

WINTHROP UTILITIES DISTRICT UPPER NARROWS POND WATERSHED

EXECUTIVE SUMMARY

The Winthrop Utilities District provides drinking water to approximately 2,500 people in Winthrop from Upper Narrows Pond. The 3,928-acre watershed of Upper Narrows Pond is located in Winthrop and extends northward to the town boundary with Readfield. Approximately 80 percent of the watershed is undeveloped woodland. Agricultural land occupies approximately 14 percent of the watershed. Residential development occupies an estimated two percent of the watershed. The Utilities District owns approximately 250 acres of land abutting the pond. This ownership protects approximately one mile of the shoreline from development. Development within 1,000 feet along the remainder of the shoreline is restricted by the Town of Winthrop Public Water Zoning District. This zone excludes new commercial development within 1,000 feet of the pond and places limits on future residential development.

The reconnaissance of the watershed identified several existing non-residential land uses that could impact water quality. These activities include the handling and storage of materials that may pose a threat to Upper Narrows Pond (e.g., petroleum or salt storage). In addition to stationary land uses, a variety of sensitive materials are transported along US Route 202, which passes through the watershed near the north end of Upper Narrows Pond.

There is moderate to high-density residential development along the southeast shore of Upper Narrows Pond. These homes are located in close proximity to the Utilities District intake. Access to the homes is along gravel roads, where potential soil erosion and road washouts draining to the pond would be a source of the nutrient phosphorous, which can have a significant effect on water quality in the pond. The homes rely on septic systems for wastewater disposal. A number of homes are also heated with fuel oil stored in tanks located outside the houses without secondary containment.

In addition to its use as a water supply, Upper Narrows Pond provides a recreational resource for the area. There is no vehicle-access boat launch on the pond, however there is a foot-access launch on the northern end of the pond. Boating, fishing and swimming are permitted on the pond, except within 400 feet of the Utilities District's intake. There are no restrictions on engine size on the pond. Ice fishing is permitted in the winter, including vehicle access, except within 500 feet of the intake. Available water quality data from the 1970s, 1980s and 1990s classify Upper Narrows Pond as mesotrophic, which suggests some nutrient enrichment from the watershed area. These data show seasonal stratification, with low dissolved oxygen concentrations at the bottom of the pond during the late summer. Turbidity fluctuations are also experienced, particularly following significant storm events.

The current density of development in the Upper Narrows Pond watershed is low, however shoreline development is dense across from the intake. Protections around the immediate shoreline include ownership by the Utilities District and restrictive zoning by Winthrop. Based on these factors and water quality data, the overall susceptibility of the Upper Narrows Pond water supply to current conditions is considered to be moderate.

SWAP RANKING AND RECOMMENDATIONS

The SWAP assessment factors indicate that overall susceptibility of the water quality in Upper Narrows Pond is low-moderate. This conclusion is based on the general conditions observed, including the density of development, conservation ownership in the watershed, current activity in the watershed and historical and recent water quality data. Specific factors considered in assessing the overall risk are summarized below.

UPPER NARROWS POND SURFACE WATER ASSESSMENT

Zone	Measure	Findings	Risk Level
Watershed	Ambient Water Quality	Class GPA, threatened status for trophic status, in full compliance for aquatic life. Low oxygen below thermocline due to nutrient enrichment.	Moderate
	Existing Conditions	Existing land use includes a mixture of residential, agricultural and undeveloped land. Commercial land uses in the watershed are limited but located close to the intake.	Low-Moderate
	Future Development	Zoning places some restrictions on future development. Growth and development pressure in the area is moderate.	Low-Moderate
	Overall		Low-Moderate
Shoreland	Pond Classification	Mesotrophic	Moderate
	Soils	Erodible soils and a number of gravel roads and driveways are present.	Moderate
	Activities Posing a Threat	Dense residential development on the east shore in close proximity to the intake.	Moderate
	Potential for Future Threats	Future shoreland development controlled by zoning and ownership by the Utilities District.	Low
	Overall		Moderate
Intake	Raw Water Quality	Recent pond quality is acceptable but turbidity fluctuations above 1 NTU are experienced periodically.	Low-Moderate
	Ownership/Control	District owns shoreline at intake.	Low
	Activities Posing a Threat	Recreation (boat launch, motorized vehicles). Petroleum storage at pump station.	Moderate
	Potential for Future Threats	Recreational pressure will remain without increased restrictions on access and use.	Low-Moderate
	Overall		Low-Moderate
Overall			Low-Moderate

Recommendations

The overall ranking for the susceptibility of Upper Narrows Pond to threats of contamination is low-moderate. The general watershed has a low density of development and a significant percentage of woodlands to protect water quality. However, the density of residential development increases close to Upper Narrows Pond, as does the presence of commercial development. Water in the pond exhibits some nutrient enrichment and seasonal stratification. While water quality appears to have been generally stable over the past 15 to 20 years, there will continue to be development pressure in the watershed that could change the currently stable conditions in the future. Several additional actions could be considered by the Utilities District and the Town of Winthrop to provide added protection to the source water quality for the future.

- The Utilities District owns important properties abutting the pond and conservation of this land will benefit water quality in the future. The District should continue its efforts to acquire and conserve land in the watershed. The District should also encourage the town and non-profit organizations to conserve additional land in the upper parts of the watershed.
- The Utilities District should work with the town as it develops future plans for commercial activity along the Route 202 corridor. Additional commercial expansion in the General Commercial zone near Route 202 and Main Street has the potential to threaten water quality if traffic and run-off increase or if businesses handle or store petroleum or other chemicals.
- The Utilities District should work with the town and the Maine Department of Transportation to plan a coordinated response to potential transportation accidents in the watershed. The pond is particularly vulnerable along Route 202, which passes within 500 feet of the pond at its north end.
- The Utilities District should communicate with the homeowners associations and individual residents living along the east shore of the pond to educate them about the water supply. An ongoing program to raise public awareness, improve road and yard maintenance practices and decrease the intensity of recreation on the pond will protect and possibly improve water quality.
- The Utilities District should also work with the Maine Department of Inland Fisheries and Wildlife and other appropriate parties to prevent construction of a vehicle-accessible boat launch and to minimize recreational use of Upper Narrows Pond to protect water quality.
- The Utilities District should maintain or increase communication and the exchange of water quality data with the Cobbossee Watershed District, including possible sampling areas around the pond and along the upgradient stream to identify locations where the water quality data suggest a potential threat.
- The Utilities District should also consider modifications to its pumphouse infrastructure by adding a secondary containment system to its oil tank and assuring safe vehicle access to the pumphouse.

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