

4. Goals and Actions

Goals and actions identified during the workshops described in Section 2 are summarized in Table 4-1 (Prioritization Matrix). To identify the highest priority actions for the W&SWR, an email was sent to workshop participants and other stakeholders with the matrix and instructions for submitting votes to prioritize actions. The stakeholders responded by email and the votes were then tallied to determine the top priority actions and associated goals as listed in Table 4-1.

4.1 Summary of Priority Issues

The following priority issues for the W&SWR were identified during the planning workshops:

1. **Cold water fisheries** in the headwater streams may be impacted by temperature impairments on the main stem reaches and physical barriers to fish passage such as dams and culverts.
2. **Excellent water quality** throughout the watershed should be evaluated to determine the cause of temperature impairments on the main stem and the potential of any “hotspot” tributaries.
3. **Invasive plants** (aquatic and terrestrial) have increased throughout the watershed, including in the river corridor and riparian areas.
4. **Over-use of recreational areas** is causing environmental degradation in many popular recreation areas.
5. **Land protection** is needed to protect important vulnerable riparian areas along the river.
6. **Public education and engagement efforts** should be more effectively coordinated and implemented by watershed partners. Additional outreach is needed to guide municipal boards and homeowners on key regulatory and land use management issues (e.g., land development, septic systems).
7. **Improved administration** of the W&SWRC is needed to increase efficiency and scope of programs.
8. Improved collaboration between cultural/historic resource agencies, municipalities, indigenous groups, and other agencies to manage significant **cultural and historical resources**.
9. **Other priority concerns** included stream bank erosion, unknown contributions of pollutants from septic systems, and the extent that land use activities such as agriculture and forestry practices may impact water quality.

4.2 Top Priority Goals and Actions

The W&SWRC reviewed the top priority goals and actions identified during the workshops. This review allowed the W&SWRC to take the input from the workshops and align them with their goals for the W&SWR. The W&SWRC’s top priority goals and associated actions are presented on the following pages.



The West Branch of the Westfield River (CEI photo)

GOAL #1:

Protect and improve the ability of the Wild & Scenic Westfield River to support cold water assemblages.



Desired Future Conditions:

- *Temperatures in all tributaries conducive to thriving native fish populations with barriers to movements eliminated.*
- *Partnerships with towns and nonprofits that support cold water fish habitat.*
- *Healthy native riparian buffers that provide sufficient conditions for cold water fish assemblages.*

As discussed in Section 3.2.2., the W&SWR includes a large concentration of cold water streams that provide some of the best cold water fishery habitat in Massachusetts. The stewardship planning process identified continued and improved protection of cold water habitat as a top W&SWRC priority. Issues related to protection of cold water stream habitat in the W&SWR include the following:

- Despite the abundance of high-quality cold water habitat in the watershed, 44 miles of Wild & Scenic stream segments are listed as **impaired for temperature** in the [2016 Massachusetts Integrated List of Waters](#). Temperature impaired segments are within the Wild & Scenic portions of the Middle Branch and East Branch, as well as the West Falls Branch (a tributary to the Wild and Scenic East Branch). Discussion during the Water Resources workshop noted that:
 1. The temperature impairments described above were within wide stream reaches lacking the high degree of shading found in smaller tributaries; and
 2. It was unclear among participants how much the temperature impairments were influenced by natural stream features (i.e., width and associated shade canopy) rather than anthropogenic causes that could be addressed with mitigation actions.
- As climate change progresses, the threats to cold water stream habitat are expected to increase. These threats include higher temperatures that directly impact streams and can also alter riparian areas by changing the species composition of forests that provide canopy shade.
- In addition to shifting riparian forests towards species adapted to a warmer climate, climate change can also increase the presence of tree-damaging insects such as the emerald ash-borer, and of other tree stressors such as fungal pathogens. Widespread loss of native forest canopy to these stressors can lead to less stream shading and impacts to cold water stream habitat.
- Increases in chlorides such as road salt also have a negative impact on cold water habitat. Road de-icing practices in the watershed should be carefully evaluated to minimize such impacts.

"The most unique aspects of the Westfield Basin are its large concentration of cold water streams with wild brook trout and relatively minimal human development."

Pre-workshop survey response

W&SWRC Top Priority Actions for Cold Water Fishery Protection

1. The W&SWRSC should work with the Massachusetts Department of Fish and Wildlife (DFW) to **develop Best Management Practices (BMPs) to protect cold water fisheries**. These BMPs may include:
 - Installing native plant buffers;
 - Encourage tree planting on private lands;
 - Funding or accelerating processes to protect existing cold water fisheries within areas not considered impaired;
 - Create river overlay districts with zoning of river towns that are more rigorous than WPA; and
 - Develop an education and outreach program regarding cold water fisheries.
2. Develop a **salt reduction program** in towns along the W&SWR corridor. Existing programs such as the [Green SnowPro Certification](#) program in New Hampshire provide training and certification to commercial salt applicators. This program teaches state-of-the art salt reduction practices that prioritize public safety while mitigating salt usage. Although no current program exists in Massachusetts, a similar training program could be developed for towns along the W&SWR. Specific salt reduction tasks include:
 - Develop training (using Green SnowPro as an example) and dedicate funding to support town highway departments adopting the latest techniques to reduce the use of salt during the winter months.
 - Fund high-tech equipment for municipal vehicles to reduce the use of road salt such as finely calibrated brine dispersers.

Education and Outreach Considerations

Through coordination with agencies such as DFW, the W&SWRC could develop additional education and outreach materials and programs to focus on cold water fisheries. As noted, the New Hampshire Green SnowPro program can be used as a guide for developing training materials for salt applicators in the W&SWR corridor. In addition, many of the W&SWR watershed towns are covered under the National Pollutant Discharge Elimination System (NPDES) Multiple Separate Storm Sewer System (MS4) permit program (Agawam, Holyoke, Russell, Southampton, Southwick, West Springfield, Westfield, and Westhampton). The MS4 program addresses water pollution by regulating discharge of stormwater in municipalities and focuses on reducing the input of salt to waterbodies from municipalities through a range of public outreach and education requirements including outreach on salt use to residential, commercial, and municipal staff. Although the W&SWRC should focus its efforts on towns within the W&SWR corridor, broader outreach within the river watershed could coordinate with these MS4 communities to include a reference to the W&SWR in their materials and provide templates for other communities.

Funding and Partnership Considerations

Many of the actions identified to protect the W&SWR cold water fisheries involve coordinating with organizations already conducting work in the watershed. MassWildlife's CWFP is responsible for surveying cold water fisheries from July to mid-September and MassDEP is responsible for assessing

statewide water quality data to determine impairments. Coordination with these agencies is a first step towards addressing cold water fisheries assessment and protection in the headwater tributaries of the W&SWR. This initial coordination with state agencies should not require funding. Future efforts will be identified during the initial coordination meetings and additional funding mechanisms may be necessary to implement those efforts. As shown in Section 5, funding sources may include MADER and National Fish and Wildlife grants to improve cold water fish habitat.

GOAL #2:

Improve stream habitat connectivity for the Wild & Scenic Westfield River, with a focus on removal of physical barriers to passage and fish and other wildlife.



Desired Future Conditions:

- *Transportation infrastructure that does not disrupt the ecological integrity of the river or the contiguous forest landscape.*
- *W&SWR watershed towns pro-actively eliminating barriers to fish passage and wildlife movement.*

Stream channels and adjacent riparian corridors are critical to the movement of aquatic and terrestrial wildlife across the landscape, together with materials (large and small woody debris, organic detritus, and naturally occurring nutrients) that affect their habitat. If a stream is interrupted by an obstruction such as a bridge, road crossing, culvert, or dam, then essential ecological infrastructure may be impaired and habitat areas along the stream corridor may become isolated from each other (a condition referred to as “fragmentation”). For cold water fisheries, greater stream connectivity provides increased habitat for cold water fish species as these species are able to move upstream to find ideal conditions.

In addition to aquatic habitat considerations, improving stream connectivity can provide public health and safety benefits when undersized and deteriorating infrastructure is replaced. Larger stream crossing structures that provide a more natural flow path are often less prone to flooding and failure during peak flow events that are expected to occur more frequently as a result of climate change. Aging dams that are in poor condition can put downstream properties and lives at risk if they fail. The stewardship planning process identified **improving stream habitat connectivity** as a top W&SWR priority.

In addition to stream habitat connectivity, identifying barriers in the broader wildlife corridor of the W&SWR watershed such as roads is important to wildlife health and diversity in the watershed.

The ability for wildlife to move throughout stream corridors is essential for many reasons, including:

- Access to feeding areas (needs vary among species and for life-stages within species);
- Access to shelter and refuge from predators and seasonal changes in flow and temperature (needs vary among species and for life-stages within species);
- Access to cold water tributaries (aquatic organisms are often sensitive to temperature);
- Access to areas with conditions suitable for spawning and breeding;
- Access to allow populations to exploit new habitats and to sustain natural population growth or prevent population decline; and
- Access for interaction with other groups of individuals to maintain genetically healthy populations.

“Aquatic connectivity and high quality in-stream habitat are incredibly important to maintaining good ecosystem functioning and resilient aquatic organism populations.”

Pre-workshop survey response

For the reasons listed above, obstruction of movement can have adverse consequences not only to individual organisms, but to larger populations of species and assemblages of species. While dams may prevent passage of fish and other aquatic organisms, other obstructions (e.g., culverts, bridges) may also result in the disruption of wildlife movement, including:

- Outlet drops (perching), which pose structural barriers to passage of many aquatic organisms;
- Drops at culvert inlets, either as a result of initial installation or subsequent sediment and debris deposition and associated channel alteration, which also pose structural or hydraulic barriers to passage;
- Inadequate flow depths under ordinary low flow conditions (not due to drought), which do not provide minimum depths essential for aquatic organisms to move;
- High velocities under a variety of flow conditions, ranging from low flows to seasonal high flows (especially flows occurring during periods of migration). At prevailing velocities during the period when they need to move, organisms must have sufficient swimming ability and endurance to move upstream;
- Scouring and erosion;
- Clogging by natural or urban debris;
- Pond formation upstream of culverts as a result of clogging, sediment deposition, or inadequate culvert size;
- Installation of unnatural bed materials within the structure;
- Lack of retention of natural streambed materials within crossing;
- Lack of sufficient “dry bank” under prevailing flow conditions. The absence of banks or shallow stream margins inhibits the terrestrial movement of animals that do not use the water column or streambed material for travel, but that typically move along the stream bank and riparian corridor.



A “perched” culvert on River Road in Windsor, preventing fish passage and resulting in scour at the outlet. (CEI photo)

MADER utilizes various road-stream crossing prioritization tools to identify stream crossings that may be in need of replacement in areas of high ecological value. Currently, most of the road-stream crossings in the W&SWR corridor have been assessed by MADER (Appendix D).

W&SWRC Top Priority Actions for Improving Stream Connectivity

1. **Leverage funds, technical assistance, and other capabilities to support towns to eliminate barriers to fish passage and wildlife movement.** Using MADER’s prioritization, identify prioritized road crossings, work with structure owners (e.g., towns) to determine their priority sites for improvement and, if appropriate, partner with the structure owner to pro-actively replace deficient structures with suitable ones or remove unneeded structures (Appendix D). This would include direct funds or working to identify funding sources to undertake the many steps involved with replacements, including the education of the structure owner on the benefits of barrier removal and providing technical assistance on the phases of the work.

Additionally, the connectivity project could be coupled with nonpoint source/stormwater/green infrastructure projects to provide the complementary benefits of improved connectivity and water quality. Consider funding, managing and bundling technical services (engineering, design, and permitting) for multiple high-priority sites to allow for cost savings, direct technical and financial assistance to W&SWR communities, and greater regional benefit. This approach could also improve competitiveness if funding is sought through grant programs that prioritize regional and comprehensive projects, such as the Massachusetts Municipal Vulnerability Preparedness (MVP) Action Grants.

2. Review MADER's Dam Removal Model to understand their prioritization for dam removal. **Work with DER to determine funding sources/priorities for dam removal** with a primary goal of avoiding catastrophic failure. Funding sources may include the Dam and Sewall Fund, MVP, DEP Priority Project designation, and MEMA/FEMA pre-hazard fund, among others.

Education and Outreach Considerations

- The existing W&SWRC Stream Teams program could incorporate a specific education component regarding stream connectivity and train volunteers on the identification of barriers to fish and aquatic organism passage.
- The W&SWRC could expand on educational programming explaining the linkage between climate change and flood resiliency to the proper sizing culverts and stream crossings. This educational programming should be used to educate municipal staff and boards, small businesses, farms, and watershed residents about the increased flooding risks associated with climate change and how these risks can be mitigated.

Funding and Partnership Considerations

Funding sources available for stream crossing improvements include the Culvert Replacement Municipal Assistance Grant Program from MADER and the New England Forests and Rivers Fund - Bring Back the Natives program from the National Fish and Wildlife Foundation (described in Section 5.4). If it is determined that a stream crossing or culvert may be at risk due to climate change, the MVP Program described in Section 5 should be considered. Other programs that fund culvert replacement to consider include the MassDOT Small Bridge Program, MassWorks, MEMA/FEMA, and coordination with regional planning commissions about building priorities into Regional Transportation Improvement Projects. For dams within the watershed, W&SWRC should work with MADER's Dam Removal Program to prioritize dams for removal.

To address barriers to the wildlife corridor in the W&SWR watershed, the W&SWRC could work with the [Berkshire Wildlife Linkages Group](#). This group includes representatives from the Massachusetts chapter of the Nature Conservancy, the Berkshire Environmental Action Team (BEAT), and MassDOT with a goal of maintain connectivity between core forest habitat patches to allow wildlife to safely migrate as climate change shifts temperature zones.

GOAL #3:

A comprehensive and coordinated approach to invasive species management is needed to protect high-quality stream and riparian habitat for the Wild & Scenic Westfield River.



Desired Future Conditions:

- *Healthy native riparian vegetation assemblages along the Wild & Scenic designated sections of the Westfield River.*
- *A network of towns, private property owners, and organizations focused on early detection and rapid response to novel invasive species within the riparian, flood plains, and forests of the Wild & Scenic Westfield River.*

Invasive species are plants and animals that are introduced to new ecosystems that may cause harm to the environment. Many of these species are introduced accidentally but once present, compete with native plants and wildlife for resources, disrupt beneficial relationships, spread disease, kill, or significantly alter ecosystem function. Invasive species found in the Westfield River watershed include insects like the emerald ash borer and hemlock woolly adelgid, and plants including garlic mustard, Japanese knotweed, glossy buckthorn, and oriental bittersweet.

The damage caused by invasive species to native species and habitats can be extensive and expensive to address. Climate change may exacerbate the impacts of invasive species as warmer temperatures and increased precipitation will expand the range of species that may thrive in Massachusetts. Extreme weather events could also allow for the dispersal of invasive species to new regions via transportation of seeds, larvae, and small animals.

The Westfield River Watershed Invasive Species Partnership (WISP) is a local partnership with a primary goal of promoting cooperative efforts to manage invasive species and protect native habitats in the watershed through education, early detection, eradication, and management. WISP's Steering Committee has representation from the Nature Conservancy, Massachusetts Audubon Society, the Trustees of Reservations, Westfield State University, the W&SWRC, and the Massachusetts Department of Conservation and Recreation (DCR).

Monitoring for invasive species and early identification of infestations provides enormous environmental and economic benefits. Some key locations of invasive species identified during the workshop include:

- Knightville Dam Basin
- Bisbee Mills on Dead Branch
- Middle Branch (along River Road)
- East Branch in Windsor

The planning workshops and pre-workshop interviews identified that invasive species management is a high priority for the W&SWR, including the high priority actions listed below.

"Invasive plants are a threat that needs broad and well-funded management."

Pre-workshop survey response

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Pre-workshop survey response

GOAL #6:

Improved public outreach coordination between the W&SWRC and watershed partners is needed to improve citizen engagement in protecting the Wild & Scenic Westfield River and to make best use of limited financial and staff resources.



Desired Future Conditions:

- *A critical mass of engaged regional residents who are activated to volunteer, advocate for, and protect the Wild & Scenic Westfield River.*
- *A strong corps of volunteers working on W&SWRC projects throughout the region.*
- *Youth who are knowledgeable and invested in their Wild & Scenic Westfield River.*

The W&SWRC has multiple programs and projects focused on engaging citizens in the long-term protection, restoration, and conservation of the river and its resources including:

- **Stream Team Surveys:** Since the 1990s, annual Stream Team surveys have been conducted to document river corridor conditions. These surveys identify follow-up actions which help shape the annual priorities of the W&SWRC, including actions such as river and trail workdays and cleanups, planting of native species to stabilize banks, and macroinvertebrate sampling.
- **School Programs:** The W&SWRC sponsors river educational programs for kindergarten through grade 12, working to engage children and families in the protection of the river and its resources. These programs include exhibits at community events, the Becket Washing Elementary School's Stream Explorer Program, the U.S. Fish and Wildlife's Conte Refuge's Watershed on Wheels program, a summer Teen River Clean project, and an on-going partnership with the Westfield River Environmental Center at Westfield State University.
- **General Education and Outreach:** The W&SWRC has developed multiple education and outreach programs to engage watershed citizens through a combination of mailings, outreach materials, workshops, hikes and public programs, and Stream Team trainings. The goal of these efforts is to increase public understanding and engagement in the long-term protection, restoration, and conservation of the river and its resources.
- **Website:** The W&SWRC hosts a website to publicize events and provide information and educational resources about the W&SWR. Much of the information on this website is out of date, with references to programs that are no longer active or provides links that no longer work.

Other watershed partners conduct public outreach in the Westfield River including WISP, Mass Audubon, TTOR, DCR, the Friends of the Keystone Arches, The Nature Conservancy, and many others. Multiple actions identified during the workshops and pre-workshop interview suggested that coordinating with these watershed partners is a priority for the long-term success of education and outreach programs in the watershed.

"Increased partnerships with cultural stewardship agencies, historical commissions and societies, and municipal staff are necessary."

Pre-workshop survey response

W&SWRC Top Priority Actions for Improved Public Outreach Coordination

1. **Continue to invest in and expand educational programs.** The W&SWRC is currently comprised of volunteer representatives and alternates appointed by local elected officials. The only paid employee is a part-time Outreach Coordinator. The Outreach Coordinator has developed multiple successful outreach and educational programs (as described above). Future funding of this position would allow for these programs to continue and expand to reach new audiences. During the workshops, it was noted that additional outreach is needed to help guide municipal boards and homeowners on key regulatory and land use management issues such as land development bylaws and septic system management.
2. **Connect with, engage, and empower low-income residents, indigenous residents, residents of color, and immigrant residents to become active members of the W&SWR community.** Create a relationship of reciprocity and learning between the W&SWRC and local Native American/Indigenous tribes and community organizations.

Funding and Partnership Considerations

Current funding for the part-time Outreach Coordinator position is provided as part of the annual funds coordinated by the National Parks Service from Congress under the Wild & Scenic Designation Program. Technical assistance for the W&SWRC is provided by staff at the MA DER. Additional funding sources that may be available to assist with public education and outreach priorities include the USEPA's Environmental Education Grants Program and the National Environmental Education Foundation Grants Program. Other relevant grant programs include the CSX Community Investment Programs (Section 5).

Other watershed partners conduct ongoing public outreach in the Westfield River watershed. Coordination with these groups (e.g., WISP, Mass Audubon) would expand the scope of outreach activities offered by the W&SWRC.

GOAL #7:

Improved administration of the W&SWRC is needed to increase the efficiency and scope of programs to protect the Wild & Scenic Westfield River, and to make best use of limited financial and staff resources.



Desired Future Conditions:

- *A volunteer-driven W&SWRC that operates efficiently and effectively to administer the river and protect the outstanding values for which the river was designated.*

The W&SWRC is comprised of representatives committed to protecting the Westfield River. The only paid staff is a part-time Outreach Coordinator. In addition to the educational programs organized and run by the Outreach Coordinator, there are multiple administrative tasks required to manage a Wild & Scenic River. Multiple partner organizations work in the watershed, including the Westfield River Watershed Association, the Westfield River Watershed Invasive Species Partnership, the Trustees of Reservations, the Pioneer Valley Planning Commission, the Berkshire Regional Planning Commission, the National Park Service, the Massachusetts Department of Ecological Restoration, and others. Although many of the goals and work of these organizations overlap, there is currently no coordination between these organizations with regard to public outreach.

W&SWRC Top Priority Actions for Improved Administration

1. **Hire a paid, knowledgeable manager/administrator for the W&SWRC.** Hiring a paid manager/administrator would allow the W&SWRC to:
 - a. Conduct more outreach programs;
 - b. Coordinate efforts with watershed partners to improve the overall reach and scope of outreach promoting the goals of the W&SWRC;
 - c. Coordinate public messages for consistency across property managers, organizations, and agencies;
 - d. Manage summer interns for new programs such as a seasonal invasive plant management team; and
 - e. Provide a dedicated staff member to communicate with property owners, develop funding strategies, manage budgets, facilitate monthly committee and subcommittee meetings, and apply for other funding sources.
2. **The W&SWRC should consider becoming a 501C3 non-profit organization** or partnering closely with a river focused non-profit to support the effective administrative functions of managing a W&SWR and the associated budget. This status or partnership could allow for staff to be hired to assist the W&SWRC in fulfilling duties and roles that go beyond what an all-volunteer committee can reasonably maintain.

"Having a paid knowledgeable manager/administrator is vital...This work needs coordination and someone dedicated and compensated for their knowledge and skill."



Pre-workshop survey response

Education and Outreach Considerations

The W&SWRC currently conducts multiple outreach activities led by a part-time outreach coordinator. These programs range from a school education program to on-the-ground trainings for volunteers, including the development of educational materials. During the workshops, it was noted that additional outreach is needed to help guide municipal boards and homeowners on key regulatory and land use management issues such as land development bylaws, stormwater management, salt use, and septic system management.

Funding and Partnership Considerations

As noted, current funding for the part-time Outreach Coordinator position is provided as part of the annual funds coordinated by the National Parks Service from Congress under the Wild & Scenic Designation. Program and technical assistance for the W&SWRC is provided by staff at the MA DER. Additional funding and resources are required to hire a full-time manager/administrator to support the W&SWRC. Potential partners in this effort include the NPS Rivers, Trails, and Conservation Assistance (RTCA) Program (see Section 5: Funding for more details), to develop a comprehensive program and refine strategic goals of the W&SWRC. The RTCA Program does not provide monetary grants but provides professional assistance to organizations like the W&SWRC to identify other funding sources that may be available for additional paid staff.

Table 4-1: Wild & Scenic Westfield River Stewardship Matrix						
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Issue	Location(s)	Vulnerability or Strength	Proposed Actions	Responsible Parties	Priority	Timeframe (Short, Long, Ongoing)
Water Quality						
Excellent water quality supports cold water fishery.	Headwater streams	S	W&SWRSC should work with the MassWildlife Coldwater Fisheries Program (CWFP) to prioritize tributaries for further assesment and protection of cold water fish habitat.	MassWildlife CWFP (lead); W&SWRSC	H	S
Temperature impairments on the main stem reaches.	East Branch and Middle Branch	V	W&SWRSC should request technical clarification/guidance from MassDEP regarding existing temperature impairments to assess how impairment is determined for mainstem reaches and how "naturally occurring" conditions are factored into this determination. This is to ensure that future actions to mitigate temperature impairments is focused on areas where problems are fixable and not due to naturally occurring conditions in wide reaches.	MassDEP (lead); W&SWRSC	M	S
			Work with a contractor/intern to review existing water quality data to determine "hotspot" tributaries and point sources that may contribute to warmer temperatures as well as determine specific reaches where warmer temperatures may be naturally occurring as wider sections of the river are warmed by the sun. This assessment could also include identifying where beaver impoundments are contributing to "naturally occurring" warmer temperatures in impounded stream reaches.	contractor or intern on behalf of W&SWRSC	M	L
Stream bank erosion occurs at multiple locations.	Multiple locations, with initial focus on one stream segment in each W&S branch for pilot projects: <ul style="list-style-type: none">• Depot Brook (West Branch)• East Branch segment through Windsor• Kinne Brook (Middle Branch; continue ongoing work)	V/S	Multiple years of data sheets from the annual Stream Walks have not been reviewed, developed into a GIS layer, or converted to electronic (e.g. MS Excel) format. Work with contractor/intern to review and make data accessible in GIS and spreadsheet formats (e.g. ArcGIS Survey123 or similar).	contractor or intern on behalf of W&SWRSC	M	O
			Work with contractor/intern to conduct a GIS exercise to determine areas of unhealthy riparian areas that may contribute to stream bank erosion.		M	S
			Once existing data has been reviewed, prioritize areas for nature-based solutions in the river corridor; Use prioritized areas/actions as basis for future MVP Action Grants or other grant funding sources.		M	L
Septic systems along the river corridor have potential to contribute nutrients and bacteria to the Westfield River.	Watershed properties within 300 feet of the Westfield River and its tributaries	V	Review existing nutrient and bacteria data to determine areas where septic systems are a potential pollutant source to the W&SWR reaches. If septic system problem areas are identified, work with a contractor/local BOH/MassDEP to determine the best course of action. Actions may include identifying specific failing systems through (1) a septic system environmental risk analysis, or (2) follow-up field investigations to confirm suspected failures; conducting a review of local septic system regulations for opportunities to strengthen including the development of pump-out ordinance; and/or develop a septic system-focused homeowner outreach program.	contractor on behalf of W&SWRSC; local Boards of Health	L	L
Stream Channel Connectivity						
Physical barriers to fish passage (dams, culverts, etc.) prevent native species from traveling upstream to headwater streams and cause increased water temperatures at dam impoundments.	Multiple locations	V	Prioritize road crossing improvements based on highest potential ecological benefit. Improvement may include removal, rehabilitation, or addition of fish/wildlife passage features where non-existent. Once prioritized, work with structure owners (e.g., towns) to determine their priority sites for improvement. Determine funding source for improvement (MVP, USFWS National Fish Passage Program, etc.). Consider bundling technical services (engineering, design, permitting) for multiple high-priority sites to allow for cost savings and greater regional benefit - this could also improve competitiveness if funding is sought through MVP Action Grant (as regional grant).	MADER; W&SWRSC; Towns	H	S
	Multiple locations, including: <ul style="list-style-type: none">• Windsor State Forest Dam• Woronocco Village dam (downstream of W&S, but affects fish movement to upstream reaches)	V	Review DER's Dam Removal Model to understand their prioritization for dam removal Work with DER to determine funding sources/priorities for dam removal.	W&SWRSC, MADER; CT River Conservancy; W&S Farmington River	M	L
Land Protection						
Land protection (through acquisition, conservation easements, other real estate tools) is needed to protect particularly important and vulnerable riparian areas along the river. Multiple intact riparian areas protect water quality. Some parcels that have the potential to be developed may impact fish passage and connectivity of wildlife habitat corridors. Many of these lands are privately owned.	Watershed-wide	V	Multiple maps identifying priority areas for conservation have been developed by various organizations with varying goals. Work with a contractor/intern to identify all existing prioritized conservation maps and develop a list of priority areas that are specific to the W&SWR. This will require periodic updates. This effort should involve a "summit" of conservation stakeholders in the watershed (including Towns, land trusts, etc.) to help achieve consensus on priorities. These efforts include identification and consideration of significant cultural/historical resources within potential conservation parcels.	W&SWRSC, Towns, land trusts (will require grant funding or additional paid staff)	M	L
			Continue to pursue land acquisition for 16-acre parcel in Chesterfield (River Rd., near Chesterfield Gorge) which is planned for sale by auction by Town of Chesterfield.	Town of Chesterfield, W&SWRSC	--	S
			Identify opportunities for municipal or regional funding for conservation/land planning efforts through: <ul style="list-style-type: none">• EOEEA planning assistance grants. These grants are available to municipalities (and RPAs acting on their behalf) to support efforts to plan, regulate (zone), and act to conserve and develop land consistent with the Massachusetts' Sustainable Development Principles.• ACOE Planning Assistance to States program, which funds plans for the development, utilization, and conservation of water and related land resources.• MA Land and Water Conservation Fund Grant Program (includes acquisition of conservation land for municipalities with an up-to-date Open Space and Recreation Plan)• National Fish and Wildlife Foundation (NFWF) grants	W&SWRSC; EOEEA; ACOE; NFWF; Towns	M	S
Land Use						
Agricultural activities along river corridor may be negatively impacting water quality.	Multiple locations; Moose Meadow Brook	V	Review land use maps (contractor/intern) to identify location of agricultural land use; Review water quality data in downstream reaches to determine potential impacts and opportunities for improvements. As needed, coordinate with USDA-NRCS and MADAR on next steps for funding and implementing agricultural BMPs.	contractor on behalf of W&SWRSC; USDA-NRCS	L	L
Forestry activities may impact water quality.	Multiple locations	V	Determine if forestry practices are negatively impacting water quality, aquatic resources, and habitat in the Westfield River. Work with a contractor/intern to review land use maps, riparian area maps, and specific locations of intense forestry activity. Work with DCR to include the W&S corridor on DCR Forestry Stewardship Plan. For areas with opportunities for improvements, coordinate with US Forestry Service and MADCR-Forest Stewardship Program on next steps for funding/ implementing forestry BMPs.	contractor on behalf of W&SWRSC; USFS; MADCR	L	L
Native Plant Communities / Invasive Species						
Increase in non-native, invasive plants throughout the watershed, including in the river corridor and riparian areas.	Multiple locations, including: <ul style="list-style-type: none">• Fields at Knightville Dam Basin (black swallow wort, honeysuckle, buckthorn, Japanese knotweed, coffee vine);• Bisbee Mills on Dead Branch (Conte refuge);• Middle Branch (road to headwaters)• East Branch, Windsor (knotweed)	V	Identify funding options to develop an invasive species program in the watershed (e.g., similar to program in W&S Farmington River). Funds could be for an intern/staff to map invasives and identify target problem areas, including collection/organization of existing data from WISP other sources such as the NIACS Forest Adaptation Management Resources (https://forestadaptation.org/adapt/forest-adaptation-resources). Use this information to develop a comprehensive invasive species plan to be implemented over 5-10 years, focusing efforts on priority areas identified in the mapping exercise.	W&SWRSC (with additional funded staff); WISP	H	S
			Train Stream Teams in invasive species identification and use these volunteers as an early warning system for new infestations. Focus this effort of pristine areas and small tributaries/upper watershed areas.	Stream Teams; W&SWRSC;	M	L

Recreation						
Recreational over-use is causing environmental degradation in some popular W&S areas. This is occurring in both official and unofficial recreational areas, including state parks, road pull-offs, ATV trails, and river access trails. Problems include erosion, trampled vegetation, trash, etc. Many of these areas lack adequate parking, bathroom facilities, and trash receptacles. Recreation access/management is not well coordinated as federal, state and private agencies manage properties with separate priorities. Increased recreation at swimming areas can disrupt shoreline and in-stream habitat.	Multiple locations, including: <ul style="list-style-type: none">● Keystone Arch Bridges Trail● East Branch (River Road)● Sanderson Brook (Route 20)● Bear Pools (Dead Branch)● Glendale Falls● Gardner State Park● Littlefield Dam swimming hole● Pork Barrel	V	With grant funding, develop a watershed-wide visitor use management plan in cooperation with watershed partners. This plan could be developed using an approach similar to the visitor use/visitation study currently being developed for the W&S Farmington River. The plan should include an assessment of bathroom facilities, parking, and high use areas that may need additional staffing, etc.	W&SWRSC (lead), with participation from MADCR, land trusts, Towns, etc.	H	S
Cultural/Historical Resources						
A significant amount of cultural/historical sites and structures (buildings, mills etc.) are located throughout the Westfield River watershed. Improved collaboration/cooperation is needed between cultural/historic resource agencies, municipalities, indigenous groups, and other agencies to manage significant resources.	Watershed-wide	V	Work with a contractor/intern to develop a comprehensive list and map of cultural and historical resources in the W&S Westfield River corridor, similar to the conservation lands map described above. Tasks may include: conducting a literature review of existing data from local historical commissions and ensuring that all data is in a consistent and accessible format; analyzing State GIS historical data; reaching out to tribal groups and State archaeologists familiar with Native American sites to ensure that these sites are documented and protected etc.	W&SWRSC (lead), with participation from Tribal Historic Preservation Officers; town/state historical commissions, MADCR Office of Cultural Resources	L	L
Private ownership of cultural/historic resources limits public access and restoration/preservation.	Multiple locations, including: <ul style="list-style-type: none">● Keystone Arch Bridges (Gator Tail)● Historic buildings on Middle Branch● Mills/dam/house complexes on East Branch● Historic buildings in Becket	V	Work with property owners to determine status of cultural/historic resources at risk and restoration needs of site.	W&SWRSC	M	L
			At specific sites such as the Keystone Arch Bridges where the owner (CSX) has shown little engagement, research liability of owner for safety concerns (Gator Tail is at highest risk). Consider options for legal action.	W&SWRSC	L	L
Public Education and Engagement						
Lack of public outreach coordination between watershed partners including W&SWRSC, WISP, Mass Audubon, TTOR, DCR, and others.	Watershed-wide	V	Identify funding sources to hire a paid, knowledgeable manager/facilitator/administrator for the W&SWRC to coordinate public outreach efforts. Specify the role and duties of the position and determine salary, benefits, oversight, office needs, etc.	W&SWRSC (with funding for additional staff or intern/contractor)	H	S
Additional outreach is needed to help guide municipal boards and homeowners on key regulatory and land use management issues (e.g., land development bylaws, septic system management) that are important to long-term stewardship of the W&SWR	Watershed-wide	V	Work with contractor/intern to review local bylaws and regulations to identify areas to strengthen or develop local bylaws such as subdivision and site plan regulations, land conservation, septic system pumpout ordinances, etc., and provide examples of model bylaws to towns.		M	L
			Work with planning boards/conservation commissions to conduct outreach to new homeowners as development expands to the Hill Towns, including use of septic systems, wells, lawn care, plant choices etc. Develop educational materials for homeowners on these topics.		M	O
Expand existing watershed-wide education program.	Watershed-wide	V	Review existing education/outreach programs. Determine successful programs and messaging platforms and identify areas to expand educational outreach. Determine if other platforms such as social media should be used, and for which types of outreach.		M	S

W&SWRC Top Priority Actions for Invasive Species Management

1. The **W&SWRC will recruit, equip, and train invasive species early detection teams** in W&SWR watershed towns along the designated section of the river. Training efforts will focus on town DPW staff, foresters, contractors, and landscape suppliers to reduce and/or eliminate the unintentional spread of invasive plants and insects. The W&SWRC will also fund seasonal interns to assist this effort.
2. Under the guidance of WISP and other local invasive species experts, **annually identify high priority habitats** within the riparian and flood plain to remove invasive plants.
3. **Actively fund planting of native species** in disturbed areas on town property, state land, land trusts, and private property.

Education and Outreach Considerations

Through coordination with other organizations such as WISP, the W&SWRC could develop additional education and outreach materials and programs to focus on invasive species.

- The existing W&SWRC Stream Teams could be trained to identify invasive species along the river corridor.
- Future outreach efforts should consider coordination with foresters and loggers with regard to training on identification of new invasive species and forest insect pests.



Japanese knotweed, an invasive plant species found in the Westfield River watershed (CEI photo)

Funding and Partnership Considerations

Multiple organizations are working to address invasive species in the Westfield River watershed. Coordination with these organizations is a first step towards developing a comprehensive approach to invasive management. Consider coordinating with organizations such as WISP to develop a training program for Stream Teams and/or to create a map that highlights ORVs, trail heads, roadways and known invasive species infestations related to these areas of higher disturbance. This map would be a useful tool to share with other partners.

Training the W&SWRC's Stream Teams to identify invasive species could be funded through an environmental education grant program (see Section 5: Environmental Education Programs) such as USEPA's [Environmental Education Grants Program](#) and the [National Environmental Education Foundation Grants Program](#). Other relevant grant programs with an education focus include the [CSX Community Investment Grants](#) as described in Section 5. Other grant programs may also be used to fund invasive species management efforts if it can be demonstrated that invasive species are impacting habitat or recreational trails (e.g., MassTrails Grants). As invasive species are expected to increase with climate change, the MVP Grant Program could be used to address invasive species (Section 5: Climate Resiliency Program). Other programs available to address invasive species include the [USDA NRCS](#) and the [MassWildlife Habitat Management Grant Program](#).



*Invasive species have begun to spread through the Knightville Dam Basin in Huntington, MA
(photo credit: U.S. Army Corps of Engineers)*

GOAL #4:

A comprehensive visitor use management plan is needed to protect recreational areas in the Wild & Scenic Westfield River from impacts associated with over-use.



Desired Future Conditions:

- *A lively, healthy partnership of property owners and resource managers who collectively provide equitable access to outdoor recreation along the W&SWR while protecting the river's outstanding and remarkable natural and cultural assets.*

As described in Section 3, the W&SWR is widely used for recreational activities such as fishing, swimming, hiking, camping, kayaking, and canoeing. Multiple unique geologic, scenic, historic, and cultural sites also attract visitors. The need to manage recreational uses in the W&SWR and throughout the watershed was identified as a top priority issue during the planning workshops and pre-workshop interviews. Problems identified include:

- Visitation exceeding carrying capacity in some popular areas
- Erosion and trampled vegetation
- Trash and lack of trash receptacles
- Lack of adequate parking
- Lack of bathroom facilities

These issues occur in official and unofficial recreational areas, including state parks, road pull-offs, ATV trails, and river access trails. The workshops identified that recreation access and management is not well-coordinated as federal, state, and private agencies manage properties with separate priorities. Watershed partners that manage recreational lands include the Trustees of Reservations, the Becket Land Trust, the Hilltown Land Trust, The Nature Conservancy, the Chester Railway Station, Jacob's Ladder Scenic Byway, MADCR Office of Cultural Resources, Town/State historical commissions, Friends of the Keystone Arches, and others. Developing a watershed-wide visitor use management plan would allow for coordination among multiple watershed partners and promote a long-term, sustainable approach to recreational access in the W&SWR.

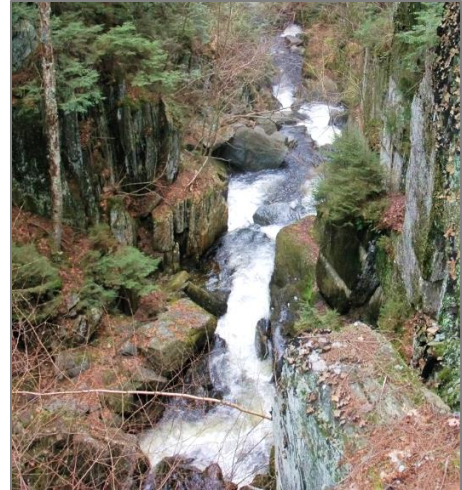
"Recreation access is hampered by myriad State and private agencies managing properties with individual mandates rather than a comprehensive planning strategy."

Pre-workshop survey response

W&SWRC Top Priority Actions for Recreational Use Management

1. Develop a **list of key recreational resources, property owners, and contact information** for each resource. This is a first step to promoting improved coordination among the multiple watershed partners who could contribute to the plan.
2. Identify **grant funding opportunities** to develop a watershed-wide visitor use management plan.

3. **Develop a watershed-wide visitor use management plan.** The plan should include an assessment of bathroom facilities, parking, and high use areas that may need additional staffing. The plan should focus on low- or no-cost mitigation to reduce visitor use impacts on resources and landscapes. A similar plan is currently being developed for the Wild and Scenic Farmington River which could serve as a guide for plan development. The National Park Service Visitor Use Management Plan Best Management Practices guidance is currently being developed (coming Fall 2021) and could serve as an excellent resource for plan development.
4. The W&SWRC will **partner with other NGOs** to lobby for greater state funding to DCR and other state agencies and additional Environmental Police for the region.



Windsor Jambs in Windsor, MA
(photo credit: Hilltown Land Trust,
www.hilltown-land-trust.org)

Education and Outreach Considerations

To address overuse of recreational areas, the W&SWRC could develop additional outreach materials such as signs or brochures providing information on Best Management Practices (e.g., staying on trails to limit erosion, picking up litter, etc.).

Funding and Partnership Considerations

Developing a watershed-wide visitor use management plan would require coordination among the multiple entities that manage recreational areas within the W&SWR and elsewhere in the watershed. MADCR's Land and Water Conservation Fund (LWCF) (Section 5: Conservation Programs) funds planning grants for analytic studies on recreation potentials and needs and may be used for this type of plan.