



# BAYWATCH

Volume 15 Issue 1

JANUARY 2012

CITIZENS FOR THE PROTECTION OF WAQUOIT BAY CPWB

## TO CPWB Members

The Citizens for the Protection of Waquoit Bay, CPWB, originated on December 1, 1981 and was incorporated in January 1982. The main objectives of CPWB have been protecting Waquoit Bay from development and educating people about the environment. We have succeeded in these tasks. In the Fall of 2010 WBNERR Management expressed the need for major funding to fill widening gaps in public fund raising for current operations, and to support further growth. The CPWB Steering Committee feels a larger role to raise capital funding is not a task we or our membership can fulfill.

The time has come for CPWB's Steering Committee to examine how CPWB is supporting WBNERR. In recent years there have been no new land issues requiring CPWB involvement. Science classes at the reserve continued under the Reserve staff's careful guidance, steadily growing in community recognition. CPWB membership is committed to our main goals while not having the time to join the leadership in the CPWB Steering Committee. Membership has supported our yearly raffle and the recent garden tour. The responsibility of maintaining financial accounts for the Friends Group and Citizen's accounts has grown. It was time to evaluate staffing requirements to support the Steering Committee and Reserve management.

WBNERR arranged for the Steering Committee to meet with a National Estuarine Research Reserve Association, NERRA, staff person to assist in looking at how we could grow CPWB. In this process it became evident that our tasks of looking after the environment of Waquoit Bay and supporting the education programs continue to be our main goals. The Reserve management explained that they have been level-funded by NOAA for the past 5 years. This amounts to a decrease, since staff salaries and utility costs continue to go up. Given the current fiscal climate, the best they can hope for in the near future is level-funding, and cuts are likely. In order to continue state-of-the-art programs and services they provide, there will be a need for expanded fundraising. The need to update current offices, labs, and the visitor center will require major funding. It was not within our current membership to take on either the operational or capital fund campaign. Therefore a new Friends Group to financially support the Reserve for the future has been recruited.

Our task to manage the Reserve's accounts for processing grant funding continues. The state has created guidelines for finance that required more responsibility for CPWB's treasurer. We hired a part time staff person; she manages the grant paperwork required by the state for reimbursement. Our treasurer writes all checks while the assistant organizes the expenses and tracks the grants. Our volunteer treasurer has covered this position for 15 years, with an occasional volunteer assistant. This is a function that will transfer to the new group.

WBNERR has grown to cover not only student education but coastal management courses reaching administrators in towns and cities dealing with watershed problems. The summer programs are run by teachers employed by CPWB. College and high school interns are used to assist with research and administration by the Reserve in the summer months.

We are advising CPWB membership of our notice to continue support for WBNERR while the Reserve Management creates a new Friends Group whose purpose will be raising needed operating and capital funds and taking over the financial processes performed by CPWB in support of the Reserve. Restructuring CPWB by hiring a full time

director has been explored. At the November 7<sup>th</sup> CPWB Steering Committee meeting Alison Leschen introduced members of the new Friends group called Waquoit Bay Reserve Foundation.

The CPWB Steering Committee will assist the Reserve Management in its transition to the new Friends Group. CPWB will remain an environmental group continuing its interests in protecting Waquoit Bay from development and being a voice in the community

Your Steering Committee Directors:

Mike O’Leary, President; Bob MacFadyen, Treasurer; Chuck Olive, Secretary

Jayne Abbott, Hank Bode, Charlie Boselli, Toni Grady, Maureen Jankauskas, Bob Millard, George Noyes, Matt Patrick

## **Instrumentation for Monitoring Rivers Entering Waquoit Bay**

*By Vitalii Sheremet*

Two major rivers entering the Waquoit Bay are Childs River and Moonakis River. Both originate at John’s Pond. They provide substantial input of fresh water and represent distinct tidally dominated estuarine systems where salt and fresh water masses interact and mix. The Childs River exhibits strong seiche type oscillations that strongly affect the fresh-salty water exchange. The Moonakis River at its mouth has an issue with sand transport that may block and silt the estuarine system.

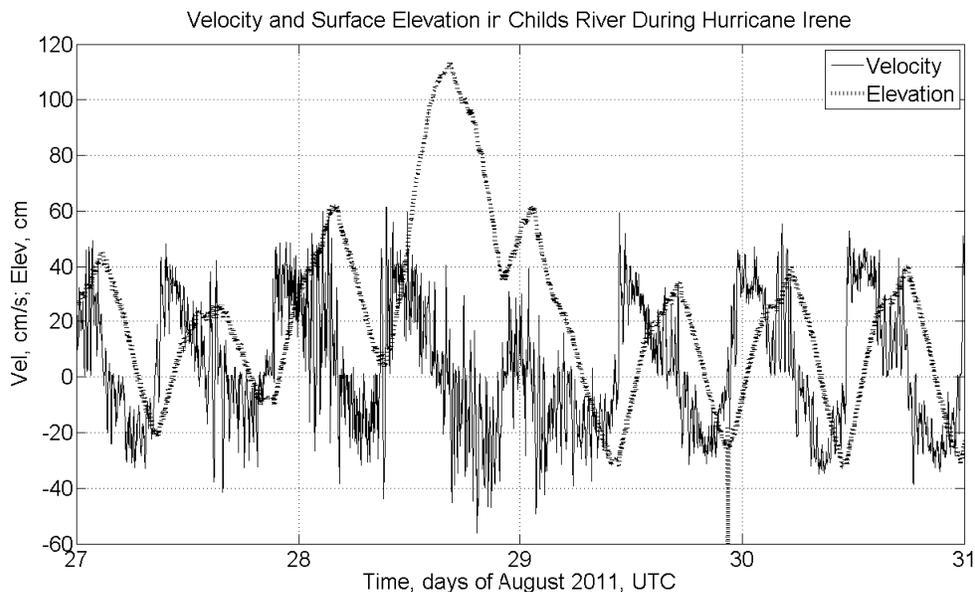
With the support from a CPWB grant two inexpensive current meters and five tide gauges were deployed in these rivers this summer in order to better monitor the fresh water flow. One of the tide gauges is shown in the photograph below. It consists of a buoy attached to a freely swinging arm. As the water level changes due to tide the buoy moves up and down and the electronic sensor logs the tilt of the arm, which is then converted to the elevation of water surface. The tide gauge can be attached to a pole or to a dock piling, the latter is more accurate. The author is grateful to local residents who allowed using their docks for attaching the tide gauges in the Childs River.



Following the test deployments some modifications were made in order to improve the instruments performance. Some issues with the bio-fouling and debris trapping were investigated. The anti-fouling paint EP2000 (made by a local company ePaint) is now used. It is a non-toxic paint approved by the EPA. During the coming winter the performance of the instruments will be analyzed with regard to the effect of icing and snow accumulation.

The deployed instruments survived the passage of the hurricane Irene in late August of 2011. In the figure below you can see the records of currents (thin solid line) and surface elevation (thick dotted line) at one of the sites in the Childs River (under the Highway 28 Bridge). The hurricane caused an anomalously high tide on August 28, raising the sea level 70cm (about 2ft) above its normal tidal range: the peak in the middle stands significantly higher than the other seven in the plot. The other curve with multiple wiggles reveals that the current under the bridge moves back and forth not only due to the tide that comes twice daily (about every 12 hours) but also due to seiches (about every 30 minutes). The seiches are oscillations similar to water sloshing in a bathtub. The period of a seiche depends on the shape of the basin and equals the time for the surface wave to travel across the basin back and forth. In case of the Childs River it takes about 15 minutes for the wave to travel from the Menauhant Yacht Club to the Edwards Marina and 15 minutes more to travel back.

Following the quality control and validation processes the collected observational data will be included into the WBNERR data archive and will be used by other scientists working at the reserve. Further analysis of currents and tides in the Waquoit Bay will be submitted for publication in oceanographic journals such as the Journal of Marine Research.



## Exciting New Developments at the Reserve

*By Alison Leschen, Reserve Manager*

### Grant for Facility Upgrades

A lot has been happening at the Reserve this year. We were awarded a \$1 million grant from NOAA and DCR for facility upgrades. A new green maintenance garage will be built over by the Gate House. This will enable us to work on boats and trucks in the winter, and store valuable boat engines and other equipment out of the weather. In addition, all of the “stuff” associated with maintenance that’s now in the center of campus – boats, trailers, lumber, dumpster, etc., will be moved over by the new building where it won’t be visible to the public. The main parking area will be moved, and the area around the Carriage House will be planted with native landscaping, rain gardens, etc. A new kiosk will orient people to the site and provide a seating area for children while they’re waiting to get picked up

after Science School. The entrance will be widened, new signage and lighting installed to make for a safer, more appealing entrance that makes it clear the public is welcome.

Other site improvements include rain gardens and vegetated swales to improve stormwater management (goodbye to the “Grand Canyon” that forms on the way to the lower parking lot!), a new path to the Visitor Center, more interpretive signage – in short, we want the campus to be welcoming, attractive, interesting, educational, and a demonstration of some of the principles we teach.

By moving maintenance out of the Carriage House, space will be freed up for another classroom, staff lab, visiting researcher lab, and office for our Research staff – all by just adding a couple of windows, doors, and sinks. We are working closely with the state archeologist and historic specialist to be sure that we maintain the character of the property that everyone loves. The grant will also pay for upgrades to our Visitor Center exhibits and a research dock (dock will be removable and much smaller scale than the one proposed a few years ago). We often hear from people that they have driven by for years, but never knew if they could come in, or what we do here, or they drove in but got confused in the parking lot and left again. This plan addresses issues of access, clarity about what we do, aesthetics, and function.

### **Climate Change Grant**

The Reserve and partners were also just awarded \$1.3 million grant by the NOAA National Estuarine Research Reserve System (NERRS) Science Collaborative to examine the role that salt marshes play in taking up carbon dioxide and offsetting climate change and the effect that nitrogen pollution has on that role. The three-year project will quantify how much carbon in the form of greenhouse gases (GHG) is stored and emitted from coastal wetlands, and how increases in nitrogen affect their ability to store that carbon.

Carbon dioxide, nitrous oxide and methane are potent greenhouse gases (GHG), which contribute to global warming by trapping heat in the atmosphere. While it is well known that forest ecosystems store large amounts of GHG carbon—a process popularly known as “Green Carbon”—and help reduce global warming, new research is focusing on so-called “Blue Carbon” in coastal wetland ecosystems such as mangroves, seagrasses, and salt marshes. Recent findings suggest that coastal wetlands may sequester and store carbon at rates 3-5 times greater than temperate forests, making them efficient—and essential—carbon “sinks,” as world temperatures rise.

But data indicate that when nitrogen from sources such as septic systems, stormwater discharges, fertilizer runoff, and airborne pollution is added to coastal marshes, their ability to store carbon may be substantially reduced. In extreme cases, coastal wetlands may even become net “sources” of GHG and thus contribute to climate change.

WBNERR is particularly interested in the project because it addresses two of the most significant issues facing coastal communities today – climate change and nitrogen pollution. Most of the field work will take place at the Reserve’s salt marsh at South Cape Beach in Mashpee, which is being set up with infrastructure to measure sea level rise and its effect on this important ecosystem as part of a NERRS-wide bio-monitoring project. Scientists can link findings and end-users who will apply the science to better manage the coast.

The project is a collaborative effort of WBNERR, the NERR Association, United States Geological Survey (USGS) and the Marine Biological Laboratory (MBL) in Woods Hole, the University of Rhode Island (URI), Restore America’s Estuaries, Manomet Center for Conservation Sciences, and Florida International University.

*Material from this article is taken from two recent press releases, to read the full release and other Hot Topics go to: [waquoitbayreserve.org](http://waquoitbayreserve.org).*

## CALENDAR Notes for 2012:

**CPWB Steering Committee Meeting** – January 9<sup>th</sup> at 6:00pm at the Visitor Center

**CPWB Annual Meeting** – July 13<sup>th</sup> at 5:30pm

**WBNERR Block Party** – August 7th

**CPWB's January newsletter for 2012 is sharing with our members the research, education and staff news to keep you informed. We hope you are as excited about the material to continue your support and active participation in the coming year. Please join us at the next CPWB meeting at WBNERR.**

### Membership CPWB

Our membership year runs from July 1<sup>st</sup> through June 30<sup>th</sup>. Please check to see if your membership is current.

\$ 10.00 Membership                       \$ \_\_\_\_\_ Contribution

Names: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email Address \_\_\_\_\_

Summer Address: \_\_\_\_\_

I would like to be on the Steering Committee \_\_\_\_\_

I would like to work on the CPWB project \_\_\_\_\_

Volunteer to assist with fund raising and raffle event \_\_\_\_\_

I would like to assist with BAYWATCH Newsletter \_\_\_\_\_

*Please make checks payable to CPWB, P.O. Box 3021, Waquoit, MA 02536*

Your \$10.00 membership fee supports educational programs. CPWB thanks the members who give additional contributions. We are committed to providing critical support through our membership base to support WBNERR.

# **BAYWATCH**

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Citizens for the Protection of Waquoit Bay (CPWB)

P.O. Box 3021

Waquoit, MA 02536

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