

**TIMBER PRODUCER CERTIFICATION IN MICHIGAN:  
A REPORT TO THE MACKINAC CENTER FOR PUBLIC POLICY**

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# Timber Producer Certification in Michigan: Self Regulation Vs. State Regulation

by Karen Potter-Witter, Ph.D.

## Executive Summary

by Dr. Lawrence W. Reed

Which form of regulation is better for solving problems, protecting consumers and the environment, and encouraging rational economic planning—regulation by government or regulation by industry through free markets and incentives?

This question is central to Dr. Karen Potter-Witter's following report on the harvesting of forest products in Michigan.

The reader should take note from the beginning that the implications of this study and its recommendations go far beyond its special focus. The paradigm of self-regulation that Dr. Potter-Witter proposes for forest practices represents a model widely applicable to other industries and markets across the nation. Legislators in particular may find the author's reasoning useful when they consider regulation in other contexts.

Michigan is a state rich in forestland—with more timber volume than any other state in the Great Lakes region. Two-thirds of it is privately owned. Of the one-third that is publicly-owned, most is held by the State of Michigan. The federal government, with its three national forests in Michigan, owns the bulk of remaining public forestland.

Of the approximately 1,000 timber producers in Michigan—harvesters, truckers, and brokers—half are headquartered in the Upper Peninsula and most of those employ fewer than five people. Two private organizations have historically provided important support and organizational structure to timber producers—the Michigan Association of Timbermen (MAT) and the Timber Producers Association of Michigan and Wisconsin (TPA). They represent timber producers on public policy issues, generate research and information, and encourage wise management of forestland.

In 1992, Michigan producers harvested 348 million cubic feet of timber—twice as much as in 1965. Today, about 14% of this timber is sold by large industrial timberland owners. They know how to harvest trees to get the best yield; they use professional foresters to help them judge the quality and quantity of timber on the market. They usually receive top dollar for their timber, and then reinvest their profits in forestland. Since these large producers have a strong investment in the land and in the industry, they are usually anxious to meet high standards of environmental safety.

Farmers and other small producers are at a disadvantage. They hold other full-time jobs, and they make only small and irregular sales of timber. They sometimes don't know the best way to clear trees efficiently and in a way that protects the ecology of the forest. Not only do they often get low prices for their timber; their timber cutting sometimes damages the environment as well.

Some people argue that government regulation of the timber industry is needed to protect the environment and to create more uniform pricing. Others disagree and say that the free market can adjust and help all loggers and consumers by using an independent certification process. The debate between government regulation versus private certification is at the heart of the timber controversy and is the focus of Dr. Potter-Witter's work.

Those who want government regulation argue that all loggers should be licensed in the "public interest." Only loggers who have licenses would be allowed to cut and sell timber. In this plan, some kind of review board would establish the standards people had to meet to be licensed. These standards might include on-the-job experience as well as passing a rigorous test. The point is that legislators and timber producers would work together to regulate who could and could not cut and sell timber.

As Dr. Potter-Witter points out, there are historic problems with government regulation. In the first place, timber producers could use licensing to restrict entry into their profession. For centuries, trade guilds have claimed that they wanted to limit their membership to protect the consumers from inferior goods. Instead, these guilds have increased the costs to consumers by reducing the numbers of their competitors. Licensing timber sellers could have this same result: If the licensing test is too difficult or costly, few people will be cutting and selling timber.

Even if the timbermen are purely motivated by the public good, they have to work with state legislators who come to the table with agendas of their own. Most legislators will have no idea how much or what kinds of experience or education is needed to buy and sell timber and protect the environment.

Also, the costs of government regulation are often enormous. In the timber industry, Maryland and Virginia have already found that government licensing programs are expensive to administer and operate. If more government regulation is required, Michigan wood products could cost more.

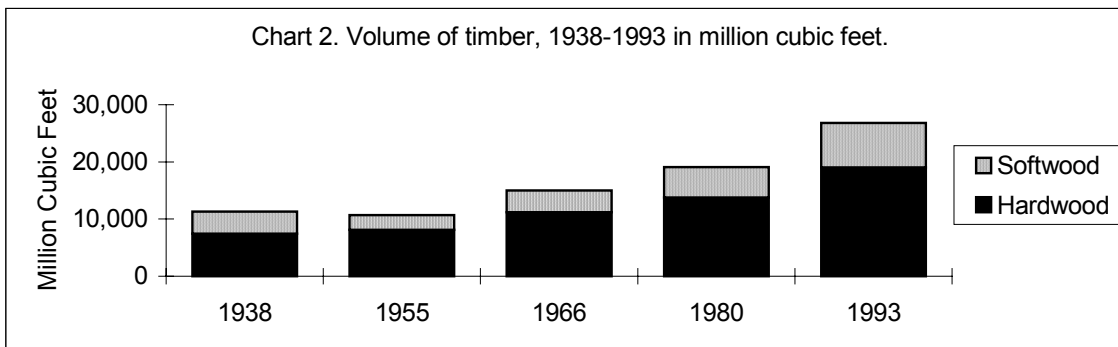
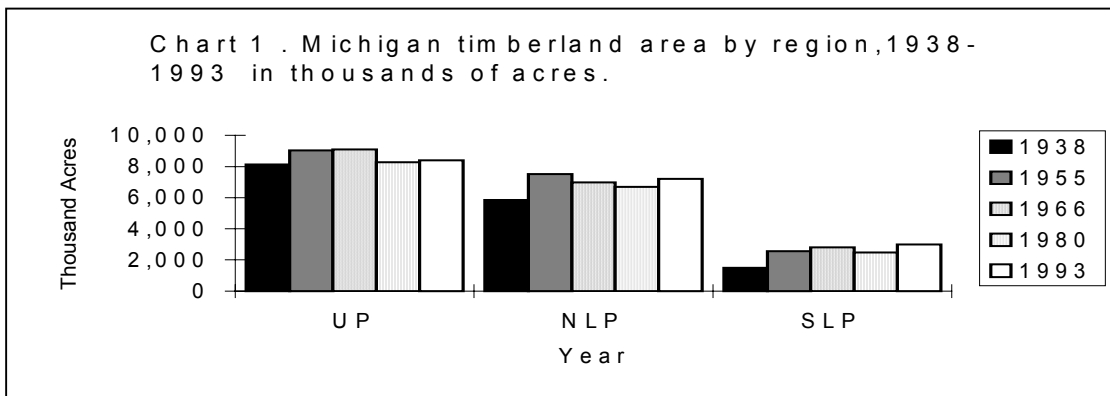
A final objection to government regulation is that it threatens property rights. People who own property are not allowed to use land in the way they think best—even if their actions harm no one else. Regulators tend to overregulate because they would rather be safe (and restrict property rights) than sorry (and have to hear complaints of environmental damage). Therefore, regulators tend to prohibit industrial development even when it will almost certainly cause no damages. Also, existing federal regulations on the environment protect everything in the forest from rivers and streams to endangered species. New state regulations would probably complicate timber harvesting and certainly raise the price of wood products for everyone.

If government regulation is expensive and arbitrary, what would work better? Many experts think that self-certification is the answer. Such a system is already under way using market forces to improve the timber industry. Michigan and seven other states have begun the Logger Education to Advance Professionalism program (LEAP) to teach timber producers how, where, and when to cut trees. Vermont was the first state to try this program and the results have been fantastic. Almost one-half of Vermont's loggers have completed the course and received certification. These graduates have been active in harvesting timber efficiently and with careful concern to water quality and other environmental concerns. The state forester in Vermont credits LEAP with reducing the number of water-quality violations in the state from the years 1989 to 1992.

LEAP was started in Michigan in March, 1994, to teach the best practices in cutting timber and protecting the environment. This program is supported by a wide range of groups in the state: Michigan State University, the Department of Natural Resources, the Michigan Association of Timbermen, and the Weyerhaeuser Corporation, among others. So far, 136 loggers have completed the LEAP program and received certificates.

If LEAP could be expanded and perfected, it might become the market mechanism to improve the timber industry without government intervention. Loggers in Michigan who took the LEAP program and passed a test could receive a special certificate. This certification would be a badge of expertise that would appeal to timber producers and let consumers know that state-of-the-art logging practices were being promoted in Michigan. Those consumers who needed logging done and knew little about it could get knowledgeable people to help by hiring certified loggers. Of course, loggers could still choose not to enroll in LEAP, but they might be at a disadvantage in competing for business. Certified and non-certified loggers would compete side by side.

The timber industry in Michigan has a long history of prospering under free enterprise. Michigan was the leading producer of lumber in the U.S. in the late 1800s. When the pine trees were harvested, the industry declined. One century later, timber production is flourishing again. We need safe and efficient logging in Michigan's forests; we need to protect the ecology of the forest and the environment of the state. We can do this in Michigan effectively and economically through the free market by allowing the timber industry to certify loggers.



## Introduction

Should the federal government regulate timber producers? Can timber producers resolve their problems by self regulation? These questions are being debated widely by forest managers and environmental groups across the nation.

In Michigan, the Ad Hoc Forest Practices Act Committee has met periodically since October, 1990, to discuss the issue of regulation. The question is what, if any, government control of timber harvesting is desirable to protect long term timber production and environmental values? While interested parties have opinions regarding what is most desirable, there has not yet been a scholarly analysis of the subject of government regulation versus self regulation of the timber industry.

The market for standing timber, i.e. stumpage, in Michigan has a few public sellers, a very few large private owners and producers, and many private non-industrial sellers, farmers and other private landowners. The asymmetries of information flows in this market, possible inefficiencies in transactions, and third-party effects need to be studied before we can conclude whether or not some kind of regulation is needed.

This report describes the Michigan timber market, surveys the literature on occupational licensing, and analyzes several existing models of timber harvester regulation.

## Timber Harvesting in Michigan

### ■ Supply Base

Michigan is more than half forestland<sup>1</sup>—18.6 million acres; and 51% of Michigan can be classified as commercial forestland, capable of producing a commercial timber crop (USFS 1994). Michigan is the state richest in timberland of the 21 Northern states (Powell et al. 1993) and only New York has more forestland. Michigan's timberland is extremely productive, carrying more timber volume than any other state in the region. It carries more than 10% of the timber volume in the North and 24% of the timber volume in the North Central region of Michigan, Wisconsin, Minnesota, Ohio, Illinois, and Indiana. Michigan's forest industry lands carry over half the North Central industry's timber volume.

There are 3.0 million acres of timberland in the southern Lower Peninsula (SLP) and 7.2 million acres in the northern Lower Peninsula (NLP). Timberland makes up 21% and 63%, respectively, of all the land in these regions. The eastern Upper Peninsula (EUP) has 3.8 million acres of timberland and the western Upper Peninsula (WUP) has 4.6 million acres. Because timberlands make up 77% of the eastern half and 84 percent of the western half of the UP, they exert an especially strong influence over the economy of this region.

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<sup>1</sup> Defined as land at least 16.7% stocked by forest trees of any size, or as land formerly having had such tree cover and not currently developed for nonforest use. Timberland, defined as forestland capable of producing a commercial timber crop, covers 51% of the state. Woodland, defined as forestland incapable

of producing commercially important trees because of poor site conditions, is 1.4% of the state, and forestland reserved for uses that preclude commercial timber harvest is 3.4% of the state.

During the past decade, timberland acreage has actually increased, reversing the trend of decline which took place from 1955 through 1980 (Potter-Witter 1994). The U.S. Forest Service 1993 preliminary inventory figure of 18.6 million acres of timberland is an increase of 6.6% since 1980. The largest increase—524,000 acres—has been in the SLP, with the NLP also showing an increase of 521,000 acres of timberland.

### ■ Ownership of Timber Supply

#### Private

Timberland ownership in Michigan is roughly two-thirds private and one-third public. The largest ownership class, non-industrial private and farms, contains 56% of the state's timberland. This class is composed of land held by the approximately 384,700 private owners who are not in the forest industry or who are farmers. Regionally, non-industrial private ownership is concentrated in the Lower Peninsula, where it is 61% of the timberland, while in the Upper Peninsula it accounts for 41% of timberland acreage. Farmers own 4% of Michigan's timberland, mostly in the Lower Peninsula.

Forest industry ownership is 8% of timberland and is mostly in the Upper Peninsula, where 18% of the timberland is in this ownership class. Mead Corporation and Champion International, the largest industrial owners, are located in the central and western Upper Peninsula, respectively. Forest industry and public ownership have a greater influence there than in the lower peninsula. The WUP is 35% public, 24% forest industry and 41% private non-industrial. The EUP is 46% public, 11% forest industry and 43% non-industrial private.

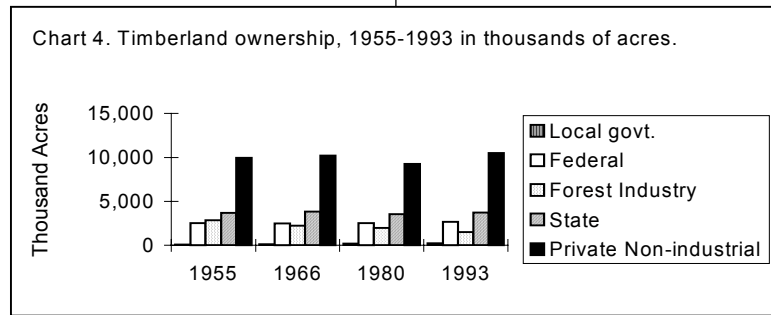
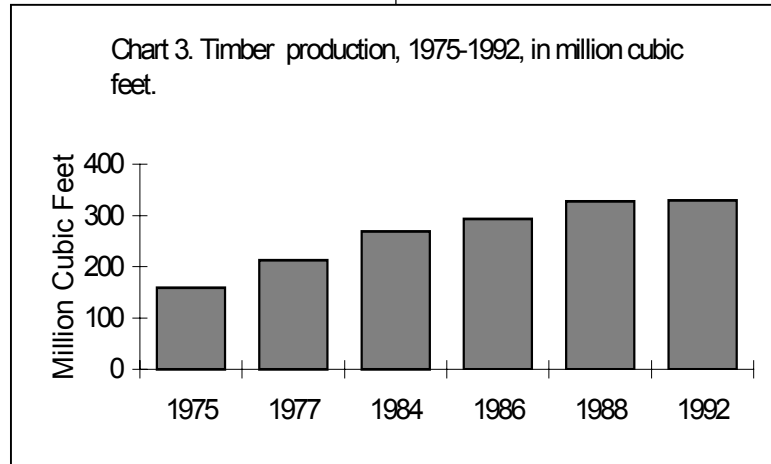
#### Public

Thirty-six percent of Michigan timberland is in public ownership. The state of Michigan is the major public timberland owner, with 20% of the timberland statewide, 19% of the Upper Peninsula timberland and 22% of the Lower Peninsula. This land is administered by the Forest Management and Wildlife Divisions of the Department of Natural Resources. The DNR administers the 3.9 million acre State Forest system, 3.6 million acres of which are timberland. The six state forests are in the Upper and northern Lower Peninsulas. Additionally, it administers 294,000 acres in State Game Areas, largely in the southern Lower Peninsula.

Federal lands, primarily managed by the U.S. Forest Service, are 14% of Michigan timberland. The 2.6 million acre National Forest System makes up the majority of this ownership. Two National Forests, the Ottawa and the Hiawatha are in the Upper Peninsula; the third, the Huron-Manistee National Forest, spans the northern Lower Peninsula.

### ■ Producer Base

Primary consumers of stumpage are the harvesters, truckers, and brokers. They may form small separate enterprises or large vertically integrated firms. Production of pulpwood sticks and



logs (roundwood) from stumpage (standing timber) is performed by timber harvesters who cut the timber. The roundwood is transported by truckers to the primary manufacturer. The timber brokers' primary function is to locate and purchase stumpage, and they may or may not also be the harvester of the sale. There are approximately 1000 timber producers—harvesters, truckers, and brokers—in Michigan. Half of Michigan's producers are in the Upper Peninsula, and most employ one to five people.

The Michigan Association of Timbermen (MAT) and The Timber Producers Association of Michigan and Wisconsin (TPA) provide some organization to the timber-producing sector. The objectives of MAT are to conduct programs that will reduce the operating costs and provide an assured timber supply for its members. MAT also administers a self-insuring fund, which is an unincorporated trust of MAT with its own Board of Trustees. It represents timber producers in policy issues (pers. commun. P. Grieves, Michigan Association of Timbermen, 1994).

The objectives of TPA are to:

- Promote the use of Lake States forest products by conducting programs designed to create and maintain public good will and understanding.
- Encourage wise management of all forestlands.
- Initiate, support, or oppose legislation in the best interests of the timber industry.
- Support, conduct and keep the members informed on research.
- Maintain relations with governmental agencies and regulatory units.
- Provide a medium for communications and serve as the center for collective action and exchange of information.
- Provide a medium for better understanding and develop mutual cooperation between various segments of the timber industry.
- Cooperate and affiliate with appropriate regional associations and national organizations (Timber Producer 1994).

TPA also administers a group health insurance program.

**Table 1**

**Industrial Roundwood Production, 1954-1992 in million cubic feet**

| Year | Hardwoods | Softwoods | Total* |
|------|-----------|-----------|--------|
| 1954 | 99        | 50        | 150    |
| 1965 | 131       | 43        | 175    |
| 1977 | 159       | 57        | 216    |
| 1984 | 218       | 65        | 283    |
| 1992 | 266       | 82        | 348    |

\*Rounded to the nearest whole number

**■ Timber Production, 1954-1990**

Michigan producers harvested 348 million cubic feet of timber in 1992—almost twice that for 1965 (Table 1). Fifty-four percent of the production was in the Upper Peninsula and 41 percent was in the northern Lower Peninsula. Michigan produces over two-thirds of its total timber volume as pulpwood—raw material for pulp and paper, wafer and particle board, and other products using reconstituted wood or wood fiber. In the southern Lower Peninsula, however, sawlog volume produced is twice that of pulpwood. Most of this volume is in high value species such as red and white oak, which are used by the furniture industry.



Harvest or production data by ownership classes are not available. Timber sale volume data, however, are only for federal and state lands. In the 1993 reporting year, timber sales from state lands were 40,944 MBF of sawtimber, 674,956 cords of pulpwood and 1563 MBF of bolts. Sales from Michigan's national forests were 263,000 MBF (personal communication K. Shalda, USDA Forest Service, Region 9 Office, Milwaukee, 1994).

Removals of timber from timberland do give an indication of harvest activity, although such removals may include clearing of trees not for timber production. Average annual removals over the period 1980 to 1993 were 266 million cubic feet per year from 1980 to 1993 (US Forest Service 1994). Non-industrial private lands are the location for over half of this activity (Table 2).

**Table 2**

**Percentage of Timber Removals by Ownership, 1980-1993**

| Ownership                      | Percentage of average annual removals |
|--------------------------------|---------------------------------------|
| Nonindustrial private and farm | 51                                    |
| State                          | 20                                    |
| National Forest                | 14                                    |
| Industrial                     | 14                                    |
| County and municipal           | 1                                     |

**■ Timber Sale and Harvesting Transactions**

**Non-industrial Private Sellers**

Non-industrial private and farmer timber sellers make few sales. Timber sales are not their primary activity or source of income, nor are they well informed regarding timber prices, timber markets, or harvesting processes. The average length of non-industrial private ownership ranges from 7-10 years. Sequential timber sales from a non-industrial timberland are, therefore, likely to be made by different owners. Most non-industrial private timber sales take place without professional or technical assistance, although it is available in several forms and from a variety of sources. Consulting foresters supply direct technical and professional services to landowners for a fee. Voluntary institutional structures such as the Michigan Forest Association, Tree Farm Association, National Woodland Owners Association, and others provide market and marketing information to their members. MSU Extension, the Michigan Department of Natural Resources Forest Management Division, USDA Soil Conservation Districts produce educational programs and provide (limited) technical assistance to non-industrial timber sellers.

**Industrial Sellers**

Industrial timber sellers make sales frequently and are well informed regarding market conditions and timber supply. Sales from industrial lands are controlled by contracts with buyers or producers. Timber selling is their primary occupation and is the primary source of income for the woodlands divisions of their corporations. Mead Corporation and Champion International dominate industrial timber ownership.

**Public Sellers**

Markets for public timber are well organized. The Department of Natural Resources and the USDA Forest Service specify the manner in which and under what conditions timber from state forests and national forests may be sold. Sales are conducted by written contract. Timber sales are the primary occupation for both buyers and sellers or their agents, and all have full information on the timber being traded.

**Buyers**

Buyers from non-industrial forests are employees of, or represent, primary wood products manufacturers and have extensive information on past, current, and future timber markets. They have knowledge and experience in judging timber quantity, quality, and value. Many purchases of non-industrial timber are not made on a competitive basis. Unless the land owner has sought

assistance or hired a consulting forester, sales from non-industrial private lands are likely to be made on the basis of a single bid from a single buyer. When buyers do bid for non-industrial sales, consulting forester records show that bids usually vary widely, sometimes by as much as 325%.

### **Consulting Foresters**

Consulting foresters are employed by the landowner or stumpage owner to administer timber sales. In addition to prescribing and measuring the quantity of timber to be harvested and sold, consultants solicit bids from buyers to gain the best possible price for the seller. Like industrial timber buyers, consulting foresters have excellent knowledge of timber markets. There is significant evidence that sellers get more money for their timber when they hire consultants.

## **Occupational Regulation**

### **■ Theories of Occupational Regulation**

Cries for government regulation in the “private interest” usually occur when there is a “market failure” due to natural monopolies, imperfect (asymmetrical) information, negative externalities (Horowitz 1980), barriers to market entry, or heterogeneous providers or services (Wolfson et al. 1980).

The perfectly competitive market model relies on willing buyers and willing sellers who have information regarding each other’s preferences and can communicate them. When one side of the transaction has less market information, for example because of lack of access, this is labeled *asymmetrical information*.

Externalities exist when a third party has an interest in the transaction. This often occurs in the case of environmental impacts, which are not counted in the transaction between producer and consumer.

Barriers to free market entry or exit may take the form of government regulation, which restricts who may enter into a certain business or extremely high capital investment requirements which dictate that only those with enough capital to cover the start-up costs may engage in a certain business.

The perfectly competitive market model also assumes that products and services that are labeled the same are homogenous. This, however, may not be the case where the quality can vary significantly.

### **The Public Interest**

Invoking the public interest has been a common argument for regulation (Rottenberg 1980, Wolfson 1980, Benham 1980, Shimberg 1982). As early as the fourteenth century, occupational guilds tried to restrict production and also entry into their occupations (Benham 1980). Pleas for restriction were made in the name of the public good or through a claim to specialized knowledge (Zhou 1993). Rarely do consumers of a service petition for occupational regulation, and rarely is the public interest specified. Instead, occupational regulation is proposed to protect consumers when they cannot obtain the information adequately to judge the quality of services sold to them.

It follows that the most extensively studied field is health care (Haug 1980, Graddy 1991), which contains more than half the regulated occupations. Physicians, registered nurses, licensed

practical nurses, physicians assistants, dentists, dental hygienists, and dental assistants have been the subject of many studies of occupational regulation. Medicine also had the first occupational regulation in the United States in Virginia in 1736, which distinguished between practitioners with and without degrees (Zhou 1993).

Most of the laws on occupational regulation have been advocated by current practitioners in the occupation or profession (Wolfson et al. 1980, Lowenberg and Tinnin 1992). In the case of licensing, the benefits to practitioners are clear—if they can restrict entry into their occupation, they can increase their profits. One hypothesis is that legislatures are lobbied effectively by strong supplier interest groups and pass legislation to restrict supply (Lowenberg and Tinnin 1992). A corollary is that supplier (occupational) interest groups are concentrated and focused, and therefore more effective than interest groups composed of consumers with diverse interests. Zhou (1993) found a positive correlation between the power and resources of an occupation and the likelihood that it would be licensed. A major factor is the success of the occupation in gaining public acceptance (“taken for grantedness”) of its claims to specific knowledge or its other rationalizations for the need for licensing.

Wolfson (1980) addresses the problem by proposing a formal definition of the public interest using four principles valued by Western societies: efficiency, fairness, practicability, and accountability. In addition, the public interest can be divided into first party (suppliers), second party (consumers), and third party interests (those affected by the first and second party transaction).

- **Efficiency** is defined here as static Pareto optimum efficiency, i.e. the state where no one can be made better off without someone else being made worse off. Signals between producers and consumers mean that buying and selling occurs at agreed upon prices.
- **Fairness** is substituted for the traditional policy criteria of equity by Wolfson et al. (1980) who define fairness procedurally. That is, a policy is fair if every party receives equal treatment from the policy process and each time the process is used it is with the same set of rules.
- **Practicability** is the ease of implementation of a policy (Wolfson et al. 1980). Policy administrators (whether governmental or private) must be able to understand, assess, and, if necessary, change the policy if problems result.
- **Accountability** is the final principle. Decision makers must be subject to withdrawal of support. Affected parties must have information and be able to represent their interests (Wolfson et al. 1980). Accountability to the public is one of the challenges of self regulation. It requires that instead of or in addition to being subject to peer review, members are judged by laypersons. This raises the question of the ability of consumers (laypersons) to judge the quality of the output or outcome (Haug 1980). One way to address this is through selection of lay reviewers, or monitoring members who have appropriate training.

### Market Failures Due to Asymmetrical Information

The case for government regulation in a market with asymmetrical information is well documented. Information is asymmetrical, for example, when consumers cannot adequately judge the quality of the product or service they are buying, yet producers can judge the demand for their product. This is the case, for example, when the costs for obtaining information are high for the consumer but not for the producer. The specific case of asymmetrical information exists when forest landowners, the consumers, cannot adequately judge the quality of the logging service that

they are buying, yet loggers (producers) can judge the demand for their service. When small landowners function as the producers of standing timber, they usually have inadequate information to place a fair market value on their timber, yet loggers and timber buyers are well informed regarding the market values of the forest products that they purchase.

If information were “perfectly” asymmetrical, where producers had complete information but consumers had none, market failure theory says that only the cheapest quality of a product or service would be produced and offered. In markets with information asymmetry, too little of high-quality goods will be produced in the case where producers (sellers) costs increases with quality (Leland 1979).

The obvious remedy for this particular market failure is to reduce or eliminate high information costs. Market failure due to asymmetrical information may also be addressed through means that do not restrict the number and quality of practitioners in the occupation but that make it possible for consumers to judge the quality of the service themselves.

Where information asymmetry is high and regulation would provide the information necessary to enable the consumer to make an evaluation of quality, the perceived value of regulation is high (Graddy 1991).

### **Externalities**

An effect upon a third party that is not taken into account, purposefully or accidentally, by either the producer or consumer of a good or service, is an externality. When either the consumer or producer or both take this effect into account, it is known as internalizing the externality. In the case of a negative externality, the unaccounted for effect is bad, and internalization will raise the production cost and/or consumers’ costs. For a positive externality, the unaccounted for effect is good. This might be the case, for example, of loggers who produce or protect aesthetic values above that called for by law and in their contracts. Because of this positive externality, they receive no additional income from the production of the benefit.

Much of the pressure for forest-practice regulation comes from third parties interested in externalities. Water quality effects, for example, especially downstream, are an externality from timber harvesting in the absence of water-quality regulation. In this case, producers who incur higher costs to follow practices that produce higher water quality have no way to benefit financially from these efforts. Third parties downstream have no means to force producers using lower quality practices to account for their costs of lower water quality. Aesthetic qualities of forests, appreciated by many but paid for by few, are argued to be underproduced, with regulation the remedy. Regulation is one approach to address third party interests, but it limits consumers’ choices and increases the costs to them. (Wolfson et al. 1980).

## **Structure of Occupational Regulation**

A particularly useful categorization of occupational regulation was developed by Wolfson et al. (1980). It distinguishes between regulation of outputs (forcing producers out of an occupation v. letting them stay in) and regulation of inputs (keeping producers out v. letting them in).

### **■ Output Regulation: Standard Setting and Enforcement**

Output regulation focuses on performance, regardless of how accomplished. An authority—whether government or a private agent—monitors the practitioners’ job performance. Entry to

practice would not be restricted, but exit could be forced for lack of compliance to standards (Wolfson et al. 1980).

### ■ Input Regulation: Certification

Certification (or reserved title) requires the additional input of training or education in the production process. Certified practitioners must receive training or education as determined by the certifying agent, which may be governmental or private. The value of certification, thus, depends upon the perceived prestige of the certifier by the consumers. Non-certified producers exist with certified producers and they compete with each other for business.

### ■ Input Regulation: Licensure

Licensure (exclusive right to practice) restricts production inputs such that only licensed providers can offer their services. Licensure can be provided by the government or delegated by it to another agent, either of which set the educational and experience requirements for practice. In either case, practicing without a license is proscribed by law.

## Administrative Structure

Certifying or licensing authority may rest with a government agency or with a private organization. In either case, review boards are characteristic of licensing or certifying bodies. Historically, boards have been composed of current practitioners, not consumers (Rottenberg 1980, Shimberg 1982). Shimberg identifies several models for structure of certification or licensing boards:

- 1) Fully autonomous boards (the most common model).
- 2) Autonomous boards assisted by central agencies for routine functions.
- 3) Essentially autonomous boards, with central agencies which have some authority for some licensing or certifying functions (the second most common model).
- 4) Boards subject to review by a central agency.
- 5) Boards that are advisory to a central (governmental) agency which has the licensing or certifying authority.

Appointments to government regulatory boards are usually made by governors (Haug 1980), and members of the profession are the majority of the board. This is the case, for example, with Michigan's forester registration. In self certification, usually authority is delegated to the board by enabling legislation. An alternative model would be for a national organization with considerable recognition and public trust, such as the American Forest and Paper Association (AF&PA) or the Forest Stewardship Council (FSC), to establish a review board and a certification process.

### ■ Requirements

Either general model of governmental or self certification incorporates standards for education, training, and experience and often involves passing an examination.

### ■ Examinations

Examinations that can predict quality job performance are almost impossible to design and administer. They may be too rigorous, being used simply as a means to restrict entry into an occupation, rather than to test applicants' fitness to practice. Also, examinations may measure

only how well a person can take the particular exam (Shimberg 1982). A notable case is the creation of a market in California for training in taking the contractors' exam. The training teaches applicants how to pass the exam, not how to do the actual contracting work (Maurizi 1980).

Generally, boards are given the responsibility and authority to construct licensing examinations. Board members are not usually chosen because they can write or grade tests, but because they belong to a particular occupation (Shimberg 1982). The tests may not be reliable and may not serve the public interest in regulating the occupation.

### ■ Education, Training, and Experience

In governmental regulation, either the enabling legislation specifies the required years of education, training, or experience or it specifies that the board will do so in its rule setting. In either case, many of the criticisms of the examination system apply here, too. In fact, it can be worse. Legislators do not really know how much education or training is needed to do the job well. Educational requirements simply may be determined through custom or what the majority of the current practitioners have attained (Shimberg 1982). The current practitioners, in fact, have incentives to demand excessive training and experience requirements through training-school tuition or extended apprenticeships (Hood 1991).

### ■ Consumer Choice

The argument that the public must be protected from low-quality services, which they are not able to judge, is the rationale for occupational licensing. Licensing is expected to offer this protection by eliminating the low quality (and usually low-cost) providers and thus raising average quality (Maurizi 1980). Elimination of low cost providers does restrict consumer choice to within the range circumscribed by licensing. Consumers who are not willing or not able to pay for the new higher average quality or higher lowest cost/lowest quality service are eliminated from the market. Others may substitute lower quality services, such as their own, or use services less frequently than they would when lower cost providers were available (Hood 1991). Licensing, therefore, does not necessarily improve the quality of service or product, or promote its safety (Rottenberg 1980)—and cases to the contrary have been studied (Hood 1991).

Occupational licensing restricts the supply of the services by limiting the number of practitioners. Other things being equal, this means more profits for occupational members. The other issue is that of reducing information costs to consumers by providing education, which addresses the issue of imperfect information of markets.

If producers are certified, then consumers can better learn the qualifications and training of the producers, without limiting their supply. If consumers are willing to pay more to certified producers they make higher profits (Leland 1989).

## Timber Producer Certification and Regulation in the US

### ■ American Forest and Paper Association (AF&PA) Logger Training

The American Forest and Paper Association (AF&PA) is proposing a program of logger training and monitoring (AF&PA 1994). This will coordinate with a program to promote the most rational policies of timber cutting, not only on the land of its members, but also on all forestlands.

Association membership would be contingent on training of 100% of company-employed loggers by January 1, 1996, and training of 100% of independent contractors by January 1, 1998. Monitoring and compliance would be implemented in several ways. Member companies would be required to file annual reports on how they complied with program requirements, including logger training. AF&PA would compile these reports annually and distribute them publicly. The annual report would be audited by a group of "forestry experts". Public comment on how members performed would be facilitated through the establishment of an 800 number in each state. State "forestry experts" would have the responsibility of responding to public concerns.

## ■ Maryland Logger Certification Program

Maryland provides an example of mandatory, governmental logger licensing. This regulation is part of a program to control nonpoint-source pollution under sections 208, 404, and 319 of the Federal Water Pollution Control Act (Hawks et al. 1993). Regulation was enacted in part to control nonpoint-source pollution in the Chesapeake Bay buffer area.

Timber harvesting requires permits at the local, county, and state levels. State regulation of harvesting includes requirements for a sediment and erosion control plan, subject to Soil Conservation Service approval, and an additional buffer management plan for harvesting near a stream. Enforcement is done by the Maryland Department of Environment.

Logger re-licensure is required every three years. Training in water quality and best management practices regulation is supplied by the Maryland Forest, Park and Wildlife Service. Approximately 750 foresters, loggers and landowners attended the sessions from 1984-1993. Enforcement of the licensure requirement, however, is lax.

Logger licensure, best management practices training, and enforcement by the Maryland Department of Environment were estimated to cost \$83,300 per year (Hawks et al. 1993). Total program cost, which includes service foresters, was \$586,300 in 1990. Annual timber harvest volumes range from 180 to 340 million board feet in the state.

## ■ Virginia Monitoring and Voluntary Compliance Program

The Department of Forestry (DOF) administers Virginia's water quality protection program. The voluntary program incorporates inspection of logging operations for best management practices (BMPs), education, water-quality monitoring, and a complaint-response system (Hawks et al. 1993). Inspection of harvests during and after logging are performed by county foresters who report their observations to the logger, landowner, and DOF.

The educational program on BMPs is for foresters as well as loggers. The DOF-Cooperative Extension Service sponsored program had attendance of more than 2,600 people in 1990-91. Monitoring of logging operations determined a use rate of 90% for BMPs as opposed to a 42% rate before the program. The water quality monitoring program allows Virginia to determine progress in meeting quality standards. To do this, the state established the baseline quality from 1978 through 1988 data, and now monitors current sedimentation and erosion rates.

Total cost of the 1990 program, which includes education, research and demonstration, technical assistance, and enforcement, was \$890,000 with harvests of 1.7 billion board feet of average annual harvest. Failure of loggers to file notification of harvests, non-compliance on "registered" jobs, and lack of immediate penalties for non-compliance make it difficult to estimate the actual success of the program.

## ■ Montana Logger Accreditation Program

The Montana Logging Association (MLA) began its accreditation program in the spring of 1994 (Ellingson 1994), graduating 75 loggers (Pers. commun, K. Olsen, Montana Logging Association, Kalispell, 1994). Directed by a steering committee composed of independent loggers, the two-phase program consists of stewardship training and monitoring. Phase one is five days of training in water quality, harvesting, and inventory for stewardship values provided by the Montana Extension Service. Phase two will be audits of logging operations by teams of landowners and natural resource professionals. Both phases are expected to be conducted yearly, with continuing accreditation contingent on continuing education requirements and a successful audit. MLA is currently establishing an independent board to hear disputes and to consider cases for accreditation removal when audits are unsatisfactory. Participation is not limited to MLA's 600 members.

The program arose over the past five years at the request of loggers who were being contacted to implement landowner's Stewardship Incentive Program plans. MLA members also perceived a need to define professional logging as it was being defined for them in unflattering terms (K. Olsen pers. commun. Montana Logging Association, Kalispell, 1994). Loggers requested training from the Montana Extension Service, which had been conducting the Stewardship training for landowners (Bob Logan pers. commun., Montana Cooperative Extension Service, Missoula, 1994). Stewardship training for landowners is tied to MLA accreditation since only landowners who passed Extension Service stewardship training may serve on the audit teams; and continuation of certification as stewardship advisors for landowners is dependent on their participation on at least one audit team per year. In this way MLA addressed the need to have trained lay people to do the monitoring. MLA will solicit recommendations and offers for continuing education from the Montana Extension Service and conservation organizations. Program costs are not yet available because phase two has not yet been implemented.

### ■ Michigan Logger Education to Advance Professionalism

The Logger Education to Advance Professionalism program (LEAP) is being conducted in Michigan and seven other states with the support of the USDA Extension Service, the USDA Forest Service, National Association of State Foresters, and forest industry. The program began five years ago as the University of Vermont—Extension System's "Silvicultural Education for Loggers Project". Almost half of Vermont's loggers have completed the course and received certificates of recognition and listing in a directory. Vermont's state forester credits the Silvicultural Education for Loggers Project with most of the decline in complaints for water-quality violations from 50 in 1989 to 22 in 1992 (McEvoy 1993). Foresters who evaluated graduates of the program also gave positive or very positive marks to the logger's performance.

LEAP was initiated in Michigan in March of 1994 "to increase the understanding of participants with respect to ecological principles applicable to forest types and associated wildlife in the region; increase participants' understanding of silvicultural prescriptions; identify problems and solutions in the application of silvicultural prescriptions and heighten awareness to practices that contribute to a poor image of logging and what can be done to prevent environmental degradation" (Koelling and Lantagne 1992). Support for the program comes from Michigan State University-Extension, the Michigan Department of Natural Resources, USDA Soil Conservation Service, Michigan Association of Timbermen, Timber Producers Association of Michigan and Wisconsin, Michigan Forest Resource Alliance, Champion International Corporation, Mead Publishing Paper Division, Menasha Corporation, Weyerhaeuser Company and Michigan Technological University. Representatives from these organizations compose the steering committee.



The program consists of two evening sessions and two all day field trips. Participants study forest ecology, emphasizing tree reproduction, establishment, and growth; silvicultural practices, such as thinning and clearcutting, and forest water quality, and the need to follow good logging practices. In its current pilot year, 136 loggers completed the LEAP program and received certificates (pers. commun. D. Lantagne, Michigan State University Extension, 1994). To date, there is no organized marketing of the certificate by loggers.

Program costs were \$45,000 for 1994, which included significant one-time costs. The 1995 program is expected to cost \$28,000. Currently, loggers pay no tuition.

■ **Certifying Sustainable Forest Products—“Green Certification”**

Market-driven certification for products produced from sustainable forests or with sustainable forest practices is receiving increasing attention. Wood-products firms which are considering green certification are anticipating demand, the extent of which is unknown. Demand for consumer products produced under sustainable conditions would create derived demand for certified timber producers, and thus, the need to certify production.

■ **Forest Stewardship Council**

The goal of the Forest Stewardship Council (FSC) is to establish principles and criteria for certifiers. The Council perceives the potential for a multitude of certifiers, creating confusion and uncertainty as to claims with consumers. The FSC met in Toronto in October 1993 to ratify a charter. One problem that the Forest Stewardship Council (FSC) is addressing is the potential confusion created if many agencies decide to certify timber producers. Principles and criteria include:

- ▶ Forest management operations shall respect all applicable laws of the country in which they occur and comply with all FSC principles and criteria.
- ▶ Long term tenures and use rights to the land and forest resources shall be clearly defined, documented, and legally established.
- ▶ The legal and/or customary rights of indigenous peoples to own, use, and manage their lands, territories and resources shall be recognized and respected.
- ▶ Forest management operations shall maintain or enhance the long-term social and economic well being of forest workers and local communities.
- ▶ Forest management operations shall encourage the optimal and efficient use of the forest’s multiple products and services, in order to ensure economic viability and a wide range of environmental, social and economic benefits.
- ▶ Forest management operations shall maintain the critical ecological functions of the forest and minimize adverse impacts on biological diversity, water resources, soils, nontimber resources, and unique and fragile ecosystems and landscapes.

**Table 3**  
**Methods Improvement Programs by Program Type**

| Goal of Program                                 | Number of States by Type of Program |                         |                         |                   |                      |          |
|---|-------------------------------------|-------------------------|-------------------------|-------------------|----------------------|----------|
|   | Educational<br>Regulatory           | Technical<br>Assistance | Voluntary<br>Guidelines | Tax<br>Incentives | Fiscal<br>Incentives | Programs |
| <b>Water Quality Protection</b>                 | 46                                  | 47                      | 34                      | 14                | 29                   | 26       |
| <b>Improvement of Timber Harvesting Methods</b> | 45                                  | 47                      | 27                      | 9                 | 13                   | 16       |

**Table 4**  
**Program Effectiveness Ratings**

| Goal of Program                                 | Rating of Program Type by State Managers* |                         |                         |                   |                      |          |
|---|---|-------------------------|-------------------------|-------------------|----------------------|----------|
|   | Educational<br>Regulatory                 | Technical<br>Assistance | Voluntary<br>Guidelines | Tax<br>Incentives | Fiscal<br>Incentives | Programs |
| <b>Water Quality Protection</b>                 | 3.30                                      | 2.32                    | 3.86                    | 4.02              | 3.15                 | 3.92     |
| <b>Improvement of Timber Harvesting Methods</b> | 3.04                                      | 2.42                    | 4.18                    | 3.42              | 3.36                 | 4.26     |

- ▶ A management plan consistent with the FSC principles and appropriate to the scale of operations shall be written, implemented, and kept up to date, clearly stating the objectives of management and the means of achieving them.
- ▶ Regular monitoring should be conducted that assesses the condition of the forest, yields of forest products, chain of custody, and management operations and their social and environmental impacts.
- ▶ Plantations should complement natural forests and reduce pressures on them.

- ▶ Certifying organizations must maintain rigorous, consistent, and independent evaluation procedures, which include peer-review process incorporating local or national views of the country in which the operation is located; input from governmental and non-governmental organizations involved in forest management; and legal, social, ecological, and economic perspectives (Synnott 1993).

■ **Scientific Certification Systems, Inc.**

Scientific Certification Systems, Inc., (SCS) is a private, “neutral scientific organization” which verifies claims of green producers. The organization is currently scoring the work of participating forest operations. One effort involves a producer supplying the building materials for the retailer Home Depot. Home Depot will market the certified product within store displays and information (Eisen et al. 1993).

Recognizing that sustainability is a goal not a state, SCS scores are based upon how well operators are trying to reach this goal. The top ten percent of operators whom SCS certifies receive the top designation of “state of the art” or “well managed”. SCS uses a set of three criteria—one relating to reforestation rates, one relating to impact of operations on ecosystem elements such as habitat and watershed, and one relating to social and economic benefits. A range of professionals compose an SCS evaluation team—foresters, wildlife biologists, hydrologists, sociologists, resource economists, and others.

The SCS wants market-driven certification to replace government regulation of forest practices. If this does not happen, we will have a more confusing array of labeled services.

■ **Effectiveness**

Much of the concern regarding the performance of loggers is directed toward forest practices in non-industrial private forests. Forty-seven states have some type of program aimed at non-industrial private landowners for improving timber harvesting methods and forty-six have programs for protecting water quality (Cheng and Ellefson 1993)<sup>2</sup>. While these programs may not directly target loggers, they are aimed at changing harvesting and related practices on these lands. Educational programs and technical assistance dominate state approaches to protecting water quality and improving timber harvesting (Table 3).

Program managers do not rate highly the effectiveness of government programs to protect water quality or improve timber harvesting (Table 4). Recognizing that these are managers’ opinions rather than controlled evaluations, these ratings still suggest state dissatisfaction with regulatory programs related to forest practices. Technical assistance received the highest ratings

from managers, followed by educational programs for timber-harvesting methods, and fiscal incentives for water quality protection.

<sup>2</sup> Cheng and Ellefson also studied programs to promote reforestation, protect forests from wildfires, insects and diseases, protect wildlife and rare and endangered species, and enhance recreation and aesthetic qualities.

### ■ Cost of Licensing

A problem with licensing occupations is that it restricts entry into the occupation. Consumers pay more for services; those who can't pay are forced out of the market. Consumers also bear opportunity costs through the limits to innovation that restricted entry imposes (Benham 1980). Applicants to practice bear costs of often unreasonable requirements for education, training, and experience.

While licensing boards' focus is screening entry, they usually do little to monitor and enforce standards (Shimberg 1982). This is expensive to do. Costs of licensing forest practitioners, loggers, and foresters in Michigan has been estimated at \$2-4 million: the majority of this cost would be in governmental personnel to inspect harvests and, to a lesser extent, other forest practices. The costs of regulating and administering forest practices ranged from \$767,000 in Alaska to \$4,635,000 in California in 1984 (Henly et al. 1988). Costs of private-sector compliance added an additional \$1 million in Alaska and \$52 million in California.

## Conclusions

Some politicians are advocating governmental regulation of Michigan's timber producers to protect the public interest. A review of government licensing of occupations, however, has revealed many problems. Licensing restricts the supply of practitioners, which raises costs for consumers. Also, licensing requirements often are arbitrary, self serving, and outdated. Administration and enforcement of licensing requirements is often lax.

For market failures due to a dearth of information, licensing is only one of various means that are available to serve the public. While some means of lowering information costs to consumers is warranted, licensing, and the accompanying restriction of the number of practitioners most likely harms the poorest consumers, who are the least able to seek out and receive information to judge the quality of a service (Hood 1991).

Licensing, or certification requirements, usually fail to protect the public interest because passing the regulatory test does not predict a good job performance. In addition, when the government requires licenses to perform a certain practice, they are expensive to administer, monitor and enforce, so much so that enforcement is often lax. Administrators of forestry agencies are rightly pessimistic about the feasibility of implementing governmental regulation given budgetary constraints of the states.

Self regulation of occupations through certification is not perfect, but with public participation it works much better than government regulation. Self regulation preserves consumer choice, and, when it incorporates consumer participation, it ensures that information about markets is widely spread. Public participation also reduces negative externalities. A well designed system of self regulation should include the following:

**Criteria** should be impartial, reasonable (Jacobs 1983), and related to the job (Shimberg 1982). Criteria that are arbitrary or only customary should be eliminated.

**Requirements for training, education, and experience** should be developed based upon the best available knowledge of their relationship to performance. “Educational requirements need to be carefully scrutinized to determine whether they are related to safe practice and whether they serve a useful social purpose” (Shimberg 1982). Those people who do well on an appropriate forestry exam can be certified even though they do not have much formal education.

**Examinations** must be related to job performance, and test skills or knowledge that are related to the desired performance of the service (Shimberg 1982). Experts on forestry should evaluate the questions for their clarity and relevance to the subject.

**Procedures** must be fair, and all applicants should receive due process (Jacobs 1983, 1981). After all, the results of licensing, or certification, affect applicants, practitioners, and consumers. The process of establishing criteria for certification should be open, with reasonable opportunities for practitioner and consumer participation (Jacobs 1983). If an examination is given, the passing score should be determined based upon an analysis of the minimum necessary for satisfactory practice. All examinations must be graded fairly and accurately (Shimberg 1983). Notification of denial of certification must be made in writing, specifying the procedures for appeal. A process for monitoring and review of rules and appeal of decisions must be established (Shimberg 1983).

**Public support** for the regulatory mechanism is necessary. Consumers must be able to trust the validity of a license, or certificate, and the authority of the body issuing it. Public participation is required where accounting for third-party interests is one of the driving forces for regulation.

**Governmental support** must be strong. Self-regulatory programs should not unreasonably restrict trade and may need governmental sanctions and guidance to avoid antitrust violations (Jacobs 1983, Jacobs 1981). Language contained in enabling legislation might be necessary.

**Review Boards** should be composed of both practitioners and consumers who have received training that relates to performance and the desired outcome. Participation should not be limited to members of the self-regulating association nor to members of the occupation who stand to gain from elimination of competition (Jacobs 1983).

**Public and consumer complaints and comments** should be handled systematically. The process for contacting the review or monitoring board should be clear and publicized.

**Periodic reexamination or reassessment** is necessary. Continuing education may not be sufficient to ensure that performance standards continue to be met. A self certification program could be less costly than government administered and monitored programs and would not incur implementation costs of a new bureaucratic system. A system modeled after the Montana Logging Association and, to a lesser extent, the Virginia DOF-Cooperative Extension Service deserve serious consideration for adoption in Michigan.

Michigan is in the fortunate position of being able to take advantage of existing programs which meet the criteria for components of a self-regulatory system. Education and training in silviculture to improve harvesting performance is in place through the Forest Stewardship Program and its logger education program, LEAP, and public education program, Volunteer Master Woodland Manager. The Michigan Association of Timbermen gives structure to the timber-producing sector, greatly facilitating producer participation in an organized certification program. MAT also would be valuable in providing members for a certification-review board. Review-board members who would represent landowner interests, e.g. Michigan Forest Association, and third party interests, e.g. the Sierra Club, Michigan United Conservation Clubs and others, have an established working relationship with MAT through the Forest Practices Act Committee and other policy activities. Although these components provide a starting point for a self-certification program in Michigan, its success would depend upon the cooperation of non-industrial private timberland owners, timber producers, the forest products industry and third parties in the design of program criteria and structure. This design would necessarily include a strong monitoring component with means to report results to interested parties, and means for these parties to voice concerns over practices of certified producers.

A starting point in the establishment of standards is best management practices (BMPs) for water quality. These are currently voluntary but could be made mandatory for certified producers.

Since demand for timber is derived demand, we need to inform those who buy timber and forest products about certification. That way they can vote in the marketplace for products from certified-timber producers.

## About the Author

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