

FINAL



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# Executive Summary

## St. Lawrence River Watershed Revitalization Plan



EcoLogic



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## ABBREVIATIONS

LWRP	Local Waterfront Revitalization Program
NYSDOS	New York State Department of State
PWL	Priority Waterbodies List
SLRWP	St Lawrence River Watershed Project
SPDES	State Pollution Discharge Elimination System
SWCD	Soil and Water Conservation District
WAC	Watershed Advisory Committee
WRP	Watershed Revitalization Plan

# 1 Purpose of the Plan

The St. Lawrence River Watershed Revitalization Plan was developed using the NYS Department of State's Local Waterfront Revitalization Program (LWRP) framework. This framework guides communities through a four-step process to (1) document current conditions and trends, (2) engage the community to articulate their vision and goals for the future, (3) identify challenges and opportunities in resource management and community development, and (4) define specific recommended actions to achieve the desired future.

The LWRP approach applies ecosystem-based management principles to implement smart and sustainable growth in communities, maintain agriculture and working landscapes, and prepare for impacts of changing climate. A Watershed Revitalization Plan (WRP) provides a roadmap for communities to make progress toward a desired future through **projects** (e.g., infrastructure improvements, lake restoration initiatives), **practices** (e.g., improved management of land and water resources) and **partnerships** (e.g., citizen science, community outreach, and ongoing collaborations). Because most land use decisions are made at the local level, the WRP also provides a basis for municipalities to consider appropriate changes to laws addressing the interaction of development and resource management. WRP also provides a basis for municipalities to consider appropriate changes.



Aerial view of Potsdam, NY.  
Source: UVM Blogs

## 1.1 Planning Process and Partners

The St. Lawrence River Watershed Project (SLRWP) was created through a partnership among the Soil & Water Conservation Districts of Franklin, St. Lawrence, Jefferson, Lewis, Herkimer, Hamilton, western Essex, and Clinton Counties to focus on protection and restoration of the north county region. Soil & Water Conservation District leaders have been joined by representatives of other organizations within the St. Lawrence Watershed to complete the Watershed Revitalization Plan. With completion of the Plan, the 5,600 square mile region of NY's north county joins other large drainage basins including the Mohawk, Upper Susquehanna, and Hudson River Basins, in having an organized coalition to guide resource management for the benefit of their communities.

The planning team was supported by members of the St. Lawrence River Watershed Advisory Committee (WAC) as they compiled data, surveyed residents about their vision of a desirable future, gathered ideas for projects, and developed a process to set priorities. Members of the WAC included representatives of state, county, tribal, and municipal government agencies, educational institutions, and non-governmental and community-based organizations serving the St. Lawrence River watershed area. The WAC met regularly to review work products and provide input and guidance on effective outreach efforts across the large study area.

Public participation efforts were guided by a *Community Outreach Plan* which identified key individuals, organizations, and entities with interests in the future of the St. Lawrence River watershed and its waterfront assets. Outreach efforts included public workshops, and meetings designed to elicit insights regarding community goals, seek stakeholder input about concerns and priorities, and engage residents in discussion of recommended actions and priorities. Other outreach methods included project fact sheets, online/paper surveys, and a project web site. Responses from the public survey can be found in **Appendix A: Survey and Responses**.

## 1.2 Vision & Goals

As a result of stakeholder input, the St. Lawrence River Watershed Revitalization Plan is guided by a vision for the future in which:

***The St. Lawrence River watershed is a sustainable source of clean water, recreation, renewable energy, transportation, and timber and food production.***

Based on community input, the planning team and WAC embraced the following goals to complement the vision:

- Protect and enhance habitats of native plants and animals
- Adapt to a changing climate
- Ensure that communities retain their essential character while providing economic opportunity
- Resolve issues of legacy contamination and atmospheric deposition



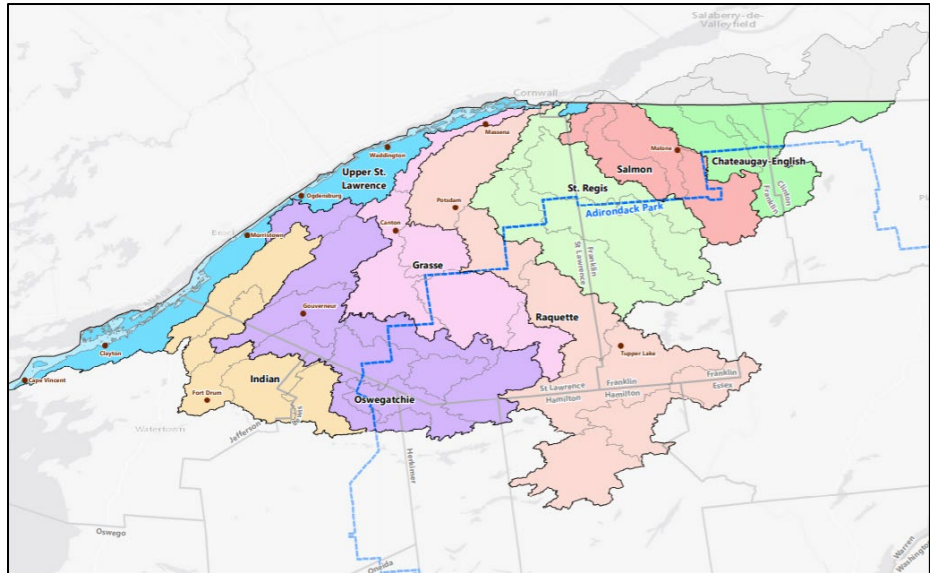
Aerial view of Clayton Harbor.  
Photo source: marinas.com



- Increase awareness of how human actions affect the ecosystem
- Prepare for emerging issues and threats

## 2 Nature of the St. Lawrence River Watershed

A watershed includes the land area that channels rainfall and snowmelt through creeks, streams, and rivers to a defined outflow point. The St. Lawrence River watershed is one of the largest drainage basins within New York State and serves as the gateway between the North Atlantic and the Great Lakes. The WRP study area encompasses



The St. Lawrence River watershed in upstate NY. The eight HUC8 watersheds are highlighted in different colors.

5,600 square miles within northern New York which includes 12,030 miles of freshwater rivers and streams. As the first step in the planning process, the project team compiled a **St. Lawrence River Watershed Characterization Report** to describe current conditions of both the natural and built environment. Key findings related to the Plan development are summarized in this section.

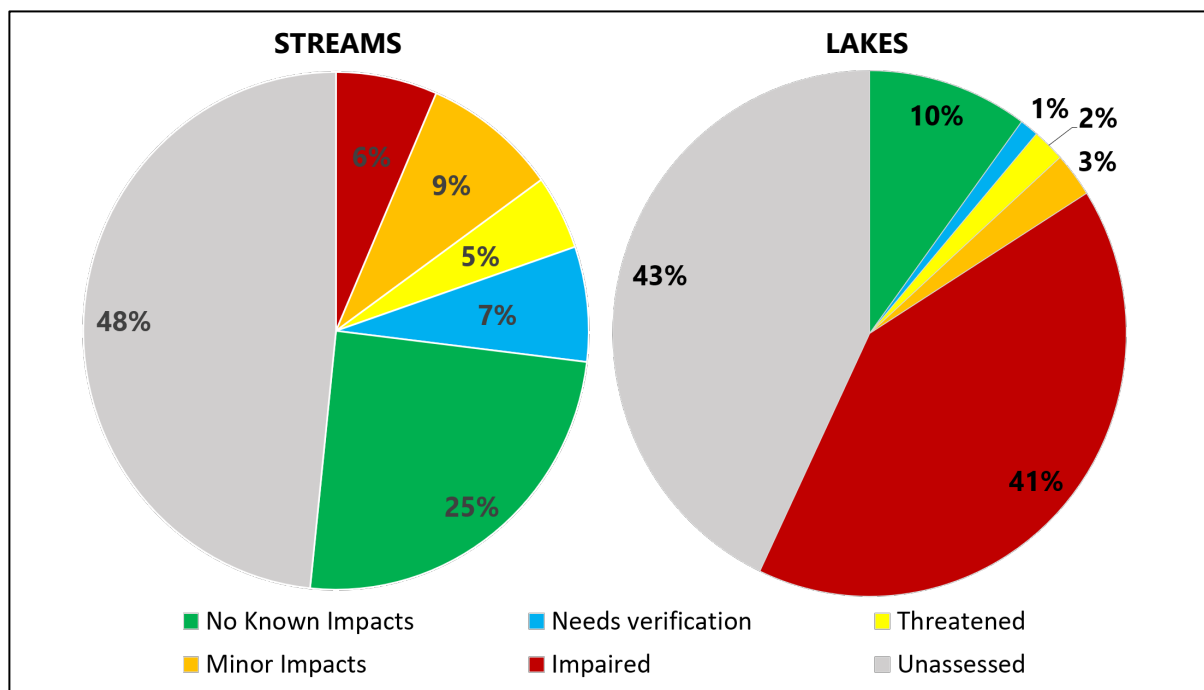
### 2.1 Environmental Setting

Land cover in the watershed is generally comprised of densely forested woodlands with large peatland complexes in the south along the slopes of the Adirondack Mountains; and more flat, agricultural plains along the St. Lawrence within the northern portion of the watershed. Much of the southern and eastern portion of the watershed (about 44%) falls within the boundaries of the state's Adirondack Park.

The southern portion of the watershed is predominantly classified as Wild, Conservation, Forest, & Parks. Agriculture is a leading industry and land use in the northernmost region along the St. Lawrence River floodplain; the fertile soils and gentle topography are well-suited for farming. The watershed is one of the most sparsely populated watersheds within New York State with residential, commercial, and industrial development present around Massena, Malone, Ogdensburg, Canton, Gouverneur, Clayton, and Alexandria Bay.

## 2.2 Environmental Stresses

While most people associate the Adirondacks and northern New York as relatively undeveloped and pristine, the St. Lawrence River watershed still faces problems with water quality. The New York State Priority Waterbodies List (PWL) has assessed approximately half of the stream miles and lake acres within the watershed, with the other half unassessed. This is partly due to the great density of water resources in the region as well as the lack of sufficient data to properly provide an assessment.



PWL status of St. Lawrence River watershed waterbodies.  
Source: NYSDEC WI/PWL 2016

Water quality and habitat within the St. Lawrence River watershed are primarily challenged by nonpoint sources of pollution (mercury and acid deposition, nutrients, sediment, road salt) and issues such as water level and floodplain management, adaptation to climate change, invasive species, and an emerging need to meet human demands for energy and recreation. Nonpoint source pollution is typically sourced from runoff which collects pollutants from the landscape as it flows downslope into lakes, rivers, wetlands, and groundwaters. The most frequently cited sources of stream impairment include agriculture, improper waste disposal and contaminated sediment, on-site septic systems, and stormwater. Lakes are primarily impaired by atmospheric deposition, contaminated sediment, on-site septic systems, and nearby agricultural activities. Road salt pollution is a growing concern in the watershed with evidence showing

Pollutant transport can be minimized by these sources through implementation of best management practices, which aims to increase infiltration, slow runoff, and capture pollutants such as sediment,



nutrients, and pathogens as they traverse the landscape. Stormwater runoff and snowmelt also carry deicing salts applied on roadways to nearby streams and potable groundwater sources, which poses a risk to human health and threatens habitats. Storage of deicing compounds is currently unregulated, and many municipalities in the north country have inadequate storage facilities; this allows deicing compounds to be exposed to the elements and transported off site.

Point sources are regulated under the State Pollution Discharge Elimination System (SPDES). Permitted discharges within the St. Lawrence River watershed include municipal and industrial wastewater treatment plants (95), combined sewer overflows (33), municipal and industrial storm sewer outfalls (10), and concentrated animal feeding operations (72). In addition to these current permitted discharges, certain areas of the watershed have been affected by legacy industrial operations that resulted in contamination of sediments and waterways.

Many shoreline communities have faced periodic flooding during spring and early summer where snowmelt and heavy rainfall events can quickly overwhelm hydrologic systems. In response to the extended pattern of flooding along the shores of Lake Ontario and the St. Lawrence River, Governor Andrew M. Cuomo created the Resiliency & Economic Development Initiative (REDI) to increase resilience of shoreline communities and bolster economic development

Invasive species challenge this area of the north country, due to the St. Lawrence Seaway as well as its high recreational value. Invasive species presence can quickly alter community dynamics, decrease biodiversity, and threaten native wildlife. Many regionally significant lakes are vulnerable to excessive growth of aquatic invasive species such as Eurasian watermilfoil, variable leaf milfoil, and curly-leaf pondweed. Proliferation of these nuisance invasive species affect fishing, swimming, and recreational access.

Water levels in the St. Lawrence River are primarily affected by Lake Ontario outflow through the Moses-Saunders and Long Sault Dams. Managing this water system and balancing the risks to human uses along with the natural and built environment is complex. Flooding affect local economies due to expensive remediation and infrastructure repairs, decreased tourism, and damage to residential and business properties. Rapid runoff resulting from increased precipitation is expected to affect sediment and contaminant transport, impairing waterways, and eroding shorelines. Alterations in flow patterns and consequential sedimentation of low-flow areas can decrease fish spawning and egg viability, biodiversity, and habitat.

*Adapting to Climate Change.* The 4th National Climate Assessment for the Northeast and Great Lakes Regions predicts a 20% increase in precipitation delivered in heavy rainfall events, an increase in drought events, reduced ice cover on the Great Lakes, and increased invasive species threats and vulnerability. Winters are seeing a shift in the proportion of precipitation falling as rain or snow, with fewer days without temperatures below freezing resulting in decreased snow depth, fewer days

without snow on the ground, and multiple snowmelt events each year. Warmer weather and more variable precipitation complicate efforts to manage both the natural and built environments. Heavy rains create hazardous runoff conditions and increase vulnerability to flooding. Higher temperatures, changing precipitation and wind patterns, and increased nutrient-rich runoff exacerbate the risk of eutrophication. Changing precipitation patterns and a warming climate also threaten fish populations by decreasing the levels of dissolved oxygen, increasing water temperature and turbidity, and altering water flow.

## 2.3 Regulatory Environment

Land use and resource management are governed by multiple levels of policies, procedures, and regulations. The regulatory environment varies widely across this large watershed due to significant variation in local approaches to resource protection. Population centers tend to have greater resources available including planning staff, education and outreach capacity, and enforcement tools. Remote areas may have limited resources to manage water quality challenges. However, the areas within the boundaries of the Adirondack Park are under the regulatory guidance of the Adirondack Park Agency. The APA is responsible for maintaining protection of the forest preserve and regulating development on privately-owned lands. This encompasses shoreline restrictions, tree removal, and protection of river systems and riparian corridors. As part of the Watershed Characterization Report, the planning team surveyed local and programs affecting water quality, see **Appendix B: Local Laws and Programs Affecting Water Quality**).

# 3 Recommendations

Recommendations have been developed to address a diversity of watershed issues and needs. The **Recommendations & Implementation Strategy** chapter has a detailed description of both general recommendations as well as a matrix of strategies and projects for watershed protection and restoration. The e matrix includes priority projects, actions, target/priority subwatersheds, related strategy/goal, approximate cost, and a timeframe for implementation.

## 3.1 Defining Priorities

To identify existing and potential water quality issues within the St. Lawrence River watershed, a methodology for scoring subwatersheds was developed to assist in identifying priority areas. The prioritization model includes fourteen indicators that have a direct influence on natural resources. The indicators were grouped into four indices: documented impairments, environmental setting, human impacts, and local capacity for restoration/protection. Each index was assigned a score that incorporated various quantitative indicators (metrics) of watershed health, and each indicator was weighted for overall significance. A cumulative score encompassing all indicators and their weighted significance, can be used to help define priority areas (subwatersheds with the lowest overall scores), while preserving important information regarding the underlying causes for concern. This

assessment was done at the HUC10 level. The indicators, weighting factors, and data sources can be found in the **Subwatershed Assessment** chapter.

### 3.2 Implementation Strategy for Watershed Revitalization

Recommended actions focus on measures to enhance water quality and the natural environment, while protecting quality of life for residents and aligning with the community's vision for a sustainable future. Recommendations to advance the watershed community's vision for the future were grouped into three broad strategies: (1) *restoration and protection actions* to minimize adverse impacts of human activities on lands and waters, protect and restore natural hydrology, reduce erosion and sedimentation, minimize pollution, and protect and restore habitats; (2) *collaborations, partnerships and outreach* to maximize effectiveness of actions and build local support; and (3) *municipal and programmatic actions* which outlines opportunities for local officials to strengthen communities and environmental protections. promote sustainability and reduce risk of flood damage through appropriate local land use policies.

At present, recommended projects focus on *restoration and protection strategies* to revitalize the watershed and are more subwatershed specific. Although all of these recommendations are intended to be implemented to improve conditions throughout the watershed, the reality is that implementation involves significant resources in terms of time, funding, staff, and support in order to be implemented. Therefore, subwatershed specific tables highlighting the most significant issues in the watershed are provided to suggest focus areas for each HUC10 to prioritize implementation of the general recommendations. General recommendations are grouped into eight broad categories to reflect the unique conditions influencing factors such as water quality, hydrology, flooding, and diverse uses of each watershed. Strategies for each category are listed below. Each of these strategies are addressed through a set of detailed recommendations for actions and practices that address current conditions and support goals of the watershed.

#### **Agricultural Practices and Management**

- Implement erosion control practices that reduce nutrient and sediment transport by increasing the soil's infiltration capacity, decreasing the volume of surface runoff, and slowing surface runoff
- Incorporate adequate manure storage and pasture management
- Increase voluntary engagement with the Agricultural Environmental Management program through local Soil and Water Conservation Districts
- Build rapport with community on farming practices, needs, and issues affecting the watershed

**Floodplain and  
Stormwater  
Management**

- Implement stormwater management techniques that slow, spread, and infiltrate runoff
- Protect existing buildings, facilities, and people in vulnerable areas and reduce future flooding risk
- Conserve land and discourage development in vulnerable areas

**Forest Management**

- Ensure continued viability of forestry and timber production
- Protect water quality by utilizing BMPs during timber production
- Minimize forest fragmentation

**Invasive Species  
Management**

- Prevent establishment through early detection and monitoring
- Manage established infestations
- Provide outreach opportunities to the public and visitors to the watershed on existing invasive species and their impact on the watershed
- Foster collaboration and provide support to organizations and stakeholders involved in invasive species management

**Infrastructure and  
Development**

- Implement best management practices to reduce impacts from stormwater and prevent erosion
- Work with municipalities to identify gaps in local laws and programs relevant to reducing nonpoint source pollution
- Reduce impacts of de-icing practices
- Prepare infrastructure and environment for a changing climate

**Water and Wastewater  
Management**

- Address combined sewer overflows
- Address on-site septic systems
- Prepare infrastructure to meet climate change needs and flooding
- Protect drinking water source waters

**Water Quality  
Research &  
Monitoring**

- Monitor trends in water quality
- Encourage citizen engagement and participation in citizen science programs
- Support research to inform future watershed management =

**Watershed Planning,  
Management, &  
Outreach**

- Identify effective collaborations and funding sources to implement recommendations
- Develop mechanisms to track and evaluate implementation efforts

- Engage stakeholders and the public to foster appreciation for watershed resources and support for the plan

New York State is a home-rule state, meaning that community growth, planning and development is vested within local cities, towns, and villages. Watershed boundaries and management do not follow political boundaries, and therefore it is difficult to align multiple local governments to implement recommendations and strategies to improve water quality. However, the role of local government and leadership in watershed protection cannot be overemphasized. Therefore, the remaining recommendations focus on providing the partnerships and local infrastructure to support, fund, and increase implementation of this Plan. Various agencies and organizations exist within the watershed with programs that address water quality, environmental education, habitat protection, and restoration activities, and it is important to provide the opportunity for these players to combine technical and financial resources to maximize effectiveness and implementation of this Plan. Partnerships and outreach should focus on networking amongst watershed stakeholders, providing technical expertise to communities and landowners in their planning and stewardship efforts, and educating relevant budget committees and local/elected officials on water quality issues. Municipalities should coordinate with each other, relevant agencies, and their regional planning organizations to implement projects to improve watershed conditions, incorporate effective water quality protection strategies into local regulatory structure, and support departments and staff responsible for implementing projects and leading collaboration and education efforts conducive to this Plan.

## 4 Ongoing Implementation

### 4.1 Implementation and Monitoring

Recommended projects were gathered with input from the Watershed Advisory Committee and watershed stakeholders; a full inventory of recommendations is provided in **Appendix D: Implementation Strategy and Project Matrix**. The projects are grouped by category (i.e., agricultural management, floodplain, and stormwater management, etc.). Each project identifies relevant HUC10 subwatershed(s), strategy/goal, potential partners, approximate cost, and implementation timeframe.



Adirondack Watershed Institute members conducting routine stream monitoring.

To manage ongoing implementation, the St. Lawrence River Watershed Project (SLRWP) will establish a Steering Team comprised of representatives of the watershed's Soil and Water Conservation Districts, regional and county planning departments, NYSDOS and NYSDEC representatives, and state and local stakeholders as appropriate. The Steering Committee will be responsible for establishing key focus groups which will be used to prioritize issues within the watershed and harness local expertise. These groups will include local watershed experts on the respective issue at hand and be responsible for the development of annual work plans.

In addition to the identified projects outlined within **Recommendations and Implementation Strategy** chapter; other projects will certainly be added in the future as the Plan is implemented. Future actions should be prioritized and implemented in a way that carries out the vision for the future and supports the goals of the watershed. Therefore, the St. Lawrence River Watershed Revitalization Plan will remain a "living document", adaptive to the conditions in the watershed.

## 4.2 Tracking Implementation

Tracking progress of implementation efforts and watershed conditions is essential to watershed management. Periodic reviews allow managers to document progress and adjust to changing water resource issues. The SLRWP Steering Committee will be responsible for tracking the ongoing implementation of watershed projects and other actions to restore and protect the watershed. Implementation activities will be tracked and monitored using a 'Tracking Template' that includes details such as action, project HUC10, goal, responsible party, funding sources, estimated cost, and project status/progress. When applicable, efforts should be made to incorporate in-water or land-based metrics that are quantifiable and directly related to the management goal. This effort should be made in coordination with other sampling and data collection efforts to build upon and enhance existing datasets.

## 5 Get Involved

All of us live, work, and play in a watershed. Everything we do on the land impacts the quality of water on which we rely for drinking, irrigation, and industry. Therefore, community involvement and public support is a vital component to successfully implementing this plan. So, get involved; attend public meetings, volunteer with local organizations on watershed projects, educate your kids and neighbors on water quality issues.

Local watershed residents should be on the lookout for progress reports and updates on the St. Lawrence River Watershed Project webpage. On the tenth anniversary of this Plan, SLRWP aims to provide an update on Plan implementation, current conditions, and future goals for the watershed.