2023 - 2033

ANDROSCOGGIN LAKE

Watershed-Based Protection Plan

WAYNE, LEEDS, AND MONMOUTH, ME

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Table of Contents

List of Tables and Figures

Glossary of Terms

Nonpoint Source (NPS) Pollution: Also known as “polluted stormwater runoff”, NPS pollution is made up of soil, fertilizers, septic waste, pet waste, and many other pollutants from diffuse sources across the landscape that are carried into the pond by rainfall.

Phosphorus / Total Phosphorus: A naturally-occurring nutrient found in soil, organic matter, fertilizers, pet and livestock waste, and septic systems, that is carried to the lake via stormwater runoff. Phosphorus is the nutrient that controls the level of algae production in most Maine lakes. Excess phosphorus levels can cause dense blooms of cyanobacteria (aka blue-green algae) resulting in murky green water, depleted oxygen levels, and fish kills.

Best Management Practices (BMPs): Also known as “conservation practices”, landscaping techniques or devices that promote the diversion, infiltration, and treatment of stormwater runoff. Some BMPs also remediate and prevent soil erosion and correct unstable shorelines.

Watershed: The surrounding land that drains or sheds its water into a waterbody through streams, ditches, directly over the ground surface, or through groundwater. Activities anywhere in the watershed (not just on the shoreline) eventually impact the lake’s water quality, for better or worse.

Acronyms / Abbreviations

30 Mile	30 Mile River Watershed Association
ALIC	Androscoggin Lake Improvement Corporation
BMP	Best Management Practice
Chl-a	Chlorophyll-a
DO	Dissolved Oxygen
Maine DEP	Maine Department of Environmental Protection
mg/L	Milligrams per liter
NPS	Nonpoint Source (pollution)
NRCS	Natural Resources Conservation Service
ppb	Parts Per Billion
SDT	Secchi Disk Transparency (water clarity)
SWCD	Soil & Water Conservation District
TP / P	Total Phosphorus / Phosphorus
US EPA	United States Environmental Protection Agency

1. Background Information

Plan Purpose & Scope

The purpose of this Watershed Based Protection Plan, herein after referred to as the "plan", is to lay out a strategy and schedule for NPS mitigation and water quality protection efforts for the Androscoggin Lake Watershed over the next ten years (2023 to 2033). The 30 Mile River Watershed Association (30 Mile) prepared this plan with assistance and input from the Androscoggin Lake Improvement Corporation (ALIC), Maine Department of Environmental Protection (Maine DEP), and the United States Environmental Protection Agency (US EPA).

This plan was developed to satisfy the national watershed planning guidelines provided by the US EPA, which requires nine-element watershed-based management plans for impaired watersheds, but allows alternative plans in several cases including for protection of high- quality or unimpaired (threatened) waters. Maine DEP accepts alternative plans for unimpaired lakes that have completed a recent watershed survey, provided that the plans follow US EPA and Maine DEP guidance, and include the minimum planning elements.

The Androscoggin Lake watershed meets these eligibility criteria, and this plan was written to include the US EPA and Maine DEP required planning elements (US EPA's five required elements for alternative watershed plans, covered in Sections 2 through 6). Information collected during the 2022 Androscoggin Lake Watershed Survey is the basis for much of this plan. As such, the full 2022 Androscoggin Lake Watershed Survey Report is included in Appendix B.

Watershed Background

Androscoggin Lake is a threatened[1] lake located in the towns of Wayne and Leeds, Maine and is part of the 30 Mile River watershed -- a connected chain of lakes that drain roughly 90 square miles of land area across eight towns and three counties in Central Maine west of Augusta.

Androscoggin Lake is the terminal lake in the 30 Mile River chain. Its upstream watershed is roughly 60 square miles and includes the watersheds of Pocasset Lake, Lovejoy Pond, Echo Lake, Minnehonk Lake, Flying Pond, Parker Pond, David Pond, and many other small ponds, streams,

WHAT IS A WATERSHED?

The surrounding land that drains or sheds its water into a waterbody through streams, ditches, directly over the ground surface, or through groundwater. Activities anywhere in the watershed eventually impact the lake's water quality, for better or worse.

[1] Androscoggin Lake appears on Maine DEP's list of "Threatened Lakes" on the NPS Priority Watersheds List due to its sediment chemistry. Sediment results suggest that the lake is more vulnerable to internal phosphorus loading, a phenomenon that can occur when deep waters become anoxic (DO loss <2 mg/L), resulting in phosphorus release from the bottom sediments exposed to anoxic waters.

and wetlands that eventually flow to Mill Stream, Androscoggin's largest inlet located at the south end of Pocasset Lake in Wayne. The lake's direct watershed covers 23 square miles in the towns of Wayne, Leeds, Monmouth and Fayette, and includes the smaller drainages of several intermittent and perennial streams that drain directly to the lake. (Figure 1).

Androscoggin Lake is a relatively shallow lake with a maximum depth of 12 m (38 ft) and an average depth of just 4 m (14 ft). Though shallow, the lake has a very large surface area of nearly 4,000 acres and for this reason is a destination for boaters both locally and from afar. The lake is utilized heavily for recreation, including boating, fishing, swimming, birding, and hunting. Many sandy beaches line the lake's shoreline, making this lake a popular swimming destination for many in the summer months.

Under typical flow conditions, the lake drains to a single outlet, the Dead River, which flows west for seven miles to the Androscoggin River. However, due to the relatively flat gradient between the lake surface and the Androscoggin River at normal water level (stage), a rise in stage in the Androscoggin River from precipitation and/or spring thaw results in flow reversal (or back flushing) of water from the Androscoggin River into Androscoggin Lake via the Dead River. In other words, when flood waters rise in the Androscoggin River watershed, the Dead River reverses its flow, and Androscoggin Lake acts as a flood storage reservoir for the Androscoggin River.

Due to this phenomenon of flow reversal, the Dead River Dam (aka the Dead River Pollution Control Facility or PCF) was built in the 1930s to limit the flow of severely polluted river water into the lake, which in the past occurred several times per year on average, and most recently in October 2022.

The Androscoggin River Watershed above the Dead River includes more than 2,500 square miles and 11 licensed wastewater discharges (8 municipal, 3 industrial).
Androscoggin Lake may be only lake in the state that receives floodwaters from a Class C river[2] (the Androscoggin) through a natural flow reversal phenomenon previously described (Maine DEP, 2004).

Dead River PCF in Oct. '21 (top) and flow reversal in Oct. '22 (bottom) after heavy rains caused the Androscoggin River to rise ~16 ft.

[2] The State of Maine has four classes for freshwater rivers: AA, A, B, and C. Class AA is the highest classification and Class C the lowest. The higher the class, the lower the risk of ecosystem breakdown or loss of use due to a natural or human-related stressor. Class AA rivers involve very little risk to water quality since activities such as waste discharges and impoundments are prohibited, and water quality criteria are high. Alternatively, Class C rivers have the least restrictions on use and lower water quality criteria; there for a much smaller margin for error before significant water quality decline might occur due to the introduction of a new natural or human-related stressor.

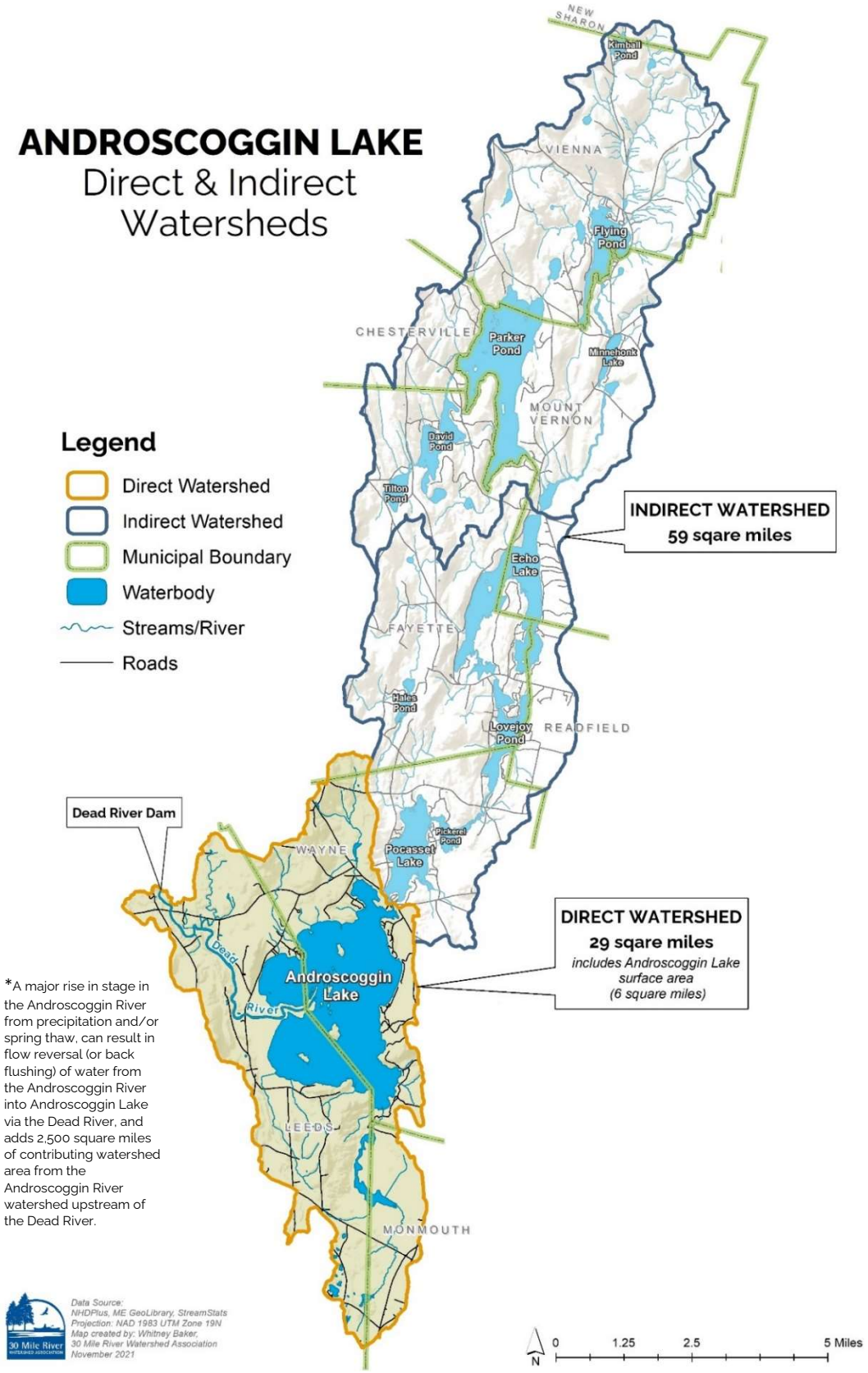


Figure 1. Androscoggin Lake's direct and indirect watershed.

There are three public boat launches on Androscoggin: A state-owned launch on Main Street (Route 133), a town-owned launch on Stinchfield Beach Road in Leeds (Leeds residents only), and the town-owned launch at the Androscoggin Yacht Club in Wayne Village. Private access is also provided at three campgrounds (Jellystone Campground, Androscoggin Lake Campground (beach access only), Riverbend Campground (via Dead River)), and at two private summer camps (Camp Tekakwitha and Camp Androscoggin). Kennebec Land Trust manages property on Norris Island that includes a swimming beach, two tent sites, and a cabin site open for public use. Winter anglers can access the lake from most anywhere on its 27 miles of shoreline. Several bass fishing tournaments occur annually on Androscoggin Lake, bringing anglers from across the state to the public and private launches around the lake.

Androscoggin Lake supports a warm water fishery and provides important habitat for black bass and chain pickerel, which the lake is particularly well-known for producing in large size. A landlocked alewife population was established in the lake in the 1980s that provides excellent forage for gamefish.

Summary of Watershed Work & Assessments

2000 Androscoggin Lake Watershed Survey Report

Summit Environmental Consultants, Inc. December 2000.

This watershed survey was led by Summit Environmental Consultants for the Town of Wayne in conjunction with ALIC volunteers and Maine DEP. Twenty-eight trained volunteers and technical staff identified 164 sites throughout the watershed with potential impact to water quality in the lake.

Androscoggin Lake Inventory and BMP Recommendations Final Report

Maine Association of Conservation Districts, June 2001.

This project was administered by Maine Association of Conservation Districts (MACD) and funded by Maine DEP and US EPA. A land use inventory was completed to assist Maine DEP in calculating watershed nutrient loading estimates for a diagnostic evaluation of the lake. This project also included brief BMP recommendations including prioritizations for high-impact erosion sites identified during the 2000 watershed survey to help citizens, groups, and agencies restore and protect the lake.

Androscoggin Lake Phosphorus Loading Analysis

Maine Department of Environmental Protection, Lake Assessment Section, September 2001.

This study estimated the various phosphorus (P) sources to Androscoggin Lake and determined the relative contributions of each source (direct watershed, upstream watersheds, and Dead River) using both land use loading models and results of water samples collected from direct tributaries to the lake.

Androscoggin Lake – Dead River Loading Analysis

Maine Department of Environmental Protection, Lake Assessment Section, May 2002.

A study of various dam configurations was conducted to determine water and phosphorus loading from the Dead River, based on a hydrologic study and modeling completed by E/PRO Inc. in 2002. This study concluded that increasing the height of the dam would result in less phosphorus loading and a better lake response, and that the highest incremental benefit for lake phosphorus loading could be achieved by maximizing the effective dam height with new flashboards at the current site and structure.

Androscoggin Lake – Dead River Phosphorus & Hydrologic Analysis

Maine Department of Environmental Protection, Lake Assessment Section, August 2003.

This study included an analysis of water and phosphorus loading from the Dead River and the portion of this load that can be attributable to point sources in the Androscoggin River. The study concluded that (1) there was an apparent shift in trophic state in the late 1990s/early 2000s, (2) current P levels in the lake (15 ppb) do not provide a safety margin for avoiding algal blooms and should be reduced by 2 ppb or more, and (3) contributions from point sources in the Androscoggin River account for less than 1% of the P contribution to the lake with the current functional dam configuration. The largest source of P loading to the lake with a new dam configuration is the watershed load.

Dead River Dam Flashboards Added

Funded through a $40K emergency appropriation approved by the State Legislature, Maine DEP contracted with E/PRO Inc. to install new flashboards, 3.5 feet high, on the top of the existing concrete dam in 2003. The new dam configuration can hold back flood waters in the Dead River up to 278.8 feet, about the height of a two-year flood, reducing the frequency of the smaller flooding events that occur two to three times per year on average, and the annual spring flood in several years that followed.

2004 Androscoggin Lake Watershed Management Plan

Summit Environmental Consultants, Inc. for the Town of Wayne, March 2004.

This watershed management plan prepared by Summit Environmental. Inc. for the Town of Wayne included the goal of improving water quality in Androscoggin Lake by reducing NPS pollution in the direct watershed of the lake.

30 Mile Youth Conservation Corps (YCC) Erosion Control Projects, 2010-present

30 Mile has been providing technical assistance & the services of their YCC crew to watershed towns and residents since 2010, and has completed 18 YCC projects on Androscoggin Lake since 2012 to reduce erosion and polluted runoff.

ALIC LakeSmart Team, 2017 – present

ALIC has supported an active LakeSmart team since 2017, and has completed over 34 evaluations in the last six years. Nine evaluations were competed in the summer of 2022, and ALIC currently has a growing list of landowners who hope to host the ALIC LakeSmart team in 2023.

Milfoil Removal, 2020 – Present

Variable Leaf Milfoil (VLM) was discovered in Androscoggin Lake's inner cove by a volunteer plant patroller in September 2020. Following the discovery and DNA testing to confirm that the plant was indeed VLM, immediate action was taken by ALIC volunteers and 30 Mile staff with support from Maine DEP and Lake Stewards of Maine (LSM). 30 Mile has managed the removal effort. Beginning in 2021, between May and October, 30 Mile staff have completed weekly surveys of the infested area (and beyond), marking each individual milfoil plant, and removing them by hand working with a trained SCUBA diver. The work in 2021 went well, but ended sooner than planned due to the algal bloom limiting visibility and preventing further removals. As a result, plants had more time to grow, and in spring 2022, more milfoil was found covering an even larger portion of the cove. All invasive milfoil plants found in 2022 were successfully removed. Survey and removal efforts will resume in spring 2023.

30 Mile Water Quality Monitoring 2021 – Present

30 Mile started monitoring water quality in Androscoggin Lake in 2021 to support current water quality volunteers, train new volunteers, and provide advanced data collection. 30 Mile's water quality program includes working with volunteers to collect data on a bi-weekly schedule between May and October. Parameters collected include SDT, DO/Temperature profiles, TP, Chl-a, and advanced chemical parameters (Alkalinity, Color, Conductivity, and pH). In 2022, 30 Mile and ALIC volunteer monitors carried out an intensified program – adding bi-weekly collection of TP profile grab samples and tributary monitoring.

2022 Androscoggin Lake Watershed Survey

In May 2022, 30 Mile, with the support of its partners and local volunteers, conducted a survey of the Androscoggin Lake watershed. Trained volunteers and technical leaders surveyed the developed areas of the Androscoggin Lake Watershed, identifying 142 erosion sites that are impacting or have the potential to impact water quality. The final survey report (Appendix B) provides an overview of survey results and prioritizes next steps.

PHOSPHORUS:

A common nutrient found in soil, fertilizers, and organic matter, carried to the lake via stormwater runoff from the lake's watershed. Phosphorus is the nutrient that controls the level of algae production in most Maine lakes. Excess phosphorus levels can cause dense blooms of cyanobacteria (aka blue-green algae) resulting in murky green water, depleted oxygen levels, and fish kills.

2. Identification of Causes and Sources of NPS Threats

Like many lakes in Maine, Androscoggin Lake's water quality is threatened by **phosphorus** - a nutrient found in soil, septic waste, animal waste, and fertilizers. Phosphorus (aka "P" or "TP", for total phosphorus) is food for algae and other plants, and in natural conditions the scarcity of this nutrient in lake water limits the growth of algae growth. Very small increases in phosphorus can cause lake algae populations to increase and water clarity to decline. High levels can cause dense algae blooms, which can also create a biological and chemical reaction that depletes the oxygen from the bottom of the lake and promotes internal loading of phosphorus from sediments.

Phosphorus enters the lake from the surrounding watershed in the form of **polluted stormwater runoff** that enters the lake each time it rains. The problem is not necessarily the water itself; it is the phosphorus and other nutrients in the runoff that can be bad news for lake water quality. A study has shown that runoff from developed areas has 5 to 10 times the amount of phosphorus compared to runoff from forested areas (Dennis, 1985).

POLLUTED STORMWATER RUNOFF:

Also called nonpoint source (NPS) pollution, polluted stormwater runoff is made up of soil, fertilizers, septic waste, pet waste, and other pollutants from diffuse sources across the landscape that are carried into the pond by rainfall.

Threatened Status

Androscoggin Lake currently meets state water quality standards. However, it is listed in *Chapter 502 of the Maine Stormwater Law* as a lake "Most at Risk from New Development. It is also listed as "threatened" on Maine DEP's NPS Priority Watersheds list because its sediment chemistry makes it more susceptible to internal loading of phosphorus from bottom sediments exposed to anoxic conditions (D.O. <2mg/L).

Water Quality Summary

Water quality data have been collected from Androscoggin Lake during 47 of the past 52 years. since the 1970s. The parameter most collected is Secchi Disk Transparency (SDT) and readings have ranged from 1.1 m (1999) to 7.3 m (1972) with an average of 4.2 m. Androscoggin Lake has a history of reduced water clarity readings during summer months. Looking at the distribution of data collected at Station 01 (the deepest point in the lake - Appendix A, Map 2) since 1970, near-bloom conditions (SDT 2-3 meters deep) were documented during 16 years. Maine DEP defines a "lake-wide algal bloom" as SDT less than 2 meters deep; Androscoggin supported lake-wide bloom conditions during three years in 1991, 1999, and 2021 (Figure 2).

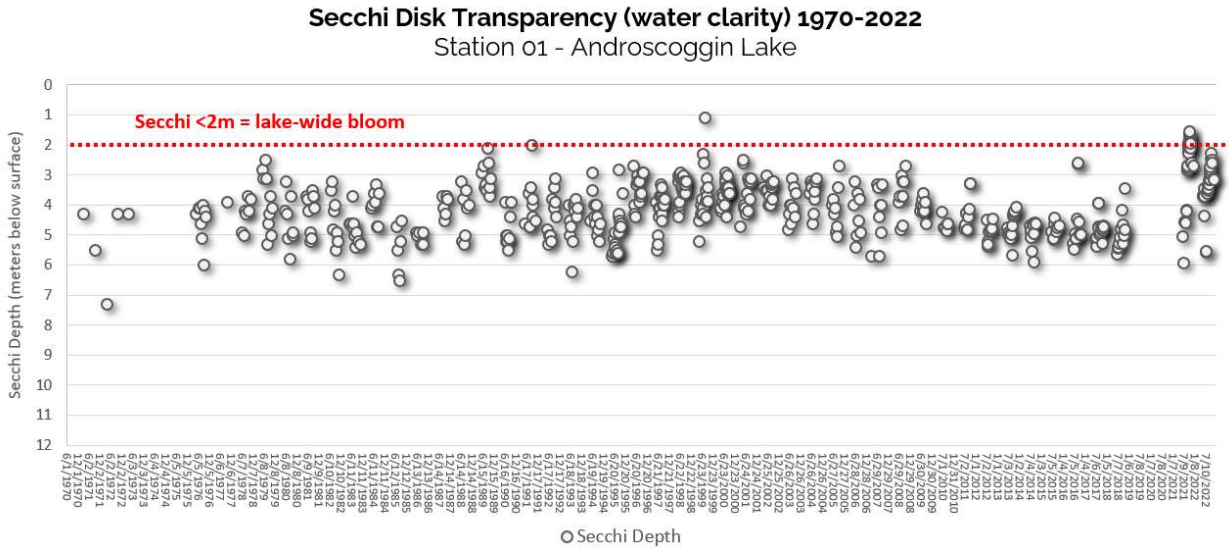


Figure 2. Secchi Disk Transparency (Water Clarity) in Androscoggin Lake, Station 01, 1970-2022

In 2021, Androscoggin Lake suffered a severe algae bloom; starting in late August, officially reaching lake-wide bloom status in late September, and remained below or just above 2 meters at Station 01 through October and November. In 2022, bloom conditions were less severe with water clarity readings decreasing through the monitoring season to between 2 and 3 meters for all of September and October 2022.

Phosphorus data have been collected from Androscoggin Lake since 1976. Annual average epilimnetic phosphorus concentrations in Androscoggin Lake range from 9 ppb (1978 and 2013) to 22 ppb (2003) with a historical annual average of 14 ppb. Laboratory results for phosphorus samples collected in 2021 ranged from 11 ppb to 20 ppb with an average of 16 ppb. Conditions

Shoreline scum formation at the public boat launch on Route 133 in Wayne – October 2021.

were similar in 2022 with TP concentrations ranging from 13 ppb to 19 ppb with an annual 2022 average of 17 ppb (Figure 3).

In 2022, TP profile grab samples were collected bi-weekly between May and October, but phosphorus mass calculations are not yet complete.

An analysis of Androscoggin Lake's SDT data, water quality, and other available environmental data was completed by Maine DEP in 2022 and results will be included in 30 Mile's 2022 annual water quality report.

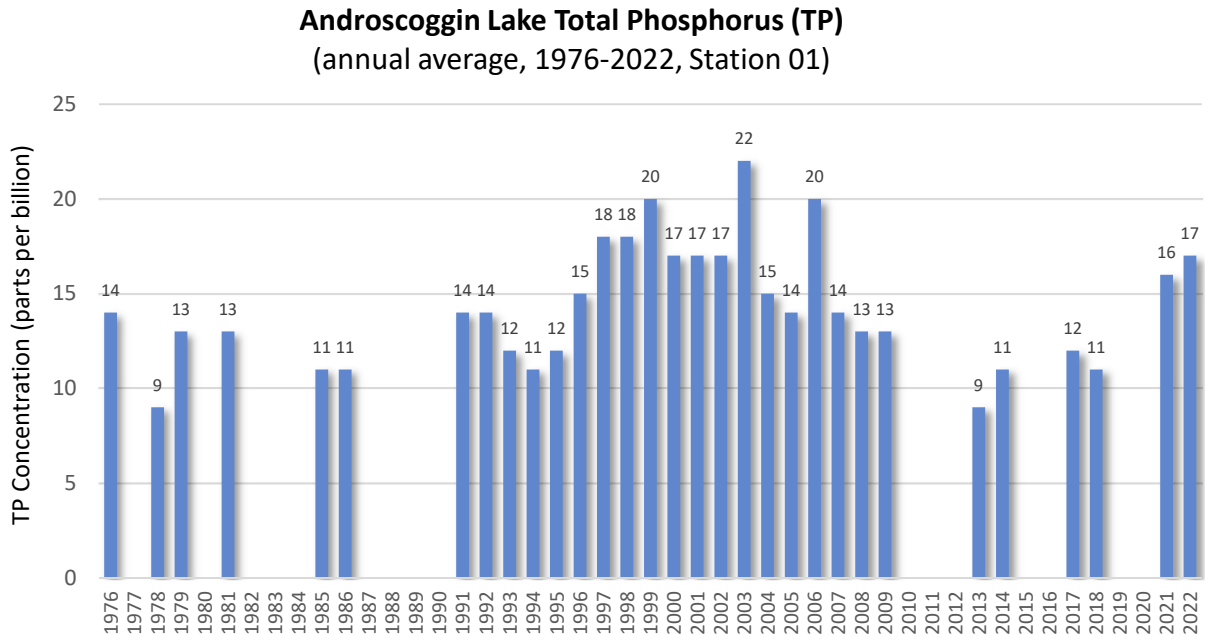


Figure 3. Average Annual Total Phosphorus (TP) Androscoggin Lake, 1976-2022

Watershed NPS Threats

The direct watershed of Androscoggin lake includes many different land use types with varying degree of intensity. Nearly one quarter (24%) of the direct watershed is open water or wetlands. Wetlands and waterbodies are located either directly adjacent to the lake and along the shoreline, or drain to the lake via a 40-mile network of perennial and intermittent streams that discharge to the lake. More than 55 miles of roadway (state, town, and private) impact this large network streams, wetlands, and other waterbodies in countless locations throughout the watershed where polluted stormwater runoff can flow directly into the lake. Luckily, large areas of forest land do still exist in the watershed, however many of these areas show signs of recent timber harvesting or logging activity.

Most of the lake shoreline is developed with seasonal and year-round residences and an extensive network of town and camp roads that are both a source and a conveyer of polluted

runoff to the lake. Gravel camp roads in particular are subject to frequent erosion during periods of heavy rains and spring thaws, and can transport significant quantities of sediment into the lake increasing the nutrient levels and reducing water clarity.

More intense development can be found in the northern end of the watershed in Wayne Village, along State Route 133, and in the western watershed along State Routes 106 and 219 in Leeds. Agriculture is concentrated around the Dead River, North Road, and Route 106 in Leeds, with smaller amounts on Berry Road in Wayne in the northern end of the watershed.

In 2022, 30 Mile facilitated the formation of a watershed steering committee. In May 2022, 30 Mile and ALIC, with the support of its partners and local volunteers, and with technical assistance from Maine DEP, conducted a survey of the Androscoggin Lake watershed. The purpose of the survey was to identify sources of soil erosion and polluted runoff that are now, or could in the future, pose a risk to water quality. Recommended BMPs to correct problems identified during the survey were also proposed.

Trained volunteers and technical leaders surveyed the developed areas of the Androscoggin Lake Watershed, identifying 142 erosion sites that are impacting or have the potential to impact water quality. The final survey report (Appendix B) provides the survey results, prioritizes next steps, and is designed specifically for landowners living in the Androscoggin Lake watershed, including the towns of Wayne, Leeds, and Monmouth.

Overall, seventy-nine (79) sites, or 56% of all sites identified, were located in the Town of Wayne. Sixty (60) sites (43%) were located in the Town of Leeds, and three (3) sites (2%) were identified within the Town of Monmouth.

Residential areas (not including driveways) constituted the largest category of identified erosion sites (28% of all sites). Private roads constituted the second largest category of erosion sites (20%), with town roads third (15%).

Sixteen (16) or approximately 11% of all sites identified were rated as high impact to water quality. High impact sites were associated mainly with private and town roads. Seventy-nine (79) sites, or 56% of all identified sites, were rated as medium impact and were most commonly associated with private and town roads, residential properties, commercial properties, and beach access land use categories. High and medium impact sites together account for more than 67% of all sites. These sites typically contribute higher amounts of pollution to the pond and should be of highest priority for remedial action. High and medium impact sites were documented on a wide range of land use types – highlighting the fact that EVERYONE has a role to play in lake protection.

Forty-seven (47) or 33% of all identified sites were classified as low impact to water quality. More than 40% of all low impact sites were found on residential properties (19 low-impact residential sites). Though low impact sites likely contribute less pollution individually, many sites can collectively have a big impact. Luckily, many of these low impact sites have straightforward

remediation solutions that could easily be completed by homeowners on their own, or through 30 Mile's Youth Conservation Corps Program. Forty (40) sites, or nearly 30% of all survey sites, were documented on **residential properties.** Of the 40 residential sites, 1 site was rated high impact, 20 sites were rated as medium impact, and another 19 sites were determined to be low impact to water quality. Sites associated with **roads and driveways** made up 42% of all sites (59 sites total) and had varying impact ratings: ten (10) high, 28 medium, and 21 low impact sites. 29 sites were documented on private roads, 22 sites on town roads, seven (7) problems were found on state roads, and one (1) driveway erosion site was documented for a total of 59 sites. **Commercial properties** make up the fourth largest land use category of erosion problems found, accounting for 13% of all sites (19 sites total). Erosion documented on commercial properties was largely rated as having a medium impact to water quality (15 sites). Two commercial sites were rated as high-impact, and another two sites were rated low-impact.

Table 1.NPS site summary - 2022 Androscoggin Lake Watershed Survey

LAND USE	IMPACT RATING			*TOTAL*
	High	*Med*	*Low*	
Agriculture	0	2	0	*2*
Beach Access	1	9	2	*12*
Boat Access	1	6	1	*8*
Commercial	2	15	2	*19*
Driveway	1	0	0	*1*
Municipal/Public	0	0	1	*1*
Residential	1	20	19	*40*
Private Road	6	10	13	*29*
Town Road	4	11	7	*22*
State Road	0	6	1	*7*
Trail or Path	0	0	1	*1*
TOTAL	*16*	*79*	*47*	***142***

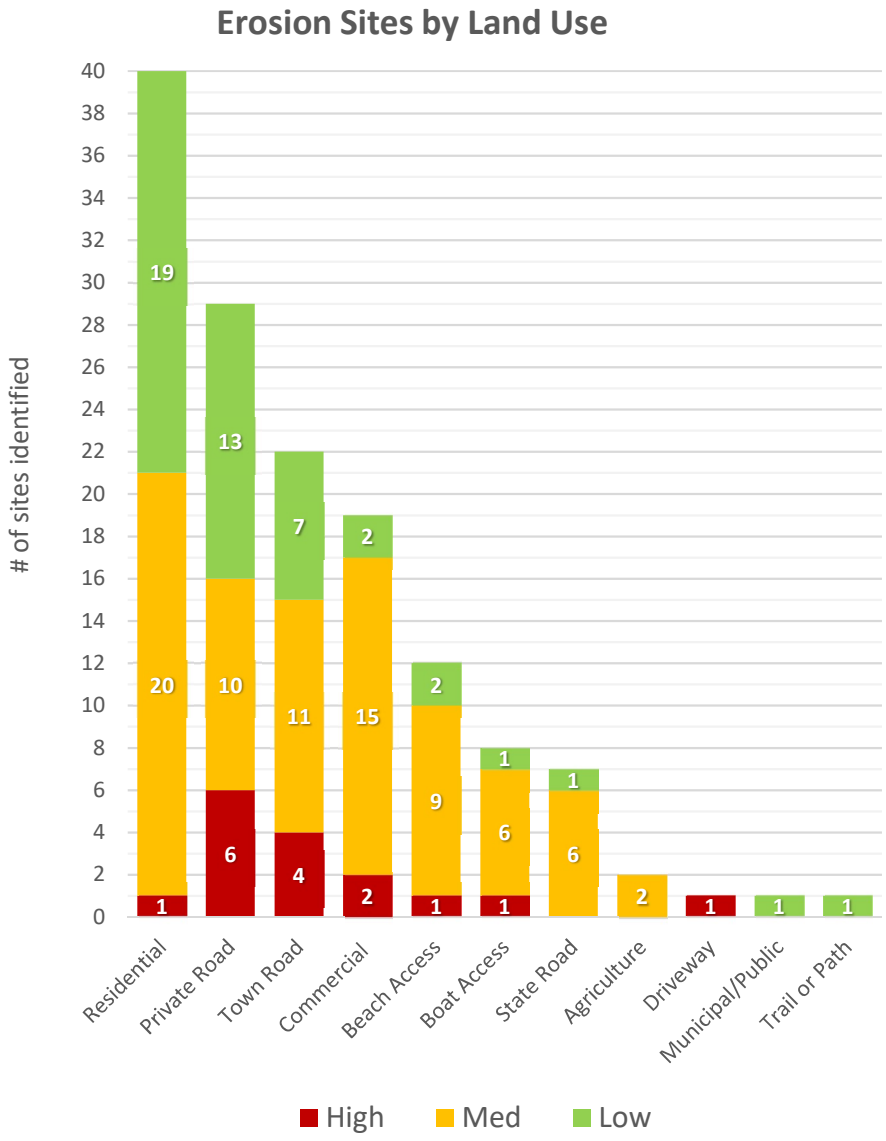


Figure 4. 2022 Watershed Survey NPS sites by land use category and impact rating.

Watershed Plan Goals & Objectives

The overall goal of this plan is to improve water quality in Androscoggin Lake to meet Class GPA water quality standards in Androscoggin Lake by reducing phosphorus loading to the lake. This will be achieved through the following actions over the next ten years (2023-2033):

- **Reduce current sources of phosphorus and NPS pollution from the watershed** by fixing the 16 high-priority erosion sites identified in the 2022 watershed survey. This will be achieved through targeted outreach, technical assistance, and cost-sharing opportunities for the installation of BMPs at NPS sites identified in the watershed survey.
- **Prevent new sources of phosphorus and NPS pollution from within the watershed** by facilitating improved land use practices and ongoing maintenance activities. This objective will be met by conducting outreach and providing technical assistance to residents, road associations, youth camps and municipal officials.
- **Assess and reduce the impact of septic systems** in the shoreland zone by completing a septic vulnerability assessment, and developing a septic record database to prioritize and support management of at-risk systems.
- **Educate watershed landowners** about current water quality issues, polluted stormwater runoff, shoreland zoning, and how they can help improve water quality in Androscoggin lake.
- **Build local capacity for watershed stewardship** by securing funding for plan implementation and mitigation work, regularly updating town officials and boards on status of watershed work, and recruiting new volunteers to support NPS mitigation efforts.
- **Conduct long-term monitoring and assessment** of in-lake and watershed conditions with continued bi-weekly in-lake baseline water quality monitoring between April and October, and development and regular maintenance of the NPS Site Tracker.

3. Schedule & Milestones to Guide Plan Implementation

Action Plan & Schedule

Action items, an estimated schedule, and milestones were developed to prevent new NPS problems and address existing NPS sites that have the highest impact on water quality in Androscoggin Lake. The NPS sites prioritized in this plan were selected based on local knowledge about potential funding sources, landowner cooperation, and other considerations. Other actions in the plan were included because they have proven to be cost-effective and successful in the region. This plan is designed to be implemented over a ten-year period, and an estimated schedule is provided for each action (Table 2). Potential funding sources and key partners were also identified, and more detail provided for each action item (Table 3). The plan will be carried out with local funding and resources, additional grants, and state and federal funding will also be sought to help implement high-cost actions in the plan.

Table 2. Androscoggin Lake Implementation Schedule, 2023-2033

Plan Implementation Schedule	
Year 1 2023	• Distribute watershed survey results, mail follow-up letters, and offer technical assistance, and publicize approval of WBPP. • Meet with town road commissioners to discuss plans to address sites on town roads. • Apply for Section 319 Grant funding (phase I project) to address high-priority NPS sites and set up NPS Site Tracker Tool. • Develop gravel road management plans for high-priority roads identified during the 2022 survey. • Complete phosphorus mass calculations and estimate current internal P loading in the lake. • Research funding sources, and develop a long-term fundraising plan to support work through the 10-year planning period. • Install water level gauges, and recruit volunteers to record water levels. • Install cameras at the Dead River PCF to more closely monitor and document flow reversal events. • Reduce NPS pollution from upstream by identifying and mitigating sources of NPS pollution in upstream lake watersheds. • Begin addressing eligible erosion sites through 30 Mile's YCC program, and promote buffer plantings around the lake.
Years 2 & 3 2024 - 2025	• Conduct EPA 319 project (phase I, if funded) with targeted cost-sharing to address high-priority sites. • Facilitate training for town staff and private road owners for certification in Basic & Advanced Erosion Control through Maine DEP. • Conduct an annual gravel road workshop on proper gravel road/driveway design, installation, and maintenance. • Identify agriculture & timber operations in the watershed, and develop an outreach strategy to connect with landowners. • Work with county SWCD staff and USDA/NRCS to identify Ag/timber lot landowner needs and offer technical assistance. • Complete a septic vulnerability study and develop a septic database to identify at-risk systems that may impact water quality. • Organize/support an annual workshop for agriculture and timber lot owners and operators. • Complete a land cover-based P loading model, and update P loading estimates to inform future restoration work. • Complete a municipal ordinance review and identify areas for improvement. • Apply for EPA Section 319 Clean Water Act grant (phase II project) through Maine DEP.
Years 4 & 5 2026 - 2027	• Conduct EPA 319 project (phase II, if funded) to continue addressing high-priority NPS sites. • Organize a landowner septic survey to fill in data gaps for developed properties in high-risk areas with no septic permit on file. • Conduct targeted outreach to landowners with high-risk septic systems. • Update NPS Site Tracker Tool. • Address NPS pollution in upstream watersheds through BMP implementation at identified NPS sites.
Years 6-10 2028 – 2033	• Address any remaining medium-impact NPS sites. • Provide technical assistance to landowners to address all low-impact NPS sites. • Work with local land trusts to identify areas in the watershed for land conservation. • Create a new town staff position and hire a "Shoreland Zoning Officer", potentially shared between watershed towns, to oversee and enforce shoreland zoning and other natural resource-related work. • Revisit watershed survey sites and identify any new sources of NPS in the watershed
Annual/ Ongoing	• Review or develop annual road maintenance plans for town and private roads, and prompt annual maintenance activities. • Facilitate an annual meeting with town CEOs, ALIC, and 30 Mile to discuss watershed concerns, ordinance changes, and goals. • Organize and host an annual buffer workshop, and recruit new volunteers to attend and assist with shorefront buffer plantings. • Continue bi-weekly baseline monitoring, May through October, at Station 01, and recruit new volunteer monitors to assist. • Continue collection of stream samples from monitoring locations on tributaries, upstream inlet, and Dead River. • Continue administer LakeSmart programming for shorefront residents. Goal = 80 evaluations in 10 years (8 evaluations/year) • Work with local planning boards to notify watershed partners about new development project applications within the watershed.

Table 3. Androscoggin Lake Action Plan 2023-2033

Androscoggin Lake Watershed Action Plan				
	Action Items	**Schedule**	**Who**	**Potential Funding Source(s)**
A. Reduce Current Sources of NPS Pollution from the Watershed				
Address sources of NPS from residential areas & driveways (41 Sites)				
1	Address high & medium-impact residential and driveway sites identified during 2022 watershed survey. Goal = BMP implementation at all high-impact (2 sites) and ~50% of medium- impact sites (10 sites). (12 sites total)	Years 2-5	Landowners, 30 Mile YCC	Landowners, EPA (319 Grants)
2	Address remaining medium-impact sites (10 sites)	Years 6-10	Landowners, 30 Mile YCC	Landowners, Grants
3	Provide education and technical assistance to landowners to address all low-impact sites. (19 sites)	Years 1-10	ALIC, 30 Mile YCC, LakeSmart	Landowners
Address NPS pollution from roads (58 sites)				
4	Develop gravel road management plans for high-priority private gravel roads identified during the 2022 watershed survey	Years 1-2	Road Associations/ Landowners, 30 Mile	Road Associations/ Landowners, EPA (319 Grants), ALIC
5	Address high & medium impact NPS sites on private gravel roads. Goal = BMP implementation at all high-impact sites (6 sites) and ~50% of medium-impact sites (5 sites) (11 sites total).	Years 2-5	Road Associations/ Landowners	Road Associations/ Landowners, EPA (319 Grants)
6	Address remaining medium-impact sites on private gravel roads (5 sites), and provide technical assistance to landowners to address all low-impact NPS sites (13 sites)(18 sites total).	Years 6-10	Road Associations/ Landowners, 30 Mile	Road Associations/ Landowners, Grants
7	Meet with town road commissioners to discuss plans to address identified sites on town roads.	Year 1	Towns, ALIC, 30 Mile	Towns, ALIC, 30 Mile
8	Address high and medium-impact NPS sites on town roads. (15 sites)	Years 1-10	Towns	Towns, EPA (319 Grants)
9	Address low-impact NPS sites on town roads. (7 sites)	Years 1-10	Towns	Towns
10	Address NPS sites on state roads. (7 sites)	Years 1-10	Maine DOT	Maine DOT, EPA (319 Grants)
Address NPS pollution from boat and beach access points (20 sites)				
11	Address high & medium-impact beach/boat access sites. Goal = all high-impact sites (2 sites) and ~50% of medium-impact sites (8 sites). (10 sites total)	Years 1-5	Landowners, 30 Mile YCC	Landowners, EPA (319 Grants)

12	Address remaining medium-impact sites. (7 sites)	Years 6-10	Landowners, 30 Mile YCC	Landowners, EPA (319 Grants)
13	Provide education and technical assistance to landowners to address low-impact sites. (3 sites)	Years 1-5	ALIC, 30 Mile YCC	Landowners
Address NPS pollution from commercial properties (19 sites)				
14	Address high & medium-impact sites on commercial properties. Goal = all high-impact sites (2 sites) and ~50% of medium-impact sites (8 sites). (10 sites total)	Years 1-5	Landowners, 30 Mile YCC	Landowners, EPA (319 Grants)
15	Address remaining medium-impact sites. (7 sites)	Years 6-10	Landowners, 30 Mile YCC	Landowners, EPA (319 Grants)
16	Provide education and technical assistance to landowners to address low-impact sites. (2 sites)	Years 1-10	ALIC, 30 Mile YCC	Landowners
Address NPS pollution from agriculture & timber harvesting operations				
17	Identify agriculture & timber harvesting operations in the watershed, and develop an outreach strategy to connect with landowners.	Year 1	30 Mile, ALIC, USDA/NRCS, County SWCDs	30 Mile, ALIC, USDA/NRCS, County SWCDs
18	Work with county SWCD staff and USDA/NRCS to identify watershed landowners needs, water quality impacts, and offer technical assistance through existing USDA/NRCS programs.	Years 2-10	USDA/NRCS, County SWCDs	USDA/NRCS, Grants
19	Organize/support an annual workshop for watershed agriculture and timber lot owners and operators.	Year 2, Annually	32 Mile, ALIC, USDA/NRCS, County SWCDs	USDA/NRCS, EPA (319) Grants, Foundation Grant
B. Prevent New Sources of NPS Pollution in the Watershed				
Landowner Education				
1	Continue & expand outreach efforts and provide education opportunities for watershed landowners. Goal = At least two newsletters/yr. highlighting water quality issues and watershed work, at least one landowner workshop/year, and at least one published newspaper article/yr.	Ongoing	ALIC, 30 Mile	ALIC, Grants
2	Continue to support and administer LakeSmart programming for shorefront residents. Goal = at least 8 LakeSmart evaluations/yr.	Ongoing	ALIC, 30 Mile	ALIC, 30 Mile
Protect undeveloped and sensitive land				

3	Work with local land trusts to identify undeveloped and sensitive, high-value areas in the watershed for land conservation.	Years 6-10	Watershed Steering Committee, KLT, ALT	Land & Water Cons. Fund, Land for ME's Future, ME Outdoor Heritage Fund, ME Community Foundation, ME NRCP
Conduct ongoing road maintenance & repairs				
4	Prompt review of or develop annual road maintenance plans for private and town, and state-owned roads.	Annually, Ongoing	State, Towns, Road Associations/ Landowners	State, Towns, Road Associations/Landowners
5	Inspect and clean out ditches, catch basins, and other erosion control BMPs annually and after major storm events	Annually, Ongoing	Towns, Road Associations/ Landowners	State, Towns, Road Associations/Landowners
6	Remove winter sand each spring.	Annually, Ongoing	State, Towns, Road Associations/ Landowners	State, Towns, Road Associations/Landowners
Provide training for private road owners and town staff				
7	Facilitate training for town staff and private road commissioners/ owners for certification in Basic & Advanced Erosion Control Practices through Maine DEP.	Year 2, ongoing as needed	Towns, Road Associations/ Landowners, 30 Mile, County SWCDs	Maine DEP, EPA (319 Grants)
8	Conduct an annual gravel road workshop for private road groups and town staff on proper gravel road/driveway design, installation, and maintenance.	Years 2-3, Annually	Towns, Road Associations/Landowners, 30 Mile	EPA (319 Grants), Foundation Grants, ALIC
Review, improve, and enforce town ordinances that protect water quality & habitat in the Androscoggin Lake watershed				
9	Complete a municipal ordinance review for each watershed town and identify areas for improvement.	Years 2-3	Towns, KVCOG/AVCOG	Towns, Foundation Grants
10	Facilitate an annual meeting with town CEOs, ALIC, and 30 Mile to discuss watershed concerns, town ordinance changes, and goals for lake protection.	Annually, Ongoing	Town CEOs, ALIC, 30 Mile	Towns, ALIC, 30 Mile
11	Work with local planning boards to notify watershed partners about new development project applications within the watershed.	Years 1-2, Ongoing	Towns, Watershed Steering Committee	Towns, Volunteer Steering Committee

12	Create a new town staff position and hire a "Shoreland Zoning Officer", potentially shared between watershed towns, to oversee and enforce shoreland zoning and other natural resource-related work.	Years 1-10	Towns	Towns
C. Reduce NPS pollution from upstream, indirect watersheds				
1	Identify sources of NPS pollution in the upstream Pocasset Lake watershed to identify sources of NPS pollution.	Year 1	Towns, 30 Mile, Lake Associations	Towns, Lake Associations, Foundation Grants
2	Address identified NPS sites by implementing BMPs in upstream watersheds to reduce P loading from upstream watersheds.	Years 2-10	Upstream watershed towns, 30 Mile YCC, upstream Lake Associations.	Towns, EPA (319 Grants)
D. Assess and Reduce the Impact of Septic Systems				
1	Complete a septic vulnerability study and develop a septic system database for the watershed to identify at-risk systems that may have an impact on lake water quality	Years 1-3	Towns, 30 Mile	Towns, Foundation Grants
2	Organize a landowner septic system survey to gather information and fill data gaps for developed properties in high-risk areas with no septic permit on file.	Years 4-10	Towns, 30 Mile	Towns, Foundation Grants
3	Conduct targeted outreach and follow-up with owners of at-risk systems to determine system health, promote proper maintenance, or support system replacement.	Years 4-10	Towns	Towns
4	Educate landowners and prompt regular maintenance and pumping schedules.	Years 1-10	Towns, 30 Mile	Towns, 30 Mile
E. Educate Watershed Landowners, Build Local Capacity, and Foster Watershed Stewardship				
1	Distribute results of the 2022 watershed survey, mail follow-up letters to all landowners with identified erosion sites, and offer technical assistance.	Year 1	30 Mile	ALIC, Grants
2	Publicize the completion/approval of the WBPP by submitting press releases to local newspapers and presenting the plan at town select board meetings.	Year 1	30 Mile, ALIC	ALIC
3	Apply for Clean Water Act Section 319 Watershed Implementation Grant funding to address high-priority NPS sites in the watershed.	Year 1 & Year 3	30 Mile	ALIC
4	Promote the LakeSmart program to shoreline residents. Goal = 80 evaluations in 10 years (8 evaluations/year)	Years 1-10	ALIC, 30 Mile,	30 Mile, ALIC, Maine Lakes
5	Provide ongoing updates on watershed projects in organization newsletters, town websites, and partner social media platforms.	Annually, Ongoing	30 Mile, ALIC, Towns	30 Mile, ALIC, Towns

6	Organize and host an annual buffer workshop, and recruit new volunteers to attend and assist with shorefront buffer plantings.	Annually, Ongoing	30 Mile, ALIC	30 Mile, ALIC, Grants
7	Research potential funding sources, and develop a long-term fundraising plan to support ongoing watershed and restoration work.	Years 1-3, Ongoing	ALIC, 30 Mile	ALIC, 30 Mile

F. Conduct Long-term Monitoring & Assessment				
1	Continue bi-weekly baseline monitoring, May through October, at Station 01, and recruit new volunteer monitors to assist.	Annually, Ongoing	30 Mile, ALIC	30 Mile, ALIC, Grants
2	Continue collection of stream samples from monitoring locations on tributaries, upstream inlet, and Dead River.	Annually, Ongoing	30 Mile, ALIC	30 Mile, ALIC, Grants
3	Complete phosphorus mass calculations and estimate current internal P loading in the lake.	Year 1	30 Mile, Maine DEP	ALIC, Grants
6	Complete a land cover-based P-loading model (following the release of new Maine high-resolution land cover data in 2023) to update P loading estimates from various sources, and further prioritize watershed NPS mitigation and inform future restoration work.	Years 2-10	30 Mile, Consultant	ALIC, Grants
4	Install water level gauges on Androscoggin Lake and in the Dead River, and recruit volunteers to record water levels throughout the year.	Years 1-3, ongoing	Towns, ALIC	Towns, ALIC
5	Install cameras at the Dead River PCF to more closely monitor and document flow reversal events.	Years 1-3, ongoing	Towns, ALIC	Towns, ALIC
7	Set up Watershed NPS Site Tracker Tool, and update/maintain annually.	Years 1, Ongoing	30 Mile	Towns, ALIC, EPA (319 grants)
8	Revisit watershed survey sites and identify any new sources of NPS in the watershed	Year 6	30 Mile, ALIC	Towns, ALIC, Grants

Plan Oversight & Partner Roles

This Androscoggin Lake plan will be carried out by 30 Mile, with support from ALIC, and guidance from the Androscoggin Lake Watershed Steering Committee. Partners include Maine DEP, the Towns of Wayne and Leeds, commercial property owners, private road associations, and watershed landowners.

30 Mile will oversee plan implementation; provide technical assistance; promote watershed stewardship through its website, newsletters and presentations; work with the towns to provide property inspections and buffer delineation services for new development; conduct water quality monitoring. maintain the NPS Site Tracker to document new NPS sites and prompt ongoing maintenance; and collaborate with ALIC to conduct outreach activities and raise funds for plan implementation.

ALIC will provide funding for plan implementation, support 30 Mile oversight at the Board level, and provide volunteers to assist in implementation tasks.

The towns, commercial property owners, private road associations, and landowners will address NPS issues on their properties and conduct ongoing maintenance of installed BMPs.

The Towns of Wayne and Leeds will provide funding support for plan implementation, such as 30 Mile's YCC, water quality monitoring, and also work to address NPS problems and conduct regular maintenance on town road sites and other properties.

Maine DEP will provide technical assistance and provide the opportunity for financial assistance through the NPS Grants Program.

US EPA will provide guidance on grant programs, particularly Clean Water Act Section 319, work plan guidance, and selected project funding, pending acceptability of grant proposals, final work plans, and availability of federal funds.

Plan Outputs and Milestones

ORGANIZATIONAL OUTPUTS

- Apply for 319 grants for Phase I and Phase II of plan implementation (30 Mile)
- Update NPS Tracker regularly (30 Mile)
- Revisit sites identified in the 2022 Watershed Survey (30 Mile/ALIC)
- Make contact with all property owners, road associations, and town officials with sites identified in watershed survey (30 Mile/ALIC)

NPS MITIGATION OUTPUTS

Including currently identified and new sites:

- 58 priority high & medium-impact NPS sites fixed through 30 Mile YCC, with cost-sharing assistance as part of an EPA 319 Grant project, or independently by landowners/road associations.
- 36 medium-impact NPS sites fixed by 30 Mile YCC or independently by landowners with technical support provided by 30 Mile and ALIC.
- 44 low-impact NPS sites fixed through education and support from 30 Mile, ALIC, and LakeSmart.
- 80 technical assistance/LakeSmart visits completed over the 10-year plan cycle.

WATER QUALITY OUTCOMES

- Meet lake Class GPA standards set by Maine DEP over the next ten years (2023-2033)
- Stable or improved trend for lake water clarity (Secchi disk readings) and dissolved oxygen readings over the next ten years.
- Stable or decreased total phosphorus levels over the next ten years.

4. Proposed Management Measures

The *2022 Androscoggin Lake Watershed Survey Report* (Appendix B) lists specific management measures recommended for each of the NPS erosion site identified during the survey. Typical problems and management measures for the most common land uses identified in the watershed survey are described in the sections below. Recommendations follow guidelines found in Maine DEP publications, including the *Gravel Road Maintenance Manual* and *Conservation Practices for Homeowners* fact sheet series. The recommended BMPs accomplish the plan goal of reducing phosphorus and sediment loading to the lake by stabilizing bare soil, correcting erosion, and diverting, infiltrating or filtering polluted runoff before it reaches the lake.

In addition to structural BMPs recommended for each problem, public education and outreach efforts will also be needed to promote responsible stewardship and ongoing maintenance activities. The NPS Site Tracker will be maintained and used by 30 Mile on an ongoing basis to document new problems and prompt maintenance on sites fixed through this plan.

Residential Shoreline Development

Residential areas (not including driveways) were associated with approximately 28% of all sites identified during the 2022 watershed survey (40 sites). Only one (1) residential site was estimated to have a high impact on water quality. Twenty (20) residential sites were identified as having a medium impact, and nineteen (19) sites were found to have a low impact on water quality. It is the cumulative impact of all these sites together that causes water quality to decline. Fortunately, many of these sites can be addressed with simple, low-cost fixes.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable paths & walkways
- ✓ Shoreline erosion
- ✓ Unstable lake access
- ✓ Lack of shoreline vegetation

Recommended Solutions:

- ✓ Define and stabilize footpaths
- ✓ Rain garden
- ✓ Establish buffer vegetation
- ✓ Revegetate bare areas with exposed soils
- ✓ Erosion Control Mulch (ECM)
- ✓ Install runoff diverters or water bars

Eighteen (18) residential erosion sites identified were estimated to be fixed at low cost ($500). The remaining twenty-two (22) sites can be fixed at medium cost ($500-$2,500). No residential sites were estimated to have high-cost fixes,

The greatest concentration of residential erosion sites were documented on the western shoreline in Leeds. However, residential sites were documented throughout the entire Androscoggin Lake shoreline.

Private Roads and Driveways

NPS sites found on private, town, and state roads (including driveways) account for 42% of all sites identified during the 2022 survey (59 sites). Eleven of the total 16 high-impact sites identified during the survey were associated with roads and driveways.

- Twenty-nine (29) sites were identified on **private roads** – nearly half of all documented road sites. Private road sites are concentrated on the eastern shoreline where gravel camp roads travel along steep hillsides located between Morrison Heights and Hardscrabble Roads and the lake. Six (6) private road sites were rated high impact.

- Twenty-two (22) sites were identified on **town roads** in the towns of Leeds (13 sites), Wayne (5 sites), and Monmouth (4 sites). Four of the 22 sites documented on town roads are considered high impact to water quality.
- Seven (7) sites were identified on **state roads** – one (1) site on Route 219/Leeds Road, and six (6) sites on Route 133/Main Street. One (1) state road site was rated medium impact, and the remaining six (6) were rated as low impact to water quality.
- One (1) high-impact driveway site was documented on Lakeshore Drive.

Common Problems Identified:

- ✓ Unstable culvert inlet/outlet
- ✓ Crushed, broken, undersized culvert
- ✓ Improper gravel surface materials
- ✓ Winter sand build-up in ditch or stream
- ✓ Road surface/shoulder/ditch erosion
- ✓ Improper road shape/poor drainage
- ✓ Road ditch empties to stream or lake

Recommended Solutions:

- ✓ Armor/vegetate culvert inlet/outlet
- ✓ Replace and enlarge culvert
- ✓ Resurface w/ correct crushed gravel
- ✓ Remove winter sand
- ✓ Crown road, stabilize shoulders, and install ditch to manage road runoff.
- ✓ Install ditch turnouts or check dams
- ✓ Install plunge pool/basins to settle out sediment in road runoff.

Runoff from paved and gravel road surfaces is one of the biggest sources of pollution in Maine ponds and lakes. Proper maintenance is essential to prevent erosion from road surfaces, shoulders and roadside ditches. Unpaved gravel camp roads are a major source of pollution, in particular. While a one-time fix may cost more up front, it will reduce the amount of pollution entering the lake, and reduce the annual costs borne by the groups or landowners who pay to maintain these roads. Even roads that are miles away from the lake can have a big impact if road erosion is washing into a stream or culvert that drains directly to the lake.

Boat & Beach Access

Beach and boat access sites account for another 15% of documented erosion problems with 12 and eight (8) sites documented, respectively (20 sites total). This land use category includes two (2) high-impact, 15 medium-impact, and three (3) low-impact sites located largely on residential shoreline properties around the lake.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable or eroding shoreline

Recommended Solutions:

- ✓ Define and narrow access opening
- ✓ Establish shoreline buffer vegetation

- ✓ Lack of shoreline vegetation
- ✓ Delivering runoff into lake from adjacent areas

- ✓ Cover eroding surfaces with ECM or crushed stone
- ✓ Install runoff diverter across boat or beach access to prevent runoff from entering the lake.

Beach and boat access areas can be both a source of erosion to the lake, and/or a vector for delivering polluted stormwater runoff from adjacent development, like roads or driveways, directly into the lake untreated. Openings through the shoreline buffer should be minimal in number, and narrow (less than 6 feet wide). Installing a runoff diverter (rubber razor or open-top culvert) across boat launch and access points can prevent runoff from flowing down these access points and into the lake.

Commercial Properties

Nineteen (19) erosion sites were documented on commercial properties throughout the watershed and associated with campgrounds, a youth summer camp, a gas station, and a boating club. Two (2) commercial NPS sites were rated as high impact, 15 sites were documented as medium impact, and another two (2) sites were low impact to water quality.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable/eroding shoreline access
- ✓ Lack of shoreline vegetation
- ✓ Poor/eroding surface materials on gravel roads

Recommended Solutions:

- ✓ Define and narrow lake access openings
- ✓ Establish shoreline buffer vegetation
- ✓ Cover eroding surfaces with ECM or crushed stone, or revegetate
- ✓ Resurface eroding road gravel and reshape to a crown
- ✓ Redirect runoff on road or pathways into stable vegetation.

Due to the beauty and large size of Androscoggin Lake, it is no surprise that there are several commercial properties located on its shoreline. However, commercial properties are often at greater risk of developing erosion and runoff issues because they have a much larger development footprint with higher amounts and densities of impervious surfaces like roads, driveways, roof tops, and decks.

Other sites

Only four other erosion sites were identified during the 2022 survey. Two sites were associated with agricultural land uses (medium impact), one erosion site was documented on municipal/public (low impact), and one erosion site was found on a trail/path (low impact).

5. Pollutant Load Reductions

Pollutant load reductions will be estimated for completed NPS sites to help demonstrate the value of BMPs to reduce the amount of sediment and phosphorus entering the pond. Pollutant load reductions will be estimated and reported to Maine DEP for any work funded by 319 grants. Pollutant load reductions will be made using methods approved and recommended by Maine DEP and EPA.

6. Monitoring Water Quality Results

Maine water quality criteria require that lakes and ponds have a stable or improving trophic state and be free of culturally induced algal blooms. 30 Mile will continue to conduct baseline monitoring, bi-weekly, May through October. Maine DEP trend reporting (positive, negative, or stable) will assist in determining whether the plan meets its goal of having stable or improving water quality over time.

Continued Baseline Monitoring

In 2021, 30 Mile started annual monitoring of water quality in Androscoggin Lake. Monitoring occurs bi-weekly, May through October. Parameters collected include SDT, temperature, DO, phosphorus, Chl-a, color, pH, alkalinity, and conductivity. In 2022, 30 Mile collected these parameters in addition to phosphorus profile grab samples throughout the water column. Results of this data will be compiled in the 2022 annual water quality report available in spring 2023.

Stream Monitoring

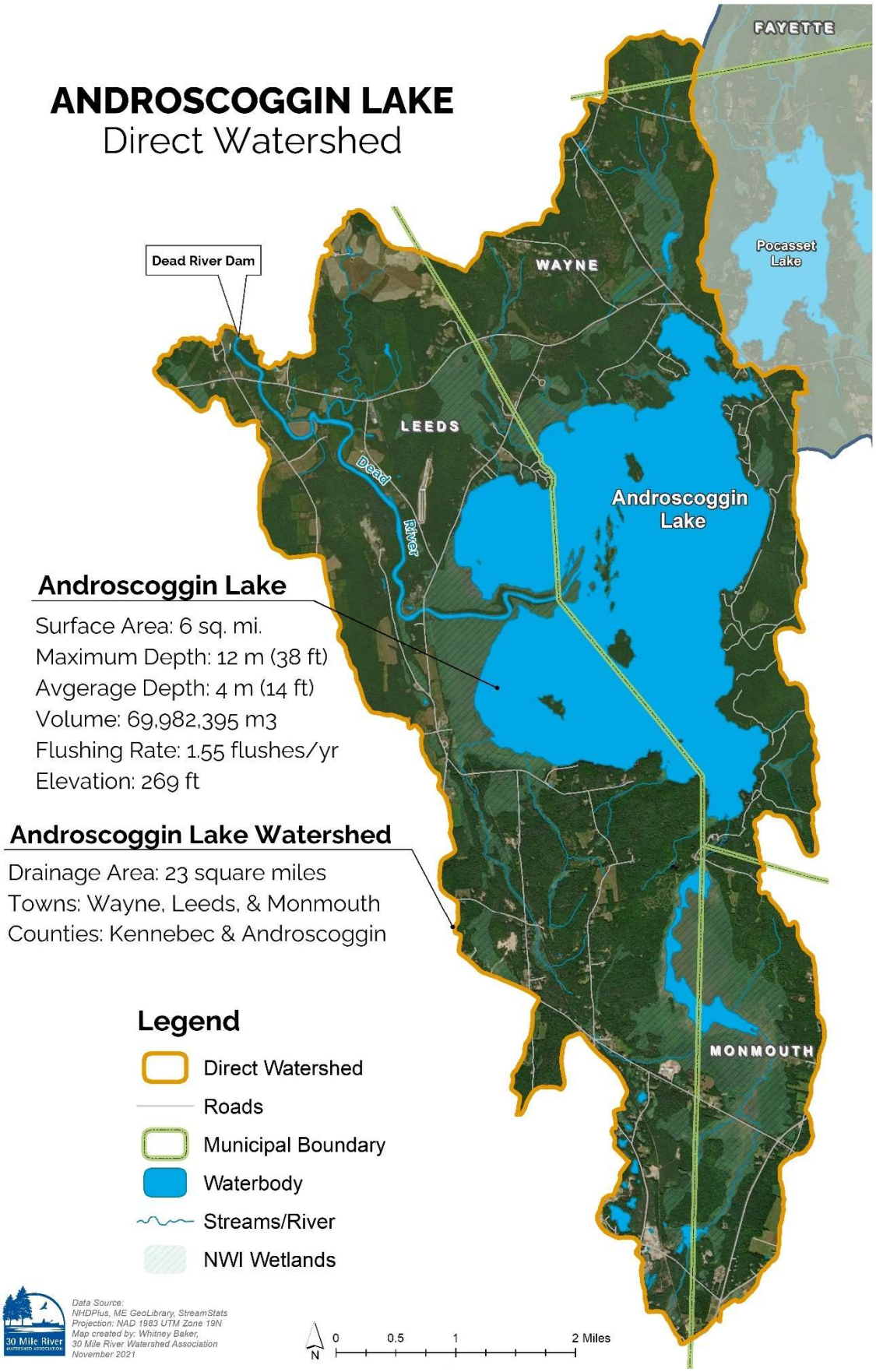
In 2022, 30 Mile, with assistance from ALIC water quality volunteers, collected phosphorus samples on four dates in July through October from tributaries draining to Androscoggin Lake and from several locations in the Dead River. These sites will be monitored again in May and June 2023, along with new monitoring locations, determined by the watershed steering committee.

Water Level Monitoring

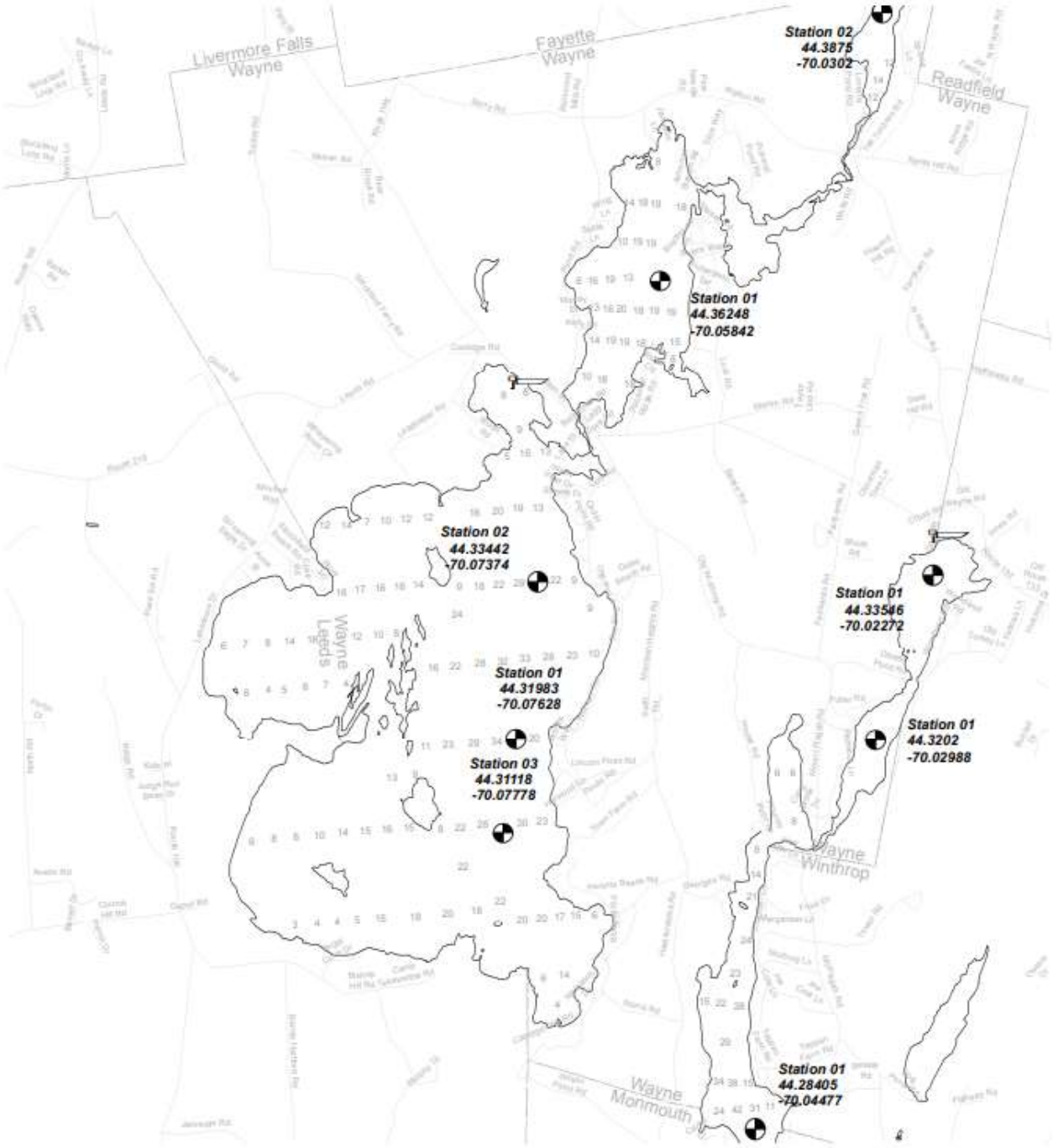
ALIC and the Dead River PCF Management Committee have been working to install cameras at the Dead River PCF/dam to better understand the frequency of and document flow reversal events in the Dead River. ALIC is also planning to install new water level gauges in select locations on the lake and recruit volunteers to record the lake elevation throughout the year.

Appendix A – Watershed Maps

Map 1


ANDROSCOGGIN LAKE
Direct Watershed
FAYETTE
Pocasset Lake
Dead River Dam
WAYNE
LEEDS
Dead River
Androscoggin Lake
MONMOUTH
Androscoggin Lake
Surface Area: 6 sq. mi.
Maximum Depth: 12 m (38 ft)
Avgerage Depth: 4 m (14 ft)
Volume: 69,982,395 m3
Flushing Rate: 1.55 flushes/yr
Elevation: 269 ft
Androscoggin Lake Watershed
Drainage Area: 23 square miles
Towns: Wayne, Leeds, & Monmouth
Counties: Kennebec & Androscoggin
Legend
Direct Watershed
Roads
Municipal Boundary
Waterbody
Streams/River
NWI Wetlands
30 Mile River Watershed Association
Data Source:
NHDPlus, ME GeoLibrary, StreamStats
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association
November 2021
N
0
0.5
1
2 Miles

Map 2



Androscoggin Lake

MIDAS # 3836

Wayne, Kennebec Co. - Delorme Page 12 - 4754 acres

Boat Launch | Lake Sample Stations | # Depth (FT) | Roads | Town Lines

0 1 2 3 4 5 Miles

Appendix B– 2022 Watershed Survey Report

ANDROSCOGGIN LAKE WATERSHED SURVEY 2022

30 Mile River
WATERSHED ASSOCIATION

30 Mile River Watershed Association • P.O. Box 132, Mount Vernon, ME 04352 • www.30mileriver.org

Acknowledgments

Project Partners

This project was led by 30 Mile River Watershed Association (30 Mile) with support from Androscoggin Lake Improvement Corporation (ALIC), The towns of Wayne and Leeds, Androscoggin Valley Soil & Water Conservation District (AVSWCD), and the Maine Department of Environmental Protection (Maine DEP).

Project Steering Committee

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Emma Lorusso	Androscoggin Valley Soil & Water Conservation District
Amanda Pratt	Maine Dept. of Environmental Protection
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Survey Technical Support

Amanda Pratt	Maine Dept. of Environmental Protection
Becky Schaffner	Maine Dept. of Environmental Protection

Funding

This survey was made possible in part by the Maine Community Foundation, donors to the Save Androscoggin Campaign, a grant from Lake Stewards of Maine, and substantial in-kind contributions from watershed survey volunteers, ALIC volunteers and board members, Maine Department of Environmental Protection, all project partners, and members of the watershed Steering Committee.

Report and Maps Prepared by:

Whitney Baker, 30 Mile River Watershed Association / www.30mileriver.org

Table of Contents

Appendices

List of Tables and Figures

Introduction

Androscoggin Lake and its Watershed

Androscoggin Lake is a threatened[1] lake located in the towns of Wayne and Leeds, Maine and is part of the 30 Mile River watershed -- a connected chain of lakes that drain roughly 90 square miles of land area across eight towns and three counties in Central Maine west of Augusta.

Androscoggin Lake is the terminal lake in the 30 Mile River chain. Its upstream watershed is roughly 60 square miles and includes the watersheds of Pocasset Lake, Lovejoy Pond, Echo Lake, Minnehonk Lake, Flying Pond, Parker Pond, David Pond, and many other small ponds, streams, and wetlands that eventually flow to Mill Stream, Androscoggin's largest inlet located at the southern end of Pocasset Lake in Wayne. The lake's direct watershed covers 23 square miles in the towns of Wayne, Leeds, Monmouth and Fayette, and includes the smaller drainages of several intermittent and perennial streams that drain directly to the lake. (Figure 1, next page).

Androscoggin Lake is a relatively shallow lake with a maximum depth of 12m (38 ft) and an average depth of just 4m (14 ft). Though shallow, the lake has a very large surface area of nearly 4,000 acres and for this reason is a destination for boaters both locally and from afar. The lake is utilized heavily for recreation, including boating, fishing, swimming, birding, and hunting (Dead River). Many sandy beaches line the lake's shoreline, making this lake a popular swimming destination for many in the summer months.

WHAT IS A WATERSHED?

A watershed is all the land that surrounds a pond that drains or sheds its water into the pond through streams, ditches, directly over the ground surface or through groundwater. It includes everything within its borders—the land, air, plants, animals, towns, farms and people. Activities in this entire area (not just the shoreline areas) eventually impact the lake's water quality, for better or worse.

1 Androscoggin Lake appears on Maine DEP's list of "Threatened Lakes" on the NPS Priority Watersheds List due to its sediment chemistry. Sediment results suggest that the lake is more vulnerable to internal phosphorus loading, a phenomenon that can occur when deep waters become anoxic (DO loss <2 ppm) resulting in phosphorus release from the bottom sediments exposed to anoxic waters.

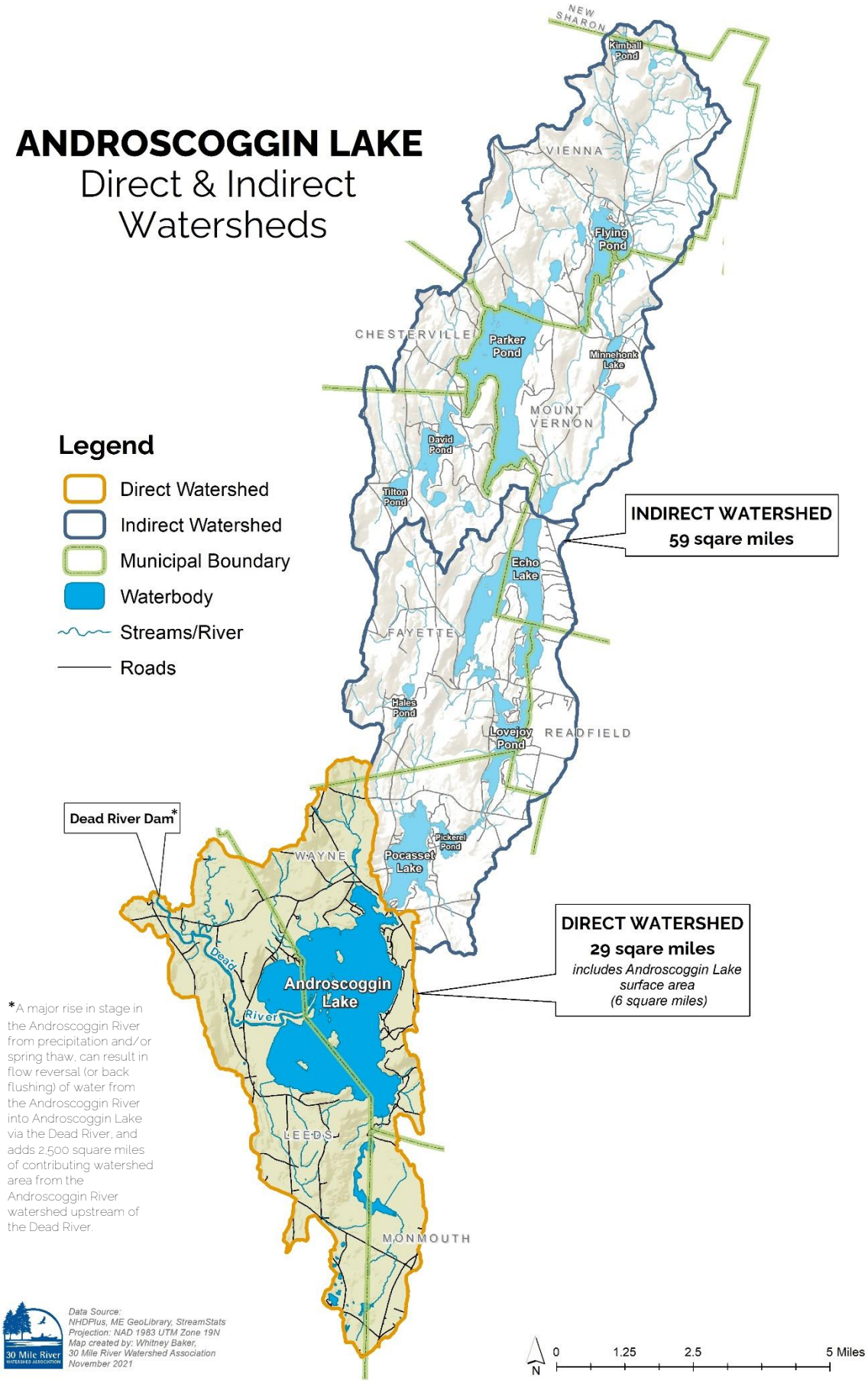


Figure 1. Androscoggin Lake's direct and indirect watershed

Under typical flow conditions, the lake drains to a single outlet, the Dead River, which flows west for seven miles to the Androscoggin River. However, due to the relatively flat gradient between the lake surface and the Androscoggin River at normal water level (stage), a rise in stage in the Androscoggin River from precipitation and/or spring thaw results in flow reversal (or back flushing) of water from the Androscoggin River into Androscoggin Lake via the Dead River. In other words, when flood waters rise in the Androscoggin River, the Dead River reverses its flow, and Androscoggin Lake acts as a flood storage reservoir for the Androscoggin River.

The Dead River pollution control facility in October 2021 (top) and flow reversal in October 2022 after heavy rains caused the Androscoggin River to rise ~16 feet (bottom).

Due to this phenomenon of flow reversal, the Dead River Dam (aka Dead River Pollution Control Facility) was built in the 1930s to limit the flow of severely polluted river water into the lake, which in the past occurred several times per year on average, and most recently in October 2022. The Androscoggin River Watershed above the Dead River includes more than 2,500 square miles and 11 licensed wastewater discharges (8 municipal, 3 industrial). Androscoggin Lake is the only lake in the state that receives floodwaters from a Class C river[2] through a natural flow reversal phenomenon (Maine DEP, 2004).

Androscoggin Lake is a valuable resource for the general public, many of whom use it for fishing, swimming, camping, canoeing, kayaking, cross-country skiing, snowmobiling, and ice fishing.

[2] The State of Maine has four classes for freshwater rivers: AA, A, B, and C. Class AA is the highest classification and Class C the lowest. A higher classification means greater protections from pollution. For example, upgrading a Class C river to a Class B river means that licensed dischargers are more strictly regulated to protect a broader range of uses and a higher quality of habitat.

There are three public boat launches on Androscoggin: A state-owned launch on Main Street (Route 133), a town-owned launch on Stinchfield Beach Road in Leeds (Leeds residents only), and the town-owned launch at the Androscoggin Yacht Club in Wayne Village. Private access is also provided at three campgrounds (Jellystone Campground, Androscoggin Lake Campground (beach access only), and Riverbend Campground (via Dead River)), and at two private summer camps (Camp Tekakwitha and Camp Androscoggin). Kennebec Land Trust manages property on Norris Island that includes a swimming beach, two tent sites, and a cabin site open for public use. Winter anglers can access the lake from most anywhere on its 27 miles of shoreline. Several bass fishing tournaments occur annually on Androscoggin Lake, bringing anglers from across the state to the public and private launches around the lake.

Androscoggin Lake supports a warm water fishery and provides important habitat for black bass and chain pickerel, which the lake is particularly well-known for producing in large size. A landlocked alewife population was established in the lake in the 1980s that provides excellent forage for gamefish.

Threats to Water Quality

The biggest pollution threat to all Maine lakes is polluted stormwater runoff or nonpoint source (NPS) pollution. Stormwater runoff occurs when water from rain and snowmelt flows over the landscape, picking up soil, nutrients and other pollutants as it flows across the land.

POLLUTED STORMWATER RUNOFF:

Also called nonpoint source (NPS) pollution, polluted stormwater runoff is made up of soil, fertilizers, septic waste, pet waste, and other pollutants from diffuse sources across the landscape that are carried into the pond by rainfall.

In an undeveloped, forested watershed, stormwater runoff is slowed and filtered by tree and shrub roots, grasses, leaves, and other natural debris on the forest floor. It then soaks into the uneven forest floor and filters through the soil. In a developed watershed, however, stormwater does not always receive the treatment the forest once provided. Rainwater picks up speed as it flows across impervious surfaces like rooftops, compacted soil, gravel camp roads and pavement, and it becomes a destructive and erosive force. In this way, runoff from the developed areas in the watershed often washes directly into the lake from shoreline areas or through tributary streams.

Why is Polluted Stormwater Runoff a Problem?

The problem is not necessarily the water itself; it is the sediment and nutrients in the runoff that can be bad news for lake water quality. Studies have shown that runoff from developed areas has 5 to 10 times the amount of phosphorus compared to runoff from forested areas. The nutrient phosphorus is food for algae and other plants and is found in soils, septic waste, pet waste and fertilizers. In natural conditions, the scarcity of phosphorus in a lake limits algae growth.

PHOSPHORUS:

A common nutrient found in soil and organic matter, carried to the lake via stormwater runoff from the lake's watershed. Phosphorus is the nutrient that controls the level of algae production in lakes. Excess phosphorus levels can cause dense blooms of cyanobacteria (aka blue-green algae) resulting in murky green water, depleted oxygen levels, and fish kills.

However, when a lake receives extra phosphorus, algae growth increases dramatically. Sometimes this growth causes choking blooms, but more often it results in small changes in water quality that, over time, damage the ecology, aesthetics, and economy of our lakes.

Soil is the biggest source of phosphorus to many lakes. As every gardener knows, phosphorus and other nutrients are naturally present in the soil. So, we are essentially "fertilizing" our lakes with the soil that erodes from our driveways, roads, ditches, pathways, and beaches.

Why is it important to protect these lakes from polluted runoff?

- ✓ They provide recreational opportunities to watershed residents and to visitors.
- ✓ They are important contributors to the local economy.
- ✓ Lakes contain valuable habitat for fish, birds and other wildlife.
- ✓ A 1996 University of Maine study demonstrated that pond water quality affects property values. For every meter (3 ft.) decline in water clarity, shorefront property values can decline as much as 10 to 20 percent! Declining property values affect individual landowners as well as the economics of the entire community.

✓ Once a lake's water quality has declined, it can be difficult, costly, or even impossible to restore.

Androscoggin Lake Water Quality

Water quality data has been collected from Androscoggin Lake since the 1970s. The parameter most collected is Secchi Disk Transparency (SDT). SDT is an indicator of water clarity. Historically, SDT data was collected on Androscoggin during 47 of the past 52 years, and readings have ranged from 1.1 m (1999) to 7.3 m (1972).

Androscoggin Lake has a history of reduced water clarity readings during summer months. Looking at the distribution of data collected since 1970, near-bloom conditions (SDT 2-3 meters deep) were documented during 16 years with lake-wide bloom conditions (SDT <2 meters) documented just three years in 1991, 1999, and 2021 (Figure 2). Maine DEP defines a "lake-wide algal bloom" as Secchi Disk Transparency less than 2 meters (~6 ft) deep at Station #1 (the deepest point in the lake).

ALIC Volunteer monitor, Patt Koscinski, collects clarity data using a Secchi disk and scope in September, 2021.

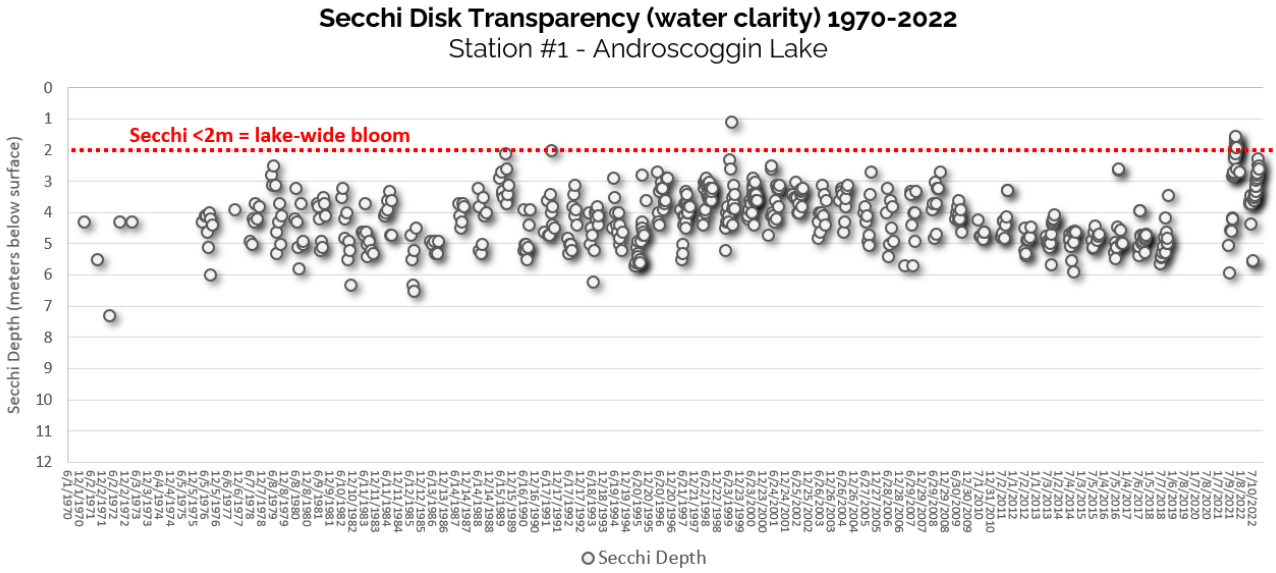


Figure 2. Secchi Disk Transparency (Water Clarity) in Androscoggin Lake, Station 1, 1970-2022

In 2021, Androscoggin Lake suffered a severe algae bloom; starting in late August, officially reaching lake-wide bloom status in late September, and remained below or just above 2 meters at Station #1 through October and November. In 2022, bloom conditions were less severe with water clarity readings decreasing through the monitoring season to between 2 and 3 meters for all September and October 2022.

Shoreline scum formation at the public boat launch on Route 133 in Wayne – October 13, 2021.

The blooms in 2021 and 2022 were composed of cyanobacteria, a type of algae formerly called blue-green algae because dense blooms will turn the water green or blue-green. Cyanobacteria are a natural and important part of the lake ecosystem, and are found in lakes all over the world. However, when phosphorus concentrations increase and conditions are just right, their population can explode. The result is what we call a “cyanobacteria bloom” or “algal bloom.”

The species in this bloom has the ability to produce toxins, but we do not have toxin results at the time of this report. Of all the toxin samples Maine DEP has collected from Maine lakes over the past decade, there were only a few open water samples that exceeded EPA’s Drinking Water standard for the algal toxin microcystin for infants and non-school-age children. None of the samples exceeded the standard for school-age children or adults. No open water samples have exceeded EPA’s Recreational Standard – even when collected from lakes with blooms that are chronic and severe.

However, Maine DEP has detected very high concentrations of the algal toxin microcystin on other lakes in downwind algal scums that can accumulate along shorelines. This is why we advise everyone to stay away from any concentrated scums or accumulations near shorelines or in down-wind coves. Do not inadvertently drink the water in these areas, and do not let small children, pets, or livestock play in these areas or drink from the lake. Shower after swimming, and do not use lake water for household uses like cooking or drinking. Out of an abundance of caution: When in Doubt - Stay Out!

Tracking in-lake phosphorus levels over time is another way of monitoring change in lake water quality trends. Phosphorus data have been collected from Androscoggin Lake since 1976. Generally speaking, in-lake phosphorus concentrations (epilimnetic core samples) less than 10-12 ppb (parts per billion) are ideal. Lakes with in-lake phosphorus concentrations of 13 ppb or more are known to sustain algal blooms, and blooms become frequent as average concentrations approach 20 ppb.

Historically, annual average in-lake phosphorus concentration in Androscoggin Lake ranged from 9 ppb (1978 and 2013) to 22 ppb (2003) with an average historical average of 14 ppb (Figure 3). Laboratory results for phosphorus samples collected in 2021 ranged from 11 ppb to 20 ppb with an average of 16 ppb.

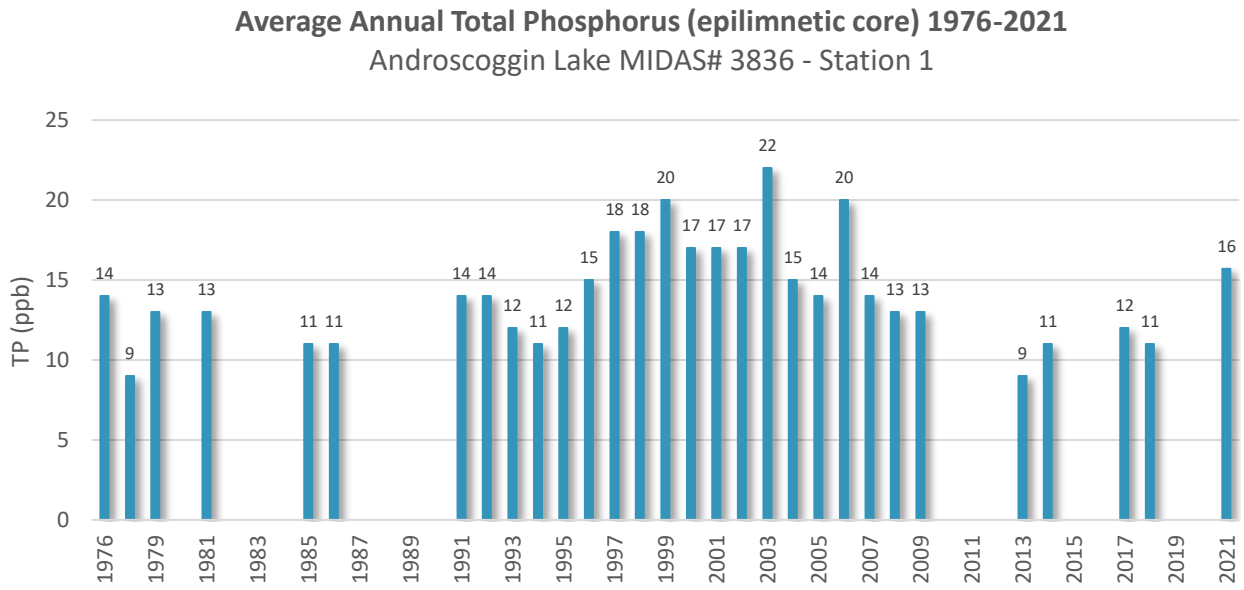


Figure 3. Average Annual Total Phosphorus (TP) Androscoggin Lake, 1976-2021

What can be done to reduce the amount of phosphorus entering the lake? The answer: Improve the *quality* of the stormwater runoff entering the lake from the surrounding watershed. If we improve the condition of the land in the watershed, we improve the quality of stormwater runoff and can therefore improve water quality in the lake. But to be successful, it takes all watershed landowners working together, each doing their part to eliminate erosion on their properties for a better lake.

2022 Watershed Survey Purpose & Methods

In May 2022, 30 Mile River Watershed Association (30 Mile), with the support of its partners and local volunteers, conducted a survey of the Androscoggin Lake watershed. The purpose of the survey was to protect and improve water quality in the lake by identifying sources of soil erosion and polluted runoff that are now, or could in the future, pose a risk to water quality, and recommending solutions to correct the problems identified.

Trained volunteers and technical leaders surveyed the developed areas of the Androscoggin Lake Watershed, identifying 142 erosion sites that are impacting or have the potential to impact water quality. This report provides the survey results and prioritizes next steps. It was designed specifically for landowners living in the Androscoggin Lake watershed, and includes the towns of Wayne, Leeds, and Monmouth.

Purposes of the Watershed Survey

The purpose of the watershed survey was to identify and prioritize for remediation existing sources of polluted runoff, particularly soil erosion sites, within the Androscoggin Lake watershed. However, of equal importance, other benefits of the survey include:

- ✓ Raise public awareness of the connection between land use and water quality, and the impact of polluted runoff.
- ✓ Inspire people to become active stewards of the watershed.
- ✓ Use the information gathered as one component of a long-term pond protection strategy.
- ✓ Make recommendations to landowners for fixing erosion problems on their properties.

The purpose of the survey was NOT to point fingers at landowners with problem spots, nor was it to seek enforcement action against landowners not in compliance with ordinances. Local citizen participation was essential in completing the watershed survey and will be even more important in upcoming years. Through the leadership of the 30 Mile River Watershed Association, and with assistance from local groups and agencies concerned with water quality, the opportunities for stewardship are limitless.

Watershed Survey Method

Planning for the watershed survey began in 2021, and was coordinated by 30 Mile with tremendous support from ALIC and a watershed steering committee composed of representatives from various partner organizations, watershed towns, and state agencies.

In April 2022, all landowners within the watershed were contacted to inform them of the survey and give them the opportunity to "opt-out" their property (Figure 4). Out of the 850 landowner notifications sent, 18 properties (2%) were excluded from the survey.

On May 11, 2022, 15 volunteers and five technical leaders gathered to participate in a training session on survey techniques. Following the classroom training, the volunteers and technical staff were broken into nine teams, and spent the following two days (May 12 & 13) traveling on foot and by car, documenting potential erosion problems in their assigned sectors (Figure 5). All developed areas of the entire watershed were surveyed, other than properties that opted out. The teams collected data using standardized forms. Additional survey work occurred on May 16 and July 15, 2022. Data collected included information on the type of land use, a description of the problem, and the level of impact on water quality. (See Appendix A for the complete list of identified sites) During the field survey, teams also recommended solutions to remediate each identified erosion source, along with estimates of the cost and technical level required to do so.

Figure 4. Landowner notification letter and informational flier

The collected data were entered into a database and the documented erosion sites were plotted on maps and prioritized by the watershed steering committee. This report includes the survey findings, remediation priorities, site maps, next steps, and a complete list of identified erosion sites.

Androscoggin Lake watershed survey volunteers on May 12, 2022 kicking off the first day of field surveys.

Survey Sectors

Sector 1	SE Wayne Village east of Mill Pond Dam. Includes Old Winthrop Road, Gott Road, Davis Point, Cedar Point to Osprey Lane in Wayne.
Sector 2	Dole's Beach Road and The Blvd, Lincoln Point Road and arterials: Poulin Road, Harwood Lane, Brooks Boulevard, and Holman Terrace in Wayne.
Sector 3	Town Farm Road, Perkins Beach Road, Moose Run Road, and Norris Road in Wayne.
Sector 4	Wilson Pond Road (Monmouth), Campground Road and Jellystone Campground property (Wayne/Leeds), and Bog Road (Monmouth).
Sector 5	SW side of Dead River and Lake. Includes Camp Tekakwitha, Angel Cove Drive, Bishop Hill Road, Bernie Hartford Road, Routes 106 and 219 W of Dead River, Ridge Road, and North Road in Leeds.
Sector 6	NE side of Dead River. Includes Routes 106 and 219 NE of Dead River, Riverbend Campground, Barker Road, and Rolling Knoll Drive in Leeds.
Sector 7	Lakeshore Drive and Stinchfield Beach Road (and arterials) in Leeds.
Sector 8	Route 219 NE of Lakeshore Drive, Coolidge Road, Leadbetter Road, Westacres & Woods Roads, Camp Androscoggin, and Strickland Ferry Road in Wayne.
Sector 9	Memorial Park, Lake Street, Androscoggin Yacht Club, Main Street, Kings Hwy, Berry Road, and Mullen Road/ Bear Brook Lane in Wayne.

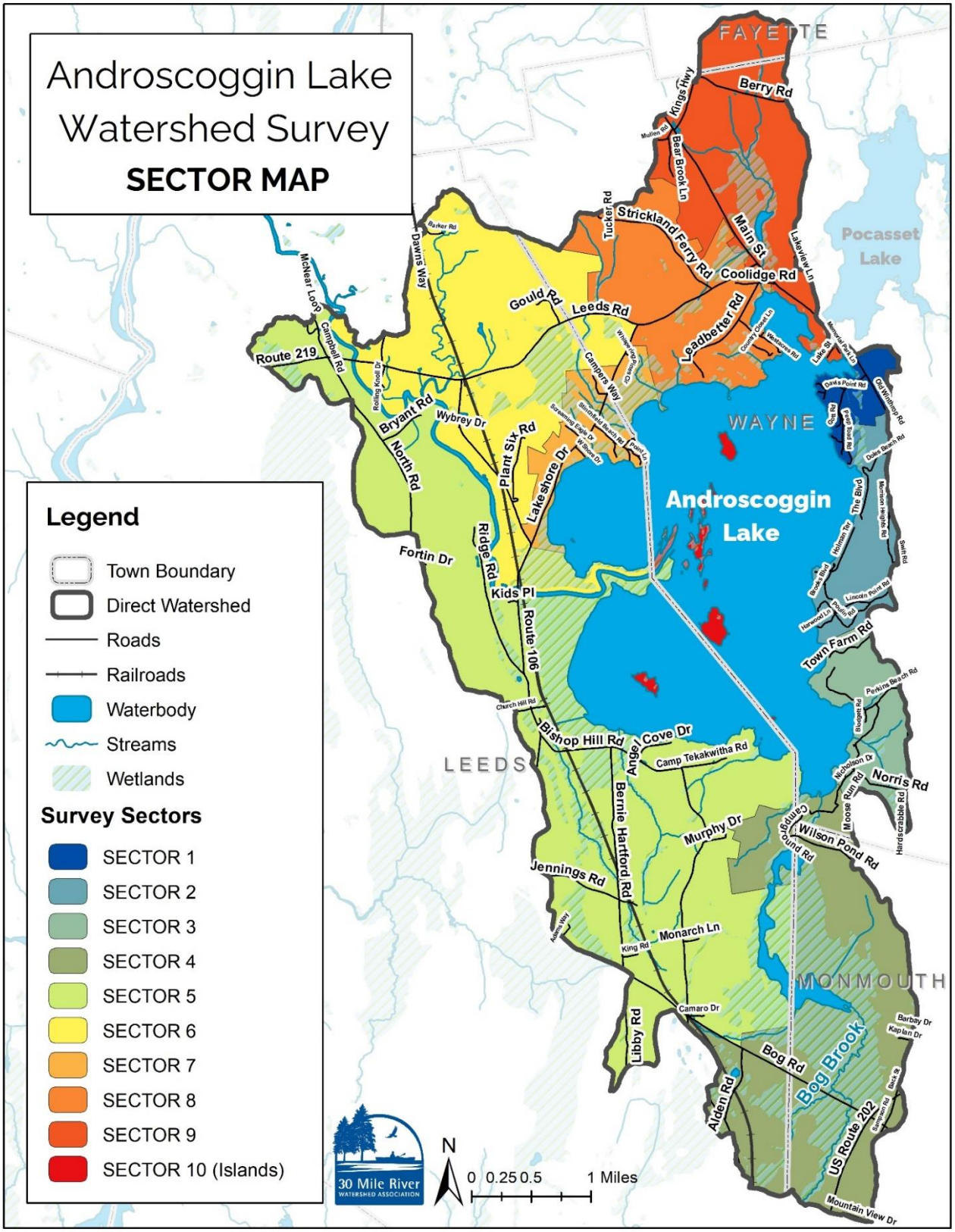


Figure 5. Watershed "sectors" created for the 2022 watershed survey of Androscoggin Lake

Watershed Survey Findings

Overall, 142 sites were identified during the survey as current or potential sources of pollution to Androscoggin Lake (Table 1 and Figure 6). Seventy-nine (79) sites, or 56% of all sites identified, were located in the Town of Wayne. Sixty (60) sites (43%) were located in the Town of Leeds, and three (3) sites (2%) were identified within the Town of Monmouth.

Residential areas (not including driveways) constituted the largest category of identified erosion sites (28% of all sites). Private roads constituted the second largest category of erosion sites (20%), with town roads third (15%). The results of the survey and summary of the data are discussed here. A complete listing of all sites can be found in the table in Appendix A.

Key Findings:

- ✓ Sixteen (16) or approximately 11% of all sites identified were rated as high impact to water quality. High impact sites were associated mainly with private and town roads.
- ✓ Seventy-nine (79) sites, or 56% of all identified sites, were rated as medium impact and were most commonly associated with private and town roads, residential properties, commercial properties, and beach access land use categories.
- ✓ High and medium impact sites together account for more than 2/3 of all sites. These sites typically contribute higher amounts of pollution to the pond and should be of highest priority for remedial action. High and medium impact sites were documented on a wide range of land use types – highlighting the fact that EVERYONE has a role to play in lake protection.
- ✓ 33% of all identified sites were classified as low impact to water quality (47 sites). More than 40% of all low impact sites were found on residential properties (19 low-impact residential sites). Though low impact sites likely contribute less pollution individually, many sites can collectively have a big impact. Luckily, remediation of many of these low impact sites have straightforward solutions that could easily be completed by homeowners on their own, or through 30 Mile's Youth Conservation Corps Program.
- ✓ Forty (40) sites, or nearly 30% of all survey sites, were documented on residential properties. Of the 40 residential sites, 1 site was rated high impact, 20 sites were rated as medium impact, and another 19 sites were determined to be low impact to water quality.

- ✓ Sites associated with roads and driveways made up 42% of all sites (59 sites total) and had varying impact ratings: ten (10) high, 28 medium, and 21 low impact sites. 29 sites were documented on private roads, 22 sites on town roads, seven (7) problems were found on state roads, and one (1) driveway erosion site was documented for a total of 59 sites.
- ✓ Commercial properties make up the fourth largest land use category of erosion problems found, accounting for 13% of all sites (19 sites total). Erosion documented on commercial properties was largely rated as having a medium impact to water quality (15 sites). Two commercial sites were rated as high-impact, and another two sites were rated low-impact.

Table 1. NPS site summary - 2022 Androscoggin Lake Watershed Survey

LAND USE	IMPACT RATING			*TOTAL*
	High	*Med*	*Low*	
Agriculture	0	2	0	*2*
Beach Access	1	9	2	*12*
Boat Access	1	6	1	*8*
Commercial	2	15	2	*19*
Driveway	1	0	0	*1*
Municipal/Public	0	0	1	*1*
Residential	1	20	19	*40*
Private Road	6	10	13	*29*
Town Road	4	11	7	*22*
State Road	0	6	1	*7*
Trail or Path	0	0	1	*1*
TOTAL	*16*	*79*	*47*	***142***

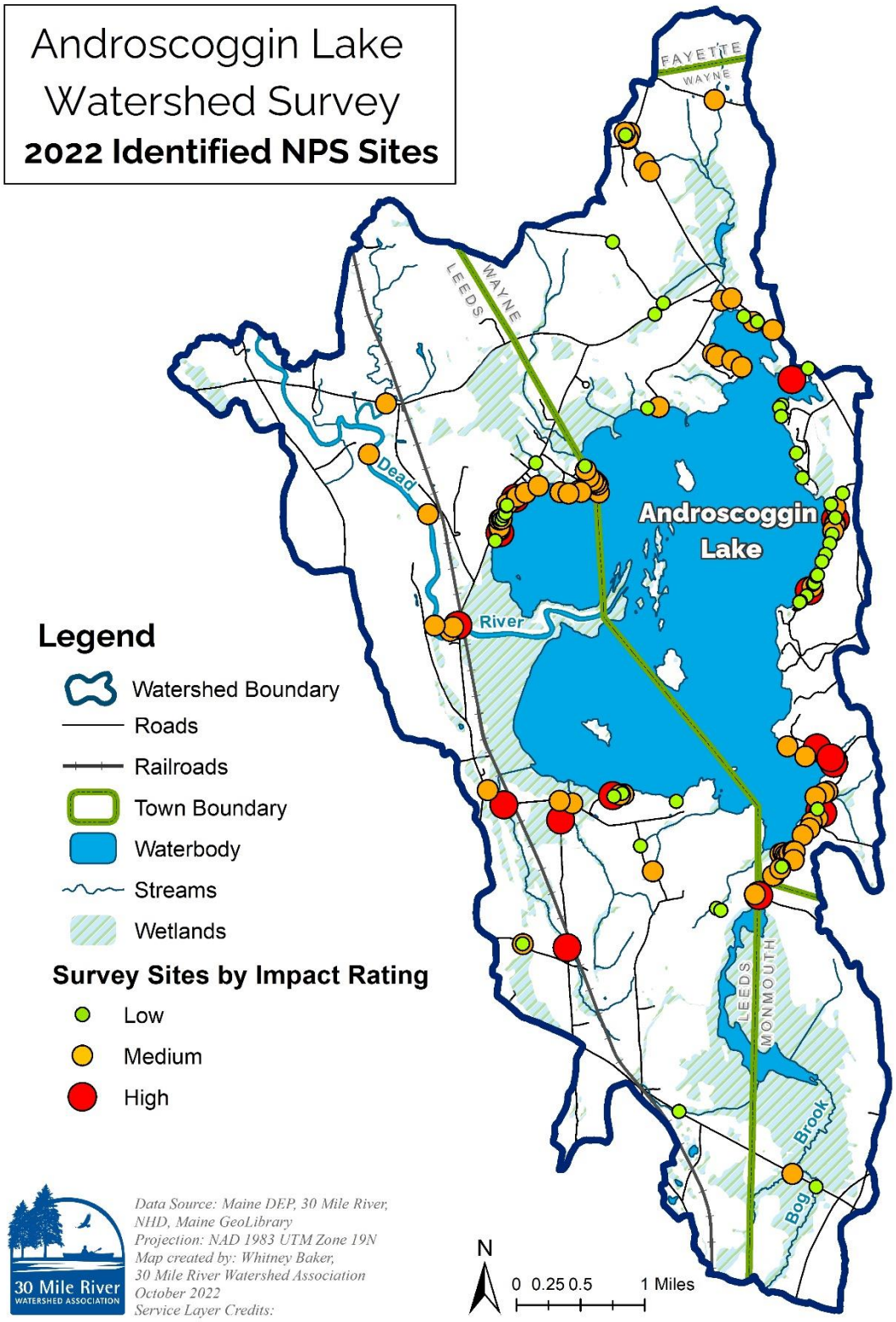


Figure 6. Map of sites identified during the 2022 Androscoggin Lake watershed survey

Land Use Breakdown

Forty (40), or 28% of all sites identified during the survey were associated with **residential land uses**. The majority of these sites were rated medium impact (20 sites) and low impact (19 sites) to water quality. Only one (1) site was rated high impact. At least 30 of the residential sites documented, which includes many of the low and medium impact sites, were determined to be suitable for remediation by 30 Mile's Youth Conservation Corps (YCC). **Private roads** accounted for 20% of all sites identified (29 sites), and **town roads** (both paved and dirt) accounted for 15% of all sites identified during the survey (22 sites). Remediation of road problems will require the full cooperation of private road landowners and the towns. Comprehensive planning by a road association or the town is critical to ongoing road maintenance. 30 Mile is available to assist in planning efforts.

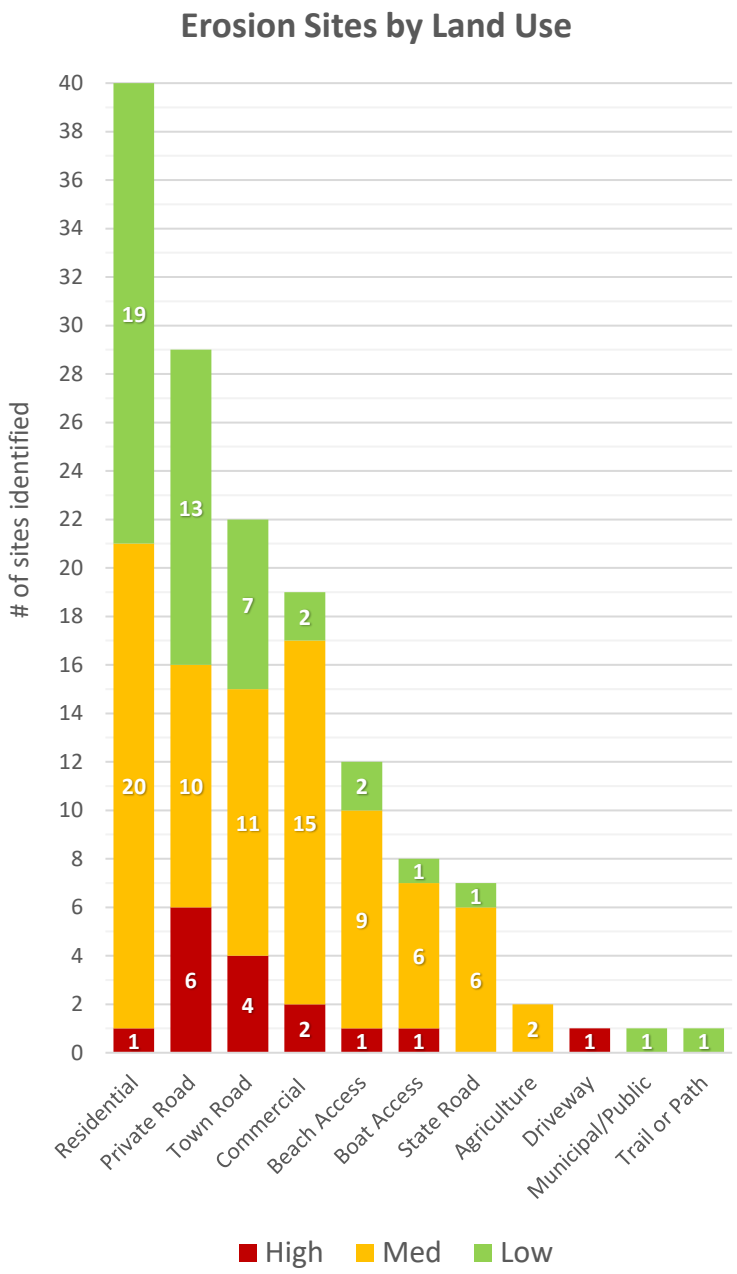


Figure 7. identified sites by land use category and impact level

Beach and boat access points account for another 15% of documented erosion problems, with 12 and eight (8) sites, respectively. **Commercial properties** represent 13% of identified sites (19 sites). The remaining 12 sites, or approximately 9% of all identified sites, represent five (5) other land uses, including state roads (7 sites), agriculture (2 sites), driveways (1 site), municipal/public (1 site), and trail/path (1 site).

Erosion Sites by Impact Rating

Each site identified during the survey was rated for its potential impact to the lake (Figure 8). Impact was based on the size of the site, its slope, amount of soil eroded, and proximity to water.

- ✓ Low Impact sites are those with limited soil transport off-site; a small site with no evidence of rills or gullies.
- ✓ Medium Impact sites are those where sediment is transported off-site, but not a high magnitude.
- ✓ High Impact sites are large sites with significant erosion that flows directly into a stream or the lake.

Forty-seven (47), or roughly a third of all sites (33%) were identified as being low impact. However, seventy-nine (79) sites, more than half of all identified sites (56%), were identified as medium impact. Another fifteen (16) sites (11%) were rated as having a high impact on water quality, and the cumulative effect of all of these sites is quite significant.

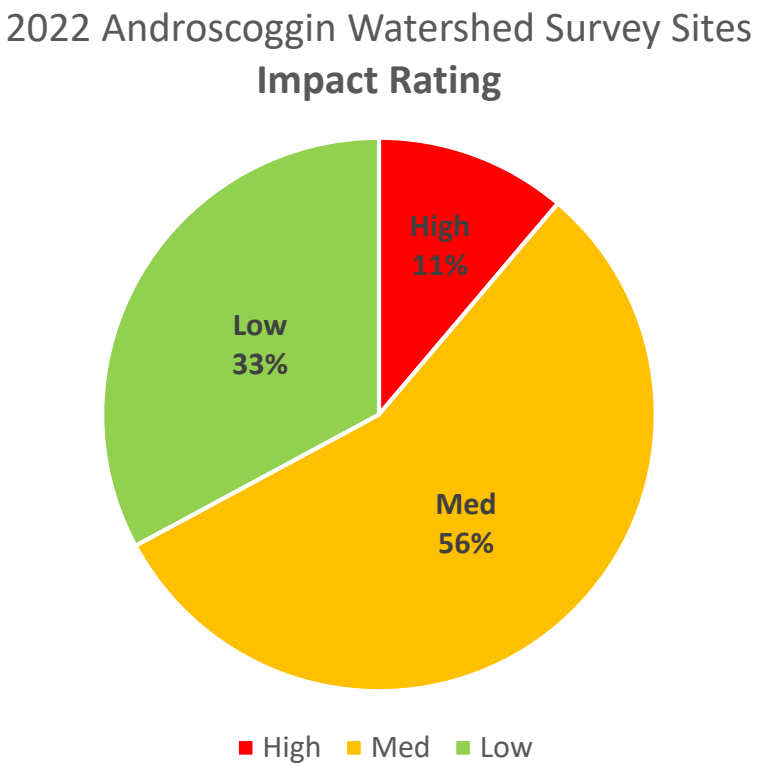


Figure 8. Impact ratings of identified erosion sites

Cost of Addressing Identified Problems

Cost is an important factor in planning for remediation. The cost of labor and materials to fix each site was estimated and rated as follows:

- ✓ Low Cost: Less than $500
- ✓ Medium Cost: $500-$2,500
- ✓ High Cost: Greater than $2,500

Twenty-eight (28) sites, or 20%, can be fixed at low cost (under $500). Seventy-seven (77) sites, or just over half of all sites (54%) can be fixed at medium cost ($500-$2,500), and another thirty-seven (37) sites, or 26%, require high cost fixes (over $2,500) (Figure 9).

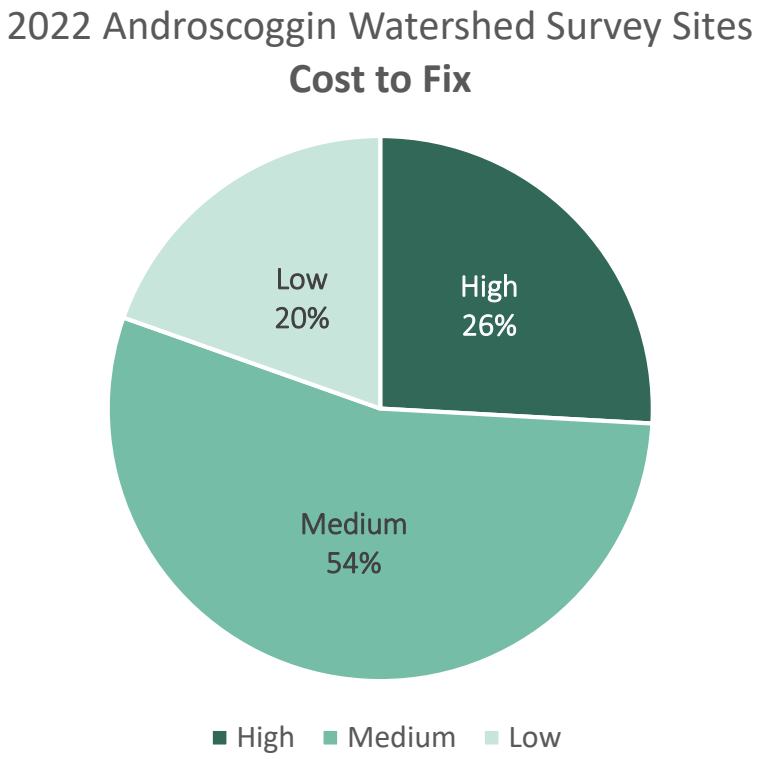


Figure 9. Cost to fix identified erosion sites

Top Land Use Categories:

Road Sites (59)

NPS sites found on private, town, and state roads (including driveways) account for 42% of all sites identified during the 2022 survey. 11 of the total 16 high-impact sites identified during the survey were associated with roads and driveways.

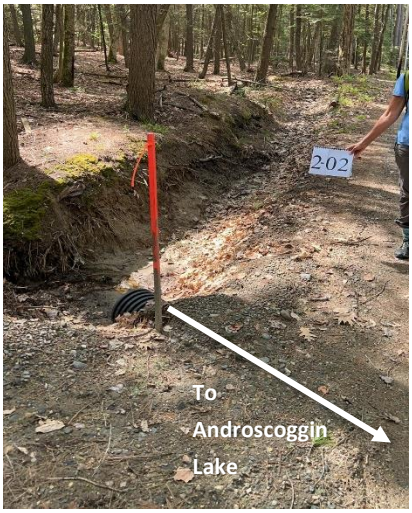
- Twenty-nine (29) sites were identified on **private roads** – nearly half of all documented road sites. Private road sites are concentrated on the eastern shoreline where gravel camp roads travel along steep hillsides located between Morrison Heights and Hardscrabble Roads and the lake. Six (6) private road sites were rated high impact.
- Twenty-two (22) sites were identified on **town roads** in the towns of Leeds (13 sites), Wayne (5 sites), and Monmouth (4 sites). Four of the 22 sites documented on town roads are considered high impact to water quality.
- Seven (7) sites were identified on **state roads** – one (1) site on Route 219/Leeds Road, and six (6) sites on Route 133/Main Street. One (1) state road site was rated medium impact, and the remaining six (6) were rated as low impact to water quality.
- One (1) high-impact driveway site was documented on Lakeshore Drive.

Common Problems Identified:

- ✓ Unstable culvert inlet/outlet
- ✓ Crushed, broken, undersized culvert
- ✓ Improper gravel surface materials
- ✓ Winter sand build-up in ditch or stream
- ✓ Road surface/shoulder/ditch erosion
- ✓ Improper road shape/poor drainage
- ✓ Road ditch empties to stream or lake

Recommended Solutions:

- ✓ Armor/vegetate culvert inlet/outlet
- ✓ Replace and enlarge culvert
- ✓ Resurface w/ correct crushed gravel
- ✓ Remove winter sand
- ✓ Crown road, stabilize shoulders, and install ditch to manage road runoff.
- ✓ Install ditch turnouts or check dams
- ✓ Install plunge pool/basins to settle out sediment in road runoff.



Ditch, culvert, and road surface erosion identified on a private gravel road that drains to Androscoggin Lake.

Runoff from paved and gravel road surfaces is one of the biggest sources of pollution in Maine ponds and lakes. Proper maintenance is essential to prevent erosion from road surfaces, shoulders and roadside ditches. Unpaved gravel camp roads are a major source of pollution, in particular. While a one-time fix may cost more up front, it will reduce the amount of pollution entering the lake, and reduce the annual costs borne by the groups or landowners who pay to maintain these roads. Even roads that are miles away from the lake can have a big impact if road erosion is washing into a stream or culvert that drains directly to the lake.

Residential Sites (40)

Residential areas (not including driveways) were associated with approximately 28% of all sites identified during the 2022 watershed survey. Only one (1) residential site was estimated to have a high impact on water quality. Twenty (20) residential sites were identified as having a medium impact, and nineteen (19) sites were found to have a low impact on water quality. **It is the cumulative impact of all these sites together that causes water quality to decline.** Fortunately, many of these sites can be addressed with simple, low-cost fixes.

Surface erosion on a pathway leading to Androscoggin Lake.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable paths & walkways
- ✓ Shoreline erosion
- ✓ Unstable lake access
- ✓ Lack of shoreline vegetation

Recommended Solutions:

- ✓ Define and stabilize footpaths
- ✓ Rain garden
- ✓ Establish buffer vegetation
- ✓ Revegetate bare areas with exposed soils
- ✓ Erosion Control Mulch (ECM)
- ✓ Install runoff diverters or water bars

Eighteen (18) residential erosion sites identified were estimated to be fixed at low cost ($500). The remaining twenty-two (22) sites can be fixed at medium cost ($500-$2,500). No residential sites were estimated to have high-cost fixes,

The greatest concentration of residential erosion sites were documented on the western shoreline in the Lakeshore Drive and Stinchfield Beach area in Leeds. However, residential sites were documented throughout the Androscoggin Lake shoreline.

Beach and Boat Access (20)

Beach and boat access points account for another 15% of documented erosion problems with 12 and eight (8) sites documented, respectively. This category of sites includes two (2) high-impact, 15 medium-impact, and three (3) low-impact sites located largely on residential shoreline properties around the lake.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable or eroding shoreline
- ✓ Lack of shoreline vegetation
- ✓ Delivering runoff into lake from adjacent areas

Recommended Solutions:

- ✓ Define and narrow access opening
- ✓ Establish shoreline buffer vegetation
- ✓ Cover eroding surfaces with ECM or crushed stone
- ✓ Install runoff diverter across boat or beach access to prevent runoff from entering the lake.

Example beach/boat access site identified in Sector 3.

Beach and boat access areas can be both a source of erosion to the lake, and/or a vector for delivering polluted stormwater runoff from adjacent development, like roads or driveways, directly into the lake untreated. Openings through the shoreline buffer should be minimal in number, and narrow (less than 6 feet wide). Installing a runoff diverter (rubber razor or open-top culvert) across boat launch and access points can prevent runoff from flowing down these access points and into the lake.

Commercial Properties (19)

Nineteen (19) erosion sites were documented on commercial properties throughout the watershed and associated with campgrounds, a youth summer camp, a gas station, and a boating club. Two (2) commercial NPS sites were rated as high impact, 15 sites were documented as medium impact, and another two (2) sites were low impact to water quality.

Common Problems Identified:

- ✓ Surface erosion and bare soil
- ✓ Unstable or eroding shoreline access
- ✓ Lack of shoreline vegetation
- ✓ Poor/eroding surface materials on gravel roads

Recommended Solutions:

- ✓ Define and narrow lake access openings
- ✓ Establish shoreline buffer vegetation
- ✓ Cover eroding surfaces with ECM or crushed stone, or revegetate
- ✓ Resurface eroding road gravel and reshape to a crown
- ✓ Redirect runoff on road or pathways into stable vegetation.

Example commercial property site, JS-07, identified in Sector 4

Due to the beauty and large size of Androscoggin Lake, it is no surprise that there are several commercial properties located on its shoreline. However, commercial properties are often at greater risk of developing erosion and runoff issues because they have a much larger development footprint with higher amounts and densities of impervious surfaces like roads, driveways, roof tops, and decks.

Focus Areas:

The following have been selected as high-priority focus areas, and are detailed below as either individual sites with the most severe issues, or as a group of related sites that collectively have a significant impact to water quality (i.e. multiple sites on a single gravel road) and are listed by land use category and location in the watershed.

High-Priority Roads

Dole's Beach Rd. and the Boulevard, Wayne

Dole's Beach Road and the Boulevard are private gravel roads that service roughly 15 parcels on the northeastern shoreline of Androscoggin Lake. Dole's Beach Road travels down the steep hillside between Morison Heights Road and Androscoggin Lake. Erosion issues on Dole's Beach Road are associated by runoff on the road surface, shoulders, and ditches travelling downhill at high velocities. The Boulevard is more gently sloping. Erosion problems found here are associated with natural runoff from the steep hillside above washing over the road surface due to undersized ditches and cross culverts. The majority of the developed lots are seasonal use, and the road is not plowed or maintained through the winter months.

Site Number(s): 2-01 through 2-09 and 2-11 (10 sites total)
Road type: Gravel (private road)
Problems: Unmaintained ditches and undersized culverts resulting in stormwater runoff over-topping road – eroding road surface and shoulder before flowing into lake.

Recommendations: Clean out, improve, and stabilize ditches, replace undersized culverts and armor or vegetate inlet/outlet. Plunge pools at culvert outlets will capture sediment from ditch and road and prevent it from entering the lake. New/correct gravel surface material and crown needed.

Erosion sites identified on Dole's Beach Road / The Boulevard in Sector 2. Runoff over-topping the road (Site 2-06) and eroding a channel in the road surface, and overwhelmed ditch full of sediment that drains to Androscoggin Lake (Site 2-03), and an unstable culvert outlet (Site 2-09).

Holman Terrace, Wayne

Holman Terrace is a private gravel road servicing 11 shorefront lots on the eastern shoreline north of Lincoln Point. With the exception of the south end, much of the roadway is gently sloping. The majority of properties are seasonal and the road is not plowed in the winter. Many of the erosion problems found on Holman Terrace are related to unstable ditches, culvert inlets/outlets, and road shoulders.

Site Number(s): 2-12 through 2-15, 2-15b, 2-16, and 2-17 (7 sites total)

Road type: Gravel (private road)

Problems: Ditch bank failure erosion, undersized and clogged cross culvert, unstable culvert inlet/outlet, unstable road shoulders, and road surface erosion.

Recommendations: Improve ditch and stabilize bank slopes with rock and erosion control mulch, clean out or replace undersized/clogged culvert, and vegetate road shoulders to stabilize. Plunge pools at culvert outlets will capture sediment from the ditch and prevent it from entering the lake. New/correct gravel surface material and crown needed.

Private road sites 2-12, 2-14, and 2-15 documented on Holman Terrace in Sector 2.

Perkins Beach Road, Wayne

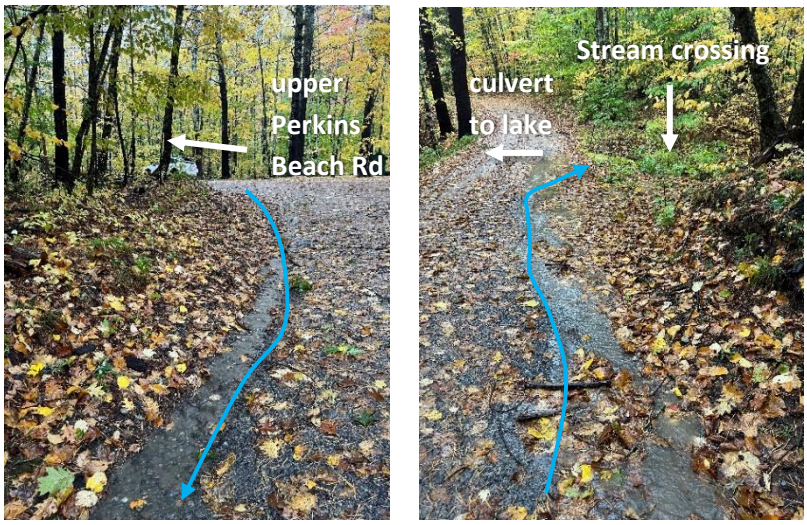
Perkins Beach Road is a private gravel road located on the south eastern shore of Androscoggin lake and services several waterfront properties on the lower portion of Perkins Beach Road and Blodgett Road in Wayne. The upper portion of Perkins Beach Road, between Hardscrabble Road and the intersection with Blodgett Road, gradually slopes toward Androscoggin Lake for 0.6 miles.

Site Number(s): 3-12, 3-12 b, and 3-15 (3 sites total)

Road type: Gravel (private road)

Problems: Road runoff flowing directly into stream or lake.

Recommendations: In-road diversions (for example, broad-based dips) are needed to break up runoff flow on the upper portion of Perkins Beach Road. This will significantly reduce the amount of runoff making it to the bottom of the hill that is currently entering the stream culvert/the lake.



High-impact site 3-15 on Perkins Beach Road in Sector 3.

Moose Run Road, Wayne

Moose Run Road is located just east of the Leeds/Wayne town line on the southern shoreline of Androscoggin Lake.

Site Number(s): 3-04 and 3-05 (2 sites)

Road type: Gravel (private road)

Problems: Gully erosion on road surface (3-05) because runoff is not able to flow off of roadway. Stormwater flows downhill and into lake via a residential access (3-04).

Recommendations: Build up road with new/correct surface gravel and install an in-road runoff diversion to move stormwater off the road surface and prevent erosion as it flows downhill.

Site 3-05 (left) and site 3-04 (right) identified on Moose Run Road in Sector 3.

Bishop Hill and Bernie Hartford Roads, Leeds

Bishop Hill Road and Bernie Hartford Road are town-owned gravel roads located in the south end of the watershed in Leeds between Bishop Hill to the east, and Route 106 to the west. Several unnamed streams cross under these gravel roads at no less than eight culvert crossing locations – all of which are potential entry points for polluted road runoff to enter the stream and ultimately Androscoggin Lake.

Site Number(s): 5-02 through 5-06 and 5-09 through 5-12 (9 sites total)
Road type: Gravel (town road)
Problems: Poor surface gravel is easily erodible and transported. Significant plow/grader berms on road shoulders are preventing runoff from quickly exiting road surfaces and draining to surrounding woodlands. Evidence that runoff travels on road surface and shoulders for long distances, eroding the gravel and entering the lake indirectly via several stream culvert crossings.
Recommendations: Remove plow/grader berms, resurface with new/correct gravel surface material, and stabilize road shoulders. Formal ditches and ditch turnouts are needed in select locations to prevent drainage from roads and ditches from entering streams and flowing to lake.

Site 5-11 (left) and site 5-09 (right) identified on Bishop Hill and Bernie Hartford Roads in Sector 5.

High-Priority Stream Culverts

Stream culvert crossings on roadways can be a significant source of erosion and NPS pollution to the stream itself, and the lake or waterbody that it feeds. Severely undersized or improperly installed culverts are considered a future NPS and public safety threat, should a complete road failure or washout occur during periods of intense rain or high flow.

In many cases, undersized stream crossings will experience ponding and clogging of debris upstream, and scouring or erosion from high flow velocities at the culvert outlet. This leads to

degradation of the road base, side slopes, and the stream bed. Undersized crossings often require more frequent maintenance over time, ultimately a shorter service life of the structure, and lasting impacts to habitat and water quality. The following culvert crossing were identified as priorities for Androscoggin Lake:

Wilson Pond Road, Monmouth (Bog Brook)

Site 4-01 in Wilson Pond Road in Monmouth – crushed culvert inlet.

Site Number(s): 4-01
Road type: Gravel (town road)
Problems: Culvert has a crushed/broken inlet and is severely undersized. Side slopes are unstable and stormwater runoff flow from gravel roadway surface enters brook via road shoulders above culvert. Potential flood risk.
Recommendations: Replace with a larger culvert or open-bottom structure. Stabilize side slopes and reshape road as it approaches the brook, installing road ditch turnouts to redirect runoff into the woods before it reaches the new crossing.

Holman Terrace, Wayne (Unnamed Stream)

Bank failure at a culvert outlet (site 2-13) on Holman Terrace in Sector 2.

Site Number(s): 2-13
Road type: Gravel (private road)
Problems: Double-barrel culverts are undersized. Bank failure on downstream side slopes (tree root system has broken away from bank and fallen into streambed below) and banks of stream channel are severely undercut between crossing outlet and the lake.
Recommendations: This site will likely require significant technical assistance and an engineered design.

Bishop Hill Road, Leeds (2 Unnamed Streams)

Site Number(s): 5-02 and 5-05

Road type: Gravel (town road)

Problems: Culverts are severely undersized and "pinching" the natural stream channel. Erosion on crossing side slopes, washing into stream that then flows to Androscoggin Lake.

Recommendations: Replace with a larger culvert or open-bottom structure. Stabilize crossing side slopes and reshape/resurface road as it approaches the new crossing to turnout runoff into the woods before it reaches the stream.

Site 5-02 (top) and site -02 (bottom) identified on Bishop Hill Road in Sector 5.

Other NPS Hot-Spots

Western Shoreline, Leeds

19 erosion sites were documented in the area of Lakeshore Drive in Leeds - on the western shore of Androscoggin Lake north of the Dead River.

Site Number(s): 7-14 through 7-31 (19 sites total)

Land Use Type(s): Residential, Beach Access, Boat Access, and Driveway

Example sites identified on Lakeshore Drive in Sector 7: Site 7-20 (left) medium-impact residential, site 7-28 (middle) high-impact beach access erosion, and site 7-15 (right) high-impact driveway erosion.

Most Common Problems: Surface erosion, bare soil, lack of or inadequate shoreline vegetation, shoreline erosion, runoff entering lake via boat launch or beach access.
Recommendations: Cover bare soil with Erosion control mulch or re-vegetate, establish or improve shoreline vegetation, install runoff diverters, install rain gardens.

Another 12 erosion sites were identified in the area of Stinchfield Beach Road – on the northwest shoreline of Androscoggin Lake.

Site Number(s): 7-01 through 7-13 (12 sites total)
Land Use Type(s): Residential and Beach Access
Most Common Problems: Surface erosion, bare soil, lack of or inadequate shoreline vegetation, undefined and unstable pathways.
Recommendations: Cover bare soil with erosion control mulch or re-vegetate, establish or improve shoreline vegetation, define and stabilize pathways, install runoff diverters.

Example sites identified in the Stinchfield Beach neighborhood in Sector 7: Site 7-06 (left) erosion on a shorefront pathway, site 7-11 (middle) unstable soils on a steep slope, and site 7-09 (right) runoff from a town parking lot is creating a channel with flow to Androscoggin Lake.

Southeastern Shoreline, Wayne

Located on the southeast shoreline just east of the Leeds town line, several gravel roads provide access to shorefront properties by way of Hardscrabble Road in Wayne. Most common poblems identified in this areas are related to lake access points (boat and/or beach access) conveying stormwater runoff to the lake.
Site Number(s): 3-02, 3-03, 3-6 through 3-11, 3-13 and 3-14 (10 sites total)
Land Use Type(s): Residential, Beach Access, Boat Access
Most Common Problems: Bare soil, lack of or inadequate shoreline vegetation, runoff entering lake via boat or beach access.

Recommendations: Cover bare soil with Erosion control mulch or revegetate, do not rake needles or duff, establish or improve shoreline vegetation, install runoff diverters across boat and beach access to prevent runoff from entering lake untreated.

Examples of sites identified in Sector 3: Site 3-02 (left) erosion on a beach access, site 3-08 (middle) bare soils and sheet erosion over a lawn without a shoreline buffer, and site 3-13 (right) erosion documented ono a shorefront path.

High-Priority Commercial Properties

Due to the beauty and large size of Androscoggin Lake, it is no surprise that there are several commercial properties located on its shoreline. The lake is home to three campgrounds, two youth summer camps, and a private boat club. Erosion problems identified on these properties were included in the "commercial" land use category, and include 19 high or medium impact sites. Commercial properties are often at greater risk of developing erosion and runoff issues because they have a much larger development footprint with higher amounts and densities of impervious surfaces like roads, driveways, roof tops, and decks.

Site Number(s):
6-02, 6-03, 6-04, 9-09, 9-14, DR -NPS3, JS-01 through JS-12, and TK-01 (19 sites total)

Selected high-priority NPS sites documented on commercial properties:

Site 6-04 (Commercial boat launch)

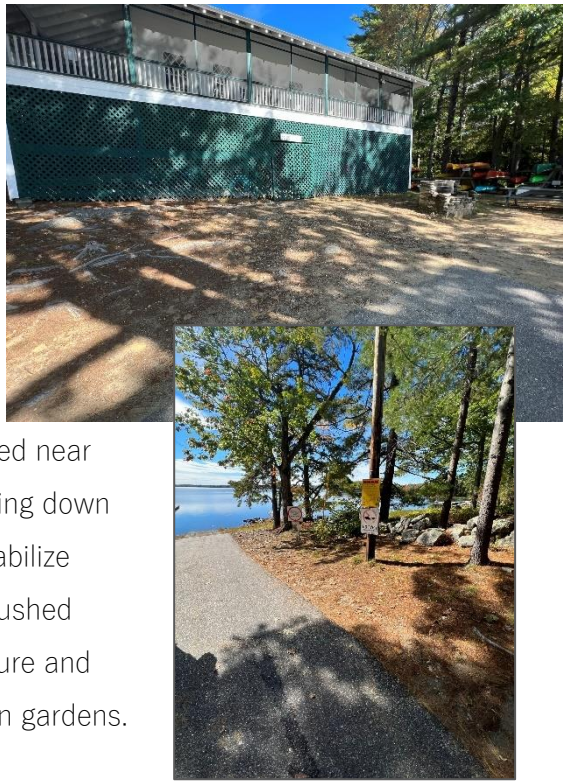
Documented NPS Problem: Rill surface erosion on launch and gravel access roads that access it. Stormwater runoff from Route 106, property entrance, and gravel roads flows downhill and enters the river via launch.

Erosion documented at a commercial boat launch in Sector 6 (site 6-04).

Recommendations: Resurface gravel areas draining to launch with an appropriate, hard-packing crushed gravel surface (e.g. crushed bluestone gravel) and install runoff diverters (e.g. rubber razors or broad-based dips) at select locations on access roads to redirect runoff on road surfaces away from the launch and into stable vegetated areas where it can be absorbed.

Site 9-14 (Commercial boat launch, beach, and adjacent recreation areas)

Documented NPS Problem: Stormwater runoff from Lake Street and adjacent land uses is flowing unimpeded down boat launch and into Androscoggin Lake. Bare and eroding soils documented in common/recreational spaces (fire pit/picnic area, boat storage area, and swimming beach access). Erosion at building driplines resulting from roof runoff. Lack of adequate vegetative buffer.



Erosion at roof driplines and adjacent common spaces (top) and boat launch (bottom) documented at site 9-14 in Wayne

Recommendations: Stormwater runoff diversions needed near parking lot and Lake Street to prevent runoff from flowing down boat launch and into the lake untreated. Define and stabilize common areas with erosion control mulch (ECM) or crushed stone, and add vegetation around edge to define, Capture and infiltrate roof runoff by installing a dripline trench or rain gardens. Improve stand of vegetation between developed spaces and the beach/lake.

Sites JS-1 & JS-2 (Commercial beach access and boat launch)

Documented NPS Problem: Gully erosion documented on gravel beach access road that flows directly into Androscoggin Lake. Large gravel opening on the lakeshore without adequate vegetative buffer or opportunities to infiltrate runoff from above.

Recommendations: Define the beach area as a separate space from access road and surrounding shorefront camp sites by creating a planted area or rain garden at the base of slope just inland of the swimming beach. Install a runoff diverter at top of the beach access road and improve road surface by reshaping with new crushed bluestone surface material. At the boat launch area,

demarcate a wider (deeper) vegetative buffer zone between lake and boat launch access road. Define and stabilize all access points, and install runoff diversions across pathway and roads that lead to the launch area to prevent unimpeded runoff flow into the lake.

Site JS-01 (left, beach access) and site JS-02 (right, boat launch) at a commercial property in

Sites JS-5 through JS-8 (lake access and gravel erosion)

Site JS-5 (left) and site JS-6 (right) – stormwater runoff entry points.

Documented NPS Problem: Stormwater runoff flowing over adjacent campsites and gravel roads (sites JS-7 and JS-8) flows downhill causing further erosion and entering the lake via sites JS-5 and JS-6.

Recommendations: Build up site surface material with better gravel and reshape smooth. Close existing gaps/openings in the shoreline buffer with new vegetation and mulch and install runoff diversion across gravel roadways draining to these access points. Install a broad-based dip at top of Eagle Lane and send runoff into the vegetated area on the west side of the road.

Site JS-7 (left) and site JS-8 (right) – documented erosion sites flowing to lake via Sites JS-5 and JS-6.

Next Steps – Where do we go from here?

This survey provided a "snapshot" of the condition of the watershed, in the areas surveyed on two particular days in May 2022. New erosion sites can develop quickly, particularly after heavy rain or snowmelt. As new sites are identified, they can be added to the watershed NPS site list (Appendix A). Paying attention to run-off problems and identifying sites in need of work should be a continued and ongoing activity done by everyone interested in protecting Androscoggin Lake.

Specific post-survey follow-up priorities identified by the Watershed Survey Steering Committee include:

1. Present watershed survey results, distribute the final watershed survey report and 2-page summary to all watershed stakeholders, and make accessible to all landowners and the general public online via 30 Mile, ALIC, and town websites.
2. Generate and mail follow-up letters to all landowners with identified survey sites. Letters will include a summary of the identified erosion problem and include recommendations to correct identified problem, along with guidance materials, factsheets, and contact information for additional technical assistance for landowners with sites that might require technical support.
3. Develop a Watershed-based Protection Plan for Androscoggin Lake that will guide this watershed protection effort over the next 5-10 years. A watershed plan is needed to become eligible to apply for Clean Water Act, Section 319 grant funding through Maine DEP/U.S. EPA.
4. Apply for Clean Water Act, Section 319, grant funding through Maine DEP/U.S. EPA. "319 grants" support the implementation of approved watershed plans and provide cost-sharing funds to landowners, road groups, and municipalities working to fix identified erosion and runoff problems in the watershed.

Fixing the erosion sites identified during this survey and in the future will require efforts by individual homeowners, road associations, municipal officials, lake associations, and 30 Mile. Here is what you can to right now to support this effort and protect Androscoggin Lake.

Individual Landowners:

- ✓ For landowner with identified survey sites: Address the erosion or runoff issue(s) identified on your property during the 2022 survey. Contact 30 Mile or ALIC if you need more information or technical assistance.
- ✓ Host a LakeSmart visit from ALIC's LakeSmart team and learn more about how you can improve your property and better protect Androscoggin Lake. Contact lakesmart@androscogginlake.org to schedule a visit with the ALIC team.
- ✓ Host a conservation project by 30 Mile's Youth Conservation Corps (YCC). Visit https://30mileriver.org/youth-conservation-corps/ to learn more!
- ✓ Check with your town's Code Enforcement Officer before cutting, removing, or disturbing vegetation within 250 feet of the shoreline, as this may violate shoreland zoning regulations.
- ✓ Be careful not to unnecessarily disturb the ground that drains to the lake and avoid exposing bare soil. Seed or mulch any bare soils right away.
- ✓ Stop mowing and raking, and let lawn and raked areas revert back to natural plants. Remember, lakes like LESS lawn!
- ✓ Encourage shrubs and trees to grow on your shoreline, as their deep roots help hold the shoreline together and are better at extracting nutrients from runoff before it enters the lake.
- ✓ Capture runoff in depressions or divert flow to vegetated areas. If needed, create areas where runoff can be infiltrated, for example by installing a rain garden or infiltration trench.
- ✓ Maintain your septic system. Pump septic tanks every 2 to 3 years for year-round residences, or seasonal rental properties. Pump every 4 to 5 years if seasonal.
- ✓ Replace outdated septic systems. Systems built prior to 1974 pre-date the state's subsurface wastewater disposal rules, and are most at risk of contributing pollutants to groundwater and Androscoggin Lake. Permitted systems installed between 1974 (septic rules enacted) and 1995 (septic rules amended) might also be at risk due to rapid percolation in coarse and gravelly soils, and should be inspected by a licensed site evaluator.
- ✓ Join ALIC and 30 Mile to support their water quality and conservation projects.

Road Associations (or private road owners without associations):

- ✓ For groups with identified erosion sites: Review your follow-up letter with your road association board and contractor. Contact 30 Mile for additional technical assistance (see page 42) and to learn more about potential grant cost-sharing opportunities.
- ✓ Get a copy of *Gravel Road Maintenance Manual – A Guide for Landowners*, a must for anyone managing a camp or other gravel road: www.maine.gov/dep/land/watershed/camp/road/gravel_road_manual.pdf
- ✓ Minimize road runoff by doing regular, comprehensive maintenance. (Contact 30 Mile for technical assistance - see contact information below.)
- ✓ Form a road association if one does not already exist.

Municipalities:

- ✓ Conduct regular maintenance on town roads in the watershed and fix town road problems identified here.
- ✓ Enforce shoreland zoning ordinance to assure full protection of Androscoggin Lake.
- ✓ Participate in and support long-term watershed management and protection projects.
- ✓ Promote training for road crews and contractors, planning boards, conservation commissions and other decision-makers.
- ✓ Continue collaboration with 30 Mile and ALIC on remediation projects and ongoing monitoring of lake water quality and watershed erosion problems.

Androscoggin Lake Improvement Corporation (ALIC):

- ✓ Help disseminate the watershed survey report and summary handout.
- ✓ Share information on "Best Management Practices" and how we can work together to help protect and improve water quality.
- ✓ Conduct community outreach and organize educational workshops for watershed landowners.
- ✓ Continue collaboration with 30 Mile and watershed towns on remediation projects and ongoing monitoring of erosion problems in the watershed.
- ✓ Continue to deliver LakeSmart programming, and conduct targeted outreach to landowners with erosion sites identified in the 2022 survey.

30 Mile River Watershed Association (30 Mile):

- ✓ Contact all landowners with identified erosion sites. Describe the erosion issues, make recommendations for remediation, and provide technical assistance when requested.
- ✓ Provide the services of 30 Mile's Youth Conservation Corps (YCC) to fix erosion problems suitable for remediation by the YCC.
- ✓ Provide free site evaluations and recommendations for landowners.
- ✓ Provide camp road maintenance and planning assistance for road associations and groups.
- ✓ Provide educational resources and guidance to ALIC, watershed towns, and community members.
- ✓ Maintain a database of erosion problems in the watershed and track them over time.
- ✓ Continue to partner with ALIC, watershed towns, county soil and water conservation districts, NRCS, Maine DEP, and others to develop a watershed plan, seek funding sources, and implement projects to protect lake water quality.

Table 2. Summary of priority follow-up actions and high-priority sites

2022 ANDROSCOGGIN LAKE WATERSHED SURVEY - *FOLLOW-UP SUMMARY*	
Priority Post-survey Follow-up Actions	
Presentation of Survey Results	*Present survey results, distribute the final report and 2-page summary to all watershed stakeholders, and make accessible online via 30 Mile, ALIC, and town websites.*
State Roads	*Provide a list of identified NPS sites to the Maine Department of Transportation (Maine DOT) to include in future budgets.*
Town Properties	*Provide a summary report of identified NPS sites to each watershed town. Meet with town PWD or road commissioners, and discuss potential funding opportunities.*
Private Roads	*Provide a summary report to primary road contacts for all private roads with identified NPS sites. Meet with road groups to review sites, offer technical assistance, and discuss potential funding opportunities.*
Commercial Properties	*Provide a summary report of identified NPS sites to commercial property contacts. Offer technical assistance and discuss potential funding opportunities.*
Residential & Other Sites	*Mail follow-up letters to all landowners with identified survey sites. Provide technical assistance when requested.*
Watershed Planning & Grants	*Develop a watershed plan that will guide the work needed to address NPS threats in the watershed. Apply for Clean Water Act (Section 319) grant funding to provide cost-sharing to landowners with priority problems.*
Education & Outreach	Conduct outreach & organize educational workshops/seminars for watershed landowners.
Focus Areas & High-priority Sites (high and medium-impact)	
Roads	
Dole's Beach / The Boulevard	*2-02, **2-04**, 2-05, 2-06, & 2-07*
Holman Terrace	*2-12 & 2-14*
Perkins Beach Road	***3-12**, **3-12b**, & **3-15***
Moose Run Road	*3-01, **3-05**, & 3-07*
Bishop Hill & Bernie Hartford	*5-02, 5-03, 5-04, **5-05**, 5-06, **5-09**, **5-10**, & 5-12*
Culverts	
Wilson Pond Road (Bog Brook)	***4-01** (and road site draining to culvert crossing: JS-13)*
Holman Terrace	***2-13***
Bishop Hill Road (2)	*5-02 & **5-05***
Residential Hot Spots *(includes residential, boat/beach access, and driveway sites)*	
Sector 7 south	***7-15**, 7-16, 7-17, 7-18, 7-20, 7-22, 7-27, 7-27b, **7-28**, 7-29, 7-30, & 7-31*
Sector 7 north	*7-01, 7-02, 7-03, 7-04, 7-05, 7-06, 7-07, 7-09, 7-10, 7-11, & 7-12*
Sector 5	*5-13, 5-15, & **5-16***
Sector 3	*3-02, 3-03, **3-06**, 3-08, 3-09, 3-10, & 3-11*
Commercial Properties	
Jellystone Campground	*JS-01, JS-02, JS-03, JS-04, JS-05, JS-06, JS-07, JS-08, JS-10, JS-11, JS-12, & JS-13*
Riverbend Campground	*6-02, 6-03, **6-04**, and DR-NPS3*
Androscoggin Yacht Club	***9-14***

***bold red text** = high impact site*

Conservation Practices for Homeowners

Making the leap from concept to construction can be a challenge on the lakefront. To help homeowners who want to make their properties more "lake-friendly", the Maine DEP and Portland Water District produced a series of 24 fact sheets that answer many common "how-to" questions. The fact sheets profile common conservation practices that homeowners can use to protect water quality and include detailed instructions, diagrams, and color photos about installation and maintenance. The series includes the following Stormwater Best Management Practices (BMPs):

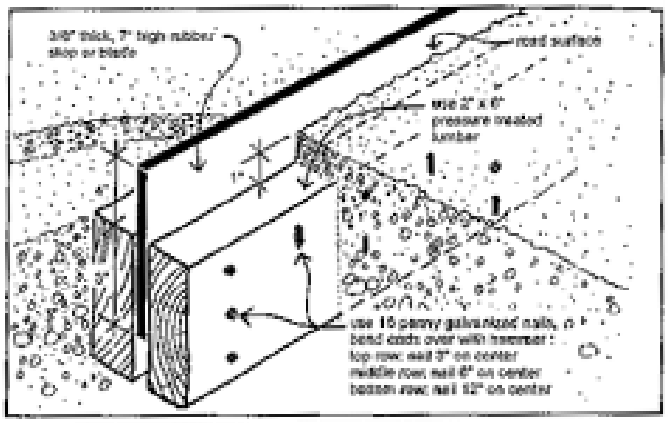
The series also includes six native plant lists. Each one is tailored to different site conditions (e.g., full sun and dry soils). The lists include plant descriptions and small color photos of each plant to make plant selection easier:

Homeowner BMP Fact Sheets are available online to help you install conservation practices on your property. Download at: www.maine.gov/dep/land/watershed/materials.html

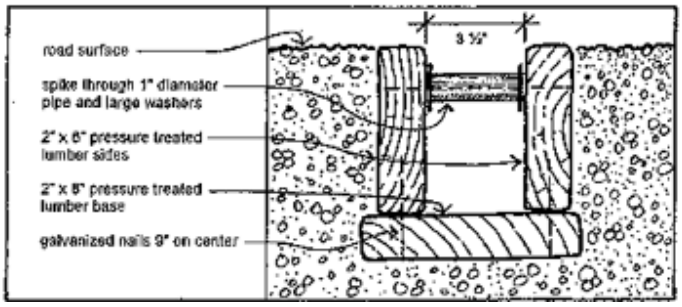
Construction BMPs
Dripline Trench
Dry Wells
Erosion Control Mix (ECM)
Infiltration Steps - New
Infiltration Steps - Retrofit
Infiltration Trench
Lake Shoreline Riprap
Live staking
Open-Top Culverts
Paths and Walkways
Permitting
Planting Vegetation
Plants - full sun & dry
Plants - full sun & moist/wet
Plants - shade & dry
Plants - shade & moist/wet
Plants - part sun & dry
Plants - part sun & moist/wet
Rain Barrels
Rain Gardens
Rubber Razors
Turnouts
Waterbars

Rubber Razor Blade:

Use this structure in a gravel driveway or camp road. It can be plowed over only if the plow operator is aware of its presence and lifts the plow blade slightly. Place it at a 30-degree angle to the road edge and direct the outlet toward a stable vegetated area.

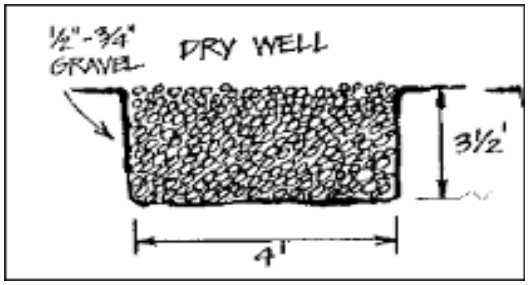


Open Top Culvert:



Use this structure in a gravel driveway or camp road that is not plowed in the winter. Place at a 30-degree angle to the road edge and point the outlet into stable vegetation. Remove leaves/debris as needed.

Dry Well: Use a dry well to collect runoff from roof gutter downspouts. Drywells can be covered with sod, or left exposed for easy access and cleanout. Dry wells and infiltration trenches work best in sandy or gravelly soils.



Permitting ABCs

The protection of Maine's watersheds is ensured through the goodwill of lake residents and through laws and ordinances created and enforced by the State of Maine and local municipalities.

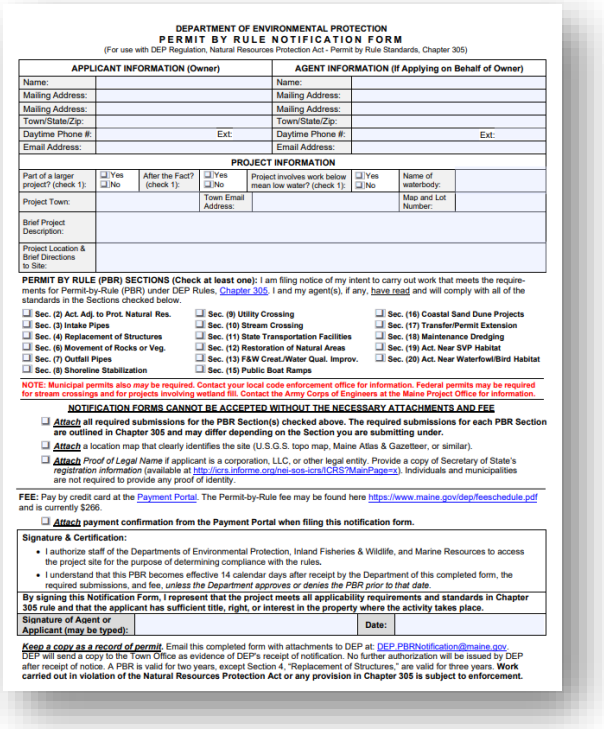
Contact the DEP and your town's code enforcement officer (CEO) if you have any plans to construct, expand or relocate a structure, clear vegetation, create a new path or driveway, stabilize a shoreline or otherwise disturb the soil on your property. Even if projects are planned with the intent of enhancing the environment, contact the DEP and town to be sure. The following laws and ordinances require permits for activities adjacent to wetlands and water bodies:

Shoreland Zoning Law – Construction, clearing of vegetation, and soil movement within 250 feet of lakes, ponds, and many wetlands, and within 75 feet of most streams, falls under the Shoreland Zoning Act, which is administered by each town through the Code Enforcement Officer and the Planning Board. Please note that some municipalities have established ordinances that are even more restrictive than the state requirements, so always contact your local CEO before you begin any project. See page 42 for contact information.

Natural Resources Protection Act (NRPA) - Soil disturbance and other activities within 75 feet of the lakeshore or stream also fall under the NRPA, which is administered by the Maine DEP. To ensure that permits for small projects are processed swiftly, the DEP has established a stream-lined permit process called Permit by Rule. These one-page forms (shown here) are simple to fill out and allow the DEP to quickly review projects.

How to apply for a Permit by Rule Notification with Maine DEP:

- ☐ Fill out a notification form before starting any work. Forms are available from your CEO, Maine DEP, offices, or online at www.maine.gov/dep/land/nrpa/nrpa-pbr-notification.pdf.
- ☐ The permit will be reviewed by DEP. If you do not hear from DEP in 14 days, you can assume your permit is approved and you can proceed with the project.
- ☐ Follow all standards required for the specific permitted activities to keep soil erosion to a minimum. It is important that you obtain a copy of the standards (NRPA Chapter 305) so you will be familiar with the law's requirements.



DEPARTMENT OF ENVIRONMENTAL PROTECTION
PERMIT BY RULE NOTIFICATION FORM
(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:		Name:	
Mailing Address:		Mailing Address:	
Mailing Address:		Mailing Address:	
Town/State/Zip:		Town/State/Zip:	
Daytime Phone #:	Ext:	Daytime Phone #:	Ext:
Email Address:		Email Address:	

PROJECT INFORMATION

Part of a larger project? (check 1):	☐Yes ☐No	After the Fact? (check 1):	☐Yes ☐No	Project involves work below mean low water? (check 1):	☐Yes ☐No	Name of waterbody:	
Project Town:		Town Email Address:				Map and Lot Number:	
Brief Project Description:							
Project Location & Brief Directions to Site:							

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, Chapter 305. I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

☐ **Sec. (2) Act. Adj. to Prot. Natural Res.** ☐ **Sec. (3) Intake Pipes** ☐ **Sec. (4) Replacement of Structures** ☐ **Sec. (6) Movement of Rocks or Veg.** ☐ **Sec. (7) Outfall Pipes** ☐ **Sec. (8) Shoreline Stabilization**
☐ **Sec. (9) Utility Crossing** ☐ **Sec. (10) Stream Crossing** ☐ **Sec. (11) State Transportation Facilities** ☐ **Sec. (12) Restoration of Natural Areas** ☐ **Sec. (13) F&W Creat./Water Qual. Improv.** ☐ **Sec. (15) Public Boat Ramps**
☐ **Sec. (16) Coastal Sand Dune Projects** ☐ **Sec. (17) Transfer/Permit Extension** ☐ **Sec. (18) Maintenance Dredging** ☐ **Sec. (19) Act. Near SVP Habitat** ☐ **Sec. (20) Act. Near Waterfowl/Bird Habitat**

NOTE: Municipal permits also may be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE

☐ ***Attach*** **all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.**
☐ ***Attach*** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
☐ ***Attach*** *Proof of Legal Name* if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are not required to provide any proof of identity.

FEE: Pay by credit card at the Payment Portal. The Permit-by-Rule fee may be found here https://www.maine.gov/dep/feeschedule.pdf and is currently $266.
☐ ***Attach*** **payment confirmation from the Payment Portal when filing this notification form.**

Signature & Certification:
- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant (may be typed):		**Date:**	

Keep a copy as a record of permit. Email this completed form with attachments to DEP at: DEP.PBRNotification@maine.gov. DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

Watch Maine DEP's video, 'NRPA Basics and Submitting a PBR Notification' for more detailed instructions: https://www.maine.gov/dep/land/nrpa/index.html#form.

Where do I get more information?

30 Mile River Watershed Association

P.O. Box 132, Mount Vernon, ME 04352

(207) 860-4043; www.30mileriver.org

Provides free and reduced-cost services including site evaluations and recommendations for landowners; camp road maintenance and planning assistance for road associations; and the Youth Conservation Corps to fix identified erosion problems. Include mission statement and a little more about what we do?

Androscoggin Lake Improvement Corporation

P.O. Box 307, Wayne, ME 04284

alic@androscogginlake.org / www.androscogginlake.org

The mission of the Androscoggin Lake Improvement Corporation (ALIC) is to preserve and protect Androscoggin Lake. ALIC supports a local LakeSmart team, providing lake protection education to landowners interested in improving their properties for the benefit of lake water quality.

Maine Department of Environmental Protection

17 State House Station, Augusta, ME 04333

(800) 452-1942 or (207) 287-7688; www.maine.gov/dep

Provides permit applications and assistance, numerous reference materials, technical assistance, environmental education, project funding opportunities, and stewardship activities for lakes.

Code Enforcement Officers

Municipal Code Enforcement Officers (CEOs) administer and enforce local Shoreland Zoning Ordinances for all areas within the shoreland zone. Shoreland zoning ordinances include limitations for building, development, and disturbance, cutting, or removal of vegetation within 100 feet of a lake, and 75 feet of streams and wetlands.

Town Wayne: Chip Stevens – (207) 685-4983 / ceolpi@waynemaine.org

Town of Leeds: Larry Grant – (207) 524-5171 / leedsceo.19@gmail.com

Town of Monmouth: Richard Greenwald – (207) 931-7448 / rgreenwald@monmouthmaine.gov

Androscoggin Valley Soil and Water Conservation District

Emma Lorusso, Project Director

254 Goddard Rd., Lewiston, ME 04240

(207) 241-5374 / projectdirector@androscogginswcd.org

Offers technical assistance, at a fee, for assisting with re-vegetation plans, offering guidance on erosion control issues, helping with planning for your environmental or natural resource-based workshop/events, and helping with outreach and education plans.

Kennebec County Soil and Water Conservation District

21 Enterprise Drive, Suite #1, Augusta, ME 04330

(207) 622-7847 ext.3; www.kcswcd.org

Provides technical assistance to landowners, road associations, lake associations, municipalities, and other conservation groups.

U.S. Dept of Agriculture (USDA) / Natural Resources Conservation Service (NRCS)

Androscoggin County – Lewiston Service Center

254 Goddard Rd, Lewiston, ME 04240

(207) 753-9400 / jim.johnson@usda.gov

Kennebec County – Augusta Service Center

2305 North Belfast Ave., Augusta, ME 04330

(207) 622-7847 / peter.abello@usda.gov

NRCS provides farmers, ranchers, and forest landowners with free technical assistance, or advice, for boosting agricultural productivity and protecting our natural resources through conservation. Programs are available to provide financial assistance to implement these recommendations.

Guidance, Factsheets, and Other Helpful Information for Landowners

Gravel Road Maintenance Manual: A Guide for Landowners on Camp and other Gravel Roads.
Kennebec County Soil and Water Conservation District and Maine DEP. April 2016.
www.maine.gov/dep/land/watershed/camp/road/gravel_road_manual.pdf

A Guide to Forming Road Associations.
Maine Department of Environmental Protection. January 2020.
www.maine.gov/dep/land/watershed/road_assoc_guide_2020_edit.pdf

Maine Shoreland Zoning – A Handbook for Shoreland Owners.
Maine Department of Environmental Protection. Spring 2008.
www.mainerealtors.com/wpcontent/uploads/2019/02/citizenguide.pdf

Conservation Practices for Homeowners.
Maine DEP and Portland Water District. 2006. 24 fact sheets.
www.maine.gov/dep/land/watershed/materials.html

Contractors Certified in Erosion Control Practices.
Maine DEP. www.maine.gov/dep/land/training/ccec.html

The Lake Book: A handbook for Lake Protection.
Maine Lakes. www.lakes.me/lakebook

Protect Your Pond Brochure.
Maine Lakes. 2021. www.lakes.me/protect.

Common Shrubs for Central Maine Shorelines.
Sue Gawler and Jack Bouchard for Maine Lakes. https://cdn.branchcms.com/DrynVOJolO-1457/docs/Lake%20Library/Common-Shrubs-5.14.21.pdf

Lakes Like Less Lawn.
Portland Water District. 2017. www.pwd.org/sites/default/files/lakes-llike-less-lawn.pdf

Lakeside Living: Caring for your Septic System.

Maine Lakes. 2021. https://cdn.branchcms.com/DrynVOJolO-1457/docs/Lake%20Library/Septic-two-pager-11x17-FINAL-5.14.21.pdf

Septic System Permit Search.

This service provided by The Division of Environmental and Community Health of the Maine Department of Health and Human Services allows citizens to search for the septic plans for a provided address. This service is provided by a third party working in partnership with the State of Maine: https://apps.web.maine.gov/cgi-bin/online/mecdc/septicplans/index.pl

Appendix A: 2022 Watershed Survey – List of Identified Sites

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
1-01	Directly into lake	Residential	Surface Erosion (Sheet); Unstable Shoreline Access	Install a runoff diverter across water access, cover bare soils with ECM or crushed stone, re-seed/vegetate.	Low	Low: Less than $500
1-02	Directly into lake	Residential	Surface Erosion (Sheet)	Install an infiltration trench or runoff diverter at the top of slope; stabilize eroding soils with ECM or crushed stone; request a free site visit for further technical assistance.	Low	Medium: $500-$2,500
1-03	Directly into lake	Residential	Surface Erosion (Sheet); Bare Soils	Cover bare soils with ECM, define footpath and stabilize with ECM or crushed stone.	Low	Low: Less than $500
1-04	Directly into lake	Residential	Surface Erosion (Sheet); Bare Soils	Cover bare soils with ECM, define footpath and stabilize with ECM or crushed stone, establish a vegetated shoreline buffer, Reseed bare soil & thinning grass.	Low	Low: Less than $500
1-05	Directly into lake	Residential	Surface Erosion (Sheet); Bare Soils	Cover bare soils with ECM, define footpath and stabilize with ECM or crushed stone, Establish a vegetated shoreline buffer.	Low	Low: Less than $500
1-06	Stream	Municipal / Public	Surface Erosion (Sheet); Bare Soils; Roof Runoff Erosion	Cover bare soils with ECM, define footpath and stabilize with ECM or crushed stone, Install a dripline trench @ roof driplines, or a rain barrel/dry well/rain garden at gutter downspouts.	Low	Medium: $500-$2,500
2-01	Directly into lake	Private Road	Road surface Erosion (Rill),Ditch erosion (Sheet), Road Shoulder Erosion (Rill), runoff is flowing along shoulders and over road surface onto Dole's Beach and the lake	Install new ditch and cross culvert with armored inlet/outlet, install detention basin/plunge pool at culvert outlet to settle out any sediment in runoff.	Low	High: Greater than $2,500
2-02	Minimal Vegetation	Private Road	Road Surface Erosion (Sheet and Rill), Unstable Culvert inlet/outlet, Ditch Bank Failure and Erosion (Sheet and Rill), Road Shoulder Erosion (Sheet and Rill)	Armor culvert Inlet/Outlet, install a detention basin/plunge pool at culvert outlet, stabilize ditch by vegetating and/or armoring with stone, Reshaped ditch backwalls to reduce steepness so that vegetation can grow or ECM can be placed to protect soils, clean out sediment accumulating in ditch and vegetate road shoulders.	Medium	Medium: $500-$2,500
2-03	Stream	Private Road	Undersized ditch with sediment accumulation. Natural seep/flow from hillside above is depositing a huge amount of fine sediment and clay (?) into the ditch. Ditch is overwhelmed and will soon over-top the road if not addressed.	Remove debris/sediment accumulation in ditch. Improve size of ditch and vegetate to stabilize.	Low	Medium: $500-$2,500
2-04	Stream	Private Road	Surface erosion (Gully), Unstable culvert inlet/outlet, Undersized culvert, Ditch erosion, Road shoulder erosion, and Road surface erosion. Evidence of runoff flow overtopping ditch and culvert and flowing over road surface. Downstream channel seems new/widened, and is severely eroded straight to lake.	Install larger culvert with armored inlet/outlet, install plunge pool at culvert outlet and stabilize. Remove debris/sediment accumulation in ditch and stabilize with vegetation or armor with stone. Resurface roadway gravel surface and reshape to a crown.	High	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
2-05	Stream	Private Road	Road surface erosion (Sheet and Rill), Road shoulder erosion (Rill and Gully). Site includes two small culverts ~30 feet apart. Both culverts and ditch are undersized causing runoff to overtop the road surface. Erosion at upstream and downstream shoulders.	Enlarge culverts and armor inlet/outlet, install plunge pools and culvert outlets, reshape ditch and vegetate or armor with stone, vegetate road shoulder, build up/add new and harder-packing road surface gravel and reshape to a crown.	Medium	High: Greater than $2,500
2-06	Stream	Private Road	Road surface erosion (Sheet, Rill, & Gully), Road shoulder erosion (Sheet & Rill), Ditch is filling up with deposited fine sediment from hillside seep above causing runoff flow to overtop the road and erode road surface and shoulders.	Install culvert and armor culvert inlet/outlet, install plunge pool at culvert outlet, remove sediment in ditch, reshape ditch and vegetate and/or armor with stone, add new and harder-packing road surface gravel and build up/reshape to a crown, vegetate road shoulders to stabilize.	Medium	Medium: $500-$2,500
2-07	Ditch	Private Road	Clogged and undersized culvert, unstable inlet/outlet, undersized ditch.	Enlarge and replace culvert and armor inlet/outlet, install a plunge pool at culvert outlet, reshape ditch and vegetated and/or armor with stone, build up road surface with new and harder-packing surface gravel and reshape to a crown, vegetate road shoulders.	Medium	Medium: $500-$2,500
2-08	Stream	Private Road	Road shoulder erosion (sheet and Rill)	Vegetate road shoulder or cover with thick layer of ECM.	Low	Medium: $500-$2,500
2-09	Stream	Private Road	Unstable culvert inlet/outlet, road shoulder erosion.	Armor culvert inlet/outlet, install rock apron or plunge pool at culvert outlet, vegetate road shoulder or cover with thick layer of ECM.	Low	Low: Less than $500
2-10	Directly into lake	Residential	Surface erosion (Sheet and Rill), undefined footpath, unimpeded runoff flow over shorefront and into lake.	Define and stabilize footpaths, install runoff diverters or water bars, revegetate bare areas or cover soils with ECM, Add to shoreline buffer vegetation.	Low	Low: Less than $500
2-11	Ditch	Private Road	Ditch bank failure and erosion.	Reshape ditch to reduce steepness of ditch backwalls and revegetate or cover with ECM.	Low	Medium: $500-$2,500
2-12	Ditch	Private Road	Ditch bank failure and erosion.	Reshape ditch to reduce steepness of ditch backwalls and revegetate or cover with ECM.	Low	Medium: $500-$2,500
2-13	Directly into lake	Private Road	Unstable culvert inlet/outlet, Bank failure on downstream side of double barrel culverts,	Armor culvert inlet/outlet. Remove tree that has separated from bank and reshape slope, add very large angular stone to protect banks on downstream side during high flow events. This site will likely require engineering assistance.	High	High: Greater than $2,500
2-14	Directly into lake	Private Road	Road Surface erosion (Rill & Sheet), Undersized culvert, Undersized ditch, Road Shoulder Erosion (Sheet & Rill), Soil delta	Enlarge culvert and armor inlet/outlet, remove debris/sediment, add new and harder-packing road surface gravel and build up/reshape to a crown, vegetate road shoulders to stabilize.	Medium	Medium: $500-$2,500
2-15	Minimal Vegetation	Private Road	Road Surface Erosion (Gully), Road Shoulder Erosion (Gully)	Install Culvert and Armor inlet/outlet, repair road surface by adding new and harder-packing road surface gravel and build up/reshape to a crown, vegetate road shoulders to stabilize.	Low	High: Greater than $2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
2-15b	Stream	Private Road	Unstable culvert inlet/outlet, Road Shoulder Erosion (Rill & Gully), Low section in road with new culvert, Shoulders surrounding existing culvert armoring are eroding, no geo fabric under rock currently, bank is loose and unstable.	Armor culvert inlet/outlet, build up road surface with harder-packing road surface gravel and reshape to a crown, vegetate road shoulders to stabilize, extend armoring out further from culvert or vegetate.	Low	Low: Less than $500
2-16	Ditch	Private Road	Culvert Clogged, Flow continuing down to next cross culvert	Clear culvert and increase ditch capacity around inlet.	Low	Low: Less than $500
2-17	Ditch	Private Road	Road Surface Erosion (Rill), Culvert Clogged, Ditch Erosion (Rill), Road Shoulder Erosion (Sheet), Bare soil. Shoulder on outlet side of culvert is very soft and eroding.	Remove Clog and stabilize road shoulders.	Low	Medium: $500-$2,500
2-18	Minimal Vegetation	Residential	Surface Erosion (Rill and Sheet), Lots of bare soil on yard area between driveway and the lake	Reseed bare soil & thinning grass, or vegetate and add Erosion Control Mix. Great location for rain garden or otherwise revegetate to stabilize.	Low	Medium: $500-$2,500
2-19	Minimal Vegetation	Residential	Surface Erosion (Rill and Sheet)	Stabilize Foot Path with Erosion Control Mulch or crushed stone, reseed bare soil & thinning grass, Do Not Rake, Gravel driveway could be smoothed out with new gravel surface.	Low	Medium: $500-$2,500
2-20	Minimal Vegetation	Residential	Surface Erosion (Rill), Ditch Erosion (Rill & Gully)	Install Culvert and Armor Inlet/Outlet, Install Detention Basin or Plunge Pool at culvert outlet.	Low	Medium: $500-$2,500
3-01	Stream	Private Road	Surface Erosion (Rill), Unstable Culvert inlet/outlet	Armor culvert Inlet and Outlet and vegetate shoulders	Medium	High: Greater than $2,500
3-02	Directly into lake	Beach Access	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion	Cover Bare Soil with Erosion Control Mulch or Crushed Stone	Medium	Low: Less than $500
3-03	Minimal Vegetation	Boat Access	Surface Erosion (Rill), thinning grass and bare soils on moderate slopes going to the lake.	Install Culvert on driveway, Install Runoff Diverter (water bar), Install Infiltration Trench, cover bare soil with Erosion Control Mulch and revegetate, Stop mowing some sections and plant shrubs, stop raking. Crate areas where runoff can collect and infiltrate by creating rain gardens.	Medium	Medium: $500-$2,500
3-04	Directly into lake	Boat Access	Surface Erosion (Rill), Bare Soil	Install Runoff Diverter (water bar), Cover bare soils with Erosion Control Mulch, add crushed stone to further stabilize if keeping as boat access.	Low	Medium: $500-$2,500
3-05	Minimal Vegetation	Private Road	Surface Erosion (Gully)	Very steep road is eroding, needs comprehensive road planning, request technical assistance.	High	High: Greater than $2,500
3-06	Directly into lake	Residential	Surface Erosion (Rill), Bare Soil, Soil Delta in Stream/Lake	Define Foot Path and Stabilize with ECM or crushed stone, Install Runoff Diverter (water bar), Cover bare soils with Erosion Control Mulch, Add to Buffer by plantings native shrubs.	High	Medium: $500-$2,500
3-07	Minimal Vegetation	Private Road	Surface Erosion (Rill), Bare Soil	Add new hard packing gravel, build up and Reshape to crown, Install Runoff Diverter (Broad-based Dip) at top of slope to redirect runoff into stable area away from the lake where it can be absorbed.	Medium	High: Greater than $2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
3-08	Directly into lake	Residential	Surface Erosion (Rill), Bare Soil, Lack of Shoreline Vegetation	Establish Shoreline Buffer, Do Not Rake, reseed bare soil & thinning grass, Create Rain Garden in low-lying area and reduce size of lawn.	Medium	Medium: $500-$2,500
3-09	Directly into lake	Boat Access	Surface Erosion (Rill), Bare Soil, Lack of Shoreline Vegetation	Add crushed stone, Install Runoff Diverters (Water bar) to redirect runoff down slope into stable vegetate where it can be absorbed away from the lake, cover bare soils with Mulch/Erosion Control Mix or revegetate, establish a shoreline buffer by planting native shrubs.	Medium	Medium: $500-$2,500
3-10	Stream	Residential	Surface Erosion (Rill), Bare Soil	Do Not Rake, reseed bare soil & thinning grass, Cover bare soil with Mulch/Erosion Control Mix	Medium	Medium: $500-$2,500
3-11	Directly into lake	Beach Access	Surface Erosion (Rill), Bare Soil, Shoreline Erosion	Cover bare soil with Erosion Control Mulch, Install Runoff Diverter (water bar) to redirect runoff into stable area where it can be absorbed away from the lake.	Medium	Medium: $500-$2,500
3-12	Stream	Private Road	Road Surface Erosion (Rill), Road Shoulder Erosion (Rill)	Build Up with new gravel and Reshape to establish a Crown, Install Catch Basin, Install Runoff Diverters (Broad-based Dip), Road runoff is washing directly into stream, request technical assistance.	High	Medium: $500-$2,500
3-12b	Minimal Vegetation	Private Road	Road Surface Erosion (Rill), Road Shoulder Erosion (Gully)	Build Up with new hard packing surface gravel and Reshape to establish a crown or super elevate, pitch road so that runoff flows in the other direction, currently washing into adjacent driveway and across the septic toward lake.	High	Medium: $500-$2,500
3-13	Directly into lake	Residential	Surface Erosion (Sheet & Rill), Bare Soil	Add to Buffer, Do Not Rake, reseed bare soil & thinning grass, stabilize foot paths with ECM or crushed stone, Improve existing infiltration steps.	Medium	Medium: $500-$2,500
3-14	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil	Define Foot Path, and Stabilize with ECM or crushed stone, do not Rake needles or leaves and allow duff layer to accumulate and protect soil.	Medium	Low: Less than $500
3-15	Directly into lake	Private Road	Road Surface Erosion (Sheet & Rill), Road Shoulder Erosion, Road runoff is flowing directly into stream at culvert crossing and into lake - revisited during rain event on 10/14/22.	Add new hard packing crushed gravel and reshape to crown or super elevate, install runoff diversions (broad-based dips) and turnouts along stretch of roadway sloping toward the lake/stream crossing, comprehensive road plan need, request technical assistance	High	High: Greater than $2,500
4-01	Stream	Town Road	Surface Erosion (Gully), Crushed/Broken Culvert, Unstable Culvert inlet/outlet, Road Shoulder Erosion	Replace, Enlarge, and Lengthen Culvert, Armor culvert Inlet/Outlet, Vegetate Road Shoulder, reshape road surface around culvert with new gravel and create turnouts to direct road runoff into wooded buffer and away from Bog Brook.	High	High: Greater than $2,500
4-02	Stream	Private Road	Culvert Clogged, Culvert Crushed/Broken, Culvert Undersized, could not locate culvert Inlet, Drains to large beaver pond. Stream banks are undercut with evidence of scouring related to higher flow at culvert outlet.	Replace and enlarge culvert, armor inlet/outlet, woods road will potentially be upgraded/rebuilt as part of new development, and will need to be addressed.	Low	High: Greater than $2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
4-03	Stream	Private Road	Culvert Crushed/Broken, Unstable Culvert inlet/outlet	Replace On road east of site 4-02. Same issues with future development.	Low	High: Greater than $2,500
4-04	Stream	Town Road	Surface Erosion (Rill), Crushed/Broken Culvert, Road Shoulder Erosion (Sheet), Inlet is crushed, culvert connects wetland bisected by Bog Rd.	Replace and Lengthen culvert, armor inlet & outlet, vegetate road shoulders.	Low	High: Greater than $2,500
4-05	Stream	Town Road	Surface Erosion (Rill), Crushed/Broken Culvert, Clogged Culvert, Road Shoulder Erosion (Rill)	Replace Culvert, Remove Invasive Plants. Located ~20 feet away from another larger cross culvert. Currently this culvert is not working, maybe just remove instead of replacement?	Medium	High: Greater than $2,500
5-01	Stream	Town Road	Unstable culvert inlet/outlet, Road Shoulder Erosion (Sheet & Rill)	Replace, Enlarge, and Lengthen Culvert. Armor Culvert Inlet/Outlet, vegetate road shoulders.	Low	Medium: $500-$2,500
5-02	Stream	Town Road	Surface Erosion (Gully, Rill, & Sheet), Unstable Culvert inlet/outlet, Undersized Culvert, Road Shoulder Erosion Gully, Rill, & Sheet), Bare Soil, and Winter Sand Buildup.	Replace, Enlarge, and Lengthen Culvert, Armor Culvert Inlet/Outlet, Vegetate Road Shoulders	Medium	High: Greater than $2,500
5-03	Stream	Town Road	Road Surface Erosion (Rill & Sheet), Bare Soil, Winter Sand Buildup, plow/grader berms preventing runoff from exiting road surface.	Remove Grader/Plow Berms, install new ditch and Ditch Turnouts, Build Up road with new harder-packing gravel and Reshape to a crown, Vegetate Road Shoulders.	Medium	High: Greater than $2,500
5-04	Minimal Vegetation	Town Road	Road Surface Erosion (Sheet, Rill, & Gully), Unstable Culvert inlet/outlet, Clogged Culvert, Undersized Culvert, Ditch Erosion (Gully), Road Shoulder Erosion (Rill), Bare Soil, Winter Sand Buildup. This site includes multiple cross culverts btw median and north side of road with outlets into wetland on Andro Lake. Road surface is severely eroding/rutted and plow/grader berms prevent runoff from exiting road surface.	Replace, Enlarge, and Lengthen Culverts and Armor Inlet/Outlet, Vegetate and Reshape Ditches, Build Up Road with new gravel and Reshape to a Crown, Install Detention Basin/plunge pool at culvert outlet to provide more treatment before entering wetland/lake.	Medium	High: Greater than $2,500
5-05	Stream	Town Road	Road Surface Erosion (Rill), Undersized Culvert, Unstable Culvert inlet/outlet, Road Shoulder Erosion (Rill & Gully). Eroded gullies on crossing shoulders and banks - most notably around the water access on inlet side of culvert. Road runoff flowing over banks and into stream.	Replace with larger culvert and armor Culvert Inlet/Outlet, install new Ditch and Ditch Turnouts, add new and harder-pacing road surface gravel Build Up and Reshape to a Crown, Remove Grader/Plow Berms to allow runoff to exit into ditches, Vegetate Road Shoulders. Crowning road and installing ditch turnouts into wooded buffer before crossing would help reduce flow over banks and into stream.	High	Medium: $500-$2,500
5-06	Minimal Vegetation	Town Road	Road Surface Erosion (Rill), Road Shoulder Erosion (Gully & Rill), Winter Sand Buildup	Add recycled asphalt or new crushed gravel and Reshape to a crown, Vegetate Road Shoulders, Remove Grader/Plow Berms	Medium	Medium: $500-$2,500
5-07	Stream	Town Road	Unstable Culvert inlet/outlet, Road Shoulder Erosion (Rill), Winter Sand Buildup	Armor Culvert Inlet/Outlet, Reshape and Vegetate Road Shoulder	Low	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
5-08	Stream	Town Road	Road Surface Erosion (Rill & Sheet), Road Shoulder Erosion (Rill), Bare Soil, Winter Sand Buildup	Install Ditch, Install Turnouts, Remove Grader/Plow Berms, add new harder-packing crushed gravel or recycled asphalt surface and reshape to Crown, Vegetate Road Shoulder, Gravel road surface is very loose and easily transported off the road surface. This site refers to the road on both sides of culvert crossing (site 5-07) draining to stream.	Medium	High: Greater than $2,500
5-09	Minimal Vegetation	Town Road	Ditch Erosion (Gully), Ditch Bank Failure, Road Shoulder Erosion (Gully), Bare Soil, Winter Sand Buildup. Ditch erosion starts at intersect of Jennings and Bernie Hartford. Continues north past cemetery and continues to culvert crossing. Seems that potential cemetery expansion erosion control is failing at edges. Lots of gullies exiting cemetery property into ditch that drains into culvert crossing.	Re-establish erosion controls on bank at edge of cemetery and vegetate all bare soils, remove debris/sediment accumulating in ditch, Reshape Ditch and vegetate, Install Turnouts to direct ditch runoff into woods before culvert crossing or Install Check Dams, Vegetate Road Shoulders.	High	High: Greater than $2,500
5-10	Minimal Vegetation	Town Road	Road Surface Erosion (Rill), Ditch Erosion (Gully & Rill & Sheet), Ditch Bank Failure, Road Shoulder Erosion (Rill & Gully), Bare Soil, Winter Sand accumulation. Existing ditches are eroded and lots of bank failures throughout. Very large grader/plow berms preventing runoff from exiting road surface. Entire length of road is loose gravel at least 2"+ in size (does not seem to be rolled/compacted) w/o proper ditching or drainage.	Remove Grader/Plow Berms, remove debris/sediment accumulation, install ditches and turnouts and vegetate or armor with stone, add new harder-packing surface gravel 1" minus in size and Reshape to Crown, Vegetate Road Shoulders. Entire length of road is loose gravel at least 2"+ (does not seem to be rolled/compacted) w/o proper ditching or drainage.	High	High: Greater than $2,500
5-11	Stream	Town Road	Surface Erosion (Rill & Sheet), Culvert Crushed/Broken, Culvert Undersized, Ditch Erosion (Gully & Rill), Road Shoulder Erosion (Rill & Sheet), Winter Sand Buildup.	Enlarge, Replace, and Armor culvert Inlet/Outlet, install ditch and ditch turnouts, add new road surface gravel and Build Up	Low	Medium: $500-$2,500
5-12	Stream	Town Road	Road Surface Erosion (Rill & Sheet), Unstable Culvert inlet/outlet, Ditch Erosion (Rill & Gully), Road Shoulder Erosion (Sheet & Rill), Winter Sand Buildup, Bare Soil	Armor Culvert Inlet/Outlet, install ditch and ditch turnouts, Remove Grader/Plow Berms, add gravel and Reshape to Crown, Vegetate Road Shoulder	Medium	High: Greater than $2,500
5-13	Directly into lake	Boat Access	Surface Erosion (Gully)	Cover bare soils with ECM, define a narrower foot path to dock and retrofit existing terracing into infiltration steps to stabilize, Establish Buffer vegetation along shoreline by planting native shrubs, add plantings and ECM on the remaining open area around footpath to stabilize the slope. Add a water bar at the top of slope to redirect runoff form the end of the road away from the footpath and into a stable area where it can be absorbed.	Medium	Medium: $500-$2,500
5-14	Minimal Vegetation	Trail or Path	Surface Erosion (Sheet & Rill), Bare Soil - Need to address washout at edge of landing/sitting area.	Reseed bare soil & thinning grass, Add to Shoreline Buffer, Add plants along the edges of landing immediately above rock wall and cover landing with ECM or other stable surface material (crushed stone, for example).	Low	Low: Less than $500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
5-15	Minimal Vegetation	Private Road*	Surface Erosion (Gully)	Install runoff diverter into an infiltration basin/trench or planted rain garden where runoff can be absorbed, or discontinue use of this access point and naturalize with plantings and ECM berms along slope.	Medium	Medium: $500-$2,500
5-16	Directly into lake	Boat Access*	Surface Erosion (Gully)	Add gravel to smooth out existing eroded gullies/erosion, Install Runoff Diverters (Broad-based Dip or rubber razor) across the launch and send runoff into a new Rain Garden or infiltration basin where it can be absorbed instead of flowing into lake.	High	Medium: $500-$2,500
5-17	Directly into lake	Residential	Surface Erosion (Sheet)	Install planted infiltration swales or ECM berms across the slope to help slow the runoff flowing down from hillside above. Currently flow is concentrating and entering boat launch area, adding to the erosion problem there (Site 5-16).	Low	Medium: $500-$2,500
6-01	Stream	Agriculture	Surface Erosion (Rill), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion, Potential Livestock Access to Waterbody.	Unsure if Livestock accessing water is having waste or erosion impact. Ensure livestock is fenced in away from stream and re-establish a vegetated buffer strip around stream.	Medium	Medium: $500-$2,500
6-02	Stream	Commercial	Surface Erosion (Rill), Undercut Shoreline, Lack of Shoreline Vegetation, Shoreline Erosion, Unstable Water Access. Lots of bare soil washing into water, and river bank erosion from foot traffic over bank to access boats and docks.	Reseed bare soil & thinning grass and add ground covers and shrubs to define campsites, campsites with bare soils can be resurfaced with stable materials like ECM or crushed stone. Establish a vegetated shoreline buffer, minimize the total number of access points/openings through the buffer for dock/boat access and close off others. Site photos are sites 73 and 75, but erosion issues documented on sites 59, 60, 63, 67, 67a, & 68. Water access erosion identified on sites 70, 71, 72, 73, 74, & 75.	Medium	Medium: $500-$2,500
6-03	Stream	Commercial	Surface Erosion(Sheet), Shoreline Erosion, Unstable Shoreline Access, Lack of Shoreline Vegetation.	Reseed bare soil & thinning grass, Establish Shoreline Buffer, install pervious pavers/crushed stone/ECM where docks attach to shoreline, plant shrubs and close off access in other areas.	Medium	Medium: $500-$2,500
6-04	Stream	Commercial	Surface Erosion (Rill), Road runoff from Route 106 flows down gravel access roads and downhill on boat launch draining to lake.	Install Runoff Diverters (Broad-based Dip, rubber razor, or other), add gravel and Reshape to Crown, Install Catch Basin.	High	High: Greater than $2,500
7-01	Directly into lake	Residential	Surface Erosion, Shoreline Erosion	Some Undercutting but could be natural and caused by the lake water and ice. Install live stakes within bare soils to establish shrubs along the buffer edge to stabilize.	Medium	Medium: $500-$2,500
7-02	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation	Define Foot Path and stabilize bare soils with ECM, install Infiltration steps on steep portions of pathway, Reseed bare soil & thinning grass	Medium	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
7-03	Directly into lake	Beach Access	Surface Erosion	Reseed bare soil & thinning grass, define walking path and cover with stable material like ECM or crushed stone, Add Rain Garden or ECM Berm before rocks on shore, add to shoreline buffer by planting native shrubs.	Medium	Medium: $500-$2,500
7-04	Directly into lake	Beach Access	Surface Erosion (Sheet), Lack of Shoreline Vegetation, Shoreline Erosion	Define Foot Path and stabilize with ECM or crushed stone, install Infiltration Steps on steepest portions of pathway, establish shoreline Buffer by planting native shrubs, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
7-05	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil	Define Foot Paths and stabilize with ECM or crushed stone, Install Runoff Diverter (water bars) along pathway slopes create infiltration areas (for example, rain gardens) where runoff can infiltrate and be absorbed away from the lake, establish a shoreline Buffer, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
7-06	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion	Define Foot Paths and stabilize with ECM or crushed stone and add water bars or Install Infiltration Steps on steep portions, cover bare soils with ECM, add to shoreline Buffer and install live stakes to establish shrubs on immediate shoreline where bare soil/erosion documented, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
7-07	Directly into lake	Residential	Shoreline Erosion, Lack of Shoreline Vegetation, ice damage to shoreline	Add to shoreline buffer, install live stakes to establish shrubs on immediate shoreline where erosion/ ice damage documented.	Medium	Medium: $500-$2,500
7-08	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion	Define Foot Path and cover with ECM or crushed stone, Establish Shoreline Buffer Vegetation, Reseed bare soil & thinning grass.	Low	Low: Less than $500
7-09	Directly into lake	Beach Access	Surface Erosion (Rill), Bare Soil, Lack of Shoreline Vegetation, Shoreline/Beach Erosion	Establish a Shoreline Buffer by installing hardy shrubs and ECM between the large rocks along beach area and parking area, minimize the size of parking area if possible, install additional Runoff Diverters across access road to divert flow into woods and away from lake and repair or replace existing rubber razor. Gravel parking area could be resurfaced with a better crushed gravel that will not erode/wash away. Define and minimize picnic areas and stabilize ground with ECM or crushed stone, allow other areas to naturalize with vegetation and do not rake or mow.	Medium	Medium: $500-$2,500
7-10	Directly into lake	Residential	Surface Erosion (Rill), Bare Soil, Shoreline Erosion	Define Foot Paths and stabilize with ECM or crushed stone, Install Runoff Diverters (water bars) across pathway, establish shoreline Buffer vegetation, and Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
7-11	Directly into lake	Residential	Surface Erosion (Gully), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion, Unstable Access	Install Runoff Diverter (water bar) and Establish Shoreline Buffer	Medium	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
7-12	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Shoreline Erosion, Lack of Shoreline Buffer Vegetation.	Define Foot Paths and stabilize with ECM or crushed stone, define and minimize recreational areas within sandy area btw camp and lake, and cover bare soils with crushed stone or ECM, let all other bare space naturalize with vegetation, establish a vegetated shoreline buffer behind large rocks on shoreline and behind small beach area by planting native shrubs and ground covers with ECM.	Medium	Low: Less than $500
7-13	Stream	Town Road	Surface Erosion (Sheet), Road shoulder erosion, road ditch line drains directly to culvert/stream.	Vegetate Road Shoulders and create ditch turnouts to divert ditch runoff into woods instead of stream.	Low	Medium: $500-$2,500
7-14	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Shoreline Erosion	Define Foot Path and Stabilize with ECM or crushed stone, Install Runoff Diverter (water bar) on pathway, add to shoreline Buffer Vegetation, Reseed bare soil & thinning grass.	Low	Low: Less than $500
7-15	Directly into lake	Driveway	Surface Erosion (Sheet)	Assuming seasonal use, Install Runoff Diverter(s) (Rubber Razors, for example) across the driveway to redirect runoff flowing down drive into adjacent stable vegetation and away from the lake. Create a rain garden to receive runoff flow, if needed.	High	High: Greater than $2,500
7-16	Directly into lake	Boat Access	Surface Erosion (Rill), Lack of Shoreline Vegetation, Shoreline Erosion	Add to shoreline Buffer, add stone to launch area if use is disturbing soils on shoreline banks.	Medium	High: Greater than $2,500
7-17	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil	Bare spot is result of weed barrier installed to smother an infestation of Japanese knotweed nearing the shoreline. Reseed bare soils & thinning grass with conservation seed mix or clover, cover area immediate surrounding horseshoe pit, where foot traffic is heaviest, with ECM (or relocate horseshoe pits), add to shoreline buffer vegetation.	Medium	Medium: $500-$2,500
7-18	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Winter sand. Two pipes of unknown origin discharge to lake.	Install Runoff Diverter at top of driveway to prevent road runoff from entering drive, install infiltration trench at base of paved access to capture runoff from driveway, Define Foot Paths and stabilize with ECM or crushed stone, Establish Shoreline Buffer, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
7-19	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Roof Runoff Erosion	Install infiltration trench at roof driplines.	Low	Low: Less than $500
7-20	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Shoreline Erosion	Define Foot Path top shorefront and stabilize with ECM or crushed stone, Install Runoff Diverter (water bar) ear top of slope to redirect runoff into stable vegetation where it can be absorbed away from the lake. Add to shoreline buffer by planting native shrubs.	Medium	Low: Less than $500
7-21	Directly into lake	Residential	Surface Erosion (Sheet), Soil-Bare, Lack of Shoreline Vegetation	Establish shoreline Buffer, cover bare soil with ECM or revegetate.	Low	Medium: $500-$2,500
7-22	Directly into lake	Residential	Surface Erosion (Rill), Bare Soil	Install an Infiltration Trench @ roof dripline, Establish Shoreline Buffer Vegetation, Remove trash near shoreline.	Medium	Low: Less than $500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
7-23	Directly into lake	Residential	Surface Erosion (Sheet), Lack of Shoreline Vegetation	Revegetate bare areas or cover with stable material like ECM or crushed stone, define foot paths and Install a Runoff Diverter (water bar), Establish shoreline buffer vegetation.	Low	Low: Less than $500
7-24	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Shoreline Erosion, Lack of Shoreline Buffer Vegetation.	Establish shoreline Buffer vegetation, to capture/treat runoff over the large lawn above and stabilize shoreline, by plantings native shrubs, trees, and ground covers and adding ECM.	Low	Low: Less than $500
7-25	Directly into lake	Beach Access	Surface Erosion (Sheet), Bare Soil, Shoreline Erosion, Lack of Shoreline Vegetation. Erosion of beach/dock access opening on shoreline.	Add angular stone over geotextile fabric on eroded portion of bank at dock/beach access point (where tree roots are exposed. Add ECM and native plantings above to further stabilize bar soils.	Low	Medium: $500-$2,500
7-26	Directly into lake	Beach Access	Surface Erosion (Rill), Bare Soil, Shoreline erosion	Vegetate ice berm as much as possible with hardy native shrubs with good root systems, deepen/widen shoreline buffer zone, request technical assistance to see if angular stone (riprap) would be permitted here.	Low	Medium: $500-$2,500
7-27	Directly into lake	Beach Access	Surface Erosion (Gully)	Investigate source of flow. If natural, establish and maintain a vegetative buffer zone around the channel including the channel's outlet at the lake. Remove unnatural debris placed at outlet.	Medium	Low: Less than $500
7-27b	Directly into lake	Boat Access	Surface Erosion(sheet), Shoreline Erosion	Install runoff diverters across launch/ROW and stabilize bare soils by revegetating or covering with ECM or crushed stone.	Medium	Medium: $500-$2,500
7-28	Directly into lake	Beach Access	Surface Erosion (Sheet), Bare Soil, Shoreline Undercut, Shoreline Erosion, Unstable Access	Define foot paths and water/beach access points and stabilize surface with ECM or crushed stone, establish shoreline buffer vegetation and add ECM to cover soils throughout the shorefront and on immediate shoreline to prevent further erosion, existing retaining wall is failing and should be removed, request technical assistance to better understand if a shoreline stabilization project using angular stone (riprap) could be permitted here.	High	Medium: $500-$2,500
7-29	Directly into lake	Beach Access	Surface Erosion (Rill), Shoreline Erosion	Install Runoff Diverters Rubber razor or Water bar) to prevent flow down pathway and into lake, potentially could add crushed stone to stabilize surface (depending on use).	Medium	Medium: $500-$2,500
7-30	Directly into lake	Beach Access	Surface Erosion (Sheet & Rill), Shoreline Erosion	Install Runoff Diverters across access road, add better packing gravel or crushed stone to parking/access road surface to stabilize soils, reseed bare soil & thinning grass, Add vegetation on the shoreline and adjacent stream banks. Cover remaining bare soils with ECM or crushed stone, or vegetate.	Medium	Low: Less than $500
7-31	Directly into lake	Beach Access	Surface Erosion (Gully), Shoreline/beach Erosion	Install Runoff Diverters (Water bar or Rubber Razor) Establish Shoreline Buffer Vegetation, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
8-01	Stream	Town Road	Unstable Culvert inlet/outlet, Road Shoulder Erosion (Rill), Winter Sand Buildup	Armor Culvert Inlet/outlet, Vegetate road shoulder	Low	Medium: $500-$2,500
8-02	Stream	Town Road	Surface Erosion (Rill), Unstable culvert inlet/outlet, Road Shoulder Erosion (Rill), Plow and grader berms	Armor culvert inlet/Outlet, vegetate road shoulder	Low	Low: Less than $500
8-03	Stream	State Road	Surface Erosion (Sheet), Unstable culvert inlet/outlet, Culvert Crushed/Broken, Road Shoulder Erosion (Sheet), Culvert completely rusted out on bottom.	Replace Culvert and Armor culvert Inlet/Outlet, Armor road shoulder or revegetate	Low	High: Greater than $2,500
8-04	Stream	Town Road	Surface Erosion (Rill), Unstable culvert inlet/outlet	Armor culvert inlet/Outlet and revegetate	Medium	Low: Less than $500
8-05	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil	Stabilize Foot Path and stabilize with ECM or crushed stone. Stone might be better to stabilize the path because the water often covers the path in the spring.	Low	Low: Less than $500
8-06	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Inadequate Shoreline Vegetation, erosion on long, gravel/grassed path goes all the way to the lake.	Reseed bare soil & thinning grass, Add to Shoreline Buffer Vegetation, Path surface needs stabilization with ECM or crushed stone and runoff diverter across. Landowner needs path to still be drivable.	Medium	Medium: $500-$2,500
8-07	Stream	Private Road	Unstable culvert inlet/outlet, Road Shoulder Erosion (Rill).	Armor Culvert Inlet/outlet, Vegetate road shoulder	Medium	Low: Less than $500
8-08	Ditch	Private Road	Surface Erosion (Gully), Culvert Undersized, Culvert Unstable inlet/outlet, Ditch Undersized, runoff is overtopping road and eroding a gully.	Install Plunge Pools on both sides of culvert, replace with larger culvert set at lower elevation, reshape ditch to increase capacity and vegetate or armor with stone, reshape road to a crown and resurface with new crushed gravel.	Medium	High: Greater than $2,500
8-09	Directly into lake	Residential	Surface Erosion (Gully), Failing retaining structure on shoreline- timbers are failing and dirt falling through into lake.	Request site visit from Maine DEP and 30 Mile for technical assistance.	Medium	Medium: $500-$2,500
8-10	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Inadequate Shoreline Vegetation, Dirt path is a conduit for runoff directly to lake.	Define and Stabilize Foot Path with ECM or crushed stone, Install Runoff Diverter (water bar) across path to redirect runoff on path surface into adjacent stable vegetation where it can be absorbed away from the lake, Add to Shoreline Buffer.	Medium	Low: Less than $500
9-01	Stream	Town Road	Unstable Culvert inlet/outlet, Culvert Undersized, Road Shoulder Erosion (Gully), Winter Sand Buildup.	Replace, Lengthen, and Enlarge culvert, Armor Culvert Inlet/Outlet, Armor entire road shoulder, we could not assess culvert condition banks too steep.	Medium	High: Greater than $2,500
9-02	Stream	Town Road	Unstable culvert inlet/outlet, Road Shoulder Erosion (Gully), Winter Sand Buildup	Armor culvert Inlet/Outlet, Clean up winter sand	Medium	Medium: $500-$2,500
9-03	Ditch	State Road	Unstable Culvert inlet/outlet, Culvert Undersized, Culvert Crushed/Broken, there are 2-3 culverts that cross under the road to drain the ditch that are unstable.	Replace culverts, Armor culvert Inlet/Outlet, add plunge pools at culvert outlet.	Medium	High: Greater than $2,500
9-04	Ditch	State Road	Culvert Crushed/Broken, Ditch Erosion (Gully), Road Shoulder Erosion (Gully), Winter Sand Buildup, Ditch runoff is going around culvert rather than through it.	Replace culvert, Reshape Ditch, Install Check Dams, Clean up winter sand	Medium	High: Greater than $2,500

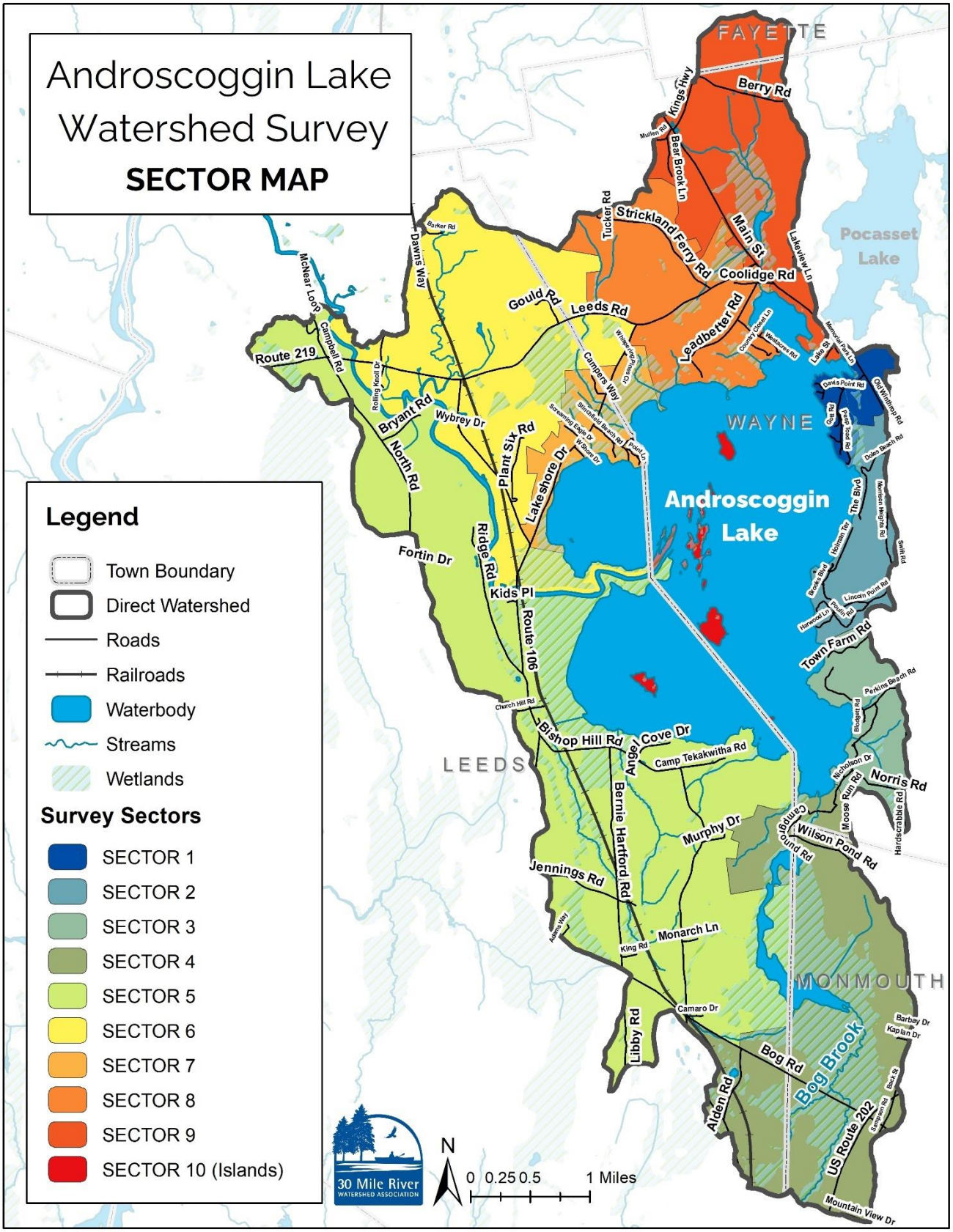
Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
9-05	Ditch	Private Road	Culvert Crushed/Broken, Unstable culvert inlet/outlet, Ditch Erosion (Rill), Road Shoulder Erosion (Sheet), Winter Sand Buildup	Replace culvert, Armor culvert Inlet/Outlet, vegetate ditch or armor with stone, remove winter sand, vegetate road shoulders.	Low	Medium: $500-$2,500
9-06	Ditch	State Road	Unstable culvert inlet/outlet, Road Shoulder Erosion (Gully), Winter Sand Buildup	Replace with longer culvert and armor inlet/outlet, Repair road shoulder, vegetate, and remove winter sand.	Medium	High: Greater than $2,500
9-07	Stream	State Road	Unstable culvert inlet/outlet, Ditch Erosion (Sheet), Road Shoulder Erosion (Gully), Winter Sand Buildup, Ditch drains directly to stream, Culvert perched on outlet side.	Replace culvert and Armor Inlet/Outlet, Install Sediment Pools, Vegetate Road Shoulder, remove winter sand, investigate upstream of culvert for sources contributing historical erosion, investigate pipe in bank from adjacent lot - could be foundation drain or other.	Medium	High: Greater than $2,500
9-08	Stream	State Road	Culvert Crushed/Broken, Unstable culvert inlet/outlet, Ditch Erosion (Rill), Road Shoulder Erosion (Sheet), Winter Sand Buildup, False ditch leading to stream.	Armor culvert Inlet/Outlet, replace culvert, and add riprap to area where false ditch is forming. Culvert is perched on outlet side- Extend curb on road and round it into driveway.	Medium	High: Greater than $2,500
9-09	Ditch	Commercial	Surface Erosion (Sheet), Surface Erosion (Rill & Gully), Unstable culvert inlet/outlet, Bare Soil, Sediment basin needs maintenance, culvert on Coolidge Rd leads to catch basin, lots of gravel in ditch around culvert.	Armor culvert Inlet/Outlet, remove debris/sediment in catch basin, culvert, and, riprap basin, stabilize sandy/gravel area surrounding catch basin with pavement or recycled asphalt.	Medium	High: Greater than $2,500
9-10	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion	Define Foot Path and Stabilize with ECM or crushed stone, Install Runoff Diverter (water bar) across path), Add to Shoreline Buffer.	Low	Low: Less than $500
9-11	Directly into lake	Residential	Surface Erosion (Sheet), Bare Soil, Lack of Shoreline Vegetation	Define Foot Path and Stabilize with ECM or crushed stone, Infiltration Steps could be installed on steep sections, reseed bare soil & thinning grass, No Raking, establish a vegetated shoreline buffer zone, and create opportunities to infiltrate runoff by planting vegetation along slope and/or adding ECM berms.	Medium	Medium: $500-$2,500
9-12	Directly into lake	Residential	Uncovered Soil Pile, Looks like big gravel pile from plowing/winter maintenance about 30 ft. from lake.	Remove pile, or in the very least, cover with a tarp and surround with ECM berms or silt fence so it cannot wash into lake.	Low	Low: Less than $500
9-13	Ditch	State Road	Culvert Crushed/Broken, Ditch Erosion (Rill), Two culverts that cross the road at different angles. Sink hole at one culvert outlet. Culvert rusted out and needs replacement.	Replace culvert and armor inlet/outlet, install sediment pools and armor with stone, Remove debris/sediment buildup.	Medium	High: Greater than $2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
9-14	Directly into lake	Commercial	Surface Erosion (Rill), Very steep slope next to boat launch, eroded bare soils throughout, runoff from roofs is eroding soils as it flows across front of property and onto beach, boat launch conveys runoff into lake.	Dripline trenches or rain gardens at roof driplines needed, install stable surface materials (ECM or crushed rock) on gathering areas around picnic tables, grill, and boat racks. Define all pathways, stabilize, and install water bars where needed. Improve stand of vegetation between club and beach and retrofit rain gardens where possible to increase infiltration throughout. Boat launch needs a runoff diversion higher up toward Lake Road / Parking lot to divert some flow into woods or other stable area. More rock could be added to western edge of launch area. Adding a ditch closer to lake with check dams would be a big project here with very limited space and no place to turn out.	High	Medium: $500-$2,500
DR-NPS1	Directly into lake	Agriculture	Livestock fencing and very minimal buffer immediately above eroded section of riverbank	Vegetate riverbank and increase width of the maintained vegetated buffer between river and fields to ensure bank stability, prevent further erosion, and increase infiltration and treatment of runoff from above.	Medium	Medium: $500-$2,500
DR-NPS3	Directly into lake	Commercial	Surface Erosion (Sheet & Rill), Bare Soil, Unstable shoreline	Define footpaths and cover with ECM or crushed stone, establish more robust buffer throughout shoreline, the number of boat access points should be minimized and more narrow access points defined, eroded soils stabilized with vegetation, ECM, or rock. Temporary gang ways that can span the shoreline bank could be used to minimize the impact to a degradation of banks from continued foot traffic to docks.	Medium	Medium: $500-$2,500
DR-NPS4	Directly into lake	Boat Access	Shoreline erosion, Lack of shoreline vegetation.	Establish a vegetated buffer. Define narrow access points and stabilize worn or bare soil with ECM or crushed stone. Use seasonal gangways that span the shoreline bank and prevent foot traffic on riverbank itself.	Medium	Medium: $500-$2,500
JS-01	Directly into lake	Commercial	Surface Erosion (Rill & Gully), Bare Soil, Lack of Shoreline Vegetation	Define the beach as a separate space from access road and surrounding shorefront camp sites by creating a planted area or rain garden at the base of slope just inland of the swimming beach entrance. Install a runoff diverter at top of the beach access road and improve road surface by reshaping with new crushed bluestone surface material.	Medium	High: Greater than $2,500
JS-02	Directly into lake	Commercial	Surface Erosion (Sheet, Rill, & Gully), Bare Soil, Inadequate Shoreline Vegetation, Shoreline Erosion, Unstable Shoreline Access, Lack of Shoreline Vegetation	Define and stabilize access points Demarcate a wider (deeper) vegetative buffer zone between lake and boat launch access road by not mowing and planting native shrubs, ground covers, and grasses. Define and stabilize all access points with ECM or crushed stone, and install runoff diversions across pathway and roads that lead to the launch area to prevent unimpeded runoff flow into the lake.	Medium	Medium: $500-$2,500

Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
JS-03	Directly into lake	Commercial	Surface Erosion (Sheet & Rill), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion, Unstable shoreline Access	Establish buffer along bank between campsite and Bog Brook, reseed bare soil & thinning grass, define pathways and access points to stream/beach, and stabilize surfaces with ECM or crushed stone.	Medium	Medium: $500-$2,500
JS-04	Directly into lake	Commercial	Surface Erosion (Sheet & Rill), Soil Bare, Lack of Shoreline Vegetation, Shoreline Erosion, Unstable shoreline Access.	Define Foot Path and Stabilize with ECM or crushed stone, Install Runoff Diverters (water bars) across pathways, establish a more robust buffer throughout by planting native shrubs and ground covers, reseed bare soil & thinning grass, stabilize open/eroded section of shoreline next to bridge, define footpath along east stream bank and stabilize. Could improve buffer throughout entire area.	Medium	Medium: $500-$2,500
JS-05	Directly into lake	Commercial	Surface Erosion (Gully), Bare Soil, Inadequate Shoreline Vegetation, Shoreline Erosion, Unstable Shoreline Access, gap in shoreline buffer conveys runoff from adjacent campsite and roadway above.	Build up road and campsite site surface material with better hard-packing gravel and reshape smooth or add crushed stone (on campsite only). Discontinue lake access point and fill in gap in shoreline buffer with vegetation and ECM, OR better define access and stabilize with rock, ECM and plantings.	Medium	Medium: $500-$2,500
JS-06	Directly into lake	Commercial	Surface Erosion (Rill), Bare Soil, Lack of Shoreline Vegetation, Shoreline Erosion, Unstable Shoreline Access. Currently used as boat launch / water access point. Erosion on site #220 flows across roadway and into launch/lake.	Owner unsure if they will keep launch open. If not, close in current gap in buffer vegetation by adding native shrubs and add mulch. If launch remains, stabilize surface with crushed stone and install a runoff diverter to prevent runoff from entering lake. Gravel in site # 220 should be improved with bluestone gravel or clean crushed stone.	Medium	Medium: $500-$2,500
JS-07	Minimal Vegetation	Commercial	Surface Erosion (Gully)	Build Up roadway with new hard-packing crushed gravel (crushed bluestone) and reshape to a crown, install a runoff diverter (Broad-based Dip) at top of slope and send runoff into vegetated area on left when looking at the lake from top of slope to reduce the amount of flow downhill toward the lake.	Medium	Medium: $500-$2,500
JS-08	Minimal Vegetation	Commercial	Surface Erosion (Rill & Sheet)	Build up road with new hard-packing crushed gravel (crushed bluestone) and reshape to a crown, install a runoff diverter (Broad-based Dip)to send runoff into adjacent vegetation and reduce the amount of flow going downhill toward the lake.	Medium	High: Greater than $2,500
JS-09	Stream	Commercial	Surface Erosion (Sheet & Rill), Bare Soil, Soil Delta in Stream/Lake. Surface sediment from campsite is eroding down between rocks and into stream.	Add ECM and native plantings to the edge of campsite above boulders and berm up ECM at edges. Resurface campsite better , hard-packing gravel and reshape smooth.	Low	Medium: $500-$2,500
JS-10	Stream	Commercial	Surface Erosion (Sheet, Rill, and Gully), Bare Soil. Playground sand migrating toward bog brook. Runoff leaving basketball court causing erosion.	Contain playground sand by installing a retaining structure at edge of playground, install infiltration trench or vegetate/mulch edge of basketball court to capture and infiltrate runoff flow. Mulch or reseed/vegetate all remaining bare areas.	Medium	Medium: $500-$2,500

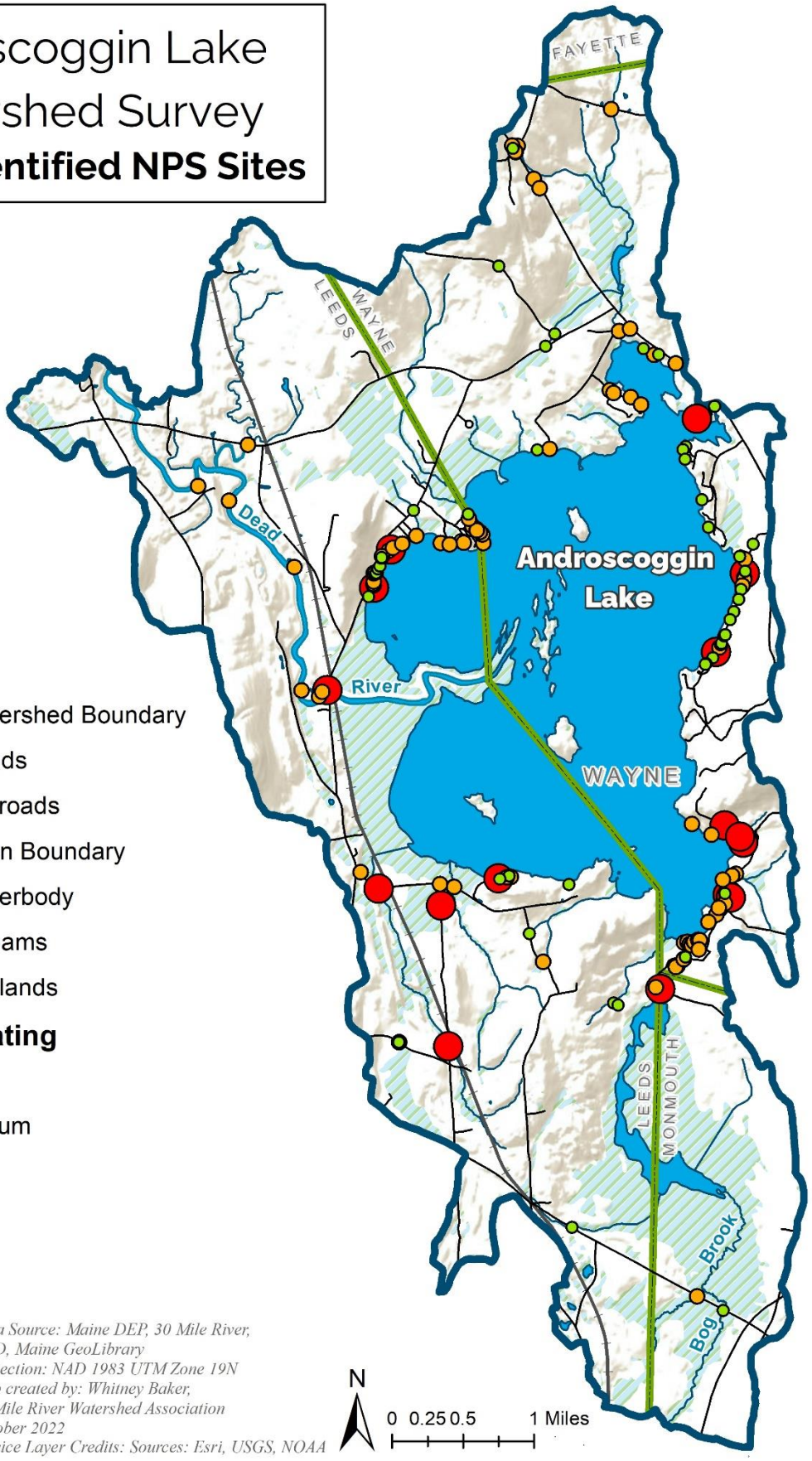
Site #	Flow into lake via	Land use/ Activity	PROBLEMS	RECOMMENDED FIX	Impact Rating	Cost to Fix
JS-11	Minimal Vegetation	Commercial	Surface Erosion (Rill), Bare Soil, Roof Runoff Erosion.	Install an Infiltration Trench @ roof dripline, Reseed bare soil & thinning grass.	Medium	Medium: $500-$2,500
JS-12	Stream	Commercial	Surface Erosion(Sheet, Rill, & Gully), Road Shoulder Erosion (Rill), Bare Soil, Soil Delta in Stream/Lake, Shoreline Erosion. Road runoff is washing directly into Bog Brook at bridge crossing.	Build up and add better hard-packing gravel (bluestone gravel) and reshape to crown, vegetate shoulders. Need to manage runoff flowing to stream crossing from both sides by installing a broad-based dip that sends runoff into turnouts into woods away from stream.	Medium	High: Greater than $2,500
JS-13	Ditch	Commercial/ Town Road	Surface Erosion (Rill), Road Shoulder Erosion (Rill)	Install ditch and cross culvert west of campground entrance and to redirect runoff to wooded area in opposite side of road. Improved ditch and turnout needed in ditch line east of entrance to reduce runoff flowing from campground entrance/parking into stream crossing at end of ditch line.	Medium	High: Greater than $2,500
TK-01	Directly into lake	Commercial	Surface Erosion (Rill & Gully), Bare Soil.	Beach access is currently paved, but crumbling. May remove pavement surface over time and replace with ECM. Reseed/vegetate surrounding bare soils. Existing culvert has heaved and is currently acting as a runoff diverter. If culvert is replaced/removed in the future, make sure to maintain a runoff diverter at top of slope.	Low	Medium: $500-$2,500

Appendix B: 2022 Watershed Survey Maps



Androscoggin Lake Watershed Survey

2022 Identified NPS Sites



Legend

- Watershed Boundary
- Roads
- Railroads
- Town Boundary
- Waterbody
- Streams
- Wetlands

Impact Rating

- Low
- Medium
- High

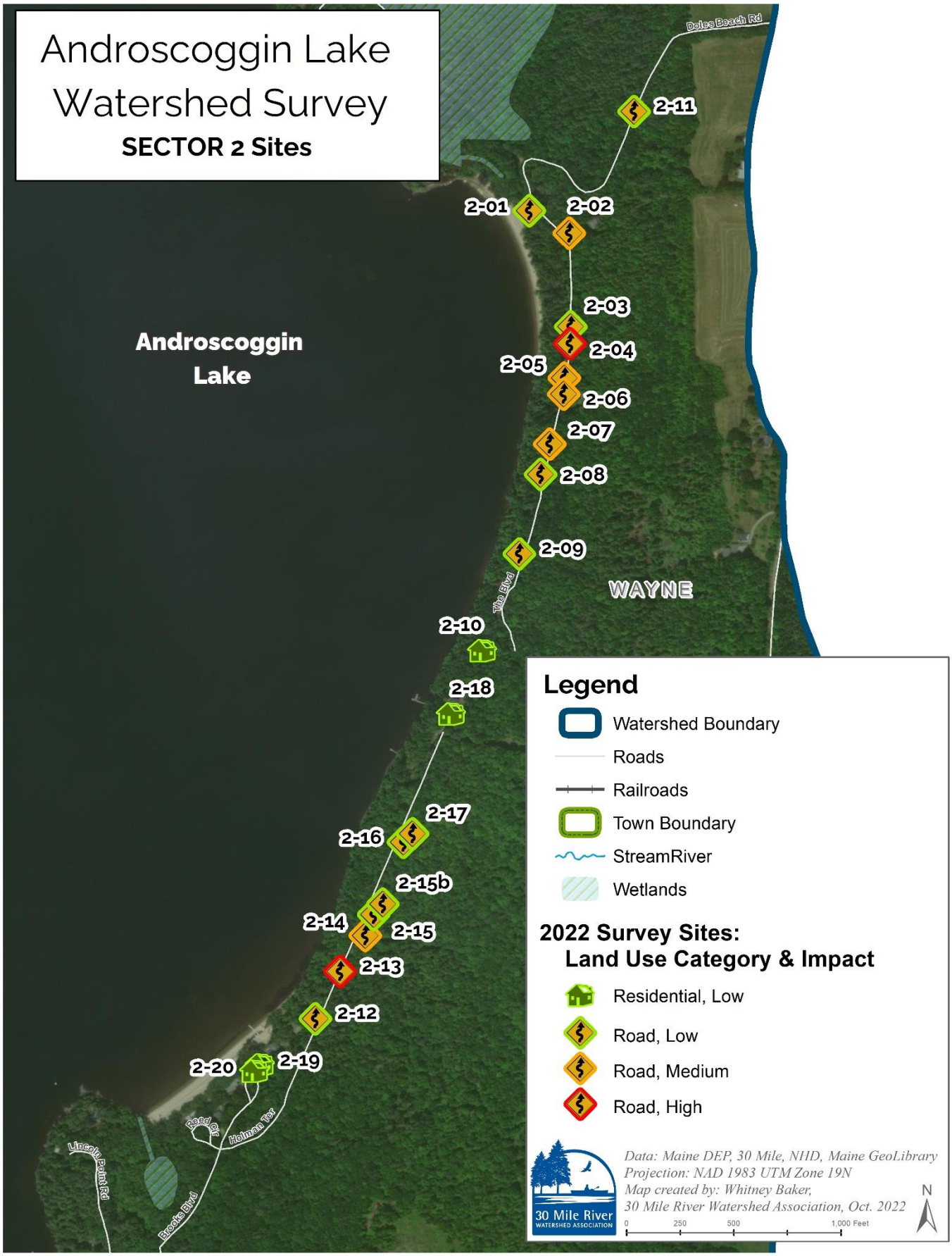
N

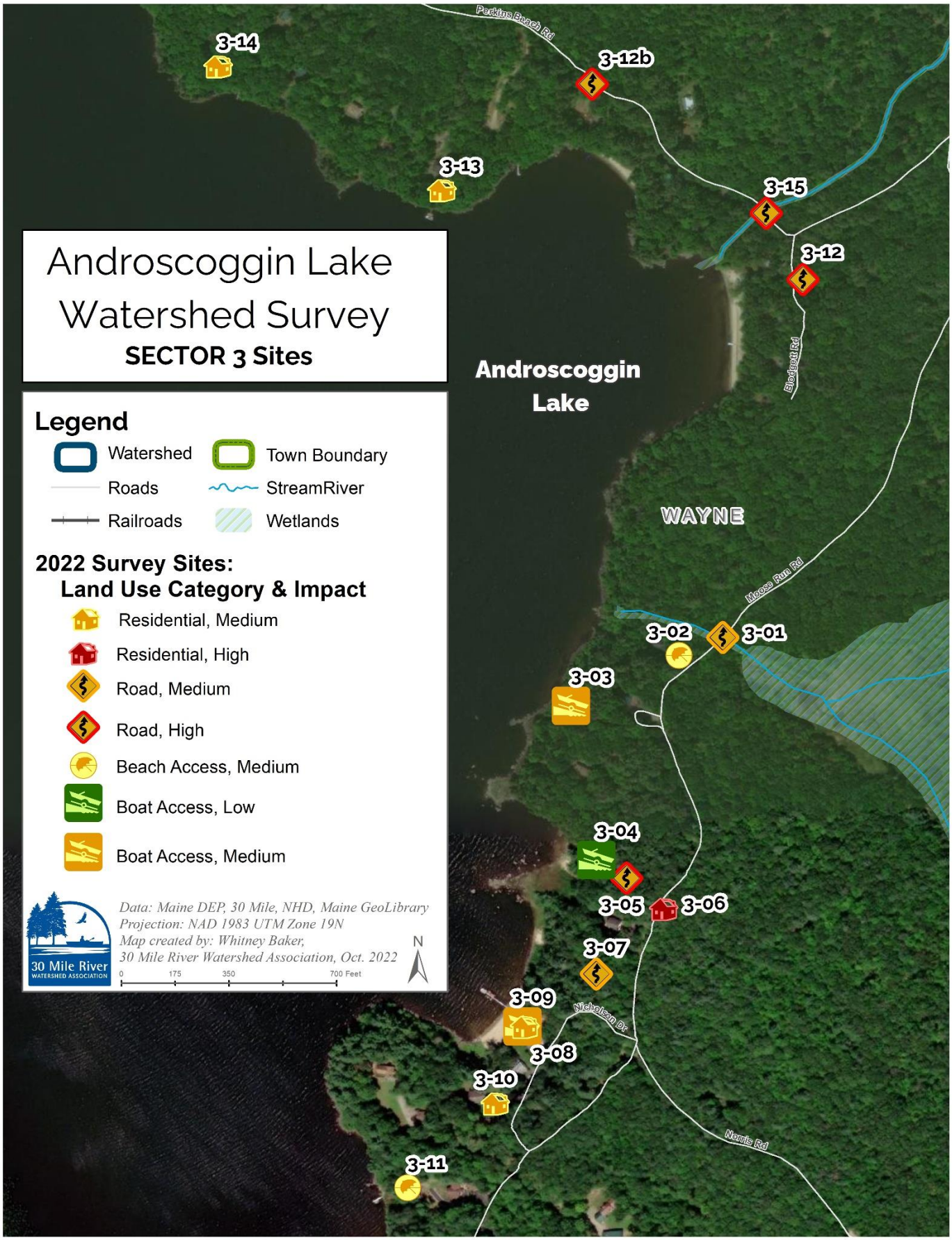
0 0.25 0.5 1 Miles

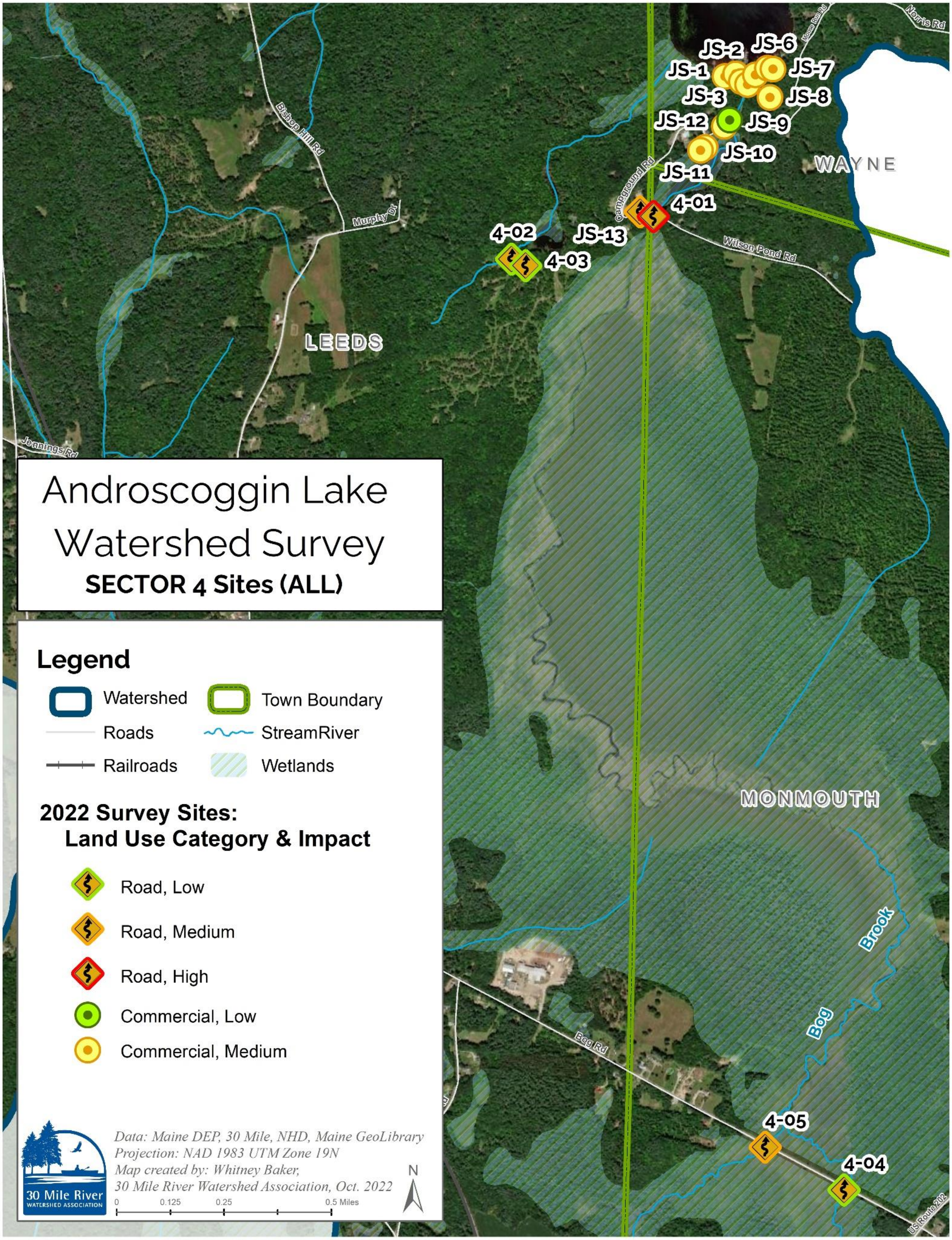
30 Mile River WATERSHED ASSOCIATION

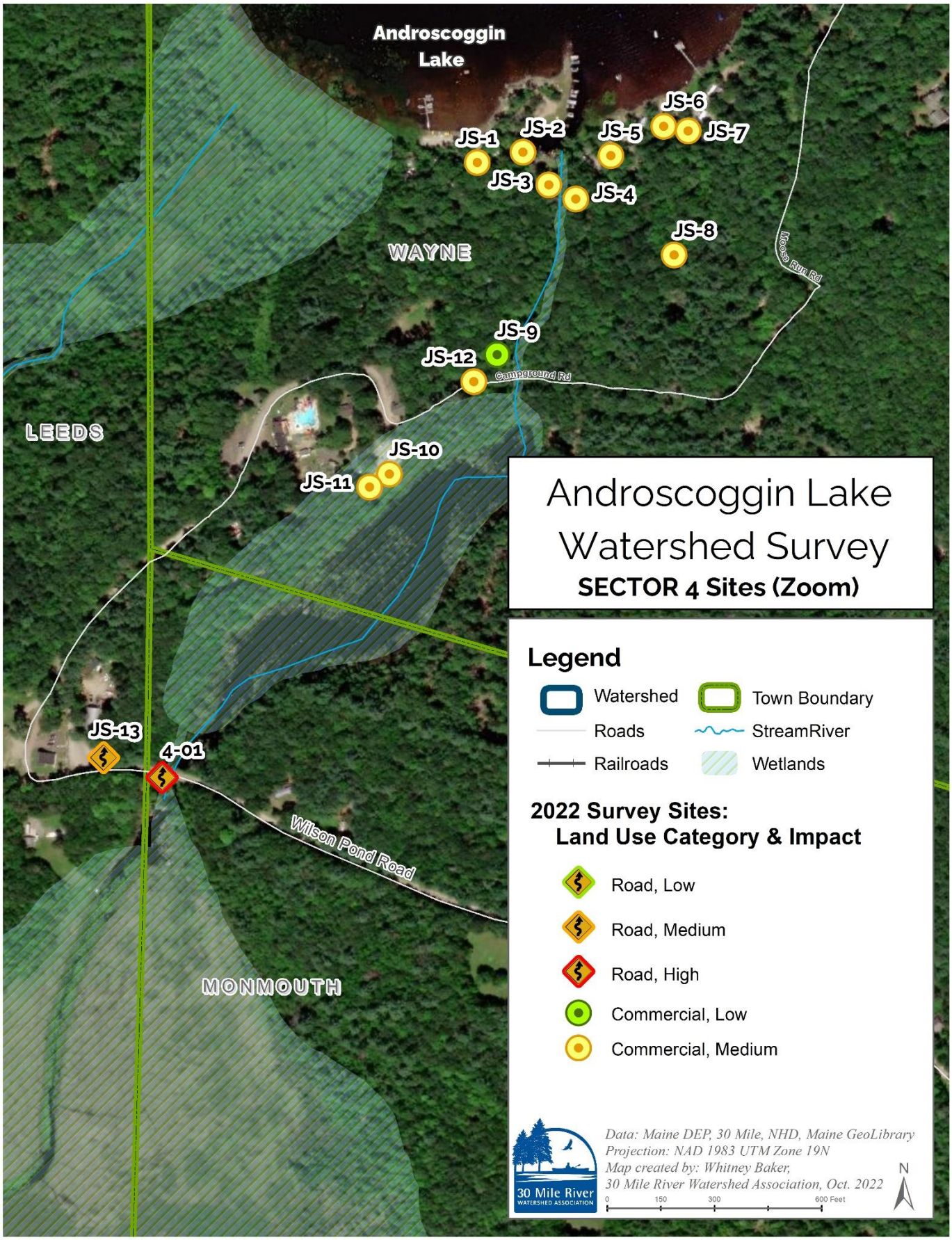
Data Source: Maine DEP, 30 Mile River, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker, 30 Mile River Watershed Association
October 2022
Service Layer Credits: Sources: Esri, USGS, NOAA

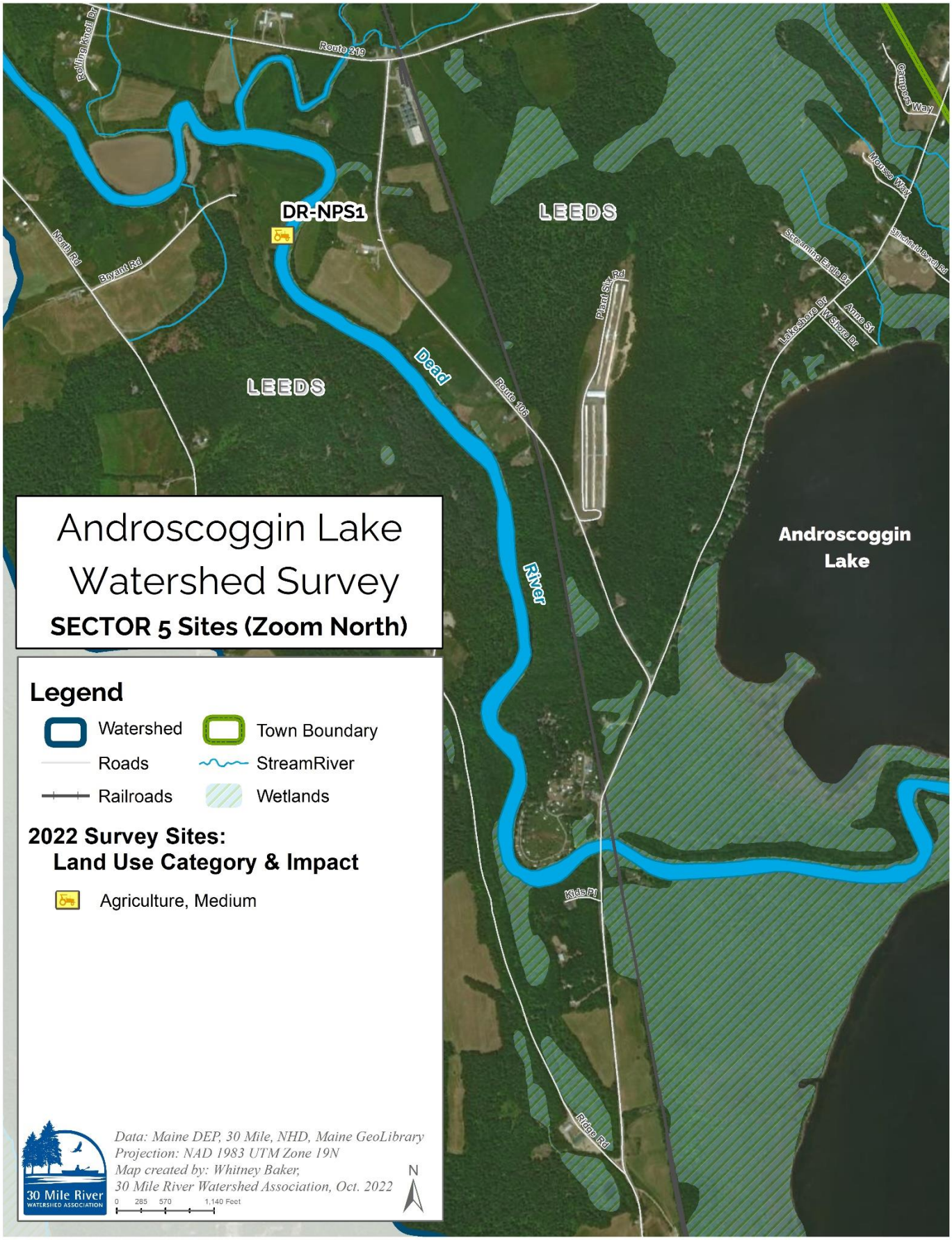

Androscoggin Lake Watershed Survey
SECTOR 1 Sites
Androscoggin Lake
1-06
Lake St
Memorial Park Ln
Old Winthrop Rd
1-01
1-02
Island View Dr
Davis Point Rd
Gott Rd
1-03
Sunset Dr
WAYNE
Cedar Point Rd
Pond Road Rd
1-04
Rainbow Ln
1-05
Osprey
Legend
Watershed Boundary
Roads
Railroads
Town Boundary
StreamRiver
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Municipal / Public, Low
Residential, Low
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0 200 400 800 Feet
N
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

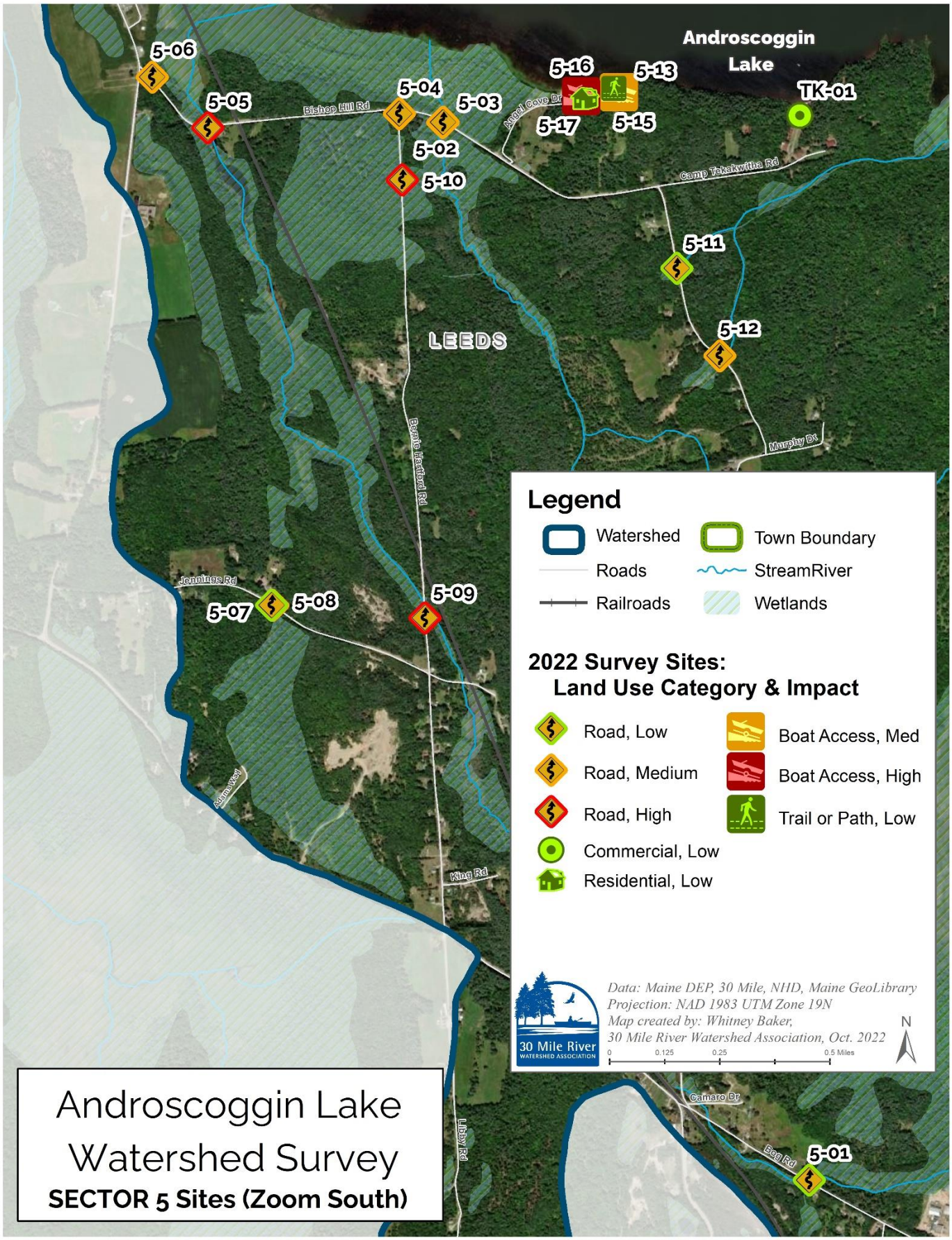

Androscoggin Lake Watershed Survey
SECTOR 2 Sites
Androscoggin Lake
Doles Beach Rd
2-11
2-01
2-02
2-03
2-04
2-05
2-06
2-07
2-08
2-09
WAYNE
The Blvd
2-10
2-18
2-17
2-16
2-15b
2-14
2-15
2-13
2-12
2-20
2-19
Reed Dr
Holman Ter
Lincoln Point Rd
Brooks Blvd
Legend
Watershed Boundary
Roads
Railroads
Town Boundary
StreamRiver
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Residential, Low
Road, Low
Road, Medium
Road, High
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0
250
500
1,000 Feet
N


Androscoggin Lake Watershed Survey
SECTOR 3 Sites
Androscoggin Lake
WAYNE
Perkins Beach Rd
Moose Run Rd
Blodgett Rd
Nicholson Dr
Norris Rd
3-14
3-12b
3-13
3-15
3-12
3-02
3-01
3-03
3-04
3-05
3-06
3-07
3-09
3-08
3-10
3-11
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Residential, Medium
Residential, High
Road, Medium
Road, High
Beach Access, Medium
Boat Access, Low
Boat Access, Medium
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0
175
350
700 Feet
N

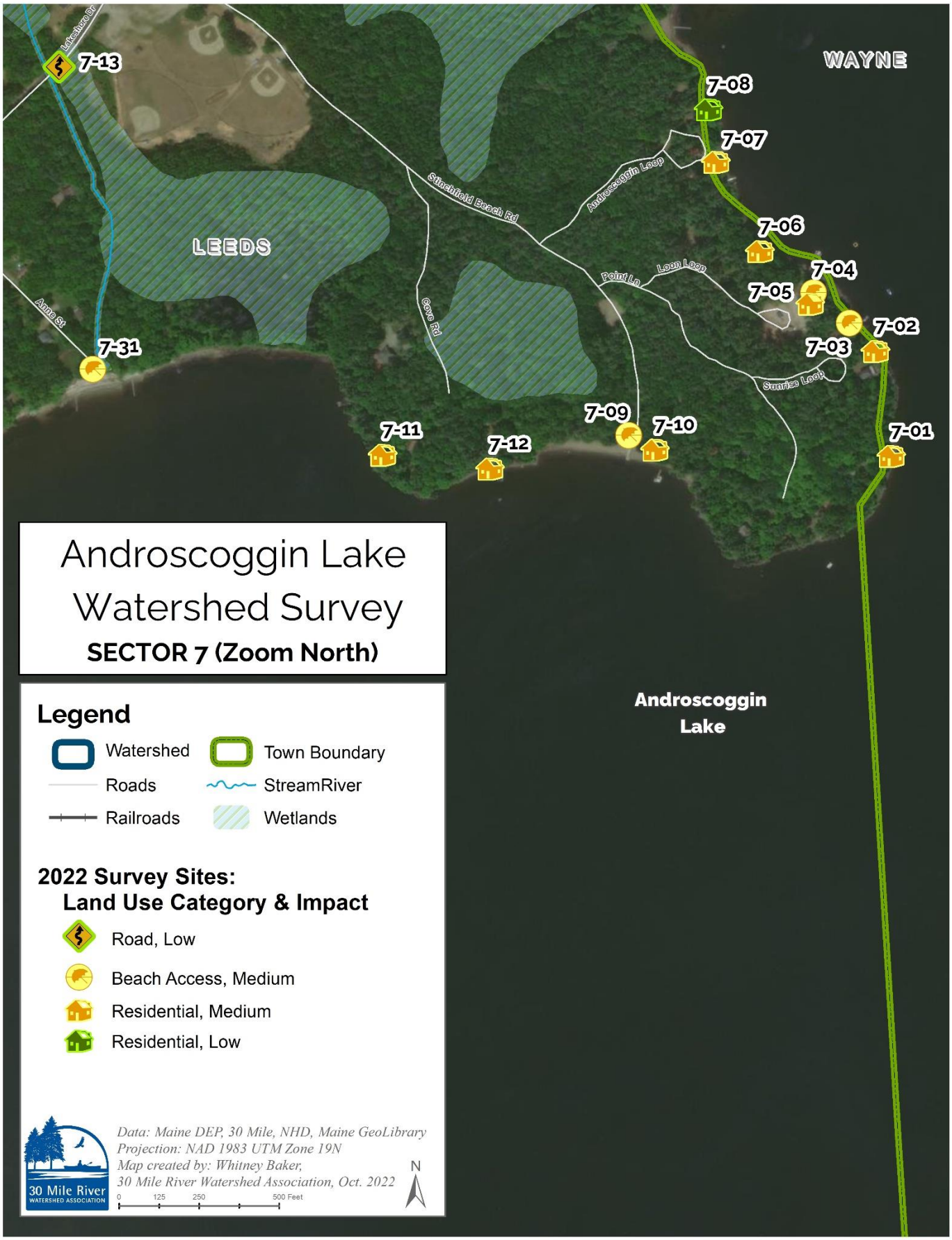

Androscoggin Lake
Watershed Survey
SECTOR 4 Sites (ALL)
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Road, Low
Road, Medium
Road, High
Commercial, Low
Commercial, Medium
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0 0.125 0.25 0.5 Miles
N
30 Mile River
WATERSHED ASSOCIATION
JS-1
JS-2
JS-3
JS-6
JS-7
JS-8
JS-9
JS-10
JS-11
JS-12
JS-13
4-01
4-02
4-03
4-04
4-05
WAYNE
LEEDS
MONMOUTH
Norris Rd
Bishop Hill Rd
Murphy Dr
Campground Rd
Wilson Pond Rd
Jennings Rd
Bog Rd
Bog
Brook
US Route 202


Androscoggin Lake
JS-1
JS-2
JS-3
JS-4
JS-5
JS-6
JS-7
JS-8
JS-9
JS-10
JS-11
JS-12
JS-13
4-01
WAYNE
LEEDS
MONMOUTH
Campground Rd
Moose Run Rd
Wilson Pond Road
Androscoggin Lake Watershed Survey
SECTOR 4 Sites (Zoom)
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Road, Low
Road, Medium
Road, High
Commercial, Low
Commercial, Medium
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
N
0
150
300
600 Feet


Androscoggin Lake Watershed Survey
SECTOR 5 Sites (Zoom North)
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Agriculture, Medium
DR-NPS1
LEEDS
LEEDS
Androscoggin Lake
Dead River
Route 219
Route 106
Bolling Knoll Dr
North Rd
Bryant Rd
Plant Site Rd
Campers Way
Mouse Way
Screaming Eagle Dr
Lakeshore Dr W
Store Dr
Anna St
Kids Pl
Ridge Rd
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
30 Mile River
WATERSHED ASSOCIATION
0 285 570 1,140 Feet
N


Androscoggin Lake
5-06
5-05
Bishop Hill Rd
5-04
5-03
5-02
5-10
5-16
5-13
5-17
5-15
Angel Cove Dr
TK-01
Camp Tekakwitha Rd
5-11
5-12
LEEDS
Beagle Hartford Rd
Murphy Dr
Jennings Rd
5-07
5-08
5-09
Androwood
King Rd
Camaro Dr
Libby Rd
Bag Rd
5-01
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Road, Low
Road, Medium
Road, High
Commercial, Low
Residential, Low
Boat Access, Med
Boat Access, High
Trail or Path, Low
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0
0.125
0.25
0.5 Miles
N
Androscoggin Lake Watershed Survey
SECTOR 5 Sites (Zoom South)


6-01
Route 219
Rolling Knoll Dr
Bryant Rd
North Rd
LEEDS
Plantation Rd
Dead
Route 106
DR-NPS4
River
Lakeshore Dr
Ridge Rd
DR-NPS3
6-03
6-04
6-02
Androscoggin Lake
Watershed Survey
SECTOR 6 Sites
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Agriculture, Medium
Commercial, Medium
Commercial, High
Boat Access, Med
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0 250 500 1,000 Feet
N



Androscoggin Lake Watershed Survey

SECTOR 7 (Zoom North)

Legend

- Watershed
- Town Boundary
- Roads
- StreamRiver
- Railroads
- Wetlands

2022 Survey Sites: Land Use Category & Impact

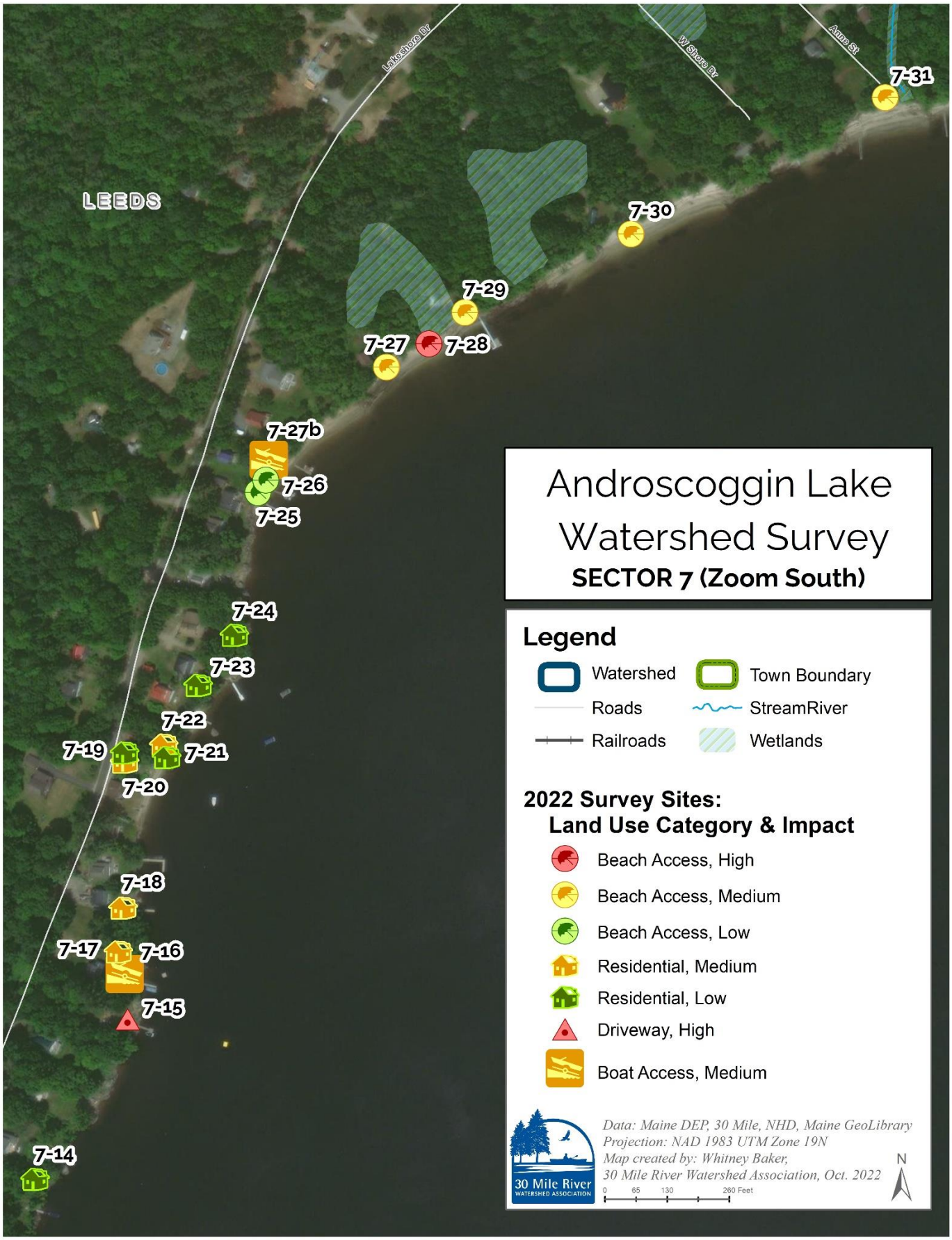
- Road, Low
- Beach Access, Medium
- Residential, Medium
- Residential, Low

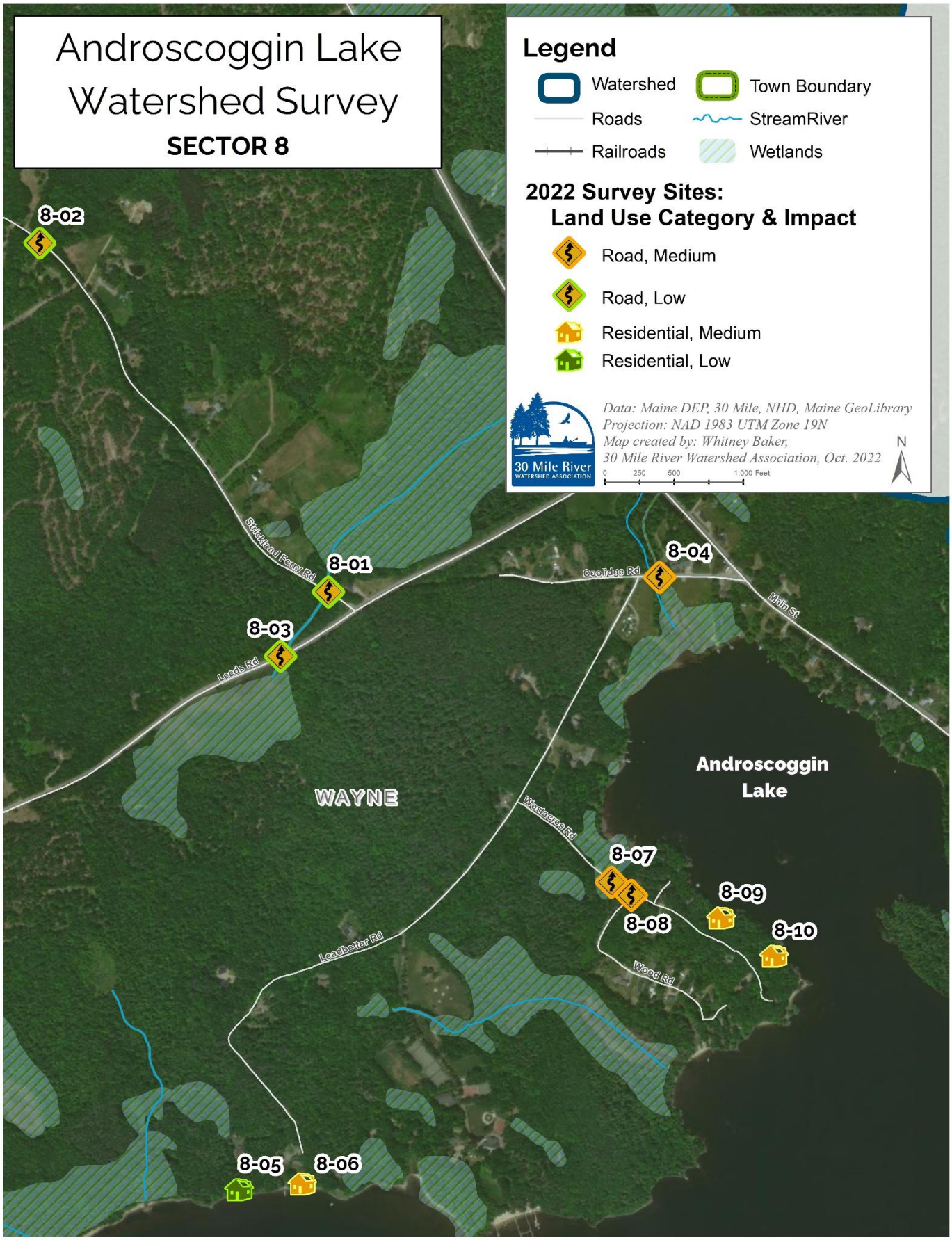
30 Mile River WATERSHED ASSOCIATION

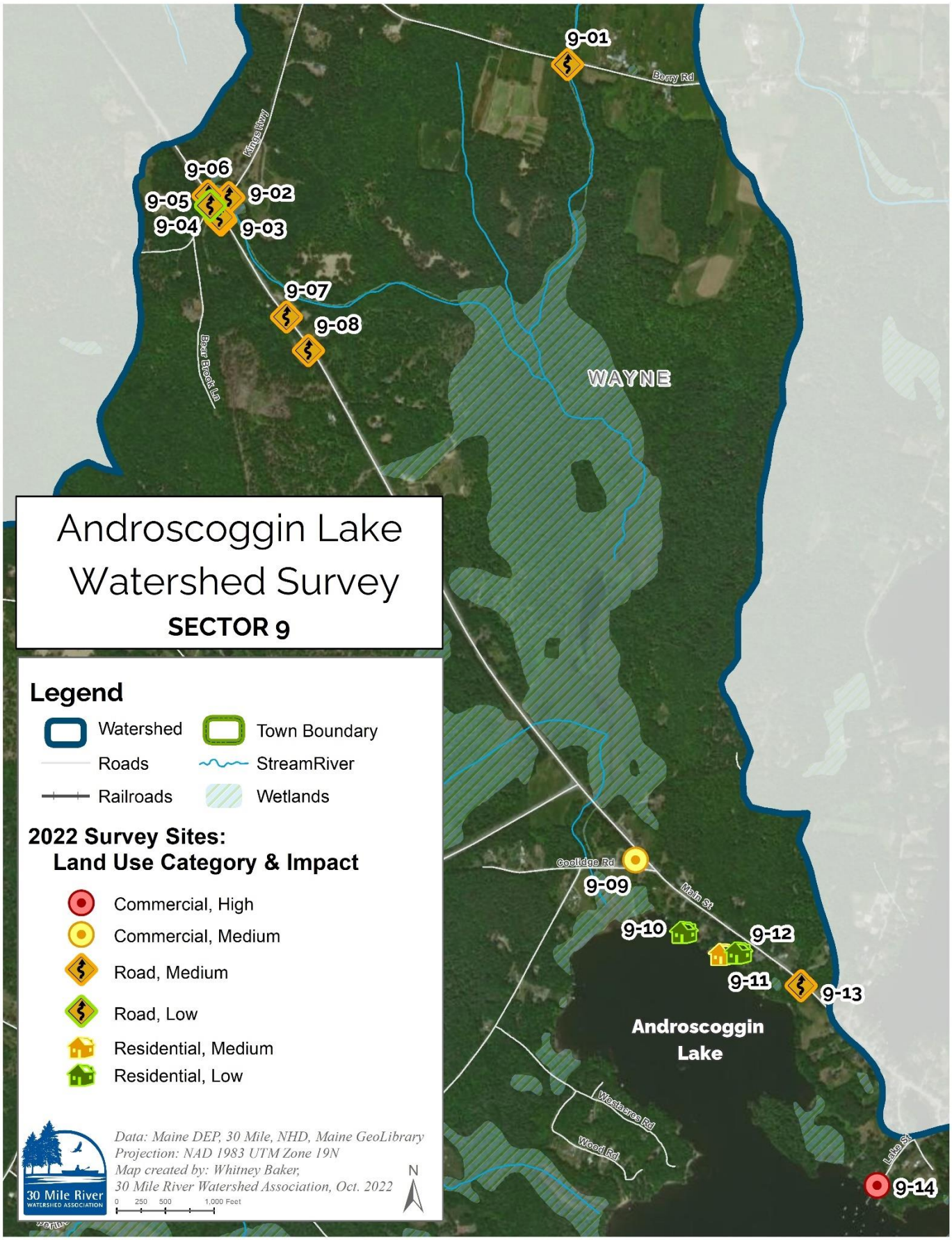
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022

0 125 250 500 Feet

N


Lakeshore Dr
W Shore Dr
Anne St
LEEDS
7-31
7-30
7-29
7-27
7-28
7-27b
7-26
7-25
7-24
7-23
7-22
7-19
7-21
7-20
7-18
7-17
7-16
7-15
7-14
Androscoggin Lake Watershed Survey
SECTOR 7 (Zoom South)
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Beach Access, High
Beach Access, Medium
Beach Access, Low
Residential, Medium
Residential, Low
Driveway, High
Boat Access, Medium
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0 65 130 260 Feet
N


Androscoggin Lake Watershed Survey
SECTOR 8
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Road, Medium
Road, Low
Residential, Medium
Residential, Low
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
30 Mile River
WATERSHED ASSOCIATION
0 250 500 1,000 Feet
N
8-02
8-01
8-03
8-04
8-05
8-06
8-07
8-08
8-09
8-10
Strickland Ferry Rd
Leeds Rd
Coolidge Rd
Main St
Westeveras Rd
Leadbetter Rd
Wood Rd
WAYNE
Androscoggin Lake


9-01
Berry Rd
Kings Hwy
9-06
9-05
9-02
9-04
9-03
9-07
9-08
Bear Brook Ln
WAYNE
Androscoggin Lake Watershed Survey
SECTOR 9
Legend
Watershed
Town Boundary
Roads
StreamRiver
Railroads
Wetlands
2022 Survey Sites:
Land Use Category & Impact
Commercial, High
Commercial, Medium
Road, Medium
Road, Low
Residential, Medium
Residential, Low
Coolidge Rd
9-09
Main St
9-10
9-12
9-11
9-13
Androscoggin Lake
Westacres Rd
Wood Rd
Lake St
9-14
30 Mile River
WATERSHED ASSOCIATION
Data: Maine DEP, 30 Mile, NHD, Maine GeoLibrary
Projection: NAD 1983 UTM Zone 19N
Map created by: Whitney Baker,
30 Mile River Watershed Association, Oct. 2022
0 250 500 1,000 Feet
N