A Half Century of Lake and Watershed Management in Maine's Only Watershed District.

cobbossee
watershed district

Bill Monagle, Executive Director

- **1971 - Authorized by Maine Legislature**

Chapter 95, Private and Special Laws 1971

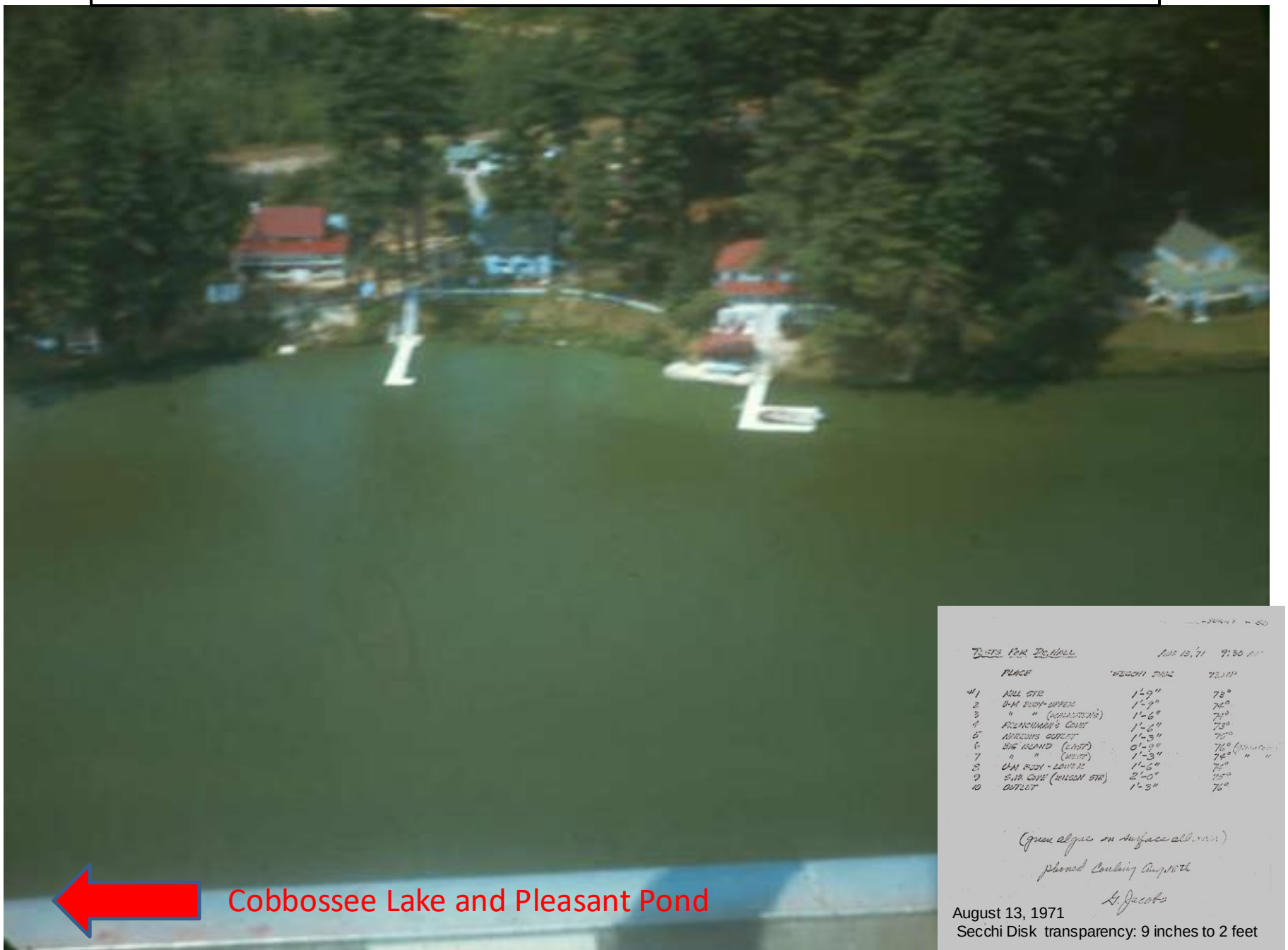
AN ACT Creating the Cobbossee Watershed District.

Purpose – "… for the purpose of protecting, improving and conserving the lakes, ponds, and other waterways within the territory of said district which comprise the Cobbossee watershed"..

Authority – ".. to control the level of the water and to collect, hold and discharge the same; to improve the quality and purity of the water by treatment or otherwise; and in general, do any and all things incidental to accomplish the purposes of this Act."

- **1972 – Ratified by Referendum Elections in Member Towns**

Crisis/Impetus #1: Annabessacook Lake algae bloom, early 1970's



Cobbossee Lake and Pleasant Pond

TESTS FOR DO HALL — AUG 13, '71 9:30 A.M.

	PLACE	SECCHI DISC	72.1°F
#1	MILL STR	1'-9"	73°
2	D.M. BODY - UPPER	1'-9"	74°
3	" " (MIDWATERS)	1'-6"	71°
4	FRENCHMAN'S COVE	1'-6"	73°
5	NARROWS OUTLET	1'-3"	75°
6	BIG ISLAND (EAST)	0'-9"	76° (BOTTOM)
7	" " (WEST)	1'-3"	74° " "
8	DAM BODY - LOWER	1'-6"	74°
9	S.W. COVE (WILSON STR)	2'-0"	75°
10	OUTLET	1'-3"	76°

(green algae on surface all over)

phoned Conlon Augusta

H. Jacobs

August 13, 1971
Secchi Disk transparency: 9 inches to 2 feet

Crisis/Impetus #2: Cobbossee Lake low water, controlled by industries in Gardiner

Photo from an approved drawdown for dam repair in 2010

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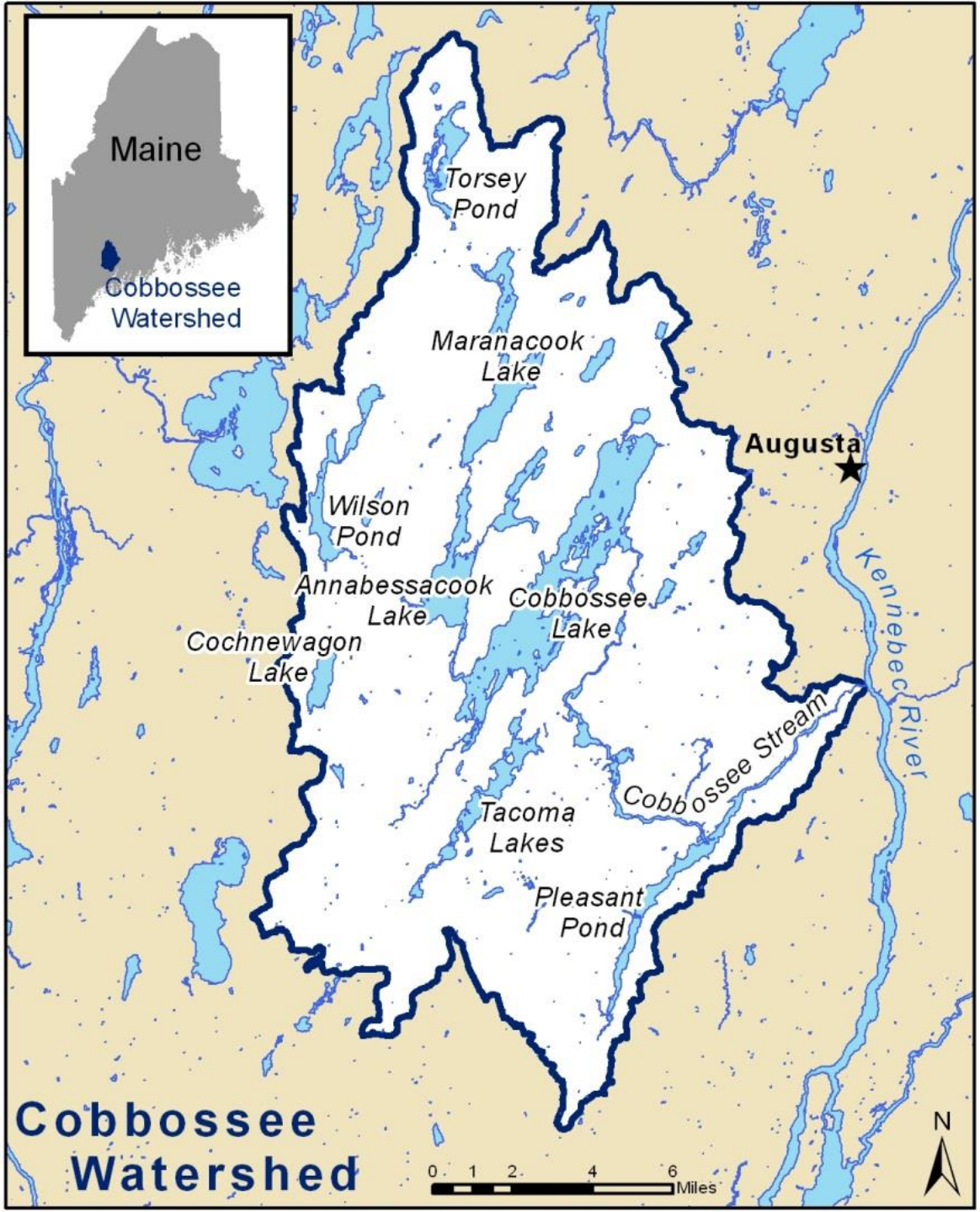
watershed district

1973 –
Opened Doors as Maine's First, and Still Only, Regional Watershed District



Clean Water mission #1: Eliminate algal blooms

PHOSPHORUS

An Essential Nutrient for Plant Growth

Algae blooms occur when there is too much phosphorus in the lake.

Our job was to figure out:

- where it came from
- techniques to remove it
- how to implement & fund

.

Point sources of pollution were already obvious

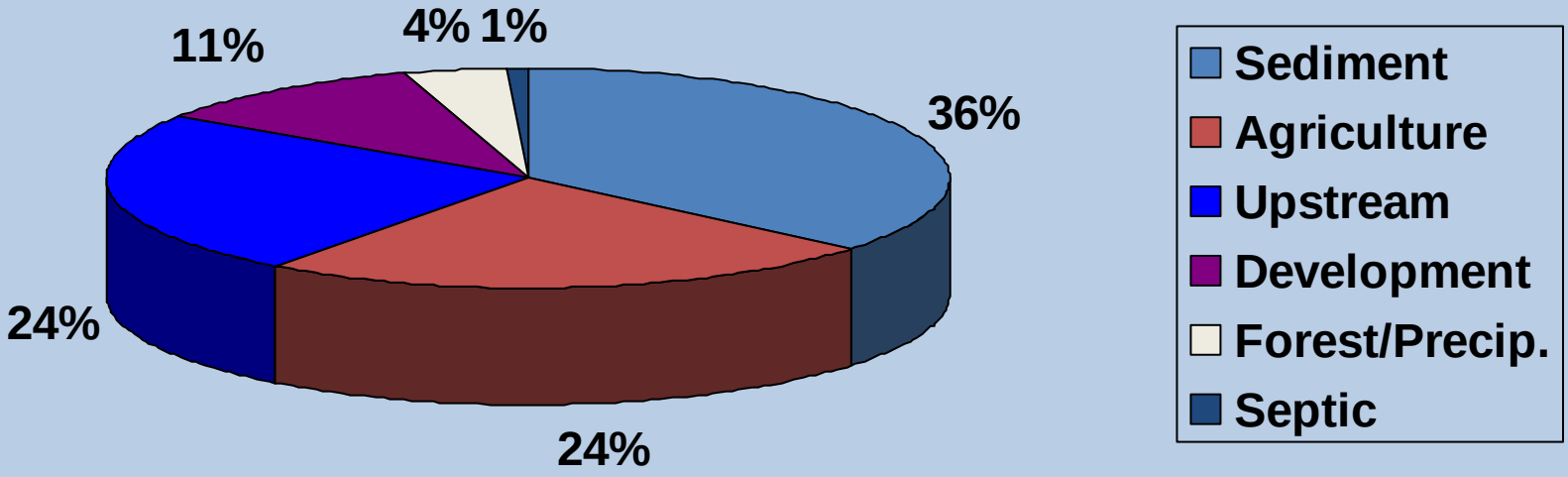
Maranacook Lake, top – downtown Winthrop with Carleton Woolen Mill, center – Annabessacook Lake, bottom

Wastewater/sewage pump station

Winthrop sewage diverted to Augusta treatment plant in 1973; North Monmouth in 1976

Phosphorus Budget for Annabessacook Lake, 1975

Percentages based on approx. 4,200 kgP/yr.



Modified from: Sage, K.J. and E. Moran. 1977. Annabessacook Lake Study. Cobbossee Watershed District. Winthrop, Maine.

Agricultural Runoff Control was the Highest Priority for Watershed Pollution

Agricultural Best Management Practices

- Barnyard runoff diverted
- Manure storage facility
- Corn growing eliminated
- Nutrient management plan implemented
- Manure spreading setbacks

In-Lake Restoration: Alum Treatments

to reduce internal recycling of phosphorus from bottom sediments

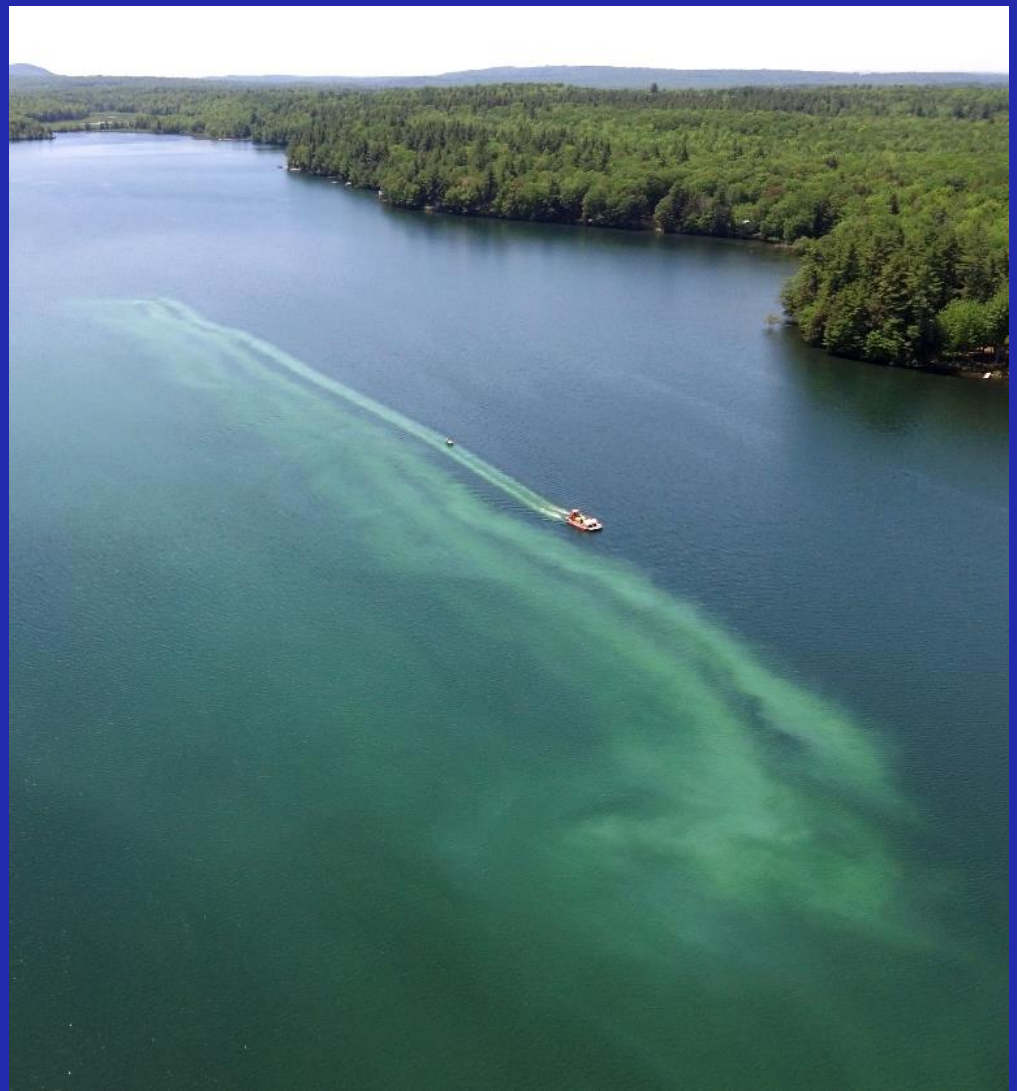
cobbossee watershed district

1. 1978 ANNABESSACOOK LAKE

MAINE'S 1ST ALUM TREATMENT

2. 1986 COCHNEWAGON LAKE

3. 2019 COCHNEWAGON LAKE



Environmental Results: Cochnewagon Lake WQ Restored!

Phosphorus goals were achieved.

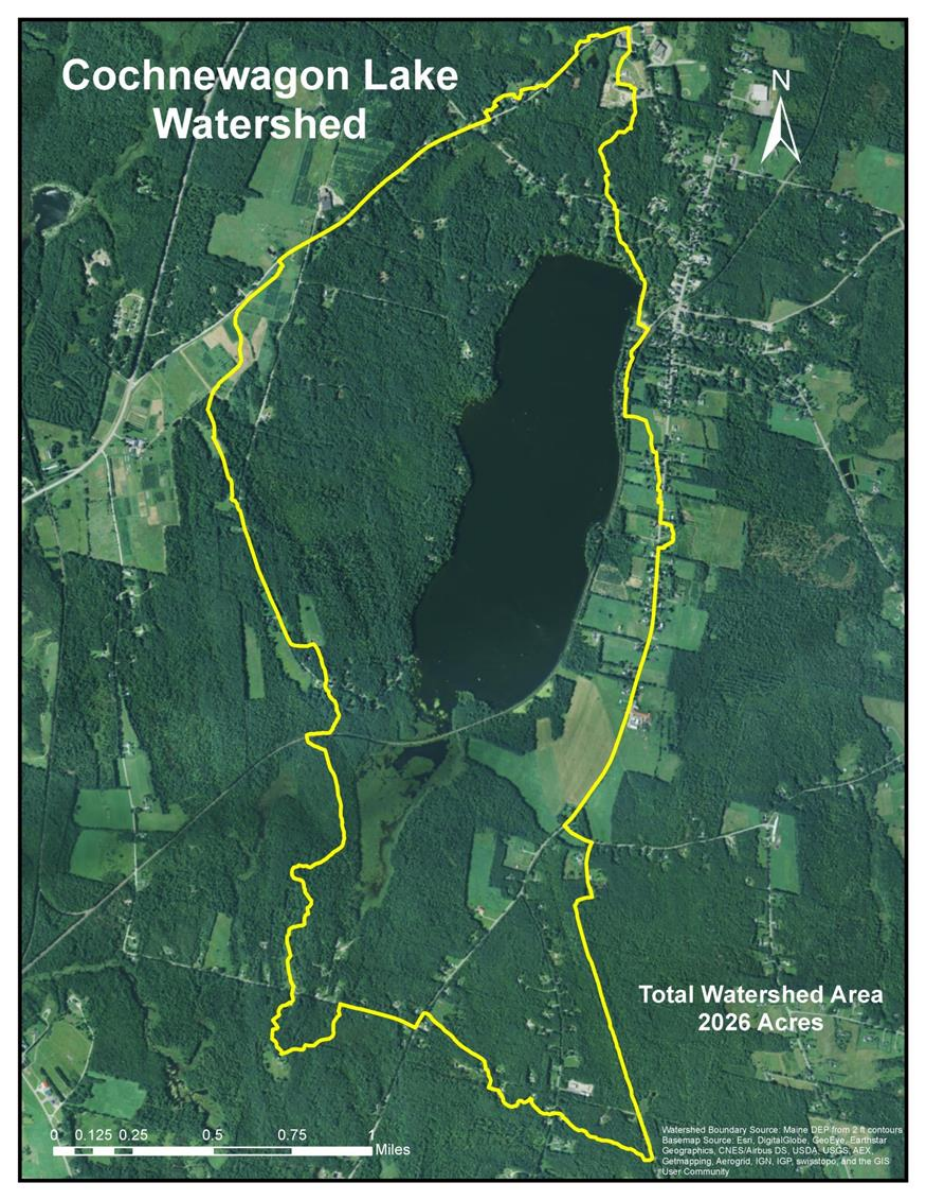
No blue-green algae blooms since treatment.

The alum floc settled to the bottom and within an hour the plume was not visible.

This treatment was a great success, but alum treatment longevity is finite.

Ryan Burton drone photos

WATERSHED NONPOINT SOURCE POLLUTION MANAGEMENT



1. Watershed Surveys

2. Watershed Management Plans

3. Best Management Practices (BMP) implementation

Wilson Pond Watershed NPS Watershed Restoration Project, Phase II

CWD conducted watershed survey and procured federal funding for BMPs to reduce pollution to Wilson Pond

Merganser Lane

Before

The condition of an expansive gulley between Merganser Lane and the private driveway that was created by excessive outfall from an 18” HDPE culvert (not visible).

After

Same gulley/drainage sluice as at left, following grading and stabilization with geo-textile and a major application of rip-rap and large rock, including blasted ledge.

Merganser Lane BMP Project, funded, in part, through the Wilson Pond NPS Watershed Restoration Project, Phase II

Before

After

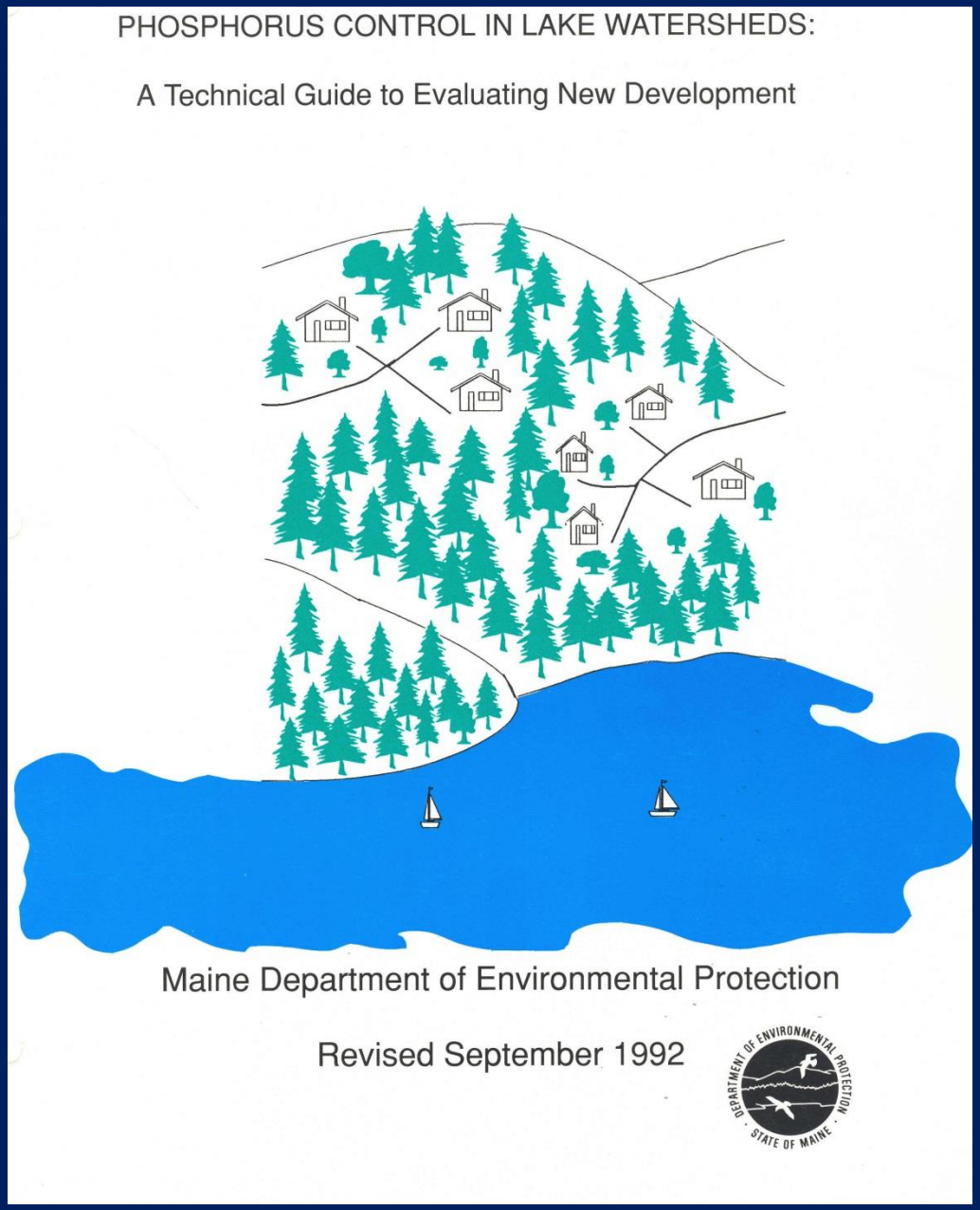
This steep driveway was severely eroded and sending highly turbid water to the lake, joining the discharge from the gulley shown previously.

Creating a buffer at YMCA Camp Cobbossee Lake – 1997
CWD and Cobbossee citizens

A buffer strip of densely planted, diverse, vegetation is one of the best ways to protect lake water quality.

Vegetated Buffers

Twenty+ years after Cobbossee Watershed District planted this vegetated buffer at the YMCA Camp on Cobbossee Lake, it is a great example of a functional buffer strip.



Technical Assistance

We work with:

- Applicants
- Consultants
- Town Officials (Planning Boards, Code Enforcement)

to reduce new sources of phosphorus in stormwater runoff from commercial, industrial, and subdivision developments.

Commercial Development: Rite-Aid, Winthrop

Annabessacook Lake Watershed

StormTreat stormwater control system

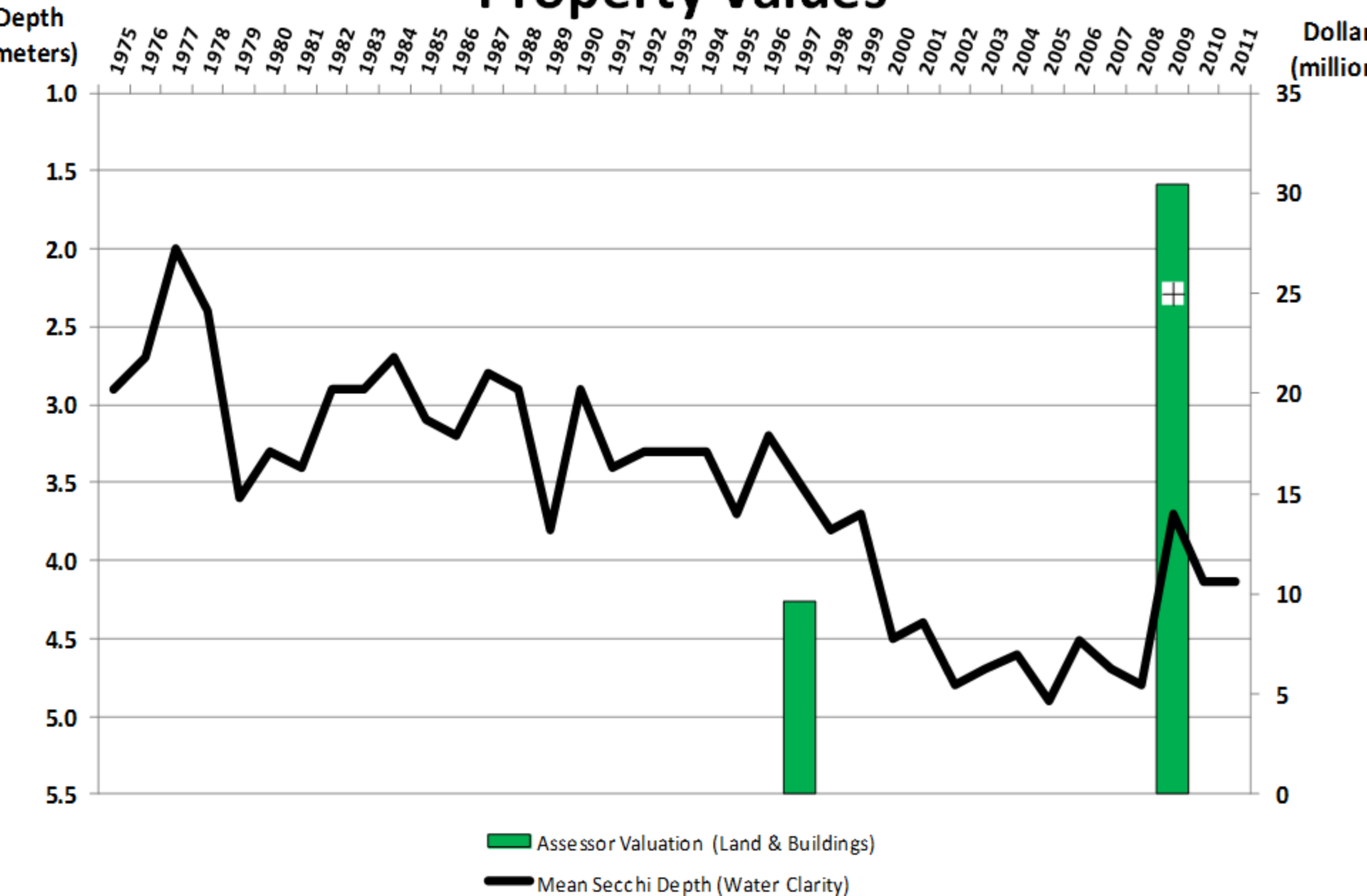
Institutional Development Reviews: Winthrop High School
Annabessacook Lake Watershed

The scale of development required payment of a “compensation” fee to be used to remove phosphorus elsewhere in the watershed.

Also: Maranacook Middle/High School; Monmouth Academy; Monmouth Middle School

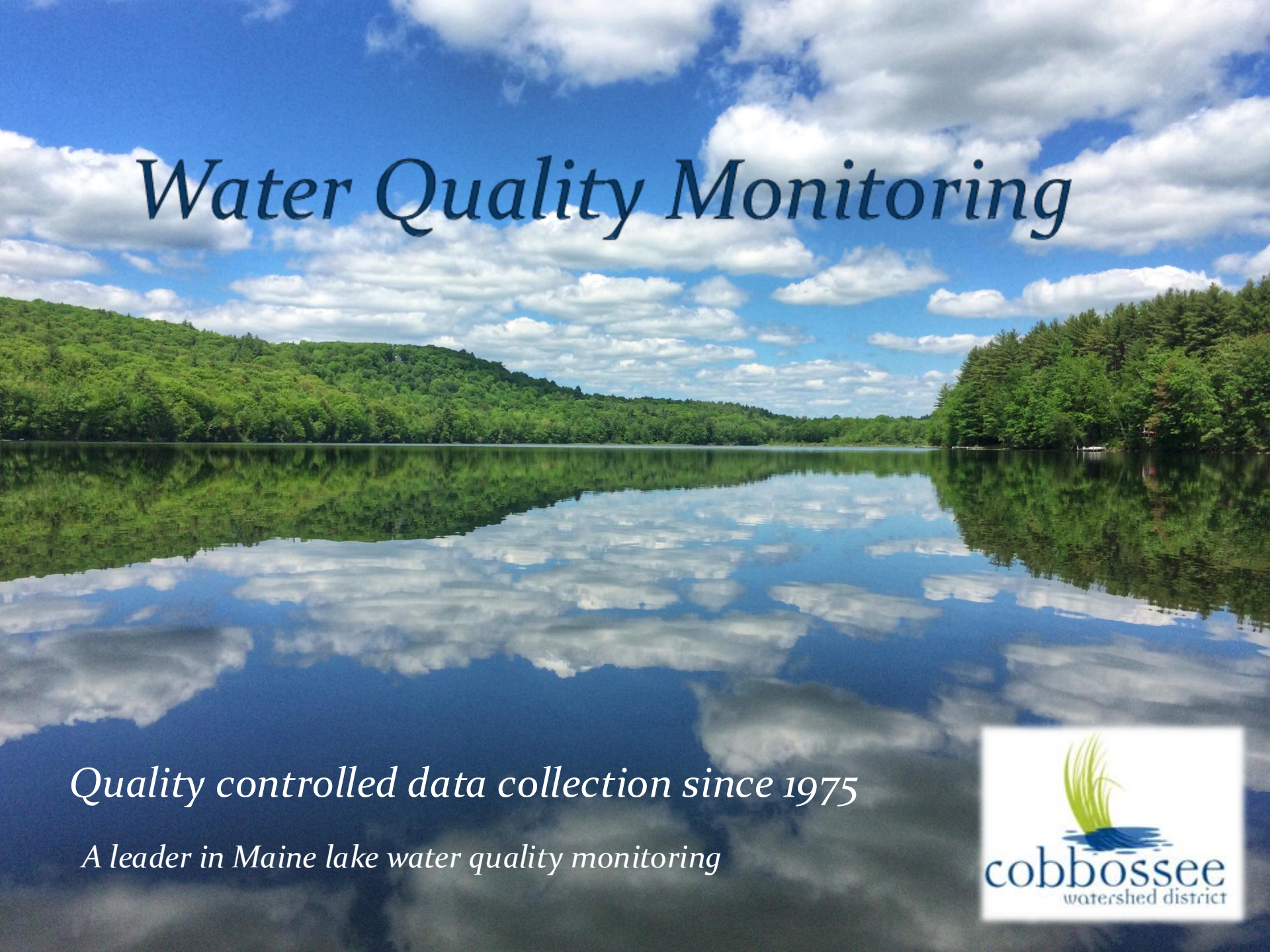
Winthrop Public Works Dept. Street Sweeping near Mill Stream

Annabessacook Lake Water Clarity and Property Values



Cobbossee Lake: received cleaner water from Annabessacook, received cleaner water from Jock Stream due to extensive agricultural waste management improvements.

Cobbossee Lake De-listed in 2006
Outstanding Achievement Award given to CWD


Water Quality Monitoring
Quality controlled data collection since 1975
A leader in Maine lake water quality monitoring
cobbossee
watershed district

Water Quality Monitoring

26 lakes and ponds
May through October

Water Levels Management

Goals include:

Minimize potential for excessive flooding.
Support public recreational activities.

Water Level Management goals include protecting wildlife.

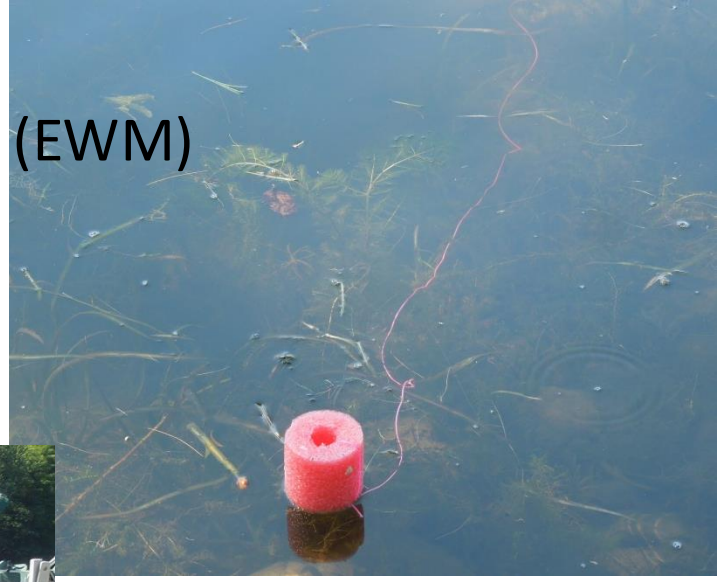
Stable water levels from late May to early July increases the success of nesting loons.

(This picture was taken with a zoom lens and then cropped and enlarged. We did not get close to the nest. 6/2/14.)

Reconstructed Maranacook Lake Dam:
improved water discharge and lake level control

INVASIVE Variable-leaved water-milfoil in Annabessacook Lake

Cobbossee Lake: Eurasian Water Milfoil (EWM)



DEP removing EWM
at Lakeside Marina

The End

Berry Pond at Dusk