Big or Small - Watershed Management Planning for Your Lake

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Pleasant Lake Preservation Association

LAKE WINNIPESAUKEE ASSOCIATION

Keep Winni Blue

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Nonpoint Source Pollution (NPS)

- Stormwater: rain or snow -that doesn't soak into the ground.
  - Flows over land picking up pollutants, volume & speed.
  - Drains into lakes, streams, and ocean.
  - We all live inside the "funnel"

Nine element ‘a through i’ watershed plans

- a) ID your pollution causes and sources
- b) Estimate the pollutant reductions needed
- c) What actions are needed to reduce pollutants
- d) Cost and authority
- e) Outreach and Education
- f) Schedule
- g) Milestones
- h) Success indicators and evaluation
- i) Monitoring plan

rock-lined flume.

Proposed Improvement:

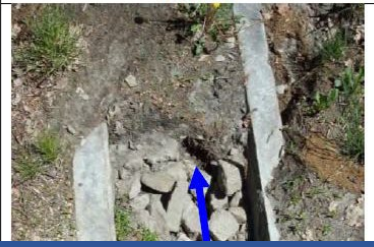
- Retrofit the outlet pipe to discharge at grade to a stone infiltration strip with a level spreader oriented parallel to the retaining wall (approximately 4-foot wide by 20-foot long).
- Immediately downgradient of the infiltration strip and level spreader, construct a 4-foot wide by 20-foot long raingarden planted with native shrubs on 3-foot centers. The size of the raingarden could be larger, pending discussions with the property owner.

Estimated Cost: $1,700 - $2,100

Estimated Pollutant Load Reduction:

0.19 – 0.23 lbs P/yr

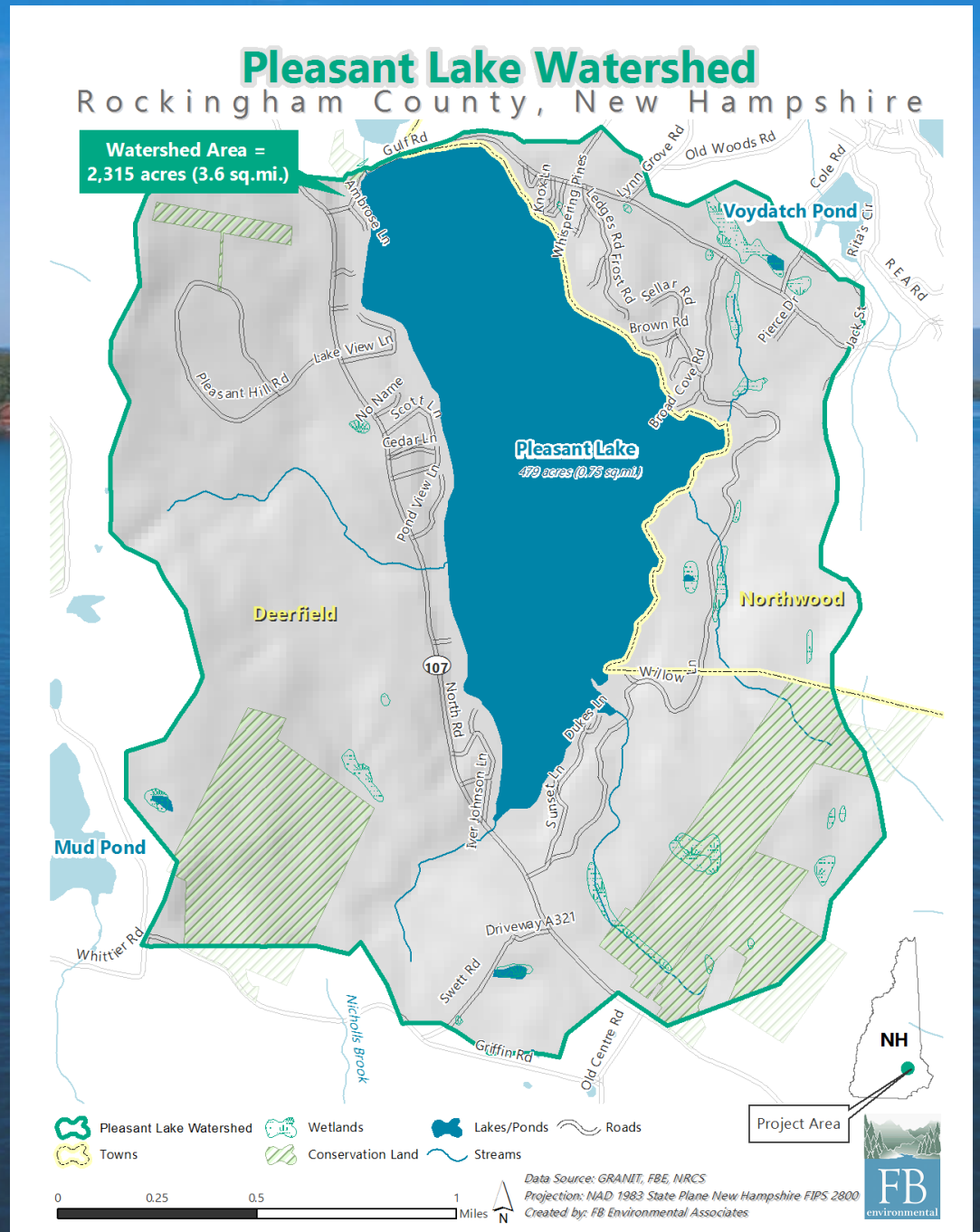
Photo 13-1



Appendix E.2 – Top 6 BMP Locations

Map ID	Top 30 ID	BMP Description	Tributary	BMP Drainage Area (acres)	BMP Impervious Drainage Area (acres)	BMP TP Loading (kg/year)	BMP Type	BMP Workable Area	BMP WQv Provided (cf)	BMP Sizing Factor	BMP TP Pollutant Removal Efficiency	BMP Annual TP Pollutant Removal (kg/year)	Conceptual BMP Cost Estimate	BMP Annual Maintenance Cost Estimate	10 yr Cost Per Pound TP Pollutant Removed ($/kg)	Rank
39	R-11	Wentworth State Park BMPs	Lake Wentworth	5.70	0.86	2.15	Stabilization & Infiltration BMPs	13,660	3,124	100%	60%	1.29	$19,607	$500	$1,908	1
67	R-13	Next to the Lake Motel - South Main Street Drainage Outlet	Crescent Lake	30.83	17.82	19.42	Detention Area / Gravel Wetlands	16,800	64,686	100%	55%	10.68	$203,197	$250	$1,926	2
40	R-4	Gov West Hwy Shoulder & Pull-Off #2	Lake Wentworth	5.33	2.86	3.58	Infiltration BMPs	10,700	10,370	100%	60%	2.15	$46,069	$500	$2,375	3
70	R-6	Camp Bernadette Beach Area / Access	Lake Wentworth	14.78	6.31	7.31	Infiltration BMPs	7,800	9,360	41%	60%	1.79	$38,285	$500	$2,416	4
96	R-28	Crescent Lake Ave - Old Failed Level Lip Spreader	Crescent Lake	13.26	4.60	5.66	Treatment Swales	15,000	15,000	90%	25%	1.27	$26,029	$500	$2,441	5
79	R-25	Pleasant Valley Rd @ DeVyler Farm	Townsend Brook East	14.38	4.40	7.98	Bioretention Area	5,000	7,000	44%	65%	2.27	$52,211	$500	$2,516	6
		TOTALS:		84.28	36.85	46.10						19.46	$385,398	$2,750		

Identify, quantify & prioritize actions needed to reduce pollutants and meet WQ goals

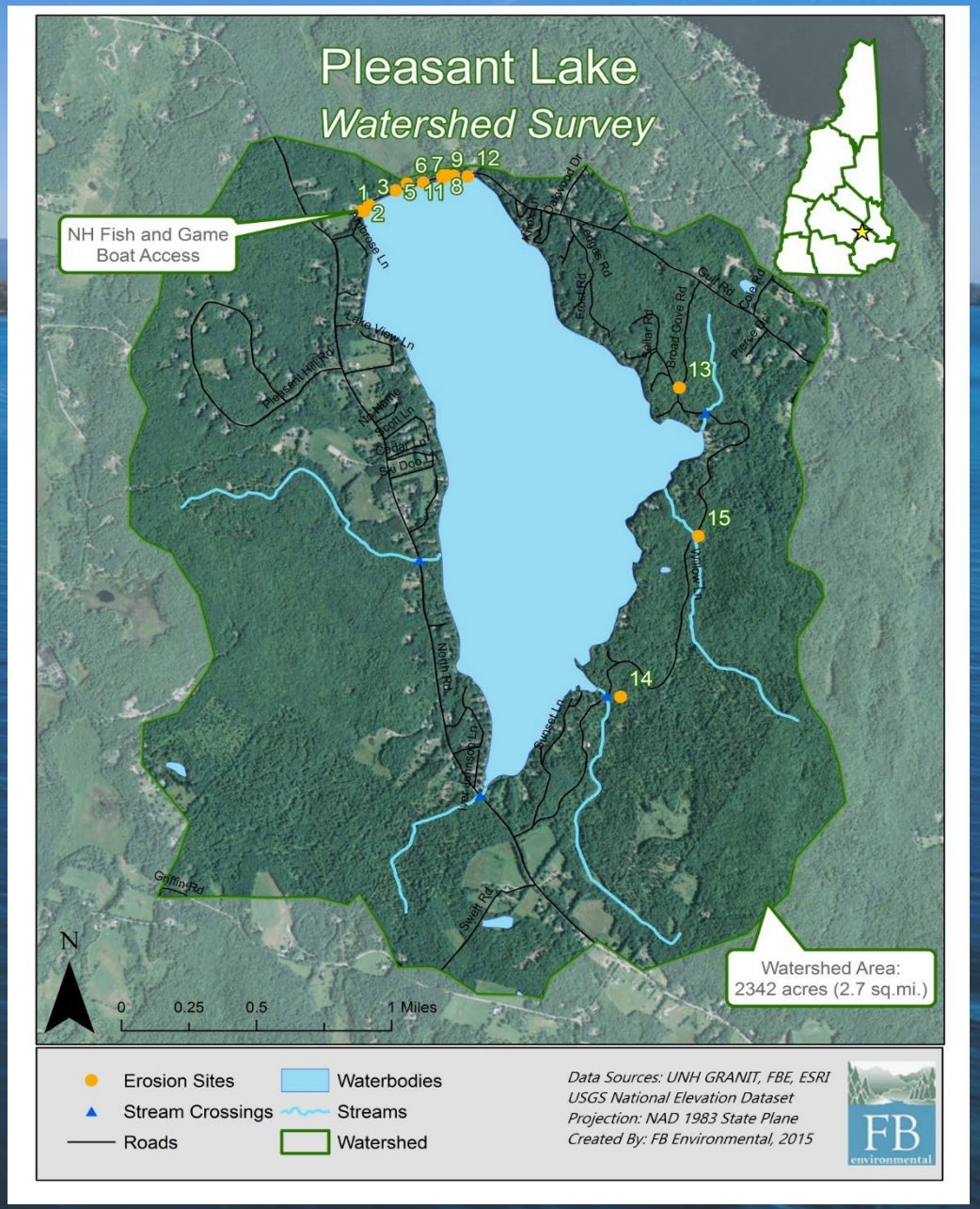


- 2,315 acres (3.6 sq.mi.)
- Deerfield/Northwood
- 493-acre lake area
- Outlets north to Northwood Lake, then west via Little Suncook River to Suncook River (trib to Merrimack River)
- Class A (2010 reclassification)
- Oligotrophic (high quality waters)
- 0.48 flushing rate

https://pleasantlakenh.org/

2015 WATERSHED SURVEY RESULTS

- Primary erosion hotspots identified included NHF&G boat access parking, Gulf Rd, Broad Cove Rd/Sellar Rd, and Willow Lane.
- Largely bare soil/erosion gully or bank stabilization sites.
- 15 sites contributing **14 kg/yr** phosphorus to Pleasant Lake.
- BMP Matrix prioritized by impact-rated cost per kg of P removed.



ACTION PLAN

July 2016 Community Forum

Identifies priority actions for achieving water quality goal and objectives, responsible parties, schedule of implementation, and estimated cost

Objectives 1 and 2

Objective 3

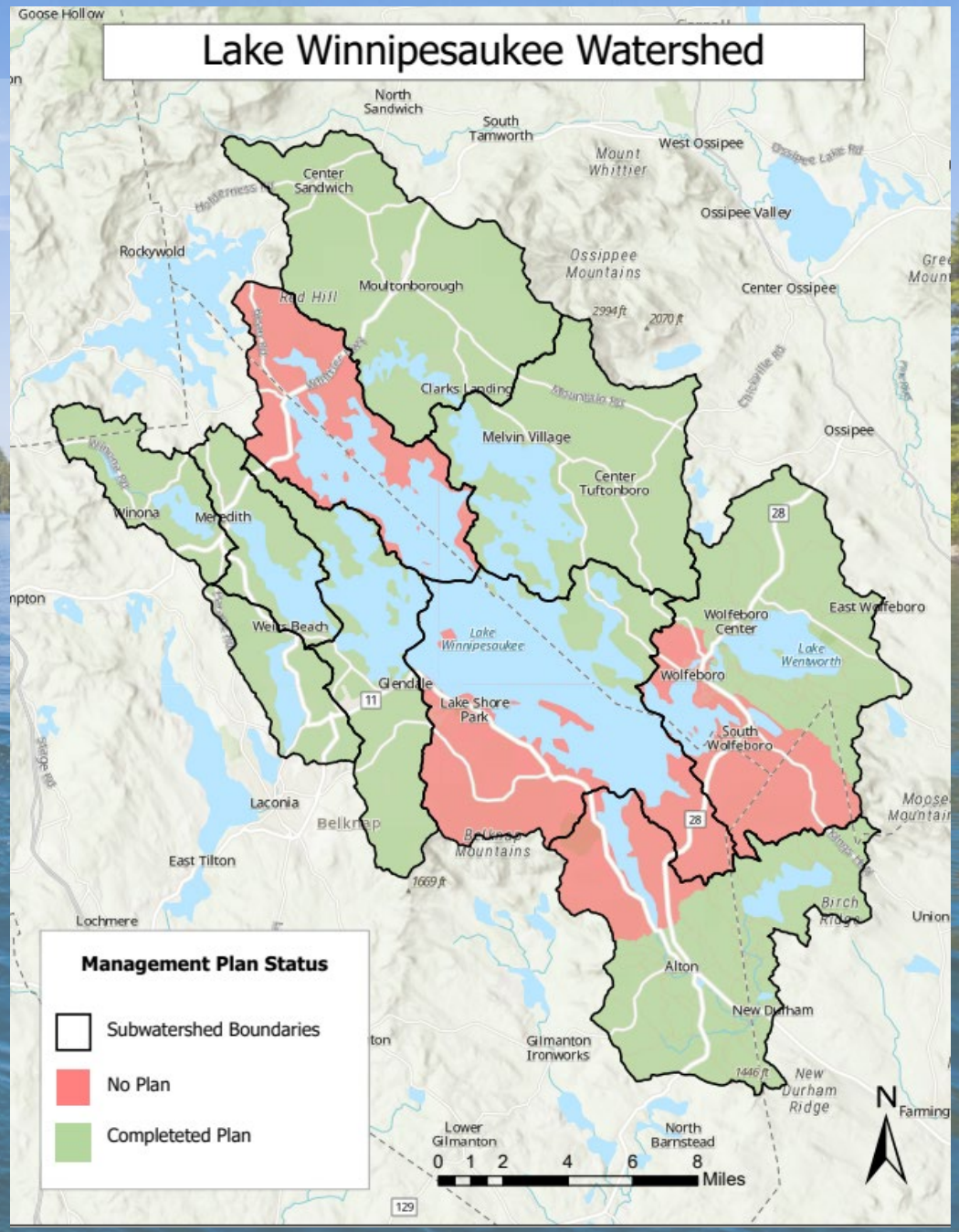
Water Quality Monitoring	Watershed & Shoreline BMPs	Municipal Planning	Septic Systems	Roads	Land Conservation & Management

Winni Watershed

- Watershed Area: 369 sq. miles or 236,225 acres
- Lake Area: 72 sq. miles or 44,586 ac
- 264 habitable islands
- 240 miles of shoreline
- 8 Shorefront Towns

Challenges

- Multiple regulatory agencies
- Varied technical & planning resources
- Managing for multiple uses



Brie Stephens

Strategies for Implementing Acton Plans

Over 270 Restoration Sites Identified and

more than 1600 shoreline surveys conducted

Funding -

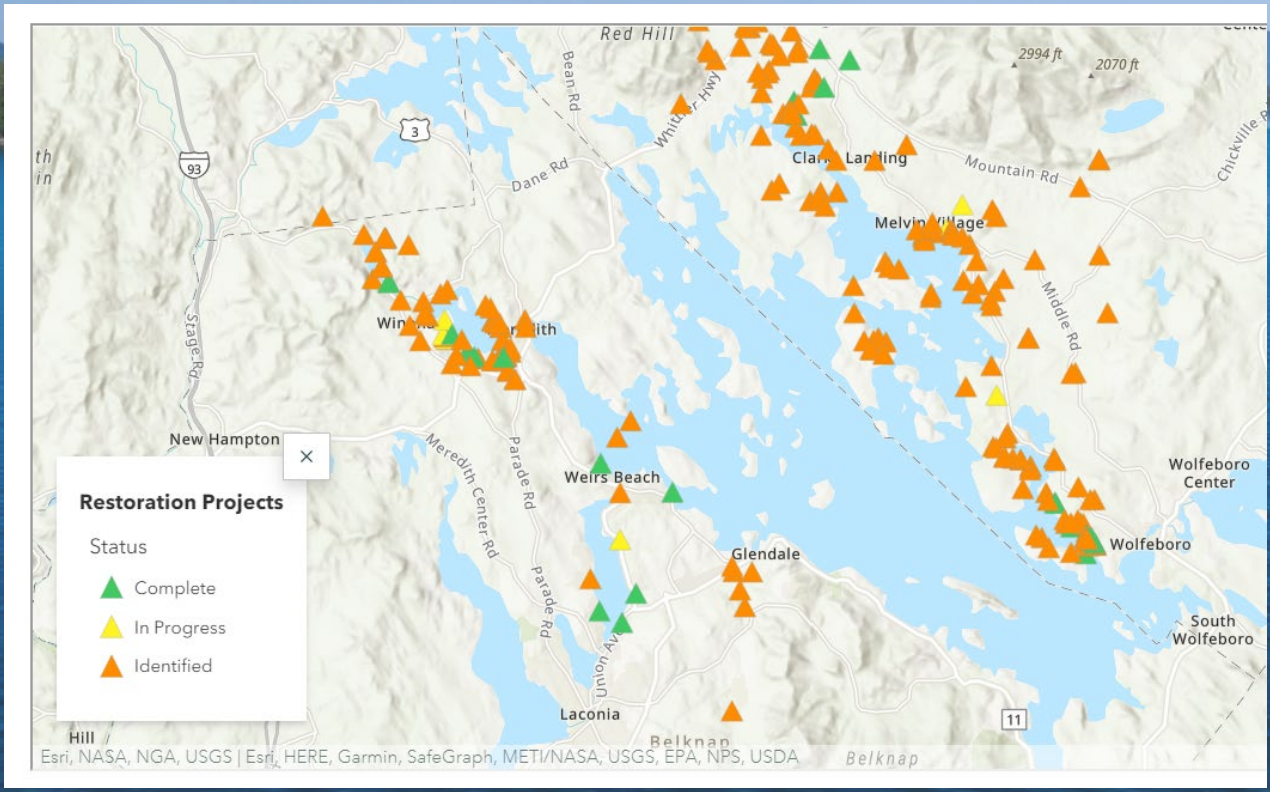
- Add a line item to the Town budget for water quality protection
- Work with the DPW to get road related mitigation projects incorporated into the plan of work
- Apply to the Clean Water State Revolving Loan Fund

Education and Outreach –

- Partner with Conservation Commissions in education & outreach
- Create a network of community members and volunteers dedicated to protecting the lake.

Brie Stephens

Lake Restoration



# Mitigation Sites Identified	271
# Projects Completed	50
Pollutant Load Reductions	85 lbs. TP/yr. 157 lbs. TN/yr. 137,774 lbs. TSS/yr.

That's equivalent to 69 tons of sediment being dumped into the lake annually!

Watershed Planning Resources

- EPA and NHDES can help fund your watershed plan.
  - **Clean Water State Revolving Fund (CWSRF) Loans** –principal forgiveness of up to $100,000.
  - Small grants from EPA/NHDES **(s604 WQ Planning Grant)**
  - Funding assistance to implement plans **(s319 Watershed Assistance Grant)**
- Additional funds and resources
  - NH Conservation License Plate (Moose Plate) Program
  - State: Fish and Game Dept., DOT, and others
  - Federal: USDA/NRCS, and others
  - Regional planning commissions
  - Local Municipality, Partner Lake Associations
  - Universities etc.

QUESTIONS & DISCUSSION