

7. Linking Forest Management to Water Quality

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Forests dominate our rural, suburban, and even our urban landscapes. People value forests for the diverse benefits they provide. These benefits range from the immediate pleasure of cutting your own firewood for exercise or providing habitat to enhance wildlife viewing. They also extend to the less obvious advantages of helping to maintain clear, clean water and a vibrant segment of the economy through the forest industry.

Most benefits are mutually compatible. Indeed, many people benefit from water, air, and wildlife provided by forests without being aware of the presence of the forests themselves. A driving objective for managing both healthy forests and thus maintaining a healthy water supply is to ensure that the ecological and economic benefits of forests are sustained. Forestry practices are low on the list of water quality threats, and we all benefit by retaining this low negative impact.

How then can land managers and community leaders work with forest stakeholders to retain these valued qualities? Good forest management is a key for water quality and ensuring sustainability of New York's forests. By understanding forestry differences among the New York Forest Owners Association (NYFOA) chapters, the variety of forestry stakeholders and their issues, and considering some solutions we gain a start on ensuring the positive role of forestry in water quality. We hope this will provide a context to understand forest and watershed management issues and thus will spark awareness and dialogue.

Regional Forests in a Statewide Context

We know that forests are a dominant landscape feature statewide, so it's worth assessing their role in the context of NYFOA chapters. The chapters are county-based, but most relate to a distinct population center and/or watershed. NYFOA members can use this information to help in building local awareness for the need of forestry. At least four issues link forests to regional watershed: their economic contribution; what's required for good forest management; the forest stakeholders and their issues, and solutions to help ensure the harmony between healthy managed forests and high water quality.

Forests as a Key Landscape Feature

Although New York is a forested state, to what extent are these forests distributed across the state? We know that forests provide more than economic benefits, but those benefits are most easily quantified to characterize a region and the importance of its forests. NYFOA chapters cover NY, and 7 of the 10 chapter districts with data are dominated by forests



(Table 1). Forest industry payroll in these chapters average more than \$100,000,000. This payroll is spread among an average of 230+ forest industries per chapter, but the actual numbers range from less than 50 in the Southern Finger Lakes chapter to more than 1000 in the Lower Hudson/NYC region. Farms are equally important to NY, and woodlots are quite common to farms in all but one chapter. Statewide more than 60% of farms have a woodlot and those woodlots average 20% of the farm acreage. Maple syrup producers each year sell more than \$5 million of syrup and related products. Although more difficult to value, consider also the value of the clear, clean water provided by well-managed forests. Everyone who reads this article will, sometime today, use water that originated within a forested watershed. Clearly, forests are ecologically and economically important to the region. We can't ignore what forests offer to the state nor their connection to water quality.

What is Forest Management?

Many different images come to mind when you think of forest management. Often people think of timber harvesting, but this is a tool within forest management. Forest management is a process to manipulate a forest to achieve some desired and explicit end goal. Planting trees, making trails, enhancing wildlife habitat, and cutting trees are examples of active manipulations, whereas passive management lets nature take its course.

A foundation of good forest management is the need to match the management activity with a landowner's objectives. This same rule applies whether the land is owned publicly or privately. Thus, the first step of forest management is for landowners to explicitly state what they hope to achieve and receive from their forested property. For private landowners, the management goals will typically reflect what people like about their

property and why they retain it rather than selling it. Overlaid on our decisions for action or inaction is the reality that forests are dynamic; actions are limited in duration and doing nothing will still result in changes through time. Therefore deliberate inactivity is a reasonable part of forest management if the objective is to achieve or maintain a late successional forest.

Forestry affects water quality through soil disturbances that allow water and soil mixtures to pass unfiltered from forests into streams and ponds. Forestry also affects water quality and

Good forest management in watersheds provides cities and towns with clean water.



quantity by changing the number, vigor, and arrangement of trees on each acre. Forestry practices can be applied to reduce or eliminate the passage of soil into streams and ponds and appropriate practices will maintain healthy, vigorous and productive forests that stabilize ecologic and economic functions of watersheds.

Forestry Stakeholders - Issues and Solutions

Every citizen of New York is a stakeholder of the forest. Everyone benefits from the aesthetic qualities of forested hillsides, clean water from streams that originated in woodlands, and from viewing wildlife that use young or old forests as habitat. However it is more practical to identify specific groups that we need to work with and we can generally group most New York citizens into one of three key stakeholder groups.

Thinking back to our original question of how to sustain healthy forests, let's focus our attention here on issues of these stakeholders. These are neither comprehensive lists of issues nor are all issues relevant or of equal importance to all stakeholders. Once recognizing some of the stakeholder issues, we can address the actions to take locally and statewide to resolve the pressing issues.

Private forest landowners

Private forest landowners are many and varied. Statewide, approximately half own less than 10 acres of forest land, and as such have different needs and concerns than forest owners with 50 or 500 acre parcels. The issues confronting landowners though, irrespective of property size, often come down to (1) tax rates on lands that benefits both owners and local communities; (2) willingness and ability to take action; (3) education to make informed decisions; (4) costs to implement non-commercial management activities; (5) landowner liability; and (6) finding a qualified professional to assist with management. These are issues because they either reduce the ability of a landowner to bear the cost of ownership or they reduce the owner's satisfaction in being a forest landowner. Either way, if barriers result in parcelization or changes in land use, the consequence can be reduced water quality or the capacity of the land to provide high quality water.

At least four strategies provide solutions to some or all of these issues. One powerful strategy is the use of educational programs to increase awareness of opportunities and the potential for changed behavior. We use education through numerous venues with various partners, from fact sheets and publications to web pages and satellite videoconferencing. Two more strategies are tax or cost-share incentives. Although the availability of these incentives are determined at

the government level, landowners benefit by knowing when and how to make use of this incentive. Cost-share incentives are intended to enhance a stewardship attitude among landowners and may result in additional management practices. Finally, conservation easements through various organizations and agencies provide a tool to help landowners ensure the stability of their property and/or receive assistance in the cost of ownership.

Loggers, foresters, and the forest industry

It's easy to lump this group together since they have many common interests. However, they could (likely should) be considered as separate stakeholder groups because they often view issues from different perspectives. However, they quite commonly share a role in working with landowners to ensure the availability of forest products. Issues they often confront include: (1) professional credentials, (2) public acceptance, (3) market share, (4) supply and demand, (5) client stability, and, of course, (6) the bottom line, profit. These are issues because they increase the costs of doing business or they impede the delivery of quality service. This group of stakeholders is not unique in that they seek ways to reduce their operating costs. However they have, to their credit, generally recognized their social license to work with landowners as stewards of the forest resources we all cherish.



The cooperation of stakeholders is vital to the management of water quality.

A number of strategies are available for resolving these issues. Education is one used throughout the forest industry. From the “Trained Logger Certification (TLC)” program, to continuing education of foresters, to business management short courses, the forest industry group is engaged in efforts to sustain the resource while they improve their business, production, and safety capacity. Other strategies include: public awareness and outreach; looking for and developing innovative markets and marketing skills; certification, licensing, and registration; maintaining and enhancing customer satisfaction; support for local, state, and federal efforts to provide a favorable business climate; and seeking a production efficiency and fiscal prudence. These strategies are not unique to the forestry private sector as they seek to refine the way service providers respond to client concerns and needs.

Citizens, local communities, and local government

Citizens and local communities are understandably interested in the way forests are managed, and how management influences water quality. Several other issues related to forest management are of concern, including: (1) scenic vistas, (2) business retention, (3) highway safety and maintenance, (4) biodiversity, and (5) open space. While these stakeholders may neither own forest land nor be a participant in the industry, they sometimes work through their local governments to influence the way private forest lands are managed. Occasionally the symptoms of other land management practices (e.g., land clearing for development) have negative affects on water quality and are associated with forest management because trees are cut. Sometimes a tendency is to the proposed solutions to forestry issues that don’t appropriately match the actual problem. This mistaken association drains energy and can be divisive to a community.

Citizens and local communities are vested in the management of their local forests as this influences their quality of life. If inclined to try and influence local forest management practices, several strategies will help. First, work with the forest industry and local forest landowners rather than creating an adversarial situation. Let all involved spend time building a trusting relationship that allows each to understand the positions of others. Don’t assume that a problem exists without data to support such a position. Seek the facts of the situation and attempt to separate those facts from value judgments and personal attitudes. Second, focus on the issue of concern and keep focused on the common values you share with others. Seek win-win solutions where all parties are vested rather than pursuing confrontational and legislated actions. Properly applied, forestry can be compatible with the overwhelming majority of citizen and community objectives. Several specific strategies to address citizen and community issues include: education, tax incentives, business retention and expansion, land-use planning, conservation easements, land purchase, “Right to Practice” legislation, and zoning. Finally, the easy and quick solution may not be the best solution.

Summary

Forests dominate the state as a whole and the majority of NYFOA chapters. Forest management, depending on how it is conducted, can impact water quality and watershed protection in both positive and negative ways. The first step in forest management is increased awareness of the importance of this resource and the need to manage it properly. Hundreds of thousands of people representing dozens of stakeholder groups are vested directly in the long-term sustainability of forests, forest management, and thus water quality. Stakeholders bring their own experiences and issues to discussions of forestry, and several strategies are useful in addressing each issue. A

strategy common to all stakeholders and most issues is the use of focused educational programs targeting specific audiences that seek to increase

awareness and effect changes in behavior towards current technologies and management practices.

Table 1. Summary forestry statistics within NYFOA chapters.

NYFOA Chapters	All Classes (thousands of acres)	Forest Land (%)	Forest Land (thousands of acres)	Saw Timber (thousands of acres)	Productive Forest Land (Very Good plus Good: 1000's of acres)	Forest Industry Mid-March Employees (1998)	Forest Industry Total Annual Pay (\$1,000)	Forest Industry Establishments	Estimated Maple Syrup Value / County	Number of Farms	Farms w/ Woodland	% of Farms w/ Woodland	% of Farm Acreage that is Woodland
Allegheny Foothills	2177.6	61%	1334.4	590.5	136.5	3560.0	\$19,149	107.0	\$643,306	3,227	2,273	72.5	26.4
Capital District	2364.3	59%	1440.1	757.7	169.4	3403.0	\$34,508	104.0	\$610,546	2,774	1,781	63.5	20.6
Central New York	3209.1	60%	2010.5	895.4	317.2	6262.0	\$101,836	145.0	\$492,718	4,256	2,909	67.9	18.5
Lower Hudson	3878.4	32%	2090.0	1058.6	275.8	27287.0	\$675,987	1277	\$64,580	2,723	1,152	24.7	12.9
Northern Adirondack	6209.1	74%	4669.6	1789.1	1072.6	5670.0	\$50,696	160.0	n.d.	4,063	2,980	72.7	29.8
Niagara Frontier	1382.8	38%	545.3	246.4	125.4	5027.0	\$98,594	154.0	\$628,593	2,362	1,463	61.7	13.4
SE Adirondack	3029.7	79%	2512.4	834.7	202.3	4890.0	\$90,153	112.0	\$289,077	1,457	1,013	62.1	32.7
Southern Finger Lakes	1108.3	60%	655.6	298.4	140.6	1097.0	\$0	41.0	\$94,457	1,575	1,116	70.4	23.8
Southern Tier	2912.2	60%	1811.1	1047.4	238.6	2133.0	\$7,237	92.0	\$688,499	3,346	2,548	75.9	26.4
Western Finger Lakes	3951.7	38%	1572.6	703.3	245.5	5345.0	\$22,465	149.0	\$176,291	5,974	3,900	63.1	11.9
NYFOA Chapter Averages	3022.3		1864.2	822.2	292.4	6467.4	\$110,063	234.1	\$409,785	2,887	1,921	63.9	20.8
New York State Totals	30223.2	--	18641.6	8191.5	2923.9	6467.0	\$1.1 mil	2341	\$3.7 mil	37,770	25,250	--	--

Data for Table 1 from:

- *Alerich, C. L. and D. A. Drake.* 1995. Forest Statistics for New York: 1980 and 1993. USDA Forest Service. Resource Bulletin NE-132.
- *Canham, H. O. and K. S. King.* 1998. Just the Facts: An Overview of New York's Wood-Based Economy and Forest Resource. Empire States Forest Products Assoc. and NY Center for Forestry Research and Development. SUNY – ESF, Syracuse, NY 13210.
- <http://www.nass.usda.gov/census>