

The Alabama Watershed Demonstration Project: Water Quality, Nonpoint Source Pollution, and Best Management Practices—What Landowners Know

Introduction

This is the first in a series of three Alabama Cooperative Extension System publications describing different aspects of a large project known as the Alabama Watershed Demonstration Project. The second and third publications use the Alabama Watershed Demonstration Project to illustrate how geographic information systems can aid land managers in protecting water quality (“The Alabama Watershed Demonstration Project: Water Quality and Geographic Information Systems”) and how biotic indicators are used to assess

Point Source Pollution:

pollution originating from a definable source, such as a ditch, pipe, concentrated animal feed lot, or container.

water quality (“The Alabama Watershed Demonstration Project: Use of Benthic Macroinvertebrates to Evaluate Stream Water Quality in Forested Watersheds.”) This publication describes what nonindustrial private forest (NIPF) landowners in the project’s six south-central Alabama counties know about water quality, nonpoint source (NPS) pollution, and best management practices (BMPs).

Over the last 30 years, water quality in the United States has improved due to changes in the management of point source pollution. Many of our remaining water quality problems are the result of NPS pollution. In order to make additional, significant improvements in water quality, each of us must learn more about NPS pollution—what causes it and how to reduce it. Land managers play

Nonpoint Source Pollution

(NPS Pollution): *pollution that is not associated with a defined point of origin. Examples include agricultural and silvicultural runoff, construction-related runoff, and runoff from lawns and gardens.*

an important role in identifying and employing new practices that successfully reduce NPS pollution.

One method of reducing NPS pollution is the use of BMPs tailored for specific land management activities (forestry BMPs, agricultural BMPs, construction BMPs). The forestry community in Alabama has a set of BMPs designed to decrease the water quality impacts of silvicultural (forestry) activities. These BMPs are, for the most part, voluntary. However, it is important to know that BMPs prescribed for roads and stream crossings within wetlands and other U.S. waters are mandatory. Alabama’s forestry BMPs, voluntary and mandatory, are described in a 1993 Alabama Forestry Commission publication entitled “Alabama’s Best Management Practices for Forestry.”

Best Management Practices

(BMPs): *schedules of activities, prohibitions or practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States from discharges of dredged or fill material.*

Approximately 70 percent of forest land in Alabama is owned by nonindustrial private forest (NIPF) landowners and most wood utilized by the forest industry in Alabama comes from private forest lands. Thus, what NIPF landowners know about water quality, NPS pollution, and BMPs is very important. There are many questions about NIPF landowners that challenge educators, regulators, policy makers, and professional land managers: Who are the landowners? What do landowners know about water quality, NPS pollution, and BMPs? Where do landowners obtain their information about these topics? How effective are existing educational materials in providing information on these topics? What types of educational materials do landowners prefer?

Study Description

Information addressing some of these questions was obtained during a three-part study that began in late 1997. During the first part, a list of landowners in Butler, Crenshaw, Covington, Conecuh, Escambia, and Pike counties was developed using existing landowner lists and available property tax records. Landowners owning at least 50 acres of forest land were randomly chosen to participate in a telephone survey designed to evaluate their knowledge of water quality, NPS pollution, and BMPs. People owning 50 or more acres of land were deemed more likely to be involved in active, ongoing forest management than were owners of smaller tracts. There is no way to predict how the results of this study would compare to those of a survey involving people who own fewer than 50 acres of forest land.

At the end of a rather lengthy survey, the 622 people who completed it were asked if they would agree to participate in the second and third parts of the study. During the second part, 515 participants received a packet of water quality educational materials through the mail and were asked to read them. Materials in the packet included a copy of "Alabama's Best Management Practices for Forestry," Alabama Cooperative Extension System publications on forestry, BMPs, and water quality protection and literature about the Sustainable Forestry Initiative. During the third and final part of the study, a second telephone survey was administered. The second survey, which took place in early 1998, was completed by 402 people. It evaluated how effective the educational materials provided during the second stage were at increasing landowner knowledge about water quality, NPS pollution, and BMPs. Landowners were also asked a number of questions related to sources and formats of educational materials.

It would be hard to overstate the effort required of the people who participated in the study, regardless of whether they completed the first, second, or third stage. The surveys were lengthy, many of the questions can only be described as nosey (How old are you? What is your income level? How much land do you own?), and most of the questions required a great deal of thought. The information provided by this study will be used to develop programs on topics shown to be poorly understood and to employ methods of delivery preferred by landowners. It is important to emphasize that the identity of participants in the study was confidential and that the list of participants was destroyed upon completion of the second survey.

Who Are the Landowners?

In order to provide a frame of reference, respondents were asked a number of questions about themselves including age, gender, income, education level, size of forest land owned, and length of ownership. Because some participants completed the first survey but not the second, there are slight differences in the percentages of landowners in each category (Table 1). Most of the participants in both surveys were white (97 percent) males over 40 years old (92 percent) with at least a high school diploma. Income levels were generally high, with 56 percent of respondents having an income of at least \$40,000 per year. Two-thirds

of the respondents owned between 50 and 300 acres of forest land. Roughly the same number of people had owned their forest land for 10 or fewer years as had owned their forest land for 41 or more years. Twenty-two percent of respondents said that their land had been in their families for more than 100 years. In a 1993 Alabama Cooperative Extension System publication (ANR-788, "Alabama's Nonindustrial Private Forest Owners—Snapshots from a Family Album,") John Bliss presented data from a statewide telephone survey of forest landowners. The age, education level, race, and length of ownership reported in this publication are very similar to those reported by Bliss.

Table 1. Who Are the Landowners?

	1st Survey	2nd Survey
Age		
18-40	8 percent	8 percent
41-55	31 percent	32 percent
56-70	34 percent	34 percent
71-90	26 percent	26 percent
Gender		
Male	82 percent	84 percent
Female	18 percent	16 percent
Income		
Less than \$20,000	9 percent	9 percent
\$20,000-\$39,999	21 percent	22 percent
\$40,000-\$59,999	21 percent	24 percent
\$60,000-\$79,999	14 percent	13 percent
\$80,000 or more	21 percent	22 percent
Don't know/refused	14 percent	10 percent
Level of education		
Less than high school	10 percent	9 percent
High school graduate	29 percent	27 percent
Some college	16 percent	20 percent
Associate degree	6 percent	5 percent
College degree	24 percent	25 percent
Graduate degree	13 percent	14 percent
Size of ownership		
50-100 acres	33 percent	35 percent
101-200 acres	21 percent	25 percent
201-300 acres	13 percent	9 percent
301-600 acres	14 percent	15 percent
More than 600 acres	15 percent	14 percent
Don't know/refused	4 percent	2 percent
Length of ownership		
10 or fewer years	20 percent	18 percent
11-20 years	22 percent	25 percent
21-30 years	21 percent	23 percent
31-40 years	16 percent	15 percent
41 or more years	19 percent	19 percent

What Do Landowners Know About Water Quality, NPS Pollution, and BMPs?

Very few of the 622 people who participated in the first survey knew, without prompting, that the letters BMP referred to “best management practices” (Table 2). However, when told what the letters meant, the number of people who said that they had heard the term used in reference to forest land increased significantly. A total of 284 people answering the first survey claimed some knowledge about BMPs. Most of these people (266) were able to say that BMPs are practices designed to protect water quality and all but eight said that BMPs were effective in protecting water quality.

In the second survey, 108 of the 402 people knew what the letters BMP stood for. When told that BMP meant best management practices, 358 knew that BMPs were designed to protect water quality. It is likely that the educational materials provided to these people were responsible for the increased understanding of BMPs.

Participants in the first survey were also asked if sediment, increased water temperature, fertilizers/nutrients, or herbicides could harm water quality. Most people said that herbicides could harm water quality while a large number of participants knew that sediment and fertilizers/nutrients could also be harmful. Fewer people, however, were aware that increased water temperature could harm or degrade water quality. After the educational materials were received, there was a slight increase in the number of people who said that these things could harm water quality (Table 2).

Where Do Landowners Obtain Their Information?

According to the first survey, membership in forestry or agriculture-related associations was low (Table 3). Forestry-related associations specifically mentioned by survey participants as ones to which they belong include Treasure Forest, the Alabama Forestry Association, Tree Farm, and the National Woodland Owners Association. Agriculture-related associations mentioned included the Cattleman’s Association, the Poultry Association, and the Alabama Farmers Association.

Roughly 39 percent (246 people) of respondents to the first survey said that they had participated in forestry education programs. These programs were provided by a variety of sources including the Alabama Cooperative Extension System, the forest industry, landowner associations, the Alabama Forestry Commission, Tree Farm, Treasure Forest, and federal cost share programs. Many attended programs offered by several of these sources.

In addition to the educational activities mentioned above, 314 people (51 percent of those participating in the first survey) had used a consulting forester, another source of information. Participants who reported some knowledge of BMPs said that their knowledge had come from the Alabama Forestry Commission, Alabama Cooperative Extension System publications, county agents, newspapers, or some other source.

Table 2. What Landowners Know About Water Quality, NPS Pollution, and BMPs

Question		1st Survey	2nd Survey
Can sediment harm water quality?	Yes	85 percent	90 percent
Can increased water temperature harm water quality?	Yes	70 percent	72 percent
Can fertilizers harm water quality?	Yes	82 percent	87 percent
Can herbicides harm water quality?	Yes	94 percent	95.5 percent

Table 3. Membership in Forestry or Agriculture Associations

Member of Forestry Associations	Yes	29 percent	No 70 percent
Member of Agriculture Associations	Yes	33 percent	No 66 percent

How Effective Are Existing Written Educational Materials?

Of the 402 people who participated in the second survey, 252 said that they read the materials in the educational packet. Of these, 223 thought the materials would help them make more informed decisions about land management. One hundred and twenty-two people said they would change how their land was managed based on the information in the materials. This indicates that the materials were effective in providing useful information to those people who read them.

Obviously, for written materials to be effective, people have to know that the publications are available and they must be interested in reading them. The materials themselves must also be easily readable. When the characteristics of landowners (age, income, size of forest land owned, education) were compared to how closely people reported reading the materials and how interesting they found the materials to be, several trends emerged. In general, those who had owned their land longer reported reading the materials in greater detail. Those who read the materials in greater detail reported thinking them more useful than those who read the materials in less detail. Furthermore, those who owned larger acreages were more likely to find the materials very interesting than were those who owned smaller acreages.

What Types of Educational Materials Do Landowners Prefer?

The 252 people who read the materials provided in the educational packet during part two of the study were asked if they would be interested in attending programs developed by the Alabama Cooperative Extension System. One hundred and fifty-eight people said that they were interested and preferred the following types of materials:

- 91 wanted written materials
- 46 wanted video tapes
- 48 wanted field days
- 59 wanted some combination of these three

In general, those who had owned their land between 11 and 39 years were more interested in educational programs than were those people who had owned their land less than 11 years or more than 39 years. People with more education and those with higher incomes also reported having a greater interest in educational programs. Age was also a factor, with younger landowners expressing greater interest in educational programs than did older landowners. Those people who reported reading the materials in greater detail expressed an interest in attending educational programs, and they also expressed a preference for educational materials in the written form. Those who read the materials less thoroughly expressed a preference for videotapes.

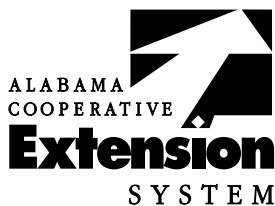
What Does This Information Tell Us?

Several conclusions have been made based on the information in this study. First, though many landowners have trouble with technical jargon, they seem to have a basic understanding of what has the potential to harm water quality. This means that educators, professional land managers, and agency personnel should avoid using what could be described as "alphabet soup labels" when talking to landowners. Second, greater effort will be required to reach the youngest and oldest landowners, landowners with lower annual incomes, and those with less education. Third, given the variety of educational materials preferred, educators will have to continue (or, in some cases, begin) to develop materials in a variety of formats. Fourth, if quality programs and materials continue to be made available, at least a portion of landowners will take advantage of them.

The best way to provide educational materials to hard-to-reach landowners may be to encourage those landowners actively involved in education to share their knowledge with those less actively involved. The issue of water quality will definitely require greater landowner participation than will almost any other issue that comes to mind. This means that landowners must be willing to speak up if they are not receiving information that is useful, interesting, clearly presented, and understandable.

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