

ANNUAL REPORT

July 1, 2011 - June 30, 2012

GREAT POND FOUNDATION



**GREAT
POND**
foundation





GREAT POND FOUNDATION

President: Thomas Wallace

Treasurer and Secretary: David Luening

Directors: William Darman, Robert Hughes, Ann Mazar, Brendan O'Neill, Mark Patinkin, Robert Ruykeyser, Michael Shalett

Director, Special Projects: John Coskie

Director of Science and Education: Robert Woodruff

Foundation Administrator: Barbara Conroy

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From the President...

August 2012

Dear Friends and Supporters,

As I report to you this year, I ask that you join us in continuing our commitment to the preservation of an extraordinary body of water - Edgartown Great Pond.

The health of ponds across the Island and throughout Southeastern Massachusetts is being severely impacted, and there have been many closures to shell fishing and swimming. Our pond is faring better than most, thanks to the concerted efforts of several organizations working side-by-side with the Foundation, including the Town of Edgartown, The Nature Conservancy, Sheriff's Meadow Foundation, Vineyard Open Land Foundation, and others. Specific recognition goes to the Martha's Vineyard Shellfish Group for their continued progress in restoration of the oyster population, as each adult oyster is capable of cleaning 15 gallons of water every day!

While heartened by accomplishments thus far, we are mindful of the things beyond our control, particularly the forces of Mother Nature, which this year have brought powerful storms and record high temperatures and delivered large volumes of acid rain to the Pond.

The effectiveness of this organization over the years has been a direct result of a dedicated and hard-working Board of Directors, two of whom are retiring this year. Founding Director Burt Fleming has provided inspiration and valuable scientific insight from the very beginning. Joe Loughrey, who served as Secretary/Treasurer for the past two years, has brought sound financial guidance while energetically representing the Boldwater community. Burt and Joe have our deep appreciation. We look forward to their continued support in the years ahead.

At the same time, we are fortunate to have three strong new directors joining the Board: Anne Mazar from Kanomika, Bob Rukeyser from Boldwater, and Mike Shalett from Turkeyland. Anne, Bob, and Mike are already hard at work, each bringing special talents and a strong commitment to the cause.

We face the coming year with optimism tempered by reality. Confident that sustained collaborative efforts on the right things will continue to have a profound positive impact on the Pond, we recognize that on-going challenges, known and unknown, will call for determination, persistence, and resourcefulness. I hope you find this report to be informative and that you will let us know if you have any questions or comments. Meanwhile, thank you once again for your steadfast support.

Thomas C. Wallace, President
Great Pond Foundation





Finance...

David Luening, Treasurer

The financial condition of the Foundation is sound; however, we will need continued strong financial support in order to maintain the financial health of the organization and to continue carrying out our mission - preserving the health of Edgartown Great Pond.

FISCAL YEAR 2012

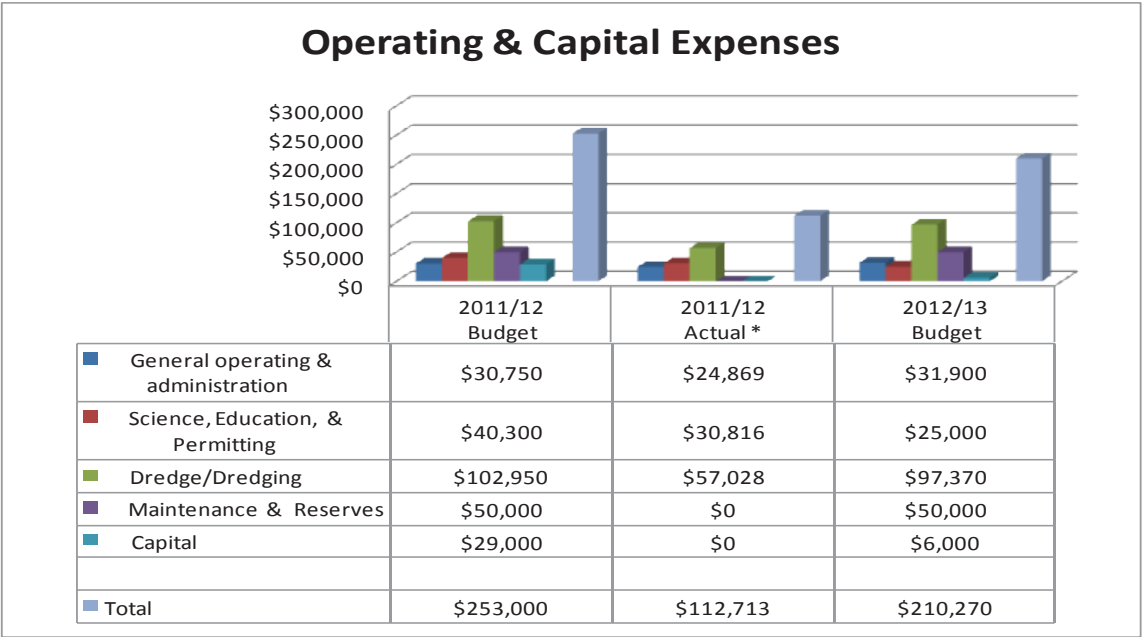
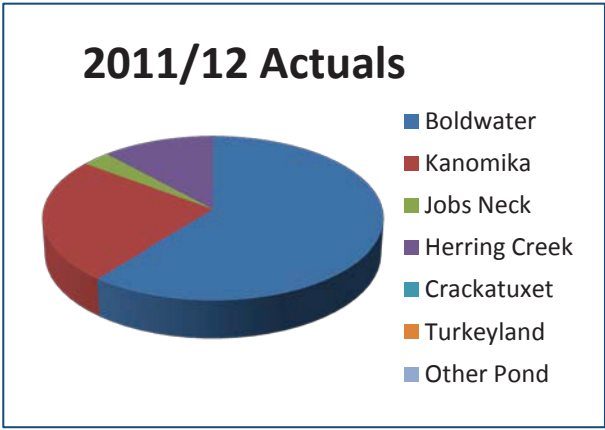
In the three years since the Foundation successfully raised over \$800,000 to buy a dredge, equipped her for service, and put her in operation, *Nessie* has been working hard at maintaining a channel through the delta to enable successful openings to the sea. Without an effective periodic exchange of pond and sea water, the health of the Pond would deteriorate rapidly.

The budget last year was based upon estimated costs of operating the dredge, planned capital for additional tooling, and additions to reserves for major maintenance and future dredge replacement. It also provided for a number of other important initiatives described elsewhere in this report. Total expenses were budgeted at \$253,000 for FY’12, and we developed a plan to raise the money necessary to fund it.

[Although FY’12 financials have not yet been audited, the numbers presented herein may be considered very close estimates.]

Contributions for the year totalling \$169,100 came from 46 generous individuals who live around the Pond, including 15 who gave \$5,000 or more. Two of these donors contributed \$15,000 or more, and another two donors gave between \$10,000 and 14, 999 each.

CAMPAIGN ACTUALS FOR FY 11/12		
LOCATION	Actuals	Donors
Boldwater	\$ 102,650	33
Kanomika	\$ 41,450	11
Jobs Neck	\$ 5,000	1
Herring Creek	\$ 20,000	1
Crackatuxet		
Turkeyland		
Other Pond		
Grand Total	\$ 169,100	46



While total income for the year was \$83,000 less than planned, expenses were down, due to prudent management and less dredging time than planned. Total expenses came in at \$112,713, a little more than \$61,300 below budget. We also designated an additional \$50,000 to be held in reserve for future dredge maintenance replacement. We spent about \$70,000 less dredge-related capital than planned; the operating cost of the dredge was about \$23,000 less than expected; we spent about \$13,000 less in Science, Education, and Permitting; and we put \$12,000 less in reserve than we originally planned. As a result, our revenues during the year were \$67,664 greater than our expenses.



Even with significantly lower expenditures, we managed to accomplish a lot. As you will read in the rest of this report, the dredging effort continued, and the third year of oyster restoration was very successful. As a result, the Pond is much healthier than it otherwise would be. Lastly, after extensive experimentation and consulting with highly qualified experts, we implemented a plan with the University of Massachusetts School for Marine Science and Technology to conduct a circulation study to determine whether dredging other sites on the Pond would be beneficial. If so, the study will provide a starting point for work with the regulatory authorities and will be useful throughout the permitting process.

FUNDRAISING PLANS

To cover expenditures for the coming year a fund raising goal of \$225,000 has been established As we reported to you last year, one of our goals for FY’11, FY’12 and FY’13 is to develop the funding sources necessary to sustain the work of the organization without having to rely as much on the same individual donors who have supported the GPF in the past.

Our plan is to diversify our funding base by:

- 1. continuing to broaden the support from those living around the Pond,
- 2. gaining support from people who live elsewhere in the watershed,
- 3. building on our good relationship with the town of Edgartown to gain financial support for operating the dredge in the Pond,
- 4. creating new income opportunities by discussing private dredging contracts with groups from other ponds, and
- 5. securing grants from foundations and government agencies that care about our work.

We will discuss this plan at neighborhood association meetings throughout the summer, as well as at meetings with individuals or small groups of donors and potential donors.

Your continued support is very much appreciated



POND ENHANCEMENT PROJECTS	IMPROVED CIRCULATION	INCREASED SALINITY	REDUCED NITROGEN	PARTICIPATING PARTNERS
Cut Through Barrier Beach to the Sea	X	X	X	Town of Edgartown
Oyster Restoration		X	X	Shellfish Commission, MV Shellfish Group
Dredge Delta Channel to Opening	X		X	Dredge Committee, Aquamarine Shellfish Commission
Dredge Other Permitted Areas	X	X		Shellfish Committee, Dredge Committee
Seek Dredge Permits - Other Areas	X	X		Shellfish Committee, Dredge Committee
Water Quality Monitoring			X	Mass. Estuaries Project, Town of Edgartown
Manage Invasive Plant Species				Nature Conservancy, Sheriff's Meadow Foundation
Reduce Local Fertilizer Use			X	Property Owners in Watershed
Algal Bloom Research & Remediation			X	Woods Hole Oceanographic, URI Marine Science
Support Responsible Development Rules			X	Planning Board, MVC, Ponds Advisory Committee]
Support Existing Sewer Developments			X	Wastewater Commission
Monitor Nitrogen Plume (test wells)			X	Town of Edgartown, Nature Conservancy, MVC
Public Education Programs			X	Various
Monitor New Dentrification Technologies			X	MVC, Board of Health

The Great Pond Foundation is a 501(c) (3) tax-exempt organization. Financial support for the organization is provided largely by contributions from individual donors. The fiscal year of the Foundation runs each year from July 1st through June 30th. Tax returns filed by the Foundation are available for public inspection on our website www.greatpondfoundation.org



Dredge Permitting and Operations...

John Coskie, Director of Special Projects

IDENTIFYING THE THREAT TO GREAT WATER QUALITY

Water quality of all the ponds along the south shore of Martha's Vineyard has become an increasing problem. The primary culprit is nitrogen loading, which ultimately leads to eutrophication or a die-off of a pond. Nitrogen is introduced in many ways, the most common today being septic systems, bird droppings, and the debris from the natural death of flora and fauna. The 2008 Massachusetts Estuaries Project analysis of the Edgartown Great Pond determined that nitrogen loading has degraded the water quality of the Pond and had an adverse affect on flora and fauna.

ONE SOLUTION: BREACHING THE BARRIER BEACH

The same study cited breaching of the barrier beach to the Atlantic Ocean as a critical activity to restoring and maintaining water quality and health of the Pond. The breach facilitates an exchange of "dirty" Pond water with fresh sea water. Storms have always been responsible for naturally breaching the barrier beach, albeit infrequently and unpredictably. Seventy years ago Islanders, armed with shovels and with ox drawn plows, began manually breaching the barrier beach to facilitate cleaning the Pond water. Today, four times a year the Town of Edgartown, at the direction of the Shellfish Constable, "cuts" the barrier beach with earth-moving equipment to enable this cleaning action.



Whether made by storms or done manually, such breaches, while generally beneficial, introduce sand which forms a delta inside the Pond. This delta has a limiting effect on subsequent openings. A solution to improve the productivity of the openings of the Pond to the ocean is to dredge a channel through the delta to the area where the cut is made.

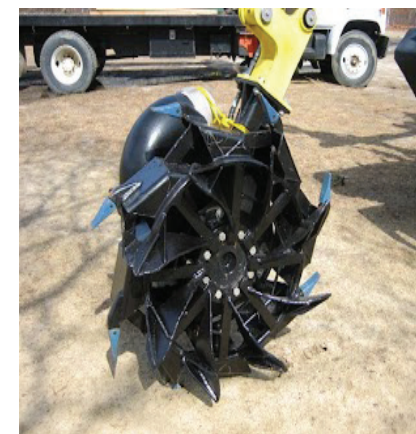
The Town of Edgartown has various permits with State and Federal regulatory agencies that allow for dredging during the late fall into winter and late winter into early spring. This is to protect piping plovers, shellfish and finfish during the warmer months.



DREDGING ACTIVITY

The Foundation, with the generous support of many donors, acquired a dredge and began coordinating dredging within the Edgartown Great Pond during the winter of 2008. Since that time, we have dredged for four to eight weeks each fall beginning on November 1st and again in late winter, generally beginning around March 1st and ending on March 31st. Ice on the Pond tends to be the reason we stop dredging or delay our start.

This past winter we experienced for the first time several setbacks that limited our dredging productivity. The first setback came with the Halloween of 2011 storm. While many places along the East Coast received several feet of snow, the Island received high winds and heavy rain. The winds and tides caused the recently closed cut to reopen. This was followed by several days of washovers. We dredged for approximately one week over a four week period of persistent high winds.



Cutting during cold weather can result in shellfish die-off as the temperature and the water level of the Pond drops. Last year the colder than normal early winter resulted in the cut being made on December 12th, earlier than normal. We launched the dredge during the first week of March 2012; however, a mechanical malfunction took us out of commission for a week. We dredged for approximately one week until the spring cut was made on March 15th. This was almost three weeks earlier than normal due to optimal tides.

We anticipate to getting back on track during the winter of 2012/2013.



Science & Education...

Robert Woodruff, director of Science & Education

OYSTER RESTORATION PROJECT NOW IN ITS FIFTH YEAR

Two Great Pond Foundation student interns, Marco and Ava Petricone of Edgartown, again are hard at work assisting veteran shell fisherman Boo Bassett, Field Manager of the Oyster Restoration Project. Each year, millions of oysters are spawned and reared in the MV Shellfish Group's hatchery on Lagoon Pond. After reaching a couple of millimeters in size, the larvae are placed in tanks at Kanomika Point and fed with warm food-rich Pond water. Upon reaching the size of a pencil eraser, the "spat" are placed in floating mesh cages in the Pond, safe from preying crabs. In the fall, after reaching teaspoon size, they are released into the Pond at specific locations known to be successful oyster habitat.

As of August 2012, some 2 million oyster larvae are thriving in the Kanomika nursery tanks. Meanwhile, last year's oyster "seed," having successfully overwintered, are growing toward maturity. Aside from predation by a bumper crop of blue claw crabs, the population is doing well. Adult oysters can filter as much as 15 gallons of water per day, removing significant amounts of nitrogen from the Pond. Fostering a thriving oyster population in Edgartown Great Pond not only provides us with a delicious food, it is essential to maintaining a healthy Pond ecosystem.



BARRIER BEACH MIGRATION

While standing on the South Beach on a beautiful August day with a moderate southwest wind blowing and Sanderlings foraging up and down the slope of the beach with each breaking wave, one has the impression the beach is a tranquil place.

Nothing could be further from the truth. As I originally wrote this piece, in the spring of 2010, a raging southeast gale was attacking the Vineyard's South Shore, sweeping away untold volumes of sand, as the wind and waves have done for millennia. Now in the summer of 2012, thousands of people are basking in the sun along the South Shore, again with a moderate southwest breeze, and the last thing on their minds is the fragility of the barrier beach.



Yet, in the intervening two and one half years the Edgartown Great Pond barrier beach has been battered by Hurricane Irene (August 2011), and several winter gales. A significant portion of the barrier is now virtually devoid of vegetation (creating ideal nesting habitat for terns and plovers) and has been overwashed several times. The barrier has retreated another 20 feet or more. Along the Island's south side the sea claims from two to twelve feet or more per year, with the worst erosion at Wasque and the least at Squibnocket, armored as it is with granite boulders. Fortunately, as the shoreline retreats landward, the barrier creating and protecting the Great Pond remains relatively stable in width, because the beach is constantly being "nourished" as the longshore current moves the sand from west to east.

What does all this mean for the future of the Great Pond? With an average annual recession of the barrier of about ten feet at this location, the Pond loses about an acre per year. Edgartown Great Pond is a little over 800 acres, so it and all the other ponds on the south side can be expected to be gone by the year 2800. That is the good news. The bad news is that the predicted doubling, if not tripling, of the rate of sea level rise in the coming century will accelerate the recession of the barrier. No one knows just how much, but one is left with yet another compelling reason to address climate change.

2011 EDGARTOWN GREAT POND WATER CIRCULATION STUDY

On August 5, scientists from the University of Massachusetts School for Marine Science and Technology (SMAST) began a circulation study of Edgartown Great Pond, under a contract from the Great Pond Foundation. They deployed electronic instruments at twelve strategic locations in the Pond, gathering data at fifteen minute intervals. Parameters included temperature, oxygen, salinity, turbidity, and chlorophyll levels. The plan was to gather data prior to the August 15 Pond opening, through to the end of the month, when the Pond would have exchanged “old” (warm, nitrogen enriched, less saline water), for “new”(cooler, low nitrogen, full salinity water). Hurricane Irene intervened and slightly truncated the time frame, requiring the instruments be retrieved on August 25 as the storm was approaching.

Goals of the study were to determine:

- Rate of horizontal mixing of seawater with Pond water, following the cutting of the breach.
- If bottom contour restrictions exist that slow flushing of tributary basins to main Pond.
- If “old” and “new” Pond waters stratified, resulting in low oxygen levels following the breach.

Results of the study:

- Dense, colder ocean water enters and moves freely through the main basin of the Pond.
- There is no significant impediment to the mass of water moving in the Pond.
- However, all sub-basins (including coves) experience a significant time lag before “new “water enters.
- Constrictions caused by higher elevations of cove bottoms, (or shoals at their mouths), cause impeded water flows in the coves.
- The main water stratification occurs in the deeper basins in the main Pond.

Many of these findings were anticipated by the scientists. Nevertheless, the study provides us with hard scientific data that will be useful as we explore possible dredging projects in the Pond where increasing circulation would improve water quality and environments for shellfish, fin fishes, and eel grass.

WATER QUALITY MONITORING 2012

The National Weather Service reports that July was the warmest on record for Massachusetts, and that the period January through July was also the warmest on record. Is it any wonder that the water temperatures in Edgartown Great Pond are also at record levels, in the high 80’s?

The high temperatures create an ideal environment for algal growth, but too much algae in the Pond has resulted in poor water clarity this summer. While algae are the food source for oysters and clams, an overabundance of algae dying in the Pond could also create anoxic [decreased level of oxygen] conditions that would be detrimental to the Pond and its flora and fauna. To address this problem, we feel that it is critical for the Pond to be opened in early August and that having successful openings last at least ten to twelve days.



Chris Carroll, formerly with Vineyard Engineering and current caretaker of a large Pond front property, is now the water quality technician for the great Pond Foundation. Living on the Pond, Chris is in a unique position to do this important work of taking several measurements at each of eight stations around the Pond, before and after each opening.

The data are analyzed in a lab on the mainland and made available to stakeholders involved in management of the Pond. As data become available we will post the information on our website www.greatpondfoundation.org.





We would like to hear from you!

Having established ourselves as a small but vibrant organization, we would like to reach out to all our neighbors in the Great Pond Watershed. We need to hear from you about anything concerning the Pond that you believe might be important. We also welcome your questions on any of our projects. We hope that you will join us in our efforts to care responsibly for this great resource. Your tax-deductible donations would be greatly appreciated as well!

Where to find us:

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