



Possibilities for Collaboration in the Saco River Watershed: An Assessment



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Abstract

The Saco River watershed, spanning two states and more than 23 municipalities, is home to a complex political and social fabric. A range of governments, economies, and activities exist in different sections of the watershed. To explore the possibilities for creating a Saco River watershed collaborative, this nonpartisan, independent assessment of current values, aspirations, and issues in the watershed and perceptions of collaboration was conducted. It is intended to inform and advise anyone living and/or working in the Saco River watershed who aspires to greater collaboration. It is also intended to provide insights to the existing Saco Watershed Collaborative that has taken shape over the same time period as this project. The research team utilized three methods in this assessment: a literature review of elements of successful collaboration in natural resource management, semi-structured interviews with 52 individuals representing 30 organizations in the watershed, and case profiles of nine existing watershed collaboratives in New England and elsewhere that face analogous issues or arose in similar contexts.

When asked what they valued most about the Saco River watershed, interviewees cited recreation, clean water, biophysical attributes, aesthetic qualities, and the water's use for drinking and irrigation. Interviewees held many aspirations for the watershed. These included a future where the unique ecology and high quality water are protected, particularly via better land management practices, more land conservation, recreation that does not degrade the river, and more coordinated and credible science to inform decision makers. Shared values and aspirations can provide a foundation for collaboration. Interviewees mentioned a wide array of issues related to the Saco River watershed, including recreation, development, dams and fish passage, and water extraction.

Given the wide range of issues, a collaborative should prioritize which issues it seeks to address, in addition to engaging with individuals and organizations that have differing jurisdiction over and capacities to address these issues. Though interviewees expressed a clear interest in creating a collaborative organization to improve communication and coordination between individuals and organizations, they had an array of ideas about what purpose(s) such an organization might serve. These included bolstering networking and information sharing; influencing the behavior of others through education, advising governments, and advocacy; and enabling watershed-scale management by integrating an ecosystem perspective into decision making. A collaborative should discuss these varying ideas about potential roles and decide which purpose(s) to adopt. Finally, while most interviewees have not given much prior thought to a collaborative's potential structure, interviewees wanted any process that might be established to be credible and transparent in order to ensure trust that the collaborative would fairly attend to their interests and the watershed's well-being.

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INTRODUCTION

Chapter 1. Introduction

At first glance, the Saco River watershed appears to perfectly embody rural New England’s quiet, idyllic beauty. Stretching from New Hampshire’s White Mountains to coastal Maine, the watershed (Figure 1.1) is home to visually stunning and ecologically diverse landscapes, including large swaths of hardwood forest and tidal marsh. It boasts clean and abundant ground and surface water, which supports a wide variety of wildlife and multiple human uses, like drinking water, recreation, and hydropower. Further, it has small town New England charm in spades. With major development contained to two small cities near the river’s mouth, the watershed is dotted with small, scenic towns that are reliant on timber, agriculture, and seasonal influxes of vacationers.



Figure 1.1 The Saco River watershed.

But beneath the surface, the Saco is grappling with complex resource management issues that threaten to change the face of the watershed. Private water extraction – nationally, one of the most hotly debated environmental topics – has embroiled many of the watershed’s residents in bitter debates over who should have access to public water, at what cost, and to whose benefit. Additionally, although the Saco has long been valued for its abundance of recreational opportunities and associated income-generating opportunities for residents, its popularity with tourists and recreators is increasingly resulting in adverse environmental and social impacts. Moreover, while the Saco has long supported multiple hydroelectric dams, debates over the impacts of dams on fish populations has intensified in recent years as calls to restore native fish populations have escalated.

Further complicating these and other issues are the scale of the watershed itself, which spans two states and 1,700 square miles, and the complicated, often overlapping network of federal, state, and municipal governments with jurisdiction over the watershed and its resources.

Informal discussions have been occurring for several years about ways to address these challenges by enhancing communication and collaboration among communities, landowners, NGOs, businesses, and government agencies in the watershed. The purpose of this report is to provide the people living and working in the Saco River watershed with information and recommendations that can help guide the formation of a collaborative watershed organization.

The research team conducted a literature review, interviews, situation assessment, and case profiles from January 2017 through December 2017 to develop the findings and recommendations discussed in this report. Our objective in conducting this assessment was to provide a framework and considerations for all individuals, organizations, agencies, and communities in the watershed who aspire to greater collaboration.

Project Impetus

Discussions about the creation of a collaborative organization in the Saco River watershed were catalyzed by the creation of a stewardship network in the Saco River Estuary in 2010. Jointly facilitated by Wells National Estuarine Research Reserve (NERR) and the University of New England (UNE) from 2010-2015, the network engaged municipal, state, and federal government agencies, businesses, community groups, and nonprofit organizations in comprehensively assessing water quality, habitat, and biodiversity in the estuary and identified actions that could be adopted to maintain the estuary's health (Feurt & Morgan, 2015). Given its success in fostering collaborative problem-solving in the Saco River Estuary, Wells NERR was encouraged by several network members to expand its efforts by bringing together groups in the broader watershed to engage in preliminary discussions about collaborative watershed management.

Wells NERR is part of a national network of 29 estuarine research reserves that represent a partnership authorized under the Coastal Zone Management Act of 1972 between the National Oceanic and Atmospheric Administration (NOAA) and coastal states to study and protect estuarine systems (NOAA OCM, 2017). Located in Wells, Maine, Wells NERR was designated as a reserve in 1984 and it encompasses 2,250 acres of wetland, upland, and beach habitat (NOAA OCM, 2017). Its mission is to "expand knowledge about coasts and estuaries, engage people in environmental learning, and involve communities in conserving natural resources, all with a goal of protecting and restoring coastal ecosystems around the Gulf of Maine" (Wells Reserve, 2017). Given this mission, Wells has a core interest in engaging the local community in the stewardship and protection of both the Saco River Estuary and the broader ecosystem within which it resides.

Dr. Christine Feurt, Wells NERR's Coastal Training Program Director, first convened individuals living and working in the watershed at the 2014 Saco River Conference, where those attending agreed on the need for a

collaborative watershed organization. In December 2016, Dr. Feurt and Wells NERR facilitated a workshop with 62 individuals representing an array of organizations and geographies to continue these discussions and to poll parties on their goals and vision for the watershed. Parties in attendance indicated an interest in proceeding with the development of a Saco River collaborative organization.

To further explore possibilities surrounding the creation of a Saco River watershed collaborative, Dr. Feurt and Wells NERR proposed a Master's Project that might be undertaken by students at the University of Michigan's School for Environment and Sustainability (SEAS). Master's projects are the "capstone" requirement for Master's degree students at SEAS. They are 18-month, interdisciplinary projects that result in a professional report for a client and they may be initiated by a student, professor, or client organization. In lieu of a traditional research thesis, SEAS Master's students choose to complete a Master's Project to gain integrative, team-focused experience addressing a real-world environmental or sustainability challenge.

In this case, Dr. Feurt and Wells NERR proposed that a team of graduate students conduct a situation assessment of the Saco River watershed and develop a set of recommendations for consideration in the development of a watershed collaborative. This research team of four graduate students, representing an array of academic and professional interests and specializations, selected the project in January 2017 and engaged Dr. Julia Wondolleck as the Project Advisor. Dr. Wondolleck is a professor at SEAS and an expert on collaboration in natural resource management. She has advised similar capstone projects focused on collaborative planning and watershed management.

This project was conceived to deliver a nonpartisan assessment of current issues, activities, and aspirations for the Saco River watershed to all its residents and was independently funded by the University of Michigan. This independent research lens and funding became increasingly important following the formation of an informal Saco Watershed Collaborative in January 2017.

This "existing collaborative" is being facilitated by Dr. Feurt and the University of New England, where Dr. Feurt is a lecturer and the Director of the Center for Sustainable Communities (in addition to her role at Wells NERR). Since January 2017, it has assembled a Steering Committee, led multiple field trips in the watershed, and drafted an Action Plan and

Action Strategies detailing its vision and mission.

Although the existing collaborative includes many of the same individuals who attended the December 2016 workshop, its funding sources have generated controversy among some organizations in the watershed. In 2017, it was funded by Poland Spring Brand Water (a subsidiary of Nestlé Waters North America, Inc.) and the Maine Water Company (a subsidiary of Connecticut Water Service), both of which are private companies engaged in water extraction in the Saco River watershed (for private and public use and consumption). Because private water extraction is a key point of contention for many in the Saco, some parties are distrustful of the existing collaborative because of its corporate funding. They question the funders' roles in the collaborative's decision-making and its ability to fairly address the issues facing the watershed.

Some of the findings in this report directly pertain to this existing collaborative, however, many are more general. Overall, this report is geared toward the watershed and all its residents and it is this project team's hope that it will serve as a useful tool for anyone interested in considering a collaborative approach to pursuing sustainability in the Saco River watershed.

Project Objectives

The primary goal of the Master's Project was to conduct research that could inform the establishment of a collaborative watershed organization for the Saco River watershed. This "situation assessment" was informed by a literature review on collaborative processes, followed by interviews with parties living and working in the watershed to better understand their values and aspirations about the watershed and perceptions of issues facing it.

The project's four key objectives were to:

1. Identify the major issues confronting the watershed and their roots.
2. Identify the individuals and organizations working and living in the watershed with an interest or stake in the watershed and who may consider participating in a collaborative.
3. Determine individuals' and organizations' values and visions of the watershed, perspectives of issues, and level of interest in

- participating in a collaborative.
4. Examine other watershed-based collaborative processes to assess transferable lessons that might apply to a Saco River watershed collaborative.

Methods

To conduct a situation assessment and ultimately develop a set of recommendations, the project team conducted three main activities over the course of the project: a literature review; interviews with individuals and organizations in the watershed; and case profiles of watershed collaboratives facing analogous issues or similar contexts in the region.

A. Literature Review

Before trying to understand what might enable successful collaboration in the Saco River watershed, the project team first sought to understand the qualities of successful collaboration, both generally in a natural resource management context and specifically in a watershed management context. Specifically, the team wanted to ascertain:

- Why do people collaborate?
- What motivates engagement in a collaborative process?
- How, by whom, and under what conditions are successful collaboratives initiated?
- What are the key elements needed for a successful process?
- What are the challenges that people commonly face in initiating a collaborative process?

To answer these questions, the research team consulted multiple sources of information. First, the team drew upon prior SEAS coursework in Environmental Policy, Politics, and Organizations, Natural Resource Conflict Management, Negotiation, and Mediation Skills. This coursework gave the team a baseline understanding of collaboration in natural resource management and of the factors that enable their success. Second, the team consulted literature by experts in collaborative processes, with special attention to collaborative processes in the management of watersheds and water resources. Finally, the team referred to Dr. Wondolleck for information and guidance on collaboration, meeting with her to build out a framework for understanding collaborative processes that could be applied to understand motivations for collaboration in the Saco.

B. Interviews

To address the project's first three key objectives, the research team conducted in-person and phone interviews with 52 people representing 30 unique organizations in the Saco River watershed from May 2017 – August 2017 (Appendix A). With assistance from Dr. Wondolleck, the research team developed an interview protocol (Appendix B) with questions that fell broadly into three categories:

1. Interviewees' backgrounds, values about the watershed, aspirations for the watershed's future, and perceptions of issues facing the watershed
2. Interviewees' interests in and goals for greater collaboration within the watershed
3. Interviewees' preferences for the structure of a potential collaborative

The interview protocol was designed to take approximately one hour and was approved by the University of Michigan's Institutional Review Board in May 2017. Dr. Feurt provided the research team with an initial list of potential interviewees, who were attendees at the Saco Watershed Collaborative Workshop held at Wells NERR on December 2, 2016. From this list, the team conducted snowball sampling, asking interviewees to identify other individuals and organizations living and working within the watershed who should be interviewed. Interviews were conducted with individuals representing an array of backgrounds, organizations, and geographies within the watershed, including federal, state, regional, and local government, academic institutions, national and local nonprofit organizations, and industry/business.

The research team conducted in-person interviews with 22 individuals during a weeklong visit to the Saco River watershed in May 2017. Two team members conducted each interview. During this time, the team was also able to visit sections of the watershed. The remaining interviews were conducted by phone from May-August 2017. All interviews were recorded with the interviewees' consent. Recordings were used to create transcripts of all conversations and interview transcripts were then coded using NVivo software to highlight common themes and responses to interview questions.

C. Case Profiles

To assess lessons from the experience of other watershed collaboratives that might be applicable to a Saco River watershed collaborative, the research

team examined nine collaboratives. To select which collaboratives to profile, the research team developed criteria to ensure relevance to the Saco River watershed, including similar scale and issues concerning recreational use, development, hydropower dams, and water extraction. The nine collaboratives selected to be profiled met at least one of these criteria. Information on each collaborative's background, structure, function, and accomplishments were ascertained via web search and supplemented with some contact by phone or email.

Report Format

This report contains nine chapters. Chapter Two provides an overview of the watershed and its resources, people, activities, and governance structures. It conveys the Saco's unique ecological, social, and economic characteristics, as well as the complex jurisdictional landscape of agencies and municipalities exercising authority over the watershed and its resources.

Chapters Three through Seven present the findings of our interviews with individuals and organizations in the watershed. Chapter Three discusses interviewees' values about the watershed, highlighting the fact that many interviewees possess shared values about the Saco.

Chapter Four summarizes interviewees' aspirations for the future of the Saco River watershed. Notably, it reveals that interviewees' aspirations converge around five key ambitions: protection of the ecosystem and water quality; sound and credible science; public awareness and education; improved coordination; and proactive and strong management.

Chapter Five discusses the scope of issues facing the watershed and interviewees' perceptions of these issues. Key issues raised include recreational use and impacts, increased development and land conversion, hydropower dams and fish passage, and water extraction.

Chapter Six examines interviewees' interest in creating a collaborative organization and their ideas about a potential collaborative's purpose. It describes how interviewees expressed a shared interest in greater collaboration yet envisioned a potential collaborative pursuing a range of different purposes.

Chapter Seven describes interviewees' ideas about how a collaborative could be structured. It highlights interviewees' desire for a broadly credible and transparent process.

Chapter Eight profiles nine existing watershed collaboratives around the country that face analogous issues to the Saco or have similar ecological, geographic, or social characteristics. It distills lessons that are potentially applicable to a Saco River watershed collaborative. Each profile describes the collaborative's genesis (how and why it was established), purpose, structure, activities, and accomplishments.

Chapter Nine highlights key findings from the project, summarizing where perceptions and aspirations aligned and where and why they diverged. It provides observations and recommendations for individuals and organizations in the Saco River watershed to consider as they continue their discussions about the potential role and characteristics of a collaborative in their region.

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A scenic view of a river flowing through a snowy landscape under a cloudy sky. The river is in the foreground, with snow banks on either side. The background shows a forest of trees and mountains under a dramatic, overcast sky.

RESOURCES, PEOPLE & GOVERNANCE OF THE SACO RIVER WATERSHED

Chapter 2. Resources, People and Governance of the Saco River Watershed

The Saco River watershed contains many valuable natural resources that support a variety of activities and livelihoods. Activities within the watershed are governed by several agencies and municipalities with often overlapping jurisdictions. This chapter explores the resources, people, activities, and governance within the watershed, all of which provide the context within which a collaborative would find its niche.

2.1 Land Use and Water Resources

The Saco River watershed encompasses 1,700-square miles of some of New England’s most pristine riparian habitat (UNE, 2017a). The river stretches 136 miles across east-central New Hampshire and southwest Maine before meeting the Atlantic Ocean in the Saco Estuary (Figure 2.1). Home to nearly a quarter million people, the watershed generally can be described as rural and forested, and sections of the watershed can be characterized by their variable land uses, water quality, and water quantity. These characteristics provide important context for the range of values and concerns about the watershed held by people working and living in its various sections.

A. Land Characteristics and Use

1. Headwaters

The headwaters of the river originate approximately 1,887-feet above sea level in New Hampshire’s White Mountains (Moore & Medalie, 1995) and run south through the towns of Hart’s Location, Bartlett, and Conway before entering Maine (Lucy et al., 1994). In total, the headwaters drain 427-square miles of land, the majority of which is forested and rural. 80% of this land is contained within the White Mountain National Forest, which protects the headwaters from future development and preserves a wide, natural riparian buffer (Lucy et al., 1994; NHDES, 2017a). The Forest contains a variety of habitats including the globally rare New England riverwash *Hudsonia barren* community and is home to threatened wildlife, like the Common tern, Osprey, and Canada lynx (Lucy et al., 1994).

Moving from the White Mountain National Forest to Conway, the watershed

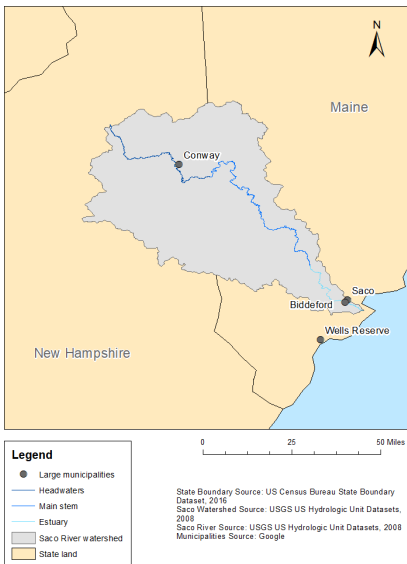


Figure 2.1 Saco River watershed

becomes increasingly populated, and agricultural and low-density residential land uses become more common (Lucy et al., 1994). Although a vegetative buffer largely exists along the entire length of the headwaters, which helps preserve the river’s natural character and habitat (Lucy et al., 1994), increasing development (particularly in Conway) poses a threat to the watershed’s health (Spillane & Zeeman, 2014).

2. Main Stem

From the Maine-New Hampshire border to the town of Hollis, Maine – henceforth referred to as the main stem of the Saco – the watershed is similarly rural and forested. In this section of the watershed, the Saco travels through 18 municipalities, the majority of which have populations of less than 4,000 people (Table 1.1). Land cover types mirror those found in the headwaters, with a mix of forest, agriculture, and low-density residential development (GPCOG & SMPDC, 2017).

3. Estuary

As the river reaches its mouth in the Saco Estuary, it winds through the cities of Biddeford and Saco and land use turns primarily commercial and high-to-medium-density residential. This is the most densely populated and developed portion of the watershed and residential development has steadily increased in both cities since the 1980s (City of Saco, 2017). The conversion of natural land to developed, impervious surfaces has significant implications for water quality in the lower Saco.

B. Water Quality

The watershed’s abundance of forested and undeveloped land largely buffers the Saco from runoff and pollution, resulting in high quality surface water. Both Maine and New Hampshire have recognized the Saco for its outstanding water quality and for the important natural, cultural, economic, and social services its waters provide. The New Hampshire Department of Environmental Services (NHDES) granted the Saco ‘Designated River’ status in 1990, a designation that recognizes rivers or river segments that have outstanding values and characteristics (Lucy et al., 1994). Similarly, the State of Maine recognized the section of the river from the Maine-New Hampshire border to the Little Ossipee River in Limington as an outstanding river, qualifying it to receive special protections (Me. Stat. tit. 12, §403).

Given its location in the White Mountain National Forest, the headwaters are rated as having good to excellent quality by NHDES (Lucy et al., 1994; NHDES, 2016). The main stem of the river receives similarly high ratings

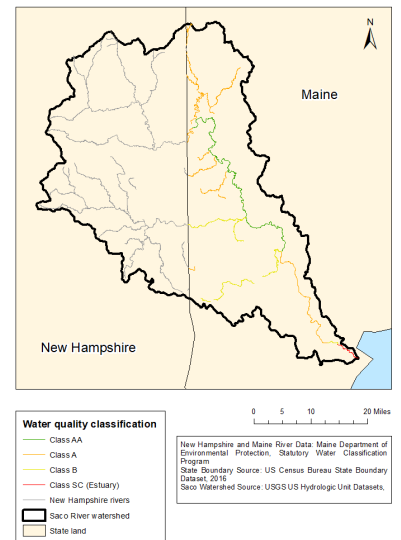


Figure 2.2 State of Maine water quality classifications for the Saco River and its tributaries

from the Maine Department of Environmental Protection, with most sections classified as Class A – the second highest rating freshwater rivers and streams can receive in the state (Me. Stat. tit. 38, §465) (Figure 2.1). The estuary and most of the Saco's major tributaries in Maine are primarily designated as Class B by the state's Department of Environmental Protection (Me. Stat. tit. 38, §467).

C. Water Quantity

The Saco River watershed possesses large quantities of ground and surface water, which are bolstered by significant meltwater from the White Mountains (Lucy et al., 1994) and annual average precipitation of 44.8 inches (UNE, 2017a).

1. Groundwater

Groundwater is abundant in the headwaters and main stem, where much of the watershed is underlain by stratified-drift aquifers. Stratified-drift aquifers are comprised of coarse-grained, sorted sand and gravel sediments that were deposited by glacial meltwater streams during deglaciation (Medalie & Moore, 1995). Because these sediments typically have large amounts of pore space between grains, they are efficient at both storing and moving groundwater (NHDES, 2008). As such, stratified-drift aquifers can yield large amounts of water to wells and often serve as a primary drinking water supply to municipalities (Moore & Medalie, 1995; U.S. Geological Survey, 1988). In New Hampshire, approximately 18% of the Saco River watershed is underlain by stratified-drift aquifers, which serve as the drinking water source for the surrounding towns (Medalie & Moore, 1995).

2. Surface Water

Towns in the main stem receive drinking water from a mix of private wells and treated river water, while those at the mouth of the river receive treated drinking water directly from the Saco. Although the Saco River was recently identified as having surplus yield (Wright Pierce, 2008), there is considerable disagreement throughout the watershed about the impact of private and public drinking water withdrawals on both ground and surface water quantities, particularly in the main stem.

2.2 Municipalities and Demographics

The Saco River flows through three towns in New Hampshire (Bartlett, Conway, and Hart's Location) and 13 towns in Maine (Biddeford, Saco,

Dayton, Buxton, Hollis, Limington, Standish, Baldwin, Cornish, Hiram, Brownfield, Denmark, and Fryeburg), though its subwatersheds extend to many other communities. Saco and Biddeford are located at the estuary end of the river and have the largest populations. Most of the land in these towns is low density residential use, forest cover, or farmland with the highest population density in the cities of Biddeford and Saco located in the Saco River Estuary (GPCOG & SMPDC, 2017).

Municipal boundaries do not usually correspond with ecological boundaries so it can be difficult to define which towns and cities are actually located in the watershed. Is it any town with any land at all in the watershed? Only those towns that are located entirely within the watershed? Towns with over 50 percent of their land or population located in the watershed?

For the purposes of this study, for the state of Maine, we include municipalities that are a part of the Saco River Corridor Commission. For New Hampshire, we include municipalities that the Saco actually flows through. The Saco River also passes through several unincorporated communities in New Hampshire, for which demographic data is not available. The Saco River watershed in New Hampshire includes the Ossipee River and the Little Ossipee River and while they are an important part of the watershed, they are not included in this analysis. More rigorous spatial, political, and cultural framing could be done to establish the political boundaries of the Saco River watershed, and a collaborative would need to establish its own operational boundaries.

Since a collaborative would be made up of residents of the watershed, we feel that it is important to highlight some of the demographic characteristics, and how they are arrayed spatially by population and poverty rate (Table 2.1; United States Census Bureau, 2010; United States Census Bureau, 2015), labor force and employment (Table 2.2), and by industry (Figure 2.3).

The variability in resources in towns in the watershed can partially be explained by their variable tax bases, which are in part determined by the income of the people living in those towns. As some interviewees mentioned, towns would have differing abilities and preferences regarding participation in a collaborative or doing other conservation work depending on their fiscal resources and other priorities (which may include addressing poverty).

Table 2.1 Saco River Watershed Population and Poverty Rates by Region and Town

Region	Town	Population	Poverty Rate
Headwaters (New Hampshire)	Bartlett	2,788	10.0%
	Conway	10,155	11.8%
	Hart's Location	41	0.0%
Main Stem (Maine)	Acton	2,447	8.9%
	Baldwin	1,525	8.4%
	Brownfield	1,597	8.3%
	Buxton	8,034	7.6%
	Cornish	1,403	18.1%
	Dayton	1,965	4.2%
	Denmark	1,148	9.9%
	Fryeburg	3,449	5.6%
	Hiram	1,620	14%
	Hollis	4,281	7.6%
	Limerick	2,892	12.4%
	Limington	3,713	10.0%
	Newfield	1,522	12.7%
	Parsonsfield	1,898	24.4%
Porter	1,498	17.3%	
Shapleigh	2,668	9.9%	
Standish	9,874	7.8%	
Waterboro	7,693	7.4%	
Estuary (Maine)	Biddeford	21,277	18.2%
	Saco	18,842	10.0%

Table 2.2 Saco River Watershed Labor Force and Employment Rates

State	County	In Labor Force	Employed	Unemployed	Not in Labor Force
NH	Carroll	60.2%	56.7%	3.5%	38.9%
	Coos	58.2%	54.2%	4.0%	41.8%
	Grafton	62.9%	59.7%	3.2%	37.1%
ME	Cumberland	68.3%	64.5%	3.6%	31.7%
	Oxford	58.2%	52.8%	5.4%	41.8%
	York	67.2%	63.1%	3.9%	32.8%

Table 2.2 draws on industry and employment data from the United States

Census Bureau's 2011-2015 American Community Survey (2015) on the percentage of residents 16 and over that are in the labor force, and how they are employed. It is worth noting that these counties are not located entirely in the watershed, so this data is only roughly reflective. Although the census categories are broad, they provide a general sense of how people in the watershed are employed. Figure 2.3 (United States Census Bureau, 2015) indicates the industries within which the employed populations work. The census categories are broad but provide a general sense of how people in the watershed are employed.

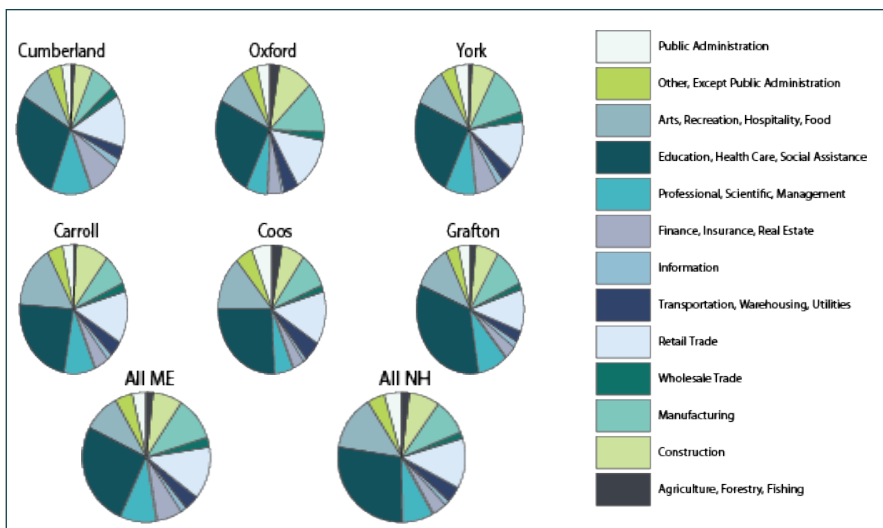


Figure 2.3 Employment by Sector in the Saco River Watershed

2.3 Activities and Organizations

Residents and non-residents alike rely on the Saco River and its watershed for many different activities. While we cannot capture every use of the Saco (or every example of every use), we provide a snapshot of organizations and activities.

A. Recreation

Camping, canoeing, rafting, and swimming are popular activities on the Saco River particularly in the summer months. These recreational activities are most prevalent in the upper section of the Saco. They often draw tourists to the area, and there are campgrounds and canoe liveries to facilitate their experiences. This use of the river can lead to degradation of ecological resources and disturbance of residents (SRCC, 2017).

One organization working to maintain the Saco is the Saco River Recreational Council, which is an independent voluntary nonprofit association. Founded in 1983, their mission is: "To promote, manage and provide education that ensures sound recreational practices to protect the Saco River Recreational Corridor" (SRCC, 2017). It engages in education as well as direct clean-up activities, employing local youth as summer interns to carry out these activities. Its website provides information for people planning a trip the Saco on various rules and regulations, campgrounds and liveries, parking, and trip options. Members of the Council include both states, land owners, liveries, campgrounds, and residents. They work with organizations from police departments to conservation organizations to chambers of commerce (SRCC, 2017).

B. Fishing

The Saco River is popular for recreational fishers, and commercial fishers maintain over 40 vessels on the river ("Army Corps of Engineers," 2016). In Maine, recreational fishers can catch salmon, brook trout, brown trout, and smallmouth bass as well as striped bass and mackerel nearer the estuary, though there are some laws restricting catches (Visit Maine, n.d.). In New Hampshire, fish populations have declined due to fishing as well as impediment of anadromous fish by dams in Maine. The New Hampshire Fish and Game Department stocks brook trout, rainbow trout, and brown trout to support recreational fishing, particularly fly-fishing (NHDES, 2017a).

Several organizations devoted to fishing operate in the Saco River watershed including several chapters of Trout Unlimited and the Saco Salmon Restoration Alliance. Trout Unlimited works to protect and restore trout and salmon fisheries. There is a Sebago chapter (Sebago Trout Unlimited, 2017) and a New Hampshire chapter, the Saco River Valley Anglers (Saco River Valley Anglers, n.d.). The Saco River Restoration Alliance aims to bring salmon populations to the Saco by planting fertilized eggs, monitoring populations, monitoring water quality, and working to restore habitats. They argue that salmon are hindered by the dams as well as by competition from invasive species (SSRA, n.d.).

C. Hydropower

There are six large hydropower dams on the Saco River: Bar Mills Dam (in Buxton), Bonney Eagle Dam (in Hollis), Cataract Dam (in Saco), Hiram Falls Dam (in Hiram), Skelton Dam (in Buxton/Dayton), and West Buxton Dam (in Buxton) (GPCOG & SMPDC, 2017). Hydropower dams are a source of

renewable energy for Maine, and dams must be licensed by the Federal Energy Regulatory Commission. Many of the dams have existed for over a hundred years, but have been owned by various utility companies over the years. Most recently they were all acquired by Brookfield Renewable Energy Partners in 2012 (Richardson, 2012). Brookfield Renewable is managed and owned by Brookfield Asset Management, a global company that owns over 200 hydroelectric dams as well as other assets (Brookfield, 2017).

As noted above, hydropower dams (and other dams along the Saco) have impeded fish passage. They also slow the river leading to warmer less oxygenated water. Starting with negotiations in 1989, FERC relicensing began requiring fish passage be put into the dams starting with those furthest downstream. By 2025, fish passage infrastructure is required to be built into all of the major dams (SSRA, n.d.).

D. Agriculture

Much of the land along the Saco is used for agriculture. While a relatively small number of residents are employed in agriculture, this land use has a lot of potential impact on the Saco through soil erosion and nutrient run off (GPCOG & SMPDC, 2017). In many cases (over 50 percent in Cumberland, Oxford, and Grafton Counties) the primary operator of a farm has a primary occupation other than farming.

Table 2.3 contains county-level data on farms in Maine and New Hampshire from the USDA Census of Agriculture (2012). As noted above, the counties are only located partially in the watershed so this table provides general context.

Table 2.3 Saco River Watershed Labor Force and Employment

State	County	Number of Farms	Total Farmland (Acres)	Avg. Farm Size (Acres)	Top Crop Item	Top Livestock
NH	Carroll	291	29,362	101	Forage-land	Layers
	Coos	293	56,797	194	Forage-land	Cattle
	Grafton	500	82,372	165	Forage-land	Layers
ME	Cumberland	718	62,701	87	Forage-land	Rabbits
	Oxford	551	75,275	137	Forage-land	Cattle
	York	779	64,512	83	Forage-land	Layers

E. Forestry

Forestry has historically and continues to make up a large portion of the economy in Maine and New Hampshire. In 2015, 89 percent of land in Maine was forested and in 2013, forest products made up 33 percent of Maine's exports (Maine Forest Products Council, 2012). The Saco River watershed is no different. White pine has been harvested from the Maine side of the Saco for 300 years and continues today (Limington Lumber, n.d.; Lovell Lumber, n.d.). New Hampshire is the second most forested state in the United States (with 84 percent of the state being forested as of 1997)(NHDFL, n.d.), which supports various economic activities including logging (Nielsen, Lombard & Schalk, 2010).

F. Water Extraction

With its large quantity of clean water, the Saco River is a valuable source of drinking water with various communities using ground or surface water as their primary drinking water source. The Saco River is projected to meet southern Maine's needs, even as the region may experience unprecedented projected growth (GPCOG & SMPDC, 2017). Many residents of the watershed have wells that draw on the groundwater (Nielsen, Lombard & Schalk, 2010), while others rely on municipal water suppliers.

The Saco-Biddeford area was served by the Biddeford and Saco Water Company for 131 years, until 2012 when it was purchased by Maine Water Company (Graham, 2012). Maine Water Company (henceforth referred to as "Maine Water"), a subsidiary of Connecticut Water Service, currently operates 12 public water systems serving 32,000 customers representing about 80,000 residents in Maine. They are currently building a water treatment plant to replace the aging water infrastructure in Biddeford-Saco, which currently serves both Biddeford and Saco and the neighboring towns of Old Orchard Beach and Scarborough. The new treatment plant will open in 2020 and will have the capacity to serve Southern Maine from Kittery to Portland, building resilience in the region's infrastructure (Buttarazzi, 2017).

Maine Water also operates the Fryeburg Water Company which serves 800 customers in Fryeburg and East Conway ("Maine Water Takes Over," 2016). The Fryeburg Water District Trustees is a body that exists in case the shareholders in the Fryeburg Water Company decide to sell. The Fryeburg Water Company also sells water to Poland Spring, a subsidiary of Nestlé Waters North America, Inc. in a 25-year deal signed in 2014 to replace a 1997 agreement (Murphy, 2014). Poland Spring began bottling water in the 1800s and Perrier obtained the company in 1980. It was then obtained

by Nestlé leading to the expansion into Fryeburg and, thereby, the Saco River watershed (Dubois, 2016).

G. Conservation

In addition to governmental and regulatory bodies, a variety of nongovernmental conservation organizations operate in the watershed. Table 2.4 provides a summary of these organizations.

Table 2.4 Nongovernmental Conservation Organizations in the Saco Watershed

Organization	Areas of Operation	Conservation Activities
Acton Wakefield Watersheds Alliance	Headwaters, main stem	Water quality monitoring, educational programing, youth conservation corps, technical assistance for property owners to examine impacts on watersheds (Acton Wakefield Watersheds Alliance, 2017)
The Ecology School	Estuary	Environmental education (The Ecology School, n.d.)
Greater Lovell Land Trust	Main stem	Land conservation and education (Greater Lovell Land Trust, 2017)
Green Mountain Conservation Group	Headwaters, main stem	Education, advocacy, research (including water quality monitoring), and land conservation (GMCG, n.d.)
Kezar Lake Watershed Association	Main stem	Water quality monitoring, recreation monitoring and patrol, fishery monitoring, climate monitoring, and community education (Kezar Lake Watershed Association, n.d.)
Lovewell Pond Association	Main stem	Invasive species control
New Hampshire Audubon	Headwaters	Land conservation and wildlife protection (New Hampshire Audubon, n.d.)
Saco Valley Land Trust	Estuary	Land conservation and education (Maine Land Trust Network, 2016)
The Nature Conservancy (Maine)	Main stem, estuary	Land conservation
The Nature Conservancy (New Hampshire)	Headwaters	Land conservation (The Nature Conservancy, n.d.)
University of New England	Estuary	Water quality monitoring, education, plant and wildlife monitoring, making recommendations for zoning and to minimize runoff (UNE, 2017b)
Upper Saco Valley Land Trust	Headwaters	Strategic land conservation (Upper Saco Valley Land Trust, 2017)

2.4 Governments and Jurisdictions

The activities described above are regulated by a range of municipal, state, and federal entities having jurisdiction over various and oftentimes overlapping portions of the watershed.

A. Federal Government

Multiple federal agencies are active in different capacities across the watershed, however the Environmental Protection Agency, U.S. Forest Service, U.S. Fish and Wildlife Service, and Federal Energy Regulatory Commission are the primary agencies acting with regulatory authority over the Saco River watershed and its resources.

The Environmental Protection Agency (EPA) enforces the Safe Drinking Water Act, which was passed in 1974 to protect public drinking water supplies (US EPA, 2017a). The EPA sets national standards for drinking water to protect the public against health risks and sets monitoring and reporting requirements, which are implemented by the states (US EPA, 2017a). The Act required states to create a Source Water Assessment Program for all public drinking water systems and to develop assessment methodologies for ground and source water supplies (US EPA, 2017b).

Maine's Source Water Assessment Program was developed in 2000 and is housed under the Maine Department of Human Services (Maine Department of Human Services, 2000), while New Hampshire's Drinking Water Source Protection was developed by the New Hampshire Department of Environmental Services. EPA's Region 1 (New England) Office, located in Boston, works with Maine and New Hampshire to implement the Safe Drinking Water Act in the Saco River watershed.

The U.S. Forest Service (USFS), a U.S. Department of Agriculture agency, is also active in the Saco River watershed, as it manages land use and resources within the White Mountain National Forest. The agency manages the forest with a formal Forest Plan, which was last updated in 2005 (U.S. Forest Service, 2005). The plan lays out a set of goals for managing multiple uses of the forest, including goals concerning the protection and restoration of riparian habitat, the restoration of in-stream indigenous fish populations, and the protection of wildlife and an array of diverse forest habitats across the Forest. The Saco Ranger District, located in Conway, NH, is the administrative unit that oversees and manages recreation, forestry, and other activities in the portion of the White Mountain Forest that contains the Saco.

The U.S. Fish and Wildlife Service (FWS), a branch of the U.S. Department of the Interior, works to protect, conserve, and enhance fish, wildlife, and their habitats in the Saco by enforcing federal wildlife laws like the Endangered Species Act and Migratory Bird Treaty Act. In the Saco, FWS focuses largely on the protection of threatened, anadromous fish like the Atlantic salmon and Atlantic sturgeon.

Finally, the Federal Energy Regulatory Commission (FERC) regulates the Saco’s six hydroelectric dams (Table 2.5; FERC, n.d.), which are all owned and operated by Brookfield. In addition to licensing and inspecting private, municipal, and state hydroelectric projects, FERC is responsible for enforcing its own regulations by imposing civil penalties and other measures (FERC, 2017).

Table 2.5 FERC-Regulated Hydroelectric Dams on the Saco River

Dam Name	Permit Issue Date	Permit Expiration Date	Authorized Capacity (KW)
Hiram	12/22/1982	11/30/2022	10,500
West Buxton	01/29/1988	12/31/2017	7,812
Cataract	06/29/1989	11/30/2029	6,650
Skeleton	02/26/1998	01/31/2038	21,600
Bonny Eagle	02/26/1998	01/31/2038	7,200
Bar Mills	08/26/2008	07/31/2048	4,000

B. State Government

1. Maine

Multiple agencies within the State of Maine have jurisdiction over resources and activities in the Saco River watershed. The Maine Drinking Water Program, housed within the Department of Health and Human Service’s Center for Disease Control & Prevention, administers and enforces the Federal Safe Drinking Water Act and state rules regarding drinking water (Maine Division of Environmental Health, 2017; Maine DWP, 2016). The Department of Environmental Protection also exercises key jurisdiction over natural resources in the watershed, enforcing laws related to groundwater protection, nonpoint source pollution, water withdrawals, and mandatory shoreland zoning (Maine DEP, 2017).

Maine’s Mandatory Shoreland Zoning Act is particularly noteworthy, because it defines a shoreland zone as an area within 250 feet of any river draining at least 25 miles, limiting development in the riparian zone and

requiring municipalities to pass shoreland zoning ordinances that meet or exceed the state's standards (Maine DEP, 2017). In the Saco, this law has served to protect the river's natural shoreland habitat, reducing the deleterious effects of development in the riparian zone.

The Department of Inland Fisheries & Wildlife enforces laws relating to the protection and management of fish, non-game wildlife, and habitats in the Saco, as well as the restoration of endangered species (Maine IFW, 2017). The Department also manages recreational use of inland waters, issuing permits for fishing and hunting and collecting registrations for snowmobiles and ATVs – all of which are popular activities in the Saco River watershed.

Finally, the Department of Agriculture, Conservation, and Forestry (DACF) has a broad range of responsibilities concerning the management of the state's land-based natural resources, which has a direct impact on the heavily forested Saco River watershed. Notably, the department enforces the Forest Practices Act and state's Nutrient Management Act and manages the permitting and licensing of foresters, who work throughout the headwaters and main stem (Maine DACF, 2017). The DACF also oversees the state's Soil and Water Conservation Districts, which establish priorities for conservation efforts relating to forestry and agriculture, in partnership with the USDA's Natural Resources Conservation Service (Maine Association of Conservation Districts, n.d.; Maine DEP, 2017).

2. New Hampshire

As in Maine, New Hampshire's state government gives multiple agencies responsibility for the enforcement of state and federal laws in the Saco River watershed. The Department of Environmental Services is the key authority in the Saco, enforcing the New Hampshire Rivers Management and Protection Program, Surface Water Quality Standards, Instream Flow Rules, and Designated River Nominations (NHDES, 2017b). Since recreational trout fishing is a popular activity in the headwaters, the Fish and Game Department is another noteworthy locus of authority in the watershed, working to conserve, protect, and manage the state's fish and wildlife resources through permitting, enforcement, and education (New Hampshire Fish and Game, 2017).

C. Municipal Government

Municipal government adds another layer of oversight to the Saco, although the structure of each state's municipal governments and their level of authority varies significantly.

1. Maine

Local governments in the state of Maine enjoy “home rule” authority, which allows them to enact municipal laws or change or modify their charters, as long as they do not run counter to state laws (Maine Municipal Association, 2017). This status serves to broaden the power of municipal government in Maine and results in municipalities passing ordinances that directly address issues that concern their constituents the most.

In the context of the Saco, municipalities have enacted various ordinances that address water quantity and quality within the watershed. For example, the town of Denmark passed an aquifer protection ordinance that outlines requirements for large-scale water extractors seeking to drill wells in the town (Denmark, Me., 2012). Similarly, the town of Hollis enacted a shoreland zoning ordinance to protect wetland, streams, and rivers (Hollis, Me., 2009). Generally, the content and number of ordinances related to the Saco River watershed vary significantly among Maine’s municipalities.

Most Maine municipalities have one of two forms of government that make decisions about which ordinances to implement (Maine Association of Conservation Districts, n.d.). Some have a town meeting-selectman form of government, where citizens vote on ordinances at an annual meeting and elect selectmen, who execute decisions made by the town. Alternatively, some municipalities hire a town manager to administer the town government, while selectmen serve as the town’s executive body. In both cases, Planning Boards and Conservation Commissions staffed with citizen volunteers provide advice to town decision-makers and comment to state officials on issues concerning natural resources.

2. New Hampshire

New Hampshire’s municipal governments are structured similarly to Maine’s, with most towns operating under the town meeting-selectmen format (New Futures, 2017). However, home rule does not apply in New Hampshire, so municipalities are bound solely by the State of New Hampshire’s rules. Hence, New Hampshire towns are not able to selectively apply more stringent regulations governing citizens’ use of and interaction with the river.

D. Saco River Corridor Commission

The Saco River Corridor Commission (SRCC) provides a unique, supplemental level of oversight and regulation of the Saco River and its riparian buffer in Maine. The Maine State Legislature established the SRCC in 1973 to administer the Saco River Corridor Act (Me. Stat. tit. 38, §954), which recognizes the Saco River as having outstanding natural, cultural, and economic value and gives SRCC the authority to control land use and development within the river's corridor. The corridor is defined as a riparian buffer zone of 500 to 1,000 feet and it intersects or lies within 20 municipalities in Maine (Me. Stat. tit. 38, §953).

Most development activities within the corridor require a permit from the SRCC, and SRCC staff and members are authorized to conduct investigations, tests, examinations, and site evaluations to verify compliance with permits or variances issued (Me. Stat. tit. 38, §964). State, municipal, and federal authorities may adopt and administer requirements governing the corridor that are more stringent than those enforced by SRCC. If there is a conflict between provisions in the Saco River Corridor Act and those in a municipal, state, or federal law, the more restrictive provision takes precedence (Me. Stat. tit. 38, §961).

The commission itself is comprised of one member and one alternate member from each of the municipalities it serves, both of whom serve three-year terms. They are elected by their respective towns and serve on a volunteer basis.

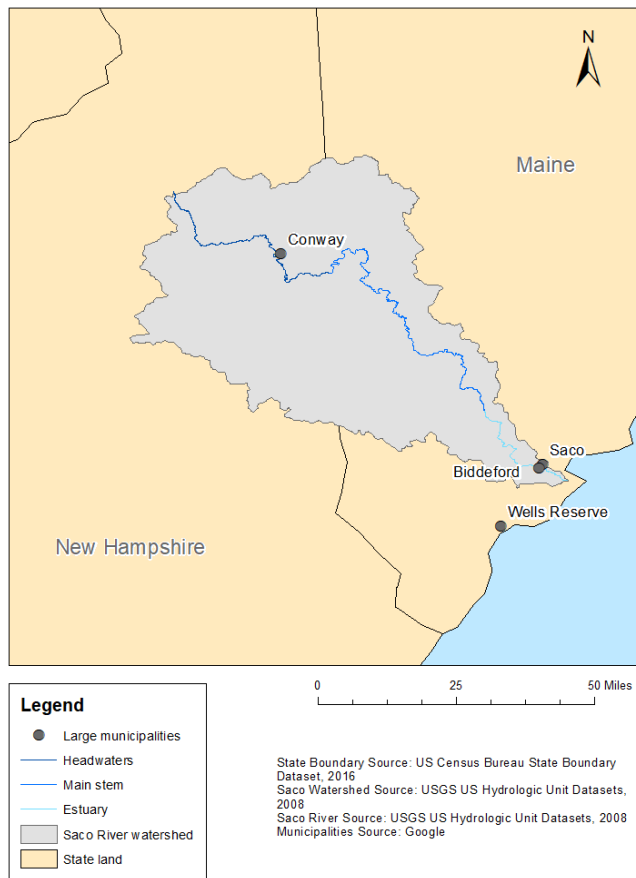


Figure 2.1 Saco River watershed

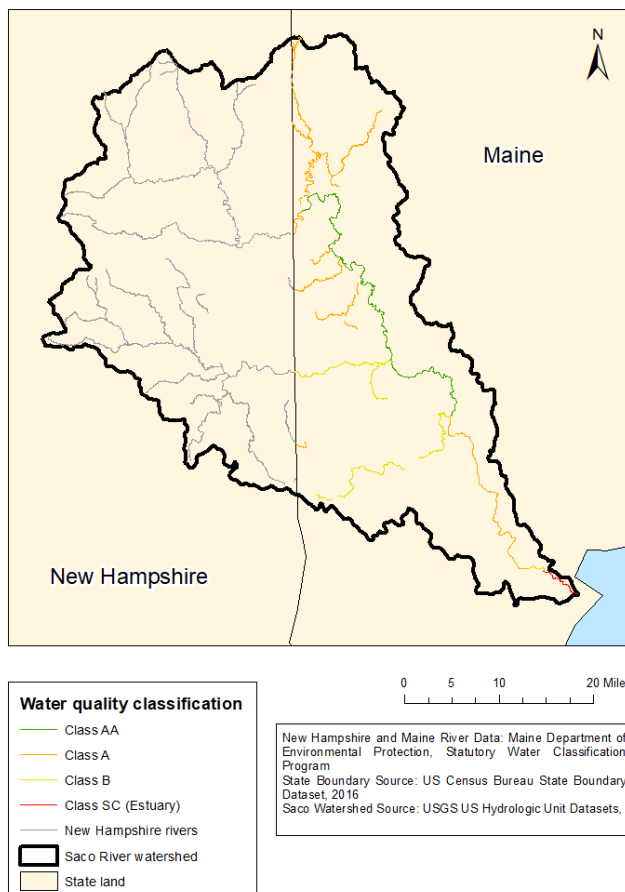


Figure 2.2 State of Maine water quality classifications for the Saco River and its tributaries

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A scenic view of a river with autumn foliage reflected in the water under a clear blue sky. The foreground shows the calm surface of the river, which reflects the vibrant yellow and orange leaves of the trees on the left bank. The middle ground is filled with a dense line of trees, including evergreens and deciduous trees in various stages of autumn. The background shows a clear, bright blue sky with a few wispy clouds and a faint contrail from an airplane.

PEOPLE'S VALUES ABOUT THE SACO RIVER WATERSHED

Chapter 3. People's Values About the Saco River Watershed

People's values associated with a place shape their perceptions of its issues and challenges. The Saco River watershed is no exception. From the interviews, it is clear that a wide range of values about the watershed underpin interviewees' perceptions of issues. As one interviewee put it, the Saco River watershed means "a lot of different things to a lot of different people."

To better understand what people value about the watershed, interviewees were asked the following questions:

- It is clear that the Saco River watershed is a special place. Tell us about why this place is special to you. What is it like living and working here?
- What makes the watershed important? What qualities or features are most important to you?

In response to these questions, interviewees consistently pointed to five watershed values that they deemed particularly important to them: recreation, clean water, biophysical attributes, aesthetic qualities, and high quality water for drinking and irrigation (Table 3.1). Each is described below.

Table 3.1 What Interviewees Value about the Saco River Watershed

Value	Percent Interviewees Mentioning
Recreation	58%
Clean water	42%
Biophysical attributes	42%
Aesthetic qualities	38%
High quality water for drinking and irrigation	33%

3.1 Recreation

Values associated with recreation were the most frequently cited,

expressed by 58% of interviewees. Many mentioned using the Saco for tubing, kayaking, canoeing, fishing, hiking, camping, and birdwatching. One mentioned the range of uses throughout the river's entire stretch:

[I]t's a really special place to hike, in the White Mountains, up north where the headwaters are, all the way down to our fantastic beaches on the ocean. . . so it's got a huge value to Mainers and New Hampshire people.

Another interviewee elaborated, describing recreational use changes based on a particular river section and the time of the year:

[W]hat kind of makes it cool is when you have that runoff, you've got great whitewater and some really nice boating for Class IV or so boaters. . . . And then, as we get into tourist season, it's so gentle and so calm and surrounded by all these beautiful sandy beaches all the way down. It's just a special place in that regard. So you kind of go from an auxiliary river when it's a lot of fun and very appropriate for someone with a high paddling skill set to what is mostly recreation that has a very broad reach of people that can get out and just enjoy it. . . . It just offers so much and it's a beautiful place. It's pretty unique.

Many interviewees mentioned seeing the river as a "recreational magnet" for those who live in cities outside the area. As one described:

The biggest thing that the river is publicly known for is recreation, especially when you look at what's going on in the North Conway and Fryeburg area, with all the canoe trips and camping that goes along the river.

Interviewees also discussed the economic benefits associated with a strong recreation sector.

A few interviewees tied recreation on the Saco to their childhood identity:

And for those of us growing up here, [the Saco] was our playground. We were fishing and swimming and camping out on the Saco, boating on the Saco, canoeing on the Saco. That was how the summers were spent. . .

Two interviewees pointed to the value of fishing along the Saco, and how

the river holds a special place in terms of the experience it offers for people who fish. As one explained:

There are very few rivers that I've been on in the country that have as few dams. . . I take different people from around the world to fish it and . . . the fish tend to rise for dry flies more than any river I've ever fished, so that's another unique aspect of the river as far as a recreational fishing standpoint. People always express that to me.

3.2 Clean Water

Clean water was mentioned as another important value of the watershed by 42% of interviewees. As one put it, the Saco is "definitely a lot cleaner than some of the other rivers" in the area, and it was clear that this quality was highly valued by those interviewed. A few interviewees pointed to the Saco's Class AA designation as a point of pride. As one interviewee noted:

The Maine Class AA water quality standards for a southern river is extremely difficult to get. . . So the standard is difficult to meet anywhere, but on the Saco they meet it, even being in a very - for lack of a better term - warm location.

Several interviewees highlighted the important role played by the low level of impervious surface cover within the watershed in ensuring clean water. As one put it:

I would say one of the benchmark numbers that we like to look at in terms of water quality is 10% impervious cover. Impervious cover is parking lots, roofs, and developed land. And when you get over 10% impervious cover in a watershed, your water quality starts to degrade. . . . And that's the important feature that I think is worthy of our protection.

Others discussed the importance of the White Mountain National Forest in the New Hampshire side of the watershed. As one interviewee pointed out, ". . .[T]he watershed is pretty largely intact [because] a lot of it is in the White Mountain National Forest."

Other interviewees mentioned the area's historical lack of industry as a reason for the clean water seen today. As one interviewee explained:

The Saco River has exceptional water quality until you reach the Biddeford/Saco area, because [all other] rivers in Maine have had paper mills and other industry on their banks [in the past]. For the Saco, the only modern type of industry that ever took place was at Factory Island in Biddeford/Saco.

Finally, two interviewees also attributed the watershed's pristine water to the region's sand and gravel aquifers that not only "on the surface can recharge pretty quickly," but also "clean the water really well."

3.3 Biophysical Attributes

The Saco River watershed's unique biophysical characteristics were highlighted by 42% of interviewees. A few people mentioned the area's stratified drift aquifer, in addition to the high levels of forest cover in the watershed, as key geologic and ecological components. These two aspects lead to high levels of recharge and water quality within the aquifer. They also bring flood attenuation benefits, as explained by one interviewee:

[The watershed] has a remarkably connected functional floodplain system. You actually have a river that floods and recedes in a pretty connected way.

Several interviewees discussed the quality of fish habitat throughout the Saco. As one interviewee summarized, "I think that there are a lot of things that make [the watershed] a special place." They continued:

One thing is there are no permanent dams until you get to Maine. . . . It's, in my mind, a giant freestone mountain stream, and one of the biggest we have in New England. So what that means is it's very oligotrophic, so it has low organic levels and is very clean. Because it's a mountain stream, the water temperatures are extremely good for a river of its size. It's coming out of the biggest mountains east of the Mississippi and North of the Appalachians, so it really is a unique resource for New England...

Two interviewees mentioned the cobble barrens of the river as an example of a particularly special biophysical aspect. For example, one interviewee commented:

The Saco actually has these globally unique and rare natural

communities called cobble barrens, and they're basically gravel bars along the river that end up having a whole variety of rare plants that occupy them.

Still, others discussed pitch pine habitat in the watershed, as well as the abundance of wildlife. As one interviewee pointed out, "[The watershed] is amazing habitat for wildlife, with quite a few areas identified as significant, both on the state and national levels."

3.4 Aesthetic Qualities

Thirty eight percent of interviewees pointed to the value of the watershed's character and aesthetics. "It is a really cool place to work. It's a cool place to live," one interviewee said. Another interviewee tied the river into the community:

It's a critical part of our community. . . It really helps define the community, and people here interacted with the river for hundreds of years.

Another felt drawn to "the beauty, the aesthetics, the wildness" of the Saco.

Others pointed to the beauty of the watershed and the river. One interviewee commented "... the Saco River really provides the background for the mountains and makes the landscape very unique." Another interviewee described the way the aesthetics of the area made them feel:

[T]he other kind of aspect about the Saco watershed is the visual beauty. It's a nice, natural place for the most part, so that gives joy and feeling of goodness to people who happen to be by there.

One interviewee discussed a larger historical value of the Saco: "And the Saco in general, from an ecological point of view, is a watershed, is a river, is a foundation for civilization, if you will."

Finally, one interviewee discussed the value of growing up in such a special area: "...After growing up, [I] came to realize [the Saco] was pretty special. You know, not everybody has something like that in their backyard."

3.5 High Quality Water for Drinking and Irrigation

Thirty three percent of interviewees expressed values associated with the Saco River as a source of drinking water. One interviewee simply enjoys the taste of the watershed's water: "Everybody comes here and says the drinking water is the best they've ever tasted. It has very good taste. The mineral content is just right . . ."

Others pointed to the importance of the Saco as the region's chief water supply. As one interviewee explained,


The Saco River is well-known as a water supply, not only for [the Biddeford-Saco] region, but it is also a backup water supply for the Boston area. Although they [Maine Water] haven't piped it or tapped it, there is an agreement that they can use it if they so need to.

Finally, one interviewee expressed a more fundamental role of water in human life: "The water itself is important to people on the river, both for drinking water and for irrigation. In that respect, it's really a life-giving thing."

Conclusion

Interviewees expressed a range of values associated with the Saco River watershed. In particular, interviewees mentioned five values of importance: recreation, clean water, biophysical attributes, aesthetic qualities, and high quality water for drinking and irrigation. Though these values differ in content and scope, they demonstrate that the Saco River watershed is a place of great importance to the people who live and work within it. Anecdotally, the sentiment and conviction with which interviewees expressed themselves in response to our questions about values illustrates the special place that the Saco River watershed occupies. The values mentioned by interviewees color the understanding of their perceptions of the issues and challenges within the watershed, and provide an important foundation for potential collaboration.





ASPIRATIONS FOR THE SACO RIVER WATERSHED

Chapter 4. Aspirations for the Saco River Watershed

Interviewees were asked to discuss their aspirations for the future of the Saco River watershed. We were interested in learning about what those who live and work in the watershed hope it will look like in the future.

To assess their aspirations, interviewees were asked:

- What is your biggest hope for the future of the watershed?
- Imagine a Saco Watershed Collaborative Association was formed, and we are now five years into the future. What would success look like for you?

This chapter describes the aspirations that were expressed by interviewees both explicitly and implicitly in response to these questions. In their responses, many interviewees quickly jumped from aspirations for the future state of the watershed to specific action strategies (such as greater regulation, new ordinances, and revised codes). Interviewees also tended to focus on issues of greatest concern to them that they hoped would be ameliorated in the future (such as development, water extraction, recreation impacts, and harmful land management practices). In this chapter, we focus on the future aspirations embedded in the concerns raised during the interviews.

Overwhelmingly, interviewees spoke about a future in which the Saco River watershed ecosystem and its water quality are effectively protected. Interviewees aspired to see future decision-making about the watershed informed by sound and credible science. In addition, they aspired to see greater public awareness and concern about the river and watershed; greater coordination and resource/information sharing among organizations in the watershed; and more proactive actions being taken to protect the watershed.

4.1 Protection of the Watershed's Ecosystem and Water Quality

In response to the question "*What is your biggest hope for the future of the watershed?*", nearly every interviewee offered an aspiration related

to protecting the watershed's ecosystems and water quality. Specifically, they hoped that land was being preserved, water quality and buffer zones protected, conservation practices adopted by private landowners, best environmental practices followed by landowners, and recreation occurring within the bounds of what the watershed can support.

Nearly every interviewee highlighted the Saco River's current water quality as one of the most important aspects of the watershed. Indeed, all of their aspirations discussed in this chapter revolved around maintaining or improving existing conditions. Many highlighted the impacts that upriver activities have on those living downriver. As one interviewee noted, "Whatever happens in the headwaters ultimately comes to us. Everything flows downhill, you know?"

This is particularly true in a watershed like the Saco, as its large extent provides ample opportunity for downstream areas to be strongly affected. Positive, as well as negative impacts, can flow down the river. One interviewee commented: "Whatever happens in the headwaters, if Bartlett can protect it...everybody else downstream benefits as well as us."

Several interviewees hoped for additional land preservation and the protection of buffer zones, especially riparian buffer. Several expressed a desire that conservation would be a top priority pursued in the watershed. One interviewee hoped that private landowners would be adopting better conservation practices. They pointed out that private property is important to many watershed residents, "so getting them to...adopt and implement forest management practices - it's a really big [issue]."

Interviewees also frequently mentioned a hope that recreation could occur in such a way that would limit its environmental impacts, especially on water quality. One interviewee noted:

The amount of people using the river on a daily basis, because it's getting to a point where it's being overutilized. And there are people, for the most part, that use it as a party central.

Some interviewees hoped that recreation could continue, but in more environmentally-aware and responsible ways.

4.2 Future Decisions Informed by Sound and Credible Science

Many interviewees hoped that more sound and credible science would inform policy and planning decisions in the future. Some hoped to see more baseline data and better monitoring systems in place. Several emphasized the importance of impartiality in any monitoring programs that might be instituted.

Some of these aspirations were rooted in distrust of the science and studies currently presented by Poland Spring. As one interviewee explained:

Nestlé has their science, and they present it in a very specific way...They don't want to talk about any impacts outside of the political boundaries of that area...It's not sound science, the way they're presenting it. Maybe regionally we can come up with a better regional modeling study [so] we can have some science produced that's conflict-free.

In addition to improved measurement of the watershed's health, interviewees hoped that comprehensive, credible water quality data would exist in order to help inform policymakers and managers. One interviewee commented:

There's been times when I've wished that we had good data that we just don't have. I went to testify last year before the Maine state legislature...not really having a lot of data to go on. [We were thinking] it would be so great if we really had more of an idea of what was actually happening.

Several interviewees expressed a hope that there would be greater public awareness and concern about the watershed and the river in the future. As one explained:

I don't understand why people don't get involved when this is their drinking water...I'm hoping the general public will wake up at some point and understand the importance of what we're doing. I'm hoping that the people that own properties on the river will understand the damage that they've done to the ecosystem.

Many hoped to have better education and public outreach regarding the

importance of best environmental practices. One interviewee stated:

I think the ability to work with landowners, especially large landowners, in the watershed is important...There are still a lot of large tracts of land, whether it's farms or just other landowners, that own these huge pieces of land.

Another interviewee pointed out that "if we could do nothing else...we could create a better buffer, or help people who use and live on the river understand what a good buffer is and how to maintain that."

4.3 Greater Public Awareness and Concern about the River and Watershed

Several interviewees expressed a hope that there would be greater public awareness and concern about the watershed and river in the future. As one explained:

The outcome that I would like to see is...a coordinated effort up and down the entire Saco system that doesn't have gaps. That each and every community along the way is considering their water a shared community resource...How it gets there, when it gets there --- that's not as important to me. Success to me is when every community member up and down the Saco River feels that way.

Some interviewees also commented on the varying level of resources and expertise across the watershed, noting that some organizations and rural areas have little capacity to take action. One interviewee stated that:

...[A monitoring plan is] a big thing to do when we don't really have money for it, but we're looking at who's already doing it, what can we piece together, what can we take, because, I would love to have a good water quality monitoring program on the Saco for the future.

4.4 Proactive Approach to Confronting Issues in the Watershed

Interviewees aspired to a future in which proactive strategies to protect the river were being adopted. Most acknowledged that while the Saco River's water is currently in good condition, it would be easy to irreversibly damage it. As one interviewee explained:

The thing about water is once it's polluted, it's polluted. Then it's too late...And then people can say, 'well, you're really overreacting'. Well, it's never an overreaction until the first spill occurs, you know?'

Another commented:

[We] aren't bothered by [pollutants] until it hits our backyard... or our child goes and swims in an *E. coli*-infested area. Only then do we react to the situation. And trying to be proactive is extremely difficult today.

Similarly, approximately 25% of interviewees were particularly concerned about the consequences of water extraction to both the ecological and social fabric of the watershed. They aspired to a future in which this issue is tackled in a more direct and consequential manner. Some hoped to see stronger management restrictions. As one interviewee put it, "I think some towns are learning that they need to have water extraction ordinances."

Most interviewees agreed that additional and/or stronger ordinances were a useful strategy to preserve aquifers and the river, with one interviewee hoping that municipalities were "putting into code things that would help prevent pollutants from reaching the river."

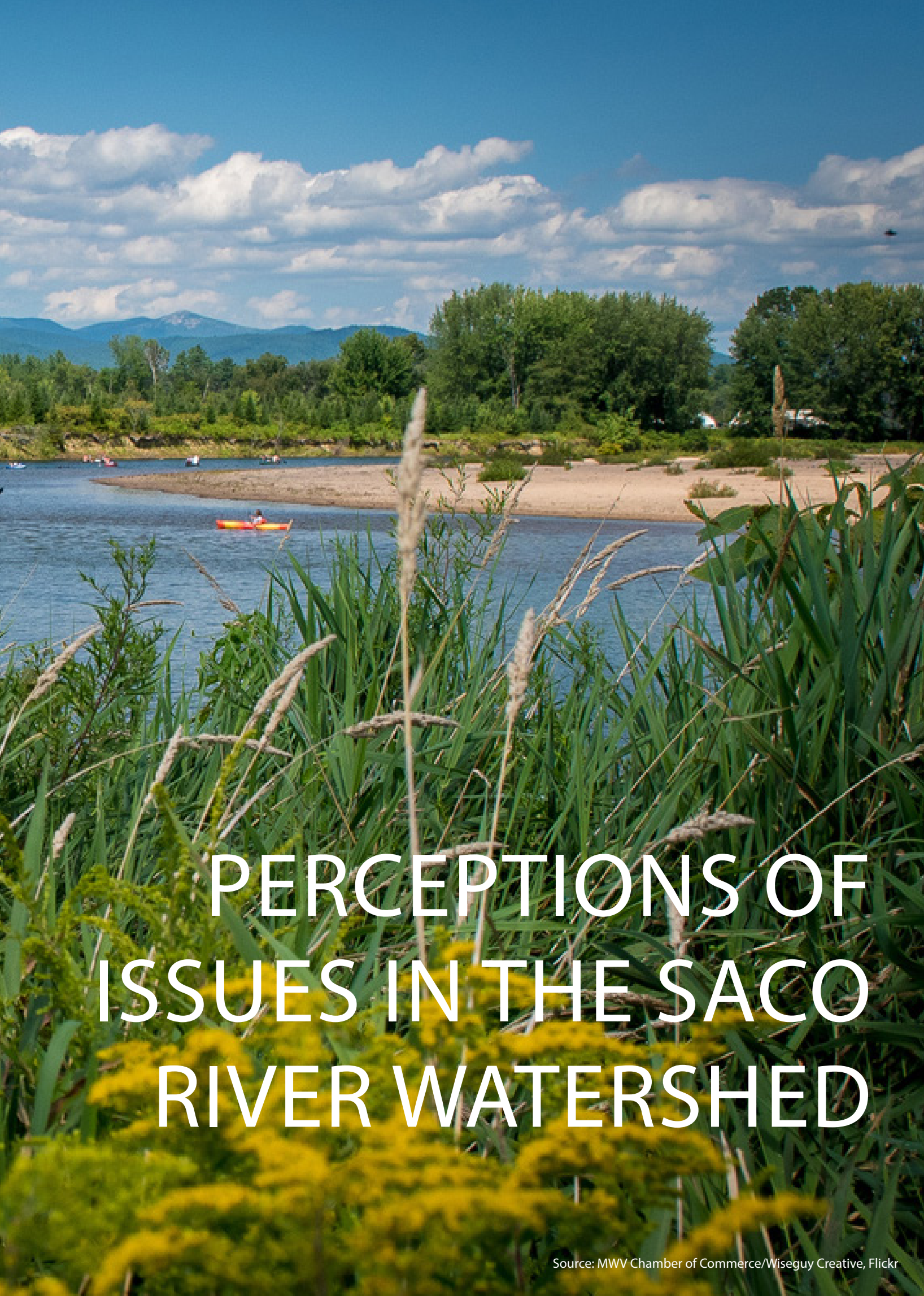
Interviewees also discussed how New England towns tend to be resistant to regulation, particularly in states like New Hampshire - many interviewees cited its "Live Free or Die" philosophy. They pointed out that the free, unregulated aspect is exactly what appeals to many tourists. However, they hoped that this resistance could be moderated in the future. The region's long-standing opposition to regulatory action was described by one interviewee, who recalled the failure of previous attempts to regulate recreation:

...This has been thrown around since the first canoe club landed on the Saco and banning alcohol...the last real legislative push for that was probably 50 years ago now, and I don't know if it died a quick death [or not]...I know it had traction for a little while. The two major cons of it are [the same] with any policy: how do you police it, how do you enact it --- and also from the locals' point of view that says, 'boy, I live here and if I want to go down the river and have a beer, I'm going to'.

Conclusion

Interviewees expressed many aspirations for the future of the Saco River watershed. They hoped to see its land and water protected, more independent and neutral data, better public education about watershed issues, more coordination among groups working in the watershed, and proactive management that is not resistant to regulation when necessary. These aspirations are aligned with the values mentioned by interviewees and should be promising for collaboration. These common aspirations could help participants identify shared interests that can form the foundation of a collaborative.





PERCEPTIONS OF ISSUES IN THE SACO RIVER WATERSHED

Chapter 5. Perceptions of Issues in the Saco River Watershed

The Saco River watershed is a geographically, socially, economically, and ecologically diverse landscape with people using it in many different ways. This chapter describes the landscape of issues within the Saco River watershed and how they were discussed by interviewees. During the interviews, two specific questions regarding issues within the watershed were asked:

- What do you consider to be the most important issues in the watershed?
- What is currently being done to address these issues?

People expressed concern about an array of issues facing the Saco River watershed. Interviewees frequently had differing perceptions about the major issues of concern and how they should be addressed and these varied perceptions reflect the diversity of the Saco River watershed itself.

Table 5.1 Issues and Sub-Issues in the Saco River Watershed

Major Issues	Sub-Issues	Percent Interviewees Mentioning
Recreation	Overuse Safety, security, and privacy Lack of awareness of impacts of overuse	67%
Development	Threat to water quality Changes in land ownership	35%
Dams and fish passage	Ecological connectivity Inadequacy of federal fish passage standards	35%
Water extraction	Private profits from a public good Equitable distribution of benefits Distrust of science Loss of local political control Viability of extraction due to climate change Sustainability of plastic bottles Maine Water expansion	29%

Table 5.1 summarizes the main issues and sub-issues raised by interviewees in order of the frequency with which they were mentioned. In particular, the major issues highlighted during the interviews were recreation, development, dams and fish passage, and water extraction.

5.1 Recreation

Recreation was the most frequently mentioned issue within the watershed. Sixty four percent of those interviewed raised concern over recreation impacts and the need for improved awareness and education, especially within the upper reaches of the Saco River. As one interviewee quipped, “the dams are almost protecting the lower part of the river from the recreation.”

A. Loved to Death

Interviewees pointed to the social and economic benefits of people enjoying this unique natural resource (particularly in the watershed’s interior towns) but were concerned about the current heavy usage. From Conway to Fryeburg, the recreational “use of the Saco is awesome . . . because people are on the river,” one interviewee explained. But this heavy recreational use comes with consequences. As one interviewee noted:

There are people camping out on sandbars, and drinking, and going to the bathroom, and generally making a mess. And managing that is a fair-sized challenge.

In the words of another, the Saco is:

Definitely a place that is at risk of being loved to death by the sort of weekend recreationalists who leave a lot of trash, camp on the shorelines, and do a lot of damage.

“I think we are slowly but surely killing the goose that laid the golden egg,” lamented another.

Several interviewees pointed to the risk of shoreline degradation due to heavy recreation in the summer months. As one interviewee explained:

If [campers] continue to use the same shoreline camping spot, day after day, year after year, those sites get degraded pretty quickly. . . And that shoreline is really the first line of defense in

water quality detection. That riparian buffer, that first 100 feet between shoreline and the uplands. And that acts as a sponge, that acts as a buffer to cleanse pollutants.

One interviewee pointed to the risk such heavy recreation poses to cobble barren sites, which are “rare and uncommon” ecological communities.

B. Safety, Security, and Privacy

Though excessive amounts of litter and the improper disposal of human waste were commonly cited recreation related issues, interviewees also talked about threats to safety posed by some people who recreate on the Saco. These threats included burglaries, sexual assault, accidental death, and domestic violence. One interviewee pointed to the negative behaviors associated with recreation and the “enormous amounts of mental, emotional, and financial costs imposed on the affected towns.”

They explained the need for local resources to support additional police enforcement, and mentioned that funds from a park account were being used to support two additional police officers in the park that runs along the river. Interviewees also discussed the effect of heavy recreation on local homeowners along the river. One person pointed to “homeowners’ lack of privacy . . . when you have that many people floating down the river in front of your house.”

Many interviewees acknowledged the difficult position of the Fiddlehead Campground, the “epicenter [of] bad college kids misbehaving and getting way too drunk.” As one interviewee noted, Fiddlehead management has “taken a lot of effort to make it a safer place, a more responsible campground.” However, perceptions of the campground are slow to change, and “it’s just been known as a destination for such a long period of time that it’s hard to break people’s expectations of what Fiddlehead is.”

Most people accepted that many of the negative effects of recreation come from a small slice of overall users. As one interviewee explained:

The sad part is I know from very close experience that 90 percent of the people who come on the river to go canoeing, kayaking, to camp out on the sand bar--they’re great. And they’re having a wonderful experience and thank goodness they can get that experience, but there’s 10% that make it bad for everybody. And that’s a problem that you have to keep coping with.

C. Lack of Awareness of Impacts

Many interviewees discussed a lack of awareness of the consequences of heavy recreation among people kayaking, camping, and paddle boating along the river. One interviewee expressed that the river is “our source of drinking water,” and wished that people could enjoy the river with the understanding that “this is not just a river they can fish in and a river they can swim in.” Another interviewee pointed to a lack of “responsibility . . . being taken to make sure that our visitors are educated about the right way” to enjoy the river.

Another interviewee framed this issue as an opportunity to work together on educating users of the Saco:

It’s been tackled before, and it’s not unsolvable. It’s just figuring out a way to bring [potential collaborators] together so they don’t kill each other.

Many interviewees seemed unaware of coordinated efforts to address these issues, like those of the Saco River Recreational Council, which coordinates a volunteer clean-up program and works with liveries and campgrounds to help promote the responsible recreational use of the Saco.

5.2 Development

Development pressure was another issue discussed by one-third of the interviewees. While they recognized the benefits of development, these interviewees nonetheless maintain caution about its potential to threaten water quality through encroachment and storm water runoff. This caution was especially apparent in the “ends” of the river in the Conway/Bartlett area of New Hampshire and the Saco/Biddeford area of Maine. One interviewee unpacked the risk development posed by development in this uniquely forested watershed:

So as that development increases, you’re going to find more people building, you’re going to find more water quality impacts, storm water impacts, loss of forest cover. And that obviously would, over a long period of time, degrade water quality. And I’m not saying development is bad. It’s good in the right place, but if you’re going to be impacting water quality then you might want to consider where the development goes.

“Right now,” cautioned another interviewee, “the water in the upper Saco is relatively unpolluted,” but keeping it that way considering growth in the Conway area “might not be possible.” A few interviewees discussed the vulnerability of the watershed’s stratified drift aquifer:

You have all this development on top of this aquifer that doesn’t have a protective cap like a bedrock aquifer, and so it’s very easily contaminated.

Several interviewees pointed to trends in land tenure in the area as drivers of increased development. As one interviewee explained, private forestlands are at risk of conversion to development because of the increased demand in housing within the watershed. This interviewee discussed the increased risk of non-point source pollution from septic systems and fertilizers associated with development.

Another interviewee highlighted the role of international investors in raising the specter of potential development within the watershed by purchasing large swaths of land:

Basically, all of Maine is for sale and there are only two buyers: land trusts and international investors. Land isn’t being bought for development because the land values suck. You can’t support the subdivisions. But that doesn’t mean people from international places don’t want to park their money in American dollars.

5.3 Dams and Fish Passage

Dams and fish passage, especially in the middle and lower reaches of the Saco River where dams and impoundments are more numerous, were a concern raised by 33% of those interviewed.

A. Ecological Connectivity

Some interviewees acknowledged the benefits of hydroelectric power generation, but expressed concern about the inadequacy of current fish passage structures and called for increased ecological connectivity. As one interviewee noted, the issue of fish passage “is alive and well on the Saco because the structures in place aren’t very effective at fish passage.”

Another interviewee involved in advocating for increased connectivity

admitted he does not recommend fish ladders because he said they “actually don’t work very well.”

Dams also affect water temperature and water quality, as one interviewee explained:

By altering a naturally formed river, we dramatically change the entire watershed. Dams in rivers can create an increase in turbidity, or suspended particles, which are heated by the sun, increasing water temperatures and thereby compromising aquatic plant and animal life.

Another interviewee discussed the effect of dams on lower trophic levels, especially macroinvertebrates affected by sedimentation. This individual pointed to the altering of riverbed habitat through the accumulation of sediment between dams as a substantial problem, commenting:

[I]n order to have a healthy, cold-water fishery, you need to have adequate populations of aquatic insects in their larval stages. And the river is pretty much devoid of that biodiversity. So, it’s pretty sad. The dams do a lot of damage. People don’t understand the damage that really has been done to the river.

B. Role of Federal Standards

Those knowledgeable about the dam issue expressed concern that inadequate federal standards fail to encourage the implementation of more effective fish passage methods. One interviewee called fish ladders, fish lifts, and fish transport “only partially effective” due to “many different iterations” of fish passage. The Federal Energy Regulatory Commission (FERC) licensing process for all hydroelectric dams includes provisions to mandate a certain standard of fish passage. One interviewee called these standards “impractical and unworkable and unrealistic” given the measured success of fish ladders and fish lifts. Another interviewee called for FERC and the U.S. Fish and Wildlife Service to implement a new agreement with more effective standards of fish passage.

Though a few interviewees were in favor of dam removal, others felt calling for removal was unrealistic. As one interviewee noted: “As long as they’re generating electricity, it’s assumed that they’re profitable. They’re turning a profit so there’s no interest in removing them.”

Others recognized dam removal as a relatively small issue within the Saco,

but could anticipate it growing into a larger one. One interviewee pointed to protest centered on a dam in Kennebunk and the “unbelievable public outcry of folks along the river that don’t want the dam taken out.” Another interviewee mentioned efforts in the nearby Presumpscot River to increase connectivity for fish passage, and suggested that similar efforts might spread to the Saco on a more widespread scale.

5.4 Water Extraction

Finally, water extraction was an issue mentioned by 30% of interviewees. The interviews demonstrated that perceptions of this issue are far from black and white, or “for or against” extraction; rather, they fall on a continuum of different interests, motivations, and understandings. Specifically, interviewees expressed concern about profit-making from a public good, the equitable distribution of benefits of extraction, the credibility of the science related to extraction, the loss of municipalities’ decision-making authority, and other aspects.

A. Private Profits from a Public Good

Interviewees expressed concern about extraction within the context of the commodification or privatization of a public good. These interviewees took issue with the fact that Poland Spring, and corporations like it across the world, process and sell natural resources, like water, that are perceived to be owned by the public. One interviewee situates extraction within a larger system of exploitation of natural resources:

[T]he controversy surrounding Poland Spring raises a much broader legal issue about water as a human right and water as public property. And those broader legal, societal, [and] moral issues are of great importance.

Some people expressed concern over ownership of what is felt to be a common resource. As one interviewee expressed,

So many of the things that we count on as vital, which are utilities and are extremely vital to our infrastructure, our well-being, our life, are controlled by out-of-state companies, and the water that [Poland Spring] is taking is another example of this.

Some interviewees talked about the incompatibility of privatization and water as an essential aspect of human identity:

You can't really put water in the same category [as oil and other fossil fuels that have a history of exploitation] because our bodies are made up of 70% water. Because. . . how can you put a price on that?

B. Equitable Distribution of Benefits

Some interviewees expressed concern that the benefits of extraction are not being distributed equitably among the communities where extraction takes place. As one interviewee explained:

I'm okay with the extraction, but I think that it should be enriching the people that live here, and the people that call Fryeburg and the greater Mount Washington Valley their home.

The idea of extraction that is soundly managed with benefits that are equitably distributed was echoed by another interviewee, who sees water as a resource not dissimilar to many others in the watershed:

And I was trying to think of a parallel [to sentiment against extraction], like do we vilify the lobster men? There's a resource: the lobster that lives in the ocean. Now, we could say that lobsters are part of the commons and no one should take the lobsters and make money from lobsters. Trees, same thing. But that's what we as people do. We harvest natural resources.

Some people view extraction as a potentially win-win situation, for both Poland Spring and the communities within which it operates. One interviewee sees potential for managed extraction, not unlike other natural resources:

I see water as being like the woods. You want to harvest it sustainably, you want to leave it looking good when you're through with your harvest, [and] you want to make sure it regrows so you can do it again in another cycle. There are places where I want [it] to just decay naturally, but most of the woods and most of the water are there to be used in a thoughtful way.

C. Distrust of the Science Related to Extraction

Some interviewees pointed to a need for more independent science on extraction. They expressed concern that the science regarding extraction seems to come from people working for Poland Spring. As one explained,

[Poland Spring] hires their own hydrologists so when they're in a debate with a community about extraction and drought... their hydrologists will say that everything is hunky dory. And then people say, 'Those are your hydrologists. Why should we trust you?'

Another interviewee acknowledges that the existing science suggests extraction is within acceptable limits, but approached the models with skepticism:

[Scientists] modeled for precipitation, supposedly for climate change which I find interesting, seeing as climatologists can't figure out exactly what's going on, so why they think they can figure out how much water there will be surprises me. But that's the information that's available, and that's what's used. . . So there's no direct research that I've seen that can point to the water extraction with any certainty and say, 'Yeah, you know what, you guys are taking too much.'

Skepticism of the science of water extraction and distrust of the experts who present it was a theme in several interviews. Some people spoke about the need for a third-party scientific assessment, one suggesting that funding might be sought to "get an independent person to come in and do some groundwater-level testing."

D. Loss of Local Control

Still another layer of the extraction issue is concern about the loss of local control over water extraction decision-making. Some interviewees, especially in the Fryeburg area and along the middle section of the Saco, expressed concern about the way in which corporations like Poland Spring operate within the local political structure. One interviewee seeks an alternative decision-making model for cash-strapped communities that lack the ability to make uncoerced decisions related to water extraction. This individual suggested a model where each community had autonomy to decide at what level it would tax entities that extract water.

Another interviewee situates Poland Spring's operations to gain permits for new wells within a pattern of localities losing decision-making authority across the U.S.:

Because of budget constraints, many municipal drinking water facilities are being privatized. I'm deeply concerned about this.

When profit becomes the driving force for decision-making, we tend to favor the few at the expense of the many, and especially the natural environment.

Some interviewees had witnessed this process firsthand, and described Poland Spring's involvement in municipal forums. One individual described a process where local selectmen, in cooperation with the town lawyer and a Poland Spring hydrologist, were able to secure a five-year extension of a decision to reconsider current extraction, all despite the presence of dozens of townspeople who wanted otherwise.

Another interviewee expressed skepticism of this characterization of the permit process:

And when they [Poland Spring] come to a town and they want to do a new spring, the perception is that they bulldoze and sweet-talk the political structures so that selectmen will vote for it. They go into schools. They *infiltrate* schools.

Some interviewees pointed to strengthening "groundwater protection laws" in Maine, "which has weak laws regarding extraction," as a potential solution.

Interviewees held strong feelings about the extraction issue. Some desire preservation of local governance, and look with trepidation to Poland Spring's relationship with the town of Fryeburg. One interviewee explained:

Local governance over a local water resource is critical. . . . because in a town like Fryeburg, where a private water company engaged in a 45-year contract with [Poland Spring], [it's] really irresponsible. But it's really easy for a private company to make a private deal like that. . .

E. Other Issues Related to Water Extraction

A few interviewees expressed concerns about other issues related to water extraction, including the long term viability of extraction due to climate change and the sustainability of plastic bottles used by Poland Spring.

One interviewee expressed concern over the expansion plans of Maine Water, explaining:

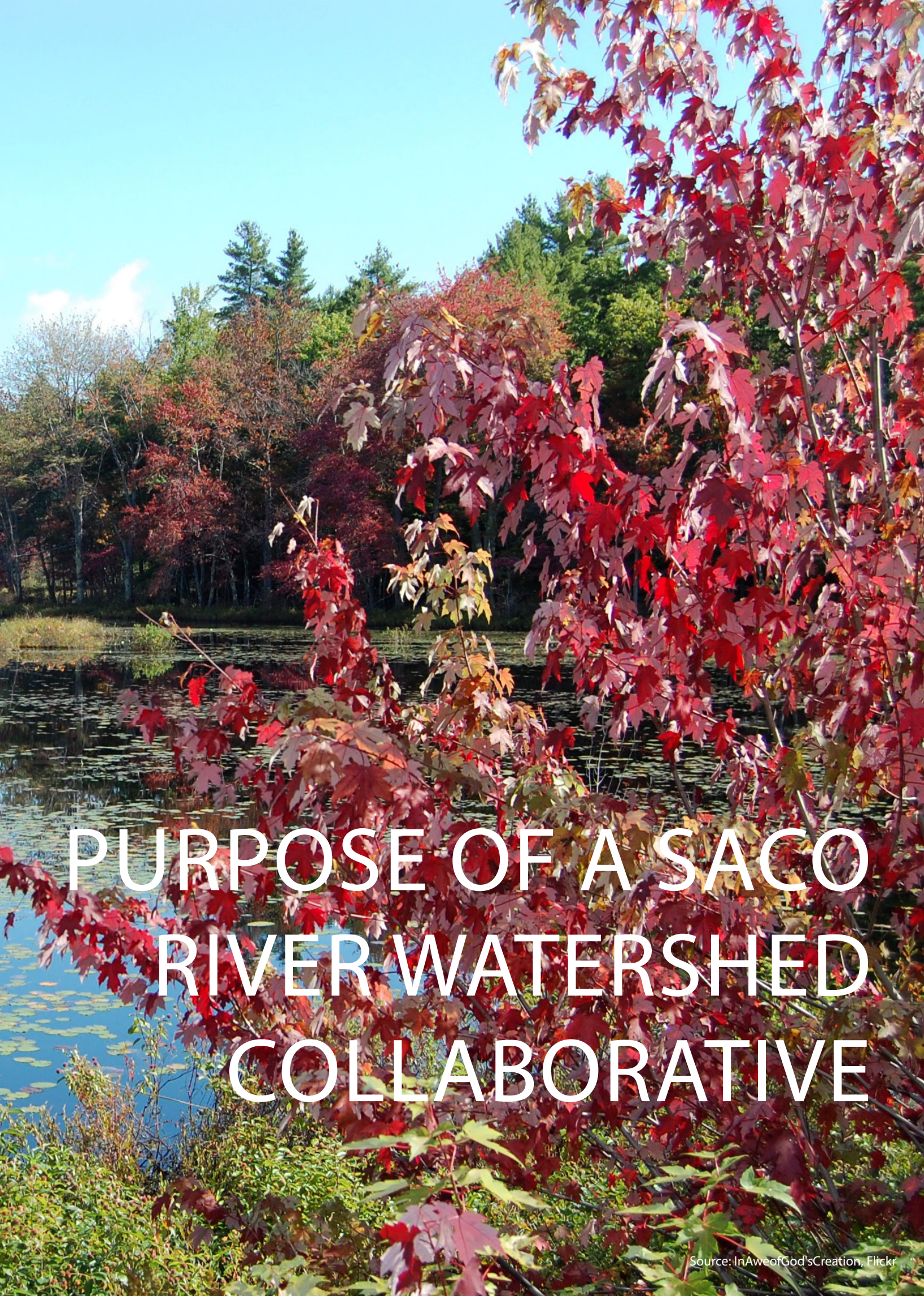
...I think [Maine Water] went to the Public Utility Commission and got permission to take maybe 10 times more water than they're allowed to take now. And they want to connect to Portland. They're only about a mile away from being connected to the Portland pipe system. And they want to connect south. And some people think they really want to expand in a big way.

These myriad issues and concerns related to water extraction demonstrate the complexity and nuance of this issue within the watershed. Interviewees' positions often depended on their proximity to communities with wells or extractive operations. For example, some interviewees admitted they would likely perceive extraction to be more of an issue if they lived in or near Fryeburg. In general, responses suggest that people hold an array of perceptions about Poland Spring and Maine Water, while also sharing a common understanding of the benefits that these companies provide, such as jobs and economic development.

Conclusion

Interviewees discussed a broad range of issues within the Saco River watershed, particularly recreation, development, dams and fish passage, and water extraction. They mentioned a variety of people and organizations within the watershed that are working to address these issues to varying extents. A lack of awareness of actions being taken suggests that one potential purpose of a collaborative is to elevate awareness of things that are being done and new opportunities that might be seized, as well as improve coordination between people and organizations working in the watershed. It is worth noting that no single issue was mentioned by all interviewees as a whole. Rather, interviewees' perceptions of issues represented the diversity and scale of a watershed used by many people in different sections of the watershed and in many different ways.





PURPOSE OF A SACO RIVER WATERSHED COLLABORATIVE

Chapter 6. Purpose of a Saco River Watershed Collaborative

Identifying a shared purpose or mission is a critical first step in forming a collaborative organization. Establishing concrete answers to the questions ‘*Why should we collaborate?*’ and ‘*What do we want to achieve?*’ enables those involved to construct a collaborative process that is both purposeful and focused. It provides direction for how to best design a governance structure and, ultimately, begin undertaking projects and getting work done.

This chapter describes interviewees’ hopes and expectations for collaboration in the Saco River watershed. It examines interviewees’ levels of interest in forming a collaborative organization, as well as their perceptions of a potential collaborative’s purpose. While interviewees were unified in their interest in creating a watershed collaborative for the Saco, their responses showed differing opinions about the purpose or vision for such an organization.

6.1 Interest in Collaboration in the Saco River Watershed

An important precursor to understanding why people in the Saco River watershed might aspire to collaborate was to concretely establish that people were, in fact, interested in collaborating. As such, we asked each interviewee ‘*Do you think forming a collaborative in the Saco River watershed is a good idea?*’ In posing this question, we clarified that we were asking about a collaborative in general and not specifically referring to the existing collaborative that is currently meeting. Although robust participation in the December 2016 workshop hosted by the Wells National Estuarine Research Reserve appeared to indicate interest in the creation of a collaborative, we wanted to determine how widespread was the level of support for such an endeavor.

Overwhelmingly, interviewees believed that forming a collaborative organization for the Saco River watershed was a good idea. 85% of interviewees voiced enthusiastic support for the creation of such an organization, with one interviewee noting: “Anytime you get a group of fair-minded people together with one common goal – that is to take care

of the resources – that’s a good thing.” Another interviewee said: “We are really supportive and encouraging of efforts that pull together resources and try to create new capacity for work.”

The remaining interviewees indicated their conditional, measured support. Four of these interviewees stated that the collaborative would have to be pursuing a goal or purpose that was specifically in line with their own interests for them to join. Two interviewees believed that a collaborative in some form could be helpful but had limited interest in participating due to their own lack of professional involvement in the watershed.

Notably, no interviewees expressed outright opposition to the creation of a collaborative.

6.2 Potential Purposes of a Saco River Watershed Collaborative

After establishing that interviewees were generally interested in forming a collaborative organization in the Saco River watershed, we wanted to understand what they envisioned the potential purpose of that collaborative should be.

In asking each interviewee the following questions, we hoped to understand what role a collaborative would serve in the watershed and what its overarching goal or goals could be:

- What do you think the collaborative would contribute to the watershed?
- Who do you think should be acting upon the collaborative’s advice?

Interviewees offered a wide range of potential purposes that a potential Saco River watershed collaborative could pursue (Table 6.1). These purposes were not necessarily independent. Many collaboratives encompass multiple purposes. Hence, it was not surprising that many Saco River interviewees expressed shared interests in engaging in a process that encompasses watershed-scale planning, sharing information with others in the watershed, and improving education and outreach along the river corridor.

In general, interviewees expressed hope that a collaborative would focus

its efforts in one of three overarching areas. Many interviewees believed that a collaborative should exist to enhance its members’ relationships, knowledge, and capabilities, which could be accomplished by focusing on networking and information sharing and/or coalition- and capacity-building. Some interviewees hoped that a collaborative would focus its efforts on influencing the knowledge and behavior of others via public education and outreach, advising municipalities and state governments, and/or advocacy activities. And some interviewees believed that a collaborative should focus on enabling watershed-scale management and planning by taking an ecosystem perspective in decision-making, coordinating conservation efforts across the watershed, and/or tackling issues that cross multiple jurisdictions.

Table 6.1 Potential Purposes of a Saco River Watershed Collaborative

Main Purpose	Sub-Purpose	Percent Interviewees Mentioning
Enhancing Members’ Relationships, Knowledge, and Capabilities	Networking and information sharing	48%
	Coalition- and capacity-building	15%
Influencing the Knowledge and Behaviors of Others	Public education and outreach	31%
	Advising municipalities and state governments	17%
	Advocacy	8%
Enabling Watershed-Scale Management and Planning	Ecosystem perspective in decision-making	21%
	Coordinating conservation efforts	8%
	Tackling issues that cross multiple jurisdictions (e.g. recreation)	4%

A. Enhancing Members' Relationships, Knowledge, and Capacities

When asked what they envisioned the purpose of a potential watershed collaborative in the Saco to be, many interviewees described activities that would bolster the capacity of the collaborative’s members. Through networking, information sharing and coalition-building, these interviewees hoped that a collaborative would help them strengthen their own professional capacities and networks, enabling them to function more effectively in their own organizations.

1. Networking and Information Sharing

Sharing information and networking with other groups and individuals working in the watershed was the most commonly envisioned purpose for a potential collaborative group, with 48% of interviewees suggesting this purpose. One interviewee said: "I think that it would be helpful to see how others are tackling issues and what they're doing." Another interviewee echoed this sentiment, noting:

...I think that the networking and coordinating function would be substantial, and I think that would be kind of the huge value that would be provided....

Some interviewees mentioned that networking and information sharing was needed because parties and individuals working in the watershed often are unaware of other work occurring in the watershed. One interviewee explained:

...Even having a network of communication just to talk and even just to become aware of what else is happening on other sections of the river and what people are working towards...I think that would be fantastic.

In particular, a few interviewees believed that increasing people's exposure to others working in similar capacities could reduce duplication and allow groups to pool resources and expand the reach of their groups' work – particularly in the nonprofit sector. As one interviewee commented:

...There's all kinds of nonprofit, environmentally-oriented groups that don't seem to know what the other is doing, you know? They should all get together and sit down and say 'we want to do this,' 'we want to do that,' 'let's Venn diagram it' because there could be some overlap that would save time and money.

Specifically, some aspired to share best practices on a watershed-scale level so that groups could apply these practices locally to their towns. Rather than forming a collaborative that would seek to help towns everywhere craft uniform ordinances and rules, these interviewees hoped that opportunities for regular networking in the watershed would allow them to learn from others and take ideas and best practices back to their own towns, helping them function more effectively in their own domains. One interviewee summed up this idea, saying:

It's more of a convener where people share ideas and say, 'You know what I really need next...?'; and then you say, 'Let's figure out how to get you what you need.'

Finally, a few interviewees hoped that a collaborative would create an online repository of data and watershed news that would enable groups to quickly and easily share and access information. As one interviewee put it: "...I would see the benefit of providing a clearinghouse. Maybe even if that's just having a really good website that's kept up..." Another interviewee agreed, saying: "I think it's a good idea from the standpoint of data gathering, having a repository, if you will, for that data and for educational purposes..."

However, it is important to note that a few interviewees expressed concern about forming a collaborative that was solely focused on networking. One interviewee noted that while participating in networking organizations can be an easy, low-commitment way to meet new people and feel good about expanding your network, they did not believe that a broad-based collaborative focused solely on networking in the Saco would be particularly useful.

2. Coalition and Capacity Building

Some interviewees (15%) discussed capacity and coalition building as key goals for a potential collaborative. They noted the power of taking a "strength in numbers" approach to watershed management and hoped that a collaborative would serve to unite people with shared interests to work towards a common goal. One interviewee said: "I think stewardship is important and I think the idea of a coalition is really important, because you get groups of like-minded people together that are working for a common cause." Another interviewee noted:

...When you're part of a larger group that has more visibility, that has more clout, that has big players, whether it's a government agency or state agency, I think it gives everybody more credibility.

A few interviewees believed that coalition building should be a key focus of a collaborative in the Saco because it would allow groups to amass more resources and money than they could otherwise stand to gain individually. These individuals expressed hope that groups in a collaborative would pool their own individual resources and jointly apply for grants to fund collaborative projects. One interviewee explained:

...There's a lot of small, isolated pockets and communities that don't have as many resources as other communities. So, I think there's a resource-sharing aspect, especially in rural areas, that can be really important...

Some non-profit organizations specifically believed that a collaborative should focus on building non-profits' capacities in the watershed. As one interviewee suggested: "I think the focus needs to be capacity-building for those small groups." Another noted:

I really think big regional efforts are not very effective but if there can be a big region that is defined with a common purpose that can then figure out how to empower the small local groups to actually do action on the ground, it will be an effective thing.

These two interviewees were concerned that a large, regional effort might marginalize the expertise and impact of non-profits, who often best understand local dynamics and needs. They noted that information, resources, and support that could be given to non-profits through a collaborative could bolster the efforts of these small groups already doing good work in the watershed.

B. Influencing the Knowledge and Behavior of Others

Some interviewees hoped that a collaborative would adopt an outward-facing focus by concentrating on influencing the knowledge and behaviors of decision makers and the public. Through public education and outreach, advising local and state governments, and/or advocacy, these interviewees sought to bolster the public's knowledge of the watershed and of the connection between their actions and its health, and to push decision makers to implement changes that would positively affect the Saco.

1. Public Education and Outreach

One-third of the interviewees suggested that bolstering public education and outreach about the Saco River watershed should be a key goal for a collaborative. They envisioned outreach occurring in a few different ways.

Some interviewees believed that a collaborative could educate towns and citizens about salient issues in the watershed, which could help change individual behaviors that are detrimental to the river and watershed. As one interviewee explained:

...My hope would be that this collaborative process would somehow produce some sort of an outreach-type message in some media. I don't know how it would work but just to get the word out...The more people are empowered by the knowledge, the better they'll act.

Others hoped that a collaborative would engage people in the watershed in citizen science programs, something that would dually serve to increase the amount of water quality data and educate citizens about the natural ecosystem. One interviewee said: "We want to get the community involved and we want to get more citizen science projects."

Another interviewee believed that a collaborative should focus on working with farmers and individual landowners to improve land management practices. As this interviewee noted:

And again, I mention land protection as a good focal point there. I think the ability to work with landowners, especially large landowners in the watershed is important. There still are a lot of large tracts of land, whether its farms or just landowners that own these huge pieces of land, so [influencing] land management is important as well.

A few interviewees hoped the collaborative would allow for academic institutions, including UNE, to extend their reach and programs further in the watershed. Said one interviewee:

I'd love to see UNE's programs and offerings move upstream, out of the estuary. I think they sit in a wonderful place that gives them access to environmental studies, environmental stewardship... I'd love to see UNE have a broader footprint, a larger footprint in using the Saco as an educational resource.

2. Advising Municipal and State Governments

Some interviewees (17%) hoped that a collaborative would serve as an advice-giving body to municipal, county, and state governments. Most of those who prioritized a collaborative acting in an advisory capacity specifically hoped a collaborative would advise towns on matters relating to the watershed, given that the level of resources, staff, and expertise of towns varies greatly across the watershed. A few interviewees mentioned the role of local conservation commissions and boards of selectmen in making decisions that affect the river and expressed hope that a

collaborative could inform and advise these entities about watershed-related issues. One interviewee envisioned the role of the collaborative to be to:

...Recommend to our elected officials, governing bodies from village districts to towns to counties, all the way up to the state level. Recommend them to pass certain legislation or to be made aware of certain issues.

Three individuals specifically hoped that a collaborative would advise municipalities about ordinances and help them determine which ordinances to implement, particularly regarding water extraction and aquifer protection.

One interviewee, however, was concerned that a collaborative focusing on advising decision-makers on new rules and regulations might make the regulatory environment more complicated and restrictive. This interviewee noted that businesses operating in the watershed are already regulated by multiple parties with different priorities and standards. They would not be interested in joining a collaborative that would make working and living in the watershed more difficult for residents and businesses by recommending decision-makers adopt new ordinances or regulations.

3. Advocacy

Four interviewees hoped that advocacy would be a key focus of a Saco River watershed collaborative, although they had differing views about what the collaborative would be advocating. Two interviewees saw a collaborative playing an active role in advocating for the continued existence and funding of the Saco River Corridor Commission (SRCC). As one explained:

I think it will be another ally in the defense of the Saco River Corridor Commission. There have been a couple of proposed bills over the years to abolish it because they've said no to projects and the people who've proposed the projects had enough money to go influence a legislator to say I want a bill to get rid of those guys. It has never worked but it'll happen again. So, the collaborative can be another and broader louder voice in defense for protection of the Saco River.

One interviewee hoped that a collaborative would dually advocate for the expansion of the Saco River as a regional drinking water source and focus

on the Federal Energy Regulatory Commission (FERC) dam relicensing process. This interviewee hoped that a collaborative would gather data to influence communities involved in the FERC process – potentially enabling the collaborative to have a place at the table in future relicensing talks.

Finally, one interviewee envisioned a collaborative taking a more broad-based approach to advocacy, explaining that they saw the collaborative more generally as an advocate for land and water quality in the New Hampshire and Maine state legislatures.

C. Enabling Watershed-Scale Management and Planning

In combination with or in contrast to the purposes previously mentioned, some interviewees hoped that a collaborative would take a resource-centric view to the Saco River watershed and focus on improving the river and its natural resources. These interviewees hoped to accomplish this purpose by adopting a landscape-scale approach to planning and decision-making, better coordinating conservation and monitoring efforts, and tackling cross-jurisdictional issues.

1. Landscape-Scale Approach to Planning and Decision-Making

One-fifth of the interviewees hoped that a collaborative would enable watershed-scale management and planning. One interviewee expressed: "I think that when you start sharing resources and you come to some common understandings on a landscape-scale, there are great efficiencies and great gains that can be made." Another noted, "I think it's much more effective to bring like-minded people together to help solve problems on a watershed scale here in the Saco."

These interviewees noted that trying to operate within municipal and state regulatory boundaries constrains management of the Saco's resources and that taking an ecosystem-based approach to addressing problems could result in better outcomes. One interviewee explained: "Municipal and state boundaries are just really weird when it comes to the environment. Because they don't work." Another interviewee said:

We also think we have the unique opportunity to work on a watershed scale that – as currently exists in the world of land conservation and water conservation, the collaboratives that exist are organized more by geography than by ecological demarcations.

2. Coordinating Conservation Efforts

Related to taking a watershed-scale approach to planning, four interviewees believed that a key focus of a potential collaborative would be to coordinate and expand conservation efforts in the watershed. They noted the importance of coordinating protection of water resources to maintain the Saco's good water quality. Two interviewees believed that a collaborative could better study and protect water resources by coordinating water monitoring efforts, which currently exist in disparate, isolated stretches of the river.

Notably, three of these interviewees thought that a collaborative should focus specifically on land conservation. Citing increased development and riparian land conversion as concerns, these three interviewees hoped that a collaborative would enable groups to work together to protect large tracts of land, consolidating the individual efforts of local land trusts. One of these interviewees explained:

There's a lot of land conversion that has been happening in this watershed, with development and things of that sort... That's the type of thing they [the collaborative] could help oversee.

3. Tackling Issues that Cross Multiple Jurisdictions

Finally, two interviewees expressed that a Saco River watershed collaborative would help manage issues that cross multiple jurisdictions, such as recreational use of the river. One interviewee commented: "The Saco could be improved from a public health perspective and that's an opportunity for using the river wisely."

Conclusion

Overall, interviewees articulated clear interest in pursuing greater collaboration in the Saco River watershed, with all expressing some level of enthusiasm for the creation of a collaborative organization. Despite this shared interest in collaboration, interviewees presented a wide range of roles they envisioned a collaborative pursuing, generally describing roles that fell into the categories of improving members' capacities and knowledge, improving the public's behaviors and knowledge, or improving the physical resource itself. Discussing this range of purposes and collectively deciding which ones to focus on will be a necessary foundational step in creating a potential Saco River watershed collaborative.





STRUCTURE OF A SACO RIVER WATERSHED COLLABORATIVE

Chapter 7. Structure of a Saco River Watershed Collaborative

As part of the assessment of the potential for a collaborative in the Saco River watershed, we were interested in learning about stakeholder perceptions of how a collaborative should be structured, managed, and funded. Interviewees were asked several questions to ascertain their ideas about how a collaborative should be structured including:

- Do you think the collaborative would have a formal structure, or be more informal?
- If formal: Who should manage the collaborative?
- If informal: How do you think decisions should be made?
- How frequently do you think the collaborative should meet?
- Have you given any thought as to how the collaborative's work could or should be funded?
- How do you think the logistics of scheduling meetings, managing funding and operating the collaborative should be managed?
- Do you envision logistics might ultimately be handled by a paid coordinator or staff?

This chapter presents and discusses what was learned in response to these questions.

Three primary findings emerged. First, most interviewees (about 60%) had not given the structure of a collaborative much thought. In some cases this was because they were not involved in the existing collaborative and, in a few cases, they had not heard of it. Many had no prior experience with collaboratives that could inform how they imagined a Saco River watershed collaborative might be structured and managed. Some interviewees with no strong opinions raised concerns about various issues that impact structure.

Second, those who had thought about collaborative structure had divergent ideas informed by the purpose they believed the collaborative would serve. Nine interviewees suggested that the collaborative should have a formal governance structure, including a board with decision making authority. Five advocated for an informal and adaptive collaborative with minimal structure. Nine interviewees advocated for some elements of both formal and informal structure but did not explicitly favor either.

Our third finding is that the current funding from Poland Spring for the existing Saco River Watershed Collaborative initiated in December 2016 has clearly influenced how interviewees thought about collaborative structure and informed their answers about membership, resources, and governance.

While most interviewees did not have opinions about structure, it is important to consider. How a collaborative is structured will determine whether or not participants find it worthwhile and trustworthy.

7.1 Attitudes About a Formal vs. Informal Collaborative

A. Formal vs. Informal Organizational Structure

Nine interviewees were in favor of the collaborative taking on a formal structure, such as a 501(c)(3) or another organizational model with a formal board of directors. Interviewees who favored this model often expressed its advantage in securing funding, particularly from foundations. Some believed that a formal structure would create greater transparency and avoid control (or perceived control) by a single dominant funder. One interviewee feared that an informal model may lack accountability and the ability to accomplish goals.

Another benefit of a formal structure mentioned by some interviewees is that it could help the collaborative develop institutional memory and become self-sustaining, even when there is turnover in membership and leadership. Since the collaborative will not necessarily be anyone's first priority, interviewees believed that a formalized structure would enable it to be more readily self-sustaining. Some proponents of a formal structure suggested that most work could be done by the board, while others envisioned the board overseeing a small staff. Others suggested that committees could make some decisions or take on projects to accomplish the goals of the collaborative. Several interviewees perceived that incorporating as a 501(c)(3) might be a difficult undertaking, with one saying that the collaborative should only incorporate as a 501(c)(3) if there was a compelling, purpose-based reason to do so.

In contrast, five interviewees expressed a preference for a more informal structure. These interviewees often described the collaborative as primarily

an opportunity for different groups to share information about what is happening in different parts of the river as well as network to enable problem solving. One interviewee felt that an informal structure would support a collaborative focused on education activities in the watershed.

Interviewees who favored an informal model perceived that it would be easier for people with little time to participate since, as they envisioned it, there would be fewer responsibilities for members. One interviewee hoped that an informal structure would focus participation when and where it was useful, thereby avoiding participation for its own sake.

Not every idea for structure mentioned by interviewees fits into a formal vs. informal structure model, and some expressed support for elements of each. Some suggested that a smaller group like a board could make some decisions while the larger group consisting of all active members could vote on major decisions. A similar suggestion was for a core group to make most decisions while those with fewer responsibilities would still be involved and have input. The idea that smaller sub-groups could take on projects was raised several times.

A few interviewees felt that it was most important to build some kind of regional component into the structure of the collaborative to ensure equal representation of the headwaters, middle stretch, and estuary sections.

The process for developing a structure was discussed by seven interviewees. One questioned whether outreach should be done only after a structure was developed or if a collaborative should work to include as many people as possible in developing its structure. One thought it would be best to start with an informal structure and develop more formality as organizations decided whether or not to participate.

B. Mission and Goals

Four interviewees preferred that a guiding document or statement of goals be developed as a first step in structuring the collaborative. Some of these interviewees thought it best to create a formal mission statement and bylaws, while others felt these guiding documents should be more informal. In both cases, these interviewees perceived these documents as necessary in focusing the limited time and energy people will have to put into the collaborative.

C. Staff

The need for a coordinator to handle the day-to-day logistics of a

collaborative was raised by ten interviewees. However, some of these interviewees thought that finding funding to pay such an individual would be challenging. A few expressed concern that a single individual may not be able to adequately understand and address the differing issues facing different sections of the watershed.

D. Institutional Host

Where a collaborative should be housed was a topic raised by eight interviewees, and they had differing opinions on who might serve as an appropriate institutional host for a Saco River watershed collaborative. Some of these interviewees thought it might be easier to locate the collaborative within an existing institution so that it could serve as fiscal agent and provide staff, time and other resources. Some expressed that this arrangement would avoid or delay the need for the collaborative to incorporate as a 501(c)(3), but it could make it more difficult to establish independent governance. Others were concerned that a host institution might use some of the collaborative's funding, resulting in a smaller budget and increased fundraising needs. Some suggested that a collaborative be hosted in a state agency or rotate institutional hosts every few years. Others felt that government agencies had too much bureaucracy to effectively host a collaborative.

Currently, the University of New England (UNE) is serving as a host institution for the existing collaborative. A few interviewees felt this arrangement was appropriate because of UNE's history of involvement with the watershed and access to resources, including researchers and students. Two also perceived UNE as neutral and less likely to be biased than a governmental or regulatory body. A few other interviewees questioned UNE's neutrality and wondered if it had a sufficient understanding of the needs of all organizations and stakeholders and issues in other sections of the watershed. Some are also cautious given Poland Spring's funding of UNE's work with the existing collaborative.

7.2 Membership

Interviewees had a variety of responses to the question of who ought to be involved with a collaborative, with 33 interviewees expressing thoughts about membership. Some felt that the groups currently engaged in the existing collaborative were sufficient while others believed some voices that were currently missing should be included.

About 20 interviewees felt that membership in a collaborative should be open to any individual or organization interested in participating, while others believed that it would be best to restrict or encourage participation from specific groups. For example, about nine interviewees felt that it would be critical to include as many town managers or other local officials as possible in order to encourage creation and enforcement of consistent municipal policies and build closer relationships between nonprofits and municipal governments. Others felt that doing so could be challenging given that many towns lack paid staff and resources and some residents distrust local governments.

Specifically, various interviewees mentioned that nonprofits (particularly land trusts and conservation organizations), local governments (including town managers, conservation commissions and planning boards), utilities (water and waste treatment), chambers of commerce, regional planners, state agencies, federal agencies, industries based in the watershed (including recreation businesses and Poland Spring), landowners, land managers, farmers, foresters, academics, and/or residents of the watershed should be included.

Two interviewees believed that membership should be limited to nonprofits, or that nonprofits should be the primary decision makers, perceiving that these groups are on the frontline of conservation efforts. Similarly, a few others expressed a preference for focusing on conservationists and scientists in order to ground the collaborative's work in scientific principles and knowledge rather than individual interests.

Interviewees raised concerns related to membership. A few worried that opening membership to any person or organization who was interested would lead to a collaborative that was too large to effectively make decisions. One interviewee commented, "It's the tradeoff between inclusion and participation and the effective governance and decision making." Another wondered where to draw the line:

At some point, you have to draw some sort of a line. I made the analogy ...the other day that it's like you have a wedding. Do you invite your second cousins or not?

In contrast, a few interviewees felt that they were already being excluded by the existing collaborative.

Members of a collaborative can play different roles and the nature of the

roles and responsibilities of members can vary with the nature of the collaborative. One interviewee mentioned that different members could shoulder different roles with a core group making most of the decisions while others with fewer responsibilities could still be involved. Eight interviewees also pointed out the different perspectives and resources different members could bring such as local and regional perspectives, different stakes (such as conservation and recreation), and different types of expertise.

It is worth noting that while interviewees expressed these varying perspectives on membership, a few also commented that their own time was limited and while they were interested in participating, their ability to do so was somewhat constrained.

7.3 Sources of Funding

A. Possible Funding Sources

About 26 interviewees agreed that a collaborative would require at least some funding, though the amount needed would depend on what the collaborative chose to do. Interviewees raised a variety of funding possibilities including foundation grants, government grants, money from corporations, membership dues, research funding, and payments for ecosystem services.

Grants from nonprofit foundations or government programs were mentioned frequently by interviewees as an attractive yet challenging possibility. One interviewee pointed out that nonprofit foundation grants would require a 501(c)(3) status and a mission that funders found compelling and, even then, such funds are not guaranteed. Additionally, two believed it would be difficult to obtain money for organizational operations given that foundations primarily fund projects. Nine interviewees were somewhat optimistic about applying for federal grants since part of the watershed is located on federal land, though six believed it would be difficult to access these funds given the current political climate. Four interviewees thought that local or state money should be available to the collaborative, though three felt that political realities would make that unlikely. A few also mentioned that applying for and reporting on grants can be time-consuming.

B. Concerns Regarding Funding

Issues around control, disclosure, sustainability, and competition related to

sources of funding were mentioned by 15 interviewees. Some were wary about potential control that might be exerted by funders; others felt that control could be avoided with disclosure of what money was received for what purposes. The issue of funding sustainability was also raised; it could prove difficult for a collaborative to make plans for the future without a secure source of funding, in particular to cover operational needs like paying staff members. Finally, a few interviewees expressed concern that a collaborative might compete for funding with organizations that were members of the collaborative.

7.4 Challenges Facing a Collaborative Organization in the Saco River Watershed

Several structure-related challenges became apparent during interviews.

A. Existing Jurisdictions and Organizational Contexts

Interviewees noted the many other municipalities and agencies that already have jurisdiction over planning and management in the watershed. They noted that a collaborative would need to be structured in a way that respected those jurisdictional boundaries. The context within which the collaborative will operate will have an impact on its structure. The Saco River stretches between New Hampshire and Maine where interviewees noted that there are different water quality standards and bureaucracies which a collaborative would need to navigate. The watershed encompasses many towns and cities with different resources and regulations. Three interviewees pointed out that many of these towns are governed by home rule, leading to potential jurisdictional conflicts depending on the collaborative's objectives.

In Maine, a collaborative would likely focus on issues that are in the same jurisdiction as the Saco River Corridor Commission, which already creates another layer of zoning in addition to the regulations municipalities have in place. Four interviewees worried that a collaborative might lead to further regulation that would negatively impact them or their communities; three were unsure what a collaborative could add to areas where the Saco River Corridor Commission operates.

The Saco River watershed also contains a number of organizations working in various sections of the river, creating the perception of possible overlaps, such as the many groups that monitor water quality. A few interviewees noted that although a collaborative would ideally

reduce these redundancies, it ran the risk of creating more overlaps. Two interviewees raised concerns that groups could be territorial and reluctant to work together.

Different sections of the watershed face different challenges and nine interviewees questioned whether there would be enough common goals to make a collaborative effort worthwhile. While some common values exist, these interviewees questioned whether they were sufficient to make a collaborative effort compelling and engaging for people and organizations across the watershed.

B. Concerns About Current Poland Spring Participation and Funding

The inclusion of Poland Spring as a participant in the existing collaborative is a divisive issue. Some argued that Poland Spring should not be involved while others argued that it should be. About six interviewees specifically said that Poland Spring should not be involved in a collaborative. A few felt that Poland Spring would use the collaborative as a public relations tool and unfairly gain good press through association with conservation groups working to maintain quality water. In particular, interviewees who saw a collaborative as a potential platform for advocacy did not see a role for Poland Spring.

In contrast, seven interviewees specifically said that they wanted Poland Spring to be included in a collaborative either because they had positive views of Poland Spring or because they felt that the company plays such a large role in the watershed that leaving them out would create an incomplete stakeholder group. One interviewee commented:

We can't have this collaborative without Nestlé in the room because they're such a huge industry in that watershed. That's kind of the thing that's going to either bring people together or push them away.

The existing collaborative is receiving most of its funding from Poland Spring and Maine Water with the University of New England serving as fiscal agent. Around ten interviewees expressed some level of concern about the motives of Poland Spring and/or Maine Water in funding a collaborative, though three said that they had not yet noticed any funding-related issues in the existing collaborative.

Most concerns were related to the control a funder could exert, distrust

of Poland Spring, or the optics of being involved with a collaborative funded by Poland Spring and Maine Water. Several argued that funders can exert control in a variety of implicit and explicit ways. A few interviewees said were concerned that members of the existing collaborative are so busy that it would not be difficult for a group to start exerting undue influence over process. One said:

And if it's a free and transparent and democratic process, where all the stakeholders are invited, and all of these ideas are vetted, and then there's actually some action plans that are put in place, and Poland Spring is simply writing the check...I personally would be okay with that. But I think it's really, really, really difficult for anybody who's any funder to not exert control over the process.

Five interviewees said that being associated in any way with Poland Spring could damage other important relationships, including those with their own funders and membership bases. Two others acknowledged this potential problem for other groups even though it did not impact their own organizations.

A handful of interviewees expressed concerns about how the funding appeared to be operating in the existing collaborative. A few commented that they had not known about the Poland Spring and Maine Water funding arrangement initially and they felt uncomfortable being associated with the collaborative when they found out. Others commented that this lack of initial disclosure made them suspicious. A few were concerned that they did not know the conditions whereby UNE had accepted the funding.

Interviewees who were more involved with the origin of the existing collaborative effort explained that the money was given without any restrictions or direction for the group.

C. Concerns about Cooptation

Approximately six interviewees pointed out that different organizations in the watershed have different goals, so members of the collaborative would be coming with their own motives and agendas. Consequentially, these interviewees raised the question of how the collaborative could develop and pursue its own agenda, particularly when members have their own goals and, in some cases, little extra time and energy to devote to the collaborative.

Four interviewees expressed concern that a collaborative could become too polarized because groups with highly pro-Poland Spring or anti-Poland Spring sentiment could find the process most compelling while those without a particular stake in that conflict would find the process unappealing if too much time was spent on that conflict. One pointed out that some organizations needed or preferred to remain apolitical and avoid advocacy work, so they would be unable to get involved with a collaborative that was advocacy-focused or took an anti-Poland Spring stance. One interviewee worried that a collaborative might end up claiming credit for work that their organization had independently accomplished. A few interviewees said that careful leadership and coordination would be able to help a collaborative avoid being dominated by particular interests.

Conclusion

Most interviewees had not given serious thought to a potential collaborative's structure prior to our conversations with them. Those who had given thought to structure expressed varied, often conflicting, opinions about it. Hence it is not possible to point to specific elements of a collaborative structure around which there is agreement by people in the watershed. Some interviewees favored a formal process and some favored an informal process, while others advocated elements of both. These opinions were influenced by what interviewees saw as the purpose of the collaborative, which is unsurprising given that the purpose of a collaborative should shape the structure, including who makes decisions and how decisions are made.

In addition, interviewees' thoughts on structure were frequently influenced by controversy around funding from Poland Spring and Maine Water, as well as Poland Spring's involvement in a collaborative in general. Some were in favor, some were neutral or cautious, some saw a limited role for Poland Spring, and some saw no role at all. It is clear that this funding and ensuing controversy is shaping people's thoughts and behaviors with respect to the existing collaborative.

While no clear consensus or structure emerged from the interviews, the ideas and concerns that were raised offer important points for

consideration and discussion as efforts at collaboration continue to progress in the watershed. Moreover, many of the concerns and suggestions about structure were focused on questions of credibility and transparency. These questions will need to be addressed if the collaborative is to achieve broad buy-in and support.

Additionally, interviewees' desire for flexibility in level of involvement was rooted in concern about both their capacity for participating and the added-value of the process for them and their organizations. This concern begs attention to how to ensure that any collaborative is structured in a manner that is acceptable and worthwhile to those involved in it.





CASE PROFILES

Chapter 8. Case Profiles

Watershed collaboratives across the country are structured in different ways to fulfill a range of different purposes. Some face threats similar to those facing the Saco River watershed. Others face different threats, but have similar internal dynamics. This project was designed to assess the issues and interests within the watershed and the factors that participants should consider when determining whether and how they might proceed with a Saco River watershed collaborative. We hope that providing a series of case profiles on collaboratives that face similar challenges to the Saco River watershed will help participants decide which approaches are best suited to their interests and concerns.

Cases that met the following criteria to at least some degree were selected to be profiled in this report:

- *Scale*: the collaborative is working at a watershed-level scale and is similar in size to the Saco River watershed (1,703 square miles).
- *Location*: the collaborative is located in New England or is working in a part of the country that shares similar ecological, social, and/or economic characteristics to the Saco River watershed. Special care was taken to select collaboratives that work in watersheds that cut across multiple states and/or jurisdictions.
- *Similar issues*: the collaborative formed to address issues that are also present in the Saco River watershed, such as recreation, dams and fish passage, water extraction, and development.
- *Impetus for collaboration*: the selected collaboratives represent different reasons for having been established.
- *Similar purpose*: the collaborative has goals similar to those expressed by people we interviewed, such as networking and information sharing, public education and outreach, and advocacy.
- *Long-term goals*: the collaborative is focused on a range of social and ecological interests in a sustained manner
- *Similar participants*: the collaborative is composed of parties representing a broad spectrum of local, state, and federal interests, including both governmental and non-governmental agencies, businesses, and individuals

Ultimately, nine watershed organizations from across the country were selected to be profiled. Online research and, in some instances, phone

calls with members of the organizations informed our understanding of each organization's genesis, purpose, goals, structure, membership, and activities. Organizations are listed roughly in order of geographic proximity to the Saco River watershed.

- The *Androscoggin River Watershed Council* works in the Androscoggin River watershed in New Hampshire and Maine. It was selected because the watershed contains striking ecological, social, and political similarities to the Saco River watershed and faces many analogous issues.
- The *Salmon Falls Watershed Collaborative* operates in the Salmon Falls watershed, which lies adjacent to the Saco River watershed. This organization was profiled because some interviewees hoped that a collaborative in the Saco could mirror the structure and successes of the Salmon Falls group.
- The *Merrimack River Watershed Council* is focused on the Merrimack River watershed in New Hampshire and Massachusetts. It was profiled because it faces similar issues to those seen in the Saco River watershed and because the Merrimack River is contextually similar to the Saco River as an important regional drinking water source.
- The *Millers River Watershed Council* works in the Millers River watershed in southern New Hampshire and central Massachusetts. It was selected to demonstrate how an organization's purpose may change over time and for its current focus on taking a proactive approach to engaging citizens in watershed stewardship.
- The *Charles River Watershed Association* is located in the metro-Boston area and is one of the country's oldest and most decorated watershed collaboratives. Several individuals interviewed for this project expressed interest in this group, and thought that a Saco River watershed collaborative could be modeled after it.
- The *Connecticut River Conservancy* operates in the Connecticut River watershed, which is New England's largest watershed. It was selected because it works across a diverse, four-state watershed that faces many region- and state-specific issues, similar to the Saco.
- The *Huron River Watershed Council* is located in southeast Michigan and is an example of an older, particularly well-established watershed

organization. Its structure engages municipalities and government units as members, and demonstrates one potential structure a collaborative in the Saco River watershed could take to ensure regional and local representation.

- The *Animas River Stakeholders Group* is located in the Animas River watershed in Colorado. Although it was formed under a far different issue context than that seen in the Saco, it was selected to be profiled because it demonstrates how structure can be used to address issues of credibility and distrust surrounding a collaborative's membership.
- The *Coos Watershed Association* in southern Oregon focuses exclusively on Coho salmon recovery. It provides an example of how one organization has used collaboration to engage different stakeholders in tackling a cross-jurisdictional issue.

In all, these cases demonstrate the many forms that a watershed collaborative can take and provide valuable insights and lessons learned to those who may be interested in creating a similar collaborative organization in the Saco River watershed.

ANDROSCOGGIN RIVER WATERSHED COUNCIL

Genesis

In the 1960s, the Androscoggin River was one of the most polluted rivers in the country. Raw sewage and paper mill discharges into the river resulted in noxious fumes, toxic foam, and waters devoid of nearly all aquatic life (Collins, 2017).

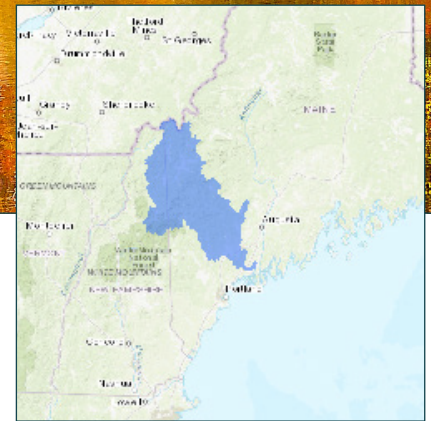
These conditions provided the impetus for U.S. Senator Ed Muskie to develop the Clean Water Act of 1972 (Collins, 2017). Following the passage of the Clean Water Act, the health of the river improved significantly and drew increased interest from natural resource agencies, including the USDA Natural Resources Conservation Service (NRCS) and the Androscoggin Valley Council of Governments (Stern, 2017). Meeting informally and in small groups across the watershed, representatives from these agencies agreed upon the need for a watershed-wide group to advocate for the continued recovery of the Androscoggin and to balance multiple uses and interests. These discussions led to the creation of the Androscoggin River Watershed Council (ARWC) in 1999.

Structure

The ARWC is a 501(c)(3) organization headquartered in Bethel, Maine (ARWC, 2017). Initially governed by a Steering Committee comprised of founding members, the ARWC is now managed by a 17-member Board of Directors and its structure is documented in a set of formal bylaws. Directors represent a spectrum of organizations, including land trusts, municipalities, ski resorts, and schools, and serve two-year terms (Stern, 2017). Four officers are elected annually by members to serve as Chairperson, Vice Chairperson, Treasurer, and Secretary. The Board of Directors meets four times per year, including one Annual Meeting of the Directors; attendees can meet in-person, or via a conference call. In addition, the ARWC has two committees: the Executive Committee and the Nominating Committee (ARWC, 2017).

The Executive Committee, comprised of the four officers plus three additional Directors nominated by the Board of Directors, oversees ARWC's administration with respect to personnel, finances, and operations. A Nominating Committee, appointed by the Directors, nominates new members and explicitly aims to nominate candidates that represent a range of geographies and backgrounds, including business, nonprofit organizations, municipalities, and state and federal agencies. Two part-time staff are also currently employed to run the council's activities and volunteer programs.

As a non-profit organization, the ARWC obtains funding for its activities from a variety of sources,




Watershed Facts

- Location: Maine and New Hampshire
- River Length: 164 miles
- Drainage Area: 3,450 square miles
- Issues: Recreation, Development, Dams and Fish Passage
- Purposes: Public Education, Coalition-Building, Advise Municipalities, Networking, Coordinating Conservation, Tackling Cross-Jurisdictional issues

Goals

- Advocate and support environmentally responsible economic, community, and recreational development
- Advocate and support continued improvement of the natural environment
- Provide educational opportunities in support of the ARWC mission
- Encourage inter-community and interstate cooperation and planning that recognizes the human and natural resources of the watershed
- Actively develop and maintain broad-based involvement in the ARWC



"TO IMPROVE ENVIRONMENTAL QUALITY AND PROMOTE HEALTHY AND PROSPEROUS COMMUNITIES IN THE ANDROSCOGGIN RIVER WATERSHED."

Source: Jarl, Flickr

including member dues, grants (recently, from the Eastern Brook Trout Joint Venture and U.S. Fish and Wildlife Service), and foundations (Stern, 2017).

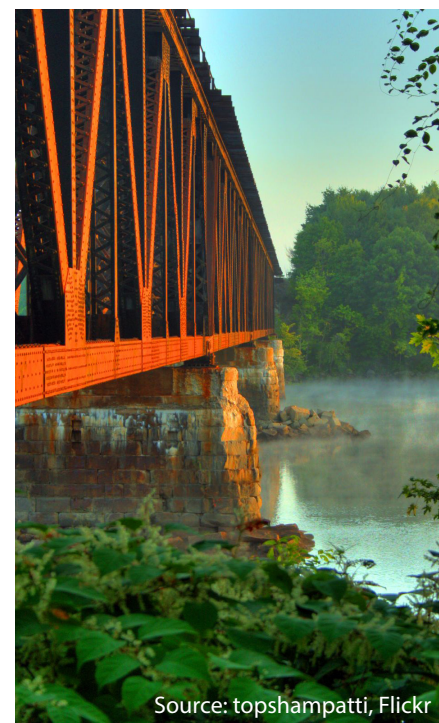
Membership

The ARWC has over 400 members that fall into two categories: individual/family members and organization members. Individual/family members are asked to pay an annual member fee of \$25, while organizations pay \$60/year. However, a range of membership levels is offered, with the premium "Eagle" membership costing \$500 per annum. Membership directly supports ARWC's programming and members can vote for the Directors and Officers, as well as any other matters put forth by the Board of Directors to the Membership (ARWC, 2017).

Activities and Accomplishments

The ARWC's key activities include (ARWC, 2017; Stern, 2017):

- **Source to Sea Trek** – In their signature event, the ARWC invites paddlers to join them in paddling the Androscoggin's length over the course of the summer to celebrate the river's renewal and raise awareness about the river's valuable recreational, ecological, and economic values. Held every summer since 1995, Source to Sea programming includes local area hikes, demo days, and other community events.
- **Water Quality Monitoring** – The council coordinates volunteers in New Hampshire and Maine to conduct water quality monitoring at different points along the river. In New Hampshire, volunteers test for pH, dissolved oxygen, water temperature, turbidity, and conductivity and share the results with New Hampshire's Department of Environmental Services. In Maine, volunteers report dissolved oxygen and water temperature findings to Maine's Department of Environmental Protection. Both states use the monitoring results to inform their management of the river and its tributaries.
- **Restoration Projects** – With a particular focus on Brook Trout habitat restoration, the ARWC conducts a variety of restoration projects. They have identified and removed four dams to restore brook trout connectivity, studied the effects of adding woody debris to streams to improve trout habitat, and executed erosion control projects on jeep trails.
- **Androscoggin River Trail** – The ARWC is collaborating with a number of groups to establish a water trail along the full length of the Androscoggin to provide improved access to the river for recreation.



Source: topshampatti, Flickr

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SALMON FALLS WATERSHED COLLABORATIVE



Genesis

For many years, the New Hampshire Department of Environmental Services (DES) and the Maine Department of Health and Human Services (DHHS) had discussed the need to better protect the Salmon Falls River, a major regional drinking water source. At the same time, the Trust for Public Land had received a large grant to study source water protection in forested watersheds and had selected New Hampshire and Maine watersheds as its study sites. This convergence of new data and rising concern about the critical role of Salmon Falls in source water protection in the region prompted DES and DHHS to encourage proactive action among communities and stakeholders in the watershed. What was missing was the place within which such collaboration could be supported (Feurt, 2018).

The Piscataqua Region Estuary Partnership (PREP), part of the EPA's National Estuary Program and focused on the Salmon Falls region, stepped forward as the logical sponsor for the Salmon Falls Watershed Collaborative (SFWC). With a lean budget of \$10,000 from the EPA, PREP engaged Chris Feurt at the Wells NERR to manage an intensive year-long process of conference calls, in-person meetings, and field trips, culminating in a workshop involving 80 stakeholders (Tolman, 2018). Key issues in the watershed that warranted attention to protect source water were discussed at the workshop and a set of four goals for the SFWC were adopted. With technical assistance from the national Source Water Collaborative, a draft Action Plan for the watershed was developed in 2011 to provide traction for the collaborative.

Federal agency representatives to the SFWC helped to connect the group with the USDA Natural Resources Conservation Service (NRCS), which conducts landowner outreach and funds land conservation efforts. Several SFWC members met with NRCS officials to discuss the collaborative's goals and Action Plan, eventually receiving \$1.5 million in NRCS funds for plan implementation projects (Jacobs, 2018).

Structure


SFWC has a loose, informal structure due to its focus on information- and resource-sharing. For the first seven years, the group organized monthly conference calls, during which participants discussed progress on each item in its Action Plan. These monthly calls have since been discontinued, but the group continues to send out newsletters and meet in-person at its Annual Meeting (Jacobs, 2018). The SFWC is funded by agencies including the New Hampshire DES, Maine DHHS, and the EPA, as well as a grant from the Source Water Collaborative.

Quick Facts

- Location: Maine and New Hampshire
- River Length: 37.5 miles
- Drainage Area: 238 square miles
- Issues: Development, Water Extraction
- Purposes: Networking and Information Sharing, Coordinated Conservation Efforts, Advising Governments

Goals

- Conserve lands that will help protect and maintain clean water
- Improve stormwater management and implement low-impact development initiatives
- Enact shoreland and aquifer protection policies and regulations
- Implement best management practices at potential contamination sites



"TO PROTECT AND SUSTAIN HIGH QUALITY DRINKING WATER IN THE SALMON FALLS WATERSHED."

Source: not on your nelly, Flickr

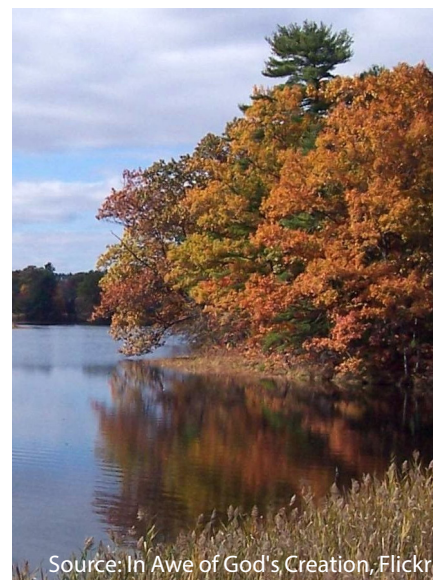
Membership

The SFWC includes nonprofits such as the Acton Wakefield Watershed Alliance and the York Land Trust; municipal agencies like the Berwick Water Department and the York County Soil and Water Conservation District; and federal agencies like the USDA Forest Service and the US Environmental Protection Agency.

Activities

In 2011, the SFWC drafted an Action Plan that they use to guide their work in the watershed. The Action Plan documents the group's goals, gaps in knowledge, threats to the watershed, and strategies they will use to protect the river's drinking water. Key activities and related accomplishments include (SFWC, 2011):

- **Networking and Information Sharing** – Using Basecamp as an online platform, the SFWC posts meeting minutes, resources, announcements, and other documents and news about the watershed to make the site a "one-stop-shop" for those interested in the Salmon Falls watershed. The group also lists resources for members interested in obtaining assistance with land conservation plans, best management practices, and education in its Action Plan, as well as a list of different types of organizations operating within the watershed.
- **Providing Technical Assistance to Municipalities** – The SFWC assists municipalities and water suppliers in the watershed with implementing activities and policies that protect source water. They develop low impact development (LID) ordinances for towns, conduct LID demonstration projects in communities, and engage decision-makers in field trips to see LID projects to gain support for their broader implementation.
- **Potential Contamination Source Inventories** – To better understand where threats to source water lie in the watershed, the SFWC uses potential contamination source inventories to identify where they should reach out to landowners to prevent or mitigate contamination. In doing so, they also prioritize sites for restoration and work with water suppliers to ensure that personnel are properly trained in inspecting potential contamination sources.
- **Field Trips** – To engage members and interested parties in ongoing learning and information sharing, SFWC organizes multiple field trips throughout the watershed to highlight successes and organizations doing good work.
- **Water Prize** – In 2012, the SFWC was awarded the U.S. Water Prize by the Clean Water America Alliance - a national award that recognized its efforts to protect drinking water for more than 47,000 residents in Maine and New Hampshire.

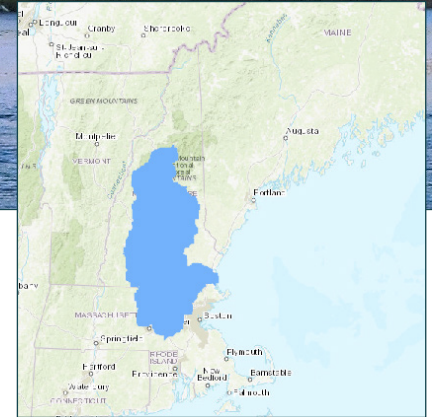


Source: In Awe of God's Creation, Flickr

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MERRIMACK RIVER WATERSHED COUNCIL



Genesis

Like the Androscoggin River, the Merrimack River was one of the most polluted rivers in the country in the 1960s. Trash, raw sewage, and dyes discharged from municipalities, textile mills, and factories decimated fish populations and rendered the Merrimack's waters unsafe for drinking.

The passage of the Clean Water Act in 1972 dramatically improved the river's water quality by regulating point source pollution but citizens and regional planning commissions aspired to do more. In 1976, they formed the Merrimack River Watershed Council (MRWC), which serves as "the voice of the Merrimack" (MRWC, 2017). It seeks to promote citizen engagement in ongoing efforts to clean up the Merrimack River, which is the primary drinking water supply for 600,000 people in Massachusetts. Although the MRWC's work has resulted in many improvements in the watershed's health, it continues to grapple with a number of environmental challenges, including combined sewage overflows (CSOs), nutrient pollution, development, and flooding (MRWC, 2017). The Merrimack was named the most threatened watershed in the nation by the U.S. Forest Service in 2010, based on development pressures and conversion of forested land (Sullivan, 2016).

Structure

The MRWC was incorporated in 1978 and became a 501(c)(3) organization the following year. It has a small part-time, paid staff that includes an Executive Director, Land and Water Steward, and Communications and Development Specialist. It is governed by a Board of Directors, which currently has six members (MRWC, 2017).

The MRWC receives funding from a variety of sources. Over the past five years, it has received support from corporations (primarily small, local businesses), foundations (including The 3M Foundation and the Cabot Family Charitable Trust), and federal, state, and municipal governments (MRWC, 2017). In addition, the MRWC receives funding from local organizations and corporations that participate in its 'Adopt a Merrimack Mile' program. Organizations may choose to "adopt" a stretch of the river for between \$500-\$6,000 per year and are featured prominently on the MRWC's website and in their Annual Report. The MRWC also offers paid memberships for individuals and families. In 2015, foundation grants comprised approximately 81% of the MRWC's funding, while organizational contributions and memberships comprised 11% and 7%, respectively (MRWC, 2015).

Quick Facts

- Location: New Hampshire and Massachusetts
- Length: 117 miles
- Drainage Area: 5,010 square miles
- Issues: Development, Dams and Fish Passage, Water Extraction
- Purposes: Public Education, Coordinate Conservation Efforts, Ecosystem Perspective in Decision Making, Networking, Coalition-Building

Goals

- Restore habitat and watershed health in select subwatersheds, considering benefits to water quality, climate resiliency, and species at risk
- Improve water quality by reducing pathogens/nutrients by 10%
- Expand opportunities for regional watershed planning with partners
- Engage the watershed community with two river events per year
- Expand interest in river recreation
- Educate schoolchildren about the river and wildlife
- Educate the public through free public lectures and other outreach.

"TO PROTECT, IMPROVE, AND CONSERVE THE MERRIMACK RIVER THROUGH SCIENCE, ADVOCACY, PARTNERING, AND EDUCATION."

Source: 64Jazzbass, Flickr

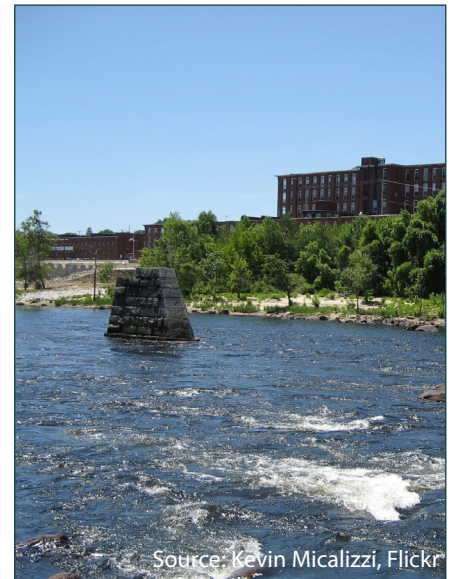
Membership

The MRWC offers five different membership levels that range in cost from \$15-100 annually: student, individual, family, club, and sustaining memberships (MRWC, 2017). Members receive the MRWC's e-newsletter, annual report, membership card, invitations to events and lectures, and discounts on their programs. Members also have voting privileges and are able to vote at the MRWC's Annual Meeting.

Activities and Accomplishments

The four programmatic goals identified in the MRWC's mission statement - science, advocacy, partnering, and education - inform the work that it undertakes in the watershed. Some of its key activities include (MRWC, 2017):

- **Water Quality Monitoring** – Volunteers collect water quality data in the Merrimack River and in two of its tributaries, measuring conductivity, pH, turbidity, and other variables. Data is publicly available on the MRWC website and the MRWC recently completed a trend analysis of water quality data for the Merrimack from 1965 to 2015.
- **Land Protection and Restoration** – The MRWC is currently finishing a U.S. Forest Service-funded project with multiple partners to restore, protect, and better manage land in six priority subwatersheds in the Merrimack.
- **My Merrimack Youth Initiative** – The My Merrimack Youth Initiative runs two programs for teens in the Merrimack River watershed. The RiverArts program teaches youth about art and photography, working with them to create art and photos that showcase the river and its wildlife. The RiverProtector program engages teens in citizen science, helping them develop skills in science and environmental protection.
- **Advocacy** – Combined Sewer Overflows (CSOs) are a key threat to the river's health and the MRWC is currently advocating for stronger CSO regulations. It is lobbying state and local officials to support two proposed bills in the Massachusetts Senate that would improve CSO reporting and transparency. They testified at the Massachusetts State House in support of the bills in November 2017.
- **State of the Waters Workshop** – In 2016, the MRWC hosted its first annual State of the Waters Workshop, which brought together regional environmental organizations, planning commissions, and Massachusetts and New Hampshire environmental officials to discuss challenges facing the Merrimack River watershed. The MRWC held its second State of the Waters workshop in 2017, further enabling parties in the watershed to network, share information, and build new partnerships.

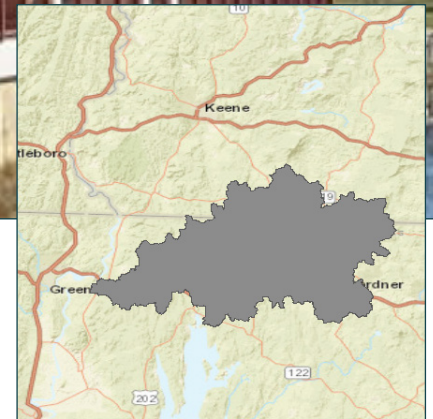


Source: Kevin Micalizzi, Flickr

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MILLERS RIVER WATERSHED COUNCIL



Genesis

Like the Saco River watershed, the Millers River watershed is largely rural in character and valued by residents for its scenic beauty, open space, and abundance of recreational opportunities (EOEA, 2017). However, unlike the Saco, the Millers River has largely been shaped by its industrial history. Although the watershed is sparsely developed, its rural communities developed around manufacturing businesses, including paper mills and furniture, woodworking, and toy factories (MRWC, 2017).

Although the Millers River was once considered to be the "best trout stream in the state" by local anglers (MRWC, 2017), it had become heavily polluted with industrial waste by the 1960s. In the late 1960s, a local farmer and agent at the University of Massachusetts Dairy Extension met at the confluence of the Millers River and Connecticut River and decided to work together to engage residents from the watershed's municipalities in finding a solution to the river's pollution problem. As they worked with more and more residents to lobby state and local officials to prioritize river clean up efforts, they created the Millers River Watershed Council (MRWC), which was officially incorporated as a nonprofit in 1970 (MRWC, 2017). Through the early 1990s, the MRWC focused largely on advocacy, opposing the siting of toxic waste sites and landfills in the watershed and pushing industries and municipalities to improve wastewater treatment plant operations. As many water quality problems were addressed, the MRWC shifted its focus in 2005 to take a more proactive approach to engaging residents in watershed stewardship (MRWC, 2017).

Structure

The MRWC is a 501(c)(3) organization headquartered in Athol, Massachusetts that is managed by a ten-person Board of Directors (MRWC, 2017). Board members represent a variety of different towns and organizations in the watershed, including regional planning commissions, land trusts, environmental organizations, and municipal governments. Operations are managed by a part-time staff member and an AmeriCorps member (MRWC, 2017).

The group has received funding from a variety of sources, including multiple grants from the New England Grassroots Environment Fund (NEGEF, 2017)

Quick Facts

- Location: New Hampshire and Massachusetts
- Length: 51 miles
- Drainage Area: 392 square miles
- Issues: Development, Dams and Fish Passage
- Purposes: Public Education, Networking and Information Sharing, Coordinated Conservation Efforts, Advising Governments

Goals

- Educate residents and local officials on watershed issues and encourage them to be watershed advocates
- Involve people in monitoring and other stewardship activities
- Collaborate with municipalities, state agencies, and other organizations on issues affecting watershed and community health, such as stormwater management, ecotourism development, drinking water protection, and open space preservation.

"TO PROTECT AND ENHANCE THE HEALTH OF THE MILLERS RIVER AND ITS WATERSHED FOR THE LONG-TERM BENEFIT OF ITS HUMAN AND NON-HUMAN RESIDENTS."

Source: Michael Femia, Flickr

Membership

The MRWC offers several levels of membership, ranging in price from \$15 for students and seniors to \$1,000 for "benefactors." It also encourages volunteer participation in its programs and events, including trail stewardship, river cleanups, and water quality monitoring.

Activities and Accomplishments

Some of the MRWC's key activities and accomplishments include (MRWC,2017):

- **Blue Trail Project** – In 2011, MRWC began work on a Millers River Blue Trail, which is a dedicated stretch of river that has special clean water safeguards and encourages people to explore the river via boat or watercraft. The trail is nearly complete and trail guides are published on the MRWC website.
- **Public Education** – In addition to offering in-person presentations to community groups, meeting with local officials, and sharing information via its website, the MRWC delivers Enviroscape 3-D Watershed Kit presentations to students in the Millers River watershed. They use an Enviroscape watershed model to teach children about runoff and stormwater and have made presentations to more than 2,000 students since 2007.
- **Water Quality Monitoring** – To gain a broader picture of the watershed's health, the MRWC created Trib Watch, which is a volunteer monitoring program for Millers River tributaries. Volunteers are trained in macroinvertebrate and physical and chemical water sampling techniques, and work throughout the spring, summer, and fall to collect baseline information on the health and water quality of smaller streams in the watershed. The MRWC also monitors these variables in the Millers River itself and publishes sampling results online.
- **Restoration Projects** – The MRWC works with a variety of partners to restore water quality and fish habitat in the watershed via land protection and restoration. It supports the efforts of regional land trusts to protect open space, has participated in dam removal projects, and installed an eel pass near a dam in Orange, MA to restore American eel habitat connectivity.
- **Low Impact Approaches to Stormwater Management** – To combat runoff issues stemming from development and increasing amounts of impervious cover, the MRWC works to promote and educate municipalities about low impact development (LID) (i.e. rain gardens, pervious pavement). In 2009, they worked with the town of Winchendon and the Massachusetts Watershed Coalition to develop a Stormwater Management Bylaw that was approved by residents.



Source: Rene Rivers, Flickr

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CHARLES RIVER WATERSHED ASSOCIATION

Genesis

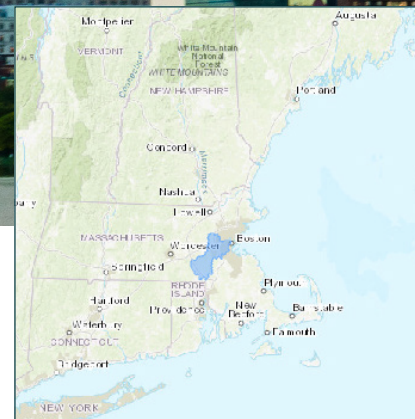
By the middle of the twentieth century, industrial pollution, wastewater treatment plants, and other human impacts had led to severe degradation of the Charles River. The 1935 construction of the Quabbin Reservoir, the area's primary drinking water source, had fueled rampant development across Metropolitan Boston and municipalities did not have the capacity to deal with burgeoning municipal, industrial, and domestic waste streams (CRWA, 2017).

Seeing a marked decrease in water quality and decline in fish populations, citizen activists began working with other activist groups and government agencies in 1965 to improve the river. Eventually, they created the Charles River Watershed Association (CRWA). In its first few decades, flood protection was CRWA's major focus, and the organization advocated for wetland preservation and against dam construction. In the 1970s, its efforts focused on Boston Harbor cleanup by working to reduce sewage discharges to the Charles River. Though water quality has improved dramatically and fish populations have rebounded, the CRWA focuses now on issues of water extraction, nonpoint source pollution, and development (CRWA, 2017).

Structure

The CRWA is a 501(c)(3) organization headquartered in Weston, Massachusetts. It has a full-time, paid staff of 11, including an Executive Director, Deputy Director and General Counsel, and directors of Projects, Philanthropy, Communications and Events. It is governed by a 13-person Board of Directors, whose members serve three-year terms. The Directors have a Nominating Committee to find new potential Directors and are the organization's decision-making body. A 26-person Board of Advisors, whose members do not have term limits, meets semi-annually and is responsible for fundraising and raising awareness about the CRWA. On both Boards, diversity in membership is a key consideration, and the CRWA strives to attain socioeconomic, geographic, and organizational diversity (Zimmerman, 2018). It has a formal set of bylaws and strives for full transparency by publishing bylaws, financial statements, annual reports, and other documents online. The organization is currently in the process of updating its bylaws and voting rules (Zimmerman, 2018).

Although the organization was originally built on government grants, it now primarily receives funding from foundations and individual donors and is currently in the midst of an endowment campaign. It accepts donations and grants from a variety of individual and corporate sponsors, including Raytheon and the Massachusetts Water Resources Authority in past years (Zimmerman, 2018). Because the CRWA employs litigation strategies and is active in court, most corporate sponsors




Quick Facts

- Location: Massachusetts
- River Length: 80 miles
- Drainage Area: 308 square miles
- Issues: Development, Water Extraction
- Purposes: Advocacy, Coordinated Conservation Efforts, Tackling Cross-Jurisdictional Issues, Public Education, Advising Governments, Ecosystem Perspective in Decision-Making

Goals

- Develop a sound, science-based understanding of interactions in the watershed
- Define long-term, cutting-edge solutions to watershed problems
- Promote sustainable watershed management practices with government agencies and private entities
- Advocate for the protection, revitalization, and expansion of public parklands along the Charles River



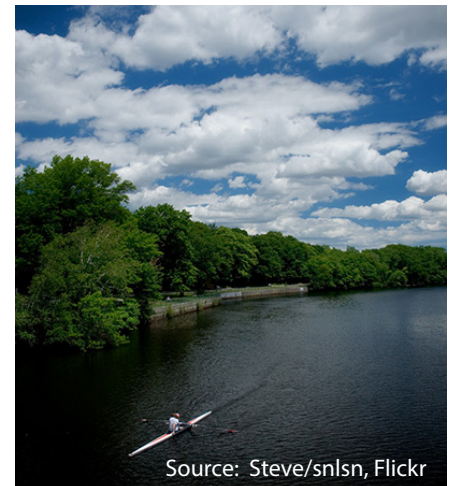
"PROTECTING, PRESERVING, AND ENHANCING THE CHARLES RIVER AND ITS WATERSHED THROUGH SCIENCE, ADOVCACY, AND LAW."

Source: Philip N Young, Flickr

donate for specific events, such as river clean ups. In fiscal year 2015, the CRWA spent \$1.28 million and had \$1.15 million in revenue, which came primarily from individuals and foundations (CRWA, 2017).

Membership

The CRWA has a variety of membership levels that allow individuals to support the organization's efforts to protect and restore the Charles River, ranging from \$50-\$10,000 annually (CRWA, 2017). Typically attracting 1,500-2,000 members each year, members elect the Board of Directors and officers (Zimmerman, 2018) and receive subscription to the CRWA's bi-monthly e-newsletter, discounts on CRWA events, and invitations to member events. The CRWA also has a Friends of the Charles group that focuses on engaging young professionals in order to strengthen its base of young members.

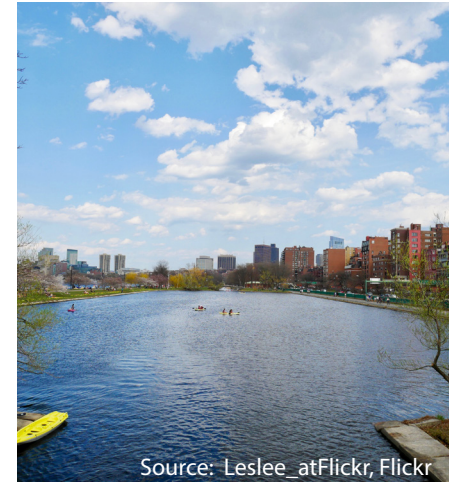


Source: Steve/snlsn, Flickr

Activities and Accomplishments

The CRWA works with municipal governments, state and federal government agencies, and other activist groups in the watershed to address four key issues: nonpoint source pollution, wastewater treatment, climate change, and urban development (CRWA, 2017).

- **Law and Advocacy** – The CRWA has a dedicated law and policy team that comments on permits and development projects and testifies before local conservation commissions and planning boards, environmental agencies, and legislative committees. It also challenges permit decisions and files lawsuits when necessary and is a particularly strong advocate for the protection and expansion of public parklands along the Charles.
- **Water Quality Monitoring** – Because the CRWA emphasizes its role as a science-based organization, it cites its Field Science Program as one of its most important activities. It has a 90-person volunteer monitoring network that regularly collects and analyzes water samples in accordance with federal and state quality assurance standards (Zimmerman, 2018). The CRWA's program is currently the only year-round sampling program that spans the full length of the river.
- **Education and Outreach** – The CRWA has tailored activities and programs for a range of individuals involved with the watershed, including residents, water professionals, teachers and students, and college and graduate students.
- **Urban Smart Sewering Program** – To address the region's widespread problem with aging sewer infrastructure, the CRWA is designing and promoting the use of Community Water and Energy Resource Centers (CWERCs), which are small-scale facilities that clean water for re-use and generate electricity. They are currently working with three towns in the watershed to investigate opportunities to design their own CWERCs.



Source: Leslee_atFlickr, Flickr

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CONNECTICUT RIVER CONSERVANCY



Genesis

The Connecticut River watershed is New England's largest watershed, stretching 410 miles from the Canadian border to the Long Island Sound. Although it is much larger than the Saco River watershed, it similarly cuts across multiple states, is ecologically, socially, and economically diverse, and faces region-specific issues.

In the mid-1900s, the river faced serious pollution issues stemming from the discharge of raw sewage into the river by municipalities. In 1952, community leaders assembled to address this problem, as well as the threat of the creation of a public hydroelectric dam management authority (similar to the Tennessee Valley Authority) by the federal government (CRWC, 2003). Creating the Connecticut River Watershed Conservancy, the group's leaders hoped to retain local control of the river's natural resources and spearhead river cleanup efforts (CRWC, 2003). During its first decade in existence, leaders focused on raising awareness about the challenges facing the river, then called "America's best landscaped sewer." Beginning in the 1960s, the organization took on more specific projects like land conservation and oil spill clean up and response (Bednar, 2017). In April 2017, following its 65th birthday, the Council rebranded itself as the Connecticut River Conservancy (CRC) to "better reflect the organization's mission" (Serreze, 2017).

Structure

The Conservancy is a 501(c)(3) nonprofit organization headquartered in Greenfield, Massachusetts. It employs 15 people, including river stewards focused on different sections of the river, a Laboratory Manager, and a Community Engagement Coordinator (CRC, 2017).

It is governed by a large board of trustees, comprised of six officers, seven trustees, and nine honorary trustees. Trustees represent the watershed's different states and have a variety of professional backgrounds, thereby conferring different types of expertise on the Conservancy (i.e. financial, legal, and management). The Board has four standing committees and its policies and decision-making rules are published in a formal set of bylaws that are available on the CRC's website.

In fiscal year 2016, CRC's total revenue was \$1.89 million and total expenses were \$1.88 million (CRC, 2017). Revenue came from state, federal, and nonprofit foundation grants, as well as individuals and businesses. The Conservancy allows businesses of all sizes, as well as nonprofits and foundations, to provide sponsorships, in-kind contributions, and memberships. In 2016, supporters included recycling companies, energy companies, and The Coca Cola Company.

Quick Facts

- Location: New Hampshire, Vermont, Massachusetts, Connecticut
- River Length: 410 miles
- Drainage Area: 11,000 square miles
- Issues: Dams and Fish Passage
- Purposes: Advocacy, Coordinated Conservation Efforts, Public Education, Advising Governments, Coalition-Building

Goals

- Increase the human and financial capacity of the organization by creating a \$5M endowment and reaching 5,000 members
- Build effective and diverse coalitions and partnerships
- Generate, analyze, and disseminate highly credible technical information using sophisticated outreach and advocacy techniques so we are the "go-to" for decision makers
- Responsibly divest our land holdings and improve our stewardship capacity for those remaining properties

"WE COLLABORATE WITH PARTNERS ACROSS FOUR STATES TO PROTECT AND ADVOCATE FOR YOUR RIVERS AND EDUCATE AND ENGAGE COMMUNITIES. WE BRING PEOPLE TOGETHER TO PREVENT POLLUTION, IMPROVE HABITAT, AND PROMOTE ENJOYMENT OF YOUR RIVER AND ITS TRIBUTARY STREAMS. HEALTHY RIVERS SUPPORT HEALTHY ECONOMIES."

Source: Nicholas Erwin, Flickr

Membership

Individuals can become members of the Conservancy with monthly or annual contributions. A basic membership costs \$35 per year, although individuals may elect to donate \$50, \$100, or \$250 annually to obtain higher membership levels (CRC, 2017). All members receive regular updates on the CRC's work, invitations to CRC's events and are invited to the Annual Meeting, where they may vote in elections of board members. They also receive access to the Conservancy's research library and discounts on certain events.

Activities and Accomplishments

The CRC undertakes a variety of projects and activities that stretch from the Canadian border in Vermont to the river's mouth in the Long Island Sound. Key activities include (CRC, 2017):

- **Watchdog for the River** – The CRC considers itself a watchdog for the river, noting the importance of "a consistent and thoughtful oversight role by the public" in protecting and enforcing environmental regulations. It reviews permits, licenses, and development proposals for industries, businesses, and municipalities, providing technical expertise and expert opinion on the potential impact of development and human activities on the river.
- **Advocacy for Sewer Infrastructure Upgrades** - The CRC advocates for investment into sewer infrastructure upgrades and creates advocacy and public information campaigns to persuade voters to approve green and grey infrastructure upgrades throughout the watershed.
- **Riverbank Restoration Projects** – Planting native trees and shrubs along the riverbank is a key focus for the CRC, as it is a cost-effective way to improve water quality, stabilize eroding banks, and create wildlife habitat. In 2017, the CRC and its partners planted 7,315 trees and shrubs along the Connecticut River and its tributaries with federal and foundation funding.
- **Fish Passage Restoration** – CRC works to remove dams that impede anadromous fish passage, including the American shad, sea lamprey, and Atlantic salmon. In 2017, they partnered with the U.S. Fish and Wildlife Service, a local land trust, and private landowner to remove three dams, restoring more than 120 miles of stream habitat.
- **Source to Sea Cleanup** – Source to Sea is an annual trash cleanup that spans the entire river corridor. Local volunteers coordinate local cleanup sites where participants spend a few hours picking up trash and collect trash data, which the CRC uses to support legislation and other anti-pollution efforts. In 2017, more than 2,500 volunteers cleaned 249 miles, collecting 26,455 beverage containers, 46 tons of trash, and 1,406 tires.



Source: formulanone, Flickr

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HURON RIVER WATERSHED COUNCIL

Genesis

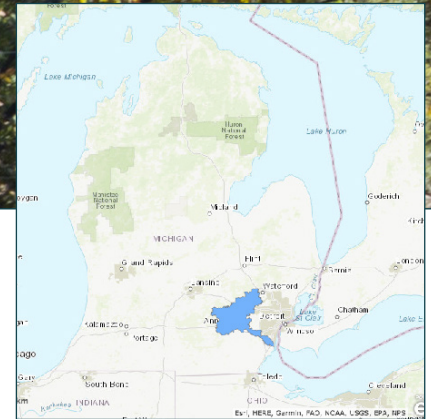
In the 1950s and 60s, southeast Michigan faced a number of serious threats. Industrial and residential development was booming in Washtenaw County and pollution from sewage treatment plants degraded the Huron River's water quality, particularly near the City of Ann Arbor. (HRWC, 2017a) Further, a drought in 1956 caused severe water shortages in the area, leading Washtenaw County to request that the State Water Resources Commission study water utilization in the Huron River watershed to solve water use and pollution issues.

The Commission's report recommended an agency be created to study the Huron and, in response, a temporary Huron River Watershed Intergovernmental Committee was formed. After conducting a series of water management and use studies, it found that pollution was becoming increasingly more severe within the watershed and recommended that an agency be established to coordinate a pollution control program. Seventeen government units requested that the Michigan Water Resources Commission establish this agency and, as a result, the Huron River Watershed Council (HRWC) was formed in 1965. It included 24 units of government whose purpose was to study the watershed, share their findings with other organizations and agencies, make recommendations to decisionmakers, and form subcommittees as needed for other issues.

Structure

The HRWC is a 501(c)(3) organization located in Ann Arbor, Michigan. The Council is comprised of "local government units", such as villages, townships, cities, and counties located within the watershed (HRWC, 2017a). Membership on the council is voluntary and all participating units pay member dues priced at 5 to 10 cents per resident residing within the watershed. Member localities are eligible to receive a range of services from the HRWC, such as coordinated water quality monitoring and assistance with water-related policy and ordinance creation. In 2016, 41 local and county governments were members of the HRWC (HRWC, 2017b).

The HRWC is governed by a Board of Directors, which includes a representative from each member government unit. The Board has an Executive, Nominating, Advisory, Finance, and Technical Advisory Committees, allowing members to provide specialized expertise on matters most important to them. The Board is assisted by a full-time, paid staff of 13 individuals, who manage development, monitoring, volunteer, and marketing programs (HRWC, 2017a). The staff's work is supplemented by the efforts of more than 600 volunteers, who participate in water quality monitoring, education, and stewardship programs (HRWC, 2017b).



Quick Facts

- Location: Michigan
- River Length: 367 miles
- Drainage Area: 900 square miles
- Issues: Development, Dams and Fish Passage, Water Extraction
- Purposes: Networking, Advocacy, Advising Governments, Public Education, Coordinating Conservation Efforts

Goals

Key goals include (HRWC, 2017a):

- Engage a diverse and inclusive group of partners and establish relationships to advance programs and policies
- Collect and use scientific information to gauge the health of the watershed, direct programmatic priorities, and advance protection and restoration efforts.
- Set our watershed agenda and advance policies and projects at all levels of governments and with a range of partners
- Raise awareness of the river and watershed while advancing our program goals



"TO PROTECT AND RESTORE THE RIVER FOR HEALTHY AND VIBRANT COMMUNITIES."

Source: Barbara Eckstein, Flickr

In fiscal year 2017, HRWC had total revenues totaling \$1.64 million, with half coming from foundations, corporations, and individuals, and \$1.49 million in expenses, the majority of which went to stewardship programs and watershed planning and management (HRWC, 2017b). Along with funding from the Michigan Department of Environmental Quality, the Council has a large and diverse donor base, from individual residents, to local businesses (i.e. Smithgroup JJR and Books by Chance), to major corporations (i.e. Toyota and Bank of Ann Arbor).

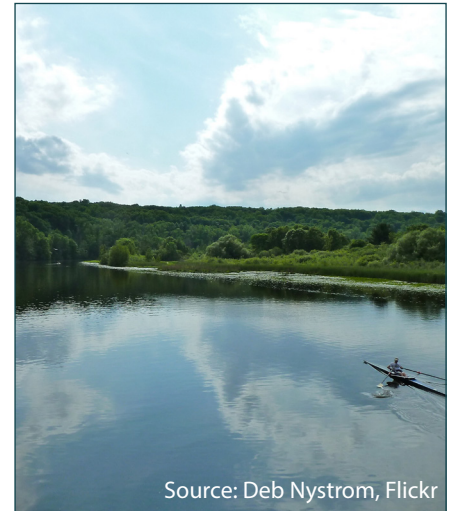
Membership

Watershed residents may become members of the HRWC by purchasing a membership - levels range from \$35-\$5,000 annually. Members receive the organization's quarterly newsletter and are listed in the annual report. In 2016, HRWC received nearly 3,000 gifts from 1,777 donors.

Activities and Accomplishments

To achieve its mission and goals, the HRWC conducts activities that broadly fall into four major categories: study, protect, restore, and connect (HRWC, 2017a):

- **Monitoring** – HRWC conducts a robust habitat and biological monitoring program, engaging volunteers in a variety of single-day and ongoing monitoring programs. In the summer, interns and volunteers measure and map stream habitat and monitor long-term study sites, while others participate in single-day Winter Stonefly Search and Insect ID Day events.
- **Watershed Management Planning** – One of HRWC's core programs, the HRWC produces watershed management plans for communities to make recommendations for protecting the watershed while allowing for economic growth and development. They developed a plan for Kent Lake, MI to meet phosphorus total maximum daily load (TMDL) and recently completed a plan for Huron Chain of Lakes for compliance with federal stormwater regulations.
- **Advocacy and Policy** – The HRWC is currently advocating for policy changes that would ban the use of toxic coal tar in pavement. and was instrumental in shaping state legislation on phosphorus to reduce algal blooms. The HRWC is also engaged in legal negotiations with Gelman Sciences, Inc., the City of Ann Arbor, Scio Township, and Washtenaw County about the cleanup of the Gelman dioxane plume that is contaminating the groundwater.
- **RiverUp! Campaign** – The HRWC leads RiverUp!, a public-private partnership that conducts projects that improve the river's health, recreational access to the river, and increase water-related investments in local economies. In 2015, the Huron River Water Trail, managed by HRWC, was designed as the 18th National Water Trail, and they have raised more than \$2.5 million for the campaign.



Source: Deb Nystrom, Flickr

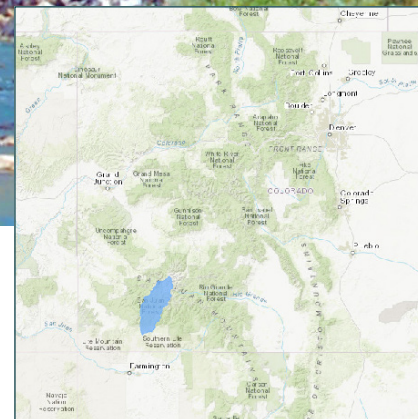


Source: John Kannenberg, Flickr

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ANIMAS RIVER STAKEHOLDERS GROUP



Genesis

Like many watersheds in the American west, the Animas River watershed has been shaped by a legacy of mining. Acid mine drainage from both active and abandoned mines has long polluted waters in the river's upper reaches, rendering it uninhabitable for the rainbow and brown trout that attract visitors and recreators to its lower reaches. In 1994, state and federal agencies initiated steps to force clean up of the river.

The Colorado Water Quality Control Commission (WQCC) began developing strict new water quality standards that stakeholders feared were unachievable, while the EPA considered designating the Upper Animas River Basin as a Superfund site. These actions concerned many citizens, who believed that WQCC standards did not account for natural processes that increased levels of certain contaminants. In addition, given the vast number of mines in the watershed, citizens were concerned that they could never meet the WQCC standards, which would open them up to sanctions, litigation, and decreased property values. At the recommendation of the WQCC, community members mobilized to form the Animas River Stakeholders Group (ARSG). To allow citizens time to meet and decide how best to meet the WQCC standards and avoid Superfund designation, the WQCC extended the deadline for the enforcement of water quality standards and assisted the ARSG with hiring a coordinator (Simon, 2018).

Structure

The ARSG's structure is more informal than many other watershed collaboratives. While it has working groups and two paid coordinators, the collaborative has no bylaws, no voting, and no governing board. Prior to any remediation efforts, the San Juan County Commissioners must review the proposed project to assess any possible impacts on the watershed's cultural assets, such as historic mining sites (ARSG, 2017).

The ARSG's decision-making process is also unique, as it employs a stakeholder process. Decisions are made by informal consensus to ensure that all participants feel as though their voices are heard and interests are represented in the decision making process. The stakeholder process is also employed to ensure that federal and state agencies, which must be involved due to their jurisdiction over the watershed's federal lands and river's water quality, cannot gain undue influence over the process. If consensus cannot be reached, the decision is postponed until the group can get more data or information that will help them make a decision. Although this consensus-based decision-making can result in long and arduous meetings, it is vital in instilling credibility and trust in the process (B. Simon, personal communication). Currently, the ARSG's work is sponsored by the San Juan Resource

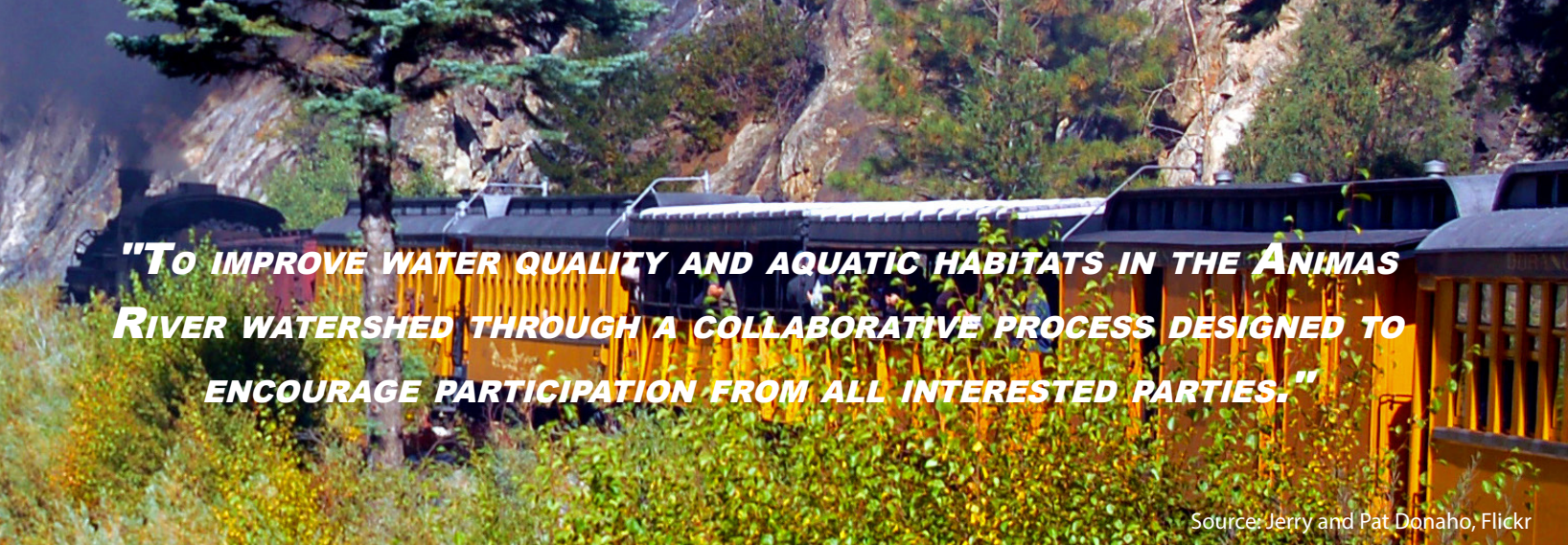
Quick Facts

- Location: Colorado
- River Length: 126 miles
- Drainage Area: 692 square miles
- Issues: Mine Drainage, Water Quality
- Purposes: Advocacy, Coordinated Conservation Efforts, Public Education

Goals

ARSG outlines six goals on its website, including:

- To monitor the water quality and aquatic habitats of the Animas River and its tributaries
- To analyze all water quality information within the Upper Animas Watershed to determine the extent and effects of metal contamination
- To encourage private and public entities to reduce the amount of contaminants entering the Animas River from abandoned mine sites



"TO IMPROVE WATER QUALITY AND AQUATIC HABITATS IN THE ANIMAS RIVER WATERSHED THROUGH A COLLABORATIVE PROCESS DESIGNED TO ENCOURAGE PARTICIPATION FROM ALL INTERESTED PARTIES."

Source: Jerry and Pat Donaho, Flickr

Conservation & Development Council (ARSG, 2017).

Membership

The ARSG has no official membership and encourages participation in its meetings from any individual or organization with an interest or stake in the watershed (ARSG, 2017). This informality initially created controversy, as the inclusion of the U.S. EPA and WQCC caused some to perceive that the group was becoming government-controlled rather than stakeholder-driven. However, federal and state agencies took care to be participants rather than directors in the process, and this willingness to remain in the background, in addition to the group's transparent structure and decision-making process, has largely diffused tensions. Currently, the ARSG involves a variety of different parties, including federal agencies (U.S. EPA), state agencies (WQCC, Colorado Department of Public Health), city and county agencies, local nonprofit organizations, and industry (primarily mining companies). The group encourages interested parties to participate by attending meetings or providing input by email, mail, or communication with other participants (ARSG, 2017).

Activities

To achieve its purpose of improving water quality and habitats in the Animas River and serving as a clearinghouse of information about the watershed, the ARSG undertakes a variety of different projects and activities (ARSG, 2017):

- **Remediation Projects** – From 1994-2016, the ARSG remediated 65 mines, which has resulted in water quality improvements across the watershed. The concentration of zinc and copper has been reduced by 70% in Mineral Creek. Silverton, a town that relies on tourism for income, has seen the health of its fisheries improve.
- **Water Quality Monitoring and Mine Site Characterization** – The ARSG has developed a water quality database and has characterized the ecology and geology of more than 50 different sites across the region.
- **Remediation Technology Development** - To encourage development of new treatment methods that would reduce the cost of removing metal drainage from active and abandoned mines, ARSG and a number of partners created an InnoCentive Ideation Challenge in 2014, guaranteeing prize money to problem "Solvers" who submitted potential solutions. They received more than 343 "solutions" from applicants.
- **Awards and Recognition** – The ARSG received the U.S. Forest Service's Regional Partnership of the Year Award in 2007 and the U.S. Secretary of the Interior's 2008 National Cooperative Conservation Award.

Challenges

In 2015, while doing maintenance on the Gold King mine, EPA contract workers triggered a disastrous spill of three million gallons of contaminated water into the river. The spill has had drastic economic and health impacts for farmers and ranchers, as well as the Navajo Nation. Two towns requested Superfund status to assist with cleanup efforts.

The spill has also impacted the ARSG by decreasing some member's trust in the EPA. Prior to the spill, members appreciated the EPA's desire to collaborate and willingness to stay in the background. Now, however, some members of the ARSG feel as though they have been cut out of the conversation. Although the group continues to meet, this event has undermined its purpose and the sense of community that the group built, given that only the EPA can remediate Superfund sites.

References

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COOS WATERSHED ASSOCIATION

Genesis

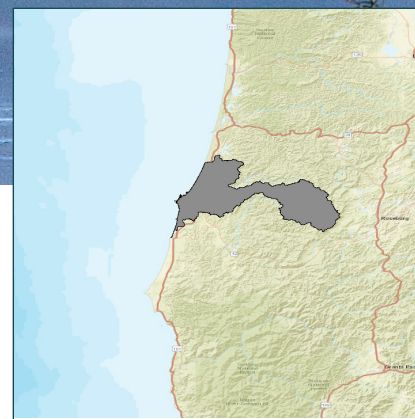
The Coos watershed is one of the most ecologically diverse watersheds in Oregon. It is comprised of estuary, upland, and urban areas and is home to a wide variety of plant and animal species (BEF, 2013). Notably, it is one of the most productive systems in the state for salmonids, especially the Coho salmon. However, by the mid 1990s, the Coho salmon was at risk of being listed as a threatened species under the Endangered Species Act (ESA), following loss of habitat and other issues.

In 1993, a group of land managers, including the Bureau of Land Management, Oregon Department of Forestry, timber industry representatives, conservation groups, and local businesses formed the Coos Watershed Association (CWA) to address this threat. The group aspired to create their own conservation plan for the Coho in order to avoid the negative economic impacts that would result from listing the species under the ESA. The founding members of the CWA wanted their partnership to provide a place for the community to get together and talk about issues in the watershed, and they continued to collaborate even after developing a conservation plan for the Coho salmon (CWA, 2017).

Structure

The CWA is a 501(c)(3) organization headquartered in Coos Bay, Oregon. It is run by a ten-person paid staff and governed by a Board of Directors that sets the organization's priorities and determines its structure. The Board is comprised of ten different stakeholder groups, including agricultural industry representatives, timber industry representatives, and state land managers. Native American tribes are also involved. Board members also participate in subcommittees headed by members of the CWA, such as the Restoration Projects Committee and the Strategic Planning Committee. These subcommittees all take direction from the Board, however, the Board's decisions regarding any major actions must be unanimous. Their bylaws are published online, and detail the organization's shared values, goals, structure, and decision-making processes.

With an annual budget of \$1 million, the CWA receives the majority of its funding from state grants, as well as Ballot Measure 66 (a tax levied by the state that directs funds towards watershed and ecological restoration projects). They also accept private donations, including those that are specifically earmarked to support their education programs and stream gauging stations. For each type of work, they provide breakdowns on how each donation will be used, and provide contact information if donors have additional questions about where their money is going.



Quick Facts

- Location: Oregon
- River Length: 4 miles
- Drainage Area: 619 square miles
- Issues: Development, Dams and Fish Passage
- Purposes: Public Education, Coordinating Conservation Efforts, Tackling Cross-Jurisdictional Issues

Goals

- Foster and encourage landowner action in the interests of watershed health
- Foster public awareness of watershed processes and activities and opportunities to contribute to watershed health
- Foster scientific understanding through a program of experimental watershed research and focused monitoring
- Serve as a clearinghouse of watershed information and activities
- Operate according to a plan which supports environmental integrity and economic stability in the watershed

"TO SUPPORT ENVIRONMENTAL INTEGRITY AND ECONOMIC STABILITY WITHIN THE COOS WATERSHED BY INCREASING COMMUNITY CAPACITY TO DEVELOP, TEST, PROMOTE, AND IMPLEMENT MANAGEMENT PRACTICES IN THE INTEREST OF WATERSHED HEALTH."

Source: Sheila Sund, Flickr

Membership

Individuals, families, and organizations interested in supporting the mission of the CWA are able to join the Friends of the Coos Watershed. This arm of the CWA is intended to engage the public in education about the watershed, provide volunteer opportunities, and raise money for the organization and its activities. There are two classes of "Friends": Annual Friends, who pay annual dues to join the Friends of the Coos Watershed, and Honorary Friends, whom the Board and staff believe have furthered the purpose of the CWA in an exemplary way.

Activities

To meet the mission and goals outlined in its bylaws, the CWA undertakes three primary activities: restoration, monitoring, and education (CWA, 2017).

- **In-Stream and Riparian Habitat Restoration** – To improve Coho salmon habitat, the CWA implements a variety of restoration projects. In-stream, the group works on wood placement, channel reconfiguration, fish passage, and sediment reduction projects. In the riparian zone, the CWA and volunteers undertake planting, fencing, and erosion control projects to reduce soil erosion and water quality degradation.
- **Water Quality and Salmon Monitoring** – Since 2004, the CWA has conducted a life cycle monitoring program to study Coho salmon abundance, life history, and habitat use. It also monitors nine stream gauging stations along the river to collect hydrological, meteorological, and water quality data.
- **Public Education and Outreach** – CWA's education and outreach programs are aimed at improving communication with landowners in the watershed and providing opportunities and support to underserved youth populations. They run a Natural Resources Youth Leaders program each summer to give low-income or first-generation college-bound high school students the chance to conduct a natural resources field internship. During the school year, the CWA runs an after-school stewardship program to teach high schoolers about watershed ecology and issues, as well as a Community Stewardship Corps program to offer project-based learning for academic credit to local high school students.



Source: NOAA's National Ocean Service, Flickr

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Case Profiles Conclusion

Nearly all of the watershed collaboratives profiled here had a similar genesis: the watershed faced a serious issue that required multiple parties to work together. While the issues varied across the collaboratives, they provided an impetus for collaboration and action in the watershed. Although these groups often aspired to address a pressing issue with collaboration for different reasons - for instance, neither the timber industry nor Oregon's Department of Forestry wanted the Coho Salmon to be listed under the Endangered Species Act for different reasons - the immediate and urgent need to react to crisis formed a strong foundation for collaboration in their watersheds.

Some collaboratives still rally around these common goals. The Animas River Stakeholders Group was devoted almost exclusively to prioritizing which abandoned mines to remediate, and then focusing on executing the most cost-efficient remediation projects. They continued to work on this goal until the Gold King Mine spill in 2015, which made it difficult for the collaborative to continue.

Others were able to remedy the initial problem but continued to work together on new issues after realizing that collaboration enabled them to accomplish more than they could alone. Such was the case with the Millers River Watershed Council, which was able to remediate the worst of the river's pollution and now focuses primarily on recreation and nonpoint source pollution.

Collaboratives often emphasized their common values: the Huron River Watershed Council devotes a section of their website to their core principles, and the Coos Watershed Association created a Statement of Shared Values that informs their mission and purpose.

Most of the collaboratives profiled in this chapter had a formal structure, particularly those that were more established. Those that had been around for a decade or more, like the Charles River Watershed Association, had often incorporated as a 501(c)(3), with a Board of Directors, formal bylaws, and a paid staff.

A few organizations, like the Salmon Falls Watershed Collaborative, were structured more loosely, meeting annually and updating each other regularly with new information and data. Coordinators or members of these collaboratives emphasized the need for a good coordinator or

facilitator to handle logistics such as coordinating meetings or phone calls. Having this person helped to ensure that members were able to participate and engage in projects that they found most worthwhile.

The collaboratives' accomplishments were influenced by how long they had been in existence and by the amount of resources at their disposal. As such, these accomplishments are very different. For example, the Huron River Watershed Council has had 53 years to amass its sizable donor base, and to influence a wide variety of state and local legislation.

Many of the collaboratives' major activities are quite similar. The Androscoggin River Watershed Council, the Millers River Watershed Council, the Charles River Watershed Association, and a few others all conduct educational outreach and volunteer programs, as well as designated clean-up days that culminate in a Source to Sea cleanup. These serve as mechanisms not only to engage the community, but also to bring members of the collaborative together and remind them of their common goals.





FINDINGS AND RECOMMENDATIONS

9. Findings and Recommendations

The Saco River watershed serves many purposes for many people. It has clean water and stretches of pristine, riparian habitat. It provides numerous recreational opportunities for residents and tourists alike. The watershed also embodies rural New England, with many people residing there and relying on the Saco River for their drinking water and livelihoods.

Many organizations are involved in managing the Saco River, creating a complex network of jurisdictions and responsibilities. The watershed spans two states and over 30 municipalities, with many federal agencies, state agencies, and nonprofit organizations playing different roles in land and water management. Researchers study the watershed, and many businesses and corporations rely on the river and other watershed resources. Yet, there is no place for these people and organizations to regularly meet. A collaborative association could provide the opportunity for these many groups and individuals to come together to discuss and act upon shared interests and concerns.

This project has explored several factors that have influence on the potential for a watershed collaborative in the Saco River watershed. Fifty-two people representing 35 organizations were asked about their perceptions of and aspirations for the watershed, its issues, and their interest in collaboration. The literature on collaborative natural resource management was reviewed to inform this study. In addition, nine existing watershed collaboratives were profiled to glean transferable lessons for the Saco. This report describes the project findings and their implications for a potential collaborative organization in the Saco River watershed.

This chapter summarizes the key findings regarding what interviewees value about the watershed and their aspirations for the future. It describes their interest in collaboration, thoughts about process and structure, and potential barriers to effective collaboration. Each of these topics is described in detail in Chapters Three through Seven. Additionally, this chapter lists recommendations for those interested in greater collaboration in the Saco River watershed, using examples from the watershed organizations profiled in Chapter Eight to demonstrate the wide range of possibilities and considerations.

9.1 Values and Aspirations

A. People's Values about the Watershed

Interviewees value many of the same characteristics of the Saco River. In particular, they consistently referenced five attributes: recreation, clean water, biophysical attributes, aesthetic qualities, and high quality water for drinking and irrigation (Table 9.1).

Interviewees value the recreational opportunities offered by the Saco River for residents as well as visitors. They are proud of the watershed's clean surface and groundwater and the river's AA status in Maine, which denotes its low risk of degradation. Similarly, they value the watershed's biophysical elements. Some mentioned the stratified drift aquifer, the amount of forested land, and the ecology, including unique habitats like cobble barrens. Interviewees also described the aesthetic qualities of the river, saying that they value its beauty and history, and its centrality in their communities. Finally, some interviewees value the Saco for the quantity and quality of drinking water it provides.

Table 9.1 What Interviewees Value about the Saco River Watershed

Value	Percent Interviewees Mentioning
Recreation	58%
Clean water	42%
Biophysical attributes	42%
Aesthetic qualities	38%
High quality water for drinking and irrigation	33%

B. Aspirations for the Watershed

When asked about their aspirations for the Saco River watershed, many interviewees expressed a desire to preserve the characteristics they value as well as to address issues of particular concern to them.

They hope for a future in which the watershed's ecosystem and its exceptional water quality are both protected. Specifically, interviewees hope to see more land being conserved and better land management practices. They also hope that recreation continues to occur, but in a way that does not degrade the river's water quality or its ecosystem.

Interviewees hope to see decisions about the watershed informed by sound science. They hope that more coordinated data collection can be conducted throughout the watershed to establish a baseline from which change could be measured. They also emphasized the need for impartial data.

Additionally, interviewees hope for greater awareness about the river and watershed among the general public, ideally leading to more concern and conservation. Some interviewees suggested that this awareness could be facilitated by more outreach and education.

Given the complex network of governmental agencies, cities and towns, nonprofit organizations, universities, businesses, and private landowners in the watershed, interviewees expressed a desire to see greater coordination across organizations. This coordination could connect similar projects and enable the sharing of resources and expertise between groups.

Finally, interviewees spoke about aspirations to address issues in the watershed proactively rather than reactively.

C. Implications for a Collaborative

Interviewees' values about the Saco River watershed and their aspirations for its future are both remarkably closely aligned. These two realities bode well for any collaborative effort and provide a strong foundation for those interested in further collaboration to build upon.

Recommendation 1

Those interested in advancing collaboration within the Saco River watershed should use their shared aspirations as a stepping stone to discuss a common mission or vision statement that captures the future they would all like to see. A vision statement for a collaborative could be developed based on shared aspirations, and a mission statement could articulate how the group intends to work towards that vision. These statements can be motivating and provide a reference point to keep the collaborative on track.

For example, the Huron River Watershed Council has both a vision and a mission statement. Its vision is: *"We envision a future of clean and plentiful water for people and nature where citizens and government are effective and courageous champions for the Huron River and its watershed"* (HRWC, 2017). Its mission is: *"...To protect and restore the river for healthy and*

vibrant communities"(HRWC, 2017).

The Charles River Watershed Association's mission statement is: *"Protecting, preserving and enhancing the Charles River and its watershed through science, advocacy and the law"*(CWRA, 2017).

The Connecticut River Conservancy describes its mission as: *"We collaborate with partners across four states to protect and advocate for your rivers and educate and engage communities. We bring people together to prevent pollution, improve habitat, and promote enjoyment of your river and its tributary streams. Healthy rivers support healthy economies."*

Recommendation 2

Capitalize on shared values about the watershed as a stepping stone to collaboratively develop specific goals and objectives for the group. These goals and objectives should capture the major issues and aspirations in a manner that will be compelling to those who care about the Saco River watershed and will encourage their engagement in the collaborative. Clear goals and objectives provide an essential focus for a collaborative.

Organizations profiled in Chapter Eight frame their goals and objectives in different ways. For example, in their most recent strategic plan (MRWCa, 2016), the Merrimack River Watershed Council lists three goals, each of which have specific objectives:

Goal 1: Protect, improve, and conserve the river.

- *Objective 1: Restore Habitat and Watershed Health in select subwatersheds, considering benefits to water quality, climate resiliency, and protecting species at risk.*
- *Objective 2: Improve Water Quality by reducing pathogens and nutrients by 10% in select subwatersheds.*
- *Objective 3: Expand opportunities for regional watershed planning with partners.*

Goal 2: Celebrate the river.

- *Objective 1: Engage the watershed community with at least 2 events/year.*
- *Objective 2: Expand interest in paddling/kayaking.*

Goal 3: Teach about the river.

- *Objective 1: Educate school children about the river & wildlife.*
- *Objective 2: Educate the public with public lectures.*

The Connecticut River Conservancy established the following programmatic goals in their 2011-2016 strategic plan. Each goal was refined into specific, measurable strategies that were to be completed by specific individuals with the organization at specific times (CRWC, n.d.).

- *Increase the human and financial capacity of the organization by creating a \$5M endowment and reaching 5,000 members.*
- *Generate, analyze, and disseminate highly credible technical information using sophisticated outreach and advocacy techniques so we are the "go-to" resource for decision makers.*
- *Build effective and diverse coalitions and partnerships to achieve our goals.*
- *Provide meaningful and accessible opportunities for people to recreate, generate livelihood, and appreciate the inherent beauty and values of the Connecticut River and its tributaries.*
- *Restore ecosystem function and connectivity.*
- *Responsibly divest our land holdings and improve our stewardship capacity for those remaining properties.*
- *Continue to implement and maintain best practices for all financial and administrative systems.*

9.2 Issues

A. Issues in the Saco River Watershed

Interviewees expressed concern about an array of issues in the Saco River watershed. Often, the issues were related to people's values or aspirations. The diversity of issues discussed reflected the geographic, social, economic, and ecological diversity of the watershed as well as the different ways that interviewees understood and used the river.

The major issues raised by interviewees were recreation, development, dams and fish passage, and water extraction (Table 9.2). However, interviewees had different perspectives on these issues and had different levels of concern about issues and specific sub-issues. Within recreation, interviewees recognized and valued the opportunities recreation provided to the region, including economic benefits. However, they were concerned about the impacts of recreational overuse of the river, including litter, pollution, and environmental degradation. Some were also concerned that recreation posed threats to safety and privacy.

Interviewees concerned about development frequently explained that

an increase in development could lead to a decrease in water quality. Concerns about development were often greatest in the headwaters and in the estuary, where development pressures are highest.

Table 9.2 Issues and Sub-Issues within the Saco River Watershed

Major Issue	Sub-Issues	Percent Interviewees Mentioning
Recreation	Overuse Safety, security, and privacy Lack of awareness of impacts of overuse	67%
Development	Threat to water quality Changes in land ownership	35%
Dams and fish passage	Ecological connectivity Inadequacy of federal fish passage standards	35%
Water extraction	Private profits from a public good Equitable distribution of benefits Distrust of the science Loss of local political control Viability of extraction due to climate change Sustainability of plastic bottles Maine Water expansion	29%

Interviewees concerned about dams expressed a desire to see improved fish passage to increase the ecological connectivity of the river. Some believed that federal standards were inadequate.

Water extraction is a particularly complex issue with many sub-issues. Interviewees who were concerned about water extraction had a wide array of perspectives, but most were primarily concerned about private water extraction for bottling and distribution, usually tying their concerns specifically to Poland Spring’s operations. Some opposed extraction for bottled water under any circumstances, while others were primarily concerned with Poland Spring’s science and methods of gaining rights to water. Some interviewees saw water as a public resource from which a private company should not be able to profit. A few wanted benefits from extraction to be more equitably distributed, while some distrusted science done by Poland Spring, particularly regarding the viability of extraction as the climate changes. Others were concerned that water extraction created

a loss of local control over local resources. Finally, some were opposed to plastic bottles and a few were concerned about the possible expansion of Maine Water.

B. Implications for a Collaborative

There are several different issues of concern to people in the watershed, many involving varied sub-issues. Interviewees expressed differing levels of interest and concern about these issues. Some have a high level of shared concern across the watershed while others are of particular concern to some but not others. Some concerns are unique to particular sections of the river. There are also different entities with jurisdiction over some issues and their roles and authorities need to be considered in any collaborative organization's activities. There are also varying levels of capacity by groups and individuals in the watershed to respond to different issues in an effective way.

Recommendation 3

Those interested in advancing collaboration in the Saco River watershed should recognize the varied interests and concerns at stake and discuss which issues they want to tackle in the short- and long-term. They should also establish operational boundaries for addressing those issues, recognize the various entities with jurisdiction over the issues, and work to include entities with jurisdiction in the process.

Issue identification and prioritization will enable a collaborative to discuss the timing and process for addressing the issues. In particular, questions such as these should be considered:

- Who needs to be engaged, in what way, in order to effectively address each issue?
- How will expertise about each issue be obtained?
- How will those involved learn together about the issues so that everyone is on the same page?
- What resources will be required and how might they be secured?
- Who has responsibility and jurisdiction for each issue and what is their role in the process?
- Which issues require a watershed-wide approach vs. by river sections or sub-sections?
- How will the process be managed and kept manageable?

The Millers River Watershed Council, for example, began when the river was heavily contaminated, and initially worked to address major sources of pollution. Since then, the Council has worked on other issues like nonpoint source pollution, education for responsible recreation, and water quality monitoring (MRWCb).

The Coos Watershed Association initially worked to keep the Coho salmon from being listed as an endangered species. They were unsuccessful, but through their work, the organizations involved recognized that they shared many goals. Consequently, the Association began to work on habitat restoration and ecosystem management that would help the Coho salmon recover in addition to helping the groups involved meet their other goals (CWA, 2017).

Other collaboratives formed in response to one issue but began to address other problems over time. The Connecticut River Conservancy, for example, spent most of its first decade working together to gather information on the river, exploring what was known and unknown, what the major issues were, and how to prioritize issues. Once they had information and could share it among participants, they were able to turn their attention to completing specific projects, such as creating strategies for oil spill responses, creating a Water and Sewer Commission, and targeting priority land conservation efforts (Bednar, 2017).

9.3 Interest in and Potential Purpose of a Collaborative

A. Interest and Purpose

Interviewees clearly aspire to greater levels of communication and collaboration in the Saco River watershed, and they expressed moderate to high levels of interest in creating a collaborative watershed organization. However, they had wide-ranging thoughts about the role a collaborative might play in their watershed. The purposes that they envisioned fell broadly into three categories: enhancing the relationships, knowledge, and capabilities of the collaborative's members; influencing the knowledge and behavior of others; and enabling watershed-scale management and planning. Within these categories, interviewees described a number of roles they envisioned a collaborative fulfilling (Table 9.3).

Table 9.3 Potential Purposes of a Saco River Watershed Collaborative

Main Purpose	Sub-Purpose	Percent Interviewees Mentioning
Enhancing Members' Relationships, Knowledge, and Capabilities	Networking and information sharing	48%
	Coalition- and capacity-building	15%
Influencing the Knowledge and Behaviors of Others	Public education and outreach	31%
	Advising municipalities and state governments	17%
	Advocacy	8%
Enabling Watershed-Scale Management and Planning	Ecosystem perspective in decision-making	21%
	Coordinating conservation efforts	8%
	Tackling issues that cross multiple jurisdictions (e.g. recreation)	4%

B. Implications for a Collaborative

As seen in the case profiles, collaboratives form in different ways for different reasons. Some form to enable a coordinated response to a regulator's request (e.g. Animas Stakeholder Group, Huron River Watershed Council). Some form to enable a coordinated response to an urgent problem (e.g. Charles River Watershed Association, Connecticut River Conservancy). Others form to provide a forum for proactive activity (e.g. Androscoggin River Watershed Council). While some are triggered by a request for action, others form voluntarily.

As of yet, there has not been any kind of regulatory mandate that would require coordinated action in the Saco River watershed. None of the issues were described by interviewees as urgently requiring a coordinated response. Hence, formation of a collaborative in the Saco River is primarily proactive with a wide latitude of directions that might be taken. Those considering collaboration in the Saco River should determine for themselves what they desire the purpose of their collaborative to be.

Recommendation 4

Organizations and individuals who are interested in collaboration in the watershed should first have a conversation to explicitly discuss the varied purposes a collaborative might serve and which purpose(s) will best advance their interests and address their concerns.

The cases profiled in Chapter Eight model different purposes. For example, the Salmon Falls Watershed Collaborative focuses on networking and information sharing - a purpose that influenced its more informal structure (Jacobs, 2018). The Coos Watershed Association focuses primarily on tackling cross-jurisdictional issues and coordinating conservation efforts to bolster Coho salmon populations (CWA, 2017).

Other collaboratives have taken different approaches to choosing a purpose. While the Charles River Watershed Association has a written mission statement that outlines its purpose, its Executive Director largely dictates which purpose the organization will focus on. Recently, they have chosen to focus on scientific research and legal advocacy. The new focus on advocacy and taking stances on controversial issues led some to fear that members and donors would cease being involved with the organization. While some did stop donating to the organization, the shift also attracted many new members (Zimmerman, 2018).

The lack of concurrence among interviewees about the potential purpose(s) of a collaborative in the Saco River watershed is not inherently problematic. Although a common understanding of the purpose of a collaborative sometimes exists initially, in other cases it takes time to develop (Margerum, 2011).

9.4 Potential Structure of a Collaborative

A. Structure

Slightly over half of the interviewees had not given thought prior to the interviews about how a potential collaborative might be structured. Of those who had thought about structure, nine favored a formal process such as incorporating as a nonprofit. Four favored an informal networking process, while nine advocated for elements of both. Opinions about structure were primarily influenced by what each interviewee perceived

to be the purpose of a collaborative. A collaborative's purpose usually shapes its structure, including who makes decisions and how decisions are made. Given that interviewees had varying ideas about purpose, it is unsurprising that ideas about structure also varied.

Interviewees' thoughts on structure were frequently influenced by the simmering controversy around funding of the existing collaborative by Poland Spring and Maine Water, as well as Poland Spring's ongoing involvement in that process. This controversy around funding has caused some participants and potential participants to lose faith in the credibility of the existing collaborative. While some favor continued participation by Poland Spring, others are cautious on the subject, favoring a limited role or no role at all for the company.

B. Implications for a Collaborative

While most interviewees had given little thought to how a collaborative should be structured, it was clear in their responses to questions about structure that they are most concerned that any collaborative process in the Saco be credible, transparent, provide flexibility in participation, and focus on issues that matter to participants, making it worthwhile for them to be involved.

Recommendation 5

Consider ways to structure the collaborative in order to ensure its broad credibility.

Other collaboratives have increased their credibility by diversifying and making transparent their sources of funding. They have also created broad opportunities for discussion among stakeholders and representative decision making bodies where stakeholders feel that their concerns will be heard and considered fairly.

The Animas River Stakeholders Group is one example of a group that faced a credibility issue early in its existence. Citizens felt that the process was being controlled by the federal government, and they were being told what to do with their watershed without opportunities to provide input. The group's original coordinator took time to reach out to concerned parties and changed the format of meetings to make them more accessible. The group also used consensus decision-making so that all of the parties' diverse interests would be represented (Simon, 2018).

The Coos Watershed Association encouraged trust from various stakeholders by specifically structuring the board in a manner that ensured its transparency and accountability. It has a 16 to 21 person board representing ten stakeholder groups, and all of their decisions on major issues must be unanimous. It also has a very explicit charter outlining the composition, responsibilities, and decision-making rules of the board to ensure the board's role and activities are understood by all stakeholders and controlled by a clear process. They also make all of their bylaws and tax forms readily available to interested parties. They encourage donations, but allow donations to go to specific causes so people can donate to projects that they are passionate about (CWA, 2017; see also CWA, 2016).

The board of the Androscoggin River Watershed Council has a Nominating Committee to help maintain representation of different constituencies in the governance of the organization. The Nominating Committee's sole focus is on nominating new board members who represent a range of geographies and backgrounds including business, nonprofit, local government, and state and federal agencies (ARWC, 2017). This process helps to facilitate involvement and credibility in different regions and among different groups.

Recommendation 6

Consider ways to structure the collaborative in order to ensure its transparency.

Other collaboratives have increased their transparency by having open meetings that are regularly scheduled and by making information available in a variety of ways including newsletters, websites, annual meetings, and varied activities that engage different people over time.

The Connecticut River Conservancy, for example, has a website that contains detailed information about their projects and initiatives. They also have email updates that anyone can sign up for. Individuals can choose to receive information about the Conservancy and watershed-wide news and events, volunteer opportunities, and/or news specific to certain stretches of the river. They have an annual trash clean-up that provides an opportunity to engage the public in stewardship of the river. The Conservancy has also held a variety of engaging events that span the length of the river, providing opportunities for fun and education (CRC, 2017).

The Merrimack River Watershed Council is especially transparent regarding their funders. All of their funders are listed on their website and in their annual report, making the information easy to find. They have also cultivated a wide array of funders including local businesses, foundations, individuals, and families (MRWCa, 2017).

The Animas River Stakeholder Group ensures transparency by making their meetings open and accessible. Working groups meet immediately in advance of the full group meetings and are able to present to the whole group. Meetings are open and held at regular intervals (ARSG, 2017), so individuals know exactly when and where meetings will be and are able to participate at a level that is useful to them.

Recommendation 7

Consider ways to structure the collaborative in order to enable flexibility in participation.

As seen in the case profiles, collaboratives are structured in a variety of ways to allow for flexible participation. Some have created different membership levels and opportunities for engagement. Some have subcommittees and working groups that enable people to engage on specific issues of concern to them and/or on activities that are specific to different sections of the river. Collaboratives have also made participation easier by helping to defray costs associated with participating for individuals and groups with fewer resources.

The Animas River Stakeholders Group has working groups centered around different issues, so that people can engage primarily based on their interests. They have three primary working groups and other temporary working groups that are established as needed (ARSG, 2017).

Like many collaboratives, the Huron River Watershed Council is a 501(c)(3) nonprofit, with a Board of Directors and paid staff. The Board is made up of representatives of "local government units" (towns, cities, and so on) that live within the watershed and have applied to be members (HRWC, 2017a). Representation in the Council enables communities to participate in activities specific to their section of the river and provides them with access to the vast amount of data and information that the Council has acquired over the decades, such as water quality data or hazardous material inventories (HRWC, 2017b). Representatives can also be "associate

members” if desired; these members are not required to pay dues, but do not have voting power on the Board (HRWC, 2017a).

The Salmon Falls Watershed Collaborative is an example of a collaborative with a loose, informal structure, enabling its purpose of information- and resource-sharing and allowing groups to participate as they find useful. Groups primarily participate in monthly conference calls to share information (Jacobs, 2018). Having calls, rather than in-person meetings, means that participants do not have to spend extra time and resources traveling to the meetings.

Recommendation 8

Ensure that the process is structured in a way that will make a difference in the watershed, making it worthwhile for individuals and organizations to participate.

A collaborative could work to ensure the process feels worthwhile by prioritizing issues and sub-issues to ensure that those of greatest concern are being addressed. It can take on projects with visible impact and work on activities that are engaging and even fun for participants while also accomplishing a core objective.

Many collaboratives have active volunteer river clean-up or citizen science programs that allow watershed residents to participate in activities that have a visible impact, which enables them to feel engaged in their watershed. For example, the Connecticut River Conservancy hosts an annual Source to Sea Cleanup in which volunteers participate in coordinated local trash pick-up events up and down the length of the river (CRW, 2017).

Similarly, the Androscoggin River Watershed Council hosts an annual Source to Sea Trek, in which they invite canoers and kayakers to join them in paddling the Androscoggin River’s full length over the course of the summer (ARWC, 2017). This event accomplishes the council’s goals of advocating for and supporting environmentally-responsible economic, community, and recreational development, as well as developing and maintaining broad-based support for and involvement in the watershed.

Conclusion

The Saco River watershed is a remarkable watershed with myriad valuable characteristics. Many groups are engaged in recreation, conservation, education, and research. A diverse set of groups and individuals share common values about the watershed and aspirations for its future. There are also a host of complex issues facing the Saco River watershed, most of which are specific to stretches of the river. While there is no external mandate requiring solutions to these issues, this study indicates that proactive management is widely desired. This convergence of shared values and aspirations for the watershed bodes well for any collaborative moving forward. At the same time without an externally imposed purpose, the door is currently open for many different purposes a collaborative could potentially pursue.

To date, there has not been broad agreement on the purpose of a collaborative in the Saco River watershed. This ambiguity about purpose has led to a lack of clarity around how a collaborative should be structured and who should be at the table. In addition, there is a lack of trust between different groups in the watershed, which has led some to perceive a lack of credibility with current collaborative efforts. From our profiles of other watershed organizations confronting similar issues and issue contexts, it is clear that a collaborative in the Saco watershed could adopt one of many purposes and use structure to address organizational challenges in proven ways.

By explicitly discussing perspectives about the issues facing the watershed and potential role a collaborative could play, stakeholders have the opportunity to design a credible and worthwhile process that could result in more inclusive, holistic, and coordinated management within the Saco River watershed.

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APPENDICES

Appendix A.

Organizations Interviewed about Collaboration

Business/Industry

Brookfield Renewable Energy
FB Environmental
Fiddlehead Campground
Hill Country Guides
Maine Water Company
Nestlé Waters North America, Inc.
Rumery's Boat Yard
Saco Bound
Weston Farms

Government

Federal

U.S. Department of Agriculture - Natural Resources Conservation Service
U.S. Department of Agriculture - Forest Service

State

Maine Center for Disease Control and Prevention - Drinking Water Program
Maine Department of Environmental Protection
New Hampshire Department of Environmental Services
Saco River Corridor Commission
Wells National Estuarine Research Reserve

Municipal/Regional

Biddeford Conservation Commission
North Conway Water Precinct
Southern Maine Planning and Development Commission
Town of Conway, New Hampshire

Nongovernmental Organizations

Local/Community-Based

Acton Wakefield Watersheds Alliance
Community Water Justice
Greater Lovell Land Trust
Green Mountain Conservation Group
Kezar Lake Watershed Association
Lovewell Pond Association
The Ecology School
Saco River Recreation Council
Saco Salmon Restoration Alliance
Upper Saco Valley Land Trust

Regional

Sebago Chapter of Trout Unlimited
The Nature Conservancy - Maine Chapter
The Nature Conservancy - New Hampshire Chapter

Universities

University of New England
University of New Hampshire

Appendix B.

Interview Protocol

Introduction

My name is <Interviewer A> and this is <Interviewer B> and we are graduate students from the University of Michigan's School for Environment and Sustainability. Thank you for meeting with us. We are part of a student team that was asked by the Wells National Estuarine Research Reserve to explore the potential for a Saco Watershed Collaborative. We're here to meet with several organizations and individuals to get a better sense of what is going on in the watershed and what people's perceptions of it are. We are looking to understand why the Saco is important to you, what you see as the major issues, and what your vision is for the future of the watershed. This interview should take no more than an hour.

Before we start, we just want to confirm that you are willing to be interviewed for this project. Would you mind if we recorded this interview to assist with our note-taking?

Do you have any questions?

<Begin Interview>

Background, Perceptions, and Interests

- Wells NERR recommended that we reach out to you, given your background of <Organization/Individual> in the Saco River watershed. We've done some research of our own on <Organization/Individual> but could you start by telling us a little bit about yourself and what you do?
- It's clear that the Saco watershed is a special place. Tell us about why this place is special to you. What's it like living and working here?
- What makes the watershed important? What qualities or features are most important to you?
- What is your biggest hope for the future of the watershed?
- What are your most important organizational concerns about the watershed?
- Talk to us about what you consider to be the most important issues in the watershed.
- What is currently being done to address these issues?

Perceptions of Collaboration

We can revisit these issues later, but we'd like to change gears now and hear your thoughts about forming a collaborative organization in the Saco River watershed. Do you think it's a good idea?

- If participant seems supportive, then...
 - Why?
 - Who is working on some of the issues in the watershed?
 - Who are you working with?
 - What networks/partnerships are in place?
 - What do you think the collaborative would contribute to the watershed?
 - Who do you think should be acting upon the collaborative's advice?
 - Who do you think should be involved in the collaborative and why?
 - Do you have any concerns about forming a collaborative?
 - At this point, do you feel committed to participating in a collaborative?
 - What might limit your ability to participate or make you less interested in participating?
- If participant seems against the idea...
 - Why?
 - What do you see as a better alternative?
 - How do you imagine resolving [the conflicts they've mentioned if any]?
 - Would anything make you want to join a collaborative?

Structuring the Collaborative

So you've given us a sense of how you see the Saco Watershed Collaborative playing out. We'd like to hear any thoughts you might have on what the collaborative might look like.

- Have you given any thought as to how the collaborative might be arranged?
- Do you think the collaborative would have a formal structure, or be more relaxed?
 - If formal: Who should manage the collaborative?
 - If informal: How do you think decisions should be made?
- How frequently do you think the collaborative should meet?
- Have you given any thought as to how the collaborative's work could or should be funded?
- How do you think the logistics of scheduling meetings, managing funding and operating the collaborative should be managed?

- Do you envision logistics might ultimately be handled by a paid coordinator or staff?
- How familiar are you with the Salmon Falls Collaborative?
 - If participant is unfamiliar: [explain briefly about the Salmon Falls Collaborative]. Then: What aspects of the Salmon Falls Collaborative would you adopt or avoid in the Saco?
 - If participant is familiar: What aspects of the Salmon Falls Collaborative would you adopt or avoid in the Saco?
- Imagine a Saco Watershed Collaborative Association was formed and we're now five years into the future. What would success look like for you?

Conclusion

- Is there anything else you would like to add that hasn't already been covered?
- Again, the goal of our project is to better understand the interests and concerns of the people living and working in the Saco watershed in order to develop recommendations for the potential establishment of a collaborative watershed organization. What's the most important thing that we should take away from this interview?
- If we need additional information or clarification, do you mind if we follow up with you via phone at a later date?
- Do you have recommendations for others that we should interview for this project?

<End Interview>

