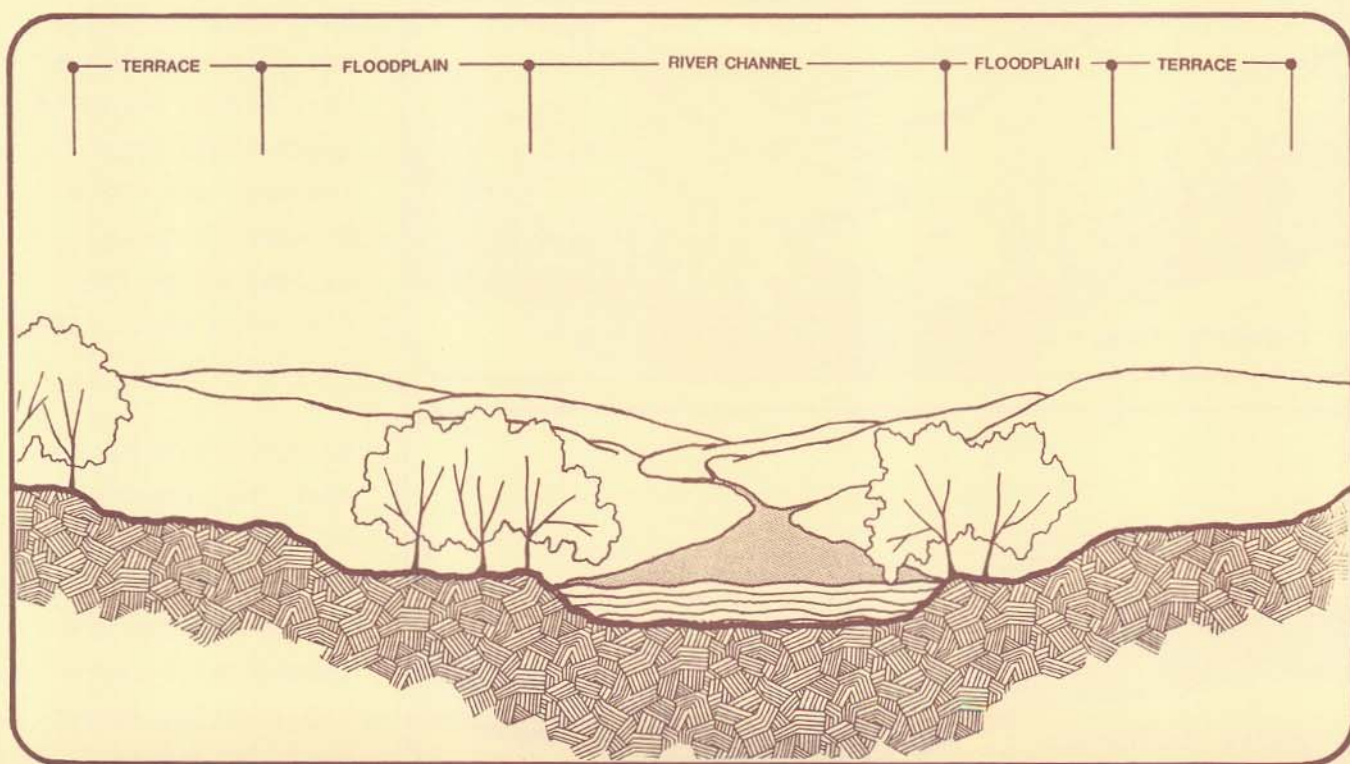
As more tributaries meet they become wide rivers, flow slowly on a broad open floodplain and are incapable of carrying anything except sand and gravel.

Adjacent Landforms

Floodplains

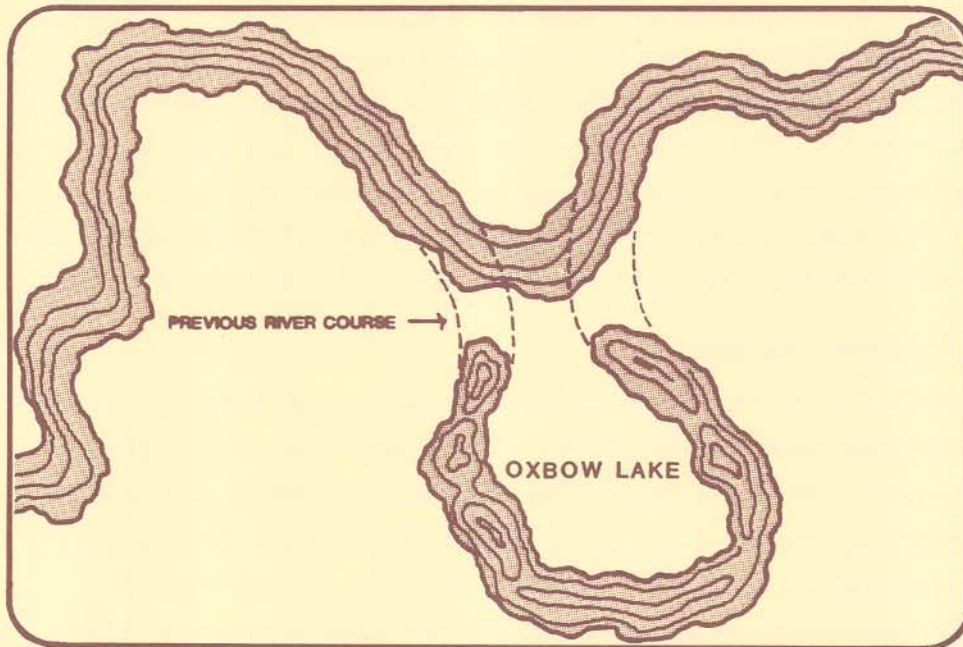
The river's floodplain is a geologic feature which can be defined simply as the level area bordering its channel. When the stream channel is completely full of water its surface will be level with the floodplain. When the stream is at flood stage it overflows into the floodplain, which acts as a temporary reservoir containing the floodwaters. The waterborne sediments deposited in floodplains often create rich agricultural land.

A floodplain may be bordered by higher level terraces; these are abandoned floodplains left by the stream when it flowed at high elevations. The "hundred-year floodplain" is a commonly used term referring to that part of the stream valley which has a 1% (1/100) chance of being flooded in any given year. Fifty-year, or twenty-five-year floodplains can be similarly defined; they represent probabilities of flooding rather than geologic features.



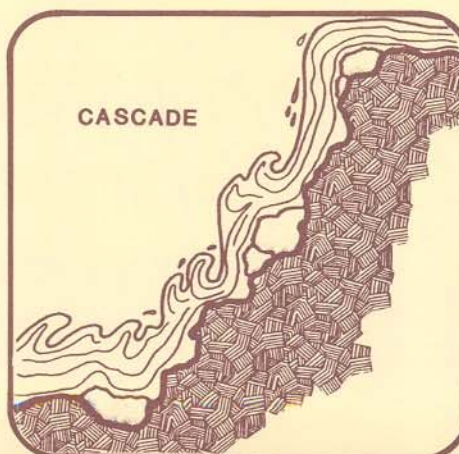
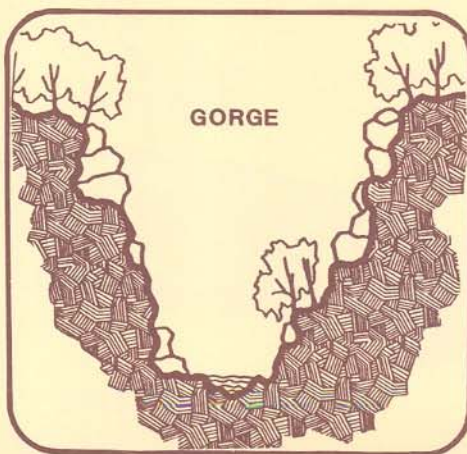
Oxbow Lakes

An oxbow lake is a remnant of a meander that is left behind by a river when it changes course.



Gorges and Cascades

These geologic formations are scenic features that dramatize many river corridors. A river's water will erode rocks at various rates depending on their composition, the rate of flow and the gradient of the streambed, creating such geologic features.

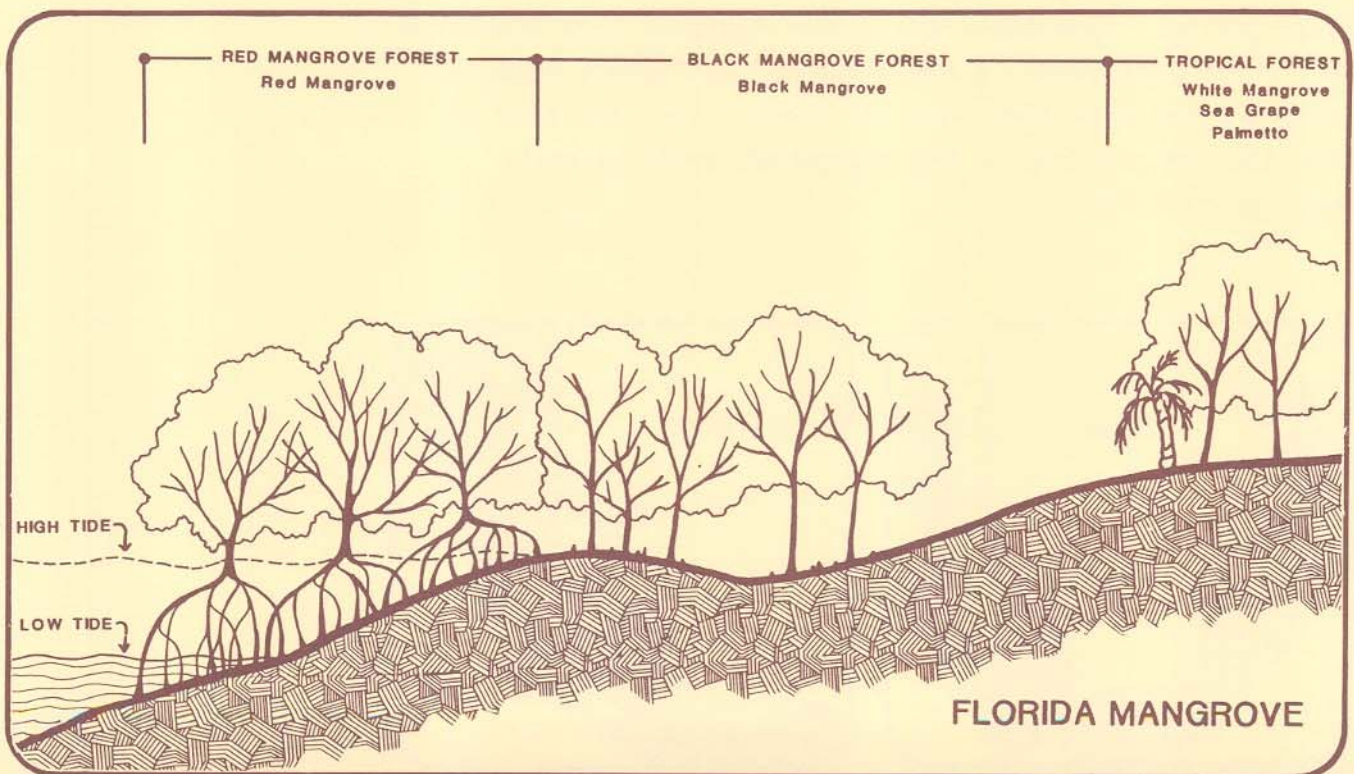


Wetlands

Our highly valued wetlands create numerous types of habitats for wildlife and vegetation. Wetland organisms serve as a basis for the food chain, enhancing decomposition and providing nutrients to plants, insects, fish, birds and wildlife. Wetlands are used as a breeding ground, nursery, and sanctuary by many fish. They also provide breeding, nesting, feeding and cover areas for wildlife, waterfowl and shorebirds. Wetlands exist in every state and vary due to geology, soils, climate, land use and other regional differences. They include a wide variety of fresh water and tidal swamps, bogs, and other frequently submerged habitats.

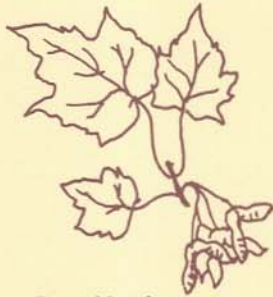
Mangrove Swamps

Travelling south in the coastal estuaries of tropical and near-tropical Florida, there is a transition from saltmarshes to mangrove swamps dominating the wetland areas. Black mangroves occur at slightly higher elevations followed by white mangroves which tend to grow at high tide lines. Red mangroves, found at or below the mean high water tide, are replacing the black and white species.





Larch



Red Maple



Pitcher Plant

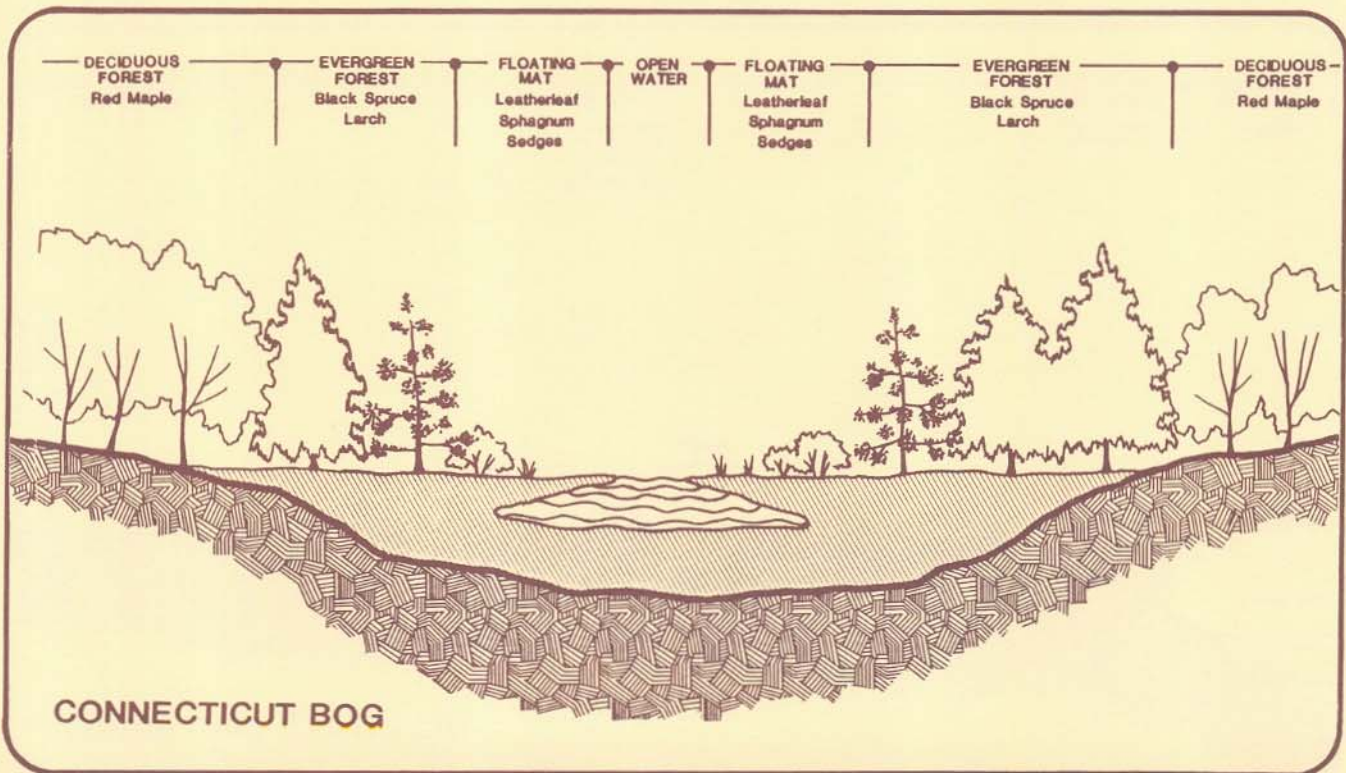
Bogs

Bogs are usually formed when deep glacial lakes fill in with decayed woody vegetation which forms layers of peat.

Vegetation growing in bogs shows a definite series from the center to the dryer land surrounding the bog. Nearest the center is a floating mat made up of sphagnum and sedges.

Where the mat is a little deeper, evergreen shrubs grow.

Coniferous trees such as larch and black spruce are found further from the center followed by broadleaf swamp trees such as red maple. Upland forests grow on the dry edges of the bog.

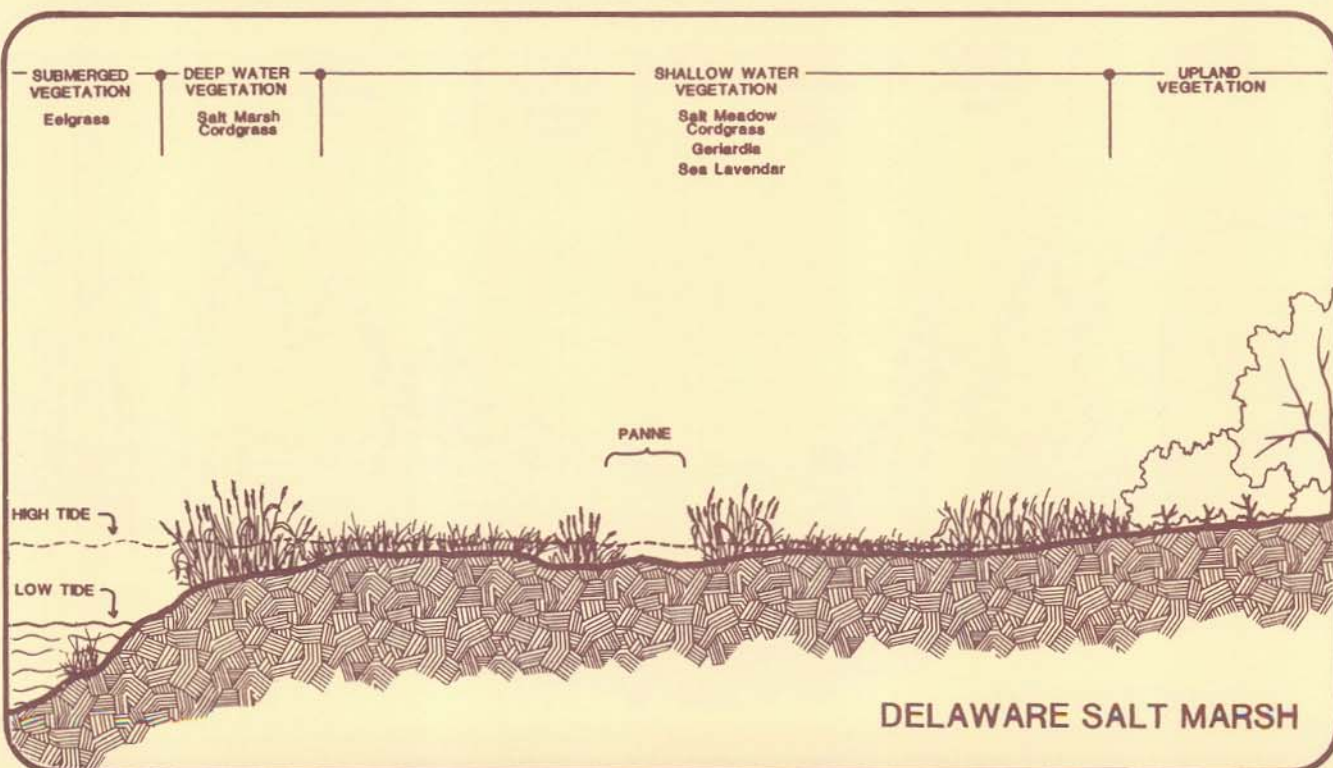


Salt Meadow
Cordgrass



Salt Marshes

Salt marshes occur in tidal areas such as coastal estuaries of rivers. These marshes are covered with plants which have different tolerances to flooding and salinity. Eelgrass is covered by water at all times, while salt marsh cordgrass grows where tidal flooding is greatest. On slightly higher ground, salt meadow cordgrass takes over. Shallow depressions called pannes retain the saltwater for a longer period and slow evaporation makes the soil too salty for most plants. Sparse growth of sea lavender, grasswort, geriardia and algae are able to survive here.



Human Use of Rivers

Changes in the hydrologic cycle can result from natural causes such as climatic or seasonal variations. Man causes change as well. For example, the upstream flooding and water fluctuations caused by a dam can hinder fish spawning or migration and eliminate important wildlife habitat. Diversion of water from rivers can reduce stream flow and adversely affect aquatic wildlife, streambank vegetation and recreational uses like fishing and boating.

The proximity of human activities to rivers can also have far-reaching impacts on streamflow and water quality. The suburban sprawl of low-density residential and commercial development can cover large portions of a watershed with impervious pavement. This increases stormwater runoff, erosion and the risk of flooding downstream. Erosion from poorly-managed agricultural and forestry operations can cause severe sedimentation in streams, killing food sources and covering spawning areas to the detriment of fisheries.

Construction in river floodplains can increase flood risks both at the construction site and downstream, as the ability of the land to absorb floodwaters is restricted. Draining of wetlands for agricultural purposes destroys the water purification and flood storage capacity of those lands, as well as the rich habitats that they provide.

Not all human activities are destructive to the natural processes of rivers. Protection of streambanks with vegetated buffer strips and channel alterations for fish habitat improvement can have positive effects on river resources. The use of a floodplain as a linear park, or for agriculture, retains its flood storage capacities. The recreational use of riverbanks for activities such as cycling, hiking and fishing can be compatible with protection of streambank vegetation and wildlife habitat.

References

Bloom, Arthur L. 1969. The Surface of the Earth. Englewood Cliffs, New Jersey: Prentiss-Hall, Inc. Describes how natural processes change landscapes over time.

Dunne, Thomas and Leopold, Luna B. 1978. Water in Environmental Planning. San Francisco, California: W. H. Freeman and Company. A review of the principles underlying the role of water in environmental planning. The goal of the book is to make readers aware of the opportunities and constraints of natural processes in maintaining or reclaiming environmental quality.

Gilchrist, John A. and Griggs, Gary B. 1977. The Earth and Land Use Planning. North Scituate, Massachusetts: Duxbury Press. An earth science and environmental planning approach to solving environmental problems. Presents a broad geographic perspective with descriptive illustrations.

Odum, Eugene P. 1971. Fundamentals of Ecology. Philadelphia, Pennsylvania: W. B. Saunders Company. A comprehensive reference work on principles, environments, and ecological technology.

Strahler, Arthur N. and Strahler, Alan H. 1973. Environmental Geoscience: Interaction Between Natural Systems and Man. Santa Barbara, California: Hamilton Publishing Company. A comprehensive scientific text on the interaction of man and the environment.

Ward, R.C. 1975. Principles of Hydrology. Maidenhead, England: McGraw Hill Book Company. Comprehensive text describing hydrologic processes and cycles.

Conclusion

The effort needed to conserve a valuable river and its corridor may seem at first to be overwhelming. Yet, our rivers are such a valuable and diminishing natural, recreational and cultural resource, that their protection is well worth the effort.

Building a support base of interested local officials, landowners and other public and private interests is the key to any successful river conservation effort. Good organization and consensus-building require more than just people; they require the ability to objectively assess the resource values, the key issues, and all the other problems and opportunities that surround the river. River conservation efforts must emphasize a process in which individuals, landowners and local officials in an area work with each other towards common goals. It is this organizational process that is described in the RIVERWORK BOOK. Citizens interested in protecting their local river resource can adapt the ideas presented in this book to develop a successful RIVERWORK program of their own.

Conserving a river is a task often initiated by a few dedicated individuals. Those few must be well equipped to gain the support of a wider public, and undertake the challenge of saving one of our most precious resources - the lifegiving river. We hope the RIVERWORK BOOK helps you to meet that challenge.

"I beg your pardon," said the Mole, pulling himself together with an effort "You must think me very rude, but all this is so new to me. So - this - is - a - River!"

"The River," corrected the Rat.

"And you really live by the river? What a jolly life!"

"By it and with it and on it and in it," said the Rat. "It's brother and sister to me, and aunts, and company, and food and drink, and (naturally) washing. It's my world, and I don't want any other. What it has not is not worth having, and what it doesn't know is not worth knowing. Lord! the times we've had together! Whether in winter or summer, spring or autumn, it's always got its fun and its excitements." "But isn't it a bit dull at times?" the Mole ventured to ask. "Just you and the river, and no one else to pass a word with?"

"No one else to - well, I mustn't be hard on you," said the Rat with forbearance. "You're new to it, and of course you don't know. The bank is so crowded nowadays that many people are moving away altogether: O no, it isn't what it used to be, at all."

Kenneth Grahame
THE WIND IN THE WILLOWS