



The Barnegat Bay Beat

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A Splash of a First Fundraiser!

The Barnegat Bay National Estuary Program (BBNEP) made quite a splash at the NJ State Ice Cream Festival for their first fundraising effort sponsored by WOBN Millennium Radio NJ. A dunk tank featuring a new face to dunk every hour included the following participants: Dr. Jon Larson, President, Ocean County College; Greg Heizler, Esq., Novins York Pentony & Pagano, PA; Karen Hershey, Island Heights Councilwoman and NJ DEP Communications Officer; Tom Hansen, Owner and Founder of Grumpy's Tackle, Seaside Park; and Chris Claus, Chief Park Naturalist, Cattus Island County Park.

Despite a rainy start to the day, over \$600 was raised. The funds will be used to aid the BBNEP in their implementation of the Comprehensive Conservation and Management Plan for the Barnegat Bay and its watershed. This includes such core activities as water quality monitoring, habitat protection, and stormwater management initiatives.

"This event is the BBNEP's first coordinated fundraising effort, but it will not be the last. With an increasingly tight federal budget forecasted for the National Estuary Program, the BBNEP, like many

other National Estuary Programs around the country, is trying to be proactive in establishing a stable base of funding to ensure a sustainable and self-sufficient future for the management of this important estuary-- Ocean County's prized natural resource--the Barnegat Bay," stated Jeanine Cava, BBNEP Program Associate.

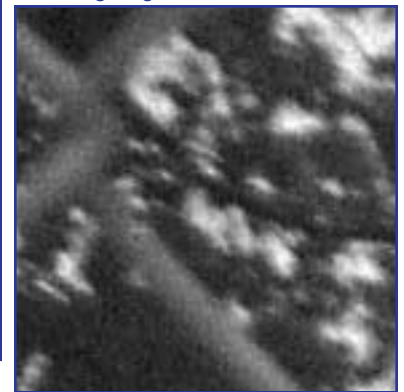
Grumpy himself, the most dunked of all!



Chris Claus smiles before the dunking begins!



Greg Heizler tries to stay dry, but the umbrella offers no protection.



Karen Hershey remains fearless!



The OCC Viking hits the target on the first toss to dunk Dr. Jon Larson.

Getting to Know Our Neighbors -- Sea Nettles

A special thanks to Dr. Michael Kennish from the Institute of Marine and Coastal Sciences, Rutgers University for providing information for this article to the BBNEP.

Sea nettles (*Chrysaora quinquecirrha*) have in recent years become more abundant in estuaries of the Mid-Atlantic region. These stinging jellyfish are a serious nuisance on bathing beaches because of their large size and numerous stinging cells (nematocysts). Although the species ranges from Cape Cod south to the Gulf of Mexico, it reaches greatest numbers in Chesapeake Bay. Peak numbers occur in mid to late summer when water temperatures exceed 77 °F.

Adult sea nettles are free-floating forms that have a well-developed, bell-shaped cap (> 10 cm in diameter) from which an array of tentacles extend downward toward the seafloor. The tentacles, which can be more than 1 m in length, contain numerous nematocysts that pose a threat to pelagic organisms and a hazard to unsuspecting swimmers. The unusual anatomy of sea nettles and other jellyfish species enables them to be transported considerable distances by estuarine and nearshore ocean currents.

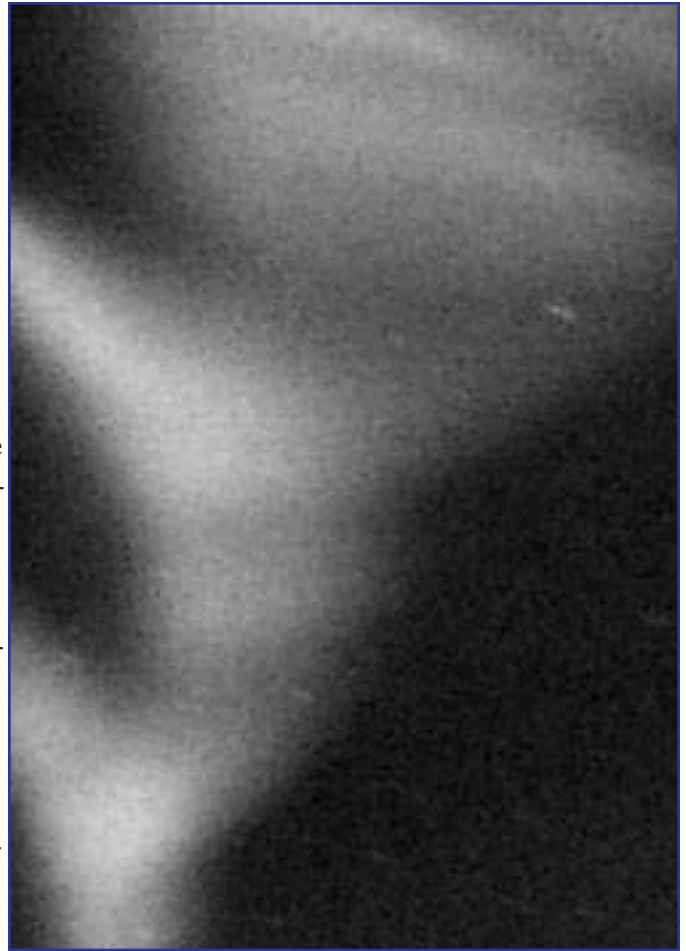
Sea Nettles in Barnegat Bay

Sea nettles have only recently become a serious problem for human use of New Jersey's coastal bays. Prior to 2000, sea nettles were not present in the coastal bays in elevated numbers. However, between 2000 and 2004, periodic blooms of the jellyfish occurred in various areas, most notably the lower salinity waters of the Barnegat Bay-Little Egg Harbor Estuary. The summer of 2004 was particularly problematic. Mid-summer abundance maxima were recorded then, with highest concentrations found north of the Toms River in embayments from Silverton to the Metedeconk River. A serious eruption of sea nettles occurred in the estuary during the summer of 2006.

The Barnegat Bay-Little Egg Harbor Estuary is a highly eutrophic system, meaning that its waters are over-enriched with nutrients (notably nitrogen) and excess organic carbon loading. Research scientists at the University of Maryland, who have studied sea nettle problems in Chesapeake Bay, indicate that the jellyfish blooms are coupled to elevated nutrient levels associated with fertilizer runoff and other watershed waste inputs. Therefore, the co-occurrence of sea nettle blooms and high nutrient inputs (>1 million kilograms per year of nitrogen to Barnegat Bay) infers a direct link to human activities in coastal watershed areas. A similar relationship has been established in Chesapeake Bay and its watersheds.

What Causes the Abundance of Sea Nettles?

Many scientists believe that excess nonpoint source (NPS) pollution leading to elevated levels of nutrient levels is attributed to elevated jellyfish. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. Now, more than 60 percent of water pollution comes from NPS pollution such as cars leaking oil, fertilizers from lawns and gardens, and failing septic



In the Classroom

2006 EstuaryLive Programming

EstuaryLive kicked off the 2006 National Estuaries Day celebration on September 29, 2006, by offering free live Internet field trips to four different estuaries around the coun-



try. Designed as interactive field trips for classrooms, this program can be viewed by anyone, anywhere in the US! Join a field trip and teach by experiencing the nation's coasts – without ever leaving your school.

During the programs, naturalists from NOAA's National Estuarine Research Reserve System and the U.S. EPA's National Estuary Program take participants on a journey through each unique ecosystem.

It's not too late to take part in previous amazing field trips! Visit <http://www.estuaries.gov/elive.html> for more information.

New Updates for www.bbep.org

Visit the newly expanded Barnegat Bay Resources page at <http://www.bbep.org/resources.htm> and visit our page specifically designed for educators!

Our Neighbors... (cont. from page 2)

tanks. Visit our NPS pollution page for more information on what you can do to help!

Global warming may be another factor in the northward expansion of jellyfish blooms in U.S. estuaries. Sea nettles thrive at temperatures above 77 °F, and the warmer summer temperatures during the past two decades have probably fostered this expansion. Increasing nitrification of bay waters, together with rising water temperatures, spells trouble for susceptible estuarine environments.

Solutions

There are no quick solutions. Remedial actions that involve physical removal of sea nettles from estuarine waters are rarely successful once the jellyfish take up residence. Attempts to net and remove jellyfish may actually increase their distribution and abundance. The jellyfish larvae occur as cysts in parent tissue that then can be released by physical destruction of the jellyfish body by netting or other damaging

shots to the body of the organism. The larvae can then be dispersed by currents while developing into later life stages.

Probably the best approach is to reduce pollution inputs and eutrophic conditions in the estuarine waterbody. Water quality alteration must also be minimized by improving pollution controls at the watershed source and by instituting best-available stormwater controls. In addition, greater enforcement of environmental regulations is necessary, as is the establishment of nutrient criteria (which currently do not exist) for coastal waters. Therefore, the long-term solution to the sea nettle problems in New Jersey's coastal bays requires more effective administrative/management intervention.

Treatment for Stings

According to *Maryland Marine Notes*, "there are several things that you can do if you get stung. If bits or pieces of tentacles are still on the skin, pour alcohol or baby powder on the area. Alcohol will stabilize the nematocyst so that it will not be triggered. Powders do the same by drying the cells out. Without such treatment, tentacles which are disturbed may release additional nematocysts, causing additional irritation and swelling.

Next, apply diluted ammonia, sodium bicarbonate (baking soda), vinegar or meat tenderizer to the area to relieve pain. Meat tenderizer is one of the best sources of relief from stings. Add a small amount of water to the meat tenderizer to make a paste and smear it on the inflamed area. Meat tenderizer is an enzyme which breaks down proteins. Jellyfish venom is made of protein and is consequently destroyed by the meat tenderizer."

Do Bulkheads Negatively Affect Barnegat Bay's Ecology?

Paul Jivoff, Rider University Assistant Professor

Natural shorelines, including marsh and shoreline beaches, are critical for maintaining the ecological health of estuaries by stabilizing the shoreline, reducing erosion, and providing critical habitat for commercially and ecologically important aquatic species. Over the past three decades, Barnegat Bay has lost a greater percentage of natural shoreline to coastal development than most estuaries in the mid-Atlantic region. Specifically, 36 percent of the natural shoreline in Barnegat Bay has been bulkheaded, representing a significant loss of natural habitat, particularly marsh and shoreline beach. Bulkheads extend out from the original shoreline creating more water turbulence which



removes sediment and decreases water clarity. Bulkheads also eliminate shallow aquatic habitats that are especially important as refuge areas for small organisms and the juveniles of large organisms. As a result, the areas in front of bulkheads typically have a reduced abundance and diversity of organisms that live along the bottom, as well as in the water column. Most of the previous research on the effects of bulkheads has been done along the west coast. We have very little information on how bulkheads have influenced aquatic habitats or organisms in New Jersey estuaries. In the summer of 2005, with funds from the Barnegat Bay National Estuary Program, two Rider University undergraduates and I compared the sediment characteristics, depth profiles, species diversity and abundance of fish, crabs and shrimp in front of bulkheads and two natural shorelines (marsh and beach) in the Little Egg Harbor portion of Barnegat Bay.

Some important physical characteristics of the habitats in front of bulkheads were very different than natural shoreline habitats. Sediment composition differed among the shoreline types with bulkheads containing more large-sized sediment than either beaches or marshes. This is consistent with more turbulent water flow in front of bulkheads as compared to the natural shorelines. In addition, bulkheads lacked shallow water (less than 1 meter or 3 feet deep), but both beaches and marshes were dominated by shallow water suggesting that natural shorelines offer far better refuge habitats for small organisms. The water characteristics, including water temperature, salinity, and dissolved oxygen, were very similar among the different shoreline types suggesting that any biological differences among the shorelines can not be attributed to these factors.

Bulkheads were biologically very different than natural shorelines. There were fewer species of fish, crabs, and shrimp at the bulkheads as compared with either natural shoreline. We captured 28 species at the beaches, 26 species at the marshes, but only 18 species at the bulkheads. The abundance of fish, crabs, and shrimp was also greater at the beaches and marshes as compared to the bulkheads. The juveniles of several commercially and/or recreationally important species, such as blue crabs, spot, kingfish, and bluefish, completely avoided the bulkheads. Our results suggest that the habitats in front of bulkheads are not as biologically rich as areas in front of natural shorelines, which may be due to physical changes caused by the bulkheads.

ON ANOTHER NOTE:

The *State of the Bay Report 2006* continues to be one of our most-requested publications. If you would like to request a copy for yourself, or multiple copies for your group, please contact Mary Judge at 732-255-0472 or mjudge@ocean.edu. An electronic version can be found on our website at <http://www.bbep.org/downloads/fallo5.pdf>



For the Good of the "COZ"
Federal Legislation Introduced to Permanently Protect the NY/NJ Bight
Kari Jermansen, Outreach Director for Clean Ocean Action

Recently, the Barnegat Bay National Estuary Program (BBNEP) joined a list of 100 organizations that support federal legislation to permanently protect the waters of the New York/New Jersey Bight from polluting activities. Clean Ocean Action and the groups and citizens that support the "New Jersey/New York Clean Ocean Zone Act" or H.R. 5872, welcome the BBNEP to the campaign.

The NY/NJ Bight is an ecologically rich area and host to many industries and activities that depend on clean and healthy waters. The Bight is defined as the waters from Montauk Point, NY, to Cape May, NJ, and offshore to the outer edge of the Continental Shelf (to 100 miles). This area includes over 19,000 square miles of Atlantic Ocean. More than 300 species of fish, nearly 350 species of birds, 7 species of sea turtles, and many marine mammals, such as 10 species of whales and several species of seals and porpoises, frequent this region.

Unfortunately, the NY/NJ Bight has suffered from decades of ocean dumping and pollution. In the 1980s and 1990s, the waters off the NY and NJ coast were known as the "Ocean Dumping Capital of the World" due to eight ocean dumpsites. The region also experienced beaches littered with garbage, medical waste, and sludge balls, and suffered from water quality so poor that it was unsafe for swimming. Today, the NY/NJ Bight continues to be vulnerable to sources of pollution.

On July 24, 2006, US Representatives Jim Saxton (NJ-R-3) and Frank Pallone, Jr. (NJ-D-6) introduced the bi-state Clean Ocean Zone (COZ) bill. Among the ten actions of the bill, it will prohibit new ocean dumpsites, oil and gas exploration and drilling, and the permanent extraction of natural non-renewable resources, including sand and gravel.

"It is time for legislation to lock-in the tremendous path of progress in ocean protection and lock-out pollution," said Cindy Zipf, Executive Director of Clean Ocean Action.

The campaign for the COZ is a project of Clean Ocean Action and a cooperative initiative among organizations and citizens to improve and protect the NY/NJ Bight. A committee comprised of organizations from both states representing various interests, including recreational and commercial fishing, diving, surfing, and environmental, as well as legal counsel, developed the COZ bill.

Reps. Saxton and Pallone are original lead co-sponsors of the bill. Original co-sponsors of the bill are Reps. Robert Andrews (D-1), Chris Smith (R-4) Steven Rothman (D-9), Donald Payne (D-10), and Rush Holt (D-12). In New York, original co-sponsors of the COZ bill are Reps. Tim Bishop (D-1) and Major Owens (D-11).

To date, 100 organizations and 44 municipalities support the COZ, and nearly 16,000 citizens have signed petitions in favor of the bill. As the COZ legislation moves ahead, citizens should contact their US Representatives to urge them to support H.R. 5872. For more information and updates, as well as maps and a list of groups supporting the COZ, visit www.CleanOceanZone.org.



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Please remove my name from your mailing list. There's no more room in my mailbox, but I will be sure to check your website at www.bbep.org.

Mail this coupon to: Barnegat Bay National Estuary Program, at Ocean County College, PO Box 2001, Toms River, NJ 08754-2001, OR email us at: sshinault@ocean.edu

Understanding Groundwater

Mary Judge, BBNEP Program Assistant

Every time it rains, some rain water evaporates back into the atmosphere and some replenishes our lakes, streams, and oceans, but quite a bit of it stays in the ground, trickling down through the soil into porous, sponge-like tables of rock and sand. Most of these formations, known as aquifers, lie within a few hundred feet of the earth's surface and serve as a major source of drinking water.

Unlike bodies of surface water, groundwater flows very slowly through the aquifers, usually at a rate of only tens or hundreds of feet per year, and once it is contaminated, dilution and self-cleaning processes can take decades or even centuries. This underground water table is just as vulnerable to pollution as our air, lakes, and streams. We can no longer think of groundwater as being as pure as it is plentiful, because groundwater is now being contaminated in hundreds of areas around the country by chemicals that could be harmful to our health.

Groundwater can be protected by replacing chemical fertilizers with organic fertilizers and by using Integrated Pest Management* techniques (<http://www.ocscd.org/ocscdbook.pdf>). Pick up after your pets, use biodegradable soap in your outdoor shower, and for washing your car, and never dump used oil or any other chemical products onto the ground. Take advantage of your county's Household Hazardous Waste Day by calling the Department of Solid Waste Management office at 732-506-5047 or their Hotline at 1-800-55-RECYCLE to be placed on their mailing list for the fall and spring Household Hazardous Waste Program. (Pre-registration is required for this program.) Remember, it's up to each and every one of us to do our part to preserve and restore our natural resources.

*According to Michele S. Byers, Executive Director of the New Jersey Conservation Foundation, a 10-year survey of pesticide contamination by the U.S. Geological Survey found that "every surface water sample contained one or more pesticides or degradates [chemicals produced when pesticides break down], in many cases at levels that will kill aquatic life;" and that "one-third of the major aquifers showed similar results, including the Kirkwood-Cohansey aquifer that supplies much of southern New Jersey's drinking water." Log onto their website at www.cleanwateraction.org/njef/PFZ.html to learn how to get your town to declare its public lands pesticide-free zones.

Local Flavors - Cranberry Beach Plum Cheesecake

Recipe from: The Nantucket Holiday Table by Susan Simon

Ingredients:

For the Topping

4 cups cranberries, rinsed and picked over
1 cup beach-plum jelly or red currant jelly
Grated zest and juice of 1 orange
1-1/2 cups sugar

For the Crust

2 cups crushed graham cracker crumbs
1/3 cup sugar
1/3 cup butter, melted

For the Filling

1 pound cream cheese at room temperature
1 pound whole-milk ricotta
1/2 cup sour cream
10 eggs
2 teaspoons pure vanilla extract

Directions:

Make the topping: In a large saucepan over medium-high heat, combine the cranberries, beach-plum jelly, zest and juice of orange, and 1-1/2 cups sugar. Bring to a boil and cook for 5 minutes. Remove from heat and let cool, then refrigerate until cake is served.

Make the crust: In a bowl, combine the cracker crumbs, sugar, and melted butter. Stir to combine. Firmly press the mixture into the bottom of a 10-inch springform pan. Set aside.

Make the filling: Preheat an oven to 375 degrees F. In a large bowl, combine the cream cheese, ricotta, sour cream, eggs, and vanilla extract and stir vigorously. Pour the mixture into the pan and bake for 1 hour, or until the top is slightly brown and the edges are beginning to pull away from the side of the pan.

Refrigerate the cake for at least 12 hours before serving. To serve, release the cake from the pan. Place on a platter and cover the top with half of the cranberries. Let the juice drip down the sides. Use the remaining cranberries to top individual servings.



Where's Barney?



Barney keeps exploring. Think you have the answer to this month's location? Be the first to email the correct answer to mjudge@ocean.edu to receive your Barnegat Bay tote bag.

A Big "Thank You" to our Summer Volunteers, Sponsors, and Donors:

Jane Benson
Chris Claus
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Gangi Graphics
Tom "Grumpy" Hansen
Greg Heizler, Esq.
Karen Hershey
The Intelisano Family
(Silverton Memorial Funeral Home)
Jersey Coast Anglers Association
Rich Kunze
Dr. Jon Larson
Petco
Peter Lopez
Philomena Roselli
Sharon Scro
Toms River Fire Company No. 1
WOBM Millenium Radio NJ

NEWS YOU CAN USE!

How To Dispose Of Old Medication

Most of us were taught to dispose of old pharmaceuticals by flushing them down the toilet to prevent them from being accidentally ingested or misused in some way. This was bad advice! **PLEASE DO NOT FLUSH YOUR OLD MEDICATION!** Our water treatment plants are under no obligation and, indeed, do not have the facilities to clean your septic water of all the chemicals in these drugs. The proper way to dispose of them (until something better comes along) is to keep them in their original plastic container, and send them to the landfill with your household trash. This will keep the chemicals out of the ocean and protect marine life from ingesting some very powerful drugs.



Did you happen to "blow out your flip flop"...or sneaker this summer?

If so, you can send old sneakers to Nike's Reuse-A-Shoe Program, which collects old athletic shoes of any brand and gives them new life as athletic surfaces (playgrounds, running tracks, tennis courts, etc.) To date, the program has kept more than 13 million pairs of shoes out of landfills.

Log on to www.nikereuseashoe.com

FOR THE LATEST AND GREATEST LISTING OF CURRENT UPCOMING EVENTS, PLEASE CHECK OUR WEBSITE AT WWW.BBEP.ORG



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Fishin' for Ideas

We welcome all contributions and story ideas for inclusion into *The Barnegat Bay Beat*. Please contact Shannon Shinault via email at sshinault@ocean.edu for more information.

The Barnegat Bay Beat is a quarterly newsletter produced by the Barnegat Bay National Estuary Program. The Barnegat Bay National Estuary Program is a partnership of federal, state and local interests. Our office is located on campus at Ocean County College, College Drive, Toms River, New Jersey.

The Barnegat Bay Beat

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