PANTHER POND CONSERVATION PROJECT PHASE II

2009 - 2012

Working to protect and improve the water quality of Panther Pond

The Panther Pond Conservation Project Phase II was funded in part by the US Environmental Protection Agency (EPA) under Section 319 of the Clean Water Act. Section 319 grants are administered by the Maine Department of Environmental Protection in partnership with EPA in order to prevent or reduce water pollution in Maine.

ACKNOWLEDGEMENTS

The following people and organizations were instrumental in the Panther Pond Conservation Project Phase II and deserve special recognition for their efforts.

Project Partners:

Town of Raymond
Panther Pond Association (PPA)
Portland Water District (PWD)
Raymond Waterways Protective Association (RWPA)
Cumberland County Soil & Water Conservation District (SWCD)
FB Environmental Associates
Maine Department of Environmental Protection (Maine DEP)
Citizen Volunteers & Landowners

Project Staff:

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Report Prepared by Patrick Marass, FB Environmental Associates

~ SPECIAL THANKS ~

Noralee Raymond

Special recognition goes to Noralee Raymond, who served as RWPA's Executive Director and led stewardship efforts on Panther Pond from 2004 – 2011. Noralee's extraordinary dedication, caring nature and solid technical skills resulted in top-notch work that helped inspire countless people to get involved and make changes on their properties and roads. Over the years, a bit of Noralee's energy and dedication rubbed off on all who worked with her - leaving each a better steward of Panther Pond as a result.

PROJECT PURPOSE

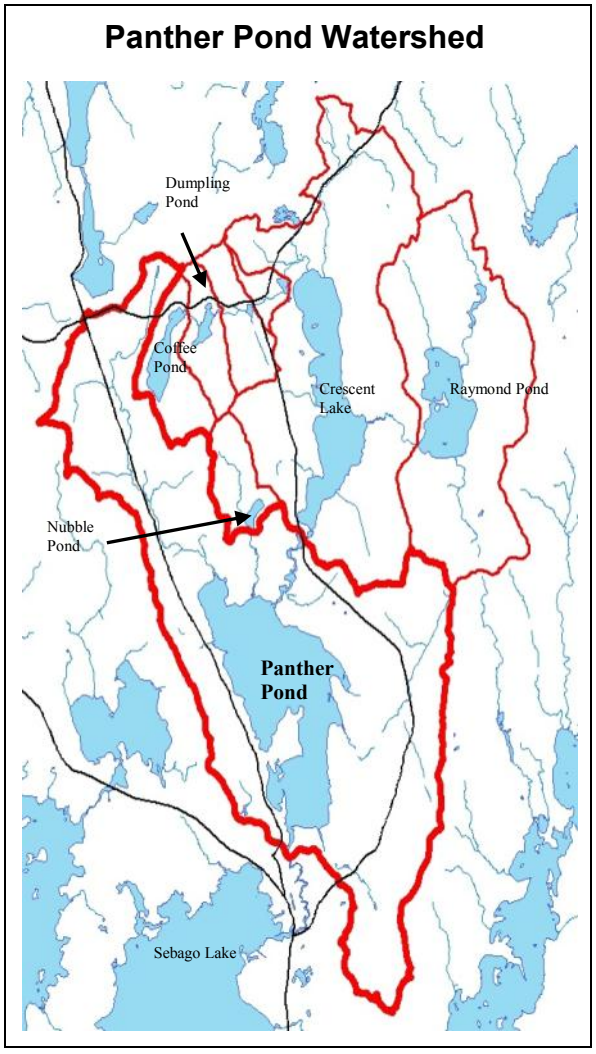
The primary purpose of this project was to significantly reduce the erosion and export of sediment and phosphorus to Panther Pond. As a continuation of Phase I (2005-2008), conservation practices that reduce erosion and polluted runoff were installed at 36 of the 84 identified erosion sites in the watershed (14 NPS Abatement Sites, 22 cost-shared matching grant sites). Phase II addressed the 14 remaining sites identified as high and medium impact in the Panther Pond Watershed Survey, reducing the lake's pollutant load by an estimated 33 tons of soil and 28 pound of Phosphorous. In addition, the project raised awareness about watershed problems and worked to foster long-term watershed stewardship.

LAKE AND WATERSHED INFORMATION

Panther Pond is a 1,439-acre lake with a total volume of 33,969 acre-feet and a surface area of 2 square miles. The lake is located in the Town of Raymond in central Cumberland County, Maine. It has a maximum depth of 68 feet and an average depth of 26 feet. Panther Pond has nearly 14 miles of shoreline, most of which is privately owned. The shoreline is developed with over 300 seasonal and year-round homes, four youth summer camps, and an extensive network of unpaved camp roads.

The Panther Pond Watershed covers 12.3 square miles in Raymond and Casco. The regional watershed covers 25 square miles and includes Crescent Lake, Raymond Pond, and several other smaller ponds. Panther Pond empties into Sebago Lake and is part of the Casco Bay Watershed.

Panther Pond is highly valued by seasonal and year-round residents for its clear waters and sense of wilderness, while still providing the convenience of nearby Portland. Panther Pond has one private boat launch that is often used by the public. Popular winter and summer activities include snowmobiling, ice fishing, boating, fishing, kayaking, and canoeing.



Sunrise over Panther Pond - Photo Brian Walker

ONGOING COMMITMENT OF WATERSHED COMMUNITY

The Panther Pond watershed community has demonstrated a strong and ongoing commitment to protecting and improving the water quality of Panther Pond.

1970s - Current

Working with Maine DEP staff, Charlie Turner and other volunteers began testing water quality in Panther Pond and have continued testing for nearly 40 years.

2002

Panther Pond Association (PPA) formed to promote conservation efforts in the watershed.

2004

The Panther Pond Watershed Survey identified 84 erosion sites. RWPA applied for and received funding through the Maine DOT Surface Water Quality Protection Program (SWQPP) to fix 2 sites on state roads identified in the survey.

2005 - 2008

The Panther Pond Conservation Project - Phase I completed 42 projects sites and generated nearly $100,000 in match, more than double the proposed match. The pollutant load to Panther Pond was reduced by an estimated 73 tons of soil and 62 pounds of Phosphorous.

2006

The Town of Raymond received Stormwater Compensation Funds from Maine DEP to address 1 high and 5 medium impact sites.

2008

$63,289 of Federal grant money was awarded to the Town of Raymond for Phase II to continue addressing identified erosion sites.

2009 - 2012

The Panther Pond Conservation Project - Phase II completed 35 project sites and generated over $52,000 in match. An estimated 33 tons of sediment and 28 pounds of phosphorus per year will be kept out of Panther Pond as a result of this project.

PROJECT GOAL

To protect and improve the water quality of Panther Pond.

HOW DID WE REACH OUR GOAL?

- **Education**

Buffer Cruises - Workshops

- **NPS Abatement Projects**

14 high and medium priority sites fixed

- **Residential Matching Grants**

22 matching grants awarded to landowners with low to medium priority sites

EDUCATION

Volunteers and local residents participated in "Cruise the Buffer" tours as well as several conservation practice workshops. The tours and workshops provided an opportunity for local residents and volunteers to learn more about Panther Pond, the land use practices that threaten water quality, and best management practices (BMPs) that can help protect and improve water quality.

"CRUISE THE BUFFER" TOURS

These cruises were a fun way to show participants the value of shoreline vegetation and increase local awareness of the project. The tours highlighted completed project sites around the lake. Over the course of the project, 2 tours were organized and completed.

Participants learned about:

- Value of native plants
- Privacy through buffers
- Winding paths for buffer protection
- Natural buffers
- No-mow buffers
- Landscaped buffers
- Diverters on right of way paths that help protect shoreline buffers

CONSERVATION PRACTICE WORKSHOPS

These workshops provided an opportunity for local residents and volunteers to learn where and how to install BMPs, such as infiltration trenches, vegetative buffers, drywells, and water diverters. Over the course of the project, 9 workshops were organized and completed.

Infiltration Trenches, Dry-Wells, Water Diverters

Vegetative Buffers

NPS ABATEMENT PROJECTS

These projects addressed large-scale erosion and runoff problems on public and private roads and lakefront properties, and along Panther Pond's shoreline and tributary streams. Town road crews and private landowners received technical assistance at no charge and a 50% cost sharing opportunity. As a result of Phase II, 14 high or medium priority sites were addressed, reducing erosion and sediment transport to Panther Pond. The following pages present before and after photos for several of the NPS Abatement Projects completed during Phase II.

COMPLETED PROJECTS

1. Ai Road
2. ATV - Site 1
3. ATV - Site 2
4. ATV - Site 3
5. Camp Hinds - Site 1
6. Camp Hinds - Site 2
7. Lakeside Drive - Site 1
8. Lakeside Drive - Site 2
9. Martin Heights - Site 1
10. Martin Heights - Site 2
11. River Road - Site 1
12. River Road - Site 2
13. Route 121
14. Maple Avenue ROW

ATV - Site 2 Photos

Before photo (above) shows the broken ATV / Snowmobile bridge on a tributary stream to Panther Pond. Before the project, ATVs would cross through the stream to avoid the bridge. This would cause severe bank and stream bed erosion, sending sediments and phosphorus downstream and into Panther Pond. The photos below show volunteers rebuilding the bridge (left) and then the completed bridge (right). Now, ATVs and snowmobiles use this bridge, reducing pollutant loads to Panther Pond.

NPS ABATEMENT PROJECTS

Camp Hinds - Site 1 Photos

Before photo (above) shows the bare and eroding soil located along an embankment of the Tenny River, the major tributary to Panther Pond. The After photo (below) displays the large timber waterbars, fiber rolls, erosion control mulch, and 288 seedlings installed on the banking to prevent erosion and stabilize the undercut bank.

Lakeside Drive - Site 1 Photos

Before photo (below left) shows severe erosion along the road where there was no ditching and a crushed culvert. Large storms would wash out road material and deposit sediment into a nearby tributary to Panther Pond. The After photo (below right) displays how the road was reshaped, ditching and turnouts were installed, and the plunge pool was enlarged to reduce erosion.

RESIDENTIAL MATCHING GRANTS

These projects addressed erosion and runoff problems at low to medium priority sites on residential properties around Panther Pond. Landowners received technical assistance at no cost and typical matching grants up to $300. Landowners were expected to match at least 50% of the project cost through material, cash, or labor contributions. These projects were typically completed with the help of several volunteers in a day or two. Residential matching grants provided a unique opportunity for project staff to educate landowners on lake healthy practices while protecting and enhancing the landowner's property. With considerable support from lakefront landowners, 22 project sites were completed as part of Phase II, surpassing the initial goal of 20 sites. The following pages present before and after photos of several Residential Matching Grant project sites completed as part of Phase II.

This property on South Shore Road had a grassed lawn extending to the waterfront (above). Over 50 blueberry plants were planted along with ECM (below) to create a vegetative buffer that infiltrates and filters runoff.

PROJECT COMPONENTS

- Planting vegetative buffers
- Slope stabilization with plantings
- Shoreline stabilization with rip rap and plantings
- Rubber razors
- Waterbars
- Path stabilization
- Infiltration steps
- Infiltration trenches
- Dry wells
- Covering bare soil with ECM
- Rain gardens

This property off Boulder Road had an unstable path and short grass down to the lake (below left). Water would carry down the steps and lawn and erode the beach area. Sturdy infiltrations steps and plantings along the bank were installed to slow down and capture runoff. The area above the beach was then built up and ECM, plantings, and boulders helped to capture and filter the runoff so it would no longer erode the beach area (below right).

RESIDENTIAL MATCHING GRANTS

This property off Lakeside Drive had a steep driveway and path heading toward the lake with erodible bare soil (above left). The landowner installed several rubber razors, re-graded the driveway, and used crushed stone and timbers to stabilize the path (above right). Water no longer erodes the path or driveway, which protects their property and the lake!

This property off Sloans Cove Road had a bare sloped path leading around the camp down to Panther Pond (above left). Over the course of two days, the landowners and many volunteers (below) installed infiltration trenches, waterbars, crushed stone, plantings, and ECM to stabilize the soil and create a defined path toward the lake (above right). As the photos show, conservation landscaping can be beautiful and fun!

Photos of the landowners and volunteers installing the conservation practices described above.

CONTINUING EFFORTS AROUND PANTHER POND

In the summer of 2011, the Panther Pond Association partnered with over 30 local volunteers including landowners, teachers, and students from the Raymond Elementary School to work on a remediation project on Panther Pond. Volunteers helped to spread mulch to stabilize an eroding banking and installed plantings and other best management practices (BMPs) aimed at reducing runoff to the lake. Efforts such as this help to expose local residents and youth to the benefits offered by Panther Pond and encourage a long term commitment to protecting and enhancing the water quality of the lake. In the future, PPA and local residents will continue with efforts like this.

THE FUTURE

Lake protection never reaches an endpoint. It requires a continual process of education and routine maintenance.

The Panther Pond Association will continue to lead efforts to protect the lake by:

- Monitoring the water quality of Panther Pond
- Partnering with the Raymond Waterways Protective Association on future projects to increase education and procure funding for future on-the-ground fixes
- Spearheading educational efforts to promote the value of vegetation buffers, routine road maintenance, and septic system inspection.

Looking south over Crescent Lake toward Panther Pond from Conesca Road Cliffs - Photo Patrick Marass

THANK YOU TO ALL WHO GAVE TIME AND ENERGY TO THIS PROJECT!

For more information please visit the Panther Pond Association website:

www.raymondmaine.org/community-resources/panther-pond-association