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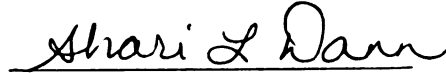
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Their Status and Perceived Organizational  
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**AN ASSESSMENT OF MICHIGAN'S STREAM AND RIVER STEWARDSHIP  
CITIZEN ACTION ORGANIZATIONS: THEIR STATUS  
AND PERCEIVED ORGANIZATIONAL AND TECHNICAL NEEDS**

**By**

**Melissa Lynne Middleton**

**A THESIS**

**Submitted to  
Michigan State University  
in partial fulfillment of the requirements  
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**1997**



## **ABSTRACT**

### **AN ASSESSMENT OF MICHIGAN'S STREAM AND RIVER STEWARDSHIP CITIZEN ACTION ORGANIZATIONS: THEIR STATUS AND PERCEIVED ORGANIZATIONAL AND TECHNICAL NEEDS**

**By**

**Melissa Lynne Middleton**

**In Michigan, many not-for-profit, non-governmental organizations implement programs to conserve and protect Michigan's rivers and streams. Little information has been gathered on these organizations' characteristics, activities, and programming needs. This research and outreach project assessed the status and needs of these organizations and provided a conference and resource guide to meet identified needs. A mail survey was used to assess the characteristics, activities, perceived needs, and programming preferences of the study population. Responses were received from 120 organizations (78.4%). Organizations reported involvement in watershed education activities, influencing decision makers, clean-ups, monitoring, and resource assessments. Governmental agencies and other non-profit organizations were reported as common sources of non-material non-financial assistance. Perceived needs included taking a watershed approach, educating the general public, consistent funding, improved networking, and resource materials. Preferred strategies to meet needs included improved coordination with regulatory agencies, data collection/standardization procedures, publications and a central office to serve as a clearinghouse.**

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## INTRODUCTION

Citizen organizations have been contributing to stream and river stewardship for many years, either through independent actions or by influencing decision making agencies. In Michigan, over 200 non-profit citizen organizations implement stream and river stewardship programs as one of their main objectives. These groups include watershed councils, recreation organizations, and local adopt-a-river groups.

Several major citizen organizations have sustained themselves for the purpose of protecting rivers and streams nationwide. The Izaak Walton League conducts educational programs and is at the forefront of volunteer monitoring efforts through its Save Our Streams (SOS) program, which trains citizens and students to collect data from rivers and streams, among other activities (Firehock, 1994). The Clean Water Network promotes river protection efforts through lobbying and advocacy programs (personal communication, June 1995). The River Network serves as a facilitator of information transfer and assistance to river and stream organizations nationwide, in addition to fostering the development of river networking organizations at the state level (River Network, 1995). A national water quality monitoring newsletter for volunteers, River Voices, is produced by the Massachusetts Water Watch Partnership at the University of Massachusetts. National volunteer monitoring conferences have been hosted by the Environmental Protection Agency in conjunction with other organizations, and these

meetings are attended by members of many stream and river organizations. Several national directories have been published which provide contact information for many organizations. The most recent of these is the National Directory of Volunteer Monitoring Programs, Fourth Edition (Kerr, Ely, Lee and Desbonnet, 1994). A mail survey was implemented to compile information for this directory of volunteer monitoring programs. The survey included sections on staffing, membership, sources of funding, and characteristics of the monitoring programs.

### **Problem Statement**

Little or no research has been applied to describe or explain stream and river stewardship citizen action organizations. Yet, a broad literature base exists in the areas of public involvement in natural resource management, theories of motivation of citizens for environmental stewardship, and the characteristics and actions of involved individuals and organizations.

In particular, Michigan stream and river stewardship organizations are fragmented and uncoordinated at the statewide level. Communication among these groups is not facilitated. As a result, new groups struggle to become effective. More established organizations could save time and effort spent in program design by incorporating lessons learned from others' experiences. Cooperative efforts between organizations and agencies have proven effective in some watersheds, however, many organizations work primarily independent from others. Therefore, a needs assessment of these programs must

be conducted to make recommendations for better programming by these and other supporting organizations.

### **Project Goals and Objectives**

The objectives of this project were: 1) to describe Michigan's stream stewardship citizen action programs (i.e. list and describe the organizations and their activities); and 2) to assess the perceived organizational and technical needs of these organizations. In addition, another important goal of this project was to provide an outreach component designed to enhance the investigator's understanding of stream and river stewardship in Michigan, as well as to meet some of these organizations' needs. This was accomplished by hosting a conference and preparing a reference guide to Michigan's organizations, governments, resources and legislation. As a result of this integrated research-outreach project, recommendations are made for providing assistance to Michigan's stream and river stewardship citizen action organizations and for specific research within the realm of citizen action-taking in stream stewardship programs.

The focus of this project was organizations rather than individuals; this was not because individuals do not accomplish activities, conduct programs or enhance stewardship, but because more often than not, individual actions are implemented through an organization. For the purpose of this study, stream and river stewardship citizen action organizations are defined as organizations which are managed by volunteer citizens through not-for-profit non-governmental organizations (NGOs), or are fostered by other organizations such as universities, schools, or federal, state, county, and local

governments in conjunction with volunteer citizens. Volunteer citizens are responsible for implementation of much of the organizations' stream and river programming. The goals of these organizations include implementing programs for the purposes of conserving and protecting Michigan's riverine ecosystems by promoting stewardship ethics and actions.



## **Chapter 1**

### **BACKGROUND AND LITERATURE REVIEW**

#### **The Importance of Public Involvement**

Citizen involvement is critical to effective natural resource management and is important for the direct positive effects it can have on resources. Involving citizens in resource management and protection programs often results in a more environmentally responsible citizenry. In this manner, public involvement can enhance public stewardship actions and ethics. Hungerford and Peyton (1980, p.146) suggest that encouraging an environmental stewardship ethic “should result in citizenry which is capable of taking ecologically sound environmental action focusing on the remediation of environmental issues”. The word “steward” is taken from an Old English word which literally meant “hall keeper”, or one who was in charge of managing an estate (American Heritage Dictionary, 1992, p.1196). In discussing natural resource, or river and stream stewardship, I am referring to those behaviors, values and attitudes which focus on taking care of our resources and accepting responsibility for one’s actions in light of their impact on the earth.

The focus of this project was on citizen stewardship actions related to rivers and streams. These aquatic features are part of larger systems, or watersheds. Programs and actions initiated by citizens on behalf of rivers and streams often encompass a geographic

area (such as a watershed) which is not directly aligned with any political or economic border. Similarly, bioregionalists look at an entire system, rather than isolated issues. They focus on local issues rather than global ones, and they try to adapt their communities to the particulars of their bioregion (Zuckerman, 1987). A bioregion is an area defined by its life forms, biota, and topography rather than artificial human constructs (Alexander, 1990).

Riparian and watershed stewardship actions as a form of public involvement, which are the focus of this study, are very similar to those actions taken by “bioregionalists.” Bioregionalists believe that social organization and environmental policies should be based on the bioregion rather than on a region determined by political or economic boundaries (Alexander, 1990; Zuckerman, 1987).

Involvement of citizens in resource management is critical for other reasons, such as diffusing or resolving issues before they become disruptive to resource management efforts or the community involved. Issues, if unresolved, can be described as evolving over time until they become disruptive, at which time stakeholders typically take firm positions on the issue, and resolutions are difficult to achieve. This evolution can be described as occurring in four phases (Peyton et al., 1992).

During the latent phase, conditions are such that issues could arise and stakeholders could then take positions. Successful and smooth implementation of new education or conflict reduction programs is likely to be most successful at this stage. During the second phase, an existing issue is one that some individuals have identified and begun to discuss, but the formation of efforts to address it have not yet taken place. In the

third phase, when issues are emerging, stakeholders have identified their positions and have begun to make their voices heard.

If issues are not resolved at any of the earlier stages, they become disruptive. When issues are disruptive, stakeholders have taken strong positions on the issue and communications among stakeholder groups are often emotionally charged. Legal or political means are sought to resolve differences, and stakeholders may avoid working with the appropriate management agencies. Resolution of issues at this point is often based on short term values or political pressure by a few interest groups rather than on sound ecology or collaboration (Peyton et al., 1992). Therefore, involving citizens in taking an active role in resource management programming has the advantage of seeking solutions before problems are too complex and controversial to resolve, thereby avoiding situations where strong positions are taken and stakeholder behaviors actually disrupt the problem-solving process.

Public involvement in decision making processes enhances the acceptance of outcomes and subsequent participation in implementing solutions. Individuals' satisfaction with a collective innovation or decision is positively related to the degree of participation in the decision making process (Rogers, 1983). When individuals participate in the decision making process, they learn that most others in the social system are also willing to work toward and accept a decision; thus public involvement is a means of revealing group consensus to the individual. In this sense, positive "peer pressure" may increase the number of individuals willing to take ownership of the solution and implement the outcomes of decisions. Further, through this consensus building process, the outcome, or

decision is more likely to fit the needs of the social system if its members are included in the process. Typically, members of a social system are most familiar with the characteristics of their community's needs (Rogers, 1983).

Stream and river stewardship organizations in Michigan are diverse and can offer a richness of perspectives and expertise to resource management processes. Organizations' contributions range from daily monitoring of aquatic systems, to providing a reflection of the local political climate. Subsequently, public involvement in decision making processes and programs can lead to watershed management strategies which are socially acceptable and easy to implement through partnerships prior to the emergence of conflict.

### **Understanding the Influences on Individuals' Action-taking Behavior**

Individuals are typically involved in stream and river stewardship activities as members of organizations. To understand the role of these organizations in resource protection and management, it is important to first understand what motivates the individual to take stewardship actions. As Arbuthnot states

"the success of public policy decisions, educational programs, and other efforts dependent upon specific individual action in the realm of environmental issues may well hinge upon our understanding of the relationships among personality characteristics, attitudes, and environmental values, knowledge, and behaviors" (1977, p. 217).

A significant amount of research has been conducted to better understand such relationships.

Hines et al. (1986/87) published a meta-analysis of environmental behavior research reported since 1971. In this analysis, they proposed a model of factors leading to responsible environmental behavior. These factors are personality factors (composed of

attitudes, locus of control, and personal responsibility), knowledge of issues, knowledge of action strategies, and action skills, all of which determine an individual's intention to take action. This intention to act, combined with situational factors, affect whether individuals display responsible environmental behaviors.

Personality factors play an important role when an individual takes environmental action (Arbuthnot, 1977; Charns, 1973; Craik, 1970; DeYoung 1986; Hopper and Neilson, 1991; McKechnie, 1977; Sewell, 1977; Syme et al., 1993). Environmentally responsible citizens have a positive environmental disposition which Syme defines as a "series of general attitudes or feelings toward environments ... and the person's enjoyment with interacting with them on an everyday basis" (Syme et al., 1993). Environmental disposition will affect arousal, which will influence activism. Those who are more favorable in their views of the natural environment will be more emotively aroused when viewing degradation.

An environmental disposition is the way an individual habitually interacts with the environment (McKechnie, 1977) and influences decision making (Craik, 1970). Environmental dispositions are a summation of what people attend to in the environment, the total information available to them, the meanings attributed to information received, what strategies are used to organize information, and how successfully information is used (McKechnie, 1977).

Not every one perceives and responds to their environments with similar dispositions. A study by Sewell (1971) found that different professionals with joint jurisdiction over a given problem promoted solutions which reflected values implicit in

their professional orientation. The study compared responses of sanitation engineers (who promoted building of treatment systems) to public health officials (who promoted implementing standards and fining violators) in response to water quality problems. One can conclude that professionals with differing areas of expertise may clash in their acceptance of various solutions as a result of differing dispositions. Similarly, Charns (1973) found that different interest groups may have distinct dispositions and thus different goals, when the political positions of professional planners were compared to those of planning students.

Locus of control is another important factor in influencing individuals' stewardship behavior (Arbuthnot, 1977; Syme et al., 1993; Wandersman et al., 1987). A person with an "internal locus of control" expects success as a result of taking action. Conversely, an individual with an "external locus of control" tends to believe that he/she is powerless to make changes in society, because the factors which contribute to success are believed to be beyond his/her control (Hungerford and Volk, 1990). Ecologically concerned people do not necessarily seek economic gain from environmental actions, but continued actions are encouraged if they know that they are doing something worthwhile and beneficial (DeYoung, 1986). Locus of control can play a powerful role; for example, as the degree of threat from a situation increases, so do subjective feelings regarding the severity of a problem. However, these feelings do not necessarily increase intentions to act, if individuals do not perceive their personal behavior would have an impact on the problem (Syme et al., 1993).

Arbuthnot (1977) showed that individuals take action, namely recycle, when they perceive that their actions have potential impact. Recycling may be categorized as an altruistic behavior, resulting from intrinsic motivation (Hopper, 1991). Altruistic acts are ones committed without the goal of economic or other gain. By this definition, watershed stewardship is also an altruistic behavior. When issues are very local, people feel confident about the possible effects of their individual involvement. Political efficacy, or the degree to which an individual believes they can impact the political system, directly impacts motivation to take environmental stewardship actions. (Wandersman et al., 1987). Feelings of control or perception that personal involvement will have a positive influence on a problem are determinants of intentions to become involved.

Knowledge plays an important role in determining environmental behaviors. Knowledge about issues must be paired with knowledge of action strategies, to result in increased activism (Hungerford and Volk, 1990). A study conducted by Asch and Shore showed that education about environmental problems increased conservation behavior in fifth grade boys (1975). Furthermore, Syme et al. (1993) suggested a positive correlation between knowledge and environmental disposition.

Intentions to take action are impacted by emotive and cognitive responses, as well (Syme et al., 1993; Rochford and Blocker, 1991). For environmental issues or problems of non-individual and non-life threatening consequence, Syme et al. hypothesize that emotive arousal is positively correlated to activism (1993). However, in more threatening circumstances (e.g., natural disasters) this may not be the case. For example, Rochford and Blocker, in a study of Oklahoma flood disaster victims (1991), concluded that an

individual's appraisal that floods can be controlled correlates negatively with emotively based coping and in turn negatively correlates with activism. Energy and time was spent coping with fear of future floods rather than actively trying to deal with the problem. Thus, the emotive component did not positively affect activism (Syme et al., 1993). Cognitive appraisal of less hazardous problems, however, will positively correlate to increased activism.

Many external factors influence individuals' stewardship behavior. Tapping into the process through which norms are shaped (e.g., developing organizations such as a block leader or community river watch program), will have a greater success in motivating individuals to change behavior than providing only information and reminders (Arbuthnot, 1977; Buttel and Flinn, 1976; Dunlap, 1975; Dunlap and VanLiere, 1984; Samdahl and Robertson, 1989; VanLiere and Dunlap, 1980). Hopper (1991) showed that recycling behavior is influenced by social norms, personal norms, and awareness of consequences. When a "block leader" system was implemented in a neighborhood recycling program, environmental behavior (recycling) was increased. Prompting (reminders) and information increased behavior as well, but not as much as the block-leader program. These other methods did not affect attitudes or norms.

Early research evaluated individuals' situational factors (sociodemographic variables such as age, education, income, residential location, political ideology) as determinants of environmental behaviors and the adoption of environmental innovations. Researchers in the 1970's and 1980's concluded that environmentalists tend to be young, educated, urban, and liberal in politics and social and religious beliefs (Arbuthnot, 1977).



Correlational analysis found that as an individual's level of education, literacy, and social status increase, the likelihood increases that these people will adopt new ideas or innovations (Rogers, 1983). However, causal modeling showed demographics and behavioral commitment unrelated to environmental concern variables ("perception of problems", "support for regulations", and "ecological behavior") (Samdahl and Robertson, 1989; VanLiere and Dunlap, 1981). The relationships are unclear, and there may be an interaction between environmental concern, education and social class. Thus, correlational analyses is inconclusive and difficult to interpret. In short, the predictive ability of demographics is low. Therefore, researchers have recently examined broader underlying belief systems and their link to environmental concern rather than looking for correlations between demographics and environmental attitudes (Samdahl and Robertson, 1989).

Because citizen action organizations are composed of individuals and strive to implement programs in communities made up of individuals, an understanding of the factors influencing individual action-taking is critical to understanding these organizations' role in stream and river stewardship. Further, an assessment of the specific factors influencing an organization and its community will lead to more appropriate programming to assist Michigan's stream and river citizen action organizations.

### **Individual Action-taking within Organizational Social Systems**

The process of an organization taking stream and river stewardship actions, or adopting environmental innovations, is a decision making process. Environmental

innovations are ideas, practices, or objects perceived as new by individuals and which must be effectively communicated to the public (or group) for a collective decision to adopt (Rogers, 1983). Collective innovation decisions are those made by a social system to adopt or reject a particular innovation (Rogers, 1983). An example of this type of innovation decision is enactment of a local zoning ordinance to restrict development along a river corridor. Most decisions about river and stream issues are collective ones which require collective action to be successful, due to the fact that rivers typically cross multiple legal and economic boundaries.

Rogers (1993) proposes a simple paradigm for understanding these collective decision making processes. He suggests that individuals, within the collective decision making process, experience a series of five stages, or sub-processes in making decisions to adopt new innovations. These five stages are: 1) stimulation of interest in the need for the new idea, 2) initiation of the new idea in the social system, 3) legitimation of the idea by the power holders in the social system, 4) decision to act by the members of the social system, and 5) action or execution of the new idea (1983).

In the first stage, the individual's awareness that a need exists for an innovation is stimulated within the social system. Up until this stage, neither the innovation, nor the need that it could meet, are perceived by members of the social system. Stimulators are often outsiders to the social system, or at least have outside contacts to other social systems (e.g., extension workers, governmental agency staff, or state level non-profit organization staff). Initiation is the stage of the process during which the new idea receives increased attention by members of the social system. Initiators incorporate the

innovation into a specific plan of action that is adapted to the conditions of the social system. Because this role requires intimate knowledge of how the social system functions, initiators are often “insiders” (Rogers, 1983).

Legitimation of an innovation is the process of granting approval of a collective innovation by those who informally represent the system’s norms, and who possess social power. These individuals usually have high social status and seldom actively promote a collective idea once they give their approval. Legitimizers (or “opinion leaders”) are the power sources of the community; power is defined as the degree to which an individual has the capacity to influence the beliefs, decisions and actions of others. The rate of adoption of a collective innovation is directly related to the degree to which the legitimizers of the social system are involved in the decision-making process. Often legitimizers can kill an idea if they are not consulted and included. Once a new idea or innovation is legitimized by the leaders of a social system, decision to act by other members of the community and execution of the innovation follows relatively predictably (Rogers, 1983).

Several good examples of the processes which involve collective decision making exist in stream and river stewardship programming. The standardization of water quality data illustrates these processes. One session at the Fourth National Citizens’ Volunteer Monitoring Conference addressed the need to standardize data through development of quality assurance and quality control plans and procedures. Kathleen Ellet, of the Alliance for the Chesapeake Bay, provided in her remarks a summary of the importance of developing such plans (Ely, 1994). As one of the older and more successful organizations,

the Alliance for the Chesapeake Bay is functioning as a legitimizer among other citizen action organizations. Similarly, taking a watershed approach to programming is not a new idea, however, when the Pacific Rivers Council published its popular book, Entering the Watershed, A New Approach to Save America's River Ecosystems, most organizations addressing stream and river concerns began talking about taking a watershed approach to planning and management (Doppelt et al., 1993).

### **Organizations as Avenues for Individual Actions**

An organization may be defined as

“a system of consciously coordinated personal activities or forces of two or more people. It is a problem-solving mechanism that depends on factoring general goals into subgoals. An organization comes into being when there are persons able to communicate with each other, who are willing to contribute action and to accomplish a common purpose” (Anderson, 1993, p.43).

Citizen action stream and river stewardship organizations in Michigan certainly fit this definition. For example, citizens in Michigan have formed several adopt-a-river organizations with the goal of protecting local rivers or streams. Sub-goals of these organizations include conducting water monitoring programs, annual clean-up festivals, or habitat restoration and enhancement activities.

When the achievement of a goal is limited in such a way that the energy of two or more individuals can overcome such limitations, individuals cooperate to resolve issues (Anderson, 1993). Working in groups allows individuals to maximize the influence of their values on how natural resources are managed and used (Hungerford and Peyton, 1980). Issues that citizen action stream and river organizations wish to address, such as restoration of aquatic systems or assessment of pollution sources, are often complex and

time consuming. Such issues often require more energy and time than one individual can invest. Cooperation occurs when persons and organizations are able to communicate, and are willing to contribute their own limited resources to accomplish specific goals.

Organizations are often working for change in the society; therefore, community action necessitates multiperson/multiunit involvement and commitment for problem resolution to be a success (Anderson, 1993).

For the same reasons that individuals active in stream and river projects join forces and organizations, these organizations often form coalitions to collaborate in reaching common goals and objectives. This is likely to occur when tasks are complex and controversial and resources are limited. Coalitions tend to be linked to conflicts and struggles, and focus on establishing consensus (Anderson, 1993). Issues may be controversial or political and require acceptance and “buy-in” from all stakeholders to achieve goals. Examples of such issues are agreements of landowners to use best management practices along a river corridor or implementation of a zoning plan to address land-use in a watershed. Goals can not be accomplished independently, so coalitions form to facilitate achieving goals at multiple levels of society. Collaboration is a process by which parties with a stake in an identified problem or issue seek a mutually determined solution (Anderson, 1993). In this way, independent citizen action stream and river organizations in Michigan often join forces, pool information, engage in discussion, construct alternatives, and forge agreements to solve problems. The efforts of multiple organizations are major factors in determining success, and therefore collaboration is a key to successful problem resolution.

**Actions Taken by Stream and River Stewardship Citizen Action Organizations**

Hungerford and Peyton (1980) state that awareness (appreciation and understanding of the environment) is not enough to motivate individuals within organizations to take action. Individuals who have developed an environmental ethic may be frustrated and inactive because they are unaware of the possible actions that may be taken either singly or as members of organizations. Citizens are more likely to become involved in environmental issues if they are aware of how they can have some effect on decision-making (Vandevisse and Stapp, 1975). Therefore, a paradigm of environmental action strategies was proposed, to assist those developing environmental action training programs (Hungerford and Peyton, 1980) (Table 1). In addition, Monroe (1990) has further illustrated environmental action strategies by proposing a matrix of avenues for action taking. This matrix provides a tool for analyzing environmental actions by summarizing the various avenues which may be taken by motivators (as individuals, groups, governments, or businesses) to influence environmental problem solvers, who may also be individuals, groups, governments or businesses.

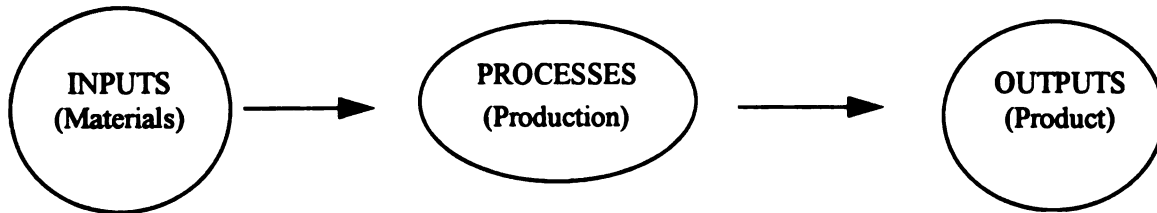
**Table 1**  
**Seven Categories of Environmental Action, With Examples from Michigan's Stream and River Stewardship Citizen Action Organizations (adapted from Hungerford and Peyton, 1980; Champeau, 1982)**

Category	Type of Action	Examples of Actions Taken by Michigan's Stream and River Stewardship Citizen Action Organizations
Ecomanagement	<ul style="list-style-type: none"> <li>Physical actions to directly maintain or improve the existing ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Stream bank stabilization, habitat protection and restoration projects, river clean-ups, and data collection and project evaluation to support these actions.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>Changes in consumer behavior to create a threat aimed at some form of desired behavior modification, or to limit potential harm to the environment; monetary support given to environmental organizations.</li> </ul>	<ul style="list-style-type: none"> <li>Boycotts of businesses with practices hazardous to rivers and streams, conservative consumption of products which may harm stream and river ecosystems when produced or disposed of, or donations and membership fees to stream and river organizations.</li> </ul>
Education	<ul style="list-style-type: none"> <li>Efforts to educate the general public to encourage behavior changes, and decision makers to encourage sound decision making.</li> </ul>	<ul style="list-style-type: none"> <li>Conferences, festivals, publications, radio and television spots, and providing data and position statements to local, county and state decision making processes.</li> </ul>
Legal Action	<ul style="list-style-type: none"> <li>Any judiciary or legal action which is aimed at an aspect of environmental law enforcement or legal behavior restraint.</li> </ul>	<ul style="list-style-type: none"> <li>Lawsuits, obtaining injunctions, and supporting regulatory agencies with information.</li> </ul>
Persuasion	<ul style="list-style-type: none"> <li>Actions which include efforts to motivate others to take environmentally positive actions.</li> </ul>	<ul style="list-style-type: none"> <li>Providing position statements, debating, writing speeches and letters, and otherwise taking part in decision making.</li> </ul>
Political Action	<ul style="list-style-type: none"> <li>Efforts made to persuade an electorate, legislator or executive governmental agency to conform to certain values.</li> </ul>	<ul style="list-style-type: none"> <li>Lobbying, voting and supporting specific candidates which support protecting streams and rivers.</li> </ul>
Interaction	<ul style="list-style-type: none"> <li>Actions which are a combination of two or more of the other five action categories</li> </ul>	<ul style="list-style-type: none"> <li>Collection of data for a lawsuit or to persuade decision makers among many other examples.</li> </ul>

### **A Systems Approach to Understanding Stream and River Stewardship Citizen Action Organizations**

Organizations may be viewed as a factory, with inputs into the system, being processed in some way by the organization to produce outputs, or products (Schoderbek et al., 1975) (Figure 1). The organizations targeted by this study, when viewed as

systems, process inputs by way of organizational activities; for example, technical assistance from other organizations (input) may be used to implement stream restoration and enhancement projects. In stream and river stewardship organizations, inputs are typically processed by volunteer members with support from a few staff.



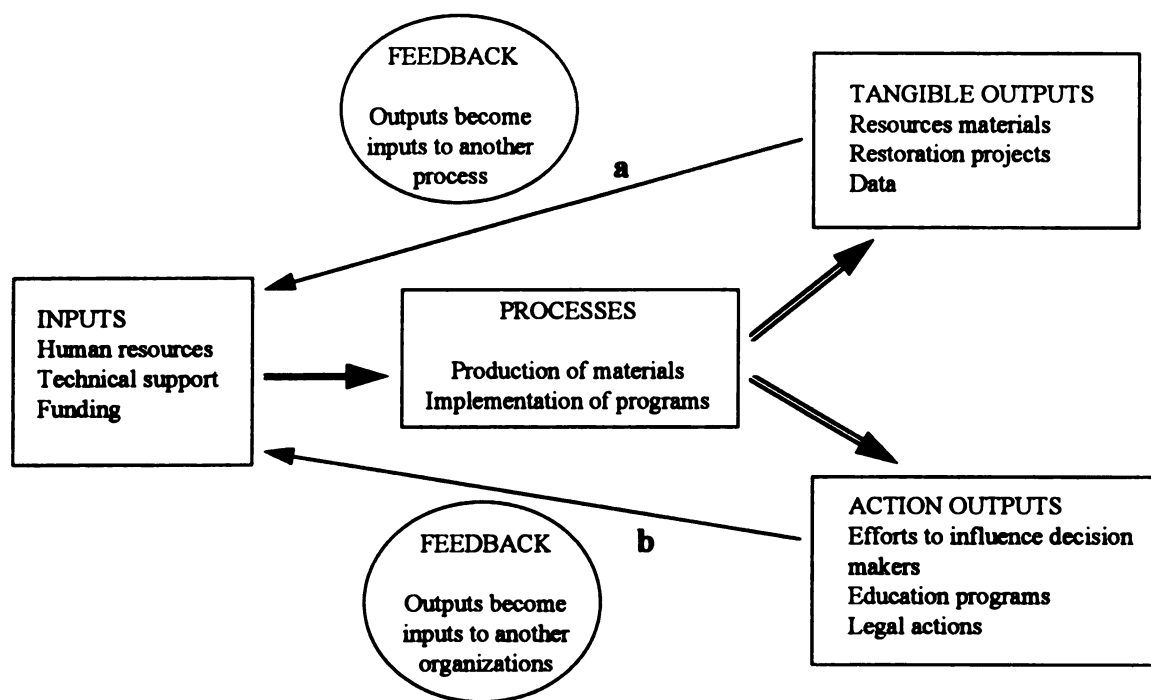
**Figure 1.** A simplified model of an organization as a system (adapted from Schoderbek, et al., 1975).

Inputs to the study organizations are different than those to a traditional factory, and consist of technical assistance and in-kind donations from government and university staff, funding from foundations or local businesses, and volunteer time. For example, Kerr et al. (1994) report that governments and universities account for many of the contributions to national aquatic citizen action organizations. Most of these contributions are serial inputs, or inputs which are a result of another system (Schoderbek et al., 1975).

Outputs of the study organizations can be divided into two categories, which will be referred to as “tangible outputs” and “action outputs” (Figure 2). Tangible outputs of the study organizations are products which include water or watershed data, brochures and other materials, bank stabilization, or habitat restoration. Tangible outputs are usually the result of ecomanagement actions, but may stem from persuasion, education, or legal processes. Action outputs are service-related and are those outputs that do not produce a product, but are rather projects such as river corridor clean-ups, educational programs,



input to decision-making processes and lobbying efforts. Typical action outputs are the result of educational, economic or political action processes, but may be a part of legal or persuasion programs. The action outputs, in these cases, could not have been accomplished without the use of organizational effort (Anderson, 1993). In this way, organizations can extend individuals' capacities.



**Figure 2.** A systems model of stream and river stewardship citizen action organizations.

Feedback is incorporated into all components of these systems -- inputs, outputs and processes (Figure 2). Tangible outputs are often used as inputs by the organization or other organizations in additional processes (see arrow "a"). For example, data may be used to enhance persuasion activities or may be an input to another regulatory agency. Action outputs are fed back to other organizations when they result in additional actions

(see arrow “b”); for example, persuasion efforts may result in an agency implementing a new policy.

This research and outreach project was designed to assess the inputs, processes and outputs of the study organizations and their perceived needs. Outreach programming was implemented to initiate meeting the perceived needs of the study organizations.

## **Chapter 2**

### **METHODS**

This project was conducted in two phases, an Outreach Phase and a Research Phase. Initial steps of the Outreach Phase were designed to formalize a list of organizations constituting my target population for this project.

#### **Target Population for the Project**

The population identified for this project included all identifiable citizen-based stream and river stewardship organizations in Michigan. These are organizations that are managed by volunteer citizens through not-for-profit non-governmental organizations (NGOs) or are fostered by other organizations such as universities, schools, or federal, state, county, and local governments in conjunction with volunteers. The programs of these organizations are implemented and maintained for the purpose of conserving and protecting Michigan's riverine ecosystems through promoting stewardship ethics and actions. Activities conducted by these organizations include, but are not limited to, water quality and watershed monitoring, habitat enhancement, youth and community education, efforts to influence decision making processes, and production of resource materials.

**Outreach Phase**

The goal of the Outreach Phase was to gain a preliminary understanding of the organizational and technical needs of Michigan's stream and river stewardship citizen action organizations. Analysis of information gathered during the Outreach Phase allowed me to conclude that in-depth research was necessary to assess the needs of Michigan's citizen action stream stewardship programs.

To develop an initial list of Michigan's stream stewardship citizen action organizations, I administered contact sheets at the following conferences: Michigan Chapter North American Lake Management Conference (August 1994), the 33rd Annual Michigan Lake and Stream Associations Conference (September 1994), the Michigan State University Extension Annual Fall Conference (September 1994), and at this project's conference, "Coordinating Watershed Stewardship in Michigan: Citizen Monitoring, Enhancement and Problem Solving for Streams and Rivers" (March, 1995). I compiled the contact sheets into a draft list of organizations and distributed it for review at the March 1995 conference. A comment sheet was included in the conference packet for participants to offer corrections or additions to the list.

During March of 1995, I planned and facilitated the "Coordinating Watershed Stewardship in Michigan Conference: Citizen Monitoring, Enhancement and Problem Solving for Streams and Rivers." A committee was formed (which held a series of consultations and conference calls) to assist in planning the event. The committee was comprised of representatives of prominent stream and river stewardship citizen action

organizations, county and state government personnel, Michigan State University and Extension staff. This process allowed for important stakeholder participation and resulted in some committee members serving on the panel and offering workshops at the conference. The specific purpose of this conference was twofold: 1) to facilitate networking and information sharing among these organizations and to provide informative workshops, and 2) to expand my understanding of the needs of these organizations as perceived by members and by the agencies and educators who work with them.

Participants reported that the conference was useful and that there is a need for similar events in the future. Michigan Public Radio covered the event as part of their evening and morning Michigan news broadcast. The conference was attended by 150 individuals, 65 of whom completed conference evaluation surveys, and 100 of whom participated in the 6 focus group sessions. Data from conference focus groups and evaluation surveys were used to design portions of the survey instrument implemented in the research phase.

Focus groups at the conference provided preliminary information regarding what organizational and technical needs exist, and which needs were perceived as most critical to address (Appendix B). Identified as important to stream and river stewardship in Michigan included the needs:

- for partnerships, to strengthen liaisons, and to work cooperatively, and the education opportunities to learn how to do so,
- to take a watershed approach to planning and management,
- for networking, with better communication and sharing of information, and the mechanism to do so,
- for focus to groups' activities,
- for more technical and organizational assistance,
- to increase inclusive stakeholder participation in management decisions and discussions,
- for consistent funding and information on how to access funding,
- for public education to increase awareness and responsibility,

- for increased advocacy and necessary information to do so,
- for citizen-collected data to be used and standardized,
- for collection and organization of baseline data, with access to it, and
- for improved resource materials.

Conference evaluation surveys provided additional information regarding Michigan's stream and river stewardship citizen action organizations and their activities (Appendix C). Conference evaluation respondents reported involvement in the following activities: watershed mapping and planning, stormwater management, non-point source pollution management, coordinating volunteers, networking, school monitoring programs, storm drain inlet protection, community education, wildlife enhancement, wildlife or habitat inventories, research, river monitoring, and information and education programs.

### **Research Phase**

The goal of the Research Phase of this project was to conduct a comprehensive inventory of Michigan's stream stewardship citizen action organizations and their activities, and to conduct an assessment of their organizational and technical needs. I developed research questions in the format of the systems model of organizations, presented in Chapter Two (Figure 2).

### **Research Questions**

#### **Inputs: Resources of these organizations**

- What resources support activities of these organizations?
- How are these organizations funded?

- How are these organizations staffed, and how many members and volunteers do they manage?

**Processes: What organizations do with their “inputs” to create a product or conduct an activity**

- In which watersheds do the study organizations work?
- What types of organizations (e.g., not-for-profit, fostered by government) exist?
- What are organizations’ financial resources, or budgets?
- In what types of projects or activities are the study organizations involved?
- If stream and river clean-ups are conducted, how are they done?
- If data are collected, who conducts the analysis, who uses the data, and for what purpose?

**Tangible Outputs: Products of the organizations**

- If monitoring is conducted, what parameters are measured?
- What types of watershed restoration and habitat enhancement activities are conducted?
- What types of habitat assessments are conducted?
- Are watershed mapping or resource inventories completed by these organizations?

**Action Outputs: Activities that do not produce a tangible product**

- What forms of education programs are implemented?

- Do organizations lobby or otherwise try to influence local, county, state, or federal decision making?
- How many groups conduct construction site inspections?
- Are program priorities set with a watershed approach to stream and river management?
- Do these organizations evaluate their programs?

**System Needs:**

- What organizational needs do these opinion leaders perceive as critical to their programs?
- What technical needs do these groups perceive as critical to their programs?
- What are perceived needs for statewide programming?
- What are preferred strategies to address perceived needs?

**Survey Design**

I designed a mail survey to obtain answers to my research questions using the Total Design Method (Dillman, 1978). The survey was piloted with faculty and staff from Michigan Department of Environmental Quality Surface Water Quality Division and Michigan State University Department of Fisheries and Wildlife. The goal of the survey was to learn about the activities and needs of organizations, as opposed to learning about the motivations or background of individuals involved in stream and river activities in general. Therefore, I mailed the survey to a group leader within each organization who



could represent the organization's programs and views. I designed the first 2 questions of the survey to verify whether the individual responding to the survey was indeed a leader within the organization and therefore in a position to represent the organization with respect to the survey questions (Appendix D). Completed surveys were evaluated to confirm that they were completed by an individual in a position to represent the organization.

### **Survey Mailing List**

I confirmed the completeness of the list by calling the larger and more active organizations including the Huron River Watershed Council, the Clinton River Watershed Council, the West Michigan Environmental Action Council, the Kalamazoo River Protection Association, the Michigan Department of Environmental Quality Surface Water Quality Division, the Michigan Department of Natural Resources Natural Rivers Program, Trout Unlimited, and several Resource Conservation and Development Councils. An assistant and I verified the mailing list by contacting all those organizations with a published or previously received telephone number to confirm mailing addresses and appropriate contact person (group leader). In addition to verifying the accuracy of the listings, the assistant and I inquired whether other organizations should be included.

### **Survey Implementation**

The survey was implemented with a series of follow-up mailings in accordance with the Total Design Method (Dillman, 1978) (Table 2). The first contact consisted of a

nine page survey, a cover letter explaining the study, and a self addressed and stamped envelope for returning the completed survey. The initial contact was followed by a reminder. A third contact consisted of a cover letter with a response deadline date, as well as another copy of the survey and a return envelope. In the fourth contact, I sent a final note to remind recipients that a response would still be appreciated if they had not yet responded (Appendix E) Two weeks after the response deadline, a research assistant made follow-up phone calls to all non-respondents to characterize non-respondents and to collect basic information from those who did not wish to participate in the mail survey (Appendix F).

**Table 2**  
**Survey Implementation -- Sequence and Dates of Study Population Contacts**

<b>Contacts</b>	<b>Content of Contact</b>	<b>First Mailing</b>	<b>Second Mailing<sup>a</sup></b>	<b>Third Mailing<sup>b</sup></b>
<b>First Contact</b>	<ul style="list-style-type: none"> <li>Cover letter, survey, self addressed and stamped envelop</li> </ul>	3/7/96	4/10/96	4/30/96
<b>Second Contact</b>	<ul style="list-style-type: none"> <li>Cover letter reminder</li> </ul>	3/27/96	4/23/96	5/14/96
<b>Third Contact</b>	<ul style="list-style-type: none"> <li>Cover letter reminder, additional copy of survey, and self addressed and stamped envelop</li> </ul>	4/10/96	5/7/96	5/29/96
<b>Fourth Contact</b>	<ul style="list-style-type: none"> <li>One page reminder</li> </ul>	4/23/96	5/20/96	not necessary
<b>Telephone Follow-up</b>	<ul style="list-style-type: none"> <li>Questionnaire to characterize non-respondents</li> </ul>	5/17/96-6/12/96	5/17/96-6/12/96	not necessary

<sup>a</sup> The names of additional organizations were obtained from the Michigan Salmon and Steelheaders Fishermen's Association, and several organizations requested the survey be sent to a different individual.

<sup>b</sup> Two organizations requested an additional survey be sent to a different individual.

**Data Analysis**

Data were analyzed using the Statistical Package for the Social Sciences, version 6.1 for Windows (SPSS). Statistical analyses of data from the mail survey included summary analysis of means, standard deviations, cross tabulations and frequencies, and the Kruskal Wallis one-way analysis of variance and Mann-Whitney U tests of significance.

## **Chapter 3**

### **RESULTS**

#### **Study Population**

A total of 234 organizations were on the initial study population list. A total of 45 organizations did not meet the definition of my study organizations. These 45 organizations were removed from the study population list: I determined that 11 were lake associations, 14 indicated they would not participate because they did not believe their organization was within the study population, 9 reported that the organization was no longer in existence or had ceased to be active, 2 were private sector organizations, and I determined that 9 responding organizations did not belong in the study population. These 9 responses came from 2 recreation organizations, 3 fishing groups, one property owners association which does no stream and river work, and from 3 governmental agencies. As a result, the final study population contained 189 organizations (Figure 3) (Appendix H).

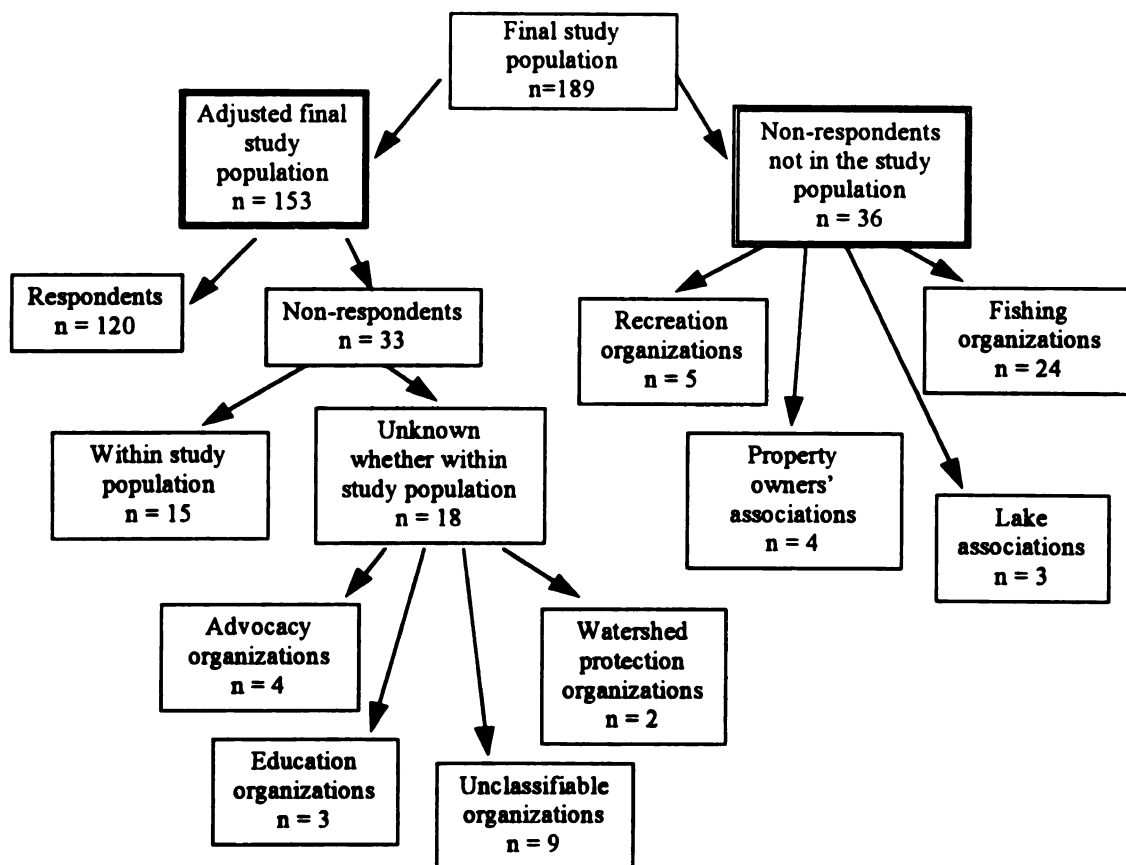
#### **Survey Response Rate and Characteristics of Non-Responding Organizations**

Responses were received from 120 organizational opinion leaders (63.5% of the final study population,  $n = 189$ ). Completed mail surveys were received from 114 organizations, and 6 organization opinion leaders provided information during the telephone follow-up survey.

A telephone follow-up survey was conducted to characterize non-respondents and to collect basic information from those who did not wish to participate in the mail survey. Of the 69 non-respondents, 54 were contacted. The remaining 15 were not contacted due to invalid telephone numbers. Of those contacted, 15 stated they intended to complete and mail in the survey, 6 completed the telephone survey and the remaining 33 did not wish to participate for various reasons (Appendix F).

Through general knowledge of specific organizations, comparison to responses received from similar organizations and responses to the telephone follow-up survey, it was determined that of the 69 non-respondents, 15 represented stream and river stewardship citizen action organizations, and met the definition of the study organizations. 36 of the non-responding organizations likely did not meet the definition of the target study population. These 36 organizations were fishing groups (24), property owners' associations (4), lake associations (3), and recreation-oriented organizations (5). It could not be determined whether the remaining 18 non-responding organizations matched the characteristics of the target study organizations: 3 were education organizations, 4 were advocacy organizations, 2 were watershed protection organizations, and 9 were unclassifiable due to lack of information (Figure 4).

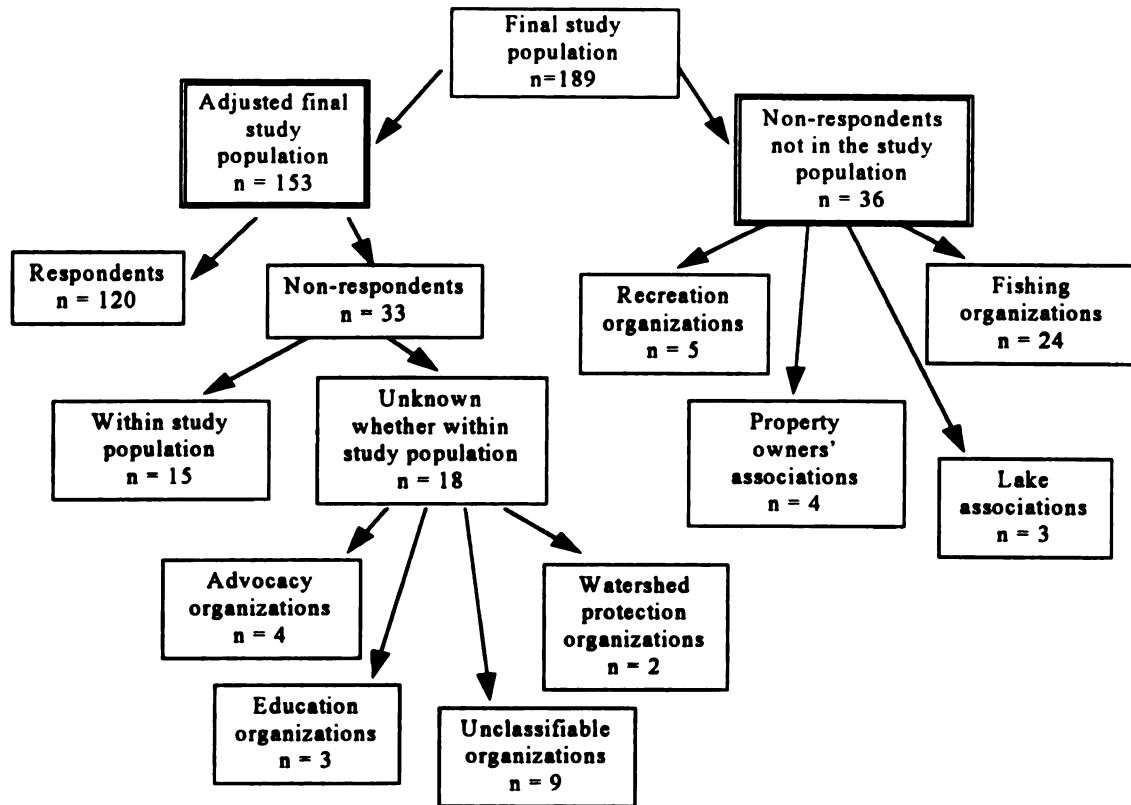
When the 36 non-respondents determined to be outside the scope of this study were removed from the final study population, an adjusted study population of 153 was obtained. Therefore, the adjusted response rate was 78.4% (of the adjusted study population) (Figure 4).



**Figure 3.** Initial and final study populations.

### **Characteristics of Respondents to Telephone Follow-Up**

The 6 responses received during the telephone follow-up survey were very similar to the mail survey responses. All 6 responding groups were non-profit and non-governmental organizations. The average percentage of organizations' time allocated to stream and river programming was 32% (of 5 respondents). Stream and river activities included conducting education projects; providing information to the general public; mapping watersheds, planning and setting priorities; conducting restoration or enhancement projects; doing water quality monitoring; and implementing clean-ups (Table 3).



**Figure 4.** Characterization of non-respondents and adjusted final study population.

### **Characteristics of Responding Study Organizations**

The majority of the responding study organizations were located in the northeast (21.1%), northwest (29.8%) and southwest (27.0%) portions of Michigan's lower peninsula. The rest were divided among the southeast lower peninsula (11.4%) and the upper peninsula (6.2%); and 7.9% of the responding study organizations conduct stream and river programming on a statewide level (Table 4).

**Table 3**  
**Activities Conducted By Respondents to Telephone Follow-Up Survey**

<b>Activities<sup>a</sup></b>	<b>Frequency (of phone respondents n = 6)</b>	<b>Valid Percent (% of phone respondents)</b>
Educational projects (workshops, displays, festivals, schools)	5	83.3
Provide information to the general public, youth, riparian owners and government officials	4	66.7
Watershed mapping, planning, priority setting	3	50.0
Efforts to influence decision makers	2	33.3
Restoration and enhancement activities	2	33.3
Water monitoring (biological, chemical or physical)	2	33.3
Fish or other vertebrate population assessments	1	16.7
River or stream clean-ups	1	16.7
Other (access to wetlands)	1	16.7

<sup>a</sup> Other response categories for activities in which none of the six responding organizations were involved: habitat assessments or surveys, bank and road crossing assessments, photographic surveys, pipe surveys, assessment of floodplain characteristic (vegetation, size), sediment assessments, runoff surveys (sediment and pollution source), bank and road crossing assessments, construction site inspections, and watercourse configuration assessment (depth, shape, composition).

**Table 4**  
**Geographic Location of Michigan's Citizen Action Stream and River Organizations**

<b>Location</b>	<b>Frequency (of study sample)</b>	<b>Valid Percent (% of study sample)</b>
Upper Peninsula, Lake Michigan Watershed	1	0.9
Upper Peninsula, Lake Superior Watershed	6	5.3
Northeast Lower Peninsula <sup>a</sup>	24	21.1
Northwest Lower Peninsula <sup>b</sup>	34	29.8
Southeast Lower Peninsula <sup>c</sup>	13	11.4
Southwest Lower Peninsula <sup>d</sup>	27	23.7
Statewide <sup>e</sup>	9	7.9

<sup>a</sup> Includes Saginaw Bay watershed, and those watersheds north to Cheboygon county.

<sup>b</sup> Includes Upper Muskegon River watershed and those watersheds north to Emmet county.

<sup>c</sup> Includes watersheds which drain to the St. Clair River between the Belle River and the River Raisin.

<sup>d</sup> Includes watersheds from the lower portions of the White and Muskegon Rivers south to the St. Joseph River.

<sup>e</sup> These organizations conduct the majority of their activities on a statewide level.



When categorized by financial status and organizational structure, responding organizations could be divided into three general categories: non-profit, non-governmental, stream and river stewardship citizen action organizations (Primary NGOs) (58.8%); other non-profit citizen action organizations which were indirectly or marginally involved in stream and river stewardship (Secondary NGOs) (25.4%); and citizen non-profit stream and river stewardship organizations which are fostered by, or work closely with governmental agencies (Fostered NGOs) (15.8%) (Table 5).

**Table 5**  
**Organization Types as Reported by Respondents**

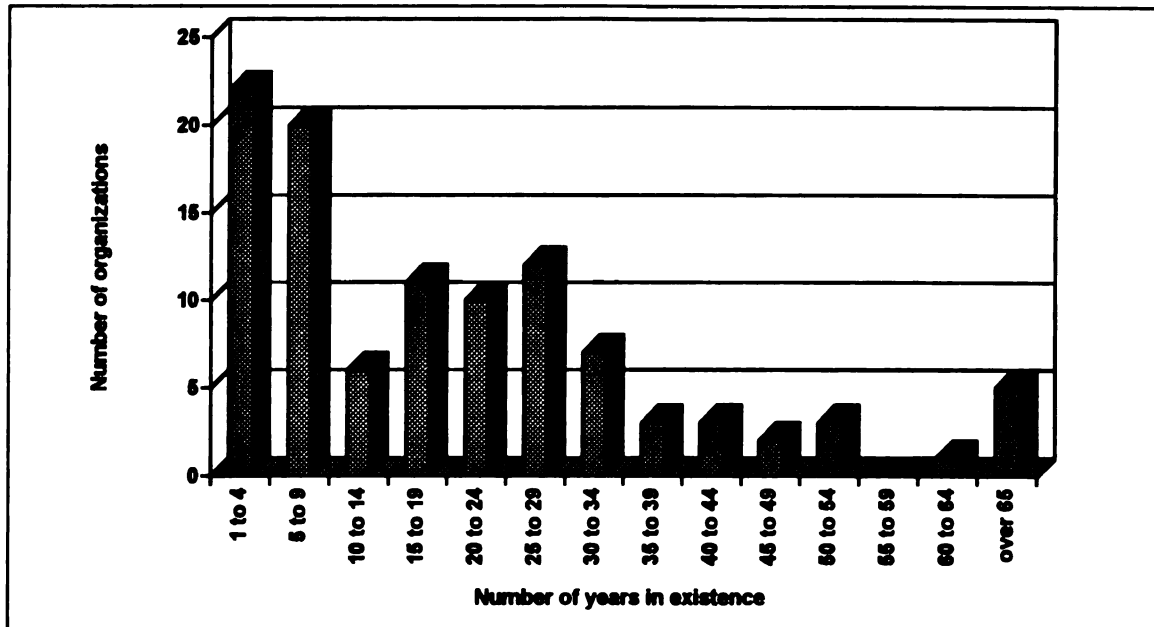
<b>Organization Type</b>	<b>Frequency (of study sample)</b>	<b>Valid Percent (% of study sample)</b>
<b>Primary NGOs <sup>a</sup></b>	<b>67</b>	<b>58.8</b>
<b>Secondary NGOs <sup>b</sup></b>		
Advocacy groups whose work indirectly impacts river and stream stewardship	4	3.5
Resource protection groups whose work indirectly impacts river and stream stewardship	5	4.4
Primarily educational groups whose work indirectly impacts river and stream stewardship	4	3.5
Parent organizations whose chapters implement river and stream stewardship programs	3	2.6
Lake associations whose work indirectly impact river and stream stewardship	6	5.3
Other organizations marginally involved in stream and river stewardship (e.g. recreation groups)	7	6.1
<b>Fostered NGOs <sup>c</sup></b>		
Non-profit organizations fostered by a governmental agency; volunteers implement stream and river stewardship programming	10	8.8
Organizations which are a partnership of governmental units; volunteers implement stream and river stewardship programming	3	2.6
Committees representing various groups for purpose of stream and river stewardship; volunteers implement stream and river stewardship programming	5	4.4

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations fostered by, or work closely with governmental agencies.

The mean number of years in existence for the responding study organizations was 20.4 years (median 16.0 years, standard deviation 20.3 years) (Figure 5). Many organizations were relatively young; 45 of 109 responding study organizations (41.3%) were founded in the past ten years.



**Figure 5.** Number of years in existence for Michigan's stream and river stewardship citizen action organizations (n = 109).

### **Inputs to Michigan's Stream and River Stewardship Citizen Action Organizations**

**Inputs in General:** The study organizations rely heavily upon volunteers to implement programming. The number of active volunteers per organization ranges from zero to 2,500, with a mean number of active volunteers of 97.1 (Table 6). The total number of members per responding study organization ranged from 7 to 70,000 (mean number of total members was 1561.1). Approximately half of the 98 responding study

organizations reported having paid staff (58 Primary NGOs, 24 Secondary NGOs and 16 Fostered NGOs)48 out of 98). The mean number of paid staff was 3.5, however, 28.5% of the study population reported having 1 to 3 paid staff members. The mean percentage of staff time allocated to stream and river activities was 38.7%, indicating that on the average the study organizations spend much of their time on other programs or activities (Table 6).

**Table 6**  
**How Citizen Action Stream and River Stewardship Organizations are Staffed**

Type of staffing	Mean (of study sample)	Median (of study sample)	Standard Deviation	n
Number of paid staff	3.5	na	13.6	98
Percent of staff time allocated to streams and rivers	38.6%	17.5%	39.0	71
Number of active volunteers	97.1	20.0	303.7	97
Total number of members	1561.1	150.0	7951.9	87

The median annual budget for the study organizations was \$15,500, with a mean of \$186,475.56 (for 98 responding organizations). The mean was skewed by a small number of organizations which reported a large annual budget. Both of the two organizations which reported an annual budget greater than \$650,000 were not Primary NGOs. One of these was an organization that works to protect habitat on the statewide level by purchasing property, and thus was classified as a Secondary NGO. The other, a Fostered NGO, was an organization fostered by a governmental agency, and it is

suspected that the reported annual budget (\$8,000,000) includes all of the agency's budget, rather than solely that of the stream and river stewardship organization fostered by that agency. The mean percent of the total annual budget allocated to stream and river work was 48.0% (median 35.0%, standard deviation 40.1%). When the two organizations with a reported annual budget greater than \$650,000 are removed from the calculation, this mean changes only slightly (to 48.1%) and the median and standard deviation remains virtually the same. However, 20 of the study organizations allocate 100% of their total budget to stream and river stewardship programs.

The Mann-Whitney U test was utilized to test for significant differences in activities between the 20 organizations which allocate 100% of their total budget to stream and river stewardship programs and the rest of the responding organizations. A significant difference was found in responses to one activity response category. The organizations which allocate 100% of their budget more commonly implement general education activities ( $p = 0.01$ ) than do groups with a lower percentage of their budget allocated to stream and river programming (Appendix G, Table G-1).

Sources of funding of the study organizations include various governmental, private and non-profit organizations. The sources of most funding, however, were membership dues (accounts for 30.5% of funding for stream and river programs), fundraising (12.7%), foundations (10.1%), and federal and state government (8.6% and 8.4% respectively) (Table 7).

The study organizations receive non-financial and non-material technical or organizational support from a diversity of organizations. Opinion leaders were asked to

rate how significant or important were the contributions of assisting organizations to stream and river stewardship programming. Contributions from the Michigan Department of Natural Resources (DNR) and other non-profit organizations were rated the most significant sources of assistance (Table 8).

**Table 7**  
Reported Sources of Funding for Michigan's Citizen Action Stream and River Stewardship Organizations

Source of funding	Frequency (of study sample)	Mean (% of funding)	Standard Deviation	n
Membership dues	51	30.53	41.14	101
Fundraising	20	12.72	30.91	114
Foundation(s)	30	10.15	24.73	103
Other <sup>a</sup>	18	8.70	23.42	102
Federal government	22	8.57	22.54	103
State government	23	8.39	21.22	103
Corporate donation	20	5.60	18.20	104
Local business	20	3.71	12.01	104
Local government	16	2.62	11.17	104
County government	10	1.23	5.31	104
Individual donations	9	0.53	2.77	114

<sup>a</sup> Seven respondents listed sources not included in response categories: non profit groups (5 respondents), and local schools (2). Two respondents listed multiple sources: Association members, contributions, special grants (1 respondent), Special programs, grants, donations (1). Sources of funding for three respondents cannot be interpreted: Club budget (1), Lakes support (1), Private organizations (1). Six respondents did not provide a description of "other funding source".

**Regional variations in inputs:** The Kruskal Wallis one-way analysis of Variance was utilized to test for significant differences in sources of assistance between organizations from different regions of the lower peninsula. Several statistically significant regional differences were found (Appendix G, Table G-2):

- the southeast lower peninsula organizations rated the contributions of university staff more significant than did organizations from all other regions ( $p=0.01$ ),
- the southeast lower peninsula organizations rated the contributions of university and college students more significant than did organizations from all other regions ( $p=0.02$ ),
- the southeast and southwest organizations rated the contributions of local government staff more significant than organizations in the northern half of the lower peninsula. Organizations from the northeast lower peninsula rated the significance of these contributions lower than did all other regions ( $p=0.05$ ).

Table 8

Organizations Which Provide Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance

Sources of Assistance	Mean rating of contribution <sup>a</sup>	Median rating of contribution <sup>a</sup>	Standard Deviation	n
Depart. of Natural Resources	3.90	4.0	1.02	101
Other non-profit organizations	3.87	4.0	1.06	90
Dept. of Transportation	3.39	2.0	0.73	71
Natural Resources Conservation Service	3.37	3.0	1.13	86
Depart. of Environmental Quality	3.28	3.0	1.04	85
University staff	3.12	3.0	1.08	84
Local government staff	3.11	3.0	1.04	83
Extension personnel	3.06	3.0	0.95	82
For-profit (consultants/businesses)	3.05	3.0	1.00	79
University/college students	2.98	3.0	1.03	82
County Drain Commissioner/staff	2.90	2.0	1.08	87
Environmental Protection Agency	2.80	3.0	0.93	84
US Forest Service	2.79	2.0	1.06	80
US Fish and Wildlife Service	2.78	2.5	0.93	80
Other County government staff	2.74	2.5	0.89	78
Dept. of Agriculture	2.72	2.0	0.90	78
Other <sup>b</sup>	2.48	2.0	1.73	25
Other State government staff	2.40	2.0	0.69	63
Junior/Community College staff	2.38	2.0	0.70	74
Other Federal government staff	2.34	2.0	0.72	56

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support). 1 = unsure if a contribution is made, and therefore was not included in the analysis.

<sup>b</sup> Public schools (1 respondent), a governmental or non profit organization was listed but a rating was not provided (3), no source specified (20).

The Mann-Whitney U test was utilized to test for significant differences between organizations in the northern and southern portions of the lower peninsula in ratings of the relative significance of sources of assistance. Several statistically significant regional differences were found (Appendix G, Table G-3):

- organizations in the southern half of the lower peninsula rated the contributions of university staff more significant than did organizations in the north ( $p=0.008$ ),
- organizations in the southern half of the lower peninsula rated the contributions of university and college students more significant than organizations in the north ( $p=0.01$ ),
- organizations in the southern half of the lower peninsula rated the contributions of county drain commissioners more significant than organizations in the north ( $p=0.03$ ).

The Mann-Whitney U test was utilized to test for significant differences between organizations in the eastern and western portions of the lower peninsula in ratings of the relative significance of sources of assistance. No statistically significant regional differences were found between eastern and western organizations (Appendix G, Table G-4).

**Input variations between organization types:** The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences in sources of assistance between different types of organizations (primary NGOs, secondary NGOs, fostered NGOs). Several statistically significant regional differences were found (Appendix G, Table G-5):

- fostered NGOs rated the contributions from Natural Resources Conservation Service staff more significant than primary and secondary NGOs. Secondary NGOs rated the significance of these contribution the lowest ( $p < 0.001$ ),
- fostered NGOs rated the contributions of other state government staff more significant than primary and secondary NGOs. Secondary NGOs rated the significance of these contributions the lowest ( $p = 0.005$ ),
- fostered NGOs rated the contributions of other county government staff more significant than primary and secondary NGOs. Secondary NGOs rated these contributions the lowest ( $p=0.007$ ),

- fostered NGOs rated the contributions of Michigan Department of Environmental Quality staff more significant than primary and secondary NGOs. Secondary NGOs rated these contributions the lowest ( $p=0.008$ ),
- fostered NGOs rated the contributions of Michigan Department of Natural Resources staff more significant than primary and secondary NGOs. Secondary NGOs rated these contributions the lowest ( $p=0.01$ ),
- fostered NGOs rated the contributions of Environmental Protection Agency staff more significant than primary and secondary NGOs. Primary NGOs rated these contributions the lowest ( $p=0.02$ ),
- secondary NGOs rated the significance of contributions from local government staff lower than primary and fostered NGOs ( $p=0.01$ ).

**Inputs variations compared to staffing characteristics:** The Mann-Whitney U test was utilized to test for significant differences in sources of assistance between organizations with or without paid staff. Several statistically significant differences were found. Those organizations with paid staff rated the contributions of the following organizations more significant than did organizations with no paid staff: Michigan Department of Transportation ( $p=0.05$ ), Michigan Department Environmental Quality ( $p=0.003$ ), county drain commissioner ( $p=0.02$ ), and other county government staff ( $p=0.01$ ). Organizations with no paid staff rated the contributions of the Michigan Department of Natural Resources more significant than did organizations with paid staff ( $p=0.02$ ) (Appendix G, Table G-6).

### **Processes of Michigan's Stream and River Stewardship Citizen Action**

#### **Organizations**

The most commonly conducted activities of Michigan's citizen action stream and river stewardship organizations were efforts to influence decision makers, distributing information or conducting educational activities. These commonly conducted activities include providing information to the general public (92.0% of responding study



organizations), conducting general educational activities (80.7%), making efforts to influence decision makers at the local level (77.5%), providing information to local or county government officials (72.3%), providing information to riparian owners (71.4%), making efforts to influence county level decision makers (67.9%), making efforts to influence federal level decision makers (67.0%), conducting restoration or enhancement projects (66.1%), and providing information to youth (65.2%) (Table 9).

**Table 9**  
**Activities Conducted by Citizen Action Stream and River Stewardship Organizations in Michigan**

<b>Activities</b>	<b>Frequency (of study sample)</b>	<b>Valid Percent (% of study sample)</b>	<b>n</b>
Provide information to the general public	103	92.0	112
Educational activities, in general	92	80.7	114
Provide information to riparian owners	80	71.4	112
Environmental cleanups	75	66.4	113
Provide information to youth	73	65.2	112
Collect data or information from rivers or streams	57	51.4	111
Wildlife habitat assessments (fish or wildlife), in general	45	39.8	113
Planning; i.e. watershed level land-use planning	43	38.4	112
Watershed level problem/activity priority setting	43	38.4	112
Bank and road crossing assessments	41	36.6	112
Program or project evaluation	36	32.1	112
Watershed mapping	31	27.7	112
Water resource inventories at the watershed level	24	21.4	112
Other <sup>a</sup>	21	18.8	112
Construction site inspections	15	13.4	112
Efforts to influence local (municipal/township) decision makers to support organization's position	86	77.5	111
Provide information to local or county government officials	81	72.3	112
Efforts to influence county decision makers to support organization's position	76	67.9	112
Efforts to influence state or federal decision makers to support organization's position	75	67.0	112

Table 9 (cont'd).

Restoration and enhancement activities for rivers and streams, in general	74	66.1	112
Lobbying efforts for legislative support of organization's position	33	29.5	112

<sup>a</sup> Eleven (11) respondents provided responses unrelated to response categories: Fish rearing and planting (2 respondents), Work on gas and oil pipeline flow issues (1), trailway planning and conservation (1), Lake shore surveys (1), Funding eight projects on streams and rivers (1), Survey of access sites for recreational use (1), Efforts to get the DNR to clean up the Platte River State Fish Hatchery (1), Special grants projects (1), Land trust activities (1), Scientific board (1).

Seven (7) reported activities which were addressed in other parts of the survey: Stream bank erosion control (1), Habitat restoration and improvement (2), Research to best manage natural resources (1), Clean-up (over 32 tons removed, 90% recycled) (1), Legal action (1), Survey and monitor natural areas which may or may not be directly associated with rivers and streams (1).

When asked to specify which activities take place in or for streams and rivers, as opposed to other environments, most respondents report conducting activities mainly in rivers or streams (Table 10).

Table 10

Activities Conducted in or for Rivers, Streams and Other Environments

Activity	n	Conducted in Rivers and Streams (as well as other environments) <sup>a</sup>		Conducted Only in Other Environments <sup>a</sup>	
		Frequency (of study sample)	Valid Percent (% of study sample)	Frequency (of study sample)	Valid Percent (% of study sample)
Environmental clean-ups	106	58	54.7	5	4.7
Habitat assessment/ surveys	107	57	53.3	4	3.7
Water monitoring, physical (depth, flow etc.)	109	43	39.4	7	6.4
Fish or other vertebrate population assessment/survey	108	42	38.9	2	1.9
Water monitoring, biological	109	41	37.6	9	8.3
Sediment assessment	109	41	37.6	3	2.8

Table 10 (cont'd).

Runoff surveys, sediment and pollution source survey	109	41	37.6	3	2.8
Water monitoring, chemical Research	109	37	33.9	7	6.4
	109	31	28.4	3	2.8
Watercourse configuration assessment (depth, shape, composition etc.)	109	26	23.9	1	0.9
Photographic surveys	109	24	22.0	3	2.8
Assessment of floodplain characteristics (vegetation, size etc.)	109	22	20.2	4	3.7
Pipe surveys	107	8	7.5	2	1.9

\* Other environments include Great Lakes, wetlands, inland lakes and ponds, and wells.

**Process variations between organization types:** The Kruskal Wallis one way analysis of variance was utilized to test for significant differences in stream and river stewardship activities conducted between organization types (Primary, Secondary and Fostered NGOs). Several significant differences were found (Appendix G, Table G-7):

- activities more commonly reported by fostered NGOs than other organization types:
  - ◆ watershed level problem or activity priority setting ( $p = 0.03$ ),
  - ◆ wildlife habitat assessments ( $p = 0.02$ ),
  - ◆ runoff control activities ( $p = 0.05$ ),
  - ◆ tree and shrub plantings for restoration and enhancement ( $p = 0.003$ ),
  - ◆ program or project evaluations ( $p = 0.01$ ),
  - ◆ bank and road crossing assessments ( $p < 0.001$ ),
  - ◆ construction site inspections ( $p = 0.005$ ),
  - ◆ sediment assessment ( $p < 0.001$ ).
- activities least commonly reported by secondary NGOs as compared to all other groups:
  - ◆ bank and road crossing assessments ( $p < 0.001$ ),
  - ◆ program or project evaluations ( $p = 0.01$ ),
  - ◆ providing information to youth ( $p = 0.02$ ),
  - ◆ water resource inventories at the watershed level ( $p = 0.002$ ),
  - ◆ stream and river clean-ups ( $p = 0.008$ ).

**Process variations compared to staffing characteristics:** The Mann-Whitney U test was utilized to test for significant differences in activities between organizations with or without paid staff. Several statistically significant differences were found. Those organizations with paid staff were more commonly involved in the following stream and river stewardship activities than were organizations with no paid staff (Appendix G, Table G-8):

- habitat assessments or surveys ( $p= 0.02$ ),
- construction site inspections ( $p= 0.003$ ),
- watercourse configuration assessments (depth, shape, composition) ( $p= 0.04$ ),
- assessment of floodplain characteristics (vegetation, size) ( $p= 0.04$ ),
- watershed mapping ( $p=0.02$ ),
- watershed land-use planning ( $p= 0.008$ ),
- watershed level priority setting ( $p= 0.04$ ),
- program or project evaluation ( $p= 0.01$ ),
- biological water monitoring ( $p= 0.04$ ),
- chemical water monitoring ( $p= 0.002$ ),

### **Tangible Outputs Resulting from Organizations' Processes**

**Tangible outputs in general:** Conducting environmental cleanups was reported by 66.4% of the responding study organizations. Collecting human created trash from the river or stream (88.2% of organizations conducting clean-ups) and from the banks or riparian zone (88.2%) were the primary activities conducted as part of a river or stream clean-up. Providing educational awareness activities or events concurrent with the clean-up, ranks third as the most common clean-up activity (67.1%) (Table 11).

**Table 11**  
**Activities Conducted as Part of a River or Stream Clean-Up**

<b>Activities</b>	<b>Frequency (of study organizations which conduct clean-ups, n = 113)</b>	<b>Valid percent (% of study organizations which conduct clean-ups)</b>	<b>n</b>
Collection of human created trash from the stream or river	67	88.2	76
Collection of human created trash from the banks or riparian zone	67	88.2	76
Provide educational/awareness activities or events concurrent with clean-ups	51	67.1	76
Planting of trees, shrubs, grasses for aesthetics	32	42.1	76
Removal of brush and logs from the stream/river	31	40.8	76
Removal of brush and logs from the banks or riparian zones	18	23.7	76
Other <sup>a</sup>	8	10.5	76

<sup>a</sup> Four (4) respondents specified their response as follows: Cleanup of path near river (1 respondent), Conduct Beaver Island Lake Days for every 6th grade student from three school communities (1), Restoration of natural habitat (1), Road side Adopt-a Highway (1).  
Two (2) respondents reported activities which facilitate clean-ups conducted by other organizations: Provide clearinghouse for clean-up efforts and information and facilities communication between local clean-up and water monitoring groups (1), Provide "how to" and where to obtain assistance to served groups wishing to conduct river trash clean-ups (1).

Fish or wildlife habitat assessments are conducted for rivers and streams by 38.9% (45) of responding organizations. The three most common assessments reported were investigations of aquatic invertebrates, fishes, and habitat along the banks (Table 12).

Restoration and enhancement activities were conducted on streams and rivers by 66.1% (74) of the responding study organizations. The three most frequently conducted enhancement activities were tree and shrub planting (73.0% of responding organizations

which conduct restoration and enhancement projects), vegetative stabilization (67.6%), and non-vegetation bank stabilization (64.9%) (Table 13).

Table 12

Types of Fish or Wildlife Habitat Assessments Conducted on Rivers and Streams

Habitat assessment type	Valid frequency (out of the 45 of those who do assessments)	Valid percent (out of the 39.8% of those who do assessments)
Aquatic invertebrate	28	63.6
Fish	25	56.8
Habitat along banks	22	50.0
Habitat in floodplain	11	25.0
Access to habitat	9	20.5
Other <sup>a</sup>	2	4.5

<sup>a</sup> The two (2) respondents specified their assessment outputs: Habitat improvement by adding large woody debris, Camper programs.

Table 13

Types of Restoration and Enhancement Activities Conducted by Michigan's Citizen Action Stream and River Stewardship Organizations

Activity	Valid frequency (out of the 74 who do restoration and enhancement)	Valid percent (out of the 66.1% of those who do restoration and enhancement)
Tree and shrub planting	54	73.0
Vegetative stabilization (grass or ground cover plantings and bioengineering)	50	67.6
Non vegetation bank stabilization	48	64.9
Runoff control	40	54.1
Construction and/or placement of in-stream structures	39	52.7
Habitat improvement such as sediment removal	35	47.3

Table 13 (cont'd).

Pavement of gravel or rock in the channel	30	40.5
Vegetation protection	26	35.1
Pollution and/or eutrophication control	18	24.3
Vegetation removal	14	18.9
Other <sup>a</sup>	5	6.8

<sup>a</sup> Three (3 respondents) were not appropriate responses to the question: Education, Will be conducting these activities in the future, Raise fish for river stocking.

Two (2) responses may have fit in the response categories, but cannot be interpreted: Restoration of natural habitat, Recreational access.

Physical, chemical or biological data were collected by 47.7% of the responding study organizations. The top eight parameters measured were temperature (74.1% of responding study organizations), invertebrates (51.9%), pH (51.9%), dissolved oxygen (50.0%), aquatic vegetation (44.4%), phosphorus (44.4%), fish (42.6%), and flow/velocity regimes (40.7%) (Tables 14 and 15). Data were analyzed in laboratories (46.0%), with test kits (42.0%), and by other means (32.0%). Many of the responses for “analyzed by other means” indicated that the question was not interpreted correctly: nine of these 16 responses were not relevant to the question, and seven listed another organization but did not indicate if analysis was completed with a test kit or if data were sent to a professional laboratory. (Table 16).

The two most popular uses for data collected by the study organizations were for educational purposes (by 64.3% of respondents), and watchdogging (57.1%). Other common uses included for local decision making (39.3%), non-point source pollution assessments (37.5%), watershed planning (35.7%), habitat restoration (35.7%), and research (33.9%) (Table 17).

Table 14

**Physical and Chemical Data Collected by Michigan's Citizen Action Stream and River Stewardship Organizations**

<b>Parameter</b>	<b>Frequency (of study organizations which collect data n = 54)</b>	<b>Valid percent (% of study organizations which collect data)</b>
Water temperature	40	74.1
pH	28	51.9
DO	27	50.0
BOD	25	46.3
Phosphorus	24	44.4
Flow/velocity regimes	22	40.7
Turbidity	18	33.3
Nitrogen	18	33.3
Secchi transparency	18	33.3
Rainfall	17	31.5
TSS/TDS	14	25.9
Alkalinity	12	22.2
Chlorides	11	20.4
Pesticides	8	14.9
COD	8	14.8
Metals	8	14.8
Hardness	8	14.8
Oil and grease	7	13.0
Hydrocarbons	6	11.1
Other <sup>a</sup>	6	11.1

<sup>a</sup> Two of the five respondents specified: Physical visual problems, Provide some financial support for students doing it.



Table 15

**Biological Data Collected by Michigan's Citizen Action Stream and River Stewardship Organizations**

Parameter	Frequency (of study organizations which collect data n = 54)	Valid percent (% of study organizations which collect data)
Invertebrates	28	51.9
Aquatic vegetation	24	44.4
Fish	23	42.6
Riparian vegetation	20	37
Coliform bacteria	18	33.3
Algae	14	25.9
Amphibians and reptiles	12	22.2
Birds/wildlife	11	20.4
Chlorophyll	7	13.0
Other bacteria	5	9.3
Other <sup>a</sup>	3	5.6

<sup>a</sup> One respondent specified response as : Visual problems.

Table 16

**Handling and Analysis of Data Collected by Michigan's Citizen Action Stream and River Stewardship Organizations**

Handling and analysis method	Frequency (of study organizations which reported collecting data, n = 57)	Valid percent (% of study organizations which reported collecting data)
Send to a laboratory for analysis	23	46.0
Collected with a test kit and analyzed by organization's staff	21	42.0
Other <sup>a</sup>	16	32.0

<sup>a</sup> Nine (9) responses were not relevant to the question: File it (1 respondent), Dye tests (1), Organized into reports and letters (1), Observed physical alterations, pollution at outfalls, fish kills, etc. (3), Working with GREEN and high schools (1), Survey (1), Analyze with volunteers and experts (1). Seven (7) respondents send data to another organizations such as a private laboratory, Michigan State University, Michigan Department of Natural Resources, Global Rivers Environmental Education Network.

**Table 17**  
**Uses of Data Collected by Michigan's Citizen Action Stream and River Stewardship Organizations**

<b>Uses of data</b>	<b>Frequency (of study organizations which reported collecting data, n = 57)</b>	<b>Valid percent (% of study organizations which reported collecting data)</b>
Education	36	64.3
Watchdogging	32	57.1
Local decision making	22	39.3
Non-point pollution assessment	21	37.5
Watershed planning	20	35.7
Habitat restoration	20	35.7
Research	19	33.9
Point source pollution assessments	12	21.4
Other <sup>a</sup>	12	21.4
Water classification/standards	8	14.3
Enforcement	5	8.9
Legislation	4	7.1
Don't know what is done	1	0.9
Nothing is done with it	0	0
305(b) report	0	0

<sup>a</sup> Twelve (12) responses were specified: Posted on web site, Kept on file and compared to past data, Used to show if Best Management Practices are working, Hopefully will be used in watershed planning, Provided to MDEQ to use to identify locations for their own sampling, Dedication to natural areas, Call Pollution Emergency Alerting System or Fisheries Division of MDNR, Put in MDNR database, Watershed budget, inclusion or exclusion of site for use based on potential degradation, Working on an action plan, Used in fish planting programs.

Most organizations share their data with others (96.4% of responding study organizations). The other organizations with which data were commonly shared were other non-profit, advocacy or lobbying organizations. Data were reported shared with local governments (by 58.9% of responding study organizations) and state governments (57.1%). Educators were the fourth most common recipients of data (46.4%) (Table 18).

**Table 18**  
**Organizations with Which Michigan's Citizen Action Stream and River Stewardship**  
**Organizations Share Data**

<b>Organization sharing data</b>	<b>Frequency (of study organizations which reported collecting data, n = 57)</b>	<b>Valid percent (% of study organizations which reported collecting data)</b>
Local government	33	58.9
State government	32	57.1
Educators	26	46.4
Advocacy groups	23	41.1
University scientists	20	35.7
County government	19	33.9
Federal government	16	28.6
Other <sup>a</sup>	14	25.0
Lobby organizations	4	7.1
Data are not shared	2	3.6

<sup>a</sup> Three (3) responses were not relevant to the question: Shared on web site, baseline, as needed. Seven (7 respondents) listed an organization: Michigan Environmental Council, Chamber of Commerce, Lake associations, Tipp of the Mitt Watershed Council, Michigan Lakes and Streams Association, Huron river Watershed Council, North East Michigan Council of Governments. Five (5) listed projects, or individuals: Rouge River Wet Weather Demonstration Project, Michigan Natural Features inventory, Students, Local riparian owners, and Interested citizens.

**Tangible output variations between organization types:** The Kruskal Wallis one way analysis of variance was utilized to test for significant differences in tangible outputs between organization types (Primary, Secondary and Fostered NGOs). Several significant differences were found (Appendix G, Tables G-9, G-10, G-11, G-12):

- activities more commonly reported by fostered NGOs than other organizations:
  - ◆ planting of trees, shrubs or grasses for aesthetics as part of a stream or river clean-up ( $p= 0.05$ ),
  - ◆ non-vegetation bank stabilization ( $p< 0.001$ ),
  - ◆ tree and shrub plantings for restoration and enhancement ( $p= 0.003$ ),
- activities more commonly reported by secondary NGOs than other organizations:
  - ◆ other types of restoration and enhancement activities ( $p= 0.02$ ).
- activities least commonly reported by secondary NGOs as compared to other organizations:

- ◆ bank and road crossing assessments ( $p < 0.001$ ),
- ◆ program or project evaluations ( $p = 0.01$ ),
- ◆ restoration and enhancement activities ( $p = 0.004$ ),
- ◆ removal of brush and logs from the stream or river as part of a river clean-up ( $p = 0.04$ ),
- ◆ placement of gravel or rock in the river channel as part of a restoration or enhancement project ( $p = 0.05$ ),
- ◆ working with youth or schools ( $p = 0.03$ ),
- ◆ providing information to youth ( $p = 0.02$ ),
- ◆ water resource inventories at the watershed level ( $p = 0.002$ ),
- ◆ production of displays for other organizations' events ( $p = 0.006$ ),
- ◆ non-vegetation bank stabilization ( $p < 0.001$ ),
- ◆ vegetative stabilization (grass or ground cover planting and bioengineering ( $p < 0.001$ ),
- ◆ stream and river clean-ups ( $p = 0.008$ ).

**Tangible output variations compared to staffing characteristics:** The Mann-Whitney U test was utilized to test for significant differences in tangible outputs between organizations with or without paid staff. Several statistically significant differences were found. Those organizations with paid staff were more commonly involved in the following stream and river stewardship activities than were organizations with no paid staff (Appendix G, Tables G-13, G-14, G-15, G-16):

- collection of data or information ( $p = 0.006$ ),
- collection of biological oxygen demand data ( $p = 0.04$ ),
- collection of phosphorus data ( $p = 0.04$ ),
- collection of total suspended solids and/or total dissolved solids ( $p = 0.01$ ),
- collection of nitrogen data ( $p = 0.04$ ).

The following stream and river stewardship activities were more commonly conducted by organizations with no paid staff:

- collection of fish data ( $p = 0.003$ ),
- construction and/or placement of instream structures ( $p < 0.001$ ),
- provide educational activities concurrent with clean-ups ( $p < 0.01$ ).

### **Action Outputs Resulting from Organizations' Processes**

**Action outputs in general:** Educational activities were commonly reported as a part of stream and river programming (80.7% of respondents). The most common of these are: working with youth or schools, production of printed materials, and holding or hosting workshops, conference or public awareness days (Table 19).

**Table 19**  
**Educational Activities Conducted for Rivers and Streams**

<b>Educational Activity</b>	<b>Frequency (out of 92 who do educational activities)</b>	<b>Valid Percent (% of those who do educational activities)</b>
Production of printed materials	61	66.3
Working with youth or schools	59	64.1
Holding or hosting workshops of conferences or public awareness days	56	60.9
Production of displays for other organizations' events	41	44.6
Other education activities <sup>a</sup>	28	30.4
Production of radio or television spots or programs	14	15.2

<sup>a</sup> Eight (8 respondents) report using other types of media: Local news articles, Developed groundwater curriculum materials, Education videos, Press releases, Signage for access sites, Developing a slide show and video, Developed a movie with local TV station, Travel panel for learning how to fish. Two (2) provide support to others who do educational activities: Source for IWLA Save-Our-Streams material, Provide funds to youth camps and college students with environmental interests.

Ten (10) respondents report activities which can not be categorized: Meet with service organizations, Boy Scout P.M. clean-up yearly, Lakeside demonstration, student research, Directed to land managers and decision makers, One of the nation's largest school monitoring programs with forty schools participating, Fund research done by WSCC students, Educate canoeists on river use, Nature hikes, Boat tours and canoe trips.

**Action Output variations between organization types:** The Kruskal Wallis one way analysis of variance was utilized to test for significant differences in stream and river stewardship action outputs between organization types (Primary, Secondary and Fostered

NGOs). Working with youth or schools was least commonly reported by Secondary NGOs as compared to other organizations ( $p= 0.03$ ) (Appendix G, Table G-17).

**Action output variations compared to staffing characteristics:** The Mann-Whitney U test was utilized to test for significant differences in action outputs between organizations with or without paid staff. No statistically significant differences were found (Appendix G, Table G-18).

### **Organizational and Technical Needs**

**Needs in general:** Two needs were rated highly as most important to organizations' functioning: consistent funding and networking among groups (Table 20).

**Regional variations of needs:** The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences between organizations in different regions of the lower peninsula in perceived organizational and technical needs. The southwest and northeast rated the need for improved resource materials and access to them higher than did organizations from the other regions ( $p= 0.02$ ) (Appendix G, Table G-19).

The Mann-Whitney U test was utilized to test for significant differences in perceived organizational and technical needs between responding study organizations in the east and west halves of the lower peninsula. No statistically significant differences were found (Appendix G, Table G-20). In addition, no statistically significant differences were found when the Mann-Whitney U test was utilized to test for significant differences

in perceived organizational and technical needs between responding study organizations in north and south halves of the lower peninsula (Appendix G, Table G-21).

Table 20

**Organizational and Technical Needs, Which When Met, May Result in Improved Organizational Functioning and May Allow Organizations to Better Meet Goals**

Organizational and technical needs	Mean <sup>a</sup> rating of importance	Median <sup>a</sup> rating of importance	Standard Deviation	n
Consistent funding and information on how to access funding sources	3.74	4.0	1.36	102
Networking among groups; better communication and sharing of information	3.47	4.0	1.06	102
Improved resource materials and access	3.36	3.0	1.06	99
Other <sup>b</sup>	3.13	4.0	1.85	15
Opportunities to learn how to develop partnerships and liaisons	3.12	3.0	1.17	99
Focus to our group's activities, assistance with group organization and leadership	3.02	3.0	1.20	99
More opportunity for inclusive stakeholder participation in decisions and discussions	2.94	3.0	1.23	94
Access to baseline data	2.90	3.0	1.21	98
Information necessary to do increased advocacy (e.g., lobbying)	2.81	3.0	1.29	99
Standardization of data collection procedures	2.69	2.0	1.31	93

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

**Variations between organization types in organizational and technical needs:**

The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences in perceived organizational and technical needs between different types of organizations (primary NGOs, secondary NGOs, fostered NGOs). No statistically significant differences were found (Appendix G, Table G-22).

**Needs and staffing variations:** The Mann-Whitney U test was utilized to test for significant differences in perceived organizational and technical needs between responding study organizations in the lower peninsula with or without paid staff. Those with no paid staff rated the need for information necessary to do increased lobbying as more important than did organizations with paid staff ( $p = 0.05$ ) (Appendix G, Table G-23).

**Statewide Programming Needs**

**Statewide needs in general:** Two needs for improved statewide programming were rated the most important by responding study organizations. These were the need to take a watershed approach to planning and management, and the need for public education to increase awareness and responsibility (Table 21).

**Regional variations in statewide needs:** The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences between organizations in different regions of the lower peninsula in their rating of statewide programming needs. Responding study organizations from the southeast lower peninsula rated the need to take a watershed approach to planning and management lower than the other regions ( $p =$



0.05). No significant differences were found between regions with respect to their rating of other statewide programming needs (Appendix G, Table G-24).

The Mann-Whitney U test was utilized to test for significant differences between organizations in the east and west portions of the lower peninsula in their rating of statewide programming needs. Organizations from the eastern half of the state rated the need for education to increase public awareness ( $p = 0.01$ ), the need to take a watershed approach to planning and management ( $p = 0.02$ ), and other needs ( $p = 0.05$ ) more important than did organizations from the west side of the lower peninsula (Appendix G, Table G-25).

The Mann-Whitney U test was utilized to test for significant differences between organizations in the northern and southern portions of the lower peninsula in their rating of statewide programming needs. No significant differences were found (Appendix G, Table G-26).

**Variations between organization types in statewide needs:** The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences in perceived statewide needs between different types of organizations (primary NGOs, secondary NGOs, fostered NGOs). No statistically significant differences were found (Appendix G, Table G-27).

**Statewide needs and staffing variations:** The Mann-Whitney U test was utilized to test for significant differences in ratings of the importance of statewide programming needs between responding study organizations in the lower peninsula with and without paid staff. A statistically significant difference was found in responses for one

need. Organizations with no paid staff rated the need for networking among groups with better communication and sharing of information more important than did organizations with paid staff ( $p = 0.03$ ) (Appendix G, Table G-28).

**Table 21**  
**Needs for Improving Stream and River Stewardship Programming Statewide in Michigan**

Statewide needs	Mean <sup>a</sup> rating of importance	Median <sup>a</sup> rating of importance	Standard Deviation	n
Watershed approach to planning and management	4.41	5.0	0.76	102
Public education; to increase awareness and responsibility	4.33	4.0	0.76	103
Other <sup>b</sup>	4.08	5.0	1.51	12
Networking among groups; better communication and sharing of information	3.91	4.0	0.86	103
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	3.87	4.0	0.94	103
Information on river stewardship options such as management techniques, strategies and selecting among options	3.87	4.0	0.87	101
More inclusion of citizen groups in management decisions and discussions	3.80	4.0	1.01	99
Mechanisms to facilitate networking	3.63	4.0	0.95	95
Standardization of data collection procedures	3.51	4.0	0.95	97
More use of citizen collected data	3.40	3.0	1.02	97
More citizen collection of baseline data	3.35	3.0	1.07	98

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

### **Preferences for Statewide Strategies to Meet Identified Needs**

**Strategies in general:** Respondents were asked to rate the importance of strategies to best begin to meet the needs listed in the survey for improving stream and river stewardship on a statewide level. The two strategies which received the highest rating were the need for improved coordination with state and federal regulatory agencies and needs reported in the “other strategies” response category (Table 22).

Table 22

#### **Importance Ratings of Strategies to Best Begin to Meet Needs for Improving Stream and River Stewardship on a Statewide Level**

Strategies for statewide programming	Mean <sup>a</sup> rating of importance	Median <sup>a</sup> rating of importance	Standard Deviation	n
Other <sup>b</sup>	4.17	4.5	0.98	6
Improved coordination with state and federal regulatory agencies	3.79	4.0	1.14	101
Procedures for standardization (Quality Assurance/Quality Control) of data	3.55	3.5	1.07	100
Procedures for data collection	3.41	3.0	1.03	99
Bulletins, fact sheets, other publications	3.37	3.0	0.88	101
A centralized office to serve as a clearinghouse	3.25	3.0	1.07	98
Directory of organizations like yours	3.22	3.0	1.19	98
Advisory team to address these issues	3.21	3.0	1.18	97
Newsletters, on the state level	3.11	3.0	1.00	101
A place to communicate with other groups on the Internet or World Wide Web	3.11	3.0	1.19	99
Site tours and demonstration areas	3.11	3.0	0.95	99
Annual conferences or meetings in conjunction with existing conferences	3.01	3.0	0.96	98
Annual conferences or meeting separate from other meetings	2.73	3.0	0.95	97
A new organization to facilitate networking among stream and river organizations	2.69	3.0	1.53	98

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).

**Regional variations in strategies:** The Kruskal Wallis one way analysis of variance was utilized to test for significant differences between responding study organizations in different regions of the lower peninsula in their rating of the importance of statewide strategies. Organizations in the southeast rated newsletters more important than did organizations from other regions. Organizations in the northeast rated newsletters less important than did organizations in the other regions ( $p = 0.02$ ) (Appendix G, Table G-29).

The Mann-Whitney U test was utilized to test for significant differences in the ratings of the importance of strategies to meet identified needs between the organizations in the north vs. south halves of the lower peninsula. Organizations in the southern half of the lower peninsula rated newsletters more important than did organizations in the north ( $p = 0.02$ ). No significant differences were found between organizations in the north and south with respect to their rating of the importance of other statewide programming needs (Appendix G, Table G-30).

The Mann-Whitney U test was utilized to test for significant differences in the ratings of the importance of strategies to meet identified needs between the organizations in the east vs. west halves of the lower peninsula. Organizations in the eastern half of the lower peninsula rated an annual conference or meeting in conjunction with existing conferences more important than did organizations in the west ( $p = 0.03$ ). Eastern Michigan organizations rated a directory of similar organizations more important than did western organizations ( $p = 0.05$ ) (Appendix G, Table G-31).

**Strategy preference variations between organization types:** The Kruskal Wallis one-way analysis of variance was utilized to test for significant differences between different types of responding study organizations (primary NGOs, secondary NGOs, fostered NGOs) in their ratings of the importance of statewide strategies to meet needs. The following statistically significant differences were found (Appendix G, Table G-32):

- Primary NGOs rated annual conferences which are separate from other events more important than did secondary and fostered NGOs ( $p= 0.003$ ),
- Secondary NGOs rated improved coordination with state and federal regulatory agencies less important than did primary and fostered NGOs ( $p= 0.001$ ),
- Fostered NGOs rated newsletters much less important than did primary and secondary NGOs. Primary NGOs rated newsletters more important than did fostered and secondary NGOs ( $p= 0.03$ ).

**Strategies and staffing variations:** The Mann-Whitney U test was utilized to test for significant differences between responding study organizations with and with out paid staff in the lower peninsula in their rating of the importance of strategies for statewide programming to meet identified needs. Organizations with no paid staff rated two strategies more important than did organizations with paid staff: newsletters ( $p= 0.004$ ), and an annual conference or meeting which is separate from other events ( $p= 0.05$ ) (Appendix G, Table G-33).

### **Michigan Organizations as Compared with National Volunteer Water Monitoring Organizations**

A mail survey, similar to the one used for this study, was implemented on the national level by the University of Rhode Island and the United States Environmental Protection Agency in 1993 (Kerr et al, 1994). A draft survey was piloted in a mailing to 10 coordinators

of monitoring programs. The final survey was mailed to all individuals on the mailing list for The Volunteer Monitor Newsletter (a national newsletter for which publishing is rotated quarterly among member organizations). The mailing list contained nearly 8,000 individuals. Over 700 surveys were returned. Duplicate surveys were eliminated, as were those responses from groups not engaged in monitoring or from individuals rather than organized groups. The remaining responding organizations were telephoned to clarify any incomplete responses, resulting in 517 usable responses. The low response rate (approximately 6.5%) was likely the result of two factors. Individuals who were not affiliated with a citizen action organization, and duplicate names representing the same organization, were not purged from the initial mailing list. No follow-up contacts were made to non-respondents to encourage participation.

Organizations similar to those Michigan groups I studied, were surveyed, although the national survey instrument was designed to obtain information primarily about water monitoring groups and their activities. Therefore, comparison of responses to questions regarding other activities, sources of assistance, and needs and preferences for strategies to meet programming needs was not possible.

**Characteristics of responding national and Michigan organizations:** The mean number of years in existence was 20.4 for organizations responding to the Michigan survey (median 16.0, standard deviation 20.3). Over half of the organizations responding to the national survey (65%) were created in the four years prior to survey implementation (1988 to 1992), and 23% were created before 1988. Compared to these data, a greater proportion of the Michigan organizations surveyed were older, with 22.8% created between the years

1988 and 1992; 20.5% were created more recently than 1992, and 60.5% were created before 1988.

**Comparison of the activities of responding study organizations:** Of the organizations responding to the national study, close to 75% conduct river monitoring programs. Fewer respondents to the Michigan study were involved in water monitoring activities (biological monitoring, 54.1%; chemical, 59.6%; physical, 54.1%). This difference may be the result of a response bias in the national study and a different initial sample population. The national survey targeted volunteer monitoring organizations, while I was interested in all types of stream and river activities, and thus my study population included a broader diversity of organizations.

Working with youth was popular among the organizations surveyed in the national study; 67% reported working with middle and high schools, and 41% stated they work with elementary students. The Michigan responding organizations reported similar involvement; 65.2% reported they provide information to youth, and 64.1% of those who stated they implement educational activities (n = 92) reported working with youth or schools.

**Comparison of the inputs of responding study organizations:** Annual budgets for monitoring activities of national citizen stream and river citizen action organizations range from \$0 to \$500,000, with a median of \$4,000. This cannot be compared directly to the Michigan data because the national survey asked for the organizations' monitoring budget, while my survey asked respondents to report total organizational budget. The mean annual budget for the organizations responding to the Michigan survey was \$186,475 (median \$15,500). However, the mean percent of the Michigan organizations' budgets allocated to

stream and river activities was 48% (approximately \$89,508). This was much higher than that reported in the national survey. It was not known whether such a large difference would have been reported had my survey asked for only the percent of the budget dedicated to monitoring activities as opposed to stream and river activities in general.

Some comparisons of sources of funding can be made between the national and Michigan studies. However, it is important to note that the national survey requested respondents to report sources of funding for their programs in general, while the Michigan survey asked respondents to report funding for stream and river programs. Respondents to both surveys report local businesses, local governments, donations from foundations, and membership dues and donations as contributing a high percentage of the budget. One notable difference between the results of the two studies was in the reported percentage of contributions from state government. State government ranked as the second highest contributor to programs in the national survey, while in the Michigan survey, state government contributions were ranked much lower (as the eighth highest contributor).

Although volunteers are an important part of the implementation of organizations' programs, the number of active volunteers reported by respondents to both studies was low. The median number of active volunteers reported in the national survey was 25.0, and this number was 20.0 in the Michigan survey (mean of 97.1). Results from the Michigan study show 22.7% of the organizations have 10 or fewer volunteers, and 88.6% of the responding organizations have 100 or fewer active volunteers. Respondents to the national survey report 25% have 10 or fewer and 70% have 100 or fewer active volunteers (Table 23).



**Table 23**  
**Number of Active Volunteers per Organization as Reported in the National and Michigan Studies**

Number of active volunteers	Respondents to Michigan study		Respondents to national study	
	Number of organizations (n=97)	Percentage of organizations	Number of organizations (n=478)	Percentage of organizations
0 - 5	6	5.2	47	10
6 - 10	17	17.5	73	15
11 - 20	27	27.8	111	23
21 - 50	23	23.6	95	20
51 - 100	14	14.5	54	11
101 - 250	5	5.1	43	9
251 - 500	3	3.1	19	4
501 - 1,000	1	1.0	11	2
>1,000	2	2.0	25	5

**Comparison of the outputs of the study organizations:** Survey questions regarding monitoring activities in the Michigan survey were designed to provide a direct comparison to the results of the national study. The same response categories for chemical, physical and biological parameters were used in both studies. Respondents to both studies reported undertaking similar monitoring activities, with parameter rankings revealing that a large percentage of the organizations surveyed use biological assessment techniques. In order of most commonly monitored first, the top four most commonly monitored parameters reported in both surveys were temperature, macroinvertebrates, pH, and dissolved oxygen. The next most commonly monitored parameters by respondents to the national survey, were

flow regimes and nitrogen. Michigan responding organizations reported aquatic vegetation and phosphorus as the next most commonly monitored parameter.

Similarities between the two surveys were also found in reported use of volunteer collected data. The results of both studies show education as the number one type of use for citizen - collected monitoring data.

The results of both studies report local and state government decision makers as the primary users of data. The results of the national survey place advocacy groups a close third as common users of data. The organizations responding to the Michigan survey report educators as the third most common users of data, and non-profits or advocacy organizations as "other" users of data. When the frequency of responses for the categories non-profits and advocacy organizations as users of data were combined, advocacy/non-profit organizations were ranked as the number one users of volunteer collected data in Michigan. The national survey did not ask respondents to report whether educators or non-profit organizations were users of data.

## **Chapter 4**

### **DISCUSSION AND RECOMMENDATIONS**

#### **Summary and Discussion**

Much effort was required to implement this research and outreach project, the survey and the multiple follow-up contacts. However, the thoroughness of the identification of study organizations (in part through outreach programming) and the mail survey response rate provided a fairly representative sample of Michigan's stream and river stewardship citizen action organizations from which to draw conclusions.

The classification of organizations into the three categories (Primary NGOs, Secondary NGOs, and Fostered NGOs), provided a useful conceptual framework. Consequently, I was able to observe subtle differences between organization types that otherwise would not have been detected. Differences were found between the three organization types in their reported processes, organization inputs, and outputs (tangible and action). As a result, more specific recommendations for further research and outreach programming to meet the needs of the study organizations can be made.

**Inputs to Michigan's stream and river stewardship citizen action organizations:** Assistance from university staff, university and college students, and county drain commissioners was rated more important to programming by organizations in southern Michigan than by those in northern Michigan. This is likely due to the close proximity of more colleges and universities in the southern half of the state.

Although every county has a drain commissioner, several drain commissioners in the southern half of the state implement programs to develop and foster stream and river stewardship action-taking. For example, in addition to providing many educational opportunities, the Washtenaw County drain commissioner implemented an adopt-a-river program in partnership with the Huron River Watershed Council. The efforts of such drain commissioners are likely a reflection of their constituencies. In addition, the increased complexity and severity of drainage issues in the southern part of the state due to urbanization, require that the drain offices in the south make strong efforts to involve the public and to conduct educational programs. Drain offices in the southern part of the state have more staff than those in the north, and as a result would likely have more staff time available to assist citizen action stream and river organizations.

The southern Michigan organizations rated the assistance of local government staff more significant to their programs than did the northern organizations. Organizations from the northeast lower peninsula rated the significance of assistance from local governments lower than did all other regions. This is likely due to the fact that municipalities and townships in the southern half of the lower peninsula employ more staff and implement more ordinances related to watershed protection than those in the north. Thus opportunities for involvement with citizens may be greater. Similarly, local governments in the northeast likely employ fewer staff than the other regions of the lower peninsula due to a lower population.

Secondary NGOs rated the significance of assistance from local government staff less important than did primary and fostered NGOs. This may be because the main goal of

the secondary NGOs is not stream and river stewardship, and accomplishing their main goal may not require the assistance or cooperation of government staff. Fostered NGOs rated the assistance from government agencies (Natural Resources Conservation Service staff, Environmental Protection Agency staff, other county government staff, Michigan Department of Environmental Quality staff, Michigan Department of Natural Resources staff, and other state government staff) more significant than did primary and secondary NGOs.

Those organizations with paid staff rated the assistance of the following agencies more significant than did groups with no paid staff: Michigan Department of Transportation, Michigan Department Environmental Quality (MDEQ), county drain commissioner staff, and other county government staff. Perhaps organizations with paid staff implement more technically complex programs which involve, or require assistance, from governments, or the paid staff have the time and skills to seek out assistance from these governments.

Organizations with no paid staff rated the assistance of the Michigan Department of Natural Resources (MDNR) more significant than did organizations with paid staff. It may be that the particular organizations with no paid staff (e.g., Trout Unlimited Chapters) tend to be involved in activities similar to MDNR programs, such as fisheries programming. It is not known if lack of public awareness of the 1995 split of the MDNR into two separate agencies (MDNR and MDEQ) resulted in unreliable responses to this question.

**Processes and outputs of Michigan's stream and river stewardship citizen**

**action organizations:** Fostered NGOs more commonly than other organizations reported involvement in activities which required greater technical expertise, including: watershed level problem or activity priority setting, habitat assessments, planting of trees, planting shrubs or grasses for aesthetics as part of a stream or river clean-up, non-vegetation bank stabilization, runoff control activities, tree and shrub plantings for restoration and enhancement, program or project evaluations, bank and road crossing assessments, construction site inspections, and sediment assessments.

Organizations with paid staff also reported involvement in many of the above activities which require technical expertise. In addition, these organizations reported the most involvement in the more labor intensive and long-term activities such as watercourse configuration assessments, assessment of floodplain characteristics, watershed mapping, watershed land-use planning, program or project evaluation, and collection of data or information.

Secondary NGOs reported the least involvement in activities most directly targeted at rivers and streams such as: bank and road crossing assessments, restoration and enhancement activities, river or stream clean-ups, placement of gravel or rock in the river channel as part of a restoration or enhancement project, water resource inventories at the watershed level, and bank stabilization projects.

The collection of fish data and construction and/or placement of instream structures were more commonly conducted by organizations with no paid staff. This may be a reflection of the characteristics of these organizations and unrelated to staffing

characteristics. For example, the fishing oriented organizations are more likely than the other study organizations to be involved in fish collection and placement of instream structures for fish habitat enhancement, and these organizations often do not have paid staff.

Interpretation of the results of questions regarding water quality data collected, analysis methods and uses of data was limited. The validity of information collected from responses to these questions may have been compromised by the way in which questions were worded. These questions asked respondents to report on analysis and uses of “data and information.” This wording may have resulted in some respondents reporting on analysis of information such as photographs or personal observations, rather than on the water monitoring parameters mentioned in the survey. Some respondents may not have reported responses solely for stream and river work. For example, of the 54 organizations who reported collecting data from rivers and streams 33.3% reported measuring Secchi transparency. This measurement is typically done only in lakes.

**Organizational and technical needs:** None of the organizational and technical needs listed in the survey were rated unimportant. This is not surprising considering that the list of needs was created from information gathered during the focus group session at the conference in the outreach phase of this project. In this sense, the mail survey confirmed the importance of needs identified at the conference.

Responding study organizations in the southwest and northeast portions of the lower peninsula rated the need for improved resource materials and access to them as more important organizational needs than did organizations from other regions.

Northwest Michigan has the greatest number of similar organizations with which to share resources, and organizations in the southeast reported relying heavily upon governments and universities for assistance.

Those with no paid staff rated the need for information necessary to do increased lobbying as more important than did organizations with paid staff. Either these organizations are more involved in lobbying activities, or, due to a lack of staffing, do not have time to seek out the appropriate information.

**Statewide needs:** As was the case with organizational and technical needs, the results of the mail survey confirmed the importance of the statewide needs identified during the focus groups held in the outreach phase of this project. The need to take a watershed approach to planning and management was rated more important by organizations in the eastern side of the lower peninsula than by organizations in western Michigan. However, responding study organizations from the southeast lower peninsula rated the need to take a watershed approach to planning and management lower than all other regions. Perhaps the ratings of the organizations in the northeast skewed the high rating of this need by organizations in the eastern part of the state overall. The southeastern organizations likely rated this need less important either because a watershed approach is already incorporated into planning in the southeast, or because the urbanization of the southeast makes recognition of watershed boundaries difficult.

Providing information to the general public and implementing educational programs were the most common activities reported by all responding organizations. However, organizations from the eastern half of the state rated the need for education to



increase public awareness more important than did organizations from the western side of the lower peninsula. There are fewer active organizations in the eastern side of the lower peninsula than in the western portion of the state. Either the organizations in the eastern half of the state perceive a greater need for education of the general public, or due to their lower numbers are unable to implement as many educational programs as they would like.

Other needs were also rated higher by organizations in the east than in the west. These were funding, data, and increased government involvement. This makes sense when considering the fact that fewer organizations in the east reported collecting data, and they rated assistance from universities and governments less important.

Organizations with no paid staff rated the statewide need for networking among groups, with better communication and sharing of information, more important than did organizations with paid staff. There was no significant difference between organizations with and without paid staff in the rating of the importance of the need for networking.

#### **Strategies to meet organizational, technical and statewide needs:**

Improved coordination with state and federal regulatory agencies was rated important to stream and river programming by all organization types. However, secondary NGOs rated the importance of improved coordination with state and federal regulatory agencies less important than did primary and fostered NGOs. It is not clear, however, if respondents interpreted this response category consistently; for example, some respondents may have thought the question was referring to coordination among governmental agencies rather than coordination with stream and river organizations. This

could have been clarified by adding an additional response category for “Improved coordination between state and federal regulatory agencies.”

Organizations with no paid staff rated the importance of newsletters and a directory of similar organizations as strategies to meet needs significantly higher than did organizations with paid staff. They also rated the need for improved networking among groups higher than did organizations with paid staff, and newsletters and directories are methods to facilitate networking.

Newsletters were rated much less important by fostered NGOs than by primary and secondary NGOs. Fostered NGOs have a close relationship to an agency, and therefore they may be obtaining information through the fostering agency.

### **Limitations of the Project**

Identification of the study population during the outreach phase of the project and implementation of the survey instrument in accordance with the Total Design Method (Dillman, 1978) yielded a response rate sufficient to draw conclusions about the total population of stream and river stewardship citizen action organizations. However, as with most studies, some analysis limitations were encountered due to the characteristics of the study population. For, example, it was not possible to include the Upper Peninsula responding organizations in analysis of differences between geographical regions due to a low number of respondents from this area. This is simply a reflection of the fewer total number of organizations active in stream and river programming in the Upper Peninsula, rather than a poor response rate from this area.

**Limitations of the survey:** Comparisons between organizations based on the percent of staff time allocated to stream and river programming were not possible because it was not clear if respondents reported just paid staff time or included non-paid/volunteer time. Further, it is unclear whether the reported percent of staff time was adjusted for seasonal stream and river activities (for example, an organization may have reported that 100% of staff time is spent on stream and river activities, but if they only conduct activities in the summer months, this is actually 50% of staff time prorated annually). Further, it is unclear whether reported activities are conducted regularly or if they are occasional events. Similarly, tests to determine how the annual budget is related to programming and needs were not possible because it is unclear whether respondents reported total annual organizations' budget or total stream and river programming budget.

Specific procedures and methods for activities such as monitoring, assessments, and restoration and enhancement projects were not included as survey questions. As a result, it is unclear what decision making processes result in organizations becoming involved in a specific activity and how these activities are actually implemented. For example, brush and log removal from the stream or river was reported by 40.8% of the 113 organizations who reported conducting stream and river clean-ups. Aquatic ecologists know that this is not always the most beneficial activity for the health of a river or stream, and if done improperly can be destructive to aquatic vertebrate and invertebrate habitat. One survey question did ask respondents to list references used. Some respondents listed procedure manuals, however, because the question was open-ended, a small number of responses was obtained, many of which were incomplete.

## **Recommendations**

**Programming recommendations:** Overall, the outreach and research phases of this project provided sufficient information to make recommendations for effective programs to meet the needs of Michigan's citizen action stream and river stewardship organizations and to encourage the general public to take stream and river stewardship actions. Five recommendations are made for those agencies and organizations in a position to provide such programming: 1) facilitate consistent funding of Michigan's stream and river stewardship citizen action organizations, 2) provide a long-term mechanism for facilitating networking among organizations, 3) develop improved resource materials and distribution of existing materials, 4) take a watershed approach to management and planning, and 5) increase education opportunities for the general public.

Consistent funding is an historic and continuous problem for non-profit volunteer based organizations. However, responding organizations to the national survey reported a larger percentage of funding coming from state government (second highest contributor) than did Michigan organizations. Michigan organizations report the largest percentage of funding coming from membership dues and fundraising efforts. This funding problem might be addressed in two ways. First, a concerted effort could be made to determine what avenues for funding are currently not used by Michigan organizations. For example, funding agencies should determine what funding is currently available to support stream and river stewardship programming, and then implement programs to better advertise these opportunities. Second, an assessment of other states' funding mechanisms should be

conducted by a state level committee and proposals made for incorporation into Michigan agencies' budget allocation. For example, an investigation to determine how Ohio's state resource protection agency supports its Stream Team program, may provide insights into how to allocate dollars to such programs in Michigan.

Consistent with the identification of needs during the focus group sessions in the outreach phase of this projects, improved networking among groups was rated an important organizational, technical and statewide need. Stream and river stewardship organizations in Michigan benefit greatly by sharing information and resources among themselves. Evidence of this appears in the rating of the importance of assistance from other non-profit organizations. Assistance from other non-profits was rated the second most important source of assistance (assistance from MDNR was rated slightly higher). Implementing and fostering a mechanism to facilitate such sharing is perhaps the most important recommendation for programming.

Some states have addressed this need for facilitated networking through the establishment of a state level non-profit river networking organization. These states include, among others, Idaho, Connecticut, Wisconsin, Colorado, Illinois, Kentucky, Montana, New Hampshire, New York, Ohio, Washington, and West Virginia. Establishing a new organization in Michigan received the lowest rating of importance of all strategies listed in the survey. Other strategies which received higher ratings should be implemented to meet this need for improved networking, including a centralized clearing-house for information within an existing organization or agency, a directory of organizations, an advisory team, newsletters, annual conferences, and a site on the internet

for communication among groups. Many of these could be met through cooperative efforts of the stream and river stewardship organizations themselves. Efforts to address this need should be targeted at organizations with no paid staff, since they rated this need more important than did organizations with paid staff. A directory of organizations was rated most important by organizations in the eastern lower peninsula, however, it would be useful to all organizations. A review of the methods used by organizations with paid staff to obtain resources may prove useful in developing strategies for facilitating such networking among those organizations with no paid staff.

Improved coordination with state and federal regulatory agencies received the highest mean rating of importance as a programming strategy, indicating that Michigan's organizations would be receptive to implementation of programs to meet identified needs by these agencies. A commitment from state agencies, such as the Departments of Environmental Quality and Natural Resources, to implement and maintain programs to meet the needs identified in this survey would go a long way towards increasing and fostering stewardship actions on the part of Michigan's citizens and consequently local and county governments.

The need for improved resource materials was rated important. However, these need categories were rated higher by organizations with no paid staff (which have a smaller amount of time to allocate to research), and by organizations in the northeast and southwest portions on the lower peninsula (where there are fewer organizations with which to network.) Further, many excellent resources already exist, such as those published by the Save Our Streams program of the Izaak Walton League of America,

How to Save A River: A Handbook for Citizen Action (Bolling, 1994), and A Field Manual for Water Quality Monitoring (Mitchell and Stapp, 1994) in addition to many others. Therefore, it is recommended that rather than develop new materials, facilitating the distribution of existing references to these types of organizations would be most productive. In this way, this need could be met simultaneously with the need for facilitated networking.

One exception to this need for resources is the need for standardization of data collection procedures, which was rated equally important by all organization types and geographic regions. Michigan-specific procedures which would be accepted by state and federal governments, should be developed and approved at the statewide level. To ensure consistency and acceptability, this would best be done by a state level committee with representation from citizen organizations, technical research experts and agency representatives.

The need to take a watershed approach to planning and management was rated highly important as a statewide need. This need may best be met through the efforts of existing state level committees, for example the Watershed Management Committee of the Michigan Water Environment Association, which is made up of representatives of public, private and non-profit sector organizations. Addressing this need should first be done in the southeast portion of the lower peninsulas, since these organizations listed the need to take a watershed approach as a higher priority than did organizations in the rest of the state. Continued representation of all stakeholders on such committees is imperative. As summarized in Chapter Two, involvement of target audiences (in this case local and

county governments and stream and river stewardship organizations) in program development is critical for successful implementation.

Implementation of educational programs would meet the identified need for education of the general public of the importance of stream and river stewardship, and would educate the stream and river stewardship organizations themselves.

Implementation of education programs by state level government agencies, committees and universities would be most successful if local stream and river stewardship citizen action organizations are involved in design and implementation. Interactive educational programs which provide learning opportunities for sampling procedures, partnership development and funding opportunities would be much more effective than unidirectional programs such as the distribution of information.

**Recommendations for further research:** As a result of the collection of baseline information on Michigan's stream and river citizen action organizations, further research may now be conducted. Three general areas of research are recommended: an evaluation of the effectiveness of organizations' programming in protecting or improving the condition of streams and rivers, an evaluation of the effectiveness of organizations' programming in improving and increasing public stream and river stewardship action-taking, and an evaluation of the effectiveness of current and recommended outreach efforts in meeting needs of Michigan's stream and river stewardship citizen action organizations identified in this study. Evaluation in these three general areas would provide an understanding of the success of current programming techniques. Additional



programs to increase the effectiveness of Michigan's stream and river stewardship citizen action organizations could then be designed and implemented.

## **APPENDICES**

**APPENDIX A: Project Approval by the University Committee on Research  
Involving Human Subjects (UCRIHS)**

**MICHIGAN STATE  
UNIVERSITY**

February 7, 1996

TO: Shari L. Dann  
11B Natural Resources Bldg.

RE: IRB#: 96-028  
TITLE: IDENTIFYING NEEDS FOR STREAM AND WATERSHED  
STEWARDSHIP PROGRAMS IN MICHIGAN  
REVISION REQUESTED: N/A  
CATEGORY: 1-C  
APPROVAL DATE: 02/07/96

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

**RENEWAL:** UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

**REVISIONS:** UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.



**OFFICE OF  
RESEARCH  
AND  
GRADUATE  
STUDIES**

University Committee on  
Research Involving  
Human Subjects  
(UCRIHS)  
Michigan State University  
232 Administration Building  
East Lansing, Michigan  
48824-1046

517/355-2180  
FAX: 517/432-1171

**PROBLEMS/  
CHANGES:**

Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

*David E. Wright*  
David E. Wright, Ph.D.  
UCRIHS Chair

DEW:bed

cc: Melissa L. Middleton

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MSU is Institutional Diversity.  
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## **APPENDIX B: Focus Group Session Methodology and Results**

## **FACILITATOR GUIDE FOR ROUND TABLE DISCUSSIONS**

*FOR USE DURING DISCUSSION SESSIONS AT:  
COORDINATING WATERSHED STEWARDSHIP IN MICHIGAN:  
CITIZEN MONITORING, ENHANCEMENT & PROBLEM SOLVING  
FOR STREAMS AND RIVERS*

March 6, 1995

**Key research questions for focus group session on Michigan's stream stewardship citizen action programs:**

- 1) What needs are experienced by these programs? For example, what services, technologies or resources are needed to initiate and maintain stream stewardship projects?**
- 2) Which needs are most critical to address?**

**Reasons for these discussions:**

**We understand that there is limited networking and coordinating among organizations, that information and technology transfer are often inefficient, and that some groups progress in isolation of others when shared resources could make their programs more effective.**

**We will be making recommendations and initiate ways to address those needs, thus it is not only important to gain an accurate understanding of what needs exist, but also which needs are most critical to address**

**Outline:**

**I. INTRODUCTIONS:**

- A. Intro. to moderator and recorder*
- B. Orientation - purpose and procedures*
- C. Appreciation for time*
- D. Participants intro. themselves*

**II. LISTING OF CURRENT NEEDS**

**III. CLARIFICATION AND DESCRIPTION OF THOSE NEEDS**

- A. Clarification*
- B. Additional to description*

**IV. IDENTIFICATION OF MOST CRITICAL NEEDS**

- A. Have participants identify which ones are most important and why*
- B. Have participants rank using stickers*

**V. CLOSURE**

## FACILITATOR GUIDE FOR ROUND TABLE DISCUSSIONS

[TURN ON TAPE RECORDER]

### I. Introductions

#### A. Moderator introduces self

1. name
2. name of organization you are from, serving as facilitator at request of MSU Dept. Fisheries & Wildlife
3. Role in this process is as discussion leader

#### B. Moderator introduces recorder(s), or has recorder introduce self

1. name
2. from MSU Dept. Fisheries & Wildlife
3. role in this process is to record content of discussion

#### C. Orientation

1. We have invited you to take part in these discussions to get an understanding of the needs of the organizations you represent with regard to Michigan's stream stewardship citizen action programs

*Let me define what we mean by "stream stewardship citizen action programs": These programs are managed by volunteer citizens, not-for-profit organizations, or by other organizations (such as universities, schools, state, county, and local governments) in cooperation with citizens. These programs are implemented and maintained for the purposes of conserving and protecting Michigan's riverine ecosystems through promoting stewardship ethics and actions. Activities of these organizations include water quality and watershed monitoring, habitat enhancement, youth and community education, production of resource materials etc.*

Reasons for these discussions:

We understand that there is limited networking and coordinating among organizations, that information and technology transfer are often inefficient, and that some groups progress in isolation of others when shared resources could make their programs more effective.

We will make recommendations and initiate ways to address those needs, thus it is not only important to gain an accurate understanding of what needs exist, but also which needs are most critical to address.

2. There are only a few guidelines for our discussion today that I would like to go over:
  - there are no right or wrong answers!
  - I may ask you to be brief in your comments
  - state what is on your mind
  - I may interrupt so that we can move along in our discussion
  - taping of this session is mainly so we don't need to take detailed notes right now
  - This tape will be reviewed only by the coordinators of this project; I want to remind you that your name will remain confidential and will not appear in any reports of this project.
  - try to speak out one at a time, so that we can understand your comments as in any group, people are different, so I expect we may have some differences of opinion today. Don't hesitate to share your thoughts, everyone's comments are important!



3. We appreciate your willingness to participate in this discussion. Your input will help us determine what are the greatest needs of stream stewardship programs and begin determining what would be the best way to meet those needs
4. With that said, let us begin our discussion by **introducing ourselves**, if each of you could share your first name, and tell us where you are from and your **occupation and briefly, your involvement** in stream stewardship programs

## II. Listing of needs:

➡ Regardless of the extent of your involvement, I would like to start by creating a list of current needs. We will go around the room and I would like each person to list a need which they believe impacts the effectiveness of stream stewardship citizen action programs. Please include **why this is a need**, in other words how does it impact program effectiveness. [name] will record as we go.

A. Probe: what **services, technologies or resources**, if any, would improve the effectiveness of these programs

B. Probe: as a member of a citizen action group, or organization that works with such groups, **what would make it easier to conduct the stream stewardship activities** you are involved in.

Facilitator: make sure needs are listed, not problems or solutions

C. Are there any other needs not listed

## III. Clarification:

Would anyone like to clarify any of these? Either the person who listed it, or anyone else.

## IV. Identification of most critical needs

➡ If we are satisfied with this initial list, I would like to get your input on needs are most important. I would like you to take a few minutes to jot down which ones are of most concern to you and why.

Facilitator: Allow time to reflect until participants look ready to move on.

Probe: If you had to choose one need to address, which one would it be

➡ O.K. why are the ones you chose most important?

Probe: Are there any that are not important?

➡ We are about out of time, but before we end, I would like each of you to informally rank the needs we have identified to day in terms of how critical they are to the programs we have been discussing. I will give each of you 5 stickers to rank with. Place them next to those needs you believe are most important to address. You can put as many stickers next to a single needs as you wish.

## V. Closure

Before you go, we want to thank all of you for sharing your ideas with us. Lunch will be served in the lower lobby next to the Kiva.

[Turn of Recorder]

## **METHODOLOGY AND RESULTS OF FOCUS GROUP SESSIONS AT MARCH 6, 1995 CONFERENCE**

### **FOCUS GROUP METHODOLOGY:**

#### **Facilitator Training:**

Facilitators and recorders attended a four and a half hour training session held one evening one week before the conference. Melissa Middleton provided an overview of the project and the role of the focus groups in the project. This was followed by a two hour session lead by Donna Minnis, a Ph.D. student in Fisheries & Wildlife. Ms. Minnis covered facilitation skills, how to deal with various personalities, and methodology for focus group facilitation. The last two hours of the evening were spent reviewing the prepared script and discussing specific focus group techniques in light of the types of people with whom we would be working.

Facilitators and recorders were assigned such that at least one person was familiar with the whole project before the training and had an understanding of the process from personal communication with myself or by working directly on the project. Three individuals were prepared to substitute if facilitators or recorders could not attend.

During the day of the conference, folders were given to either the facilitator or recorder for each session; these contained, sign-in sheets, a list of responsibilities, and paper for use by participants.

#### **Assignment of Focus Groups:**

Conference registrants were placed in particular focus group sessions based on the organization they said they represented when they pre-registered. They were then assigned a room, and the room number was written on the back of their name tag. Focus group sessions included:

- Conservation District Staff
- State Government Staff
- Educators
- Regional Non-Profit Organizations
- Local Non-Profit Organizations
- County and Local Governments

Participants were dismissed from the panel discussion to go to the focus group rooms. They were given a brief introduction on the intent of the facilitated discussions and told to go the room number on their name tag. Sessions took place for one hour, including sign-in time. Some groups went over the allotted time by up to 15 minutes. The sessions were followed by lunch. About 15-20 participant remained in the exhibit hall rather than attending the sessions. Walk-ins were instructed to join Group 4, Regional Non-profit Organizations, or Group 1, Conservation District staff. Most of these people represented Natural Resource Conservation Service Districts or large non-profit organizations, and thus those would be appropriate groups. It was known that the facilitators of those two groups could accommodate more individuals.

### **Session Process:**

Recorders were instructed to meet participants at the door and give them a sign-in sheet to complete. Tape recorders were to be started immediately at the beginning of the session. The facilitators progressed through the outline provided at the training (see "Facilitator Guide for Round Table Discussions" for more detail). Participants were asked the question "as a member of a citizen action group, or organization that works with such groups, what would help you initiate and maintain your programs?" Responses were recorded on newsprint. Participants were then asked to "informally cast votes as a way to informally prioritize the needs we have identified today in terms of how critical they are to the programs we have been discussing". The session closed with each participant placing 4 stickers, as votes indicating priority needs, on the newsprint.

### **Composition of Focus Groups:**

#### **Group 1) Conservation District staff**

17 individuals were pre-assigned to room 228; 11 signed in.

Facilitator: Mark Zweifler, MSU Forestry Department,

Recorder: Krista Nichols, MSU Department Fisheries & Wildlife

Conservation district staff represented various parts of the state and the majority of the participants (7 of the 11). Other staff came mostly from Michigan Department of Agriculture. Two private sector organizations participated, as well as one drain commissioner and one county government employee.

#### **Group 2) State Government staff**

20 individuals were pre-assigned to room 250; 13 signed in.

Facilitator: Nanette Kelly, Lake & Stream Diagnostics and MSU Department Fisheries & Wildlife

Recorder: Kimberly Harke, MSU Department Fisheries & Wildlife

Staff from Michigan Department of Natural Resources composed this group, most representing Surface Water Quality Division, with some participants from Land and Water Management Division and one individual representing the Environmental Response Division. It was correctly anticipated that they would complain that they should have been with other organizations for discussion purposes. However, assignments were made consistent with our process for several reasons. Individuals within the Department do not always know what is happening in different divisions and there is a wide range of opinion and perception regarding the issues we were to discuss.

**Group 3) Educators**

21 individuals were pre-assigned to room 222; 19 signed in.

Facilitator: Jeffery Rupert, MSU Department Fisheries & Wildlife

Recorder: Christine Coulon, MSU Resource Development Department

Participants in this session represented University staff, elementary and high school teachers, nature and science centers, and MSU Extension. One individual represented a township board.

**Group 4) Regional Non-profit Organizations**

20 individuals were pre-assigned; 24 signed-in, more were in attendance.

Facilitator: Melissa Middleton, Project Coordinator, MSU Department Fisheries & Wildlife

Recorder: Anne Vaara, MSU Department Fisheries & Wildlife

Participants in this session represented non-profit organizations with a statewide or regional membership, or organizations such as watershed councils which had a large staff and thus a broad program. Other participants included one individual representing Michigan Farm Bureau, two from RC&D Councils, two county or local government staff, one from NOAA-National Weather Service, two MDNR-SWQD staff, one from Michigan Farm Bureau, two from Michigan Department of Agriculture, and one representing MSU Extension.

**Group 5) Local Non-profit Organizations**

20 individuals were pre-assigned to room 224; 17 signed in.

Facilitator: Megan McMahon, MDNR Surface Water Quality Division

Recorder: Mary Jamieson, MSU Department Fisheries & Wildlife

Participants in this session represented watershed councils, adopt-a-river grass roots organizations, and conservation clubs.

**Group 6) County and Local governments**

17 individuals were pre-assigned to room 226; 8 signed in.

Facilitator: Jennifer Wylie, Michigan Recycling Coalition

Recorder: Mike Klepinger, MSU Extension Sea Grant

Participants in this session represented drain commission offices, county environmental departments, health departments, township planning and zoning commissions, and several private sector organizations.

**RESULTS:**

Focus group participant responses were recorded on newsprint sheets. Groups 2,3,4, and 5 were given an opportunity to group similar responses before they voted on priority needs. Needs were later categorized for comparison purposes. Those needs which were grouped together by participants were kept as such. Since votes were placed for the grouping of two or three needs it could not be determined which votes were for a single need.

Votes were counted, and percentages of votes cast were calculated for each category, for each focus group. Percentages were rounded to the nearest whole number.

Researchers listened to the tape recording of focus groups 1, 2, 3, and 5 to clearly interpret responses; any additions to the newsprint text are shown in italics. A video tape of group 4 was used for this purpose because the tape recorder for that session was not functional. The tape recorder for group 6 was not functional and the session was not recorded by video. Clarification for this group was achieved by discussing the newsprint notes with the recorder and facilitator of that group. Responses on the newsprint as well as respective number of votes, and percentage of votes in each category are provided in the following section.

### **Response Categories:**

- **Consistent Funding and Information on How to Access Funding**  
Includes needs for different types of funding from various sources and needs for information on how to secure funding for a group's activities.
- **Need for Inclusive Stakeholder Participation in Management Decisions and Discussions**  
Includes needs which list a particular group to be involved in watershed decision making, as well as needs which list all stakeholders, both from the perspective of agencies and citizen organizations.
- **Collection and Organization of Baseline Data and Information, With Access**  
Includes responses that list a need for more data or information, such as water quality data or land use information, regarding a specific system. Includes the need to compile information in such a way that individuals and organizations can have ready access.
- **Networking, Better Communication and Sharing of Information, and Mechanisms To Do So**  
Responses include needs to share information and experiences as well as needs to provide avenues for this type of networking such as mailing lists, conferences, or a central contact.
- **Partnership Development, Strengthening Liaisons, Working Cooperatively, and Educational Opportunities to Learn How to Do So**  
Responses include needs to work cooperatively on projects among all types of organizations as well as needs for learning how to develop and foster such partnerships.
- **Public Education to Increase Awareness and Responsibility**  
Responses call for general education of the public to draw attention to the importance of stream stewardship programs or issues.
- **Watershed Approach to Planning and Management**  
Responses express a need for groups and agencies to approach planning and management from a watershed perspective.
- **Improved Resource Materials and Access**  
Responses list needs for specific resource materials and/or easier access to resource materials.

- **Focus To Groups' Activities**  
Responses list needs for groups to focus their activities through goal setting and other methods. Responses also suggest specific activities on which groups should focus.
- **Technical and/or Organizational Assistance**  
Responses express a need for direct assistance, rather than resource materials, at a local level on either technical or organizational issues.
- **Data Used and Standardized**  
Responses list needs to have citizen-collected data used and/or collection procedures standardized.
- **Increased Advocacy and Necessary Information**  
Responses list needs for increased citizen advocacy for streams and rivers through lobbying or other means as well and improved access to current information on opportunities to do so.

**1) Conservation District staff; a total of 48 votes were placed**

**Consistent Funding and Information on How to Access Funding;** 25% of votes

- Money - and sustainable funding source, longevity. *With local support and spreading and sharing funding;* 10 votes
- A need for consistent funding of effective programs (government starts a program like filter strips and then changes the rules of the game or cuts off funding); 2 votes
- access to financial resources (especially non-profit), how to attack a successful fundraiser (\$\$). *Also: Ideas on how to fund a program.;* 0 votes

**Watershed Approach to Planning and Management;** 25% of votes

- development of planning strategies at watershed level involving all participants and areas of expertise. *Need for watershed master plans and "planning funds" set aside by communities;* 9 votes
- determining how to deal with political boundaries in dealing with watershed management 1 vote
- *Need a concerted effort for watershed management; for example, ramifications must be considered before a dam removal.*

- planning regulations at state level, incentive for communities to participate in planning and regulation at a finer level. *Respondent expressed a need for state level regulations to be planned at the watershed level as an incentive to work together across political boundaries.*; 2 votes
- *Attention and funding to headwater areas that don't have the "need" like cities and urbanizing areas.*

**Collection and Organization of Baseline Data and Information, With Access; 17% of votes**

- better organization and collection of watershed data - establishing watershed boundaries. *Needs to be standardized and stored on a watershed level.*; 8 votes

**Networking, Better Communication and Sharing of Information, and Mechanisms To Do So;**

15% of votes

- more/better communication and exchange of information between small local groups and decision makers - before decisions are made that impact the stream; 4 votes
- better connection to soil water conservation districts and information available. *Need to advertise and use federal government programs, for example the Natural Resource Service Conservation Districts are a source of information and assistance*; 2 votes
- local access number/computer network(especially in rural areas). *Respondent suggested this as a way to "network" rural areas, bringing them into the information 'link' as the headwaters of our watersheds*; 1 vote
- awareness for local, regional, and state organizations of federal programs, aid, and opportunity - BETTER PUBLICITY; 0 votes
- better direct links to federal government; 0 votes
- *More opportunities to network (to share information and strategies), such as conferences.*

**Need for Inclusive Stakeholder Participation in Management Decisions and Discussions;**

8% of votes

- inclusion of municipal planners in management plans and decision making; 4 votes
- inclusion of engineers in discussion and decisions and information at watershed level; 0 votes

**Partnership Development, Strengthening Liaisons, Working Cooperatively, and Educational Opportunities to Learn How to Do So; 6% of votes**

- strengthening liaisons between federal, state, regional, local levels - requires funding; 2 votes
- regional workshops in establishing partnerships and networks. *How-to workshops*; 1 vote.

**Public Education to Increase Awareness and Responsibility;** 4% of votes

- public awareness - identifying areas of need and initiation of watershed clubs; 2 votes

**Improved Resource Materials and Access;** 0% of votes

- *Access to case studies of restoration.*

**2) State government staff; a total of 64 votes were placed**

**Improved Resource Materials and Access;** 17% of votes

- compilation of environmental laws(local, state, federal) as relates to the watershed. *Laws and regulations in a booklet and how citizens can use them, with zoning regulations and ordinances added at the local level;* 6 votes
- provide maps(different types) to be able to coordinate efforts between agencies and groups. *Respondent said there is a need to coordinate efforts between agencies and other groups to create maps of watersheds including rivers, lakes, wetlands, and land uses and to provide those maps to interested organizations;* 2 votes
- update MIRIS (GIS program); 3 votes

**Networking, Better Communication and Sharing of Information, and Mechanisms To Do So;**

16% of votes

- central contact. *One person serving as central contact;* 10 votes
- volunteer, or paid, monitoring coordinator liaison between groups/councils/agencies; 0 votes
- better coordination/information exchange between groups and agencies, *especially with regard to citizen groups' long range planning, since the DNR often is dealing with short-term, single issues;* 0 votes
- define resources and what it can provide. *Need to list human resources in a given watershed to help utilize local experts;* 0 votes
- expert volunteers - resources in community; 0 votes
- report successes; 0 votes

**Need for Inclusive Stakeholder Participation in Management Decisions and Discussions;**

14% of votes

- get politicians (local, state) involved; 7 votes
- need more volunteers and a way to accumulate. *Need to know how to get more volunteers;* 1 vote
- define special interest groups within a watershed. *Including political units;* 1 vote
- *Get police departments involved. (comment may have been facetious)*
- educate interest groups to what they are doing to the watershed (negative) i.e. infrastructure. *Respondent said there is a need to get primary interest groups*



*involved so they know the ramifications of their actions, such as Departments of Public Works, Road Commissions, forestry units, developers, and local and state politicians; 0 votes*

**Consistent Funding and Information on How to Access Funding;** 13% of votes

- minimum stable/consistent funding. *Rather than short-term grants; 8 votes.*

**Public Education to Increase Awareness and Responsibility;** 12% of votes

- get schools involved - kids educate parents; 4 votes
- education on what drain commissioner does; 2 votes
- education of what watershed a given public is in. *Education on how to determine what watershed you are in; 1 vote*
- know geography of watershed. *Need to educate the general public, for instance Rotary Clubs, on basic geography to learn what watershed they are in and how it is connected to other watersheds up stream and down stream; 1 vote*
- public relations program to convince public. *To convince the public of the importance of stream stewardship; 0 votes*
- brochure/handout - promotion technique in layman's terms. *Need a brochure or one page handout which explains in layman's terms what a citizen can do to help a river, i.e. "ten things you can do in your watershed"; 0 votes*
- general education about agencies and their abilities/limits, *i.e. who to go to for what types of assistance and the extent of their capabilities; 0 votes.*

**Focus To Groups' Activities;** 11% of votes

- process to prioritize activities - continual updating. *A procedure is needed to help groups prioritize watershed tasks in a manner which is dynamic and ongoing so it can be continually adjusted and up-dated, rather than a one time report; 1 vote.*
- define activities; organization, education. *Need to define activities that need to be coordinated; 3 votes*
- groups need clear goal/objective and a way to get it out to general public in watershed; 3 votes

**Technical and/or Organizational Assistance;** 9% of votes

- expert contact for groups(i.e. scientific, policy). *Need a policy and technical expert available to meet with groups on their sites to advise and inform them of other issues and laws that may be impacting their watershed; 2 votes*
- land use planning(tools). *Need to educate groups on land use planning, i.e. tools on how to solve problems; 2 votes*

- define/identify problems in watershed - contact appropriate agencies. *Agency's role is to provide assistance in defining and assessing problems in a watershed and helping to identify possible sources*; 2 votes
- develop marketing strategies for the groups; 0 votes

**Watershed Approach to Planning and Management;**  
votes

5% of

- long term management plan/stream stewardship program. *Need to develop long-range plans for a given watershed including all stakeholders*; 3 votes
- *Need to take a holistic approach to protecting a watershed, not just water quality testing in the river.*

**Data Used and Standardized;**  
votes

3% of

- quality assurance/quality control; 2 votes

**Collection and Organization of Baseline Data and Information, With Access;**0% of votes

- know what watershed contains industry. *Groups need to inventory their given watershed with regards to extent of agriculture, industry, urban uses etc...;* 0 votes
- *Need access to data..*

**Partnership Development, Strengthening Liaisons, Working Cooperatively, and Education Opportunities to Learn How to Do So;**  
0% of votes

- agency needs preliminary information from groups. *Groups need to pass data on to the DNR to help the agency focus on the watershed level*; 0 votes
- groups should act as watershed officers to help DNR; 0 votes
- *Need to train groups on how to collect data which are useful to the department, especially baseline data..*

### 3) Educators; a total of 72 votes were placed

**Networking, Better Communication and Sharing of Information, and Mechanisms To Do So;**

26% of votes

- use of telecommunications and other media for dialogue and information sharing (internet). *Respondent listed data as one form of information which could be shared and perhaps collection methods could be standardized*; 14 votes
- information sharing between districts and between kids and community groups. *Respondent perceives a need to develop ways to ease community groups and high school groups into working together*; 3 votes
- yearly student conference, forum. *Respondent perceives a need to hold a yearly regional student forum to present collected data*; 2 votes

- one place to get information through the web; 0 votes

**Improved Resource Materials and Access;**

24% of votes

- customizable, user-friendly resource materials. *Respondent has a need for materials such as generic lesson plans on disk which can be customized;* 6 votes
- directory of resources. *Respondent wants easier access to local resources, i.e. wants to know where to go for different types of information;* 5 votes
- information for classroom use - specifically for Saginaw Bay Watershed: e.g. newsletter. *Respondent wants information on the history of human use of the area, perhaps in newsletter for;* 5 votes
- knowledge of how to relate information to the press (book). *Respondent would like a book to learn how to use the press without having to pay for it;* 1 vote
- lesson plan ideas; 0 votes

**Partnership Development, Strengthening Liaisons, Working Cooperatively, and Educational Opportunities to Learn How to Do So;**

15 %

of votes

- partnership between Institute for Water Research and schools; 8 votes
- partnerships with area businesses; 3 votes
- individuals that can provide leadership, mentor. *Respondent has a need for an individual who can provide 'one the ground' guidance, like a scout coming to a community to pull together individuals and assist in getting groups off the ground;* 1 vote
- *Respondent expressed a need to have the Michigan Department of Natural Resource involved (and assist) in local stewardship projects..*

**Increased Advocacy and Necessary Information;**

13% of

votes

- political activism for funding: regulatory agencies. *Respondent listed more letter writing to congress as a need;* 7 votes
- politically active people to get information from regulatory agencies to public. *Respondent also expressed a need for grass-roots support of business regulation;* 2 votes.

**Consistent Funding and Information on How to Access Funding;**

11% of

votes

- finding funding sources; 8 votes

**Collection and Organization of Baseline Data and Information, With Access;**

3% of

votes

- data used by industry - build industry connections. *Respondent wants citizen collected data to be used by industry to improve processes as opposed to data used only by government agencies;* 2 votes

- site-specific data *Respondent listed scenarios and case studies as examples of useful data*; 2 votes
- information regarding seasonal variations in a watershed; 0 votes
- *Need data regardless of whether or not it is used (not listed on newsprint)*
- year end report. *Respondent perceives the need for a year end report of student collected data*; 0 votes

**Need for Inclusive Stakeholder Participation in Management Decisions and Discussions;**

3% of votes

- volunteerism. *Respondent has a need to know how to maintain enthusiasm in volunteers and how to maintain community volunteerism*; 1 vote
- diversity within groups. *Respondent sees a need to include all stakeholders, including churches, schools, and businesses*; 1 vote

**Data Used and Standardized;**

3% of votes

- water quality test standardization; 0 vote
- have data be used; 0 vote

**Technical and/or Organizational Assistance;**

1% of votes

- *Information on how to analyze data.*

**Public Education to Increase Awareness and Responsibility;**

1% of votes

- reaching non-traditional audiences; 1 vote
- *Need to "preach to the choir" less.*
- positively focused "environmental report card" for businesses; 0 votes

**Watershed Approach to Planning and Management;**

0% of votes

- *Need for management policy which includes restoration..*

**4) Regional non-profit organizations; a total of 87 votes were placed**

**Partnership Development, Strengthening Liaisons, Working Cooperatively, and Education Opportunities to Learn How to Do So;**

22% of votes

- develop a working relationship, partnership agreement, focus on common ground. *Personal relationships must be developed between citizen organizations and agency staff who have decision making authority, to foster working cooperatively. Focusing on common ground can make this easier*; 9 votes

- better use of existing lobbying groups (use constituents). *Non-profit organizations need to make better use of existing lobby groups*; 2 votes
- consulting from group-group; 0 votes
- work with regional group; 0 votes
- unity - stewards and lobbying. *Stewardship programs need to become more politically active by working with lobby groups*; 0 votes
- person-to-person contact a must. *Citizen groups must develop a personal relationship with responsible parties in their local government*; 0 votes.
- communication is lost as issue is filtered from commission to commission; 1 vote
- get across main issues to "the" decision makers (even with change in decision makers); 8 votes

### **Watershed Approach to Planning and Management;**

21% of

votes

- refinement of site planning *process* (e.g. development on watershed basis): *requires* 1) management, 2) education of officials (zoning, planning); 7 votes
- carrying capacity vs. use until it is gone, who decides, is it a public issue. *This concept needs to be considered in development issues.*; 6 votes
- holistic approach to *management* - for making predictions of accumulating affects; 3 votes
- should it be a regional watershed issue and decision making process; 3 votes

### **Networking, Better communication and Sharing of Information, and mechanisms to do so;**

19% of votes

- share what has been done and worked; 13 votes
- current mailing list; 5 votes
- citizen knowledge: what group is responsible for what issue (predefine); 0 votes
- flexible network to address different problems/issues; 0 votes

### **Focus To Group's Activities;**

12% of

votes

- current solution is crisis management, better solution is responsible active management; 0 votes
- focus incentives for preservation - legislative, from local government. *Need legislated incentives at the local level*; 3 votes
- do we need to wait for a crisis (let history be the current crisis); 1 vote
- technology use; 0 votes
- education for proactive rather than reactive prevention. *Environmental non-profit organizations have historically struggled with reacting to circumstances rather than focusing programming in a proactive manner*; 7 votes

**Technical and/or Organizational Assistance;**  
votes

7% of

- can GIS based information be useful - if so, how to use it. *Need to know how to access GIS information and how to apply it*; 1 vote
- how to develop integrative modeling approach - hydrologic model; 5 votes

**Need for Inclusive Stakeholder Participation in Management Decisions and Discussions;**  
5% of votes

- where are the actual impacts (is it just a "my property", or should it be a community decision making process). *Groups need to focus on the watershed level rather than fighting to protect a single stretch of river or a single lake*. 5 votes

**Consistent Funding and Information on How to Access Funding;**  
votes

4% of

- secure funding; 4 votes
- efficient spending; 0 votes

**Increased Advocacy and Necessary Information;**  
votes

4% of

- timely information on opportunities within legislation. *Need to know what is currently happening to make efficient use of lobbying efforts*; 4 votes.

**Public Education to Increase Awareness and Responsibility;**  
votes

4% of

- publicity; 3 votes
- publicize - how to get information out for people to know issues; 1 vote

**Data Used and Standardized;**  
votes

2% of

- data collection, utilization (what to do, how to make it useful), managing - who to address it to; 2 votes
- ignore citizen data collection. *Need for citizen data to be given attention*; 0 votes

**5) Local Non-profit organizations; a total of 76 votes were placed**

**Networking, Better Communication and Sharing of Information, and Mechanisms To Do So;**  
29% of votes

- DNR divisions to work together on particular watersheds - at state level. *Lack of in-house networking*; 10 votes
- need menu of programs of other organizations already started. *In other words, "how they did it", to avoid recreation*; 6 votes

- contact list of "big hitters" involved in watershed management. *Respondent expressed a need for a list of those with authority at the local level, i.e. who is responsible for what.*; 4 votes
- DNR needs list of organizations so they can inform groups about important issues - Permits. *Respondent complained about a lack of timely public notice*; 3 votes
- state, federal committee contacts for watershed topics. *Respondent wants to know which committee to contact*; 1 vote
- easier method to keep in touch with volunteers in organizations, more than newsletters; 0 votes
- better communication with watershed education programs (statewide). *Need a network of education programs*; 8 votes.

**Partnership Development, Strengthening Liaisons, Working Cooperatively, and Education Opportunities to Learn How to Do So;**

14% of votes

- utilize resources from non-profit and non-environmental arena. Need to make a connection!! *i.e. need to use resources from all of the non-profit sector including non-environmental organizations*; 1 vote

**Collection and Organization of Baseline Data and Information, With Access; 13% of votes**

- Technical Data with easy availability to groups for decision making (i.e. maps, GIS System)FREE. *It was suggested that individuals should pressure IMAGIN to make database information available for free*; 7 votes
- central clearing house for information/research findings; 2 votes

- more timely approach to salvaging pre-history information. *Need to protect archaeology along rivers which are not protected, a more efficient approach is needed. If a site is registered, the 'Department of History' will look at it;* 1 vote
- *Need to know what research is being done at a given locale.*

**Need for Inclusive Stakeholder Participation in Management Decisions and Discussions;**

12% of votes

- more help from legislators, from governor. work with groups not against; 9 votes
- how to get more volunteers involved/how to keep them; 0 votes

**Consistent Funding and Information on How to Access Funding;**

11% of votes

- more grant and funds available. *Need more grants for baseline studies;* 5 votes
- develop funding structures; 2 votes
- more equitable fee structure for groups(Ex. permit fees for non-profit groups). *Respondent suggested MDNR budget has been cut too far, and this is part of the problem;* 1 vote
- *Need to set up a legal fund for non-profits..*

**Watershed Approach to Planning and Management;**

8% of votes

- department of Agriculture more in line with DNR with watershed approach - enlightened about watershed management. *As opposed to following the traditional drain commissioner's approach;* 2 votes
- establishment of a watershed authority (combine - no department separation). *With a watershed management pla;.* 2 votes
- DNR departments do not consider the "whole", focus too much on separate issues. *Need to cooperatively look at the watershed when reviewing a P.A. 203, 346 or 98 permit application, for example;* 2 votes

**Technical and/or Organizational Assistance;**

8% of votes

- more staff out in the field. *Respondent wants DNR staff out in the field more frequently to look at and advise on sites prior to permit application;* 2 votes
- information on prioritizing non-point source contributors. *Respondent would like assistance in determining what are the greatest non-point source contributors of, for instance, phosphorus (agriculture, road crossings etc..) in a particular watershed.;* 4 votes



**Focus To Group's Activities;**  
votes

5% of

- groups to focus more on prevention. Take Action! DNR and River Organizations.  
*Need to focus more on action and enforcement rather than information gathering;* 4 votes.

**6) County and Local governments; a total of 70 votes were placed**

**Collection and Organization of Baseline Data and Information, With Access;**34% of votes

- need our local watershed's information in one spot, make various studies more accessible - comparatives: water quality, fish populations, stream configurations, changing land usage, habitat type, flood frequencies; 12 votes
- better technical information, identify resources to protect, assess impacts of activities 4 votes
- what specific problems are there; 4 votes
- widely available GIS, including in-house technician; 4 votes

**Networking, Better Communication and Sharing of Information, and Mechanisms To Do So;**

23% of votes

- need a Michigan clearing house: physical library, newsletter, computer BBS; 10 votes
- centralized, federally funded, U.S. watershed information center(learn from experience); 5 votes
- who is involved and how do the groups get things done (government included); 1 vote

**Consistent Funding and Information on How to Access Funding;**  
votes

16% of

- how does this watershed approach get paid for;11 votes

**Technical And/or Organizational Assistance;**  
votes

11% of

- access to data interpretive services; 8 votes

**Public Education to Increase Awareness and Responsibility;**  
votes

11% of

- let public know what watershed problems are, importance of individual action, public education and information needed; 8 votes

**Watershed Approach to Planning and Management;**  
votes

5% of

how do CSO improvements figure into watershed management; 3 votes

## **DISCUSSION**

### **Interpretation Dilemmas:**

Comparative interpretation between groups is inappropriate for several reasons:

- Some focus groups were heterogeneous in their organization representation and thus conclusions drawn about one group are not representative of the organizations within that focus group. Therefore, comparisons can not be made between focus group responses relative to the organizations assigned to groups.
- Some groups ordered no single category of needs higher than other groups. This may or may not mean that this group perceives those needs as unimportant, relative to other group's perceptions. What can be inferred is that the votes were spread out more evenly in some of the groups than in others. For example Group 2 (State Government) had the greatest number of categories of need listed and no category received more than 17 percent of the votes and half of the categories voted on were ordered in the top 6 percentages. Categories in other groups received percentages up to 34 percent of the votes.
- The absence of a category of responses in a particular group does not mean that category is unimportant to that group. Respondents may not have thought of those needs or may not have listed them because they seemed obvious, such as funding needs or the need to take a watershed approach.
- Groups had various numbers of needs listed. For instance, group 6, County and Local Government, had significantly fewer needs listed than the other groups. As a result, votes were divided among fewer categories and thus the percentages were higher. This may or may not indicate that this focus group placed a higher priority on a specific category than another focus group who had a lower percentage for that category.

Comparative interpretation within a group is difficult for the following reasons:

- Participants were asked to list needs for their organization or for citizen stream stewardship organizations state-wide. Therefore, it is unclear if a given need listed is a need experienced by an individual or is a perceived need for some other organization or stream stewardship programs in general.
- Participants were asked to order needs listed by voting with dots. It can not be concluded that these votes indicated priorities, or any other value statement, in terms of addressing those needs or the extent of those needs among the organizations voting. Facilitators asked participants to "informally rank the needs identified in terms of how critical they are to programs". Therefore, some individuals may have ordered highest those needs which they personally would like to have met, while other participants may have ordered highest those needs which they perceived as having the greatest impact on stream stewardship programming state-wide.

- Some needs listed could have been placed in more than one category. Placement was made after careful interpretation of the session recordings. However, this judgment has a significant impact on the ordering of categories in some situations. For example,
- Some responses were a combination of two needs from different categories. These were not separated, but left as is and placed in the most appropriate category based on interpretation of the audio recordings.
- It is possible that some individuals voted strictly on what was recorded on the newsprint, while others voted on what their interpretation or additional thoughts were regarding a specific need.

### **Summary Statements:**

Although responses cannot be analyzed quantitatively in great depth, some observations can be made. No one listed category of needs received a low frequency of votes in all groups.

Observations regarding specific responses can be classified into three classifications: 1. Categories of responses which received a high frequency of votes in all groups; 2. Categories of responses listed in all (or almost all) groups but whose frequencies of votes varied; and 3. Categories of responses listed in only 3-4 groups, with frequencies of votes varying. See table x for a summary of observations.

#### **Category 1. High frequency of votes in all groups:**

It may be inferred that all groups perceive Networking as an important need category relative to other categories listed. The frequency of votes of the Networking category of needs was ordered in the top four by all groups and was ordered first or second in four of the focus groups.

Funding was ordered in the top five in all groups except group 4 (Regional Non-profits) where it was ordered seventh. Funding was ordered with the highest frequency of votes in group 1 (Conservation Districts).

#### **Category 2. Responses listed in all (or almost all) groups but with varied frequencies:**

Data Collection ordered in the top three in three groups, Conservation Districts, County and Local Governments, and Local Non Profits.

Participation received a moderate frequencies of votes in all groups except county and Local Governments.

Partnerships was ordered high by Educators, Regional Non Profits and Local Non Profits.

Watershed Approach was ordered second highest in groups Conservation Districts and Regional Non Profits.

Public Education received a moderate frequency of votes in the State Government group and was ordered low in the other groups in which it was mentioned.

Assistance received moderate frequencies of votes in groups County and Local Governments, Local Non Profits, Regional Non Profits and State Government

It can be said that these categories of needs are perceived as very important to one or two groups, relative to other categories listed by that particular group. These categories of needs are somewhat important for almost all groups.

Category 3. Responses listed in only 3-4 groups, with frequencies of votes varying:

These categories of needs include, Resource Materials, Group's Focus, Data Used, and Advocacy. Because these needs were only listed in 4 or fewer groups and percentages were variable, no inferences will be made other than to observe that these needs were important to some groups.

### **Recommendations for Further Research:**

In-depth research is necessary to assess the needs of Michigan's citizen action stream stewardship programs. To do this it is necessary to conduct a survey of opinion leaders of Michigan's stream stewardship citizen action organizations in order to identify the types of activities these organizations are involved in and how these activities are conducted. Research should include to following determinations:

#### **A) What are these groups doing:**

- What types of projects or activities groups are involved in
- If monitoring is conducted, what parameters are measured
- What types of watershed restoration and habitat enhancement activities are conducted
- What forms of education opportunities are implemented
- In which rivers, streams and watersheds do these groups work

#### **B) How and why are these activities conducted**

- What resources (materials, individuals, or organizations) are used to support these activities
- If water monitoring is conducted, what procedures are used
- If data are collected, what is done with it; who uses it, and how is it used
- How are these organizations staffed, and how many members and volunteers do they manage
- How are these organizations funded

#### **C) What organizational and technical needs do these organizations have;**

- What organizational needs do these groups perceived as critical to their programs
- What technical needs do these groups perceived as critical to their programs
- How are these perceived needs prioritized in terms of importance to address

### **Recommendations for Further Education Opportunities:**

Present results of research to educators to incorporate into planning:

- a) from focus group results
- b) from conference evaluation results

## **APPENDIX C: Conference Evaluation Survey Results**

## **EVALUATION**

### ***COORDINATING WATERSHED STEWARDSHIP IN MICHIGAN: CITIZEN MONITORING, ENHANCEMENT & PROBLEM SOLVING FOR STREAMS & RIVERS TITLE OF CONFERENCE***

**Erickson Hall, Michigan State University, East Lansing  
March 6, 1995**

**Dear Conference Participant:**

In order that we may learn how to improve future conferences such as this, it is important that we collect some important information from you. Please take a few minutes to complete this Evaluation Form. When the results of this evaluation are compiled, your name WILL NOT be associated with particular answers you give; in other words, your responses will be confidential, and will not be identified to your name in the final report summarizing this evaluation. Survey responses will be tallied by staff members from Michigan State University Department of Fisheries and Wildlife, so your confidentiality is ensured. Remember, we value your input, so please be candid!

Please bring it to the Registration table by 3:30 to be included in a drawing for a plankton net (valued at about \$60.00) donated by Wildco. The drawing will be held during the Conference Closing Session at approximately 4:00.

Of course, your participation in this survey is voluntary. Your completion of the survey indicates your willingness to participate in this evaluation of the conference. Your response to this evaluation is important and will help shape future watershed conferences.

(If you forget to leave this with us at the conference, you may mail it to Melissa Middleton at the address below)

**Thank you for your assistance!**

**Melissa Middleton  
Graduate Assistant and Conference Organizer  
MSU Dept. of Fisheries & Wildlife  
13 Natural Resources Building  
East Lansing, MI 48824  
(517)353-0308**

**Shari L. Dann  
Assistant Professor and Extension Specialist  
Fisheries & Wildlife  
(517)353-0675**

1. What type of agency or organization do you represent?

<u>23.1%</u> State government	<u>30.8%</u> Non-profit conservation/environmental organization
<u>1.5%</u> Federal government	<u>7.7%</u> Private Sector (Consultants etc.)
<u>10.8%</u> Local and County government	<u>4.6%</u> Non-Formal Education organization (Nature centers, Extension etc.)
<u>15.4%</u> Watershed council	<u>3.1%</u> No organization (I'm an individual interested in watersheds)
<u>15.4%</u> School or University	
<u>1.5%</u> Other: _____	

2. Please describe your interests and participation in watershed stewardship activities:  
(I.E. what describe the activities you are involved in)

0 (4.6%) N.A.	4 (6.2%) School monitoring
9 (13.8%) Watershed management	9 (13.8%) Community education
6 (9.2%) Regulatory	1 (1.5%) Wildlife enhancement
6 (9.2%) Non-point source/stormwater	2 (3.1%) Advocacy
3 (4.6%) Volunteer Coordination	2 (3.1%) River Monitoring
1 (1.5%) Networking	3 (4.6%) Information & Education
	16 (24.6%) Inappropriate response

3. Are you a member of any environmental or conservation organization(s)?

76.1% YES 23.8% NO

IF YES, what organization(s)? \_\_\_\_\_

4. Please describe the type of area where you currently reside. (Please check one.)

21.5% Rural - farm  
15.4% Rural - nonfarm - area of less than 2500 people  
30.8% Small town - area of 2500 - 50,000 people  
32.3% Urbanized area (city/suburban area with more than 50,000 people)

5. In what county do you reside? \_\_\_\_\_

6. How did you first hear about this conference? (Check one answer.)

<u>37.5%</u> Direct mailing, addressed to me	<u>9.4%</u> ANR Week booklet
<u>15.4%</u> Direct mailing, addressed to someone else	<u>1.6%</u> Brochure/flyer from another organization
<u>30.8%</u> Water Impacts newsletter	<u>6.3%</u> Brochure/flyer at some other office
<u>32.3%</u> From MSU Extension office	<u>29.7%</u> Other: _____

7. Have you ever attended a program held in conjunction with MSU's "Agriculture and Natural Resources Week" before attending this conference?

62.5% YES 37.5% NO

8. Which afternoon session(s) did you attend? (Please write in the topic of each session.)

Time Block #1 (1:30) \_\_\_\_\_

Time Block #2 (2:30) \_\_\_\_\_

9. Please rate each aspect of this Conference. Circle one number for each aspect listed below.

ASPECT OF THE WORKSHOP	Poor (Not useful)	Fair	Good (Somewhat useful)	Very Good	Excellent (very useful)
Morning keynote speaker	1(1.6%)	5(8.2)	13(21.3%)	32(52.5%)	10(16.4%)
Morning panel	1(1.6%)	7(11.1%)	32(50.8%)	20(31.7%)	3(4.8%)
Morning Roundtable Discussions	3(5%)	3(5.0%)	27(41.5%)	11(18.3%)	12(20%)
Afternoon "workshop" sessions	1(1.6%)	1(1.7%)	11(18.6%)	33(55.9%)	13(22%)
General coverage of subject matter	0.0	3(5.1%)	19(32.2%)	30(50.8%)	7(11.9%)
Pace of the program	3(4.9%)	3(4.9%)	9(14.8%)	16(26.2%)	9(14.8%)
Comfort of meeting space	2(3.1%)	10(15.6%)	20(31.3%)	21(32.8%)	11(17.2%)
Overall quality of lunch, refreshments	0.0	4(6.5%)	12(19.4%)	32(51.6%)	14(22.6%)
Quality of material, handouts provided	0.0	3(4.8%)	14(22.2%)	30(47.6%)	16(25.4%)
Overall quality of conference in relation to other programs you have attended	0.0	5(8.1%)	18(29.0%)	32(51.6%)	7(11.3%)

10. What would you like to see added in future workshops?

11. What would you like to see deleted in future workshops?



12. To what extent were you satisfied that the conference helped you in each of the following areas? (Please circle one number for each area.)

TO WHAT EXTENT ARE YOU SATISFIED THAT THIS CONFERENCE HELPED YOU.....	Not an important reason for attending	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
To learn new information	0.0	0.0	4(6.5%)	9(14.5%)	36(58.1%)	13(21%)
To gain confidence in a particular activity	12(19.7%)	0.0	3(4.9%)	26(42.6%)	15(24.6%)	5(8.2%)
To do better in my job	5(8.3%)	0.0	1(1.7%)	19(31.7%)	31(51.7%)	4(6.7%)
To meet people with similar interests	1(1.7%)	0.0	0.0	4(6.7%)	28(46.7%)	27(45.0%)
To contribute to discussions about how watershed groups can communicate	2(3.3%)	0.0	2(3.3%)	12(19.7%)	28(45.9%)	17(27.9%)
To be able to teach or share my skills with others	7(11.5%)	0.0	4(6.6%)	27(44.3%)	16(26.2%)	7(11.5%)
To learn new skills, such as use of watershed monitoring equipment	8(13.3%)	0.0	5(8.3%)	26(43.3%)	15(25.0%)	6(10.0%)

13. Would you be interested in attending another conference on watershed stewardship?

52(85.2%) YES 9(14.2%) PERHAPS 0.0 NO

14. As a result of attending this conference, is there anything new you intend to do based on your experience here today?

46(83.7%) YES 9(16.4%) NO If YES, could you describe: \_\_\_\_\_

15. Any other comments or suggestions:

**Conference Evaluation Results**  
**Responses to Open-ended Questions**

**Number 2: Please describe your interests and participation in watershed stewardship activities.**

**Responses:**

- Developing a watershed management plan.
- Non-Point Source program, stormwater for non-regulated communities, Saginaw Bay Watershed Initiative, Saginaw River-Saginaw Bay Remedial Action Plan.
- Adopt-a-stream coordinator (concern for prioritization and networking).
- Getting volunteer participation in sedimentation control, and developing a network of erosion inspectors within the watershed.
- Water quality technician, watershed management plan, Northern Tittabawassee Task Force, well “closures”, shoreline erosion inventories, lake monitoring, factor mapping, watershed delineation, surveys and questionnaires.
- Interested in trying to mitigate near future residential development pressure related to runoff problems.
- Saginaw Bay Watershed Council, East Central Michigan Planning and Development Region, Saginaw Bay RC&D-Claire Co. Chapters, Claire County Planning Commission, Lincoln Township Planning Commission.
- To protest water quality throughout local watershed for quality of life, fishing, recreation
- Surface Water Quality Division of Department of Natural Resources.
- Clean-up, school based water quality monitoring, adopt-a-stream, storm drain “stewarding”, nesting boxes, community education.
- Chair of watershed group which is trying to build support for a watershed study.
- Saginaw Bay Watershed Council Project, school based monitoring.
- As a citizen I want to see water quality improved for recreational purposes and posterity and fisheries enhanced for recreation and industry. As a regulator I am involved I clean-up of sites of environmental contamination, some of which impact streams and rivers
- Webbing information, collecting data.
- Wetnet project director, data gathering.
- Developing public educational programs and site planning to support them. Advise on watershed programs, particularly using water quality analysis.
- Involved in administering section 319 nonpoint source pollution control program
- Administer the The Inland Lakes and Streams Act (1972, PA 346), and “The Gaomaer-Anderson” Wetland protection Act (1979, PA 203).
- Permits along rivers/program administration.
- State coordinator of natural rivers program.
- Groundwater contamination, habitat improvement, aquatic research.

## Number 2 (cont.)

- Adopt-a-stream, storm drain stenciling, school river monitoring, macroinvertebrate testing, amphibian monitoring, exotic species education and monitoring.
- I am responsible for building and maintaining stormwater facilities.
- Actively fighting wetlands and natural lands and natural river destruction with lawsuits against drainage projects and wetlands permits.
- I work in an educational role with many local groups addressing water quality issues.
- Water quality standards and conservation easements of wetlands.
- Coordinating lake and stream watershed projects.
- I'm trying to organize a water quality coalition in Genesee County, bringing together those interested in stream testing and clean-ups.
- Quarterly water testing of the Galien River, weekly ground water level monitoring and monthly water quality testing of The Nature Conservancy owned Grand Beach reserve, local sponsor of semi-annual Beach Sweep, "host" educational programs about the Galien River and its watershed (canoe trips with naturalist, hiking, tours, speakers, archeology classes and hands on workshops, Native American studies), bird watches.
- Improve river—all aspects.
- Development and implementation of watershed plans in partnership with local governments.
- Starting a 319 grant.
- Enabling interested citizens/groups to do a better job of "WS" protection.
- Information dissemination, educational materials production, watershed-wide data access, integration and analysis.
- Volunteer monitoring—macroinvertebrates and soil erosion, groundwater protection/municipal drinking water protection legislation/lobbying, water quality and quantity research, land use planning.
- Green, Adopt-a-River.
- Provide DNR staff resources to local initiatives. This would include participation of policy and technical advisory groups.
- Lake association looking a starting upstream watershed initiative to control phosphorous.
- Adopt-a-river (Lansing, MI), river clean-up section sponsor, planning to begin a water quality monitoring program at a site on the Grand River near our business in Lansing, work on projects with organizations below.
- Chair of the Huron River Watershed Council.
- Regulating discharges to waters of the state.
- Facilitate and administrate several watershed management and protection programs in 15 counties.
- Pesticide issues and I am a consultant.
- My interest is predominately a concern for elementary and high school education programs and a recognized urgency for schools to include environmental education in their curriculum ("bay" and earth day celebration).
- Coordinate multiple school districts in stream/groundwater - watershed projects.

**Number 2 (cont.)**

- Adopt-a-river, water resource education (k-12), groundwater protection education.
- Watershed planning.
- Consulting engineer - planning and design.
- Currently working for the Surface Water Quality Division. Staff is heading toward a watershed management approach. Am also involved in training members of industry and construction companies and am encouraging them to take a watershed management approach.
- Wetland protection, groundwater protection within local government, watershed awareness activities through non-profit organization.
- Adopt-a-river, river and water education, recreational river trailway, non-point source pollution.
- Newly developing interest in: water quality, watersheds, stream bank erosion, Water Watchers Training, water table-well logs, lake testing.
- Citizen advisory board - environmental matters.
- 319 watershed project.
- Monitoring land use activities, public education of water quality issues, public education of stewardship issues.
- Watershed wide educational program.
- Water Air Woods (WAW) pilot/model program for water quality, air quality and land restoration in regards to wildlife habitat. In each high school special needs classes in environmental science classes. Our program involved Adopt-a-stream East Br. Au Gres Nature Center on campus, in class instruction of a variety of class subjects etc.
- Setting up a state "naturate" for watershed management.
- Co-coordinator of Kent County teacher truing project: streams are monitored quarterly results compiled, provide semi-annual teachers training, newsletters.

**Number 3: Are you a member of any environmental or conservation organization(s)? If yes, what organization(s)?**

**Responses:**

- Kawkawlin River Watershed Property Owners Association
- West Michigan Environmental Action Council
- MALD, Soil and Water Conservation Service, GAWA, PF
- Michigan United Conservation Clubs (Montmorency Co. Conservation Club)
- Defenders of Wildlife, Earth Island Institute
- Michigan Environmental Council
- Mid-Michigan Environmental Action Council, Sierra, Audubon, Nature Conservancy, Environmental Defense Fund
- Nature Conservancy
- Upper Peninsula Environmental Council, Mid-Michigan Environmental Action Council
- American Water Resource Association, West Michigan Environmental Action Council, Audubon

## Number 3 (cont.)

- Michigan United Conservation Clubs, ACA, River Network, Environmental Defense Fund, Nature Conservancy
- PMWC
- Michigan United Conservation Clubs, Friends of the Everglades
- American Water Resources Association, Michigan Soil and Water Conservation Society
- dozens
- Society of American Foresters, Michigan Forestry Association
- American Rivers, American Whitewater Affiliation, American Canoe Association
- North American Lake Management Society
- Board of the Thornapple River Watershed Group
- Galien River Watershed Council, Wetlands Conservation Association
- West Michigan Environmental Action Council, Audubon, National Wildlife Federation
- Huron River Watershed Council, West Michigan Environmental Action Council, Sierra Club, Environmental Defense Fund, Michigan Land Conservancy, Nature Conservancy, Leelanau Land Conservancy, "Superior Land Conservancy" Potawatomi Land Trust, League of Conservation Voters
- Association of State Wetland Managers, Soil and Water Conservation Society
- Michigan North American Lake Management Society, Michigan American Water Resources Association
- Michigan Environmental Council, Global River and Env. Educ., River Network, American Rivers, Nature Conservancy, Wilderness Society
- several
- Platte Lake Imp. Association, G.T. Regional Land Conservancy
- Friends of the Looking Glass, Mid-Michigan Environmental Action Council
- World Wildlife, Watershed Council
- Rouge River Watershed Project, BSA, GSA
- Wildlife Society
- Northwest Environmental Action Council, Citizens for a Better Environment
- Michigan United Conservation Clubs, Michigan Association of Environmental and Outdoor Educators
- Nature Conservancy, Arbor Day Foundation, Michigan Association of Environmental and Outdoor Educators
- Soil & Water Conservation Society of America
- Many: Friends of Red Cedar Watershed Society of America, Mid-Michigan Environmental Action Council, LIWC, NAA, Audubon, Sierra Club, National Wildlife Federation, Michigan United Conservation Clubs, etc.
- Northern Tittabawassee Task Force, Michigan Lake and Streams Associations, Walleye "as Gledown"
- World Wildlife Fund, Wilderness Society
- Mid-Michigan Environmental Action Council
- West Michigan Environmental Action Council
- Audubon Society, Nature Conservancy, Natural Resources Defense Council;

**Number 3 (cont.)**

- Friends of the Rouge, Environmental Defense Fund
- Michigan Association of Environmental and Outdoor Educators, Michigan United Conservation Clubs, Saginaw Bay Watershed Council, Project Wild/Aquatics, Professional Walleye Trail--in fisherman
- "LAWC/MSS", American Water Resources Association
- West Michigan Environmental Action Council

**Number 10: What would you like to see added in future workshops?****Responses:**

- More emphasis of mechanisms for coordination between state and local levels, and more emphasis on mechanisms for sharing information (Internet, GIS, etc.).
- More aggressive moderation of speakers and questions, and more focus on stimulation ideas.
- Maybe decision makers from local and state levels (federal, too) to present what they feel are effective means of watershed proaction. It might be useful to hear from the private sector too (what things do they respond positively to besides financial incentives, and affecting soliciting means to get their support.
- Theory(s) on carrying capacity (recreational activities)/planning for reasonable control and limitation of use/exploitation of resources with regard to recreational activities.
- More time spent on selected topic's question and answer, time too short.
- More demonstrations/exhibits such as the sediment one of the Drain Commission. That was an excellent example of stream flows. It really proved a point--we need more like that.
- Sharing solutions, or experiences , that address "needs".
- More seminars.
- More time for workshop facilitators to make longer and more detailed presentations.
- Lesson plan idea to use in one math/science class.
- Expanded descriptions of workshops. Longer workshops with more detail and content.
- More time for workshop sessions--wanted to attend more than two. Needed more time for the morning panel--discussion was just getting going and it was time to quit.
- More time for sessions.
- More time in group discussion regarding central topic.
- More discussion of on-the-ground activities (workshops, sampling trips, etc.) that the citizen groups are doing.
- Field trips may not be good logistics, but people need to see good works in action and also to prove they can be done.
- More "nuts & bolts" practical information. Hasn't anyone accomplished something?
- More tools to use in implementing programs.
- More time in sessions to ask questions and cover material.

## Number 10 (cont.)

- Specific techniques used in land use planning for watershed protection (PDR, TDR, Concurrence, Regional detention, etc.) Ways that might facilitate attendees to get to know each other better, facilitating networking.
- More networking opportunities, a fewer number of sessions, but with more time to interact.
- Inclusion of wetlands considerations--more concentration on importance.
- Provide a mini testing workshop and provide testing kits to those interested, more time to focus on state initiatives that are being worked on.
- How much of MI river watersheds are covered.
- Longer workshops.
- List of participants could include some information of what they are doing--for future networking.
- Public health personnel.
- Local focus (i.e. planning commissions, township supervisors) state focus (i.e. "LWMD, SWQD, etc.), federal focus (i.e. EPA water).
- More specific details of how to do things.
- Request that organization participants bring one (1) display copy of each of their groups publications for others to examine during the day in the lobby and put a request sign up sheet out for interested parties who would like copies. Some of that here today--would like to see more.
- Better map.
- Follow-p--looking forward to directory, etc.
- Longer afternoon sessions.
- Funding possibilities for watershed management programs.
- Do better job of partnering at conference level--for instance, where were feds (like USGS & NRCS) and locals (like Soil & Water Conservation Districts, County Commissioners).
- The interactive display was a useful teaching tool. More displays that encourage participation and visuals similar is encouraged. The choice of hot chocolate during the morning break.
- Coffee available upon arrival in morning, more time to talk to others, more displays.
- Afternoon session too short--not enough depth.
- Specific times set aside for networking purposes, more aggressive moderation to control networking during other times.
- Have a brief description of afternoon workshops. I had to guess the topics (i.e. I thought the "drawing water quality conclusions" workshop would discuss something other than what was discussed). It wasn't clear on the program.
- DNR involved fisheries department.

**NUMBER 11: What would you like to see deleted in future workshops?****Responses:**

- The base information regarding or resulting in lengthy talks about speakers of departments such as the 10:00 am introductions.
- The keynote speaker and the morning panel were of no interest, didn't really accomplish anything. Need Governor involved and key legislatures to discuss monetary concerns, and DNR problems on watershed questions, at least a possible one to two hour session.
- I can't think of anything--it all went well.
- Don't build these events around the special agenda of one organization, or to help one or more individuals complete the requirements of an advanced degree program.
- Round table discussion.
- Panel discussion.
- The panel--all panelists speak for such a long time--there is hardly time to ask questions or discuss.
- Panels without purpose.
- I think we are beyond recognition of need to work on a watershed basis, we need to spend more time on techniques.
- Panels and round tables either need to be lengthened or deleted. It seems like you just start to get into the discussion and its time to break.
- Panel: more specific, current issues of Michigan rivers rather than "what I've done or Who I am".
- Less slack time--less time for lunch--especially if a box lunch, more emphasis on specific how to's.
- Morning sessions was too long.
- Sessions like the 11:00 am round table session in room 222. I would have rather filled out a written survey for the first ten minutes and then moved on to a more productive discussion.
- There was nothing I found that should be deleted. It was all interesting/helpful.
- Round table.
- I would hesitate to delete anything.
- Divide state employees for round table session.
- More concurrent workshops.
- Long, long lunch hour.

**Number 14: As a result of attending this conference, is there anything new you intend to do based on your experience here today? If yes, could you describe?****Responses:**

- Establish better lines of communication coordination with local governments and general public through locally driven partnerships.
- Evaluate watershed priorities, work more with other watershed groups, develop more concrete goals.



## Number 14 (cont.)

- Test for dissolved oxygen at 4:00 a.m.
- Volunteer for stream clean ups or take pictures of streams.
- Develop close relationships with local planning commissions.
- "SSS" for my classroom lesson plan, gather data.
- Macroinvertebrates studies, newsletter activities.
- Alter use of water quality data, more Internet activity.
- Get on the Internet.
- Try to include local watershed.
- Follow-up contact with individuals met today.
- Possibly start a small group on the Bear River, in Emmet to work on some small "do-able" activities.
- Consider stream crossing signs.
- Better networking.
- Not enough time to learn new material.
- Investigate methods to manage landuse to protect watersheds.
- Will use different techniques in organizing group and facilitating meetings.
- Helping with communication.
- More ways to communicate basic ideas to nontechnical people (i.e. management plan must be like an investment strategy - must diversify).
- Coordinate water quality coalition to do a stream clean-up using the information from break-out sessions.
- Get in touch with several people who have useful information or are involved in relevant projects.
- Many ideas. Mostly related to networking.
- Correspond with some new contacts.
- Met some people, heard of some projects that I'll touch base on with, will begin to tap into electronic networks more.
- Obtain a list of names to contact on a watershed initiative.
- Have to digest what I learned first.
- Better communication on what is happening with the project I am working on.
- Encourage, support school personnel to develop and implement environmental curriculum.
- Share information with others today in my organization.
- Continue to network with watershed planners, managers, interest groups.
- There is some information gained today that can be used in my on-going training sessions.
- Begin consistent contact with other groups.
- I'd like to be more involved on a citizen basis, not just government.
- Consider stewardship activities.
- Be more aware of my own presentation skills/habits.
- Network my problem.
- Incorporate information in grant proposal.

**NUMBER 15: Any other comments or suggestions?****Responses:**

- Would like to have attended four concurrent sessions, instead of two. Not enough time.
- I'm disappointed the keynote speaker, in closing remarks, veered off the subject to give his own personal political diatribe to criticize a system "in-absentia" and without having had a chance to work. I feel he lost the sense of the conference title's very first work (i.e. coordinating). I find this offensive and out of line.
- We need strong input to the governor's office to better fund our programs of our natural resources. These natural resources in MI are the major drawing card for tourism which is considered either #1 or #2 in commerce for our state's livelihood.
- I enjoyed the conference. The meal was bigger than necessary though. I liked the discussion format of the morning "Problems" section as well as the question section of the programs. I think I learned quite a bit about volunteering, interests, nonprofit organization stewardship problems, and nonprofit source pollution.
- Good job Melissa!!
- Narrow focus for the start. "We are here to initiate a network of Michigan's grass roots stream protection efforts' then spend a day brainstorming on how to create the network.
- Congratulations Melissa - it was a great conference. You did a great job and should feel good about it!
- More visual aid materials to enhance learning in seminars.
- Much better format and coverage than last year! Good speakers (well versed) in programs.
- Good job Melissa! It's very obvious you spent lots of time on this! Extremely thorough and professional!
- Good afternoon sessions. Would be nice to be able to attend more than one/given time (i.e. repeat them).
- Very nice job.
- Good conference.
- Better map to facility.
- Good job, early on—have a little more information available on registration.
- The roundtable session at 11:00 am in Room 222 was very poor. It was run as an information gathering session for the facilitators and any "round-table" discussion between participants was completely stifled. A very fruitful give and take discussion by very enthusiastic people was not allowed until the last two minutes. Opportunity Lost!
- Spend more time on concurrent sessions—they were the most valuable part of the conference.
- Much more interesting and helpful information this year. Seems to have been better directed at pointing people in the direction of protecting watersheds.
- Janis Bobrin did a great job in her session. Panel session could've been longer
- Could have been longer.



**Number 15 (cont.)**

- **There needs to be some sort of follow up after this workshop. The workshop created an optimistic vision of networking, but now something hands-on needs to be done. It is one thing to discuss networking and it's something else to actually put into action. I would like to get involved if you need people for this sort of project: Stacey Hoffe, Friends of the Rouge, (313) 961-4099.**
- **Contact me next year to speak on grass roots involvement! WAW Program! Hope to get with (TV) TNN and ESPN as well as Steck Vaughn (text) on pilot program. (Saginaw Bay Watershed Council—Whittamore-Prescott High School).**
- **Telecommunications, site specific issues to be addresses.**

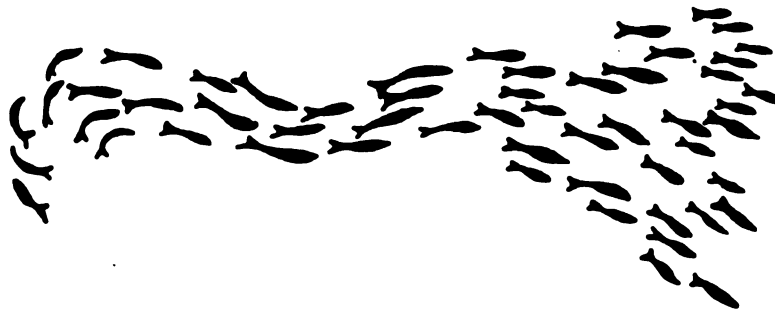
## **APPENDIX D: Mail Survey Instrument**

*We Want to Know.....*

*..... What Do You Do,*

*And What Are Your Needs?*

**A Survey of Leaders of  
Michigan's Stream and River Organizations**



**By**

**Michigan State University**

**Department of Fisheries and Wildlife**

**Michigan Stream Steward Survey**  
**A Survey of Leaders of Michigan's River and Stream Organizations**

**Part I. Please tell us a bit about yourself**

1. You received this survey because you are associated with a citizen organization which is involved in stream and river stewardship activities in Michigan. In general, what is your role within this organization? Please check all that apply.

<input type="checkbox"/> Volunteer	<input type="checkbox"/> Committee Chair	<input type="checkbox"/> Board Chair	<input type="checkbox"/> Program director/coordinator
<input type="checkbox"/> Paid staff	<input type="checkbox"/> Committee member	<input type="checkbox"/> Board member	<input type="checkbox"/> Executive director
<input type="checkbox"/> Elected officer	<input type="checkbox"/> President		
<input type="checkbox"/> Other _____			

2. We would like to survey those individuals most familiar with your organization's stream and river stewardship programs (such as the contact person for these activities). Are you involved with programming related to streams and rivers?

☐ NO ⇒ Who should receive this survey instead?

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Please return this survey in the enclosed envelope.  
 Do not continue filling out this survey.

☐ YES ⇒ What is the nature of your involvement? Please check one:

<input type="checkbox"/> I participate in stream and river activities but do not provide leadership	⇒	In addition to yourself, who else in your organization should receive this survey? Name _____
---	---	--

OR

☐ I provide some leadership to stream and river activities

⇓

Please check all of the following that apply.

- ☐ I am in charge of coordinating stream and river programs and activities
- ☐ I facilitate or lead a committee or subgroup to coordinate stream and river activities
- ☐ I organize events or activities
- ☐ I make decisions about river and stream programs
- ☐ I have another leadership role(s) \_\_\_\_\_

**Part II. Now we'd like to know more about your organization**

3. Indicate which of the following best describes your organization's status:

<input type="checkbox"/> Governmental organization	<input type="checkbox"/> Not-for-profit, non-governmental organization
<input type="checkbox"/> Private sector organization (for profit)	<input type="checkbox"/> Other, please specify: _____

4. Is your organization a chapter of, a member of, or affiliated with a larger organization?  
 \_\_\_ NO (Go to next question)  
 \_\_\_ YES ⇒ 4a. Please list the name of the Parent organization(s). Include address if possible. If additional space is needed, attach a separate page. \_\_\_\_\_
5. In which watershed(s) does your organization's work take place? \_\_\_\_\_
6. Which specific rivers, streams or county drains are, or have been (in the past 3 years), targeted by your activities?  
 (list all) \_\_\_\_\_
7. How long has your organization existed? \_\_\_\_\_
8. What are your organization's resources? Please complete all of the following.
- |   |   |
|---|---|
| <b>Budget 1995:</b>   | <b>Staff/Membership 1995:</b>                             |
| \$ _____ Total approximate annual budget                    | _____ Number of active volunteers                         |
| _____ % of annual budget allotted to activities or programs | _____ (donate time or services)                           |
| _____ which target streams and rivers                       | _____ Number of paid staff                                |
|   | _____ Total number of members                             |
|   | _____ % staff time dedicated to stream and river programs |
9. In 1995, what were the sources of funding for your organization's stream and river programs? Indicate what percentage of your funding comes from each of the categories below. Place a zero by those sectors not contributing. If your river and stream programs are not financially supported, place zeros below.
- |                           |                            |                         |
|---------------------------|----------------------------|-------------------------|
| _____ % local government  | _____ % local business     | _____ % foundation(s)   |
| _____ % county government | _____ % corporate donation | _____ % membership dues |
| _____ % state government  | _____ % federal government | _____ % other _____     |

### Part III. What Do You Do?

10. What types of projects or activities does your group conduct? Indicate which activities you do in each type of aquatic environmental using the codes below. Use more than one code for each activity if it is conducted in multiple environments. Place an "X" next to activities you do not do.

X not involved with this activity	W wetlands
R rivers, streams, creeks	L inland lakes and ponds
G Great Lakes	E wells
O other environments	

\_\_\_\_\_ water monitoring, biological  
 \_\_\_\_\_ water monitoring, chemical  
 \_\_\_\_\_ water monitoring, physical (depth, flow etc.)  
 \_\_\_\_\_ environmental clean-ups  
 \_\_\_\_\_ photographic surveys  
 \_\_\_\_\_ pipe surveys  
 \_\_\_\_\_ runoff surveys, sediment and pollution source surveys  
 \_\_\_\_\_ sediment assessment  
 \_\_\_\_\_ habitat assessment /surveys  
 \_\_\_\_\_ fish or other vertebrate population assessment/survey  
 \_\_\_\_\_ research  
 \_\_\_\_\_ watercourse configuration assessment (depth, shape, composition etc.)  
 \_\_\_\_\_ assessment of floodplain characteristics (vegetation, size etc.)



11. Indicate which of the following activities are currently conducted by your organization. Check all of the following which are conducted:

- ☐ efforts to influence local (municipal/township) decision makers to support your organization's position
- ☐ efforts to influence county decision makers to support your organization's position
- ☐ efforts to influence state or federal decision makers to support your organization's position
- ☐ lobbying efforts for legislative support of your organization's position
- ☐ provide information to the general public
- ☐ provide information to riparian owners
- ☐ provide information to youth
- ☐ provide information to local or county government officials
- ☐ construction site inspections
- ☐ watershed mapping
- ☐ water resource inventories at the watershed level
- ☐ planning; i.e. watershed level land-use planning
- ☐ watershed level problem/activity priority setting
- ☐ bank and road crossing assessments
- ☐ program or project evaluation
- ☐ other \_\_\_\_\_

12. Does your organization engage in restoration or enhancement activities for streams or rivers?

☐ NO (Skip to the next question)

☐ YES ⇒ 12a. Check all of the following which are conducted:

- ☐ vegetative stabilization (grass or ground cover plantings and bioengineering)
- ☐ tree and shrub plantings
- ☐ non vegetation bank stabilization
- ☐ vegetation removal
- ☐ vegetation protection
- ☐ runoff control
- ☐ construction and/or placement of in-stream structures
- ☐ habitat improvement such as sediment removal
- ☐ placement of gravel or rock in the channel
- ☐ pollution and/or eutrophication control
- ☐ other \_\_\_\_\_

13. Does your organization conduct fish or wildlife habitat assessments for streams or rivers?

☐ NO (Skip to the next question)

☐ YES ⇒ 13a. Check all of the following which are conducted:

- ☐ fish habitat assessment
- ☐ aquatic invertebrate habitat assessment
- ☐ habitat along banks
- ☐ habitat in floodplain
- ☐ access to habitats
- ☐ other \_\_\_\_\_

14. Does your organization conduct stream or river clean-ups?

☐ NO (Skip to the next question)

☐ YES ⇒ 14a. Check all of the following which are conducted:

- ☐ collect human created trash from the stream/river
- ☐ collect human created trash from banks or riparian zone
- ☐ remove brush and logs from the stream/river
- ☐ remove brush and logs from banks or riparian zone
- ☐ planting of trees, shrubs, grasses for aesthetics
- ☐ provide educational /awareness activities or events concurrent with clean-ups
- ☐ other river clean-up activities \_\_\_\_\_

15. Does your organization conduct educational activities for streams or rivers?☐ NO (Skip to the next question)☐ YES  $\Rightarrow$  15a. Check all of the following which are conducted:

- ☐ production of printed materials
- ☐ holding or hosting workshops or conferences or public awareness days
- ☐ production of displays for other organizations' events
- ☐ production of radio or television spots or programs
- ☐ working with youth or schools
- ☐ other education activities \_\_\_\_\_

16. Does your organization collect data or information from rivers or streams?☐ NO (Skip to the next question)

☐ YES  $\Rightarrow$  16a. Please provide information on data collection and parameters sampled during the sampling season by a typical volunteer in your program. Place the appropriate sampling frequency code by each of the parameters below. If this frequency is irregular or variable within your program, simply check those parameters that are monitored. Place an "X" next to those parameters not sampled. Use the following frequency codes.

- |                                  |  |
|----------------------------------|--|
| X Not sampled                    | E Event sampling (post rainfall event) |
| D Daily                          | Q Quarterly                            |
| W Weekly                         | M Monthly                              |
| BW Biweekly (every other week)   | A Annually                             |
| S Semiannually (twice a year)    | I Irregular schedule (e.g.,            |
| BM Bimonthly (every other month) | weekly for one month, seasonally)      |

Physical/Chemical:

- ☐ water temperature regimes
- ☐ pH
- ☐ turbidity
- ☐ chlorides
- ☐ nitrogen
- ☐ BOD (Biological Oxygen Demand)
- ☐ DO (Dissolved Oxygen)
- ☐ COD (Chemical Oxygen Demand)
- ☐ flow/velocity regimes
- ☐ rainfall
- ☐ metals
- ☐ hydrocarbons
- ☐ oil and grease
- ☐ pesticides
- ☐ phosphorus
- ☐ TSS/TDS (Total Suspended Solids/Dissolved Solids)
- ☐ hardness
- ☐ alkalinity
- ☐ Secchi transparency
- ☐ other \_\_\_\_\_

Biological:

- ☐ aquatic vegetation
- ☐ riparian vegetation
- ☐ algae
- ☐ invertebrates
- ☐ birds/wildlife
- ☐ fish
- ☐ amphibians and reptiles
- ☐ chlorophyll
- ☐ coliform bacteria
- ☐ other bacteria
- ☐ other \_\_\_\_\_

#### Part IV. Why Does Your Organization Collect Data on Rivers and Streams?

17. Does your organization collect data or information on rivers or stream?

☐ NO (Skip to the next question)

☐ YES

↓

17a. How are your data handled and analyzed. Check all that apply:

☐ collected and sent to a laboratory for analysis

☐ collected with a test kit and analyzed by our own staff

☐ other \_\_\_\_\_

17b. What is done with the data? Check all of the following uses of your data.

☐ nothing is done

☐ 305(b) report

☐ water classification/standards

☐ watchdogging

☐ watershed planning

☐ education

☐ legislation

☐ habitat restoration

☐ research

☐ local decision making

☐ enforcement

☐ non-point pollution assessment

☐ don't know what is done

☐ point source pollution assessment

☐ other, please specify: \_\_\_\_\_

17c. With what organizations do you share your data? Check all that apply:

☐ local government

☐ county government

☐ state government

☐ federal government

☐ university scientists

☐ educators

☐ advocacy groups

☐ lobby organizations

☐ data are not shared

☐ others, please specify: \_\_\_\_\_

#### Part V. What Resources Assist Your Organization's Activities?

18. What references (manuals, guides, books, procedures, newsletters) does your organization rely on for procedures or protocol for its activities? Please list as many as are, or have been, used to develop your river and stream programs. Provide "Title", "Author", and if possible, "ordering information." Attach separate pages as necessary.

1st Reference: Title: \_\_\_\_\_

Author: \_\_\_\_\_

Ordering Information: \_\_\_\_\_

2nd Reference: Title: \_\_\_\_\_

Author: \_\_\_\_\_

Ordering Information: \_\_\_\_\_

19. What organizations or agencies provide nonfinancial technical or organizational assistance, such as consultation time or other non-material assistance? Please rate the contributions. Circle one number for each organization listed below.

SOURCES OF ASSISTANCE	Unsure if contribution is made	Does not contribute to our organization	Provides small contribution (is helpful, but not necessary to organization's activities)	Provides moderate contribution to our organization	Provides significant contribution (Some activities would not occur without this support)
University staff	1	2	3	4	5
Junior/Community College staff	1	2	3	4	5
University/college students	1	2	3	4	5
Extension personnel	1	2	3	4	5
Local government staff	1	2	3	4	5
County Drain Commissioner/staff	1	2	3	4	5
Other County government staff	1	2	3	4	5
State government staff:					
Dept. of Natural Resources	1	2	3	4	5
Dept. of Environmental Quality	1	2	3	4	5
Dept. of Transportation	1	2	3	4	5
Dept. of Agriculture	1	2	3	4	5
Other State government staff	1	2	3	4	5
Federal government staff:					
US Forest Service	1	2	3	4	5
US Fish and Wildlife Service	1	2	3	4	5
Natural Resources Conservation Service (formerly SCS)	1	2	3	4	5
Environmental Protection Agency	1	2	3	4	5
Other Federal government staff	1	2	3	4	5
For-profit (consultants/businesses)	1	2	3	4	5
Other non-profit organizations	1	2	3	4	5
Other (please name):	1	2	3	4	5

**Part VI. Tell Us About Your Organizational and Technical Needs:**

20. Any organization has technical and organizational needs, which, when met, may result in improved functioning of the organization and may allow it to better meet its goals. What organizational and technical needs does your organization have? Please rate the following needs on how critical they are to your programming by circling the appropriate number.

<b>YOUR ORGANIZATION'S NEEDS</b>	<b>Not at all Important to Functioning of our Organization</b>	<b>Somewhat important to Functioning of our Organization</b>	<b>Important to Functioning of our Organization</b>	<b>Very important to Functioning of our Organization</b>	<b>Extremely Critical to Functioning of our Organization</b>
Information necessary to do increased advocacy (e.g., lobbying)	1	2	3	4	5
Access to baseline data	1	2	3	4	5
Standardization of data collection procedures	1	2	3	4	5
Consistent funding and information on how to access funding sources	1	2	3	4	5
Focus to our group's activities, assistance with group organization and leadership	1	2	3	4	5
Networking among groups; better communication and sharing of information	1	2	3	4	5
More opportunity for inclusive stakeholder participation in decisions and discussions	1	2	3	4	5
Opportunities to learn how develop partnerships and liaisons	1	2	3	4	5
Improved resource materials and access to them	1	2	3	4	5
Other, Please list	1	2	3	4	5

21. Now we'd like your views on the needs for improving stream and river stewardship programming statewide. What programming is needed to move forward in reaching the mission of organizations like yours ("to advance the cause" so-to-speak)? Please rate the following needs on how critical they are to improving stream and river stewardship in Michigan.

STATEWIDE NEEDS	Not at all Important to Stream Stewardship in Michigan	Somewhat important to Stream Stewardship in Michigan	Important to Stream Stewardship in Michigan	Very important to Stream Stewardship in Michigan	Extremely Critical to Stream Stewardship in Michigan
More citizen collection of baseline data	1	2	3	4	5
More use of citizen collected data	1	2	3	4	5
Standardization of data collection procedures	1	2	3	4	5
Networking among groups; better communication and sharing of information	1	2	3	4	5
Mechanisms to facilitate networking	1	2	3	4	5
More inclusion of citizen groups in management decisions and discussions	1	2	3	4	5
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	1	2	3	4	5
Public education; to increase awareness and responsibility	1	2	3	4	5
Watershed approach to planning and management	1	2	3	4	5
Information on river stewardship options such as management techniques, strategies and selecting among options	1	2	3	4	5
Other, Please list	1	2	3	4	5

22. Please give us your thoughts on strategies to best begin meeting the needs rated in question 21 for improving stream and river stewardship on a statewide level. Circle your preference for each of the following. Please rate the following strategies on how critical they are to improving stream and river stewardship programs in Michigan.

STRATEGIES FOR STATEWIDE PROGRAMMING	Not at all Important to Stream Stewardship in Michigan	Somewhat important to Stream Stewardship in Michigan	Important to Stream Stewardship in Michigan	Very important to Stream Stewardship in Michigan	Extremely Critical Stream Stewardship in Michigan
A centralized office to serve as a clearinghouse	1	2	3	4	5
Newsletters, on the state level	1	2	3	4	5
Annual conferences or meetings in conjunction with existing conferences	1	2	3	4	5
Annual conferences or meeting separate from other meetings	1	2	3	4	5
A place to communicate with other groups on the Internet or World Wide Web	1	2	3	4	5
Directory of organizations like yours	1	2	3	4	5
Bulletins, fact sheets, other publications	1	2	3	4	5
Procedures for data collection	1	2	3	4	5
Improved coordination with state and federal regulatory agencies	1	2	3	4	5
Procedures for standardization (Quality Assurance/Quality Control) of data	1	2	3	4	5
Advisory team to address these issues	1	2	3	4	5
A new organization to facilitate networking among stream and river organizations	1	2	3	4	5
Site tours and demonstration areas	1	2	3	4	5
Other, Please list	1	2	3	4	5

23. Please provide any additional comments about your organizations, stream stewardship in Michigan, or this survey below.

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**Thank You! Your input is appreciated**

Do you want your organization published in a "Citizen's Guide to River Basin Stewardship for Michigan's Watersheds", an educational publication? Check one:

☐

NO; Do not continue.

☐

YES; Please complete the following:

Name of Organization: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: (\_\_\_\_) \_\_\_\_\_

In 50 words or less, please provide a brief description of your organization, including your stream and river activities.



## **APPENDIX E: Survey Cover Letters**

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE  
13 NATURAL RESOURCES BUILDING  
(517) 355-4477  
FAX (517) 432-1699

EAST LANSING • MICHIGAN • 48824-1222

April 18, 1996

Dear Stream and River Steward:

Now is your chance to share your organization's concerns about Michigan streams and rivers with resource managers, decision makers and organizations similar to yours. We have enclosed a survey to gather some information regarding your organization's activities and technical and organizational needs. Due to the importance of stream stewardship in Michigan and the fact that only a small number of individuals will be surveyed, your response is very important.

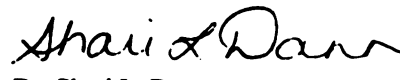
This survey is one part of a larger project targeting organizations such as yours. The goals of this project are to assess the status and needs of Michigan's stream stewardship organizations and to initiate efforts to meet those needs. You may remember receiving an invitation to attend a conference last March, "*Coordinating Watershed Stewardship in Michigan: Citizen Monitoring, Enhancement and Problem Solving for Streams and Rivers*," that conference was part of this project. This survey will allow us to compile a Citizen's Guide to River Basin Stewardship for Michigan's Watersheds, which will be made available to organizations like yours. Results of this survey will be used to make recommendations to decision makers, funders, educators and outreach programmers regarding the technical and organizational needs reported by stream stewardship organizations.

Of course, your participation in this project is voluntary; by completing and returning this survey you indicate your voluntary agreement to participate. Your response, representing your organization will be treated with strict confidence and your name will not be reported in any summaries of data collected in this survey. We will however, be publishing a "*Citizens Guide to River Basin Stewardship for Michigan's Watersheds*." A notice will be sent regarding ordering information when this is available. You may choose to have the name of your organization, its mailing address and phone number, and a brief description of your organization published. If you and your organization desire to have your organization listed, please complete the information on the last page of this survey (which we will separate from the rest of your survey responses.)

As the opinion leader of one of Michigan's citizen stream stewardship organizations, **your feedback is important**. Please return your response to this survey as soon as possible in the enclosed, stamped envelope. If you have any questions regarding this project or survey, please contact us at (517) 353-0675.

Sincerely,

  
Melissa L. Middleton  
Research Assistant

  
Dr. Shari L. Dann  
Assistant Professor

*MSU is an Affirmative Action/Equal Opportunity Institution*

## MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE  
13 NATURAL RESOURCES BUILDING  
(517) 353-4477  
FAX (517) 432-1699

EAST LANSING • MICHIGAN • 48824-1222

March 27, 1996

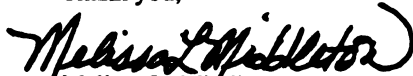
Dear Stream and River Steward:

Recently you received a survey for leaders of Michigan's Stream and River Stewardship organizations. If you have already completed and returned the survey, thank you for your assistance. If not, please take a few minutes now to complete and return it.

This survey is designed to gather information from organization leaders, like yourself, regarding your activities and organizational and technical needs. To better design programs to assist organizations like yours, it is necessary to know what you are doing, what procedures you use and what you believe your greatest needs are. Summaries of this information gathered will be provided to resource managers, watershed organizations and other individuals and organizations who may be in a position to meet needs identified.

**Your input is very critical to the future of stream and river programming in Michigan.** Please return your response as soon as possible in the stamped, addressed envelope provided with the survey. If you have misplaced your copy of the survey, or if you have any questions, we may be reached at (517) 353-0675. Please leave a message if we are not in, and we will return your call.

Thank you,

  
Melissa L. Middleton  
Research Assistant

  
Dr. Shari L. Dann  
Assistant Professor

## MICHIGAN STATE UNIVERSITY

DEPARTMENT OF FISHERIES AND WILDLIFE  
13 NATURAL RESOURCES BUILDING  
(517) 355-4477  
FAX (517) 432-1699

EAST LANSING • MICHIGAN • 48824-1222

April 7, 1996

Dear Stream and River Steward:

Recently you received a survey regarding your organization's stream and river programming. We have not yet received your completed survey, so we are enclosing another copy. If you believe someone else within your organization should receive this survey instead, please complete only questions 1 and 2 and return the survey to us in the enclosed stamped envelope. If you believe your organization is not within the scope of this survey, please return the uncompleted survey with a note as to why you believe your organization is not within the scope of the survey. If you just recently mailed your survey back to us, thank you!

This survey is one phase of a project targeting organizations like yours. Our goal is to assess the status and needs of Michigan's stream and river stewardship organizations and to initiate efforts to meet those needs. Results of this survey will allow us to provide much needed information and recommendations to decision makers, funding sources, educators and outreach programmers.

Your response, representing your organization will be treated with strict confidence and your name will not be reported in any summaries of the data collected by this survey. By completing and returning this survey you indicate your voluntary agreement to participate. We will be publishing a "Citizens' Guide to River Basin Stewardship for Michigan's Watersheds." If you would like have the name of your organization, its mailing address and phone number, and a brief description of your organization published, please complete the information on the last page of this survey (which will be separated from the rest of your survey responses).

Your input to this project is very important. Please respond as soon as possible.

⇒ We would appreciate your response no later than May 1, 1996. ⇐

If you have any questions regarding this project or survey, please contact us at (517) 353-0675. Thank you for your assistance.

Sincerely,

  
Melissa L. Middleton  
Research Assistant

  
Dr. Shari L. Dann  
Assistant Professor

**MICHIGAN STATE UNIVERSITY**

DEPARTMENT OF FISHERIES AND WILDLIFE  
13 NATURAL RESOURCES BUILDING  
(517) 353-4477  
FAX (517) 432-1699

EAST LANSING • MICHIGAN • 48824-1222

April 23, 1996

**Dear Stream and River Steward:**

## **WE WOULD STILL LIKE TO HEAR FROM YOU!**

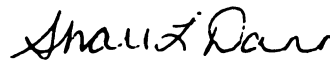
Over the past month, you received a survey for leaders of Michigan's Stream and River Stewardship organizations. Please take a few minutes now to complete and return this survey. \*

Your input is very critical to the future of stream and river programming in Michigan. Please return your completed survey in the stamped, addressed envelope provided with the survey.

**We would appreciate your response by May 1, 1996,  
or as soon as possible.**

Thank you,

  
Melissa L. Middleton  
Research Assistant

  
Dr. Shari L. Dann  
Assistant Professor  
(517) 353-0675

\* If you recently completed and returned the survey, thank you for your assistance.

## **APPENDIX F: Script for Non-Respondent Telephone Follow-up Survey**

Phone Follow-up to Survey Non-Respondents

Group:

Name:

Phone:

ID#:

Date	Time	Comments

Hi, this is \_\_\_\_ I'm calling from Michigan State University. Is (Contact Person) available?

Hello, this is \_\_\_\_ from Michigan State University, I'm calling regarding a survey sent to you recently about (name of organization)'s involvement with rivers and streams.

*Purpose of the survey: We're interested in knowing what your needs are and what activities you're involved in so we, at MSU can provide better assistance. Other organizations such as MDNR, MDEQ (Mich Dept. Environmental Quality), Conservation Districts and foundations may find this information useful as well as they develop programs.*

Do you have 2-3 minutes to answer a few questions?

May I ask, are there any main reasons we haven't received a response from your organization yet?  
(check one of the following)

\_\_\_\_ *passed it on to someone else.* : Oh, if that's the case, would you mind if I contacted them? (If ok):  
Do you have his/her name and phone number? If yes, get it and end call, thank you for your help.

\_\_\_\_ *misplaced it or set it aside and forgot (offer to send a new one):* We would still appreciate your input. If we send you another copy, could you fill it out? If "yes", verify address and end call: Could we anticipate your response in the next week? thank you for your time, we appreciate your support.

\_\_\_\_ *do not think the survey applies to their group (lake group, committee made up of representatives of other organizations, small group which is part of a governmental organization, group which only does one or two of the activities in the survey. Encourage them to complete the survey anyway:* Your input would still be valuable, would you be willing to complete the survey now? If yes: Could we anticipate your response in the next week? thank you for your time, we appreciate your support.

*If they are still hesitant:* We would appreciate your response even if you answered questions 1-8 and any others you think pertain to you. If yes: Could we anticipate your response in the next week? thank you for your time, we appreciate your support.

*If they are still not interested in completing the survey or a portion of it:* That's ok, thank you for your time.

\_\_\_\_ *don't recall receiving it:* , We would still appreciate your input. If we send you another copy, could you fill it out? If "yes", verify address and end call: Could we anticipate your response in the next week? thank you for your time, we appreciate your support.

\_\_\_\_ *missed the deadline,* We would still appreciate your input. Could we anticipate your response in the next week? thank you for your time, we appreciate your support.

\_\_\_\_ *not interested in participating, end call:* Thank you for your time.

\_\_\_\_ *Other reason* \_\_\_\_\_

*If they are willing to complete the survey through one of the above scenarios, end the call. If not:*  
**Ok, that's fine, but could you take another 3-4 minutes to answer just 4 questions about your organization?**

*If "no", end call, thank you for your time.*

*If "yes", continue on:*

**Is your organization a non-profit-non-governmental organization? \_\_\_\_ Is it a private sector, for-profit organization, \_\_\_\_ then is it a governmental organization? \_\_\_\_**  
**Other \_\_\_\_\_**

**What percentage of your organization's time, is spent on activities oriented to rivers and streams?**  
**\_\_\_\_\_ %**

**What are these activities you're involved in with rivers or streams? Do you do... Ask this as an open ended question and check off all activities that apply below as they list them. If you are unsure where to check, write the activity below.**

*If they say "we only do one or two things", then check those and say: So you only do \_\_\_\_ on rivers and streams? (this may prompt them to list more).*

*If they list a couple activities or are hesitating say : Could I read a list of some activities to you and you can answer yes or no for each one? Then proceed below)*

\_\_\_\_ water monitoring, biological/chemical/physical \_\_\_\_ river or stream clean-ups,

\_\_\_\_ photographic surveys,

\_\_\_\_ runoff surveys (sediment and pollution sources),

\_\_\_\_ pipe surveys,

\_\_\_\_ habitat assessments or surveys,

\_\_\_\_ fish or other vertebrate population assessments

\_\_\_\_ sediment assessments,

\_\_\_\_ research, watercourse configuration  
 assessment (depth, shape, composition),

\_\_\_\_ assessment of floodplain characteristics  
 (vegetation, size etc..)

\_\_\_\_ efforts to influence decision makers

\_\_\_\_ provide information to general public, youth,  
 riparian owners, government officials

\_\_\_\_ educational projects (workshops, displays,  
 festivals, schools)

\_\_\_\_ construction site inspections

\_\_\_\_ bank and road crossing assessments

\_\_\_\_ watershed mapping, planning, priority setting

\_\_\_\_ restoration or enhancement

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**I have just 3 more short questions about the size of your organization:**

**Approximately how many members do you have? \_\_\_\_\_ and about how many volunteers? \_\_\_\_\_**  
**and how many paid staff? \_\_\_\_\_.**

**Thank you for your time we appreciate your input!**



## **APPENDIX G: Mail Survey Results**

Table G1

Differences between Organizations in Stream and River Activities between Organizations Which Allocate 100% of their Budget to Stream and River Activities and Those Which Allocate a Smaller Percentage (Mann-Whitney U Rank Sum test of significance)

Activity	Mean rank Organizations which allocate <100% of budget	Mean rank Organizations which allocate 100% of budget	Z	p	n
Environmental clean-ups	39.17	44.50	-1.07	0.28	80
Habitat assessment/ surveys	41.93	38.17	-0.72	0.47	81
Water monitoring, physical (depth, flow etc.)	39.50	43.50	-0.77	0.44	80
Fish or other vertebrate population assessment/survey	41.00	39.00	-0.39	0.70	80
Water monitoring, biological	39.83	42.50	-0.51	0.61	80
Sediment assessment	41.50	37.50	-0.78	0.44	80
Runoff surveys, sediment and pollution source survey	40.83	39.50	-0.26	0.79	80
Water monitoring, chemical	41.17	38.50	-0.52	0.60	80
Research	42.17	35.50	-1.44	0.15	80
Watercourse configuration assessment (depth, shape, composition etc.)	40.67	40.00	-0.14	0.88	80
Photographic surveys	41.00	39.00	-0.45	0.65	80
Assessment of floodplain characteristics (vegetation, size etc.)	39.00	45.00	-1.36	0.17	80
Pipe surveys	38.84	43.42	-1.83	0.07	79
Provide information to the general public	40.50	40.50	0.00	1.00	80
Educational activities	38.54	48.50	-2.44	0.01	81
Efforts to influence local (municipal/township) decision makers to support organization's position	39.00	45.00	-1.41	0.16	80
Provide information to local or county government officials	41.17	38.50	-0.56	0.57	80
Provide information to riparian owners	39.50	43.50	-0.92	0.36	80
Efforts to influence county decision makers to support organization's position	39.83	42.50	-0.54	0.59	80
Efforts to influence state or federal decision makers to support organization's position	40.33	41.00	-0.14	0.89	80
Restoration and enhancement activities for rivers and streams	41.71	38.83	-0.60	0.55	81
Provide information to youth	41.00	39.00	-0.44	0.66	80
Collect data or information from rivers or streams	39.59	41.20	-0.31	0.75	79

Table G1 continued

Planning; i.e. watershed level					
land-use planning	41.00	39.00	-0.39	0.70	80
Watershed level problem/activity					
priority setting	40.17	41.50	-0.26	0.79	80
Bank and road crossing					
assessments	41.17	38.50	-0.52	0.60	80
Program or project evaluation	40.17	41.50	-0.26	0.79	80
Lobbying efforts for legislative					
support of organization's					
position	40.33	41.00	-0.14	0.89	80
Watershed mapping	41.67	37.00	-0.99	0.32	80
Water resource inventories at the					
watershed level	41.50	37.50	-0.92	0.36	80
Construction site inspections	40.33	41.00	-0.16	0.87	80
Other <sup>a</sup>	38.50	46.50	-2.15	0.03	80

<sup>a</sup> Eleven (11) respondents provided responses unrelated to response categories: Fish rearing and planting (2 respondents), Work on gas and oil pipeline flow issues (1), trailway planning and conservation (1), Lake shore surveys (1), Funding eight projects on streams and rivers (1), Survey of access sites for recreational use (1), Efforts to get the DNR to clean up the Platte River State Fish Hatchery (1), Special grants projects (1), Land trust activities (1), Scientific board (1).

Seven (7) reported activities which were addressed in other parts of the survey: Stream bank erosion control (1), Habitat restoration and improvement (2), Research to best manage natural resources (1), Clean-up (over 32 tons removed, 90% recycled) (1), Legal action (1), Survey and monitor natural areas which may or may not be directly associated with rivers and streams (1).

**Table G2**  
**Differences between Organizations in Different Regions of the Lower Peninsula in Sources of Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance (Kruskal-Wallis one-way analysis of variance)**

Sources of Assistance	Mean rank <sup>a</sup> Northeast <sup>c</sup> Responding Organizations	Mean rank Northwest <sup>d</sup> Responding Organizations	Mean rank Southeast <sup>e</sup> Responding Organizations	Mean rank Southwest <sup>f</sup> Responding Organizations	X <sup>2</sup>	Degrees of freedom	p	n
Depart. of Natural Resources	44.84	42.40	47.95	43.60	0.43	3	0.93	87
Dept. of Transportation	27.61	33.12	27.88	29.54	1.85	3	0.60	59
Natural Resources Conservation Service	36.80	41.44	31.83	32.97	2.41	3	0.49	73
Depart. of Environmental Quality	31.23	39.52	40.94	33.47	2.80	3	0.42	71
University staff	25.39	34.00	49.75	39.61	10.76	3	0.01	69
Local government staff	36.29	28.00	42.39	44.53	7.94	3	0.05	71
Extension personnel	38.00	38.00	38.00	38.00	0.00	3	1.00	75
For-profit (consultants/businesses)	27.06	35.85	29.88	36.03	3.09	3	0.38	65
University/college students	29.89	30.65	50.05	37.71	9.43	3	0.02	69
County Drain Commissioner/staff	34.30	33.21	49.30	40.69	5.63	3	0.13	74
Environmental Protection Agency	31.39	36.40	38.80	34.70	1.30	3	0.73	69
US Forest Service	33.40	38.40	33.79	30.59	2.13	3	0.55	68
US Fish and Wildlife Service	32.03	37.06	37.88	31.73	1.54	3	0.67	68
Dept. of Agriculture	34.66	35.75	24.50	33.23	2.52	3	0.47	66
Junior/Community College staff	29.53	34.93	35.19	29.33	2.30	3	0.51	63
Other non-profit organizations	37.29	40.40	39.90	40.05	0.40	3	0.94	77
Other County government staff	30.97	35.00	31.78	36.91	1.09	3	0.78	67
Other State government staff	28.18	31.40	30.13	23.75	2.82	3	0.42	56
Other Federal government staff	21.91	25.56	28.86	21.23	3.05	3	0.38	47
Other <sup>b</sup>	13.25	11.00	9.00	7.00	2.79	3	0.42	21

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support).

<sup>b</sup> Public schools (1 respondent), a governmental of non profit organization was listed but a rating was not provided (3), no source specified (20). 1 = unsure if a contribution is made, and therefore was not included in the analysis.

<sup>c</sup> Includes Saginaw Bay watershed, and those watersheds north to Cheboygon county.

<sup>d</sup> Includes Upper Muskegon River watershed and those watersheds north to Emmet county.

<sup>e</sup> Includes watersheds which drain to the St. Clair River between the Belle River and the River Raisin.

<sup>f</sup> Includes watersheds from the lower portions of the White and Muskegon Rivers south to the St. Joseph River.

Table G3

Differences between Organizations in the Northern and Southern Portions of the Lower Peninsula in Sources of Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance (Mann-Whitney U Rank Sum test of significance)

Sources of Assistance	Mean rank <sup>a</sup> Northern Responding Organizations	Mean rank Southern Responding Organizations	Z	p	n
Depart. of Natural Resources	43.43	44.84	-0.27	0.79	87
Dept. of Transportation	30.58	28.88	-0.45	0.65	59
Natural Resources Conservation Service	39.31	32.56	-1.33	0.18	73
Depart. of Environmental Quality	35.91	36.16	-0.05	0.96	71
University staff	30.11	42.61	-2.66	0.01	69
Local government staff	31.78	43.76	-2.42	0.02	71
Extension personnel	38.00	38.00	0.00	1.00	75
For-profit (consultants/businesses)	32.34	34.06	-0.38	0.71	65
University/college students	30.32	42.28	-2.58	0.001	69
County Drain Commissioner/staff	33.68	43.77	-2.10	0.04	74
Environmental Protection Agency	34.24	36.34	-0.45	0.65	69
US Forest Service	36.13	31.25	-1.03	0.30	68
US Fish and Wildlife Service	34.82	33.87	-0.21	0.84	68
Dept. of Agriculture	35.27	30.20	-1.10	0.27	66
Junior/Community College staff	32.36	31.37	-0.26	0.79	63
Other non-profit organizations	38.98	39.03	-0.01	1.00	77
Other County government staff	33.37	35.06	-0.37	0.71	67
Other State government staff	30.07	26.07	-1.09	0.27	56
Other Federal government staff	24.07	23.90	-0.05	0.96	47
Other <sup>b</sup>	12.20	8.00	-1.45	0.15	21

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support). 1 = unsure if a contribution is made, and therefore was not included in the analysis.

<sup>b</sup> Public schools (1 respondent), a governmental of non profit organization was listed but a rating was not provided (3), no source specified (20).

Table G4

Differences between Organizations in the Eastern and Western Portions of the Lower Peninsula in Sources of Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance (Mann-Whitney U Rank Sum test of significance)

Sources of Assistance	Mean rank <sup>a</sup> Eastern Responding Organizations	Mean rank Western Responding Organizations	Z	p	n
Depart. of Natural Resources	45.81	42.95	-0.53	0.59	87
Dept. of Transportation	27.69	31.82	-1.15	0.25	59
Natural Resources Conservation Service	35.35	38.21	-0.59	0.56	73
Depart. of Environmental Quality	34.24	37.21	-0.62	0.53	71
University staff	32.61	36.54	-0.83	0.40	69
Local government staff	38.12	34.45	-0.77	0.44	71
Extension personnel	38.00	38.00	0.00	1.00	75
For-profit (consultants/businesses)	28.00	35.93	-1.72	0.09	65
University/college students	37.09	33.57	-0.76	0.44	69
County Drain Commissioner/staff	39.30	36.27	-0.63	0.52	74
Environmental Protection Agency	33.95	35.76	-0.40	0.69	69
US Forest Service	33.50	35.16	-0.38	0.70	68
US Fish and Wildlife Service	33.70	35.06	-0.31	0.76	68
Dept. of Agriculture	31.65	34.78	-0.70	0.48	66
Junior/Community College staff	31.20	32.60	-0.38	0.71	63
Other County government staff	31.25	35.74	-0.99	0.32	67
Other non-profit organizations	37.16	40.24	-0.63	0.53	77
Other State government staff	28.89	28.25	-0.17	0.86	56
Other Federal government staff	24.61	23.62	-0.30	0.76	47
Other <sup>b</sup>	12.09	9.80	-0.87	0.38	21

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support). 1 = unsure if a contribution is made, therefore was not included in the analysis.

<sup>b</sup> Public schools (1 respondent), a governmental of non profit organization was listed but a rating was not provided (3), no source specified (20).

Table G5

Differences in Sources of Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance between Different Organization Types (Kruskal-Wallis one-way analysis of variance)

Sources of Assistance	Mean rank <sup>a</sup> Primary NGOs <sup>c</sup>	Mean rank Secondary NGOs <sup>d</sup>	Mean rank Fostered NGOs <sup>e</sup>	X <sup>2</sup>	p	n	Degrees of freedom
Depart. of Natural Resources	52.53	39.52	64.03	8.01	0.02	101	2
Dept. of Transportation	33.76	34.00	44.82	5.29	0.07	71	2
Natural Resources Conservation Service	39.80	33.39	65.29	18.20	<0.001	86	2
Depart. of Environmental Quality	41.17	35.53	60.36	9.75	0.008	85	2
University staff	44.70	42.17	34.96	1.79	0.41	84	2
Local government staff	47.11	28.90	42.50	8.92	0.01	83	2
Extension personnel	45.00	45.00	45.00	0.00	1.00	89	2
For-profit (consultants/businesses)	39.37	39.76	42.62	0.23	0.89	79	2
University/college students	39.92	40.30	49.31	1.88	0.39	82	2
County Drain Commissioner/staff	44.62	36.74	54.42	4.85	0.09	87	2
Environmental Protection Agency	37.32	42.72	56.56	9.07	0.01	84	2
US Forest Service	39.53	40.75	43.23	0.36	0.84	80	2
US Fish and Wildlife Service	40.60	40.47	40.15	0.01	1.00	80	2
Dept. of Agriculture	37.40	36.00	51.21	5.55	0.06	78	2
Junior/Community College staff	38.43	37.71	33.27	0.82	0.66	74	2
Other State government staff	30.04	26.64	44.29	10.82	0.004	63	2
Other Federal government staff	29.94	24.00	29.43	2.38	0.30	56	2
Other County government staff	39.09	30.87	54.79	9.77	0.008	78	2
Other non-profit organizations	44.79	44.75	49.10	0.38	0.83	90	2
Other <sup>b</sup>	14.38	9.67	12.33	2.02	0.36	25	2

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support). 1 = unsure if a contribution is made, therefore was not included in the analysis.

<sup>b</sup> Public schools (1 respondent), a governmental of non profit organization was listed but a rating was not provided (3), no source specified (20).

<sup>c</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>d</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>e</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

Table G6

Differences between Organizations with and with No Paid Staff in the Lower Peninsula in Sources of Non-Financial Technical or Organizational Assistance, Such as Consultation Time or Other Non-Material Assistance (Mann-Whitney U Rank Sum test of significance)

Sources of Assistance	Mean rank <sup>a</sup> Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Depart. of Natural Resources	45.23	57.90	-2.26	0.02	101
Dept. of Transportation	39.13	31.47	-1.98	0.05	71
Natural Resources Conservation Service	47.00	38.64	-1.58	0.11	86
Depart. of Environmental Quality	51.06	32.03	-3.65	<0.001	85
University staff	43.17	41.61	-0.30	0.76	84
Local government staff	45.12	37.93	-1.40	0.16	83
Extension personnel	40.50	40.50	0.00	1.00	80
For-profit (consultants/businesses)	43.92	35.07	-1.80	0.71	79
University/college students	44.61	37.53	-1.42	0.16	82
County Drain Commissioner/staff	48.76	36.57	-2.37	0.02	87
Environmental Protection Agency	45.58	38.19	-1.48	0.14	84
US Forest Service	37.20	44.34	-1.52	0.13	80
US Fish and Wildlife Service	39.63	41.57	-0.40	0.69	80
Dept. of Agriculture	41.21	36.90	-0.90	0.37	78
Junior/Community College staff	39.24	35.33	-0.98	0.32	74
Other non-profit organizations	45.89	45.01	-0.16	0.87	90
Other State government staff	34.53	28.63	-1.57	0.12	63
Other County government staff	44.76	32.69	-2.54	0.01	78
Other Federal government staff	29.13	27.72	-0.44	0.66	56
Other <sup>b</sup>	12.83	13.15	-0.11	0.91	25

<sup>a</sup> Calculated on a scale of 2 to 5, where: 2 = does not contribute to our organization, 3 = provides small contribution (is helpful, but not necessary to organization's activities), 4 = provides moderate contribution to our organization, and 5 = provides significant contribution (some activities would not occur without this support). 1 = unsure if a contribution is made, therefore was not included in the analysis.

<sup>b</sup> Public schools (1 respondent), a governmental of non profit organization was listed but a rating was not provided (3), no source specified (20).



Table G7  
Differences in Stream and River Activities between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Activity	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Environmental clean-ups	58.75	39.34	54.31	9.69	2	106	0.008
Habitat assessment/ surveys	52.66	46.90	69.56	7.64	2	107	0.02
Water monitoring, physical (depth, flow etc.)	56.98	45.61	62.35	4.96	2	109	0.08
Fish or other vertebrate population assessment/survey	55.10	45.96	65.26	5.56	2	108	0.06
Water monitoring, biological	56.30	46.61	63.35	4.54	2	109	0.10
Sediment assessment	54.62	40.56	79.38	22.39	2	109	<0.001
Runoff surveys, sediment and pollution source survey	55.46	40.56	76.18	18.86	2	109	<0.001
Water monitoring, chemical	54.11	50.63	65.35	3.55	2	109	0.17
Research	57.11	47.57	58.74	3.30	2	109	0.19
Watercourse configuration assessment (depth, shape, composition etc.)	54.58	50.07	64.44	4.01	2	109	0.13
Photographic surveys	54.74	49.06	65.44	5.46	2	109	0.07
Assessment of floodplain characteristics (vegetation, size etc.)	54.90	52.07	60.03	1.37	2	109	0.50
Pipe surveys	54.94	50.00	56.29	2.73	2	107	0.25
Provide information to the general public	58.42	49.41	61.00	8.81	2	112	0.01
Educational activities	54.89	58.67	65.33	3.14	2	114	0.21
Efforts to influence local (municipal/township) decision makers to support organization's position	59.83	49.36	53.08	4.37	2	111	0.11
Provide information to local or county government officials	53.91	54.62	68.89	5.21	2	112	0.07
Provide information to riparian owners	54.41	53.19	69.39	5.56	2	112	0.06
Efforts to influence county decision makers to support organization's position	57.27	53.26	58.94	0.65	2	112	0.72
Efforts to influence state or federal decision makers to support organization's position	56.91	53.76	59.44	0.55	2	112	0.76
Restoration and enhancement activities for rivers and streams	58.53	43.50	69.28	11.20	2	112	0.004
Provide information to youth	61.35	45.10	57.33	7.39	2	112	0.02
Collect data or information from rivers or streams	55.47	50.05	68.18	4.59	2	111	0.10

Table G7 continued

Wildlife habitat assessments (fish or wildlife)	56.43	48.63	72.17	7.94	2	113	0.02
Planning; i.e. watershed level land-use planning	54.82	54.31	66.11	2.65	2	112	0.27
Watershed level problem/activity priority setting	53.95	52.38	72.33	7.25	2	112	0.03
Bank and road crossing assessments	58.40	39.86	76.40	21.00	2	112	<0.001
Program or project evaluation	57.45	46.22	69.61	9.01	2	112	0.01
Lobbying efforts for legislative support of organization's position	58.95	59.31	43.11	5.85	2	112	0.05
Watershed mapping	57.37	50.66	62.78	2.76	2	112	0.25
Water resource inventories at the watershed level	55.70	48.36	72.50	12.33	2	112	0.002
Construction site inspections	56.75	49.00	67.67	10.57	2	112	0.005
Other <sup>d</sup>	58.70	57.16	47.50	4.18	2	112	0.12

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> Eleven (11) respondents provided responses unrelated to response categories: Fish rearing and planting (2 respondents), Work on gas and oil pipeline flow issues (1), trailway planning and conservation (1), Lake shore surveys (1), Funding eight projects on streams and rivers (1), Survey of access sites for recreational use (1), Efforts to get the DNR to clean up the Platte River State Fish Hatchery (1), Special grants projects (1), Land trust activities (1), Scientific board (1).

Seven (7) reported activities which were addressed in other parts of the survey: Stream bank erosion control (1), Habitat restoration and improvement (2), Research to best manage natural resources (1), Clean-up (over 32 tons removed, 90% recycled) (1), Legal action (1), Survey and monitor natural areas which may or may not be directly associated with rivers and streams (1).

**Table G8**  
**Differences between Organizations with Paid Staff and Those with No Paid Staff in Stream and River**  
**Activities (Mann-Whitney U Rank Sum test of significance)**

Activity	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Environmental clean-ups	49.78	45.02	-0.98	0.33	94
Habitat assessment/ surveys	42.28	53.84	-2.38	0.02	95
Water monitoring, physical (depth, flow etc.)	44.17	53.01	-1.82	0.07	96
Fish or other vertebrate population assessment/survey	52.03	44.82	-1.50	0.13	96
Water monitoring, biological	43.69	53.51	-2.03	-0.04	96
Sediment assessment	46.17	50.93	-1.00	0.32	96
Runoff surveys, sediment and pollution source survey	47.13	49.93	-0.58	0.56	96
Water monitoring, chemical	41.28	56.03	-3.09	0.002	96
Research	45.76	51.36	-1.24	0.21	96
Watercourse configuration assessment (depth, shape, composition etc.)	44.36	52.82	-2.04	0.04	96
Photographic surveys	47.30	49.76	-0.59	0.55	96
Assessment of floodplain characteristics (vegetation, size etc.)	44.38	52.80	-2.10	0.03	96
Pipe surveys	46.98	49.04	-0.86	0.39	95
Provide information to the general public	48.08	48.94	-0.33	0.74	96
Educational activities	45.76	53.40	-1.98	0.05	98
Efforts to influence local (municipal/township) decision makers to support organization's position	50.58	45.36	-1.28	0.20	95
Provide information to local or county government officials	47.79	49.24	-0.33	0.74	96
Provide information to riparian owners	47.31	49.74	-0.55	0.58	96
Efforts to influence county decision makers to support organization's position	47.85	49.18	-0.28	0.77	96
Efforts to influence state or federal decision makers to support organization's position	49.81	47.14	-0.57	0.56	96
Restoration and enhancement activities for rivers and streams	48.65	49.35	-0.15	0.88	97
Provide information to youth	44.41	52.77	-1.81	0.07	96
Collect data or information from rivers or streams	41.30	54.84	-2.77	0.006	95



Table G8 continued

Wildlife habitat assessments (fish or wildlife)	46.32	51.74	-1.11	0.27	97
Planning; i.e. watershed level land-use planning	42.23	55.03	-2.66	0.008	96
Watershed level problem/activity priority setting	43.69	53.51	-2.03	0.04	96
Bank and road crossing assessments	47.15	49.90	-0.58	0.56	96
Program or project evaluation	42.78	54.47	-2.50	0.01	96
Lobbying efforts for legislative support of organization's position	49.19	47.78	-0.32	0.75	96
Watershed mapping	43.30	53.93	-2.33	0.02	96
Water resource inventories at the watershed level	44.84	52.32	-1.78	0.07	96
Construction site inspections	43.46	53.76	-2.96	0.003	96
Other <sup>a</sup>	49.32	47.65	-0.45	0.65	96

<sup>a</sup> Eleven (11) respondents provided responses unrelated to response categories: Fish rearing and planting (2 respondents), Work on gas and oil pipeline flow issues (1), trailway planning and conservation (1), Lake shore surveys (1), Funding eight projects on streams and rivers (1), Survey of access sites for recreational use (1), Efforts to get the DNR to clean up the Platte River State Fish Hatchery (1), Special grants projects (1), Land trust activities (1), Scientific board (1).

Seven (7) reported activities which were addressed in other parts of the survey: Stream bank erosion control (1), Habitat restoration and improvement (2), Research to best manage natural resources (1), Clean-up (over 32 tons removed, 90% recycled) (1), Legal action (1), Survey and monitor natural areas which may or may not be directly associated with rivers and streams (1).

Table G9

Differences in Types of Restoration and Enhancement Activities Conducted between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Restoration and Enhancement Activity	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Tree and shrub planting	37.04	25.92	47.50	11.76	2	74	0.003
Vegetative stabilization (grass or ground cover plantings and bioengineering)	36.63	24.83	49.50	14.02	2	74	<0.001
Non vegetation bank stabilization	37.63	22.75	48.19	14.03	2	74	<0.001
Runoff control	35.20	32.92	47.56	6.14	2	74	0.05
Construction and/or placement of in-stream structures	36.50	30.33	45.75	5.06	2	74	0.08
Habitat improvement such as sediment removal	6.09	32.33	45.40	4.10	2	74	0.13
Placement of gravel or rock in the channel	40.20	25.58	38.69	6.16	2	74	0.05
Vegetation protection	37.37	33.75	40.69	1.05	2	74	0.59
Pollution and/or eutrophication control	38.15	31.58	40.06	2.13	2	74	0.34
Vegetation removal	37.74	33.58	39.75	1.26	2	74	0.53
Other <sup>d</sup>	35.80	44.25	37.31	7.77	2	74	0.02

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> Three (3 respondents) were not appropriate responses to the question: Education, Will be conducting these activities in the future, Raise fish for river stocking. Two (2) responses may have fit in the response categories, but cannot be interpreted: Restoration of natural habitat, Recreational access.

Table G10

Differences in the Types of Fish or Wildlife Habitat Assessments Conducted on Rivers And Streams between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Habitat Assessment Activity	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Aquatic invertebrate habitat assessments	22.04	21.07	24.50	0.56	2	44	0.76
Fish habitat assessment	22.69	16.29	26.00	3.34	2	44	0.19
Habitat along banks	21.65	20.93	25.05	1.09	2	44	0.58
Habitat in floodplain	21.23	26.43	23.00	1.64	2	44	0.44
Access to habitat	22.23	24.29	22.00	0.33	2	44	0.85
Other <sup>d</sup>	23.19	21.50	21.50	1.41	2	44	0.49

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> The two (2) respondents specified their assessment outputs: Habitat improvement by adding large woody debris, Camper programs.

**Table G11**  
**Differences in Activities Conducted as Part of a River or Stream Clean-Up between the Three**  
**Organization Types (Kruskal-Wallis one-way analysis of variance)**

Clean-up Activity	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Collection of human created trash from the stream or river	40.08	31.60	37.57	4.04	2	76	0.13
Collection of human created trash from the banks or riparian zone	39.35	39.20	34.86	1.49	2	76	0.47
Provide educational/awareness activities or events concurrent with clean-ups	36.38	39.60	45.57	2.92	2	76	0.23
Planting of trees, shrubs, grasses for aesthetics	35.65	37.70	49.64	6.07	2	76	0.05
Removal of brush and logs from the stream/river	42.00	26.80	33.86	6.53	2	76	0.04
Removal of brush and logs from the banks or riparian zones	40.46	33.30	34.93	2.45	2	76	0.29
Other <sup>d</sup>	38.88	42.10	34.50	2.62	2	76	0.27

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> Four (4) respondents specified their response as follows: Cleanup of path near river (1 respondent), Conduct Beaver Island Lake Days for every 6th grade student from three school communities (1), Restoration of natural habitat (1), Roadside Adopt-a Highway (1). Two (2) respondents reported activities which facilitate clean-ups conducted by other organizations: Provide clearinghouse for clean-up efforts and information and facilities communication between local clean-up and water monitoring groups (1), Provide "how to" and where to obtain assistance to served groups wishing to conduct river trash clean-ups (1).

Table G12

Differences in Physical, Chemical and Biological Data Collected from Rivers and Streams between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Parameters	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Water temperature	27.53	24.68	30.00	1.14	2	54	0.57
pH	28.31	25.77	27.00	0.30	2	54	0.86
DO	28.44	26.77	25.75	0.38	2	54	0.83
BOD	28.06	27.27	26.25	0.15	2	54	0.92
Phosphorus	26.82	25.32	31.25	1.28	2	54	0.53
Flow/velocity regimes	26.08	31.23	27.75	1.20	2	54	0.55
Turbidity	28.95	25.86	25.25	0.94	2	54	0.62
Nitrogen	28.08	25.86	27.50	0.24	2	54	0.89
Secchi transparency	26.34	30.77	27.50	0.97	2	54	0.62
Rainfall	26.97	27.36	29.00	0.24	2	54	0.89
TSS/TDS	28.34	22.95	29.50	2.08	2	54	0.35
Alkalinity	27.60	26.41	28.25	0.16	2	54	0.92
Chlorides	28.10	26.91	26.50	0.22	2	54	0.89
Pesticides	27.85	28.41	25.75	0.53	2	54	0.77
COD	26.98	30.86	25.75	1.81	2	54	0.41
Metals	29.60	25.95	23.50	3.78	2	54	0.15
Hardness	26.98	28.41	28.00	0.21	2	54	0.90
Oil and grease	28.35	28.91	24.00	2.28	2	54	0.32
Hydrocarbons	28.85	26.95	24.50	2.29	2	54	0.32
Invertebrates	29.18	25.77	24.75	1.14	2	54	0.57
Aquatic vegetation	25.95	32.68	26.75	2.05	2	54	0.36
Fish	25.58	30.73	29.50	1.52	2	54	0.47
Riparian vegetation	25.34	29.77	31.00	2.01	2	54	0.37
Coliform bacteria	27.21	30.77	25.25	1.10	2	54	0.58
Algae	27.47	30.32	25.00	1.14	2	54	0.57
Amphibians and reptiles	25.85	31.32	28.25	1.95	2	54	0.38
Birds/wildlife	24.61	31.82	31.00	5.07	2	54	0.08
Chlorophyll	25.74	31.36	28.50	3.24	2	54	0.20
Other bacteria	27.61	27.45	27.25	0.02	2	54	0.99
Other physical/chemical parameters <sup>d</sup>	27.61	27.45	27.45	0.02	2	54	0.99
Other biological <sup>e</sup>	27.74	28.45	26.00	1.00	2	54	0.61

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> Two of the five respondents specified: Physical visual problems, Provide some financial support for students to do.

<sup>e</sup> One respondent specified response as : Visual problems.



Table G13

Differences between Organizations with Paid Staff and Those with No Paid Staff in Types of Restoration and Enhancement Activities Conducted (Mann-Whitney U Rank Sum test of significance)

Restoration and Enhancement Activity	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Tree and shrub planting	31.50	37.50	-1.64	0.10	68
Vegetative stabilization (grass or ground cover plantings and bioengineering)	31.50	37.50	-1.54	0.12	68
Non vegetation bank stabilization	34.00	35.00	-0.25	0.80	68
Runoff control	34.00	35.00	-0.24	0.81	68
Construction and/or placement of in-stream structures	42.00	27.00	-3.61	<0.001	68
Habitat improvement such as sediment removal	38.00	31.00	-1.69	0.09	68
Placement of gravel or rock in the channel	36.50	32.50	-0.98	0.33	68
Vegetation protection	33.00	36.00	-0.78	0.43	68
Pollution and/or eutrophication control	33.50	35.50	-0.54	0.59	68
Vegetation removal	33.50	35.50	-0.59	0.55	68
Other <sup>a</sup>	34.00	35.00	-0.46	0.64	68

<sup>a</sup> Three (3 respondents) were not appropriate responses to the question: Education, Will be conducting these activities in the future, Raise fish for river stocking. Two (2) responses may have fit in the response categories, but cannot be interpreted: Restoration of natural habitat, Recreational access.

Table G14

Differences between Organizations with Paid Staff and Those with No Paid Staff in Types of Fish or Wildlife Habitat Assessments Conducted on Rivers And Streams (Mann-Whitney U Rank Sum test of significance)

Habitat Assessment Activity	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Aquatic invertebrate habitat assessments	19.72	21.14	-0.46	0.65	40
Fish habitat assessment	23.44	18.09	-1.68	0.09	40
Habitat along banks	18.78	21.91	-0.97	0.33	40
Habitat in floodplain	17.72	22.77	-1.81	0.07	40
Access to habitat	19.83	21.05	-0.47	0.64	40
Other <sup>a</sup>	20.61	20.41	-0.14	0.89	40

<sup>a</sup> The two (2) respondents specified their assessment outputs: Habitat improvement by adding large woody debris, Camper programs.

Table G15

Differences between Organizations with Paid Staff and Those with No Paid Staff in Activities Conducted as Part of a River or Stream Clean-Up (Mann-Whitney U Rank Sum test of significance)

Clean-up Activity	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Collection of human created trash from the stream or river	34.23	32.68	-0.55	0.58	66
Collection of human created trash from the banks or riparian zone	34.23	32.68	-0.55	0.58	66
Provide educational/awareness activities or events concurrent with clean-ups	28.97	38.61	-2.47	0.01	66
Planting of trees, shrubs, grasses for aesthetics	30.31	37.10	-1.67	0.09	66
Removal of brush and logs from the stream/river	33.20	33.84	-0.16	0.87	66
Removal of brush and logs from the banks or riparian zones	33.99	32.95	-0.29	0.77	66
Other <sup>a</sup>	32.33	34.82	-0.93	0.35	66

<sup>a</sup> Four (4) respondents specified their response as follows: Cleanup of path near river (1 respondent), Conduct Beaver Island Lake Days for every 6th grade student from three school communities (1), Restoration of natural habitat (1), Road side Adopt-a Highway (1). Two (2) respondents reported activities which facilitate clean-ups conducted by other organizations: Provide clearinghouse for clean-up efforts and information and facilities communication between local clean-up and water monitoring groups (1), Provide "how to" and where to obtain assistance to served groups wishing to conduct river trash clean-ups (1).

Table G16

Differences between Organizations with Paid Staff and Those with No Paid Staff in Physical, Chemical and Biological Data Collected from Rivers and Streams (Mann-Whitney U Rank Sum test of significance)

Parameters	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Water temperature	25.29	26.42	-0.36	0.72	51
pH	24.58	26.84	-0.61	0.54	51
DO	25.58	26.25	-0.18	0.86	51
BOD	21.21	28.84	-2.06	0.04	51
Phosphorus	21.21	28.84	-2.06	0.04	51
Flow/velocity regimes	23.55	27.45	-1.06	0.29	51
Turbidity	22.37	28.16	-1.62	0.10	51
Nitrogen	21.53	28.66	-2.03	0.04	51
Secchi transparency	22.87	27.86	-1.42	0.15	51
Rainfall	23.03	27.77	-1.42	0.15	51
TSS/TDS	20.84	29.06	-2.53	0.01	51
Alkalinity	25.87	26.08	-0.07	0.95	51
Chlorides	23.68	27.38	-1.25	0.21	51
Pesticides	25.18	26.48	-0.50	0.61	51
COD	26.53	25.69	-0.33	0.74	51
Metals	25.18	26.48	-0.51	0.61	51
Hardness	24.68	26.78	-0.77	0.44	51
Oil and grease	24.34	26.98	-1.10	0.27	51
Hydrocarbons	24.84	26.69	-0.83	0.40	51
Invertebrates	23.24	27.64	-1.18	0.24	51
Aquatic vegetation	24.39	26.95	-0.69	0.49	51
Fish	32.95	21.88	-3.01	0.003	51
Riparian vegetation	24.05	27.16	-0.85	0.39	51
Coliform bacteria	23.37	27.56	-1.21	0.22	51
Algae	26.21	25.88	-0.10	0.92	51
Amphibians and reptiles	25.87	26.08	-0.07	0.94	51
Birds/wildlife	23.68	27.38	-1.25	0.21	51
Chlorophyll	26.53	25.69	-0.33	0.74	51
Other bacteria	26.68	25.59	-0.54	0.59	51
Other physical/chemical parameters <sup>a</sup>	24.84	26.69	-0.83	0.41	51
Other biological <sup>b</sup>	25.84	26.09	-0.14	0.87	51

<sup>a</sup> Two of the five respondents specified: Physical visual problems, Provide some financial support for students doing it.

<sup>b</sup> One respondent specified response as : Visual problems.

Table G17

Differences in Educational Activities Conducted for Rivers and Streams between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Educational Activity	Mean rank Primary NGOs <sup>a</sup>	Mean rank Secondary NGOs <sup>b</sup>	Mean rank Fostered NGOs <sup>c</sup>	X <sup>2</sup>	Degrees of freedom	n	p
Production of printed materials	47.57	40.92	51.18	2.46	2	92	0.29
Working with youth or schools	50.37	36.17	49.47	7.07	2	92	0.03
Holding or hosting workshops of conferences or public awareness days	47.36	39.58	53.68	4.04	2	92	0.13
Production of displays for other organizations' events	51.25	33.67	50.35	10.14	2	92	0.006
Production of radio or television spots or programs	46.72	41.42	53.03	4.88	2	92	0.09
Other education activities <sup>d</sup>	46.93	51.67	37.91	4.20	2	92	0.12

<sup>a</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>b</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>c</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

<sup>d</sup> Eight (8 respondents) report using other types of media: Local news articles, Developed groundwater curriculum materials, Education videos, Press releases, Signage for access sites, Developing a slide show and video, Developed a movie with local TV station, Travel panel for learning how to fish. Two (2) provide support to others who do educational activities: Source for IWLA Save-Our-Streams material, Provide funds to youth camps and college students with environmental interests. Ten (10) respondents report activities which can not be categorized: Meet with service organizations, Boy Scout P.M. clean-up yearly, Lakeside demonstration, student research, Directed to land managers and decision makers, One of the nation's largest school monitoring programs with forty schools participating, Fund research done by WSCC students, Educate canoeists on river use, Nature hikes, Boat tours and canoe trips.

Table G18

Differences between Organizations with Paid Staff and Those with No Paid Staff in Educational Activities Conducted for Rivers and Streams (Mann-Whitney U Rank Sum test of significance)

Educational Activity	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Production of printed materials	36.70	43.77	-1.65	0.10	80
Working with youth or schools	36.12	44.27	-1.89	0.06	80
Holding or hosting workshops at conferences or public awareness days	37.04	43.48	-1.45	0.14	80
Production of displays for other organizations' events	42.54	38.74	-0.84	0.40	80
Production of radio or television spots or programs	37.82	42.80	-1.45	0.15	80
Other education activities <sup>a</sup>	42.64	38.66	-0.94	0.35	80

<sup>a</sup> Eight (8 respondents) report using other types of media: Local news articles, Developed groundwater curriculum materials, Education videos, Press releases, Signage for access sites, Developing a slide show and video, Developed a movie with local TV station, Travel panel for learning how to fish. Two (2) provide support to others who do educational activities: Source for IWLA Save-Our-Streams material, Provide funds to youth camps and college students with environmental interests. Ten (10) respondents report activities which could not be categorized.

Table G19

Differences between Organizations in Different Regions of the Lower Peninsula in Organizational and Technical Needs, Which When Met, may Result in Improved Organizational Functioning and may Allow Organizations to Better Meet Goals (Kruskal-Wallis one-way analysis of variance)

Organizational and technical needs	Mean rank <sup>a</sup>		Mean rank		Mean rank		Degrees of freedom		p	n
	Northeast <sup>e</sup> Responding Organizations	Northwest <sup>d</sup> Responding Organizations	Southeast <sup>e</sup> Responding Organizations	Southwest <sup>f</sup> Responding Organizations	X2					
Consistent funding and information on how to access funding sources	48.95	42.17	47.14	38.28	3.27	3	0.35	86		
Networking among groups; better communication and sharing of information	38.18	44.15	43.91	47.54	2.14	3	0.54	86		
Improved resource materials and access	48.34	33.85	32.73	49.93	9.55	3	0.20	83		
Opportunities to learn how develop partnerships and liaisons	42.32	42.16	40.09	42.43	0.10	3	1.00	83		
Focus to our group's activities, assistance with group organization and leadership	42.39	42.39	38.32	42.95	0.32	3	0.96	83		
More opportunity for inclusive stakeholder participation in decisions and discussions	37.12	41.87	41.27	37.95	0.85	3	0.84	78		
Access to baseline data	48.98	37.17	39.73	40.93	3.30	3	0.35	82		
Information necessary to do increased advocacy (e.g., lobbying)	44.75	35.17	44.45	47.59	4.16	3	0.24	83		
Standardization of data collection procedures	44.81	37.64	37.72	35.52	2.17	3	0.54	77		
Other <sup>b</sup>	8.50	6.75	3.00	6.00	3.80	3	0.28	10		

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

<sup>c</sup> Includes Saginaw Bay watershed, and those watersheds north to Cheboygon county.

<sup>d</sup> Includes Upper Muskegon River watershed and those watersheds north to Emmet county.

<sup>e</sup> Includes watersheds which drain to the St. Clair River between the Belle River and the River Raisin.

<sup>f</sup> Includes watersheds from the lower portions of the White and Muskegon Rivers south to the St. Joseph River.

Table G20

Differences between Organizations in the Eastern and Western portions of the Lower Peninsula in Organizational and Technical Needs, Which When Met, may Result in Improved Organizational Functioning and may Allow Organizations to Better Meet Goals (Mann-Whitney U Rank Sum test of significance)

<b>Organizational and technical needs</b>	<b>Mean rank <sup>a</sup> Eastern Responding Organizations</b>	<b>Mean rank Western Responding Organizations</b>	<b>Z</b>	<b>p</b>	<b>n</b>
Consistent funding and information on how to access funding sources	48.35	40.48	-1.67	0.10	86
Networking among groups; better communication and sharing of information	40.09	45.62	-1.14	0.25	86
Improved resource materials and access	43.14	41.25	-0.37	0.72	83
Opportunities to learn how develop partnerships and liaisons	41.58	42.28	-0.14	0.88	83
Focus to our group's activities, assistance with group organization and leadership	41.03	42.64	-0.31	0.76	83
More opportunity for inclusive stakeholder participation in decisions and discussions	38.55	40.16	-0.35	0.73	78
Access to baseline data	45.80	38.75	-1.35	0.18	82
Information necessary to do increased advocacy (e.g., lobbying)	44.65	40.42	-0.79	0.43	83
Standardization of data collection procedures	42.68	36.65	-1.18	0.24	77
Other <sup>b</sup>	4.38	6.25	-1.00	0.32	10

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

Table G21

Differences between Organizations in the Northern and Southern Portions of the Lower Peninsula in Organizational and Technical Needs, Which When Met, may Result in Improved Organizational Functioning and may Allow Organizations to Better Meet Goals (Mann-Whitney U Rank Sum test of significance)

Organizational and technical needs	Mean rank <sup>a</sup> Northern Responding Organizations	Mean rank Southern Responding Organizations	Z	p	n
Consistent funding and information on how to access funding sources	45.04	41.15	-0.83	0.41	86
Networking among groups; better communication and sharing of information	41.63	46.37	-0.99	0.32	86
Improved resource materials and access	40.36	44.37	-0.78	0.44	83
Opportunities to learn how develop partnerships and liaisons	42.23	41.65	-0.12	0.90	83
Focus to our group's activities, assistance with group organization and leadership	42.39	41.41	-0.19	0.85	83
More opportunity for inclusive stakeholder participation in decisions and discussions	39.74	39.13	-0.13	0.89	78
Access to baseline data	42.13	40.52	-0.30	0.76	82
Information necessary to do increased advocacy (e.g., lobbying)	39.00	46.55	-1.43	0.15	83
Standardization of data collection procedures	40.91	36.16	-0.94	0.35	77
Other <sup>b</sup>	7.33	4.71	-1.31	0.19	10

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

Table G22

Differences in Organizational and Technical Needs, Which When Met, may Result in Improved Organizational Functioning and may Allow Organizations to Better Meet Goals between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Organizational and technical needs	Mean rank <sup>a</sup> Primary NGOs <sup>c</sup>	Mean rank Secondary NGOs <sup>d</sup>	Mean rank Fostered NGOs <sup>e</sup>	X <sup>2</sup>	p	n	Degrees of freedom
Consistent funding and information on how to access funding sources	48.73	50.60	62.71	4.07	0.13	102	2
Networking among groups; better communication and sharing of information	49.98	58.00	47.66	2.08	0.35	102	2
Improved resource materials and access	50.07	44.61	57.16	1.91	0.38	99	2
Opportunities to learn how develop partnerships and liaisons	53.27	43.93	45.88	2.71	0.26	99	2
Focus to our group's activities, assistance with group organization and leadership	49.75	48.57	53.00	0.25	0.88	99	2
More opportunity for inclusive stakeholder participation in decisions and discussions	48.38	46.45	45.63	0.21	0.90	94	2
Access to baseline data	50.11	44.45	54.16	1.21	0.54	98	2
Information necessary to do increased advocacy (e.g., lobbying)	53.52	45.87	42.75	2.51	0.28	99	2
Standardization of data collection procedures	47.93	37.55	56.70	4.81	0.09	93	2
Other <sup>b</sup>	8.50	7.67	3.50	1.24	0.54	15	2

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

<sup>c</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>d</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>e</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.



Table G23

Differences between Organizations with and with No Paid Staff in the Lower Peninsula in Organizational and Technical Needs, Which When Met, may Result in Improved Organizational Functioning and may Allow Organizations to Better Meet Goals (Mann-Whitney U Rank Sum test of significance)

Organizational and technical needs	Mean rank <sup>a</sup> Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Consistent funding and information on how to access funding sources	51.48	38.38	-2.81	0.005	89
Networking among groups; better communication and sharing of information	47.22	42.83	-0.92	0.36	89
Improved resource materials and access	48.85	51.43	-0.46	0.64	99
Opportunities to learn how develop partnerships and liaisons	45.45	43.55	-0.40	0.69	88
Focus to our group's activities, assistance with group organization and leadership	54.55	44.32	-1.80	0.07	99
More opportunity for inclusive stakeholder participation in decisions and discussions	46.64	38.16	-1.79	0.07	84
Access to baseline data	49.41	49.62	-0.03	0.97	98
Information necessary to do increased advocacy (e.g., lobbying)	45.17	56.56	-1.99	0.05	99
Standardization of data collection procedures	47.39	46.52	-0.16	0.87	93
Other <sup>b</sup>	10.10	6.95	-1.33	0.18	15

<sup>a</sup> Where 1 = not at all important to functioning of our organization, 2 = somewhat important to functioning of our organization, 3 = important to functioning of our organization, 4 = very important to functioning of our organization, and 5 = extremely critical to functioning of our organization.

<sup>b</sup> Ten (10) of the fifteen (15) respondents specified their responses: better computer system, access to the internet and improved opportunities for electronic communication (3 respondents), DNR floodplain permit information (1), viable association of Lake associations (1), free legal help (1), legislative development (1), analysis of agency procedures and responsibilities (1), more state government support (1), resource lists (1), continuation of what was started at the Watershed Conference (1), ways to increase membership and volunteers to implement (2), public relations (1), outreach and development (1), increased and new membership (1), acknowledgment of organization's role and leadership in watershed planning and management (1).

Table G24

Differences between Organizations in Different Regions of the Lower Peninsula in Needs for Improving Stream and River Stewardship Programming Statewide in Michigan (Kruskal-Wallis one-way analysis of variance)

Statewide needs	Mean rank <sup>a</sup> Northeast <sup>c</sup> Responding Organizations	Mean rank <sup>d</sup> Northwest <sup>d</sup> Responding Organizations	Mean rank <sup>e</sup> Southeast <sup>e</sup> Responding Organizations	Mean rank <sup>f</sup> Southwest <sup>f</sup> Responding Organizations	X2	Degrees of freedom	p	n
Watershed approach to planning and management	49.62	44.05	52.92	34.19	7.68	3	0.05	87
Public education; to increase awareness and responsibility	50.73	37.93	54.67	41.62	6.52	3	0.09	88
Networking among groups; better communication and sharing of information	45.60	39.71	49.83	46.50	1.97	3	0.58	88
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	45.70	42.57	54.00	41.12	2.56	3	0.46	88
Information on river stewardship options such as management techniques, strategies and selecting among options	48.90	38.16	45.08	44.44	2.73	3	0.44	86
More inclusion of citizen groups in management decisions and discussions	45.38	40.41	43.08	42.11	0.57	3	0.90	84
Mechanisms to facilitate networking	46.20	40.62	47.21	33.67	4.51	3	0.21	81
Standardization of data collection procedures	49.38	42.39	34.18	36.76	4.77	3	0.20	82
More use of citizen collected data	45.71	34.00	41.27	46.57	4.75	3	0.20	82
More citizen collection of baseline data	40.76	37.43	45.75	46.54	2.29	3	0.51	83
Other <sup>b</sup>	7.70	4.75	6.50	2.50	4.65	3	0.20	11

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

<sup>c</sup> Includes Saginaw Bay watershed, and those watersheds north to Cheboygon county.

<sup>d</sup> Includes Upper Muskegon River watershed and those watersheds north to Emmet county.

<sup>e</sup> Includes watersheds which drain to the St. Clair River between the Belle River and the River Raisin.

<sup>f</sup> Includes watersheds from the lower portions of the White and Muskegon Rivers south to the St. Joseph River.

Table G25

Differences between Organizations in the Eastern and Western Portions of the Lower Peninsula in Needs for Improving Stream and River Stewardship Programming Statewide in Michigan (Mann-Whitney U Rank Sum test of significance)

Statewide needs	Mean rank <sup>a</sup> Eastern Responding Organizations	Mean rank Western Responding Organizations	Z	p	n
Watershed approach to planning and management	50.88	39.58	-2.25	0.02	87
Public education; to increase awareness and responsibility	52.12	39.70	-2.44	0.01	88
Networking among groups; better communication and sharing of information	47.14	42.92	-0.80	0.42	88
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	48.63	41.90	-1.27	0.21	88
Information on river stewardship options such as management techniques, strategies and selecting among options	47.52	41.00	1.26	0.21	86
More inclusion of citizen groups in management decisions and discussions	44.55	41.18	0.65	0.52	84
Mechanisms to facilitate networking	46.58	37.36	-1.82	0.07	81
Standardization of data collection procedures	44.16	39.80	-0.85	0.39	82
More use of citizen collected data	44.19	39.78	-0.85	0.39	82
More citizen collection of baseline data	42.58	41.62	-0.18	0.85	83
Other <sup>b</sup>	7.36	3.63	-1.97	0.05	11

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

Table G26

Differences between Organizations in the Northern and Southern Portions of the Lower Peninsula in Needs for Improving Stream and River Stewardship Programming Statewide in Michigan (Mann-Whitney U Rank Sum test of significance)

Statewide needs	Mean rank <sup>a</sup> Northern Responding Organizations	Mean rank Southern Responding Organizations	Z	p	n
Watershed approach to planning and management	46.39	40.77	-1.13	0.26	87
Public education; to increase awareness and responsibility	43.56	45.74	-0.43	0.66	88
Networking among groups; better communication and sharing of information	42.18	47.55	-1.04	0.30	88
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	43.92	45.30	-0.26	0.79	88
Information on river stewardship options such as management techniques, strategies and selecting among options	42.67	44.65	-0.39	0.70	86
More inclusion of citizen groups in management decisions and discussions	42.54	42.44	-0.02	0.98	84
Mechanisms to facilitate networking	43.04	38.31	-0.95	0.34	81
Standardization of data collection procedures	45.45	35.93	-1.88	0.06	82
More use of citizen collected data	39.13	44.85	-1.12	0.26	82
More citizen collection of baseline data	38.89	46.27	-1.43	0.15	83
Other <sup>b</sup>	6.86	4.50	-1.24	0.21	11

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

Table G27

Differences in Needs for Improving Stream and River Stewardship Programming Statewide in Michigan between the Three Organization Types (Kruskal-Wallis one-way analysis of variance)

Statewide needs	Mean rank <sup>a</sup> Primary NGOs <sup>c</sup>	Mean rank Secondary NGOs <sup>d</sup>	Mean rank Fostered NGOs <sup>e</sup>	X <sup>2</sup>	p	n	Degrees of freedom
Watershed approach to planning and management	49.94	51.80	56.88	0.93	0.63	102	2
Public education; to increase awareness and responsibility	55.25	42.00	55.84	4.70	0.10	103	2
Networking among groups; better communication and sharing of information	52.94	51.30	49.47	0.21	0.90	103	2
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	55.15	46.92	47.71	1.92	0.38	103	2
Information on river stewardship options such as management techniques, strategies and selecting among options	51.60	45.39	56.34	1.55	0.26	101	2
More inclusion of citizen groups in management decisions and discussions	54.61	45.41	38.72	5.03	0.08	99	2
Mechanisms to facilitate networking	49.03	44.47	48.59	0.46	0.79	95	2
Standardization of data collection procedures	48.08	43.05	59.94	3.78	0.15	97	2
More use of citizen collected data	51.98	42.28	46.03	2.18	0.34	97	2
More citizen collection of baseline data	50.63	47.17	48.03	0.29	0.86	98	2
Other <sup>b</sup>	7.71	3.75	9.00	4.52	0.10	12	2

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

<sup>c</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>d</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>e</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

Table G28

Differences between Organizations with and with No Paid Staff in the Lower Peninsula in Needs for Improving Stream and River Stewardship Programming Statewide in Michigan (Mann-Whitney U Rank Sum test of significance)

Statewide needs	Mean rank <sup>a</sup> Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Watershed approach to planning and management	51.65	51.31	-0.06	0.95	102
Public education; to increase awareness and responsibility	49.75	54.90	-0.95	0.34	103
Networking among groups; better communication and sharing of information	46.83	58.67	-2.12	0.03	103
Development of partnerships and strengthening of current liaisons, to increase working cooperatively	48.00	56.96	-1.59	0.11	103
Information on river stewardship options such as management techniques, strategies and selecting among options	48.91	53.50	0.83	0.40	101
More inclusion of citizen groups in management decisions and discussions	45.79	55.26	-1.70	0.09	99
Mechanisms to facilitate networking	45.94	50.49	-0.84	0.40	95
Standardization of data collection procedures	46.57	51.93	-0.99	0.32	97
More use of citizen collected data	47.42	50.90	-0.63	0.53	97
More citizen collection of baseline data	46.10	53.67	-1.36	0.17	98
Other <sup>b</sup>	6.39	6.83	-0.21	0.84	12

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical to stream stewardship in Michigan.

<sup>b</sup> Nine (9) of the twelve (12) respondents specified their responses: funding (2 respondents), state government funding (1), water resource technical data to planning commissions for proper land use decisions (2), more technical data to back up protection (1), more data collection by paid professional of government agencies (i.e. unbiased data) (1), funding for restoration and enhancement activities (1), government commitment to qualitative protection of all watersheds (1), standardization and public awareness of protection measures (1), better understanding of land use impacts on water resources (1), recognition and matching funds for local stewardship efforts (1).

Table G29

Differences between Organizations in Different Regions of the Lower Peninsula in Strategies to Best Begin to Meet Needs For Improving Stream and River Stewardship on a Statewide Level (Kruskal-Wallis one-way analysis of variance)

Strategies for statewide programming	Mean rank <sup>a</sup>		Mean rank <sup>d</sup>		Mean rank <sup>e</sup>		Mean rank <sup>f</sup>		Degrees of freedom	p	n
	Northeast <sup>o</sup>	Responding Organizations	Northeast <sup>o</sup>	Responding Organizations	Southwest <sup>d</sup>	Responding Organizations	Southwest <sup>f</sup>	Responding Organizations			
Improved coordination with state and federal regulatory agencies	46.76		39.38		49.00		44.85		3	0.48	87
Procedures for standardization (Quality Assurance/Quality Control) of data	45.00		40.59		45.50		42.91		3	0.87	85
Procedures for data collection	51.10		40.83		39.46		38.72		3	0.30	84
Bulletins, fact sheets, other publications	47.86		37.00		49.77		44.17		3	0.27	86
A centralized office to serve as a clearinghouse	47.07		43.10		43.79		40.61		3	0.81	86
Directory of similar organizations	46.60		35.36		49.00		42.14		3	0.15	83
Advisory team to address these issues	41.71		38.66		49.09		41.11		3	0.66	82
Newsletters, on the state level	43.72		34.94		58.83		46.85		3	0.02	86
A place to communicate with other groups on the Internet or World Wide Web	44.18		38.29		41.19		47.15		3	0.52	84
Site tours and demonstration areas	47.40		36.80		49.82		43.80		3	0.28	85
Annual conferences or meetings in conjunction with existing conferences	44.37		37.45		56.88		38.02		3	0.07	83
Annual conferences or meeting separate from other meetings	38.95		38.63		50.08		42.80		3	0.48	82
A new organization to facilitate networking among stream and river organizations	45.76		37.34		40.17		45.71		3	0.46	83
Other <sup>b</sup>	3.00		4.50		1.50		NA		2	0.14	5

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).

<sup>c</sup> Includes Saginaw Bay watershed, and those watersheds north to Cheboygon county.

<sup>d</sup> Includes Upper Muskegon River watershed and those watersheds north to Emmet county.

<sup>e</sup> Includes watersheds which drain to the St. Clair River between the Belle River and the River Raisin.

<sup>f</sup> Includes watersheds from the lower portions of the White and Muskegon Rivers south to the St. Joseph River.

Table G30

Differences between Organizations in the Northern and Southern Portions of the Lower Peninsula in Strategies to Best Begin to Meet Needs For Improving Stream and River Stewardship on a Statewide Level (Mann-Whitney U Rank Sum test of significance)

Strategies for statewide programming	Mean rank <sup>a</sup> Northern Responding Organizations	Mean rank Southern Responding Organizations	Z	p	n
Improved coordination with state and federal regulatory agencies	42.42	46.24	-0.83	0.41	87
Procedures for standardization (Quality Assurance/Quality Control) of data	42.44	43.80	-0.29	0.77	85
Procedures for data collection	45.02	38.97	-1.17	0.24	84
Bulletins, fact sheets, other publications	41.56	46.19	-0.91	0.36	86
A centralized office to serve as a clearinghouse	44.74	41.70	-0.63	0.53	86
Directory of organizations like yours	40.04	44.69	-1.01	0.31	83
Advisory team to address these issues	39.97	43.77	-0.73	0.47	82
Newsletters, on the state level	38.38	50.96	-2.40	0.02	86
A place to communicate with other groups on the Internet or World Wide Web	40.63	45.00	-0.90	0.37	84
Site tours and demonstration areas	41.17	45.75	-0.88	0.38	85
Annual conferences or meetings in conjunction with existing conferences	40.19	44.49	-0.84	0.40	83
Annual conferences or meeting separate from other meetings	38.76	45.37	-1.30	0.19	82
A new organization to facilitate networking among stream and river organizations	40.88	43.70	-0.57	0.57	83
Other <sup>b</sup>	3.00	3.00	0.00	1.00	5

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).



**Table G31**  
**Differences between Organizations in the Eastern and Western portions of the Lower Peninsula in**  
**Strategies to Best Begin to Meet Needs for Improving Stream and River Stewardship on a Statewide Level**  
**(Mann-Whitney U Rank Sum test of significance)**

Strategies for statewide programming	Mean rank <sup>a</sup> Eastern Responding Organizations	Mean rank Western Responding Organizations	Z	p	n
Improved coordination with state and federal regulatory agencies	47.58	41.81	-1.23	0.22	87
Procedures for standardization (Quality Assurance/Quality Control) of data	45.18	41.62	-0.75	0.46	85
Procedures for data collection	46.73	39.89	-1.30	0.19	84
Bulletins, fact sheets, other publications	48.59	40.17	-1.64	0.10	86
A centralized office to serve as a clearinghouse	45.88	42.02	-0.80	0.43	86
Directory of organizations like yours	47.55	38.34	-1.99	0.47	83
Advisory team to address these issues	44.25	39.74	-0.86	0.39	82
Newsletters, on the state level	49.39	40.01	-1.76	0.08	86
A place to communicate with other groups on the Internet or World Wide Web	42.97	42.21	-0.15	0.88	84
Site tours and demonstration areas	48.23	39.84	-1.60	0.11	85
Annual conferences or meetings in conjunction with existing conferences	49.21	37.70	-2.21	0.03	83
Annual conferences or meeting separate from other meetings	43.13	40.46	-0.52	0.60	82
A new organization to facilitate networking among stream and river organizations	43.73	40.86	-0.58	0.56	83
Other <sup>b</sup>	4.00	1.50	-1.82	0.07	5

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).

Table G32

Differences in Strategies to Best Begin to Meet Needs for Improving Stream and River Stewardship on a Statewide Level between the Three Organization a Types (Kruskal-Wallis one-way analysis of variance)

Strategies for statewide programming	Mean rank <sup>a</sup> Primary NGOs <sup>c</sup>	Mean rank Secondary NGOs <sup>d</sup>	Mean rank Fostered NGOs <sup>e</sup>	X <sup>2</sup>	p	n	Degrees of freedom
Improved coordination with state and federal regulatory agencies	56.73	34.65	52.31	13.15	0.001	101	2
Procedures for standardization (Quality Assurance/Quality Control) of data	53.40	42.46	51.00	3.12	0.21	100	2
Procedures for data collection	50.20	43.89	58.03	2.50	0.29	99	2
Bulletins, fact sheets, other publications	51.09	50.54	51.31	<0.01	1.00	101	2
A centralized office to serve as a clearinghouse	53.57	46.98	43.84	2.41	0.30	100	2
Directory of similar organizations	50.44	46.36	50.03	0.45	0.80	98	2
Advisory team to address these issues	51.35	42.31	48.97	1.70	0.43	97	2
Newsletters, on the state level	56.93	49.71	30.31	11.53	<0.01	101	2
A place to communicate with other groups on the Internet or World Wide Web	50.04	54.32	43.91	1.51	0.47	99	2
Site tours and demonstration areas	52.47	43.21	49.53	1.82	0.40	99	2
Annual conferences or meetings in conjunction with existing conferences	53.49	41.37	46.47	3.56	0.17	98	2
Annual conferences or meeting separate from other meetings	56.21	40.07	33.69	11.94	<0.01	97	2
A new organization to facilitate networking among stream and river organizations	51.48	41.77	52.69	2.57	0.28	98	2
Other <sup>b</sup>	4.33	2.67	0.00	1.39	0.24	6	1

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).

<sup>c</sup> Not for profit, non-governmental organizations whose primary goals are directly related to stream and river stewardship.

<sup>d</sup> Non-profit citizen action organizations which are indirectly or marginally involved in stream and river stewardship.

<sup>e</sup> Non-profit citizen action organizations which are fostered by, or work closely with governmental agencies.

Table G33

Differences between Organizations with and with No Paid Staff in the Lower Peninsula in Strategies to Best Begin to Meet Needs for Improving Stream and River Stewardship on a Statewide Level (Mann-Whitney U Rank Sum test of significance)

	Mean rank Responding Organizations with Paid Staff	Mean rank Responding Organizations with No paid staff	Z	p	n
Strategies for statewide programming					
Improved coordination with state and federal regulatory agencies	43.2	47.71	-0.93	0.35	90
Procedures for standardization (Quality Assurance/Quality Control) of data	42.37	49.71	-1.51	0.13	91
Procedures for data collection	50.19	49.76	-0.08	0.94	99
Bulletins, fact sheets, other publications	49.89	52.44	-0.46	0.64	101
A centralized office to serve as a clearinghouse	42.30	47.88	-1.16	0.25	89
Directory of organizations like yours	41.26	49.00	-1.66	0.10	89
Advisory team to address these issues	48.17	50.05	-0.34	0.74	97
Newsletters, on the state level	43.91	60.18	-2.89	0.004	101
A place to communicate with other groups on the Internet or World Wide Web	45.23	44.74	-0.10	0.92	89
Site tours and demonstration areas	49.74	50.31	-0.10	0.92	99
Annual conferences or meetings in conjunction with existing conferences	47.31	52.42	-0.92	0.36	98
Annual conferences or meeting separate from other meetings	44.19	55.03	-1.98	0.05	97
A new organization to facilitate networking among stream and river organizations	41.16	48.93	-1.59	0.11	89
Other <sup>b</sup>	3.17	3.83	-0.47	0.64	6

<sup>a</sup> Where: 1 = not at all important to stream stewardship in Michigan, 2 = somewhat important to stream stewardship in Michigan, 3 = important to stream stewardship in Michigan, 4 = very important to stream stewardship in Michigan, and 5 = extremely critical stream stewardship in Michigan.

<sup>b</sup> Four (4) of the six (6) respondents specified their responses: Improved coordination among state supported universities (1 respondent), DNR policy to work on funding and permitting (1), watershed management commission (1), funding sources (1).

## **APPENDIX H: Final Study Population**

## **Final Study Population**

**Augusta Creek Watershed Association  
P.O. Box 181  
Hickory Corners, MI 49060**

**Ausable Institute of Environmental  
Studies  
7526 Sunset Trail, N.E.  
Mancelona, MI 49659**

**Ausable North Branch Area Association  
5081 N. River Road  
Freeland, MI 48623**

**AuSable River Property Owners  
Association  
224 W.Park Drive  
Grayling, MI 49738**

**Bay De Noc Great Lakes Sport  
Fisherman  
P.O. Box 1322  
Escanaba, MI 49829**

**Bear Creek Watershed Council  
5406 Kerry Rd.  
Manistee, MI 49660**

**Bear Creek Watershed Project  
6878 Belding Rd.  
Rockford, MI 49341**

**Benzie Area Steelheaders  
P.O. Box 395  
Benzonia, MI 49616-0395**

**Benzie Fishery Coalition  
1008 Bluewater Drive  
P.O. Box 54  
Benzonia, MI 4961**

**Betsie River Restoration Committee  
P.O. Box 15  
Thompsonville, MI 49683**

**Betsie River Restoration Project  
P.O. Box 8  
Thompsonville, MI 49683**

**Blue Water Sportfishing Association  
P.O. Box 1337  
Port Huron, MI 48060**

**Carlton Creek Restoration Project**  
2785 Weesies Rd.  
Montague, MI 49437

**Cass River Corridor Authority**  
362 Green Street  
Caro, MI 48723-1998

**Center for Wildland Cons.**  
Box 415 Courthouse  
Atlanta, MI 49709

**Chippewa Indian Tribe**  
206 Greenough  
Sault Saint Marie, MI 49783

**Chippewa Watershed Conservancy**  
3483 East River Road  
Mt. Pleasant, MI 48858

**Chocolay Watershed Council**  
1055 West Baraga Ave.  
Marquette, MI 49855

**Cisco Chain Riparian Owners Association**  
E19882 Thousand Island Lake Road  
Watersmeet, MI 49969

**Citizens for Alternative to Chemical Contamination**  
8735 Maple Grove Rd.  
Lake, MI 48832-9716

**Clean Water Action**  
4990 Northwind Drive, Suite 210  
East Lansing, MI 48823

**Clinton River Authority/C.R. Clean-up**  
12159 Fairview Dr.  
Sterling Height, MI 48312-2165

**Clinton River RAP PAC**  
C/O Clinton River Watershed Council  
1970 East Auburn Rd.  
Rochester Hills, MI 49307-4803

**Clinton River Watershed Council**  
1970 East Auburn Road  
Rochester, MI 49307-4803

**Coalition for the Preservation of the Grand River**  
4642 Abrigader Trail NE  
Comstock Park, MI 49321

**Concerned Citizens Couoncil for Rural Awareness**  
32800 Mound Rd.  
Warren, MI 48092

Concerned Citizens for Clean Water  
9027 Kasson, Box 123  
Cedar, MI 49621

Delton Crooked Lake Association  
7420 N. Crooked Lake Drive  
Delton, MI 49046

Dewey Lake Monitor  
51256 Garret Road  
Powagiac, MI 49047

East Michigan Environmental Action  
Council  
21220 W. 14 Mile Road

Bloomfield Township, MI 48301-4000

Ecology Center of Ann Arbor  
417 Detroit St.  
Ann Arbor, MI 48104

Elk River - Chain of Lakes Steering  
Committee(c/o NW RC & D Council)  
3193 Logan Valley Road  
Traverse City, MI 49684

Elk-Skegemog Lakes Association  
P.O. Box 8  
Elk Rapids, MI 49629

Flat River Preservation Association  
990 North Washington  
Lowell, MI 49331

Fleming Creek Advisory Council  
c/o Huron River Watershed Council  
1100 N. Main Street, Suite 210  
Ann Arbor, MI 48104

Friends of the St. Joseph River  
P.O. Box 354  
Athens, MI 49011

Friends of McCoy's Creek  
306 Liberty  
Buchanan, MI 49107

Friends of Ox Creek  
501 Main  
St. Joseph, MI 49085

Friends of Tahquamenon Falls State Park  
Route 48, Box 225  
Paradise, MI 49768

Friends of the Clinton River  
49 Brietmeyer  
Mt. Clemens, MI 48043

Friends of the Crystal River  
P.O. Box 123  
Glen Arbor, MI 49636

Friends of the Detroit River  
P.O. Box 3099  
Melvindale, MI 48122

Friends of the Huron-Oakland  
375 Martindale  
Milford, MI 48381

Friends of the Jordan River Watershed,  
Inc.  
106 Depot Street, Complex 2  
Bellair, MI 49615

Friends of the Looking Glass River  
12310 Forest Hill Rd.  
DeWitt, MI 48820

Friends of the River, Inc.  
410 S. Cedar St., Suite B  
Lansing, MI 48912-1106

Friends of the Rouge  
950 Michigan Building, 220 Bagley Ave.  
Detroit, MI 48226-1412

Friends of the Shiawassee River  
604 N. Ball St.  
Owosso, MI 48867

G.T. Bay Boat Trail  
c/o Grass River Natural Area  
P.O. Box 231  
Bellaire, MI 49615-0231

Galien River Watershed Council  
Box 345  
New Buffalo, MI 49117

Global Rivers Environmental Education  
Network  
721 E. Huron  
Ann Arbor, MI 48104

Grand River Expedition  
12310 Forest Hill Road  
Dewitt, MI 48820

Grand River Coalition for Preservation  
4642 Abregador Trail, NE  
Comstock Park, MI 49321

Grand River Enhancement Action Team  
11222 Hardenburg Trail  
Eagle, MI 48822



**Grand River Environmental Action Team**  
6195 Jefferson  
Clark Lake, MI 49234

**Grand Traverse Bay Watershed Initiative**  
1102 Cass Street, Suite B  
Traverse City, MI 49684

**Grand Traverse Conservation District**  
1222 Veterans Drive  
Traverse City, MI 49684

**Grand Traverse Regional Land  
Conservancy**  
624 Third Street  
Traverse City, MI 49684

**Grand Traverse Water Trails Committee**  
P.O. Box 231  
Bellaire, MI 49615

**Great Lakes Council, Inc. of the  
Federation of Fly Fishers, Inc.**  
P.O. Box 828  
Pentwater, MI 49449-0828

**Greater Flint Muddler Minnows**  
5560 Maple Park Drive, Apt. #6  
Flint, MI 48507

**Greater Lansing Adopt A River  
Woldumar Nature Center**  
5539 Lansing Road  
Lansing, MI 48917

**Greater Manistee Fly Fishers**  
485 Oxford Court  
Manistee, MI 49660

**Green Lake/Betsie River Association**  
5624 Lakeview Dr.  
Interlochen, MI 49643

**Gull Lakes Quality Organization**  
P.O. Box 769  
Richland, MI

**Holland Fish and Game Club**  
610 Butternut Drive  
Holland, MI 49424

**Huron Manistee National Forest**  
1755 South Mitchell  
Cadillac, MI 49601

**Huron Pines Resource Conservation &  
Development Council**  
501 Norway Street  
Grayling, MI 49738

**Huron River Watershed Council**  
1100 N. Main St., Suite 210  
Ann Arbor, MI 48104-1059

**Ingham County Drain Stenciling Project**  
221 Kensington  
East Lansing, MI 48824

**Izaak Walton League**  
Michigan Division  
55 Kenton SE  
Grand Rapids, MI 49548

**Kalamazoo Nature Center**  
7000 N. Westnedge Ave.  
Kalamazoo, MI 49004

**Kalamazoo River Partners Program**  
1327 Academy  
Kalamazoo, MI 49006-3200

**Kalamazoo River Protection Association**  
P.O. Box 408  
Allegan, MI 49010-0408

**Kalamazoo River Trailways Partnership**  
1327 Academy Street  
Kalamazoo, MI 49006

**Kawkawlin River Watershed Property  
Owners Association**  
3357 Old Kawkawlin Road  
Bay City, MI 48706

**Kearsley Creek Preservation Council**  
7034 East Court Street  
Davison, MI 48423

**Lake Charlevoix Association**  
704 Mercer Boulevard  
Charelvoix, MI 49720

**Lake County Riverside Property Owners**  
1040 Fairfield, N.W.  
Grand Rapids, MI 49504

**Lake Leelanau Lake Association**  
3824 S. Grants landing  
Lake Leelanau, Mi 49653

**Lake Preservation League**  
2855 Round Lake Hwy  
Manitou Beach, MI 49253

**Lake St. Clair Advisory Committee**  
P.O. Box 272  
Mt. Clemens, MI 48046

Lake Superior State University's  
Environmental Awareness Club  
1000 College Drive  
Sault Ste. Marie, MI 49783

Land Action of Green Oak Township  
8304 Evergreen Road  
Brighton, MI 48116

Leelanau Watershed Council  
Leelanau Conservancy  
P.O. Box 1007  
Leland, MI 49654-1007

Little Manistee Property Owners Assoc.  
1501 Main Street  
Manistee, MI 49660

Mackinaw Trail Fly Fishers  
530 West 13th Street  
Cadillac, MI 49601

Mainstream Flow Group  
P.O. Box 96  
Auburn, MI 48611

Mackinaw Trail Fly Fishers  
530 West 13th Street  
Cadillac, MI 49601

Manistique River Watershed Partnership  
300 Walnut, Couthouse Room 318  
Manistique, MI 49854

Maple River Restoration Project  
7515 S.Lake Shore Drive  
Harbor Springs, MI 49740

Math & Science Technology Center  
15760 190th Ave.  
Big Rapids, MI 49307

Michigan B.A.S.S. Chapter Federation,  
Inc.  
2032 Mary Avenue  
Lansing, MI 48910

Michgian Trailfinders Club  
2680 Rockhill NE  
GrandRapids, MI 49505

Michigan Bass Chapter Federation, Inc.  
1120 Dogwood  
Portage, MI 49002

Michigan Environmental Council  
115 W. Allegan, Suite 10B  
Lansing, MI 48933

Michigan Fly Fishing Club  
P.O. Box 52113  
Livonia, MI 48152

Michigan Natural Areas Council  
10353 Judd Road  
Willis, MI 48191

Michigan Recreational Canoeing  
Association  
P.O. Box 357  
Baldwin, MI 49304-0357

Michigan Steelhead & Salmon  
Fisherman's Assoc.  
P.O. Box 213  
Paw Paw, MI 49079

MI Steelhead & Salmon  
Fishermen's Association  
Central Michigan Chapter  
95 White Tail Drive  
Mt. Pleasant, MI 48858

MI Steelhead & Salmon  
Fishermen's Association  
Grand Rapids District  
2471 Ancient SW  
Wyoming, MI 49509

MI Steelhead & Salmon  
Fishermen's Association  
Huron Valley Chapter  
15146 Dasher  
Allen Park, MI 48101

Michigan Lake and Stream Associations,  
Inc.  
P.O. Box 249  
Three Rivers, MI 49093

Michigan Natural Areas Council  
University of Michigan  
Matthai Botanical Gardens  
1800 N. Dixboro Rd.  
Ann Arbor, MI 48109-9741

Michigan Recreation and Park  
Association  
2722 E. Michigan, Suite 201  
Lansing, MI 48912

MI Steelhead & Salmon Fishermen's  
Association  
Ausable Chapter  
328 Mill St.  
Oscoda, MI 48750

MI Steelhead & Salmon Fishermen's  
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Flint River Valley Chapter  
6420 River Road  
Flushing, MI 48433

MI Steelhead & Salmon Fishermen's  
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Holland District  
3046 Summercrest Court  
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MI Steelhead & Salmon Fishermen's  
Association  
Kalamazoo Valley Chapter  
2526 Springmont  
Kalamazoo, MI 49008

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Maumee Valley Chapter  
121 Heilman Ave.  
Perrysburg, OH 43551

MI Steelhead & Salmon  
Fishermen's Association  
Mid-Michigan Chapter  
2961 Tupper Lake Rd.  
Lake Odessa, MI 48839

MI Steelhead & Salmon  
Fishermen's Association  
Muskegon Chapter  
3644 Evaline  
Muskegon, MI 49444

MI Steelhead & Salmon  
Fishermen's Association  
Saginaw Valley Chapter  
1908 E. Moore  
Saginaw, MI 48601

MI Steelhead & Salmon Fishermen's  
Association  
White River Chapter  
8934 Burroughs  
Montague, MI 49437

Michigan Wildlife Habitat Foundation  
6425 S. Pennsylvania, #S-9  
Lansing, MI 48911

Mill Creek Coalition  
203 S. Main St.  
Yale, MI 48097

MI Steelhead & Salmon Fishermen's  
Association  
Metro District Chapter  
2154 Cottrill  
Westland, MI 48486

MI Steelhead & Salmon Fishermen's  
Association  
Midland Chapter  
800 S. Winona  
Bay City, MI 48706

MI Steelhead & Salmon Fishermen's  
Association  
New Buffalo Chapter  
112 W. Clay  
New Buffalo, MI 49117

MI Steelhead & Salmon Fishermen's  
Association  
SW Michigan  
4788 Lake Street  
Bridgeman, MI 49106

Michigan United Conservation Clubs  
2101 Wood Street  
Lansing, MI 48912

Mid-Michigan Environmental Action  
Council  
4990 Northwind Drive, #210  
East Lansing, MI 48823

Montmorency County Conservation Club  
16350 N. County Rd. 459  
Hillman, MI 49746

**Mullett Lake Area Preservation Society**  
625 Grand View Beach  
Indian River, MI 49749

**Muskegon County Soil Conservation  
District**  
425 W. Western, Suite 201  
Muskegon, MI 49440

**National Wildlife Federation Great Lakes  
Resource Center**  
506 E. Liberty, 2nd Floor  
Ann Arbor, MI 48104

**Natural Areas Conservancy of West  
Michigan, Inc.**  
1423 Wealthy SE, Suite L-3  
Grand Rapids, MI 49506

**Nature Conservancy-Michigan Chapter**  
2840 East Grand River, #5  
East Lansing, MI 48823

**Ne-Bo-Shone Associaiton**  
900 Old Kent Bnk Bldg.  
Grand Rapids, MI 49501

**Northeast Michigan Council of  
Governments**  
P.O. Box 457  
Gaylord, MI 49735

**Northern Michigan Environmental Action  
Council**  
106 S. Union  
Traverse City, MI 49685

**Northern Tittabawassee River Task Force**  
4449 East R Lane  
Alger, MI 48610

**Northern Tittabawassee River Task Force**  
West River Drive  
Gladwin, MI 48624

**Oakwood Environmental Concerns  
Association**  
2216 College  
Lincoln Park, MI 48146

**Ottawa Sportsman's Club**  
Baraga, MI 49908

**Partnership for the Saginaw Bay  
Watershed**  
Pioneer Annex 9A  
Superior Valley State University  
University Center, MI 48711

**Pere Marquette Watershed Council, Inc.**  
P.O. Box 212  
Baldwin, MI 49304-0212

**Pine River Association  
10711 S. 5 1/2 Mile Rd.  
Wellston, MI 49689**

**Pine River Watershed Restoration  
Steering Committee  
P.O. Box 629  
Hart, MI 49420**

**Platte Lake Improvement Association  
28991 Glenbrook  
Farmington Hills, MI 48331**

**Rails-to-Trails Conservancy, MI Chapter  
913 West Holmes, Suite 145  
Lansing, MI 48910**

**Raisin Valley Land Trust  
P.O. Box 419  
Manchester, MI 48158**

**Rifle River Watershed Restoration  
Committee  
2230 E. N. Union  
Bay City, MI 48706**

**River Network in Michigan  
2061 Day Street  
Ann Arbor, MI 48104-3605**

**River Raisin Watershed Council  
425 N Main Street  
Adrian, MI 49221**

**Sarett Nature Center  
2300 Benton Center Rd.  
Benton Harbor, MI 49022**

**Save Our Selves  
12757 Lakeshore Drive  
Grand Haven, MI 49417**

**Science for Citizens Center  
Western Michigan University  
Kalamazoo, MI 49008**

**See North  
03001 Church Road  
Petosky, MI 49770**

**Sierra Club - Mackinac Chapter  
300 N. Washington Sq. Suite 411  
Lansing, MI 48733**

**Sierra Club, Midwest Office  
214 N. Henry Street  
Madison, WI 53703**

**Sinclair River Steering Committee**  
03530 Beatty Road  
Charlevoix, MI 49720

**Slagle Trout Club**  
24656 Lakeland  
Farmington Hills, MI 48336

**Southeast Michigan Greenways Project**  
3050 Lorraine  
Ann Arbor, MI 48108

**SouthEast Regional Center for  
Groundwater  
Education in Michigan (SER-GEM)**  
34 N. Washington  
Ypsilanti, MI 48197

**Spirit of Woods Conserv. Club**  
P.O. Box 358  
Bear Lake, MI 49614

**Tahquamenon Sportsman's Club**  
P.O. Box 232  
Newberry, MI 49868

**The Audubon Society**  
6011 W. St. Joseph Hwy  
P.O. Box 80527  
Lansing, MI 48908-0527

**The Lake Watch**  
P.O. Box 353  
Alden, MI 49612

**The River Rescue Committee**  
196 Strongwood  
Battle Creek, MI 49017

**Thornapple River Watershed Group**  
5831 Whitneyville Ave.  
Alto, MI 49302

**Thornapple Trail Association**  
P.O. Box 134  
Shelbyville, MI 49344-0134

**Three Lakes Association**  
P.O. Box 353  
Alden, MI 49612



**Thunb Bioregional Alliance**  
203 S. Main St.  
Yale, MI 48097

**Thunder Bay River Seven Mile  
Impoundment Association**  
491 Johnson Street  
Alpena, MI 49707

**Thunder Bay River Watershed Council**  
P.O. Box 751  
Alpena, MI 49707

**Tip of the Mitt Watershed Council**  
P.O. Box 300  
Conway, MI 49722

**Trout Unlimited- Arnold J. Copeland  
Chapter**  
200 St. Andrews Rd.  
Saginaw, MI 48603

**Trout Unlimited-Adams Chapter**  
P.O. Box 578  
Leland, MI 49654

**Trout Unlimited-Ann Arbor Chapter**  
1321 Franklin Blvd.  
Ann Arbor, MI 48103-5802

**Trout Unlimited-Challenge Chapter**  
1455 Kent Rd.  
Ortonville, MI 48462

**Trout Unlimited-Clinton Valley Chapter**  
2142 Kennedy  
Rochester Hills, MI 48309

**Trout Unlimited-George W. Mason  
Chapter**  
224 W. Park Dr.  
Grayling, MI 49738

**Trout Unlimited-Headwaters Chapter**  
3626 Theisen Rd.  
Gaylord, MI 49735-9261

**Trout Unlimited-Kalamazoo Vally  
Chapter**  
5189 W. "B" Avenue  
Kalamazoo, MI 49009

**Trout Unlimited-Lansing Chapter**  
835 Call St.  
Lansing, MI 48906

**Trout Unlimited-Leon P. Martuch  
Chapter**  
2524 E. Sugnet  
Midland, MI 48642

**Trout Unlimited-Marquette Chapter  
Peterson Ave.  
Ishpeming, MI 49849**

**Trout Unlimited-Menominee Range  
Chapter  
P.O. Box 48  
Stambaugh, MI 49964**

**Trout Unlimited-Michigan Council  
6815 Clubhouse Dr. W.  
Stanwood, MI 49346**

**Trout Unlimited-Miller-Van Winkle  
Chapter  
123 Stuart  
Petosky, MI 49770**

**Trout Unlimited-Muskegon-White River  
Chapter  
2011 Miner Street  
Muskegon, MI 49441**

**Trout Unlimited-Ottawa Chapter  
P.O. Box 41  
Ironwood, MI 49938**

**Trout Unlimited-Paul H. Young  
1440 Shipman  
Birmingham, MI 48009**

**Trout Unlimited-Pine River Area Chapter  
11501 Cedar Run Rd.  
Traverse City, MI 49684**

**Trout Unlimited-Vanguard Chapter  
P.O. Box 535  
Sterling Heights, MI 48311**

**Trout Unlimited-West Michigan Chapter  
49 Morningside S.E.  
Grand Rapids, MI 49506**

**Trout Unlimited-William B. Mershon  
Chapter  
3157 Church Street.  
Saginaw, MI 48604-2203**

**Union Lake Community Association  
R.R. #2, Box 407B  
Union City, MI 49094**

**United Auto Workers Conservation  
Committee  
P.O. Box 40720 Lansing, MI 48901-7920**

**Upper Black River Watershed  
Restoration Committee  
825 Huron Street, Suite 2  
Cheboygon, MI 49721**

**Upper Manistee River Restoration  
Committee  
501 Norway St.  
Grayling, MI 49738**

**Vassar Cork Pine Riverfest  
287 E. Huron  
Vassar, MI 48768**

**Walleyes for Iosco County, Inc.  
2572 M. Wiber Raod  
East Tawas, MI 48730**

**West Michigan Environmental Action  
Council  
1432 Wealthy St. SE  
Grand Rapids, MI 49506-2717**

**Wexford Conservation District  
7192 E. 34 Road  
Cadillac, MI 49601**

**Whetstone Creek Watershed Project  
1055 West Baraga Avenue  
Marquette, MI 49855**

**York Creek Watershed Project  
Water Resources Institute  
Grand Valley State University  
One Campus Drive  
Allendale, MI 49401**

## **LITERATURE CITED**

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