2023 - 2033

ANDROSCOGGIN LAKE

Watershed-Based Protection Plan

WAYNE, LEEDS, AND MONMOUTH, ME

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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.

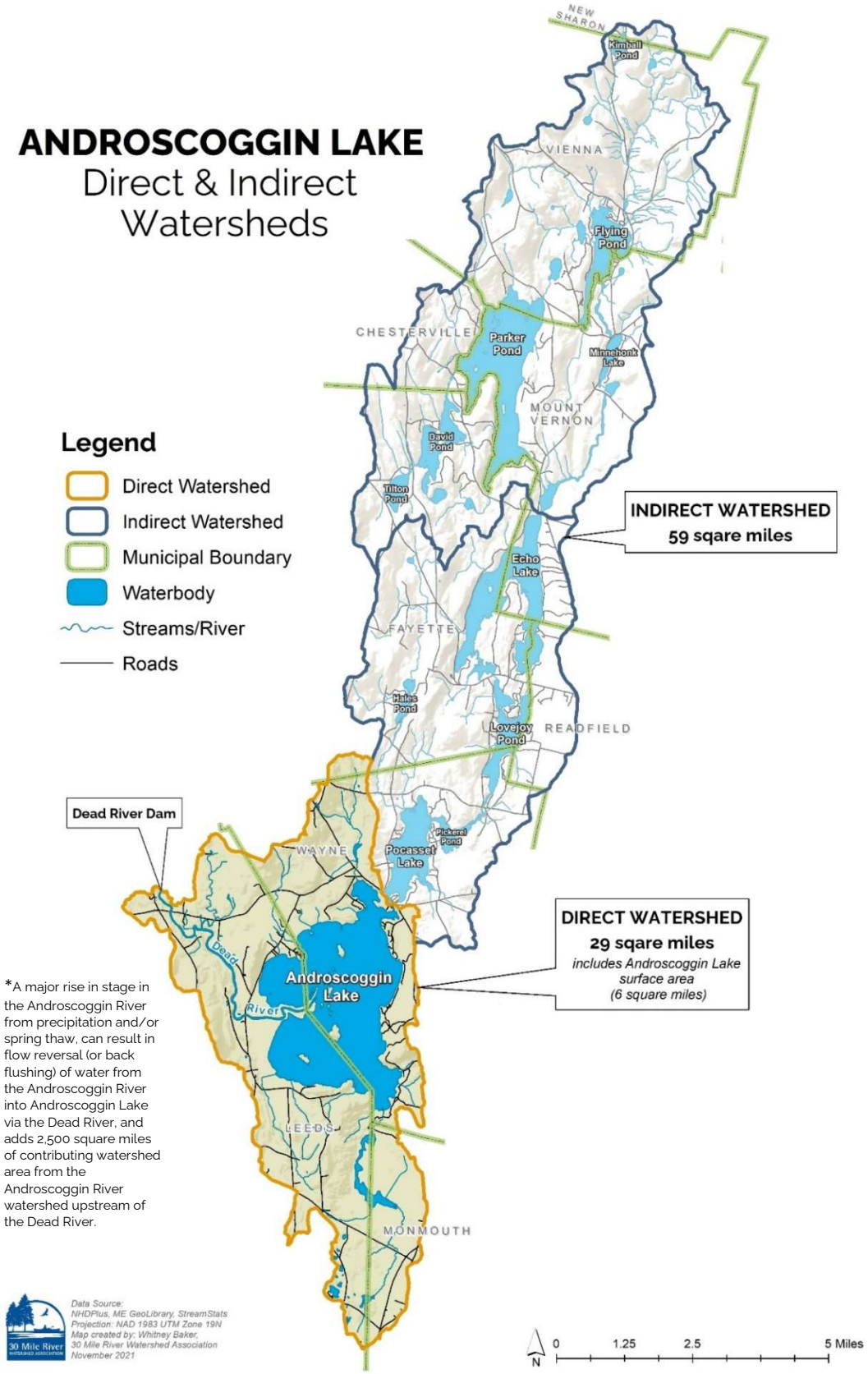


Figure 1. Androscoggin Lake's direct and indirect watershed.

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).

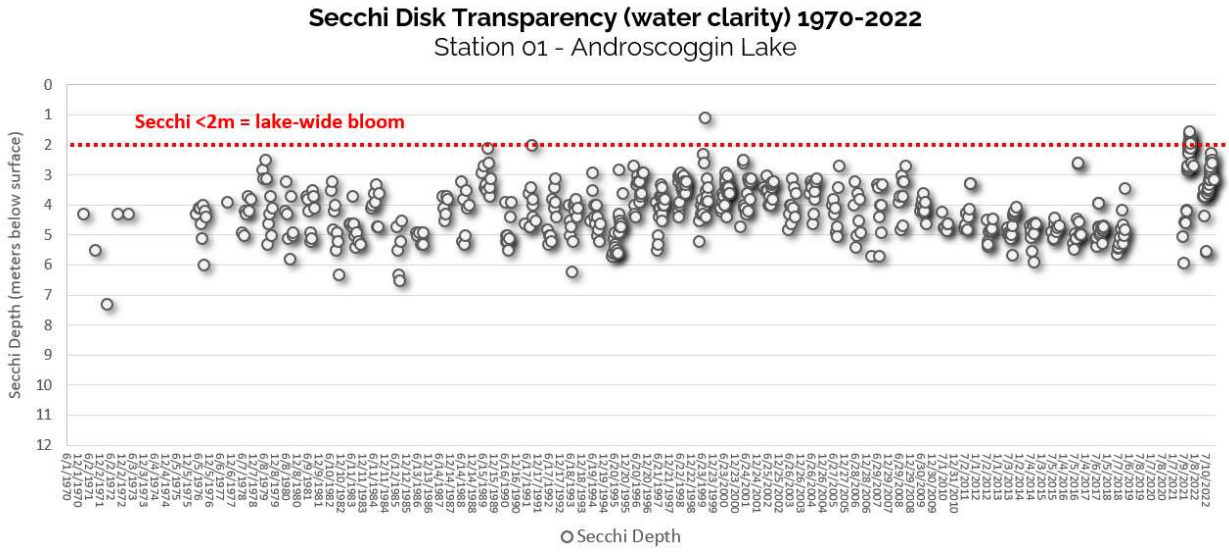


Figure 2. Secchi Disk Transparency (Water Clarity) in Androscoggin Lake, Station 01, 1970-2022

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.

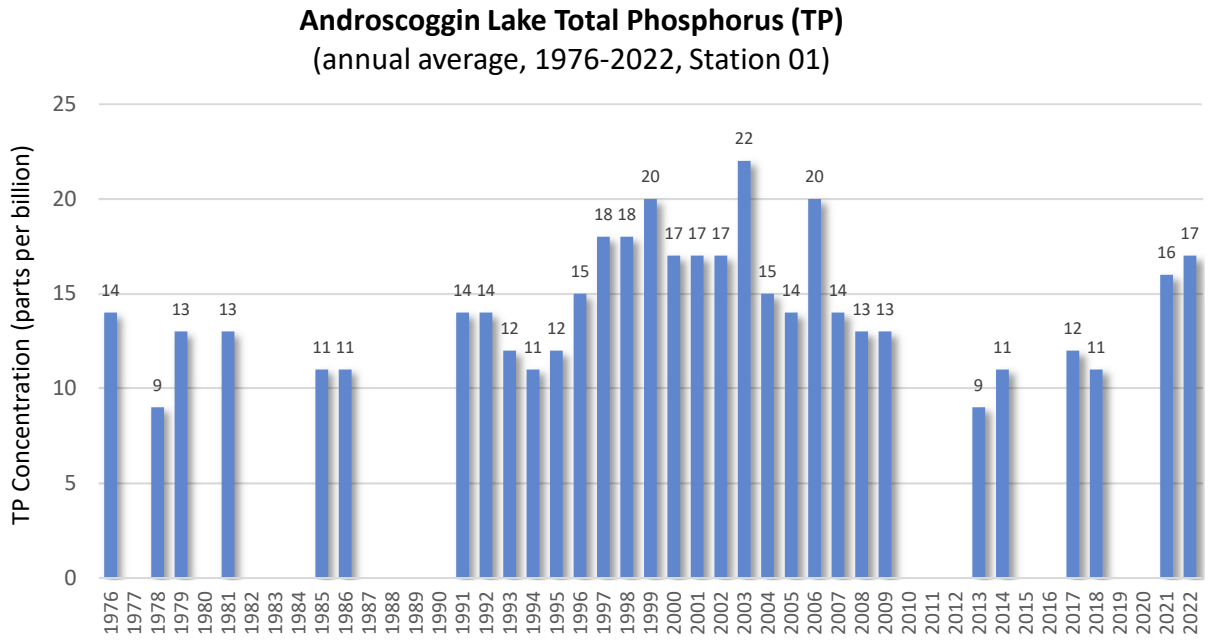


Figure 3. Average Annual Total Phosphorus (TP) Androscoggin Lake, 1976-2022

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***

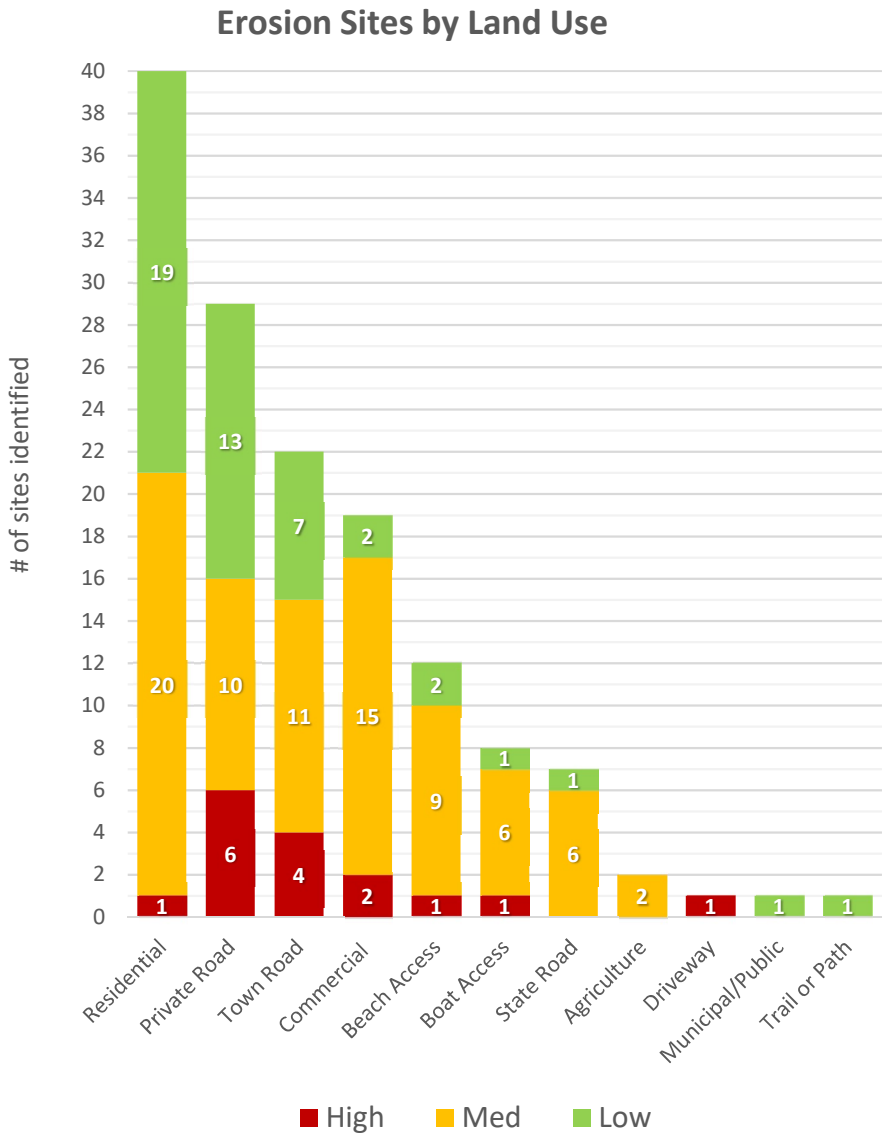


Figure 4. 2022 Watershed Survey NPS sites by land use category and impact rating.

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

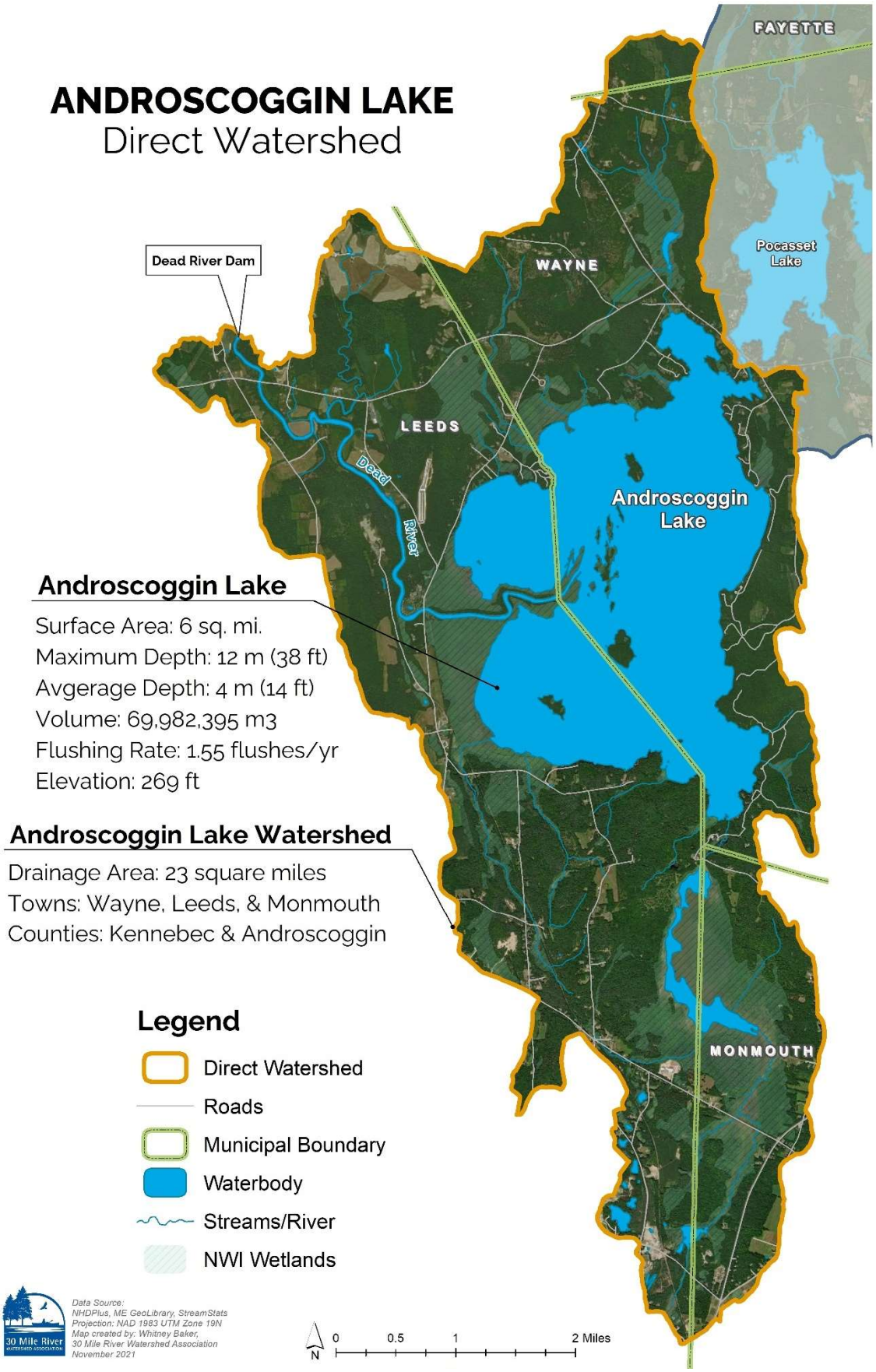
In 2022, 30 Mile, with assistance from ALIC water quality volunteers, collected phosphorus samples on four dates in July through October from tributaries draining to Androscoggin Lake and from several locations in the Dead River. These sites will be monitored again in May and June 2023, along with new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

Water Level Monitoring

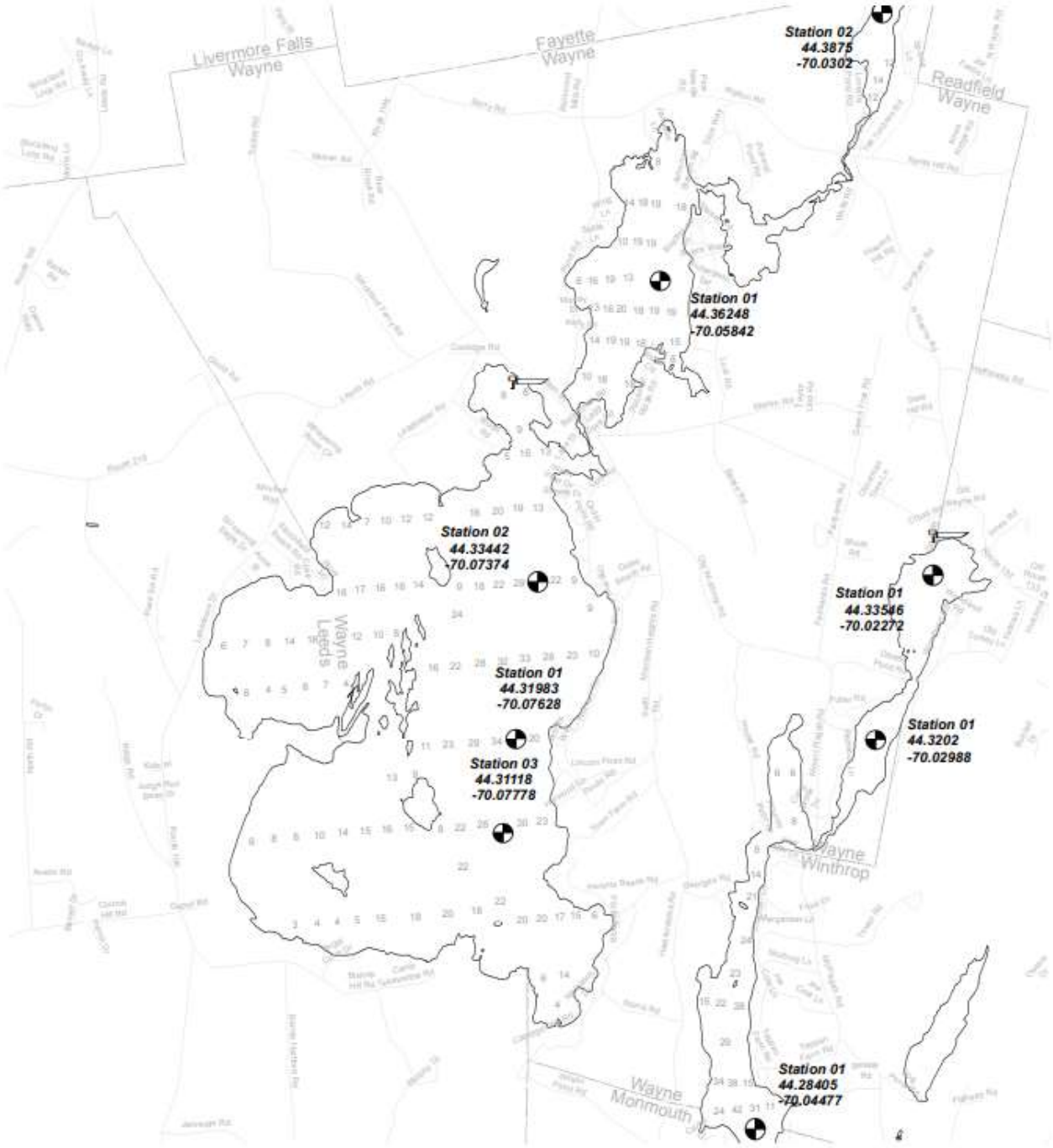
ALIC and the Dead River PCF Management Committee have been working to install cameras at the Dead River PCF/dam to better understand the frequency of and document flow reversal events in the Dead River. ALIC is also planning to install new water level gauges in select locations on the lake and recruit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