AUSABLE RIVER Association

Inspiring Responsible Stewardship

Strategic Plan 2017-2021

December 2017

Ausable River Association Board of Directors

Larry Master, Chair

Liz Clarke, Vice Chair

Ken Brownell, Secretary

Christian Brammer, Treasurer

Evan Bottcher

Rob Farkas

Susan Lacy

Neil Levine

Betsy Richert

John Schuler

Wally Walters

Ausable River Association Staff

Kelley Tucker, Executive Director

Brenden Wiltse, Science and Stewardship Director

Nicole Pionteck, River Steward

Carrianne Pershyn, Science and Operations Associate

Table of Contents

Ausable River Association Mission

Helping communities protect our streams and lakes.

Ausable River Association Vision

We envision a community of watershed residents and visitors enjoying the Ausable River, its lakes and tributaries, and protecting its clean waters, healthy free-flowing streams, and the diverse habitats that sustain its native plants and wildlife. This community supports and works in partnership with AsRA to inspire future generations to cherish and protect our watershed.

Executive Summary

The clean, clear water, healthy streams, and rich habitats of the Ausable River, its tributaries and its lakes are essential to the communities – human and wild – that call the watershed home. While its headwaters and significant sections of the East and West Branches benefit from various protections at the state level, the river, nonetheless, faces challenges. Many of the threats to water quality, stream stability, and native wildlife have roots in past industrial practices, others are the result of present day development and management practices.

None of these challenges, however, are insurmountable. Thanks to the creation of the Ausable River Association (AsRA) in 1998, the health of the river has been a topic of conversation, study, and action among residents, business owners, and visitors to the region. AsRA's staff expansion beginning in 2014 has increased the application of up-to-date scientific and technical knowledge to advance watershed issues, improved access to public funding resources, and created rising public enthusiasm and engagement to protect and restore the river, it's lakes, streams, and wetlands.

With careful planning, the scientific collection and assessment of data, and working side-by side with landowners, local, state, and federal government, NGOs, researchers, residents and other stakeholders, AsRA's programs identify and address many of the key threats. We protect the clean waters, natural hydrology, diverse ecology, and scenic beauty of the Ausable and we inspire and provide knowledge for others to cherish and protect our watershed.

Strategic Planning

Conceptual work on this strategic plan began in 2015 with a series of AsRA staff and board meetings to define the scope and purpose of planning and included informal conversations with members of the community. In 2016, staff and board met to identify and refine a new mission, vision, and organizational goals, defined a framework for a planning document, and began the drafting and revision process. The result is a document that will guide AsRA's staff and board through a program prioritization and a strategic staff expansion that, we believe, will enhance our capacity to protect the waters of the Ausable watershed and build added efficiency, credibility, and strength in AsRA's programs. Increasingly, we believe our program work in the Ausable can serve as a model for assessing and protecting watersheds throughout our region. For example, AsRA's work to reconnect stream corridors for wildlife by replacing aging and undersized culverts – reducing infrastructure damage during floods thus saving the time and money of municipalities, has informed approaches in other New York towns and counties beyond our watershed.

AsRA's Vision

> We envision a community of watershed residents and visitors enjoying the Ausable River, its lakes and tributaries and working to protect its clean waters, healthy free-flowing streams, and the diverse habitats that sustain its native plants and wildlife. This community supports and works in partnership with AsRA to inspire future generations to cherish and protect our watershed.

AsRA's Mission

Helping communities protect our streams and lakes.

AsRA's Goals

Clean Water:

> Streams, lakes, wetlands, and aquifers capable of supporting a full complement of human and ecosystem needs

Healthy Streams:

> Shaded, cool waters, with ample floodplains and self-regulating flows sustaining ecological diversity and thriving communities

Biodiverse Habitats:

> Habitats and ecosystems fostering native plant and animal species in and alongside streams, lakes, and wetlands

Public Enjoyment:

> Responsible, low-impact recreational opportunities protective of Ausable waterways and adjacent lands

Engaged Communities:

> Informed residents and visitors caring for the health of the watershed where they live, work, and play

A Voice for the River:

> A strong, sustainable Ausable River Association working in partnership to achieve shared goals

Priority Actions

Clean Water

Continue AsRA's commitment to conducting long-term monitoring of water quality in lakes and streams; to pursuing research to identify and understand water quality threats throughout the watershed; and to finding solutions by working with communities and diverse partners. Increase the ability of the Science and Stewardship Director to focus on this work, by significantly decreasing his communications and marketing role with the hire of a communications manager.

Healthy Streams

Expand efforts to plan and implement natural channel design (NCD) restoration techniques that work with natural hydrology to restore self-regulating, flood-resilient, habitat rich Ausable streams. Continue to refine and grow implementation of the Climate Ready Culvert program.

Increase the ability of AsRA's executive director, who is fully trained in NCD methods and leads these programs, in support of this goal by hiring an experienced part-time Finance & Operations Director.

Biodiverse Habitats

Establish a free-standing program that identifies and protects vulnerable species dependent on near/in-stream habitats. Combine invasive species and riparian buffer restoration programming under this goal and expand it to include identifying and understanding the occurrences of vulnerable species (primarily native wild brook trout but also e.g. spring salamanders, wood turtles, frog and fish species) that rely on Ausable waterways, floodplains, and wetlands. Hire a part-time science associate/wildlife or fisheries biologist to work with the river steward and science and stewardship director to lead field work, identify volunteer networks for partnering, and advance program goals.

Enjoying Ausable Streams

Encourage public access and low-impact recreational opportunities and uses of the river by promoting wise management of stream corridors, lakesides, and wetland areas by landowners and municipalities.

An Informed and Engaged Public

Rededicate the river steward position to education and stewardship activities that describe and support the value of the Ausable system, the threats facing it, and the role the community must play. Develop and expand field-based youth programs that expose students to hydrology, climate change, ecology, and biology and to methods for surveying streams, monitoring water quality, and creating biological inventories.

Fund and hire a communications manager to plan, design, and implement communications and marketing strategies that elevate the goals and programs of AsRA, increasing public awareness, and expanding AsRA's member, donor, and volunteer base.

Sustainable Organizational Management

Expand membership and private giving to keep pace with the growth of state and federal funding. Create a board development committee to assist in outreach to non-members, members, and individual donors and to lead the preparation and implementation of a development plan.

Create a board communications and marketing committee to work with the new communications manager to develop an informed, strategic communications and marketing approach for AsRA.

Strengthen the leadership and management of AsRA with the hire of a part-time finance and operations director to oversee operational and administrative functions that support AsRA programs including: organizational bookkeeping; financial strategy and management; grants tracking, compliance, and administration; office management; and human resources.

Implementation

The AsRA Board of Directors reviewed and approved this plan in December 2017. Implementation of many of the actions outlined in this document will occur over the next one to five years. Some, such as ongoing water quality monitoring, will continue indefinitely if they are supported by organizational planning, financial resources, and appropriately experienced staff. Table 5.1 presents timeframes for implementing the actions presented. Relevant partnerships and funding streams that sustain each action are noted.

1. Context for the Strategic Plan

1.1 The Ausable River—An Overview

The Ausable is one of 14 major rivers that descend from the Adirondack dome, but only it and the south-flowing Hudson have their headwaters on Marcy and Algonquin, the highest of the High Peaks. Its watershed encompasses 512 square miles, 27 High Peaks, and includes 94 miles of river channel fed by more than 70 streams. Lake Placid, Mirror and Fern lakes, the Ausable and Cascade lakes, Chapel, Connery, and Taylor ponds, and dozens more bodies of water are part of the watershed. Seven towns, eight hamlets, and one incorporated village are in the watershed, which covers portions of two counties and includes over 20,000 residents, living primarily in settlements downstream of its protected headwaters.

The Ausable's two branches meet in the hamlet of Au Sable Forks. From there, the Main Stem meanders through gently sloping lowlands before tumbling through the spectacular sandstone gorge of Ausable Chasm, finally entering Lake Champlain just 100 feet above sea level. This rapid descent from its 5,000-foot headwaters to the lake makes the Ausable the second steepest river in New York State, after its shorter neighbor, the Boquet. At its mouth, it forms a sandy delta that led early French explorers to call it the "sandy river," or "river of sand." From Lake Champlain, its waters drain into the Richelieu River, joining the Saint Lawrence as it flows northeast into the Atlantic Ocean.

Shaded by lush forest, these waters have created extensive wildlife habitat for a range of species: fisher, black bear, bobcat, snowshoe hare, marten; palm warblers, Bicknell's thrush, rusty blackbirds, black-backed woodpecker, spruce grouse, and saw-whet owls; spotted salamanders, American toads, mink frogs, and more. Balsam, quaking aspen, spruce, alpine sweetgrass, diapensia, and other trees and plants of the northern boreal forest are found along the higher elevations of the Ausable's two branches, and an incredible diversity of hardwoods, pine, hemlock, and spruce flourish in its valleys. It is a wilderness paradise, a rural home, a recreational destination—defined by water and shared by people.

For most of the time since the glaciers receded 12,000 years ago, the Ausable was the dominant land-shaping force in the region, determining, by the sheer force of water, the nature of its watershed. With settlement of the region in the late 1700s, the river's power was put to work fueling industries that cleared its banks of trees, deforested large swaths of its headwaters, built dams to control water flow, straightened channels and removed boulders to facilitate spring log drives—annual events until the 1920s. For another half century, the river continued to serve as a highway, disposing of the waste from pulp papermaking. Today, with the protections afforded by the State of New York, the watershed has rebounded – forests have regenerated, wildlife flourishes, and the waters of the Ausable are, for the most part, clean and clear. The watershed is a hub for world-class trout fishing, wilderness hiking, rock climbing, skiing, and recreational paddling.

Nevertheless, the effects of this early industry scarred the Ausable: destabilizing the natural structures and forms that allow the river to manage sediment, recover from flooding, and provide habitat for wildlife, especially aquatic animals. Recent decades have brought new challenges:

continued floodplain development, chloride pollution from winter road deicing, aging road infrastructure, and invasive species, making active conservation of the Ausable a priority.

1.2 The Ausable River—The Issues

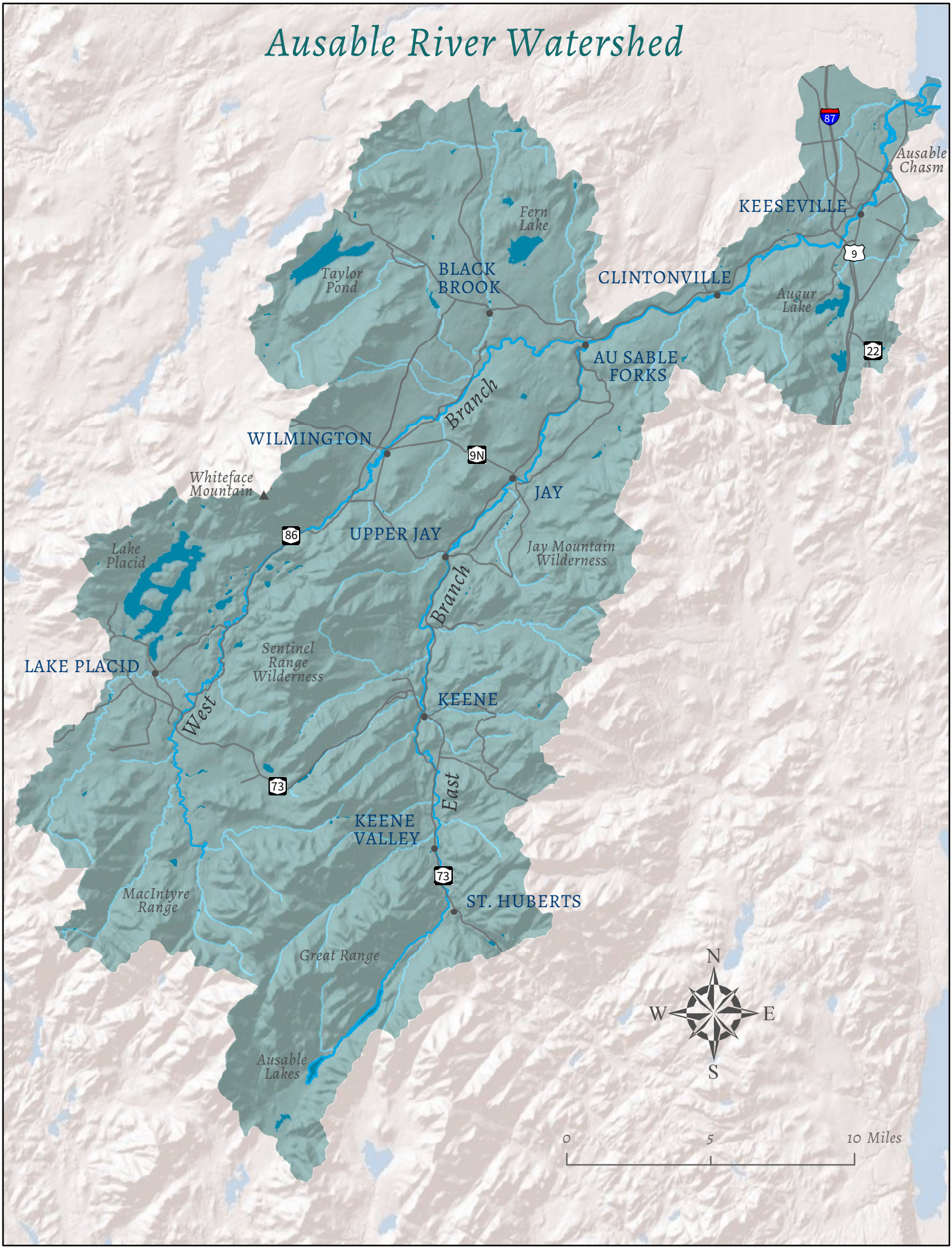
Water Quality

Water is essential to life, and clean, clear water for drinking, swimming, fishing, and for the health and abundance of native wildlife, is at the heart of every community in the Ausable watershed. NYS DEC data and water monitoring projects conducted by AsRA in the past ten years indicate that water quality remains good to excellent overall for the three branches of the river and its tributaries. However, AsRA monitoring also identifies emerging threats and trends that must be addressed to maintain community and ecosystem health.

Road salt – Current chloride concentrations are troublingly high, particularly in the East Branch, the Cascade Lakes, and Mirror Lake. While they have not yet exceeded EPA or NYS DEC guidelines, chloride concentrations at these sites are up to 100 times greater than expected for Adirondack surface waters and are a result of their proximity to state roads and urban areas. Given the harshness of Adirondack winters, the perceived demand for high salt application rates on roadways and walkways, and concerns about liability, it is not surprising to find elevated levels of chloride in surface waters during winter and spring runoff. Its persistence in the river during the summer months is alarming, however, and suggests that groundwater is contaminated with chloride. In the past, chloride groundwater contamination has been tied to uncovered storage of road salt in local facilities. Reports of residential wells contaminated by chloride in the hamlet of Keene downhill from the old storage facility led to the relocation of that site and the construction of a new facility. In a few instances, e.g., Town of Black Brook storage on Palmer Brook, concerns about salt storage continue.

Sediment – While sediment is a natural and essential part of a healthy stream, increased sediment inputs are as great a threat to Ausable water quality as chloride. Gradual erosion of streambanks is a natural process, but in streams with a history of manipulation – reinforced banks, channelizing, dams, gravel mining, reduction of floodplain access – erosion can increase beyond sustainable levels. In the Ausable system – like many former working rivers that have development and roadways in their floodplains – additional sand and soil sediments are introduced in large quantities through stormwater runoff from yards, hillsides, and impermeable surfaces like roofs and driveways. However, the largest contribution may be through the introduction of sand to roadways as an abrasive and alternative to road salt. No matter the source, increased sediment loads degrade fish habitat, compromise the clarity and recreational use of waterways, increase the costs of maintaining drinkable water, and increase damage from flood flows.

Phosphorus – Samples taken at the mouth of the river show that the Ausable has one of the lowest phosphorus discharges to Lake Champlain (Vermont DEC, 2011). Clearly, the river is not overloaded with phosphorus but phosphorus levels decline downstream from the point of introduction, suggesting that it is rapidly consumed within the Ausable's aquatic environment and making it difficult to detect. Past testing by AsRA suggests that urban areas and spring runoff appear to be the two largest sources of phosphorus in the Ausable watershed. We know that aging, poorly maintained, or undersized septic systems in urbanized clusters along Ausable waterways can degrade water


Ausable River Watershed
87
Ausable Chasm
KEESEVILLE
9
Fern Lake
Taylor Pond
BLACK BROOK
CLINTONVILLE
Augur Lake
22
AU SABLE FORKS
Branch
WILMINGTON
9N
Whiteface Mountain
JAY
86
UPPER JAY
Jay Mountain Wilderness
Lake Placid
Branch
Sentinel Range Wilderness
LAKE PLACID
West
KEENE
73
East
KEENE VALLEY
73
MacIntyre Range
ST. HUBERTS
Great Range
Ausable Lakes
N
W
E
S
0
5
10 Miles

quality for humans and wildlife. And we know that municipal wastewater systems degrade and can be overwhelmed in busy recreational seasons.

Temperature – Warmer waters threaten the survival of many native Adirondack species, especially brook trout. It is widely accepted that brook trout prefer temperatures below 20°C (68°F). In Southern Ontario, streams with weekly maximum temperatures exceeding 22°C (72°F) have marginal or no brook trout populations (Barton et al., 1985). Other published studies report temperatures between 19-26°C (68-79°F) as the upper limits tolerable to all trout species (Eaton et al., 1995).

In a pilot study, AsRA placed temperature loggers in the Ausable River at seven locations in 2008 and 2009. The loggers recorded water temperature from May through October. Several locations on all three branches of the river were found to be above 20°C for more than 20 days. A partner group, Trout Unlimited's Adirondack Chapter, has monitored locations on the East and West Branch and found temperatures above 20°C lasting a week or more.

Stream Health

The Ausable River watershed boasts forested streams with abundant scenic views and recreational opportunities, but such measures are deceptive as indicators of wild nature or stream health. Historic land clearing, industrial operations, alterations to stream channels and flow, and development in the floodplains of the Ausable valley altered the physical characteristics of the river, leaving it in what hydrologists consider a state of disequilibrium.

In a stable, self-regulating stream or river, the gradual erosion of channels is a natural process that benefits the stream and its riparian ecosystem. Erosion, in this case, is a dynamic process that is critical to the creation of diverse habitats in one stream. To river scientists, this is known as a graded stream in equilibrium. Erosion in a stable stream is evenly distributed and therefore minimized; the stream transports the flows and sediment coming from its watershed while maintaining channel dimension, pattern, and profile. When channel shaping variables change—whether it is an increase in water velocity, channel slope, width, depth, discharge, the size or amount of sediment—a stable river will adjust its form and structure. Stable streams in equilibrium minimize flood damage, maintain water quality, and provide habitat critical for diverse healthy ecosystems. It is easiest to find such conditions on rivers that flow wild, with minimal human intervention, but streams flowing through populated landscapes can be managed, and if necessary, restored in ways that keeps them stable and in equilibrium.

Two of the most commonly cited causes for stream instability are land use changes (land clearing or urbanization of the riparian corridor and floodplain) or human alterations to the channel (bridges, rip-rap, dredging, dams, etc.). Multiple alterations of a channel over time, combined with significant fragmentation of a stream's valley—reducing access to floodplains, for example—can destabilize a stream, resulting in disequilibrium. When streams are in disequilibrium, excessive erosion occurs in some channel locations, while excessive sediment deposition occurs at others. Some reaches are scoured of beneficial woody debris and sediment, while others may become smothered in sediment, destroying habitat and degrading water quality. Subsequent changes in slope or water depth can lead to damaging erosion of banks and beds. Where stream disequilibrium is prevalent in a watershed, analytes and nutrients (e.g. sodium, phosphorus) found in eroding sediments are released in large amounts, leading to increased pollution of surface waters.

The challenge of maintaining roadways in floodplains highlights the problems caused by disequilibrium. The historic pattern of settlement in the Ausable valley led to the adoption of a roadway system that parallels the river for most of its length and occupies a significant portion of the riparian and flood zones. This contributes to several disequilibrium conditions. Out of necessity, many riverside roadways are protected from erosion with riprap. This hard armoring effectively straightens the channel and passes energy and erosion problems downstream. When meandering rivers are straightened, stream length becomes shorter and slope increases, thus increasing stream power, erosion, and flood potential. Roadways elevated above a nearby river for protection or ease of construction prevent floodwaters from spreading out onto the floodplain, where energy and erosive power are reduced. Confined floodwaters pass downstream more quickly, increasing flood levels downstream and interrupting the river's relationship with its floodplain.

Bridges and culverts can also impede full access to floodplains and straighten channels. Bridge spans that are not wide enough limit sediment transport, causing cobbles and debris to build up in the stream, and can be undermined or blocked and bypassed in a major storm. Undersized, collapsed, or improperly engineered culverts fragment natural stream pattern and ecosystems, contribute to erosion, and exacerbate flooding. They block native fish and other aquatic organisms from moving upstream to the cooler waters and habitat they need to reproduce. High flows forced through undersized pipes scour away soil at the downstream ends of culverts, creating large dropoffs to the streams below. Debris builds up at the upstream ends of such culverts, flooding roads, threatening adjacent property, and requiring costly ongoing maintenance by local road crews. Streambanks at either end are often eroded. Stripped of plants and the root systems that stabilize them, banks collapse, increasing sediment pollution and compromising the habitat of fish and other wildlife essential to a healthy stream.

Seemingly small, practical management decisions – building homes or businesses in a floodplain, armoring a bank with rip rap to protect a nearby road, clearing a stream buffer of vegetation to promote a view, allowing winter road sand to flush directly into an adjacent stream, digging out a channel to try to contain flood flows, or damming an existing pool to enhance recreation – create a chain reaction of adjustment downstream. In an undeveloped system, a stream has enough room and time (decades or more) to bring itself into equilibrium. But in the Ausable, upstream shifts in stream flow to alleviate one problem, can create a new set of problems and management challenges for downstream landowners, municipalities, and stakeholders.

Most residents agree that the Ausable is a stunning resource that should be protected. The challenge comes in getting on the same page about how best to achieve healthy Ausable streams in a way that also protects homes, businesses, roads, and livelihoods. By working side by side with landowners, local governments and road crews, business owners, school kids, and others, AsRA encourages the adoption of practical management structures, methods, and standards that make sense to residents and benefit the river. Where we can work side by side with people, we have had great success in transferring a working respect of the river to managers, decision makers, and landowners.

Wildlife Habitat

The Ausable watershed hosts a broad array of species as it traverses a variety of ecosystems, from the boreal wilderness of Mt. Marcy and the High Peaks, along the Sentinel and Giant Mountain Wildernesses, down to the lowland valley of Lake Champlain.

Scientists from the New York State Natural Heritage Program have identified 36 vulnerable plants within the watershed, four of them globally imperiled or vulnerable: Boott's rattlesnake-root, Fernald's bluegrass, lanceleaf arnica, and ram's-head lady's-slipper. Change and stress in the ecosystem have caused the disappearance of others, including clustered sedge, and Pickering's reedgrass.

Tree cover, especially along the banks of the Ausable and its tributaries, is essential to the cool waters needed to support the watershed's trout fisheries. Balsam, quaking aspen, spruce, and other trees of the northern boreal forest are found along the higher elevations of the East and West Branches, and an incredible diversity of hardwoods, pine, hemlock and spruce flourish in the valley. Beech and elm diseases have greatly reduced the populations of these tree species, and many others are threatened by invasive boring pests. Balsam and spruce wooly adelgid are threatening essential conifers. The many ash species integral to regional forests are threatened by the emerald ash borer, which has yet to enter the watershed, but is in regions adjacent to the Adirondack Park.

The New York State Natural Heritage Program (NYNHP) recognized the Ausable River watershed as providing one of the few natural habitats in New York State for the peregrine falcon and the round whitefish, the latter found in the Cascade Lakes and found in fewer that seven lakes statewide (it once inhabited more that 60 lakes). Other NYNHP-tracked bird species in the watershed include Bicknell's thrush (dependent on high altitude areas such as those found in the Ausable's headwaters), pied-billed grebe, short-eared owl, northern harrier, and least bittern. Moose and beaver, once extirpated from the Adirondack region, are back in the park and in the watershed; black bears are frequent in the forested areas of both the Ausable's branches. Carnivores including eastern coyote, bobcat, marten, fisher, long-tailed weasel, ermine, and red and gray fox seem to have stable populations throughout the valley and the wider region. At least 9 invertebrate species considered vulnerable by the NYNHP occur along the river shores or in the river: a freshwater mussel, four dragonfly species, two tiger beetles, a bumblebee, and the imperial moth. One of the tiger beetle species and the moth are considered globally vulnerable to extinction. Little research has been done to establish numbers for any of these invertebrate species, and there are undoubtedly other at risk invertebrate species in the watershed.

Most of these species rely on high water quality and benefit from the watershed's extensive protected forests. But the watershed's aquatic residents are its sentinel species, most notably its native brook trout. Most of the Ausable River offers viable trout habitat. Brook trout are native to the cooler waters of the East and West Branches. Brook trout have been identified by New York State Department of Conservation as a species of greatest conservation need. They are native to all 18 watersheds of New York State, and their presence is an indicator of very good water quality and ecological integrity. While brook trout occur in high numbers in healthy watersheds, their range has contracted in all watersheds because of habitat fragmentation, riparian buffer and forest loss that leads to water temperature increases, and introduction of nonnative species. Wild brook trout

populations persist in areas that have some resistance to climate change, and New York's Adirondacks is considered one of their last strongholds is in the northeastern US.

Brown and rainbow trout were first introduced in the 1800s and continue to be stocked regularly. Smallmouth bass are found in watershed lakes, the lower West Branch, and the river's Main Stem. Landlocked salmon can be found in the lower five miles of the Main Stem, below Ausable Chasm, and are stocked in Taylor Pond. Although brook trout reproduce naturally in the river, Essex County and NYS DEC stock hatchery-raised strains throughout the Ausable River. Brown trout make up most of the stocking population, with lower numbers of brook and rainbow trout. Brown trout and other non-native fish species are listed as the highest biological threat to native brook trout by the Eastern Brook Trout Joint Venture (EBTJV)—a partnership between state and federal agencies, regional and local governments, businesses, conservation organizations, academics, scientific societies, and private citizens working toward protecting, restoring, and enhancing brook trout populations and their habitats across their native range.

Trout and other fish rely on healthy invertebrate populations, a building block of the river's food chain. Invertebrate populations in the Ausable are sampled on a five-year cycle as part of the NYS DEC "Rotating Intensive Basin Study" (RIBS). RIBS data over three decades of sampling indicates "excellent" to "good" species richness and "excellent" to "good" biotic indices for the length of the West Branch from Lake Placid to Ausable Forks. Clean-water mayflies and caddisflies dominate the invertebrate species assemblage in most parts of the river. The invertebrates observed in the East and West Branches and the Main Stem face minor but increasing impacts in specific sections of the river, its tributaries and lakes because of wastewater and, more often, sand and sediment deposition from streambank erosion and roadway runoff. Sand and sediment can decrease spawning success and limit macroinvertebrate production.

Communities Enjoying the River and Participating in its Protection

Throughout the United States and on every continent, rivers struggle to remain healthy in the face of intensified human development and increasingly extreme weather events. A river's health is the net result of historical and current resource policy and management, decision-making, and individual actions along its path and throughout its entire watershed. While the responsibility for protecting and managing the Ausable River benefits from the work of many government agencies and private organizations, local communities play a critical role in defining, implementing, and monitoring day-to-day and long-term management efforts. But without broad-based community understanding and agreement on the issues and the methods for addressing them, efforts to protect the river and improve its infrastructure can be piecemeal, ineffective, or even redundant. Increasingly, planning and revitalization efforts work hard to engage citizens and their elected municipal leaders in all phases of river restoration, giving them access to the many new tools and processes available, and helping them aim for long-term resiliency over short-term fixes. Ongoing education through programs that engage a broad variety of audiences – visitors, rivers users, residents, landowners, and school children – and provide tools for making a difference, remain essential.

Beyond sharing information about watershed health, ensuring public access and promoting low-impact recreational opportunities and uses of the river are essential to building support for river

protection. At the same time, uses must be sustainable and not harm water quality, riparian health, wildlife habitat, and water quality, or require changes to the river's hydrology or structure.

The process of organizing efforts to protect the Ausable River watershed, encouraging stewardship, and developing mechanisms for sharing essential knowledge and resources began in 1988. Municipal officials from throughout the watershed and from the Essex County planning office (a sub-division, since 2010, of the County's Department of Community Resources), working with Congressional support, requested assistance from the National Park Service to conduct a planning study. The resulting Ausable River Study of 1994 was the first survey of the watershed to compile comprehensive information for residents, scientists, municipal managers, and state and local leaders. It led to the formation of the Ausable River Association in 1998.

1.3 Ausable River Association (AsRA)—a Brief History

Few communities care for a river so much that they come together to create a non-profit organization dedicated to protecting and restoring it. That's what happened 20 years ago in the Adirondack Mountains of upstate New York. A group of Ausable River valley residents, aided by municipal leaders, county planners, and the National Park Service, conducted a planning study so that local stakeholders would be better able to conserve and manage the natural and cultural values of the river. The Ausable River Association (AsRA) was born.

Since 1998, AsRA has been working cooperatively with landowners, municipalities, and government agencies to conserve the valued resources of the Ausable watershed. Originally, AsRA comprised representatives from each of the seven watershed townships and its work done by a mix of volunteers and project specific grants.

In 2007, AsRA began working with limited support from the NYS Department of State (NYS DOS) with the intention of laying the groundwork for a watershed management plan. Subsequent NYS DOS grants in 2010 ($30,000) and 2012 ($225,000) supported demonstration restoration projects, culvert restoration efforts, AsRA's response to Tropical Storm Irene, and the development and release of the 2016 Ausable River Watershed Management Plan. These grants also funded the development of a dedicated water quality testing program and the hire of a full-time professional science position. NYS DOS funds continue to support the organization with grants awarded in 2014 ($45,000), 2015 ($70,000), and 2016 ($140,000). Over the same period, AsRA's board of directors revised the organization's bylaws and increased commitments to staffing. Staff has expanded communications, information sharing, and community presence both through program work and through updated branding across media and materials.

AsRA has evolved into a professionally staffed, non-profit organization whose members are engaged citizens who live, visit, recreate, and make their living across the watershed. It is supported primarily by public and private grants, as well as private donations from members and supporters. Membership remains small – no more than 250 paid members on a 14-month cycle – and is an area where growth over the next several years is essential.

Representative Examples of AsRA's Recent Accomplishments

Year	Project	Partners
2016	• completed Ausable River Watershed Management Plan	• counties, watershed towns • NYS Dept of State • NYS Dept of Conservation • NYS Dept of Transportation
	• completed Otis Brook 1 culvert replacement and stream restoration project	• Town of Jay • Essex County Dept of Public Works • The Nature Conservancy • U.S. Fish and Wildlife Service
	• completed monitoring and reporting on stormwater and chloride inputs to Mirror Lake	• Village of Lake Placid • Town of North Elba • Adirondack Watershed Institute • Mirror Lake Watershed Association • Ironman Foundation
	• secured $140,000 in funding from the New York State Local Waterfront Revitalization Program	• Clinton County
2015	• hired a full-time river steward dedicated to monitoring and to education and outreach	• Lake Champlain Basin Program • NYS Dept of State
	• completed Courtney Brook culvert replacement and stream restoration project	• Town of Wilmington • Town of Jay • The Nature Conservancy • U.S. Fish and Wildlife Service
	• completed replacement of the Keene Town Beach weir on the East Branch of the Ausable River with a natural boulder "w" weir that restores the reach's connectivity and habitat	• Town of Keene • Essex County Soil and Water Conservation District • Trout Unlimited ADK Chapter • U.S. Fish and Wildlife Service
	• launched new AsRA website and branding platform	• NYS Dept of State
	• secured $70,000 in funding from the New York State Local Waterfront Revitalization Program	• Tupper Lake
2014	• hired a full-time scientist to develop and pursue water quality programs in the Ausable	
	• restored 600' of prime trout habitat along the West Branch	• private landowner • Trout Unlimited ADK Chapter • Essex County Soil and Water Conservation District • U.S. Fish and Wildlife Service

Representative Examples of AsRA's Recent Accomplishments

Year	Project	Partners
	• retrofitted two culverts on Palmer Brook in Black Brook that reestablished fish passage on this locally prized stream	• The Nature Conservancy • U.S. Fish and Wildlife Service
	• upgraded AsRA's internal administrative systems. including: accounting, payroll, insurance, banking, membership, donor tracking, and publications	
2013	• coordinated restoration of the lower 900 feet of John's Brook in Keene	• Trout Unlimited • U.S. Fish and Wildlife Service
	• coordinated restoration of the Ladies Mile, a reach in the upper portion of the East Branch of the Ausable River (within the Ausable Club)	• Ausable Club • U.S. Fish and Wildlife Service
2012	• assisted with recovery from Tropical Storm Irene as an active member of the Community Rising Community Reconstruction Plan committee	• Town of Jay • NY Governor's Office of Storm Recovery
	• implemented a natural stream restoration project at Rivermede Farms in Keene Valley, including creation of Rock Cut Park	• Town of Keene • Trout Unlimited • NYS Dept of State • U.S. Fish and Wildlife Service
	• secured $215,000 in funding from the New York State Local Waterfront Revitalization Program	• Regional Economic Development Council

1.4 The Ausable River Watershed Management Plan

In 2016, AsRA released the Ausable River Watershed Management Plan (WMP). Authored by AsRA staff and funded by the NY State Department of State (NYS DOS), the plan is the result of many years work by AsRA's staff, local officials, state and county agencies, and volunteers, scientists, and members of the community. Their common goal was to protect and restore the health and resiliency of the Ausable River as a vital resource to the region by creating a framework for action and good management. These conversations created a snapshot of ecological and community challenges in the Ausable River watershed and presented specific recommendations for addressing them while keeping in mind the diversity of community interests and needs.

Primary recommendations include:

- Monitoring water quality with special emphasis on chloride, phosphorus, and water temperatures.

- Understanding the effects of winter road maintenance, curbing the use of chloride, identifying the sources and movement of chloride to groundwater, and encouraging systematic cleanup of road sand town by town.

- Identifying methods for reducing wastewater impacts throughout the watershed including septic pump out programs for homes and small businesses, use of portable facilities in high seasons, and encouragement of alternatives to costly centralized municipal systems.

- Identifying, inventorying, and eradicating invasive species and supporting state, regional, and local programs that pursue these goals. Protect wild brook trout populations from incursions of stocked, non-native fish.

- Encouraging proactive floodplain management programs, strong local floodplain development regulations, and enforcement of regulations to protect floodplains.

- Assessing stormwater controls in hamlets with an eye toward reducing sediment and pollutant runoff into natural waterways (installing settling basins, intake collection structures, and stormwater retention structures) and managing flood flows in low-lying areas (flood proofing, elevating structures, or other measures).

- Addressing transportation infrastructure challenges including: identifying and replacing culverts that reduce connectivity and reduce flood resilience; developing an inventory of existing intact floodplains and areas where roads cut off floodplains from the river.

- Restoring natural channel structure and hydrology by identifying further stream restoration needs in watershed towns that improve flood resilience and public safety, protect infrastructure, enhance the functional integrity of large and small streams, and expand riparian habitat.

2. AsRA Program Overview

Current AsRA programs, described here and summarized in Table 2.1, achieved goals set out in 2011 strategic planning. In 2014, with the change in staff leadership, growth in staffing and programs in water quality monitoring, natural stream restoration, and stream stewardship were planned and implemented from 2014 to 2017. Priorities from the Ausable River Watershed Management Plan, provided additional guidance for advancing AsRA programs during this period and continue to be priorities in this strategic plan.

2.1 Clean Water

Clean water is a vital to both human and natural communities. The Ausable River, its tributaries, watershed lakes, and groundwater serve as a source of drinking water to over 20,000 full-time residents and approximately a million annual visitors and seasonal homeowners. These water sources support one of the best riverine cold-water fisheries in the state and a diversity of aquatic and terrestrial ecosystems. The long-term health of these communities relies heavily on the health of the Ausable River.

When compared to other watersheds and river systems in New York State, and across the country, it would be easy to assume there are limited and minor concerns regarding water quality in the Ausable River watershed. A large portion of the watershed is forested and much of the upland areas are protected as part of the New York State Forest Preserve. While the watershed isn't facing issues such as industrial development and toxic waste pollution, it does face numerous challenges. Collectively, those challenges put the river on edge. Therefore, it is important that we monitor, research, and mitigate these challenges.

AsRA's current water quality monitoring is primarily focused on documenting and understanding the impact of road salt on the river, its tributaries, and watershed lakes. In the spring of 2015, AsRA started collecting bi-weekly data on water temperature, dissolved oxygen, pH, and conductivity at 26 river and stream locations throughout the watershed. The sites are setup to span a gradient of road density within the watershed. Conductivity is a good surrogate for the concentration of road salt in water. These bi-weekly measurements allow us to track seasonal and annual changes in road salt concentrations in the river. Since starting the monitoring program, we have been able to show that (1) there is a relationship between road density within a watershed and the salt levels in the stream, (2) salt concentrations steadily rise throughout the summer as our river and streams shift to base flow, and (3) the rise in salt concentrations in the summer is indicative of shallow groundwater contamination.

In addition to our river monitoring program, we regularly monitor seven lakes (Mirror Lake, Upper Cascade Lake, Lower Cascade Lake, Chapel Pond, Taylor Pond, Lake Everest, and Butternut Pond). These lakes were chosen for monitoring for a variety of reasons. Mirror Lake is one of the most developed lakes in the Adirondacks, has high chloride concentrations, and contains lake trout. Upper and Lower Cascade Lakes have high chloride concentrations, and Upper Cascade Lake contains round whitefish. Chapel Pond has low chloride concentrations but is directly adjacent to a state road and contains round whitefish. Lake Everest is an asset to the Town of Wilmington and receives road

Table 2.1 AUSABLE RIVER ASSOCIATION — Program Overview

4.28.16

Program Goal	Program Areas	Program Activities
1 Clean Water		
documenting existing conditions	water quality monitoring	• river and tributary monitoring • lake monitoring • custom monitoring
understanding threats	water quality research	• road salt monitoring • temperature monitoring
mitigating threats	non-point source pollution mitigation	• clean river campaign • porta-johns • wader wash stations
	spill mitigation	• spill rapid response
2 Healthy Streams		
documenting existing conditions	river/stream monitoring	• stream condition assessments
understanding threats	river/stream hydrology research	• culvert impact assessments/ replacement priorities • river channel restoration needs • riparian restoration pilot
mitigating threats	reconnecting stream corridors	• culvert replacement projects • natural stream restoration projects
	recreating natural channels	• river segment stabilization projects
	reestablishing riparian buffers	• tree planting projects
	mitigating impacts of flooding	• rapid response actions
3 BioDiverse Habitats		
documenting existing conditions	monitoring	• aquatic invasives monitoring • terrestrial invasives monitoring • stream connectivity assessments • brook trout habitat monitoring (temperature)
understanding threats	research	• invasive species identification/mapping
mitigating threats	terrestrial invasive species management	• treatment and removal
	aquatic invasive species prevention	• wader wash stations
4 Public Use and Enjoyment of the River		
promoting low impact opportunities for river-related recreation	technical assistance to partners	• assistance to towns • assistance to landowners
	river related recreation experiences	• Lake Everest Paddling Trail • Rock Cut Park
5 Engaged Communities		
information sharing	communications	• AsRA website • newsletters • annual report • eVoice • social media
	conferences	• scientific • regional • restoration
	events	• county fairs • science fairs
policy and planning	long-term community recovery planning	• Au Sable Forks Long-Term Community Recovery Plan • Beede Brook Long-Term Community Recovery Plan
	watershed management planning	• Ausable River Watershed Management Plan
public engagement	recreation-based programs	• paddling program

Table 2.1 AUSABLE RIVER ASSOCIATION — Program Overview

4.28.16

Program Goal	Program Areas	Program Activities
	events	• county fairs • science fairs • trail run • Friendraiser • Ride for the River
education	school programs	• Keene Central School program
stewardship	stewardship programs	• river steward program • teen aquatic stewardship program • stewardship brochure

runoff from many miles of state road and is downstream of the wastewater effluent discharged into the Ausable River from the Lake Placid Wastewater Treatment Plant. Finally, Butternut Pond is located directly adjacent to Interstate 87 and is the drinking water supply for Keeseville.

Our work on Mirror Lake has greatly increased our understanding of the challenges the lake is facing. Through a partnership with the Adirondack Watershed Institute, and with support from the Mirror Lake Watershed Association, Town of North Elba, Village of Lake Placid, and IRONMAN Foundation we have been able to greatly expand the monitoring program for the lake. This work has revealed concerns with the dissolved oxygen concentrations in the bottom waters of the lake, and possible impacts to the lake trout population; increased our understanding of how road salt enters and moves through the lake throughout the year; and shown the impact that direct stormwater runoff is having on the water quality of the lake. As a result, the Village of Lake Placid is trying new salt application technologies for their sidewalks and implementing a project to divert stormwater away from the lake.

Finally, AsRA has deployed thirteen water temperature loggers throughout the watershed to better understand seasonal and long-term changes in water temperature. Loggers have been placed in areas that are deemed important fish habitat, either due to the importance for local tourism based angling or the long-term conservation of our native fish species. If properly maintained, these loggers will provide information about long-term changes in water temperature that may be driven by climate change.

AsRA's Science and Stewardship Director (SSD), who holds a PhD. in limnology, leads this program work. This focus on rigorous planning, collection, storage, and interpretation of data marks a shift at AsRA. Prior data collection focused primarily on very short-term data collection to create snapshots of knowledge about the river. 2014-2017 saw a shift in priorities: to inform management of priority water quality issues in the watershed – road salt, sedimentation, rising temperatures, and to a lesser degree phosphorus – based on science. AsRA data collection runs continuously in the background to create larger, replicable datasets over time that can inform multiple lines of investigation and policy on water quality issues and beyond. Work under this program is labor intensive, often requiring the skill sets of trained scientific professionals. To extend our effectiveness while maintaining AsRA leadership, a partnership with the Adirondack Watershed Institute has been established. Over the next two years this relationship will be codified with an MOU signed by both organizations.

The SSD also oversees AsRA communications, marketing, and our nascent biological science efforts. While this strategy was effective in 2014-16 (after AsRA's initial staff expansion), both broad areas of work have grown and are increasingly essential to AsRA goals. We are recommending new hires to realign and focus essential work (Chapter 4, section 6.1.2).

2.2 Healthy Streams

A healthy, free-flowing stream, with diverse habitats, capable of maintaining its pattern and structure even during a flood event, has many interrelated essential components. To achieve healthy Ausable streams, AsRA evaluates stream systems – considering the human communities around them – and implements projects that help streams regain their geomorphic potential while also benefitting wildlife habitat, flood resilience, and water quality.

Recent AsRA projects in support of healthy streams fall into three broad categories. First, AsRA's staff and partners conduct assessments of the geomorphic and hydrologic status of reaches, prioritized by the 2016 WMP, to understand the potential for mitigating past damage, restoring stream dynamics, and recreating a stable system. Based on these assessments, the continuing response to Tropical Storm Irene, and on requests for assistance from towns and local landowners, several natural channel design projects of varying sizes have been completed. Such projects rely on a restoration partnership with the USFWS and the Adirondack Chapter of Trout Unlimited and engage other project specific partners as needed. Projects include:

- 2010 demonstration project installing natural bank structures on a high priority restoration reach on the West Branch in the Town of North Elba
- 2012 channel restoration at Rivermede Farms in Keene Valley
- 2013 channel restoration on the lower 900 feet of John's Brook in Keene Valley
- 2014 "Riverlands" channel restoration on the West Branch in the towns of Wilmington and Jay
- 2014 bank collapse repair on a high priority restoration reach on the West Branch in Town of North Elba
- 2015 dam replacement with natural "W" weir at Keene Town Beach
- 2016 channel restoration of lower 1200 feet of Rocky Branch in Town of Jay
- 2017 phase one channel restoration of "Fifth Avenue" – private section of the West Branch Ausable River in Wilmington

Secondly, we've undertaken an initiative in partnership with the Adirondack Chapter of The Nature Conservancy to improve stream connectivity, fish habitat, and community flood resilience in the Ausable River watershed by replacing undersized road-stream crossings with designs engineered to allow for natural stream pattern and flow. Undersized or poorly aligned culverts pinch water flow, exacerbating flooding, and damaging stream flow and structure. Such culverts don't allow fish passage and pose serious risks to road infrastructure and public safety. Fixing these problems reduces flooding, road and culvert maintenance time and cost, and property damage after floods. It also provides safe passage for native trout, frogs, salamanders, and many small to mid-size mammals. Road crews gain experience installing climate-ready, fish-friendly culverts that will last up to 75 years. Recent culvert projects, that rely on the USFWS and many other partners, include:

- 2014, USFWS led, Palmer Brook culverts at Dry Bridge and Separator Roads in Town of Black Brook
- 2015, AsRA led, Courtney Brook culvert at Lenny Preston Road in Town of Wilmington
- 2015, Essex County led, Holcomb and Roaring Brook culverts on River Road in Town of North Elba
- 2016, AsRA led, Otis Brook culvert at Jay Mountain Road in Town of Jay
- 2016, Essex County led, New Bridge Brook bridge at Haselton Road in Town of Wilmington
- 2017, AsRA led, Rocky Branch Tributary culvert on Nugent Road in Town of Jay

Third, where a stream is stable, we're developing an effective methodology for reestablishing riparian corridors. We identify native tree and plant species hardy enough to handle floods, ice, and wind and that provide habitat for a diversity of wildlife. We plant specimens large enough to have a survival rate of better than 50% with no care beyond initial planting and watering. Riparian buffers stabilize

banks with dense root systems, absorb an amazing amount of water, and provide cooling shade that help to reduce water temperatures, allowing trout and other aquatic organisms to flourish. Two test plots have been established that we will monitor over time for species success: one at Rivermede Farms on the East Branch, initially planted in 2016 (after a largely unsuccessful planting in 2013) and one on the Riverlands restoration site on the West Branch, planted in 2014 and 2015. Smaller plantings are pursued at stream restoration and culvert replacement sites.

The advent of Tropical Storm Irene in 2011 forced a realignment of AsRA work in the wake of the destruction to public and private infrastructure and to mitigate initial calls to "tame" the river by channelizing it and hardening its banks. Fortunately, AsRA had a baseline of data and the partnership in place to move the above noted restoration projects forward in an informed manner. But with much of the most urgent response to Irene completed, and with the wealth of information gathered in the intervening years, it is necessary to reassess the geomorphic status of the river to better plan and prioritize next steps for rebuilding the health and self-regulating equilibrium of the Ausable system.

Work under this program is capital intensive and requires a great deal of staff time for coordination (partnership management, landowner permissions and permits, construction coordination, budgeting, and reporting). Monitoring structures and geomorphic changes in reaches and at sites where work has occurred needs to be developed and pursued annually – increasing staff engagement. At the same time, it is high profile work that builds valuable relationships at the local level, attracts funding from a variety of sources, and gives AsRA a unique niche in the region.

AsRA's executive director (ED) leads this program work working with regional partners and local work crews. The ED has been trained in the primary methodology (Rosgen/natural channel design) used by supervisory partner USFWS. She is building experience in design and construction implementation and has established expertise in planning, coordinating, and permitting these projects. To accommodate this vital program role for the ED and to add depth to organizational management, this plan recommends the hire of a part-time finance and operations manager (Chapter 4, section 6.1.2).

2.3 Biodiverse Habitats

Diversity builds resilience, in both natural and human communities. Understanding and, where possible, maintaining habitat and, thus, species diversity within the Ausable River watershed helps maintain ecological integrity and reduce the risk of threats such as climate change. Fundamental to that goal is understanding the desired outcome. In many cases, that is to preserve the species and ecological communities native to the watershed. This goal relies on the belief there is inherent and intrinsic value in these ecological communities. In some ways that value is directly realized through ecosystem services provided to human communities. These include clean water, raw materials such as wood and wood fiber, and food such as deer and fish.

Current AsRA programs work to preserve habitat diversity in three areas. First, our river steward program serves as the first line of defense against the introduction of non-native invasive species. The river steward conducts outreach and education along the river corridor to educate anglers and other river users of the threat of invasive species. The steward maintains wader wash stations along the West Branch of the Ausable River to help prevent the spread of invasive species, and to inform

anglers of invasive species spread prevention measures they can practice. We also monitor the river and banks for new infestations of aquatic and terrestrial invasive species. Where possible, new infestations are eradicated through hand harvesting or by working collaboratively with the Adirondack Park Invasive Plant Program.

Second, our riparian planting program reestablishes riparian buffers along banks and floodplains of Ausable streams. This program targets areas where banks are relatively stable or have been recently restored. The goal is to quickly reestablish a diverse, native riparian plant community that will help stabilize river banks, shade the stream, provide organic material to the stream, and increase biodiversity. AsRA has experimented with a variety of planting methodologies within this program, everything from planting small saplings to large trees. Many of the sites planted in the last two years have helped us hone in on a model using mid-size trees and shrubs. This method is showing high short-term survival rates.

Third, AsRA is concerned about the survival of vulnerable native species dependent on in-stream and streamside habitat. Human development, climate change, and our work to restore and protect Ausable streams, water quality, and community infrastructure can directly influence habitats and thus survival of species essential to biodiversity in the watershed. Primarily, our focus is genetically unique strains of brook trout, but includes identifying and understanding the occurrences of other vulnerable species (e.g. spring salamanders, wood turtles, various frog and fish species) that rely on Ausable waterways, floodplains, and wetlands.

AsRA has been reviewing research and available data to identify our best options for conserving brook trout in the Ausable watershed – especially wild, native strains, and their habitat. Our field work began with the temperature loggers discussed in Section 2.1, and has expanded to include the use of environmental DNA testing to detect fish presence/absence and study trends in brook trout populations. AsRA's science staff are currently piloting a study of the Otis Brook subwatershed to gauge the efficiency of this method for identifying fish presence. We believe this is one starting point for a science-based brook trout conservation program that can inform management of fisheries and identify protection measures. A subsection of this work will seek to document and describe other at-risk in-stream and stream dependent species in the watershed that are vulnerable to extirpation or extinction. Like proposed work with brook trout, our goal – working with the NY National Heritage program and volunteer species specialist groups – is to track trends and threats in the Ausable that might aid in the conservation of other species. We propose staffing and growing this program in the coming one to three years.

Currently, work to achieve this goal is scattered among AsRA staff: AsRA's river steward (RS) position is essential to our work on invasive species. AsRA's ED leads riparian restoration work with the assistance of the RS. Work to develop a brook trout conservation program has thus far been led by the SSD and has been augmented in 2017 by the science and operations associate (SOA) – who brings bookkeeping and operations experience and a Master's in fish biology focused on Ausable brook trout. Reorganization of key positions and two prospective hires, if achieved in the next year or two, would allow dedicated staff support for and careful expansion of work under this program goal.

2.4 Public Enjoyment

Public access and recreational uses of the river are essential to building support for river protection. At the same time, uses must be sustainable and not harm delicate banks, riparian health, wildlife habitat, and water quality, or require changes to the river's hydrology or structure.

AsRA promotes existing low impact recreation throughout the watershed, using our website to identify area waterfalls and public hiking trails in the watershed. The next step is to ensure or expand ample, safe, and dedicated public access to the river – to minimize damage to streamside areas, and to help develop low impact recreational opportunities from strolling or bicycling a porous path on a verdant floodplain, to stabilized bank access for fishing and swimming, and canoe put-ins. We will work alongside and provide technical assistance to communities, town and county officials, and landowners, to develop opportunities for enjoyment that protect streamsides and waterways.

AsRA's staff has started planning and delivering programs that allow people to learn while enjoying and interacting with the river. Our annual Ride for the River integrates a structured, family-friendly ride, lunch, and party with opportunities to learn about challenges to the watershed and how AsRA is working to reduce or resolve these. We offer a summer paddling program on Lake Everest that educates while guiding participants in a relaxing recreational activity. Both programs are seeing modest growth. We believe that such experiences connect people with the watershed in a meaningful and tangible way. The connections strengthen the commitment to care for the river, wildlife, and our own communities. Once a fundamental appreciation for the Ausable River watershed exists, we can then build deeper connections through active stewardship of the land and water (Goal 2.5).

This is a new dedicated area of work for AsRA staff, spinning off from our previous education and outreach efforts. Staff have identified low impact opportunities and resources for stream access and recreation and provide technical assistance to local landowners or towns whenever possible; but expansion beyond existing programs is not a priority in the next one to two years. If realized, our plans for developing a communications and public engagement position at AsRA, and a shift in staff responsibilities may allow for development of this goal in the second to third year of this plan.

2.5 Engaged Communities

Public stewardship is the key to maintaining the health of the Ausable River watershed long-term. As an organization, AsRA helps the community learn about and constructively respond to the needs of the river and its watershed resources. We share the data and information we gather, and help the community effectively address new challenges and emerging threats. But these threats will re-emerge if the residents and visitors don't take an active role in stewardship of the watershed. Engaging our community – people who live, work, and play in the watershed – through membership, by passing on valuable information to children and adults, encouraging volunteer participation on the river or by adding informed citizen voices in a town meeting, is an essential goal if we are to achieve AsRA's mission.

Current efforts:

- The website was redesigned in 2015 with the short-term goal of providing basic information about threats to the watershed and how AsRA and our partners respond to many of these threats. A long-term goal is to create additional layers of information for interested readers through interactive maps, data sets, and links to other resources – making the website a potential information hub for a variety of audiences. AsRA has expanded our web-based social media presence over the past three years and tracks the success of these electronic efforts.

- Our printed newsletter – an annual report in the spring and an issue/story based magazine in the autumn – has received praise from many member and colleagues and is gathering an audience on its own. The autumn newsletter will expand to 16-pages in 2017, doubling its previous size. In 2017, AsRA released its first significant scientific report – a water quality analysis of Mirror Lake. AsRA print publications also include a general brochure, a brochure describing our Porta-John program with a location map, and a tip card available on our wader wash stations.

- The river steward program takes AsRA knowledge directly to the public and our partners through the on-stream and event-based outreach of the river steward position including farmer's markets, science fairs, county-wide events, non-profit conservation tabling, etc. For the past two years, we have tracked these events assessing the learning and communication opportunities they provide, and the number of people engaged.

- Since 2015, AsRA's staff have developed two direct outreach programs for teenagers. Discovering the Ausable: An Aquatic Stewardship Program is a partnership program between AsRA and Adirondack Mountain Club that teaches teens outdoor recreational skills, provides them hands on experiences with scientific methods, and inspires an ethic of environmental stewardship. The KCS Culvert Lab teaches kids from the 5th to 12th grades at Keene Central School the basic concepts of stream flow, hydrology, and wildlife connectivity. They take their classroom learning straight to the field to measure, survey, and identify the relationships essential to a healthy culvert.

- AsRA is in the final design stages of preparing "Caring for the Ausable – a practical guide for making a difference at home and at work". Text was developed by AsRA staff and the brochure was designed by AdWorkshop with funding from NYS DOS. As soon as we can secure funding for printing and mailing and provide marketing support for the release, the stewardship brochure will be sent to every household in the watershed.

Increasing the effectiveness of work under this goal is a priority of this strategic plan. Currently work under this goal focuses on providing the public, our partners, community leaders, and decision makers with applicable, science-based, up-to-date information about waterbody health, sources of impacts, and routes toward verifiable solutions. We use traditional outreach and education methods and all staff share these duties, though, the river steward is dedicated to face-to-face interactions that share knowledge and ways to apply it. Our Culvert Lab program, led by the river steward, is ready for expansion and developing this program for other schools and, perhaps, to other topics will be a focus of this plan period. Essential to this is ensuring staff have the skills and knowledge to move this program forward.

Apart from the river steward position, this essential work to share information with members and the wider public, occupies a relatively small percentage of each staff members' responsibilities. And, notably, our audience, our membership, and our reach remains small. Until this fact changes, AsRA will remain, what one external strategic plan reviewer and professional conservationist called, "the best kept secret in the Adirondacks conservation community."

AsRA has many of the skills and staffing to educate, to provide information. But to achieve the broader goal –for example dozens of dedicated volunteers protecting the health of their stream or lake, informed citizen voices consistently engaged in town meetings, and an AsRA active membership of 2000 not 200 – we must elevate AsRA's profile and increase the number of people who support, apply, and value our work. Various methods for increasing public engagement have been discussed and identified including: increasing member volunteer opportunities, introducing member or public tours, providing issue-based workshops throughout the watershed, expanding written materials including press releases, more aggressively promoting and advertising AsRA's programs and brand, and rethinking which public events to attend. But staff time to test, assess, prioritize, and execute these efforts is lacking. It is a high priority of this plan to raise funds for and hire a new full-time position to increase AsRA's level of public engagement through communications, membership/volunteer outreach, and marketing.

3. AsRA Programs Goals and Strategic Actions

Through the strategic planning process, AsRA has developed a strategic framework that will guide its actions over the next three to five years. The actions that AsRA will implement—in collaboration with its partners—will collectively seek to accomplish its mission and its vision for the Ausable River Watershed.

Actions fall into five categories, corresponding to AsRA's five program goals:

Goal 1: *clean waters capable of supporting a full complement of human and ecosystem needs*

Goal 2: *healthy streams with shaded, cool waters, ample floodplains and self-regulating flows sustaining ecological diversity and thriving communities*

Goal 3: *diverse habitats fostering native plant and animal species in and alongside streams, lakes, and wetlands*

Goal 4: *responsible, low-impact recreational opportunities protective of Ausable waterways and adjacent lands*

Goal 5: *Informed residents and visitors caring for the health of the watershed where they live, work, and play*

3.1 Clean Water

Goal 1: clean waters capable of supporting a full complement of human and ecosystem needs.

Water is our most precious natural resource. The health of our waterbodies is directly tied to the function of our ecological systems, the health of our communities, and sustainability of our local economy. Regular monitoring of the Ausable River, its tributaries, and watershed lakes is necessary if we wish to detect and respond to emerging and ongoing threats to water quality. It is also necessary to actively research the impact of new and emerging threats, so that appropriate management actions can be taken. Finally, understanding threats to clean water must be tied to actions aimed at mitigating those threats.

Objective 1.1—Documenting Existing Conditions—Water Quality Monitoring

Develop a collaborative, scalable monitoring program for all water resources within the Ausable River watershed. This program will serve as a base-line monitoring program on which other projects and research can be added. This program provides an ongoing assessment of the overall health of the Ausable River, its tributaries, and lakes.

Action 1.1.1—River and Tributary Monitoring

Continue regular monitoring of the Ausable River and its tributaries. Explore developing strategic partnerships with colleges and universities to include regular lab analysis of water sampling. Assess the feasibility of establishing continuous monitoring stations in key locations.

Action 1.1.2—Lake Monitoring

Continue regular monitoring of Ausable River watershed lakes. Prioritize work on lakes that are threatened by development, road runoff, and contain lake trout. Explore opportunities to incorporate biological (phytoplankton, zooplankton, fish) monitoring into AsRA's lake monitoring program.

Action 1.1.3—Groundwater Monitoring

Develop a database of private wells within the Ausable River watershed. Seek funding to conduct groundwater testing to assess the impact of road salt.

Action 1.1.4—Custom Monitoring

Where appropriate, develop collaborative monitoring and research projects to further our understanding of existing conditions and threats.

Action 1.1.5 – Stormwater Monitoring and Assessment

Conduct a watershed wide assessment of possible wastewater-stormwater interconnections that may be results in small, but steady, releases of untreated wastewater into the river, lakes, and streams.

Objective 1.2—Understanding Threats—Water Quality Research

It is important that AsRA understand ongoing and emerging threats to water quality within the Ausable River watershed. AsRA will engage in ongoing scientific research to understand major threats to water quality in the Ausable River watershed. This research will have practical outcomes that are capable of informing management decisions.

Action 1.2.1—Road Salt Monitoring

Continue bi-weekly conductivity monitoring throughout the watershed. Continue monitoring Mirror Lake and the Cascade Lakes. Explore opportunities for specific research projects to further our understanding of the impact of road salt on fish and other aquatic organisms.

Action 1.2.2—Phosphorus Monitoring

Develop a plan to monitor phosphorus loading to the river, this may include analyzing data already being collected by the Lake Champlain Research Institute.

Action 1.2.3—Temperature Monitoring

Maintain temperature loggers already in place in the river and tributaries. Explore opportunities to expand this program through grants and private sponsorship.

Objective 1.3—Mitigating Threats—Non-Point Source Pollution Mitigation

Non-point source pollution is a significant concern within the Ausable River watershed. AsRA will develop programs to address and mitigate common sources of non-point source pollution. These programs will engage local citizens and contain a significant education and outreach component.

Action 1.3.1—Clean River Campaign

Engage watershed residents in river cleanup events to raise awareness for the need to limit litter and improper garbage disposal.

Action 1.3.2—Porta-Johns

Continue to manage Porta-John program along the river and at key upland sites. Work with DEC, ADK, and other stakeholders to address issues of improper human waste disposal within the watershed.

Action 1.3.3—Septic Share

Identify funding sources to support a septic pumping cost-share program for watershed residents. Organize group pump outs at regular intervals (two to three years) at targeted locations within the watershed.

Action 1.3.4—Stormwater Management

Work with DPW crews and local government to identify priority projects for improving stormwater management. Work with local government to identify and acquire funding to support stormwater infrastructure projects that meet AsRA's goals.

Objective 1.4—Mitigating Threats—Spill Mitigation

Spills of toxic substances are not common in the Ausable River watershed, nevertheless, AsRA should establish itself as a key stakeholder in spill response and mitigation. Specifically, AsRA should serve as a conduit to disseminate information to the public about spills.

Action 1.4.1—Spill Rapid Response

Continue to develop a relationship with the NYS DEC so that AsRA is notified of spills of potentially toxic substances with the watershed. Serve as a conduit to notify the public of spills and help NYS DEC mitigate impacts.

3.2 Healthy Streams

Goal 2: healthy streams with shaded, cool waters, ample floodplains and self-regulating flows sustaining ecological diversity and thriving communities

Stable streams in equilibrium minimize flood damage, maintain water quality, and provide habitat critical for diverse healthy ecosystems. Their ability to self-regulate and remain in equilibrium means that their channel and floodplain structure amply manage the full range of water and sediment flowing through them over time. Fortunately, this potential is not limited to natural streams with no human disturbance. Working with the USFWS, AsRA can plan and implement restoration techniques that work with the natural hydrology to restore a self-regulating river. Such work requires a multiple year commitment from AsRA, dedicated partners, a secure stream of funding, and a careful assessment and prioritization of projects that garner maximum stream health with minimum physical disturbance and redundancy, and are cost-effective.

Objective 2.1 Documenting Existing Conditions—Identifying Current Stream Conditions

Gather, analyze, and make available for stakeholders, information on the geomorphology, hydrology, and ecosystems currently present in Ausable streams and stream corridors.

Action 2.1.1—Reference Conditions and Relationships

Identify existing stable reaches. Gather morphological data (e.g. slope, bankfull width, mean depth) using Level II geomorphic analysis. Correlate bankfull discharge channel dimensions to drainage area at Ausable gage stations to create or to confirm applicability of regional curves. Use this data to track changes over time and for extrapolation to disturbed, or unstable reaches in similar valley types for the purposes of restoration, stream enhancement, stabilization, and stream naturalization efforts.

Action 2.1.2—Ausable River Channel, Bank, Corridor, and Watershed Characteristics

Gather information and map at broad scale general conditions in the river corridor: land use, forest cover, riparian cover, soil type, bank height/erosion ratings, road proximity, aquifer presence, road crossings, channel dams or diversions, prevalent flooding and ice jam incidence, stormwater and wastewater conveyances, etc.

Action 2.1.3—River Channel and Bank Stability Assessment

Identify tools and methods and assess East and West Branches of the Ausable River and select tributaries.

Objective 2.2 Understanding Threats—Prioritizing Challenges to Stream Health

Using established assessment methods and sharing data and analyses with partners and the public, analyze current threats with an eye toward restoring stream health and geomorphic potential. Identify priority steams and/or reaches and projects within them.

Action 2.2.1—Assessment Protocols

Implement assessment protocols, gather data in a report/plan that provides short and long-term project goals, priorities, and implementation strategies for comprehensive channel restoration work on the East Branch and portions of the West Branch.

Action 2.2.2—Culvert Aquatic Passage Assessment and Prioritization

Using NAACC protocols, assess road crossings in the Ausable watershed, catalog the data, prioritize based on severity of fish passage access and, where possible, by priorities for local towns (based on flooding and/or infrastructure concerns); upload to AsRA web maps and update annually.

Action 2.2.3—Floodplains and Wetlands Assessment

Using LIDAR and existing wetland and floodplain maps, identify existing floodplains and wetlands along the East and West Branches that are connected to the river corridor and active. These areas can assist in the mitigation of flooding if they remain accessible to the river.

Action 2.2.4—Riparian Buffer Assessment and Restoration

Starting with riparian cover maps from the WMP and other sources, refine analysis of cover along the East and West Branches and overlay with natural channel restoration priorities to identify and map riparian corridor planting priorities that are short/long-term and project-based.

Objective 2.3—Mitigating Threats—Restoring Natural Channel Function

Working in partnership with the USFWS, pursue natural channel restoration of priority projects in the watershed as defined by AsRA long-term planning, current needs and resources, and public/private interest.

Action 2.3.1—Advance Prioritized Stream Restoration Projects

Identify, plan, and implement stream restoration projects based on prioritization and availability of resources (funding, materials, willing partners) and using natural channel design principles per USFWS.

Action 2.3.2—Technical Assistance for River Restoration

Where towns or landowners request technical assistance and support for natural channel design projects, assess geomorphic value of project. Take on projects that achieve AsRA long term goals and build community support for priority projects.

Action 2.3.3—Materials Donation Program

Identify and implement a cost-effective method to acquire boulders, cobble, and when possible, trees with intact root systems for use in restoration projects. Value materials as a donation and provide in-kind donation recognition.

Objective 2.4—Mitigating Threats—Reconnecting Stream Corridors

Pursue culvert replacements and, where feasible, retrofits to reconnect impaired road-stream crossings that exacerbate flooding and prevent fish passage. Work with USFWS oversight and utilize, when possible, local labor and expertise to encourage training in and adoption of fish passage and natural channel design standards to expand the Climate-Ready Culvert network.

Action 2.4.1—Advance Priority Projects

Identify, plan, implement, and document culvert replacements and retrofits based on culvert prioritization (in partnership with TNC, towns, and counties), AsRA monitoring and research planning, and availability of resources (funding, materials, willing partners), and using USFWS natural channel design principles and USFS aquatic organism passage standards.

Action 2.4.2—Technical Assistance to DPW Crews and Local Contractors

Work with town and county DPW crews and local contractors when possible to provide knowledge in and reasons behind natural channel design goals. Offer training opportunities. Encourage broad adoption of natural channel design methods when working on or alongside streams.

Action 2.4.3—Climate-Ready Fish-Friendly Culverts

Working with TNC Adirondack Chapter, inform and assist the expansion of the developing Climate Ready Culvert program beyond the watershed. AsRA serves as a resource to regional efforts and partnerships seeking to build stream connectivity and flood resilience at road-stream crossings.

Objective 2.5—Mitigating Threats—Protecting and Reclaiming Floodplains

Advance floodplain protection on private and public lands through regional and local planning efforts, town boards, regulatory agencies, public awareness campaigns, and discussions with streamside landowners.

Action 2.5.1—Public Awareness

Create publicly available maps on AsRA website that identify key floodplains in the watershed and describe and model the importance of floodplain protection.

Action 2.5.2—Advocacy for Floodplain Protection

Work with state and regional agencies, town boards, land conservancy staff, and landowners to ensure the benefits of floodplain protection are well known and appreciated. Identify methods and provide, where possible, technical support for their application.

Action 2.5.3—Technical Assistance to Landowners

Provide restoration expertise to landowners willing to protect floodplains and needing additional support for restoring riparian buffers.

Objective 2.6—Mitigating Threats—Reestablishing Riparian Buffers

Expand and formalize riparian restoration pilot program to public and private lands in priority corridors.

Action 2.6.1—Sources of Native Plant Material

Identify source and build reliable relationship(s) to ensure ability to source hardy tree and shrub species native to the watershed.

Action 2.6.2—Pilot Planting

On at least two plots (one East Branch, one West Branch) test methods for establishing high success rate, low-cost restoration methods; track plantings over time; maintain these as working laboratories for testing species viability.

Action 2.6.3—Advance Riparian Plantings in Priority Areas

Using priority mapping, approach landowners and build relationships to restore streamsides to strongest practical buffer levels possible.

Objective 2.7—Mitigating Threats—Technical Assistance to Communities

Where restoration specific projects or discussions arise that directly affect the health of the river and the AsRA goal of self-regulating streams in balance, AsRA will provide technical assistance to the extent appropriate.

Action 2.7.1—Ausable River Watershed Management Plan (WMP) Implementation

Promote the WMP and use it to leverage agreement with and funding for project efforts within the Ausable watershed.

Action 2.7.2—Input to NYS Funded Planning and Programs

Ensure AsRA is engaged and advising on NYS DOS funded projects such as Long-Term Community Recovery efforts with a primary focus on flood impacts and the Community Rising project to remove the JJ Rogers Paper Mill or "Rome Dam"

3.3 Biodiverse Habitats

Goal 3: diverse habitats fostering native plant and animal species in and alongside streams, lakes, and wetlands

Ecosystem health and resilience relies on habitat diversity and maintaining ecological integrity across the watershed. Understanding what is currently on the ground in the Ausable River watershed is the first step in protecting habitats within the watershed. Built on that baseline information is a need to research and understand the distribution of species across the landscape. Finally, as threats are identified and understood they should be mitigated to protect ecological integrity and increase resilience.

Objective 3.1—Monitoring

Monitor biological communities to assess overall health and resilience. This work should be used to inform management recommendations to stakeholders, partners, and state agencies.

Action 3.1.1—Aquatic Invasives Monitoring

Work with AsRA partners and watershed residents to monitor for AIS infestations and the expansion of current infestations.

Action 3.1.2—Terrestrial Invasives Monitoring

Work with AsRA partners and watershed residents to monitor for terrestrial invasive species infestations and the expansion of current infestations.

Action 3.1.3—Common Plant Species Diversity

Identify common native river corridor/streambank plant species and their tolerance to varying conditions (sun/shade, ice, wind, temperatures, wetlands, etc.).

Action 3.1.4—Key Species Occurrences

Identify key aquatic species in Ausable streams, habitat requirements, and the primary obstacles to accessing and full use of habitat.

Action 3.1.5—Brook Trout Habitat

Expand stream temperature monitoring network to better understand the impact of climate change on brook trout habitat suitability. Explore the possibility of conducting regular benthic macroinvertebrate studies to monitor resource availability for fish populations.

Objective 3.2 Research

Research and identify basic ecological characteristics of the Ausable River watershed. This work should be used as baseline information to understand the context of threats and future management decisions.

Action 3.2.1—Invasive Species Identification and Mapping

Maintain a database of invasive species infestations within the watershed. Collaborate with partners to provide data to regional and national databases.

Action 3.2.2—Biological Inventories at Selected Sites

Develop a protocol to identify and map natural communities at priority sites within the watershed.

Action 3.2.3—Imperiled and Vulnerable Species in the Ausable River Corridor

Compile information from NYNHP and other sources, promote additional inventory work, and further assist as needed to assess the locations and populations of NYNHP-tracked imperiled and vulnerable streamside plant and animal species (e.g., select mussels, dragonflies, tiger beetles, wood turtles).

Action 3.2.4—Brook Trout Presence/Absence and Abundance

Identify brook trout presence/absence and habitat use in the Ausable River and tributaries to provide a broad spatial context to brook trout conservation within the watershed. Explore the possibility of designing a cost-effective long-term monitoring program to assess changes in brook trout populations over time. Expand stream temperature monitoring network to understand better the impact of climate change on brook trout habitat suitability.

Objective 3.3—Mitigating Threats—Terrestrial Invasive Species Management

When feasible develop invasive species management and eradication programs in partnership with APIPP and NYS DEC.

Action 3.3.1—Treatment and Removal

Develop plans to eradicate current invasive species infestations when feasible.

Objective 3.4—Mitigating Threats—Aquatic Invasive Species Prevention

Prevent the introduction and spread of aquatic invasive species through education and the use of wader wash stations. Continue on-river education and outreach to river users about aquatic invasive species.

Action 3.4.1—Wader Wash Stations

Continue to maintain wader wash stations along the West Branch of the Ausable River. Assess the need for wash stations at other locations within the watershed.

Action 3.4.2—River User Education and Outreach

Educate river users about the threat of aquatic invasive species through a River Steward program. Attend local events, visit fly shops and other retail stores, and work with visitor bureaus to disseminate information about AIS spread prevention.

3.4 Enhanced Public Use of Ausable Streams

Goal 4: responsible, low-impact recreational opportunities protective of Ausable waterways and adjacent lands

AsRA encourages public access and low-impact recreational opportunities and uses of the river: from strolling or bicycling a porous path on a verdant floodplain, to bank access for fishing and put-ins for canoes, visiting a waterfall, or hiking a public pathway along a forested tributary. Caring for the Ausable comes from knowing and experiencing the beauty of Ausable streams and the intact habitats they support – from lush wetlands bordering a clear, cobbled stream to forests abundant with wildlife.

Objective 4.1—Promoting Wise Management of River Resources

Stay in touch with ongoing conversations about public and private lands and areas along our waterways to identify opportunities for ensuring stream-smart approaches.

Action 4.1.1—Assistance to Municipalities—Visitor Facilities

Help communities plan and build public parks, waysides, and byways that enhance visitor appreciation of the river and access to the river for recreational uses that are compatible with AsRA's resource protection goals.

Action 4.1.2—Technical Assistance to Landowners

Help streamside landowners understand and support stream and streamside resources on their properties. Assist with basic planning, design, and implementation where feasible.

Objective 4.2—Promoting Low-Impact Opportunities for River Related Recreation

Advise the development of and encourage engagement with the river through scenic and low-impact recreational uses.

Action 4.2.1—Assistance to Municipalities—Recreation and Education

Help create recreational sites that provide immersive experiences and educational opportunities, e.g. Lake Everest Paddling Trail, Rock Cut Park, a potential Keene community interpretive trail system.

Action 4.2.2—Promoting Recreation Opportunities

Promote low impact recreational uses along the Ausable by providing technical assistance to chambers of commerce, tourism boards, and businesses.

3.5 An Informed and Engaged Public

Goal 5: Informed residents and visitors caring for the health of the watershed where they live, work, and play

An informed public is essential to the goals of AsRA and the health of the watershed. Our programs need to make sense and hold high value for residents and visitors that have multiple and varied priorities. First and foremost, this public needs to "see" the river: understand how fundamental it is to their experience of and love for this place they return to year after year or call home. In turn, AsRA staff and board need to understand what motivates public caring for the river so we can provide information that fills their needs and expectations but also, fills the gap – widening their appreciation for the river and inspiring their desire to be part of AsRA's effort to protect the Ausable.

Objective 5.1—Public Information Sharing—Communications

Developing an array of print and electronic media – readily attributable to AsRA by its appearance and tone – that informs, inspires, and provides varying levels of information for fellow professionals, other experts, anyone who wants to know more.

Action 5.1.1—AsRA Website

Develop and keep up-to-date a website that provides easily accessible information about the river, the watershed, the challenges it faces and AsRA's response. The website should serve as an information hub for people with varying degrees of interest and expertise in AsRA programs.

Action 5.1.2—Voice of the River, Brochures, Print Media

Voice of the River has long been a flagship for AsRA communications though it has undergone many stylistic changes. Publish twice a year (as an annual report and as a special issue) as a benefit of membership. Other brochures are developed as needed and follow branding guidelines.

Action 5.1.3—Social Media and e-Voice

Build and expand an electronic community of interest for AsRA programs and for the beauty of the Ausable.

Objective 5.2—Public Information Sharing—Conferences and Workshops

Gather and disseminate AsRA information for sharing in professional meetings, regional and issue specific workshops, and to organize AsRA sponsored and run meetings/workshops.

Action 5.2.1—Staff Participation in Technical/Scientific Conferences

Use data gathered by AsRA and colleagues to present data and information that advances knowledge of issues relevant to freshwater/stream/watershed conservation issues and elevates the Ausable as a data-rich resource for researchers.

Action 5.2.2—Staff Participation in Regional Resource Management Conferences

Engage regional managers, decision makers, and policy leaders through conferences and workshops using data and information culled from Ausable watershed projects. Encourage the application of new or model programs (in sync with AsRA goals for the watershed) in the Ausable River watershed.

Action 5.2.3—AsRA Organized Public Meetings/Workshops

Identify, plan, and organize meetings and workshops to inform, engage, and receive input from the public on issues and projects led by AsRA and its partners.

Objective 5.3—Policy and Planning

Work to integrate AsRA goals for clean water, healthy streams, and diverse habitats into local and regional planning and management by NYS and municipalities.

Action 5.3.1—NYS Funded Efforts

Serve as an advisor and partner on state-backed efforts to protect freshwater resources, improve flood resiliency, and investigate responses to management challenges that affect Ausable water resources. For example: Au Sable Forks Long Term Community Recovery planning, Community Rising Reconstruction Plan—Rome Dam project.

Action 5.3.2—Municipal Planning

Serve as an advisor to county or town conversations and efforts to manage or improve policies and practices that affect Ausable stream health, water quality, wildlife diversity, and public access or engagement.

Action 5.3.3—Regional Partnerships

Continue to contribute to the Champlain Watershed Improvement Coalition of New York and the Adirondack Lakes Association and other regional partnerships as appropriate.

Objective 5.4—Public Engagement and Outreach—Recreation-Based Learning Programs

Engage a variety of audiences through in-stream, in-person programs that promote low-impact recreation while providing learning opportunities and promoting stewardship.

Action 5.4.1—Paddling Program

Offer AsRA led paddling programs on Lake Everest in Wilmington and other appropriate water bodies.

Action 5.4.2—Hiking/Biking Tours

Explore development of hiking and biking tours on the model of the paddling program.

Objective 5.5—Public Engagement and Outreach—Events

Engage a broad array of residents and visitors through the development of and participation in events based in the watershed. Use these opportunities to build initial connections between recreation, watershed protection, and AsRA.

Action 5.5.1—AsRA Sponsored Annual Events

Offer annual events open to the public that engage members of the public in work or play while also providing avenues for learning about challenges to the Ausable system and ways they can help. E.g., Ride for the River, river clean-ups, planting opportunities.

Action 5.5.2—Educational Fairs

Participate in local and regional events (e.g., county fairs, science fairs) to share information about watershed stewardship, the Ausable watershed, and AsRA.

Action 5.5.3—Non-AsRA Events

Participate in non-AsRA events that provide opportunities to advance AsRA's stewardship and outreach message and promote awareness of the watershed and AsRA. E.g., Two-Fly, Mountaineer Trail Run.

Objective 5.6—Public Engagement and Outreach—Stewardship and Hands-On Learning

Engage target audiences through in-stream, in-person programs that integrate learning and doing.

Action 5.6.1—School Programs

Develop field/experience-based programs that expose students to basic concepts of connectivity, climate change, hydrology, geomorphology, surveying, water quality monitoring, and biological monitoring. Extend and develop the Keene Central School pilot program to other schools and others and work to create a model for applying such programs elsewhere.

Action 5.6.2—Teen Immersive Workshops

Partner with Adirondack Mountain Club or others to offer annual programs that teach teens outdoor recreational skills, provide them with hands on experience with scientific methods, and inspire an ethic of environmental stewardship.

Action 5.6.3—On-Stream Education

Engage river users on-stream during high season to raise awareness of Ausable issues, advance the invasives spread prevention message, glean and share information about current conditions in Ausable streams, and connect users to AsRA programs and our goals.

Action 5.6.4—Clean River Campaign

Hold annual clean-ups that remove trash from streams and streamsides. Use these opportunities to share information about the Ausable watershed, its protection, and about AsRA.

4. Sustainable Organizational Management

Our sixth strategic goal focuses on the systems and structures that underpin AsRA program work and ensure we meet the best practices and standards of the non-profit industry.

Goal 6: a strong, sustainable Ausable River Association working in partnership to achieve shared goals

Objective 6.1—Governance and Operations

Manage the Ausable River Association (AsRA) to effectively and sustainably support its mission.

Governance

AsRA was incorporated in 1998 as a 501(c)3 not-for-profit incorporated in the State of New York. For the first 12 years, the AsRA Board of Directors included representatives from the seven watershed townships and its work was done by a mix of volunteers and project specific grants. In 2010, the AsRA Board rewrote the organization's bylaws and began to develop a professional staff. Today, AsRA employs 3.5 full-time equivalent staff (FTEs): two salaried professionals and two hourly professionals. The board is responsible for establishing AsRA's mission, determining strategic direction, setting policies to carry out the mission, and providing oversight of its finances and operations. Board members are committed to raising community awareness of AsRA's mission, building and sustaining membership, and cultivating relationships with AsRA supporters.

Action 6.1.1a—Board of Directors

Maintain a board of directors as described by the organization's bylaws. Identify individuals with diverse skills and backgrounds relevant to the success of the organization and who are committed to consistent and active board service at multiple levels.

Action 6.1.1b—Board Manual

Maintain and update annually a board manual that provides members with clear expectations for their service, informs members about the board's legal and fiduciary responsibilities, describes board operating procedures, and provides organizational policies as adopted by the board. Ensure that new board members receive the manual upon election.

Action 6.1.1c—Board Committees

Establish/confirm committees of the board as required by the bylaws (executive and finance committee) and a development committee to assist in the cultivation of new and existing members and donors.

Staffing

Action 6.1.2a—Staff

Maintain professional staffing of the organization. The board shall hire and oversee the work of the executive director who shall serve as chief executive officer of AsRA. The executive director

shall attend all board meetings but will not be a member of board. The board chair shall oversee an annual review of the executive director's performance.

Action 6.1.2b—Executive Director

The executive director (ED) shall oversee the hire and supervision of full- and part-time professional staff and contractors as is appropriate to pursue programs that achieve the mission and goals of the organization. The ED will maintain job descriptions for all employees of the organization and conduct annual performance reviews.

To increase scientific and technical capacity, achieve growth in membership, in individual giving, and in the public visibility of AsRA, and to build in an increased layer of strategic financial management, the Executive Director will pursue the reorganization of current staff and will identify funding to pursue the following additional hires in order of priority:

- Communications Manager – to plan, design, and implement communications and marketing strategies that elevate the profile of AsRA, increase public awareness, and expand AsRA's member, donor, and volunteer base (full-time, salaried, exempt)
- Finance & Operations Director – to oversee operational and administrative functions that support AsRA programs including: organizational bookkeeping; financial strategy and management; grants tracking, compliance, and administration (including coordinating grant applications); membership tracking; office management; and human resources (part-time)
- Science Associate, Biological Monitoring – to develop and pursue monitoring and science-based programming that identifies and protects priority species in the Ausable watershed (part-time with option of full-time with grant specific funds)

Organizational Operations

Action 6.1.3a—Organizational Operations

The board and executive director shall undertake regular review of policies and procedures to ensure that the organization keeps pace with best management practices appropriate to an organization of its size and reach.

Action 6.1.3b—Employee Handbook

The executive director, with input from the board, shall maintain an employee handbook including written personnel policies with appropriate accompanying procedures or guidelines that conform to federal and state law.

Objective 6.2—Financial and Asset Management

Manage the finances and assets of the Ausable River Association in a responsible and accountable manner.

AsRA's financial records shall follow Generally Accepted Accounting Principles (GAAP) to ensure that advisors and external auditors can accurately interpret information presented in its financial reports.

Annual Budget

Action 6.2.1—Annual Budget

Working with other staff and the board treasurer, AsRA's executive director shall prepare an annual budget to be reviewed and approved by the board at its first annual quarterly meeting. The budget will identify the costs of planned/committed work for the year and project income, compare income to expenses with comparison to prior years, and track projected cash flow.

Financial Records, Reports, and Statements

Over the past 4 years AsRA staff have improved internal systems for financial tracking and recordkeeping including using QuickBooks Online for bookkeeping; using Salesforce CRM for membership tracking, recognition and renewal; maintaining 1TB of cloud storage space plus hard backups for all AsRA records.

Action 6.2.2a—Financial Records

AsRA staff shall keep clear, complete, and accurate financial records with supporting documentation, including cash receipts and disbursements, accounts receivable, and payroll records.

Action 6.2.2b—Financial Reporting to the Board

AsRA staff shall prepare quarterly financial reports and statements for board review on a regular (at least quarterly) basis and a final report.

Action 6.2.2c—Monthly Reports

AsRA's board treasurer shall receive and approve monthly financial reports and account reconciliations.

Action 6.2.2d—Audits

With approval from the board treasurer, AsRA's executive director shall engage a certified public accountant to provide a review or audit of organizational financials on a biennial basis. The resulting report shall be reviewed by the full board.

Action 6.2.2e—Internal Systems for Handling Money

AsRA staff have developed a redundant procedure for managing incoming funds that protects the organization against theft, fraud, or loss due to unethical or illegal behavior and to reassure donors, government grant agencies, and members. A written overview of that procedure will be reviewed annually by the board chair and treasurer.

Action 6.2.2f—Investment and Management of Financial Assets and Dedicated Funds

To ensure that AsRA's financial assets and any dedicated funds are managed appropriately, the board with input from the executive director and staff shall formalize AsRA's policies for short-term investments, long-term investment of permanent funds, and the uses of dedicated funds.

Action 6.2.2g—Accepting, Owning and Managing Interests in Land

To ensure that land owned by AsRA is managed appropriately, the organization's board with input from the executive director and staff shall formalize AsRA's policies for managing the organization's interest in lands and define the terms for accepting ownership in or management of additional properties.

Objective 6.3—Funding

Develop a sustainable diversified range of financial resources for the Ausable River Association.

AsRA's income and the resulting size of staff and breadth of programs has expanded noticeably in the past five years. In large part, this is due to funds coming through the NYS Department of State's Local Waterfront Revitalization Program grants in support of the Ausable River Watershed Management Plan and its implementation. Other state funding sources and federal funds also support AsRA programs. At the same time, efforts to grow private giving through family foundations, membership, and through events like Ride for the River have met with some success.

In 2016, just over 61% of AsRA income came from restricted grants – down from 66% in 2015. While these sources remain critical to ongoing programs with long-term goals (e.g., scientific monitoring, stream restoration), AsRA will expand efforts to attract unrestricted sources of private funding such as increasing membership and relationships with small family foundations. Our mid-term goal is to equalize unrestricted and restricted giving: to provide 50% of annual income via unrestricted giving from memberships, individual donors, family foundations, businesses, and events, while holding relatively steady the annual dollar amount of restricted grant support.

AsRA's staff strives to hold at least 3 months of operating costs in the bank, and for the most part, achieves that. But because of delays in reimbursement from state grants, this is not always the case. Another challenge is the ability to front funds for capital intensive projects such as culvert replacements. Again, the lag time on reimbursement from state and municipal sources is problematic. One response to these challenges is the creation of a separate "project fund" that gives staff flexibility to make larger commitments to priority projects. This would relieve some pressure on maintaining an appropriate banked operating cost buffer.

Resource Development

To develop its capacity to diversify sources of operating funds and achieve financial sustainability, AsRA's staff and board will pursue the following actions.

Action 6.3.1a—Development Committee

Establish a committee of the board responsible for expanding outreach to non-members, members, and individual donors and overseeing preparation for and implementation of a development plan.

Action 6.3.1b—Development Plan Preparation

Convene the development committee to discuss and outline steps toward the preparation of a development plan with emphasis on community (e.g. year-round residents, seasonal

homeowners, visitors), member, and individual donor outreach. Discuss with the full board and staff and set a timeline for completion.

Action 6.3.1c—Development Plan Production

Assemble a development plan and timetable that integrates with existing work plans. Identify any needed resources or training to augment staff/board knowledge/skills for implementing the plan. Development committee members will implement the plan in partnership with staff.

Restricted Grants

AsRA has access to a wide array of project–specific funding through government grant programs at the federal, regional, and state level. Some examples are: USFWS federal funds for stream restoration and dam removal; regional funds through the Lake Champlain Basin program (most through USEPA grants to regions); state funds through NYS Department of State and Department of Environmental Conservation. Most of these grants require significant match dollars and how those match dollars are counted often depends on sources—e.g., NYS DOS funding cannot be matched with federal funds or NYS DEC funds. In the end, private dollars or partner project expenses are the two most efficient methods of providing match. Also, most restricted grants do not front money but provide reimbursement of spent funds on approved projects. Administration and management of these grants can be burdensome—especially for a small organization.

Action 6.3.2a—NYS DOS LWRP Funding

Continue to utilize funding from the NYS DOS Local Watershed Revitalization Program grants if partner match can provide the bulk of match funds or if significant private funds can be designated as match or serve as front money for reimbursable costs.

Action 6.3.2b—Federal Funding

Extend use of federal funds as needed and available to enhance water quality monitoring, brook trout research and protection efforts, and continue culvert replacement programs.

Private Giving

Growth in private giving, through individual membership, events, family foundations, business and corporate sponsorship, and donor support, is essential to maintaining and responsibly enhancing the vision and goals set out in this strategic plan. Unrestricted private donations also provide AsRA with flexibility to manage and support programs and to augment government grants.

Action 6.3.3a—Membership

Expand membership through a broad array of venues including public outreach, publications (and publication placement: e.g., placing Voice of the River at key outlets in the watershed), website traffic, and events such as Ride for the River.

Action 6.3.3b—Outreach to Donors

Expand outreach to residents and visitors and create special donor opportunities or events enhancing or adding to the annual spring and end of year appeal.

Action 6.3.3c—Special Projects Fund

Create a special projects fund using the already established Jones Fund with the goal of supporting capital projects by fronting funds or providing seed funds for urgent projects. Work with the development and finance committees to define fully the purpose and use.

Earned Income

Some programs and staff skill sets provide opportunities for earned income. AsRA's lake monitoring and porta-john programs provided added value services that provide a small income stream. In addition, AsRA geomorphic survey skills provide opportunities for municipalities and private landowners to hire or include AsRA as a partner in projects for a fixed fee or with the promise of match funds.

Action 6.3.4—Fees for Services

Continue to identify value added and fee for service opportunities that provide cash income or match for restricted grants.

Objective 6.4—Communications and Marketing

Reach out to watershed partners, stakeholders, residents, and visitors using a variety of media and techniques, to enhance the public awareness of AsRA's mission, vision, goals, and programs.

In 2015, AsRA completed a branding process and since then has phased all print and electronic media into the new design. We have made a significant investment (with NYS DOS funding) in developing a website that can serve as a networking hub for information (scientific, educational, recreational, informational) about the watershed. Additional electronic outlets (Facebook, eVoice) have also been developed without sacrificing a consistent core set of print materials. Current primary communications materials/outlets include:

- Voice of the River Newsletter/Annual Report
- Additional brochures: organizational 3-panel, porta-johns
- Spring Appeal and End of Year Appeal
- Website
- Social Media
- AsRA electronic updates

With this groundwork laid, the next step is to develop an informed, strategic communications and marketing approach.

Action 6.5.1—Communications Manager

Hire a communications manager to plan, design, and implement communications and marketing strategies that elevate the profile of AsRA, increasing public awareness, and expanding AsRA's member, donor, and volunteer base.

Action 6.5.2—Communications and Marketing Committee

Establish a working group of staff and board members to assist in the preparation of an annual communications plan.

Action 6.5.3—Communications Plan

On an annual basis, identify AsRA's target audiences and appropriate actions to raise their awareness of AsRA's vision and programs.

Objective 6.5—Partnerships

Work collaboratively with stakeholders to preserve the watershed's resources and strengthen local and regional support for the Ausable River Association's programs.

Since its inception, AsRA has worked cooperatively with a wide array of stakeholders through formal and informal partnerships. This approach reduces redundancy, builds a stronger constituency for our programs, and creates networks of opportunities and information sharing. But partnership approaches bring challenges, especially to a small organization. Recognition for work can be diluted and staff participation in and maintenance of partnerships is time consuming. Thus, AsRA must be strategic in the partnerships it builds and to which it contributes.

Currently, AsRA leads three strategic partnerships.

- AsRA and Adirondack Watershed Institute – with a water quality monitoring focus, this partnership is formalized each year through an MOU. As of early 2017 the partnership is under review for a possible expansion.
- AsRA, USFWS, TU Adirondack Chapter – Since 2010 this core partnership, coordinated by AsRA, has accomplished significant geomorphic assessment and restoration in the watershed. With each project, the core partners enter a federal partnership agreement, formalizing work. Additional partners – specifically towns, counties, and private landowners – are included as required by site location and project goals.
- AsRA, USFWS, TNC Adirondack Chapter – Since 2014 this partnership, coordinated by AsRA and TNC, has identified, evaluated, prioritized, repaired, and replaced multiple damaged and undersized road-stream crossings in the watershed. The work improves native fish and wildlife passage, increases local flood resilience, and reduces infrastructure maintenance costs for local highway departments. Depending on projects and funding sources, the primary partners utilize various tools for formalizing work. Other partners vary but often include local towns and counties.

AsRA is a member and stakeholder in several other partnership efforts.

- Clinton County Water Quality Coordinating Committee (legislatively appointed)
- Essex County Water Quality Coordinating Committee
- Champlain Watershed Improvement Coalition of New York (voting member)
- Adirondack Lakes Association (Executive Committee and Regional Director)

We also sit on the following current advisory/planning committees:

- Community Rising Storm Recovery
- Au Sable Forks Long Term Community Recovery Plan
- Rome Dam Advisory Committee

Action 6.4.1—AsRA-Driven Partnerships

Maintain and contribute to AsRA's three strategic partnerships, as well as advisory/planning committees.

Action 6.4.2—Assistance to Partners and Watershed Stakeholders

As requested by local, state, and federal stakeholders, contribute time, when possible, to partnership efforts and advisory/planning efforts that directly affect the Ausable River watershed.

Objective 6.6—Planning and Evaluation

Manage and routinely evaluate programs and activities in accordance with a long-term management framework designed to accomplish the Ausable River Association's mission.

Planning

AsRA's staff and board will complete a strategic planning exercise every three years to clarify future direction, establish priorities, identify and address organizational problems, and improve organizational performance. Each year, staff shall develop and submit an annual plan of work that follows the outline of the strategic plan and serves as a companion document for the annual budget. The annual work plan will be presented at the Q1 board meeting for discussion and approval by the board.

Action 6.6.1a—Annual Work Plan

Prepare an annual work plan to be reviewed and approved by the board at its first annual quarterly meeting. The work plan structure will be guided by the outcomes of strategic planning.

Action 6.6.1b—Strategic Plan Updates

Review the status of strategic plan actions over the 4-year period (2017-2020). Develop and adopt a new strategic plan by mid-year 2021.

Evaluation

Action 6.6.2a—Measuring Performance and Program Impact

Prior to drafting a budget and action plan for the coming year, undertake a rapid assessment of (a) fundraising effectiveness (e.g., changes in membership, grant, annual campaign, and event success); (b) program progress (e.g., actions/projects completed, work underway/continuing); and (c) enhancement of AsRA's identity. Compare results with strategic objectives. Shared and discuss assessment findings with the board at its fourth quarter meeting.

5. Implementation Plan

Implementation of many of the actions outlined in this document will occur over the next one to five or more years. Some, such as ongoing water quality monitoring, will continue indefinitely, if they are supported by organizational planning, financial resources, and appropriately experienced staff.

Table 5.1 presents timeframes for implementing the actions identified in section 4. Relevant partnerships and funding streams that sustain each action are noted.

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Goal 1 Clean Water									
Objective 1.1 Documenting Existing Conditions—Water Quality Monitoring									
River and tributary monitoring									
1.1.1	Continue regular monitoring of the Ausable River and its tributaries. Explore developing strategic partnerships with colleges and universities to include regular lab analysis of water sampling. Assess the feasibility of establishing continuous monitoring stations in key locations.	X	X	X	X	X	D	X	AWI
Lake monitoring									
1.1.2	Continue regular monitoring of Ausable River watershed lakes. Prioritize work on lakes that are threatened by development, road runoff, and contain lake trout. Explore opportunities to incorporate biological (phytoplankton, zooplankton, fish) monitoring into AsRA's lake monitoring program.	X	X	X	X	X	D	X	AWI
Groundwater monitoring									
1.1.3	Develop a database of private wells within the Ausable River watershed. Seek funding to conduct groundwater testing to assess the impact of road salt.		X	X	X	X	F	X	AWI
Custom monitoring									
1.1.4	Where appropriate, develop collaborative monitoring and research projects to further our understanding of existing conditions and threats.	X	X	X	X	X			
Stormwater monitoring and assessment									
1.1.5	Conduct a watershed wide assessment of possible wastewater-stormwater interconnections that may be results in small, but steady, releases of untreated wastewater into the river, lakes, and streams.		X	X				X	
Objective 1.2 Understanding Threats—Water Quality Research									
Road salt monitoring									
1.2.1	Continue bi-weekly conductivity monitoring throughout the watershed. Continue monitoring Mirror Lake and the Cascade Lakes. Explore opportunities for specific research projects to further our understanding of the impact of road salt on fish and other aquatic organisms.	X	X	X	X	X	D	X	AWI

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Phosphorus monitoring									
1.2.2	Develop a plan to monitor phosphorus loading to the river, this may include analyzing data already being collected by the Lake Champlain Research Institute.			X				X	AWI
Temperature monitoring									
1.2.3	Maintain temperature loggers already in place in the river and tributaries. Explore opportunities to expand this program through grants and private sponsorship.	X	X	X	X	X	D		
Objective 1.3 Mitigating Threats—Non-point Source Pollution Mitigation									
Clean river campaign									
1.3.1	Engage watershed residents in river cleanup events to raise awareness for the need to limit litter and improper garbage disposal.	X	X	X	X		D	X	Kayak Shack, CCWQCC (2017), CCSWCD
Porta-Johns									
1.3.2	Continue to manage Porta-John program along the river and at key upland sites. Work with DEC, ADK, and other stakeholders to address issues of improper human waste disposal within the watershed.	X	X	X	X			X	sponsors: businesses, DEC
Septic share									
1.3.3	Identify funding sources to support a septic pumping cost-share program for watershed residents. Organize group pump outs at regular intervals (two to three years) at targeted locations within the watershed.		X	X			F		
Stormwater management									
1.3.4	Work with DPW crews and local government to identify priority projects for improving stormwater management. Work with local government to identify and acquire funding to support stormwater infrastructure projects that meet AsRA's goals.			X	X		D	X	SWCDs, municipalities
Objective 1.4 Mitigating Threats—Spill Mitigation									
Spill rapid response									
1.4.1	Continue to develop a relationship with the NYS DEC so that AsRA is notified of spills of potentially toxic substances with the watershed. Serve as a conduit to notify the public of spills and help NYS DEC mitigate impacts.	X	X	X	X	X			DEC

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Goal 2 Healthy Streams									
Objective 2.1 Documenting Existing Conditions—Identifying Current Stream Conditions									
Reference conditions and relationships									
2.1.1	Identify existing stable reaches. Gather morphological data (e.g. slope, bankfull width, mean depth) using Level II geomorphic analysis. Correlate bankfull discharge channel dimensions to drainage area at Ausable gage stations to create or to confirm applicability of regional curves. Use this data to track changes over time and for extrapolation to disturbed, or unstable reaches in similar valley types for the purposes of restoration, stream enhancement, stabilization, and stream naturalization efforts.	X	X	X	X	X	D	X	FWS, TU
Ausable River channel, bank, corridor, and watershed characteristics									
2.1.2	Gather information and map at broad scale general conditions in the river corridor: land use, forest cover, riparian cover, soil type, bank height/erosion ratings, road proximity, aquifer presence, road crossings, channel dams or diversions, prevalent flooding and ice jam incidence, stormwater and wastewater conveyances, etc.	X	X	X			D		
River Channel and bank stability assessment									
2.1.3	Identify tools and methods and assess East and West Branches of the Ausable River and select tributaries.	X	X	X			D/F	X	FWS, TU
Objective 2.2 Understanding Threats—Assessment of priority challenges to stream health									
Assessment protocols									
2.2.1	Implement assessment protocols, gather data in a report/plan that provides short and long-term project goals, priorities, and implementation strategies for comprehensive channel restoration work on the East Branch and portions of the West Branch.	X	X	X			D/F	X	FWS, TU, private contractors
Culvert aquatic passage assessment and prioritization									
2.2.2	Using NAACC protocols, assess road crossings in the Ausable watershed, catalog the data, prioritize based on severity of fish passage access and, where possible, by priorities for local towns (based on flooding and/or infrastructure concerns); upload to AsRA web maps and update annually.	X	X	X	X		D	X	FWS, TNC

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Floodplain and wetland assessment									
2.2.3	Using LIDAR and existing wetland and floodplain maps, identify existing floodplains and wetlands along the East and West Branches that are connected to the river corridor and active. These areas can assist in the mitigation of flooding if they remain accessible to the river.	X	X	X			D	X	private contractor data
Riparian buffer assessment and prioritization									
2.2.4	Starting with riparian cover maps from the WMP and other sources, refine analysis of cover along the East and West Branches and overlay with natural channel restoration priorities to identify and map riparian corridor planting priorities that are short/long-term and project-based.			X	X		D		
Objective 2.3 Mitigating Threats—Restoring Natural Channel Function									
Advance prioritized stream restoration projects									
2.3.1	Identify, plan, and implement stream restoration projects based on prioritization and availability of resources (funding, materials, willing partners) and using natural channel design principles per USFWS.	X	X	X	X	X	X	X	FWS, TU, towns, landowners
Technical assistance for river restoration									
2.3.2	Where towns or landowners request technical assistance and support for natural channel design projects, assess geomorphic value of project. Take on projects that achieve AsRA long term goals and build community support for priority projects.	X	X	X	X	X	D	X	FWS, TU, towns, landowners
Materials donation program									
2.3.3	Identify and implement a cost-effective method to acquire boulders, cobble, and when possible, trees with intact root systems for use in restoration projects. Value materials as a donation and provide in-kind donation recognition.		X	X					*Rome Dam materials acquisition may obviate need over 3- to 5-year period.*
Objective 2.4 Mitigating Threats—Reconnecting Stream Corridors									
Advance priority projects									
2.4.1	Identify, plan, implement, and document culvert replacements and retrofits based on culvert prioritization (in partnership with TNC, towns, and counties), AsRA monitoring and research planning, and availability of resources (funding, materials, willing partners), and using USFWS natural channel design principles and USFS aquatic	X	X	X	X	X	D/F	X	FWS, TNC, towns, counties

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
	organism passage standards.								
Technical assistance to DPW crews and local contractors									
2.4.2	Work with town and county DPW crews and local contractors when possible to provide knowledge in and reasons behind natural channel design goals. Offer training opportunities (2018-19 start). Encourage broad adoption of natural channel design methods when working on or alongside streams.	X	X	X	X		D	X	FWS, TNC
Climate-Ready Fish-Friendly Culverts									
2.4.3	Working with TNC Adirondack Chapter, inform and assist the expansion of the developing Climate Ready Culvert program beyond the watershed. AsRA serves as a resource to regional efforts and partnerships seeking to build stream connectivity and flood resilience at road-stream crossings.		X	X	X			X	TNC
Objective 2.5 Mitigating Threats—Protecting and Reclaiming Floodplains									
Public awareness									
2.5.1	Create publicly available maps on AsRA website that identify key floodplains in the watershed and describe and model the importance of floodplain protection.		X	X			X		
Advocacy for floodplain protection									
2.5.2	Work with state and regional agencies, town boards, land conservancy staff, and landowners to ensure the benefits of floodplain protection are well known and appreciated. Identify methods and provide, where possible, technical support for their application.		X	X	X	X	D	X	LPLC, ALT
Technical assistance to landowners									
2.5.3	Provide restoration expertise to landowners willing to protect floodplains and needing additional support for restoring riparian buffers.		X	X	X	X	D	X	LPLC, ALT
Objective 2.6 Mitigating Threats—Reestablishing Riparian Buffers									
Sources of native plant material									
2.6.1	Identify source and build reliable relationship(s) to ensure ability to source hardy tree and shrub species native to the watershed.	X	X				D		

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Pilot planting									
2.6.2	On at least two plots (one East Branch, one West Branch) test methods for establishing high success rate, low-cost restoration methods; track plantings over time; maintain these as working laboratories for testing species viability.	X	X	X	X	X	D		
Advance riparian plantings in priority areas									
2.6.3	Using priority mapping, approach landowners and build relationships to restore streamsides to strongest practical buffer levels possible.			X	X	X	F		
Objective 2.7 Mitigating Threats—Technical Assistance to Communities									
Ausable River Watershed Management Plan (WMP) implementation									
2.7.1	Promote the WMP and use it to leverage agreement with and funding for project efforts within the Ausable watershed.	X	X	X	X				
Input to NYS funded planning and programs									
2.7.2	Ensure AsRA is engaged and advising on NYS DOS funded projects such as Long-Term Community Recovery efforts with a primary focus on flood impacts and the Community Rising project to remove the JJ Rogers Paper Mill or "Rome Dam"	X	X	X	X		D		
Goal 3 Biodiverse Habitats									
Objective 3.1 Monitoring									
Aquatic invasives monitoring									
3.1.1	Work with AsRA partners and watershed residents to monitor for AIS infestations and the expansion of current infestations.	X	X	X	X	X	D/F	X	APIPP
Terrestrial invasives monitoring									
3.1.2	Work with AsRA partners and watershed residents to monitor for terrestrial invasive species infestations and the expansion of current infestations.	X	X	X	X	X	D/F	X	APIPP
Common plant species diversity									
3.1.3	Identify common native river corridor/streambank plant species and their tolerance to varying conditions (sun/shade, ice, wind, temperatures, wetlands, etc.).		X	X	X			X	FWS, AWI

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Key species occurrences									
3.1.4	Identify key aquatic species in Ausable streams, habitat requirements, and the primary obstacles to accessing and full use of habitat.	X	X	X	X		D	X	
Brook trout habitat									
3.1.5	Expand stream temperature monitoring network to better understand the impact of climate change on brook trout habitat suitability. Explore the possibility of conducting regular benthic macroinvertebrate studies to monitor resource availability for fish populations.		X	X	X			X	FWS, AWI
Objective 3.2 Research									
Invasive species identification and mapping									
3.2.1	Maintain a database of invasive species infestations within the watershed. Collaborate with partners to provide data to regional and national databases.	X	X	X	X	X	D	X	APIPP, DEC
Biological inventories at selected sites									
3.2.2	Develop a protocol to identify and map natural communities at priority sites within the watershed.			X	X	X		X	science partners TBD
Imperiled and vulnerable species in the Ausable River corridor									
3.2.3	Compile information from NYNHP and other sources, promote additional inventory work, and further assist as needed to assess the locations and populations of NYNHP-tracked imperiled and vulnerable streamside plant and animal species (e.g., select mussels, dragonflies, tiger beetles, wood turtles).		X	X	X			X	TBD
Brook trout presence/absence and abundance									
3.2.4	Identify brook trout presence/absence and habitat use in the Ausable River and tributaries to provide a broad spatial context to brook trout conservation within the watershed. Explore the possibility of designing a cost-effective long-term monitoring program to assess changes in brook trout populations over time. Expand stream temperature monitoring network to understand better the impact of climate change on brook trout habitat suitability.		X	X	X		F	X	TBD

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Objective 3.3 Mitigating Threats—Terrestrial Invasive Species Management									
Treatment and removal									
3.3.1	Develop plans to eradicate current invasive species infestations when feasible.	X	X	X	X		F	X	APIPP
Objective 3.4 Mitigating Threats—Aquatic Invasive Species Prevention									
Wader wash stations									
3.4.1	Continue to maintain wader wash stations along the West Branch of the Ausable River. Assess the need for wash stations at other locations within the watershed.	X	X	X	X		F		DEC
River user education and outreach									
3.4.2	Educate river users about the threat of aquatic invasive species through a River Steward program. Attend local events, visit fly shops and other retail stores, and work with visitor bureaus to disseminate information about AIS spread prevention.	X	X	X	X		X		
Goal 4 Enhanced Public Use of Ausable Streams									
Objective 4.1 Promoting Wise Management of River Resources									
Assistance to municipalities—visitor facilities									
4.1.1	Help communities plan and build public parks, waysides, and byways that enhance visitor appreciation of the river and access to the river for recreational uses that are compatible with AsRA's resource protection goals.			X	X	X		X	towns, counties, others TBD
Technical assistance to landowners									
4.1.2	Help streamside landowners understand and support stream and streamside resources on their properties. Assist with basic planning, design, and implementation where feasible.	X	X	X	X	X	D	X	
Objective 4.2 Promoting Low-Impact Opportunities for River Related Recreation									
Assistance to municipalities—recreation and education									
4.2.1	Help create recreational sites that provide immersive experiences and educational opportunities, e.g. Lake Everest Paddling Trail, Rock Cut Park, a potential Keene community interpretive trail system.			X	X			X	towns, counties, businesses, others TBD

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Promoting recreation opportunities									
4.2.2	Promote low impact recreational uses along the Ausable by providing technical assistance to chambers of commerce, tourism boards, and businesses.		X	X	X				
Goal 5 An Informed and Engaged Public									
Objective 5.1 Public Information Sharing—Communications									
AsRA website									
5.1.1	Develop and keep up-to-date a website that provides easily accessible information about the river, the watershed, the challenges it faces and AsRA's response. The website should serve as an information hub for people with varying degrees of interest and expertise in AsRA programs.	X	X	X	X	X	D		
Voice of the River, brochures, print media									
5.1.2	Voice of the River has long been a flagship for AsRA communications though it has undergone many stylistic changes. Publish twice a year (as an annual report and as a special issue) as a benefit of membership. Other brochures are developed as needed and follow branding guidelines.	X	X	X	X				
Social media and e-Voice									
5.1.3	Build and expand an electronic community of interest for AsRA programs and for the beauty of the Ausable.	X	X	X	X				
Objective 5.2 Public Information Sharing—Conferences and Workshops									
Staff participation in technical/scientific conferences									
5.2.1	Use data gathered by AsRA and colleagues to present data and information that advances knowledge of issues relevant to freshwater/stream/watershed conservation issues and elevates the Ausable as a data-rich resource for researchers.	X	X	X	X				
Staff participation in regional resource management conferences									
5.2.2	Engage regional managers, decision makers, and policy leaders through conferences and workshops using data and information culled from Ausable watershed projects. Encourage the application of new or model programs (in sync with AsRA goals for the watershed) in the Ausable River watershed.	X	X	X	X				

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
AsRA Organized Public Meetings/Workshops									
5.2.3	Identify, plan, and organize meetings and workshops to inform, engage, and receive input from the public on issues and projects led by AsRA and its partners.	X	X	X	X				
Objective 5.3 Policy and Planning									
NYS funded efforts									
5.3.1	Serve as an advisor and partner on state-backed efforts to protect freshwater resources, improve flood resiliency, and investigate responses to management challenges that affect Ausable water resources. For example: Au Sable Forks Long Term Community Recovery planning, Community Rising Reconstruction Plan—Rome Dam.	X	X	X	X		D		
Municipal planning									
5.3.2	Serve as an advisor to county or town conversations and efforts to manage or improve policies and practices that affect Ausable stream health, water quality, wildlife diversity, and public access or engagement.	X	X	X	X				
Regional partnerships									
5.3.3	Continue to contribute to the Champlain Watershed Improvement Coalition of New York and the Adirondack Lakes Association and other regional partnerships.	X	X	X	X				
Objective 5.4 Public Engagement and Outreach—Recreation-based Learning Programs									
Paddling program									
5.4.1	Offer AsRA led paddling programs on Lake Everest in Wilmington and other appropriate water bodies.	X	X	X	X			X	Town of Wilmington, Mountaineer
Hiking/biking tours									
5.4.2	Explore development of hiking and biking tours on the model of the paddling program.			X				X	
Objective 5.5 Public Engagement and Outreach—Events									
AsRA sponsored annual events									
5.5.1	Offer annual events open to the public that engage members of the public in work or play while also providing avenues for learning about challenges to the Ausable system and ways they can help. E.g., Ride for the River, river clean-ups, planting opportunities.	X	X	X	X				

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Educational fairs									
5.5.2	Participate in local and regional events (e.g., county fairs, science fairs) to share information about watershed stewardship, the Ausable watershed, and AsRA.	X	X	X	X		D/F		
Non-AsRA events									
5.5.3	Participate in non-AsRA events that provide opportunities to advance AsRA's stewardship and outreach message and promote awareness of the watershed and AsRA. E.g., Two-Fly, Mountaineer Trail Run.	X	X	X	X		D/F		
Objective 5.6 Public Engagement and Outreach—Stewardship and Hands-On Learning									
School programs									
5.6.1	Develop field/experience based programs that expose students to basic concepts of connectivity, climate change, hydrology, geomorphology, surveying, water quality monitoring, and biological monitoring. Pilot programs with Keene Central School and others and work to create models that can be used elsewhere.	X	X	X	X		D		KCS
Teen immersive workshops									
5.6.2	Partner with Adirondack Mountain Club or others to offer annual programs that teach teens outdoor recreational skills, provide them with hands on experience with scientific methods, and inspire an ethic of environmental stewardship.	X	X	X	X				ADK
On-stream education									
5.6.3	Engage river users on-stream during high season to raise awareness of Ausable issues, advance the invasives spread prevention message, glean and share information about current conditions in Ausable streams, and connect users to AsRA programs and our goals.	X	X	X	X		F		
Clean river campaign									
5.6.4	Hold annual clean-ups that remove trash from streams and streamsides. Use these opportunities to share information about the Ausable watershed, its protection, and about AsRA.	X	X	X	X			X	Kayak Shack, CCWQCC (2017), others TBD

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
Goal 6 Sustainable Organizational Management									
Objective 6.1 Governance and Operations									
Governance and Operations									
6.1.1a	Maintain a board of directors as described by the organization's bylaws. Identify individuals with diverse skills and backgrounds relevant to the success of the organization and who are committed to consistent and active board service at multiple levels.	X	X	X	X	X			
6.1.1b	Maintain and update annually a board manual that provides members with clear expectations for their service, informs members about the board's legal and fiduciary responsibilities, describes board operating procedures, and provides organizational policies as adopted by the board. Ensure that new board members receive the manual upon election.	X	X	X	X	X			
6.1.1c	Establish/confirm committees of the board as required by the bylaws (executive and finance committee) and a prospect committee to assist in the cultivation of new and existing members and donors.	X	X	X	X				
Staff									
6.1.2a	Maintain professional staffing of the organization. The board shall hire and oversee the work of the executive director who shall serve as chief executive officer of AsRA. The executive director shall attend all board meetings but will not be a member of board. The board chair shall oversee an annual review of the executive director's performance.	X	X	X	X				
6.1.2b	The executive director (ED) shall oversee the hire and supervision of full- and part-time professional staff and contractors as is appropriate to pursue programs that achieve the mission and goals of the organization. The ED will maintain job descriptions for all employees of the organization and conduct annual performance reviews. To increase scientific and technical capacity, achieve growth in membership, in individual giving, and in the public visibility of AsRA, and to build in an increased layer of strategic financial management, the Executive Director will pursue the reorganization of current staff and will identify funding to pursue the following additional hires in order of priority: • Communications Manager – to plan, design, and implement communications and marketing strategies that elevate the profile of AsRA, increase public awareness, and expand AsRA's member, donor, and volunteer base (full-time, salaried, exempt)	X	X X	X	X				

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
	• Finance & Operations Director – to oversee operational and administrative functions that support AsRA programs including: organizational bookkeeping; financial strategy and management; grants tracking, compliance, and administration (including coordinating grant applications); membership tracking; office management; and human resources (part-time)		X	X					
	• Science Associate, Biological Monitoring – to develop and pursue monitoring and science-based programming that identifies and protects priority species in the Ausable watershed (part-time with option of full-time with grant specific funds)		X	X					
Organizational Operations									
6.1.3a	The board and executive director shall undertake regular review of policies and procedures to ensure that the organization keeps pace with best management practices appropriate to an organization of its size and reach.	X	X	X	X	X			
Employee Handbook									
6.1.3b	The executive director, with input from the board, shall maintain an employee handbook including written personnel policies with appropriate accompanying procedures or guidelines that conform to federal and state law.	X	X	X	X	X			
Objective 6.2 Financial and Asset Management									
Annual Budget									
6.2.1	Working with other staff and the board treasurer, AsRA's executive director shall prepare an annual budget to be reviewed and approved by the board at its first annual quarterly meeting. The budget will identify the costs of planned/committed work for the year and project income, compare income to expenses with comparison to prior years, and track projected cash flow.	X	X	X	X				
Financial Records, Reports, and Statements									
6.2.2a	AsRA staff shall keep clear, complete, and accurate financial records with supporting documentation, including cash receipts and disbursements, accounts receivable, and payroll records.	X	X	X	X	X			
6.2.2b	AsRA staff shall prepare quarterly financial reports and statements for board review on a regular basis and a final report.	X	X	X	X				

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
6.2.2c	AsRA's board treasurer shall receive and approve monthly financial reports and account reconciliations.	X	X	X	X				
Audits									
6.2.3	With approval from the board treasurer, AsRA's executive director shall engage a certified public accountant to provide a review or audit of organizational financials on a biennial basis. The resulting report shall be reviewed by the full board.	X	X	X	X				
Internal Systems for Handling Money									
6.2.4	AsRA staff have developed a redundant procedure for managing incoming funds that protects the organization against theft, fraud, or loss due to unethical or illegal behavior and to reassure donors, government grant agencies, and members. A written overview of that procedure will be reviewed annually by the board chair and treasurer.	X	X	X	X				
Investment and Management of Financial Assets and Dedicated Funds									
6.2.5	To ensure that AsRA's financial assets and any dedicated funds are managed appropriately, the board with input from the executive director and staff shall formalize AsRA's policies for short-term investments, long-term investment of permanent funds, and the uses of dedicated funds.		X	X					
Accepting, Owning and Managing Interests in Land									
6.2.6	To ensure that land owned by AsRA is managed appropriately, the organization's board with input from the executive director and staff shall formalize AsRA's policies for managing the organization's interest in lands and define the terms for accepting ownership in or management of additional properties.		X	X					
Objective 6.3 Funding									
Resource Development									
6.3.1a	Establish a committee of the board responsible for expanding outreach to non-members, members, and individual donors and overseeing preparation for and implementation of a development plan.		X	X	X				
6.3.1b	Convene the development committee to discuss and outline steps toward the preparation of a development plan with emphasis on community (e.g. year-round residents, seasonal homeowners, visitors), member, and individual donor outreach. Discuss with the full board and staff and set a timeline for completion.		X	X					

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
6.3.1c	Assemble a development plan and timetable that integrates with existing work plans. Identify any needed resources or training to augment staff/board knowledge/skills for implementing the plan. Development committee members will implement the plan in partnership with staff.	X	X	X	X				
Restricted Grants									
6.3.2a	Continue to utilize funding from the NYS DOS Local Watershed Revitalization Program grants if partner match can provide the bulk of match funds or if significant private funds can be designated as match or serve as front money for reimbursable costs.	X	X	X	X				
6.3.2b	Extend use of federal funds as needed and available to enhance water quality monitoring, brook trout research and protection efforts, and continue culvert replacement programs.	X	X	X	X				
Private Giving									
6.3.3a	Expand membership through a broad array of venues including public outreach, publications (and publication placement: e.g., placing Voice of the River at key outlets in the watershed), website traffic, and events such as Ride for the River.	X	X	X	X				
6.3.3b	Expand outreach to residents and visitors and create special donor opportunities or events enhancing or adding to the annual spring and end of year appeal.	X	X	X	X				
6.3.3c	Create a special projects fund using the already established Jones Fund with the goal of supporting capital projects by fronting funds or providing seed funds for urgent projects. Work with the development and finance committees to define fully the purpose and use.	X	X	X	X				
Earned Income									
6.3.4	Continue to identify value added and fee for service opportunities that provide cash income or match for restricted grants.	X	X	X	X				
Objective 6.4 Communications and Marketing									
Communications Plan									
6.4.1	Hire a communications manager to plan, design, and implement communications and marketing strategies that elevate the profile of AsRA, increasing public awareness, and expanding AsRA's member, donor, and volunteer base.		X	X	X				

Table 5.1: Ausable River Association—Implementation Plan

Action Ref #	Action	2017	2018	2019	2020	Long Term	DOS (D) or Federally (F) Funded	Collaboration	Project Partners/*Notes*
6.4.2	Establish a working group of staff and board members to assist in the preparation of an annual communications plan.		X	X	X				
6.4.3	On an annual basis, identify AsRA's target audiences and appropriate actions to raise their awareness of AsRA's vision and programs.		X	X	X				
Objective 6.5 Partnerships									
AsRA-driven partnerships									
6.5.1	Maintain and contribute to AsRA's three strategic partnerships, as well as advisory/planning committees.	X	X	X	X				primary partnerships: water quality, natural stream design/restoration, culvert
Assistance to Partners and Watershed Stakeholders									
6.5.2	As requested by local, state, and federal stakeholders, contribute time, when possible, to partnership efforts and advisory/planning efforts that directly affect the Ausable River watershed.	X	X	X	X				
Objective 6.6 Planning and Evaluation									
Planning									
6.6.1a	Prepare an annual work plan to be reviewed and approved by the board at its first annual quarterly meeting. The work plan structure will be guided by the outcomes of strategic planning.		X	X	X	X			
6.6.1b	Review the status of strategic plan actions over the 4-year period (2017-2020). Develop and adopt a new strategic plan by mid-year 2021.				X				
Evaluation									
6.6.2a	Prior to drafting a budget and action plan for the coming year, undertake a rapid assessment of (a) fundraising effectiveness (e.g., changes in membership, grant, annual campaign, and event success); (b) program progress (e.g., actions/projects completed, work underway/continuing); and (c) enhancement of AsRA's identity. Compare results with strategic objectives. Shared and discuss assessment findings with the board at its fourth quarter meeting.	X	X	X	X				