Nonpoint Source Priority Watersheds List

LAKES

Impaired Lakes

As a starting point, all lakes on the 2016 Integrated Water Quality Monitoring and Assessment Report Impaired List (Categories 4A: Impaired Use other than Mercury, TMDL Completed; & 5A: Needing TMDLs) due to nonpoint source pollution were considered for inclusion on the priority list. Lakes on 2016 Integrated Water Quality Monitoring and Assessment Report Impaired List due to hydrologic reasons (Category 4C: Impairment not Caused by a Pollutant) were excluded from the priority list. These lakes are impaired primarily due to hydrologic reasons, such as a major dam. Lakes falling under this category are: Aziscohos Lake, Brassua Lake, Flagstaff Lake, Graham Lake, and Scopan Lake.

Several lakes were not added to the priority list if they are believed to have a **low feasibility** for restoration due to having limited existing watershed development or legacy nutrient accumulations in sediments. Lakes removed from the list for this reason are Arnold Brook Lake in Presque Isle, Lovejoy Pond in Albion, and Sewall Pond in Arrowsic.

Impaired Lakes Priority List (21 lakes)

Lake	Town
Annabessacook Lake	Winthrop
China Lake	China
Christina Reservoir	Ft Fairfield
Cochnewagon Lake	Monmouth
Cross Lake	T17 R5 Wels
Daigle Pond	New Canada
East Pond	Smithfield
Great Pond	Belgrade & Rome
Lilly Pond	Rockport
Long Pond	Rome & Belgrade
Monson Pond	Fort Fairfield
Pleasant Pond	Richmond
Sabattus Pond	Greene
Sebasticook Lake	Newport
Threemile Pond	Windsor
Togus Pond	Augusta
Toothaker Pond	Phillips
Trafton Lake	Limestone
Unity Pond	Unity
Webber Pond	Vassalboro
Wilson Pond	Wayne

Threatened Lakes

Unimpaired lakes were assessed based on threats to water quality and value of the resource. Threatened lakes include lakes on the DEP Watch List, lakes having a recent or long-term significant negative trend in water clarity, lakes determined as being sensitive to additional phosphorus inputs, and lakes having a recent increased threat to the watershed by development or agriculture. Lake value was designated as 'high' if a drinking water supply, if designated a priority water body by a partner agency, or if determined to have outstanding water quality and being in need of protection. Lakes which had either a significant threat to water quality and/or significant value were added to the priority list. The details of these selection criteria are below.

Unimpaired lakes were determined to have priority threatened lake watersheds if they met one of the following criteria:

- Listed on the DEP's **watch list**. Lakes are included on the watch list if they were recently impaired and therefore still sensitive, or data suggests their water quality is near the impairment threshold.
- Licensed by the Maine CDC Drinking Water Program as a **public water system** with a lake or pond as the surface water source.
- Has a strong long or short-term **negative water clarity trend**. This was determined by running the lake water clarity trend analysis model for lakes with secchi disk transparency readings for a significant number of years. The model was run for the whole dataset for each lake to determine the long-term trend, and for the past 10 years for the short-term trend. Data was needed for eight years or more to run the short term trend model. Results of -0.5 or lower were deemed to be a significant negative trend. Lakes with a significant negative trend were then further analyzed to determine if the negative trend was likely the result of a natural cycle or an overall shift in water quality. See the exclusion criteria section below for a description of what was not included.
- Are **sensitive** to additional phosphorus inputs due to the lake's hydrology and threats in the watershed. A lake was determined to be sensitive if DEP's vulnerability modeling predicts the number of years for the lake's phosphorus concentration to increase by 1 ppb is 25 years or less. The vulnerability model predicts changes in lake phosphorus concentration using watershed growth projections to estimate changes in phosphorus loading and the 1976 version of Vollenweider's lake model to convert load to concentration. The model compensates for the influence of upstream lakes. If these sensitive lakes were determined to have watershed threats, they were then added to the priority list.
- Are **sensitive due to sediment chemistry**. Sediment chemistry has been analyzed in a subset of Maine lakes to determine susceptibility to internal phosphorus release. The analysis of sediment chemistry involves collecting shallow sediment cores and performing a complicated extraction process. Studies have shown that lake sediment with ratios of aluminum to iron less than three to one (Al:Fe < 3:1) and aluminum to phosphorus less than 25 to one (Al:P < 25:1) are more vulnerable to the release of sediment-bound phosphorus, which can lead to internal phosphorus loading. Lakes

with both ratios indicating vulnerability are listed under this criterion. In addition, lakes with low or borderline Al:Fe ratios that also have high bottom total phosphorus grab readings (consistently >40 ppb) are considered sensitive due to sediment chemistry and are included on the priority list unless there was a reason for them to be excluded (as described below).

- Identified as a **priority watershed** by the Maine Natural Resources Conservation Service Environmental Quality Incentives Program (**EQIP**) National Water Quality Incentive or by Maine Municipal Separate Storm Sewer System (**MS4**) community plans.
- Having **outstanding water quality** in need of protection from threats in the watershed. The list of lakes with outstanding water quality was determined from review of long-term water quality data. Lakes with outstanding water quality were added to the priority list if they were on 1998 NPS Priority List or their watershed was known to have a significant threat of development.
- Have recent increased impacts or significant potential threats from **agriculture** or **development**. This was determined through use of best professional judgment of the impact or significant threat of impact due to recent activities in the watershed. The sensitivity of the lake to more phosphorus inputs, extent and location of the agriculture or development, and cumulative effect of other watershed activities were considered in this determination. The lakes added due to these criteria have had significant DEP involvement with the lake and the associated agriculture or development.
- The lake or pond serves as a water source to state or federal **fish hatcheries**. Six lakes in Maine are utilized for intake water for fish hatcheries operated by either the Maine Department of Inland Fisheries and Wildlife or U.S. Fish and Wildlife Service. Declines or negative changes in lake water quality could seriously impact the operation of these culture facilities, which are an important public resource in the state. One of the six, West Grand Lake, does not meet the other eligibility criteria and has not been added to the priority list.

Some lakes were not included on the priority list even if they met some of the above criteria due to the following reasons:

- The water quality data for some lakes with a significant negative water clarity trend (-0.5 or lower) indicated it was **not indicative of a water quality shift**. Each lake that had a long- or short-term significant negative water clarity trend was analyzed to determine if the negative trend was likely an overall negative shift in water quality or not. This was determined by analyzing any available water quality history data, including water clarity, phosphorus, chlorophyll, and dissolved oxygen readings. Lakes having a short-term negative trend as a result of water clarity returning to a stable state after drought conditions in the early 2000's resulted in artificially 'improved' water quality, were not put on the priority list. Lakes whose negative trend were based on insufficient data or included multiple Secchi readings which hit the lake bottom were not put on the priority list.

- Lakes having a significant portion of their watershed **protected** either by being part of Acadia National Park or by having other watershed protection were also not included on the priority list, since there did not seem to be a significant threat.
- **Small lakes** (less than or equal to 50 acres) with limited existing watershed development were not included on the priority list, unless there was a compelling reason to add it to the list. Compelling reasons were if it is a public water supply or has outstanding water quality and is in need of protection from threats in the watershed.

Threatened Lakes Priority List (170 lakes)

Lake	Town	Priority List Reasoning
Abrams Pond	Eastbrook	Watch List, Sensitive – Sediment Chemistry
Adams Pond	Boothbay	Public Water System, Sensitive
Alamoosook Lake	Orland	Agriculture (Aquaculture) Threat
Allen Pond	Greene	Sensitive
Anasagunticook Lake	Canton	Public Water System
Androscoggin Lake	Leeds	Watch List, Sensitive – Sediment Chemistry
Battle Ave Ponds	Castine	Public Water System
Bauneg Beg Pond	Sanford	Sensitive
Bay Of Naples/Brandy	Naples	Public Water System, Sensitive
Beaver Pond	Bridgton	Sensitive
Beech Hill Pond	Otis	Outstanding Water Quality
Berry Pond	Winthrop	Sensitive
Big Wood Pond	Jackman	Public Water System
Bonny Eagle Lake	Buxton	Sensitive
Boyden Lake Stream Imp	Perry	Public Water System
Branch Lake	Ellsworth	Public Water System
Branch Pond	China	Sensitive
Brettuns Pond	Livermore	Sensitive
Buker Pond	Litchfield	Sensitive
Bunganut Pond	Lyman	Sensitive
Burnt Land Pond	Stonington	Public Water System
Carlton Pond	Winthrop	Public Water System
Center Pond	Sangerville	Sensitive – Sediment Chemistry
Chases Pond	York	Public Water System
Chickawaukie Pond	Rockport	Sensitive, Sensitive – Sediment Chemistry
Clary Lake	Whitefield	Negative clarity trend
Cobbossecontee Lake	Winthrop	Watch List, Sensitive, Sensitive – Sediment Chemistry
Coffee Pond	Casco	Sensitive
Cold Stream Pond	Enfield	Outstanding Water Quality, Fish Hatchery
Crawford Pond	Warren	Sensitive

Lake	Town	Priority List Reasoning
Crescent Pond	Raymond	Sensitive
Crystal Lake	Gray	Sensitive
Crystal Pond	Turner	Sensitive – Sediment Chemistry
Damariscotta Lake	Nobleboro	Sensitive, Sensitive – Sediment Chemistry
David Pond	Fayette	Sensitive – Sediment Chemistry
Dexter Pond	Winthrop	Sensitive, Sensitive – Sediment Chemistry
Dodge Pond	Rangeley	Sensitive
Duckpuddle Pond	Waldoboro	Watch List
Eagle Lake	Bar Harbor	Outstanding Water Quality, Public Water System
Echo Lake	Presque Isle	Watch List
Echo Lake	Readfield	Sensitive – Sediment Chemistry
Embden Pond	Embden	Fish Hatchery
Estes Lake	Sanford	Watch List, Sensitive
Ferguson Lake	Millinocket	Public Water System
Floods Pond	Otis	Public Water System
Folly Pond	Vinalhaven	Public Water System
Forest Lake	Windham	Sensitive
Fresh Pond	North Haven	Public Water System
Georges Pond	Franklin	Watch List, Sensitive – Sediment Chemistry
Granny Kent Pond	Shapleigh	Negative clarity trend
Grassy Pond	Rockport	Public Water System, Sensitive
Great East Lake	Acton	Outstanding Water Quality, Development Threat
Great Pond	Franklin	Watch List
Green Lake	Ellsworth	Fish Hatchery
Hall Pond	Paris	Public Water System
Hancock Pond	Embden	Public Water System
Harriman Pond	Dedham	Outstanding Water Quality, Development Threat
Hatcase Pond	Dedham	Public Water System
Highland Lake	Bridgton	Watch List
Highland Lake	Windham	MS4 Priority Water, Watch List, Sensitive
Hobbs Pond	Hope	Sensitive – Sediment Chemistry
Hogan Pond	Oxford	Sensitive
Holland Pond	Limerick	Sensitive
Horne Pond	Limington	Sensitive
Hosmer Pond	Camden	Sensitive
Indian Pond	Greenwood	Watch List
Ingalls Pond	Bridgton	Sensitive
Island Pond	Waterford	Sensitive

Lake	Town	Priority List Reasoning
Jimmie (Jamies) P	Manchester	Sensitive
Kennebunk Pond	Lyman	Sensitive
Knickerbocker Pond	Boothbay	Public Water System
Lake Auburn	Auburn	Negative clarity trend, Watch List, Public Water System, Sensitive – Sediment Chemistry
Little Cobbossee	Winthrop	Watch List, Sensitive
Little Ossipee	Waterboro	Sensitive
Little Pond	Damariscotta	Public Water System
Little Pushaw	Hudson	Sensitive – Sediment Chemistry
Little Sebago Lake	Windham	Sensitive
Little Wilson Pond	Turner	Sensitive
Long Lake	Bridgton	Watch List
Long Lake	T17 R4 Wels	Watch List, Agriculture Threat
Long Pond	Parsonsfield	Negative clarity trend, Sensitive – Sediment Chemistry
Long Pond	Bucksport	Sensitive
Long Pond	Sullivan	Public Water System
Lovejoy Pond	Wayne	Sensitive – Sediment Chemistry
Lower And Upper Ponds	Skowhegan	Public Water System
Lower Hadlock Pond	Mt Desert	Public Water System
Lower Narrows Pond	Winthrop	Sensitive
Lower Range Pond	Poland	Sensitive
Madawaska Lake	Westmanland	Watch List
Maranacook Lake	Winthrop	Sensitive, Sensitive – Sediment Chemistry
Mattakeunk Lake	Lee	Sensitive – Sediment Chemistry
Mcgrath Pond	Oakland	Sensitive
Meduxnekeag Lake	Oakfield	Development Threat
Megunticook Lake	Lincolnville	Sensitive, Sensitive – Sediment Chemistry
Messalonskee Lake	Sidney & Belgrade	Watch List, Sensitive – Sediment Chemistry
Middle Range Pond	Poland	Sensitive
Mirror Lake	Rockport	Public Water System
Molasses Pond	Eastbrook	Sensitive – Sediment Chemistry
Moose Hill Pond	Livermore Falls	Public Water System
Moose Pond	Bridgton	Development Threat
Mousam Lake	Shapleigh	Watch List, Sensitive, Sensitive – Sediment Chemistry
Nequasset Pond	Woolwich	Public Water System, Sensitive
Nickerson Lake	New Limerick	EQIP Priority Water
No Name Pond	Lewiston	Sensitive

Lake	Town	Priority List Reasoning
Nokomis Pond	Newport	Public Water System
North Pond	Norway	Sensitive
North Pond	Sumner	Public Water System
North Pond	Smithfield	Development Threat, Watch List
North Pond	Warren	Sensitive – Sediment Chemistry
Norton Pond	Lincolnville	Sensitive
Notched Pond	Raymond	Sensitive
Oakes Pond	Skowhegan	Agriculture Threat
Otter Pond	Bridgton	Sensitive
Panther Pond	Raymond	Sensitive
Papoose Pond	Waterford	Watch List
Paradise Pond	Damariscotta	Negative clarity trend
Parker Pond	Casco	Sensitive
Parker Pond	Jay	Public Water System
Parker Pond	Vienna	Sensitive – Sediment Chemistry
Pattee Pond	Winslow	Sensitive, Sensitive – Sediment Chemistry
Pease Pond	Wilton	Sensitive – Sediment Chemistry
Pemaquid Pond	Waldoboro	Sensitive
Pennesseewassee	Norway	Sensitive
Pleasant Lake	Otisfield	Outstanding Water Quality, Fish Hatchery
Pleasant Pond	Turner	Sensitive
Pleasant Pond	T4 R3 Wels	Outstanding Water Quality
Province Lake	Parsonsfield, S. Effingham, NH	Development Threat (Listed as Impaired by New Hampshire DES)
Pushaw Lake	Orono	Development & Agriculture Threat
Quimby Pond	Rangeley	Sensitive
Raymond Pond	Raymond	Sensitive
Roberts Wadley Pond	Lyman	Sensitive
Round Pond	Rangeley	Sensitive
Round Pond	Vinalhaven	Public Water System
Roxbury Pond	Roxbury	Watch List
Sabbathday Lake	New Gloucester	Sensitive
Salmon L (Ellis P)	Belgrade	Watch List, Sensitive – Sediment Chemistry
Salmon Stream Pond	Guilford	Public Water System
Sand Pond	Monmouth	Sensitive
Sawyer Pond	Greenville	Negative clarity trend
Sebago Lake (including Crooked River)	Sebago	Outstanding Water Quality, Public Water System
Sennebec Pond	Appleton	Sensitive – Sediment Chemistry
Shaker Pond	Alfred	Sensitive

Lake	Town	Priority List Reasoning
Sheepscot Lake	Palermo	Fish Hatchery
Silver Lake	Bucksport	Public Water System
Spectacle Pond	Vassalboro	Sensitive
Square Lake	T16 R5 Wels	Watch List, Development Threat
Square Pond	Acton	Sensitive – Sediment Chemistry
St George Lake	Liberty	Outstanding Water Quality
Swan Pond	Lyman	Sensitive
Taylor Pond	Auburn	Sensitive, Sensitive – Sediment Chemistry
Thomas Pond	Casco	Sensitive
Thompson Lake	Oxford	Outstanding Water Quality, Sensitive
Threecornered Pond	Augusta	Watch List, Sensitive, Sensitive – Sediment Chemistry
Torsey (Greeley) Pond	Mount Vernon	Sensitive – Sediment Chemistry
Trickey Pond	Naples	Outstanding Water Quality, Sensitive
Tripp Pond	Poland	Sensitive
Upper Narrows Pond	Winthrop	Public Water System, Watch List, Sensitive
Upper Range Pond	Poland	Sensitive
Varnum Pond	Wilton	Public Water System, Sensitive – Sediment Chemistry
Ward Pond	Sidney	Sensitive
Wassookeag Lake	Dexter	Negative clarity trend, Public Water System, Sensitive – Sediment Chemistry
Watchic Pond	Standish	Sensitive
West Harbor Pond	Boothbay Harbor	Sensitive
Whetstone Pond	Kingsbury Twp	Negative clarity trend
Whitney Pond	Oxford	Sensitive
Wilson Pond	Wilton	Watch List
Wood Pond	Bridgton	Sensitive
Woodbury Pond	Monmouth	Sensitive
Youngs Lake	Westfield	Public Water System