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The Tidal Exchange ~E-news~ Of the New York-New Jersey Harbor & Estuary Program

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NY-NJ Harbor & Estuary Program

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Dear Friends of the New York-New Jersey Harbor Estuary,

Many communities, organizations, parks, and other waterfront facilities throughout our estuary and beyond have been devastated by the effects of hurricane Sandy. We hope this e-newsletter finds you well and safe, and we encourage those of you less affected by the storm to volunteer or support in any way you can those who have suffered damage. The HEP team is doing fine and back at the office, and will be taking a look at how to prioritize issues that have become even more pressing to address. We will also be doing our best to keep you informed of the status of the effects of Sandy as they relate to the Estuary and our (and partners') projects over the next few weeks and months.

WHY WAS SANDY SUCH A DEVASTATING STORM?

Many factors combined to make Sandy a destructive force in our region - a record-setting storm. First, its sheer size-this was a massive and powerful storm, spanning over 1000 miles in diameter, that continued to gather strength from warmer than usual waters along the U.S East Coast. Second, tropical cyclones normally move northeast when they approach our coast, but a mass of cold air moving down from Canada steered Sandy into our coast and further fueled the storm's intensity and reach. Third, Sandy hit during full moon, when high tides are higher than average, intensifying the storm surge. Storm surge is the abnormal elevation of water along coastal areas caused by a storm's winds and low pressure. Sandy caused the highest ever recorded tides at The Battery- 9.15 feet above the average high tide line, bringing water levels to 13.88 feet.

Hurricane Sandy at 10:00 a.m. on October 30 (NASA GSFC)

As a result, coastal, low-lying areas were flooded and battered by waves and winds gusting up to 90 mph. This resulted in extensive damage to homes, marinas, and other private property as well as public services such as transportation, electricity, and wastewater treatment plants.

WHAT WAS THE EXTENT OF THE DAMAGE?

After the storm, there were many questions regarding the damage, both in the total economic (up to $50 billion) and environmental impact (particularly water quality and floating debris), as well as the physical extent of where the flooding occurred. Getting a sense of the full geographic extent will require further analysis, based on observed conditions and ground elevation. However, because of our observing systems and evidence of high water lines, we can get some sense of the water levels experienced throughout the harbor, and which areas of our Estuary were hit hardest due to the timing of the surge and the tide (click here for more on the surge extent). In addition, photos are very telling, as is shown in these "before and after " and comprehensive post-storm aerial photos, this map of photos in New York City, and observed water levels at the Stevens Institute's water level gages throughout the harbor.

Wetlands restoration projects such as this in the Bronx seem to have fared relatively well during the storm (Marit Larson)

It is interesting to note that from initial observations by partners, wetlands restoration projects in the Bronx, Jamaica Bay, and Jersey City seem to be minimally impacted by the storm. HEP will keep an eye on how our partners' projects have fared, including wetlands restoration and pilot oyster reefs, and we will update you in real-time via our facebook page and via our e-newsletter as we obtain this information.

A CLIMATE CHANGE CONNECTION?

No single storm can be attributed to climate change as many factors are at play. However, we do know that a warmer climate is expected to increase the intensity and frequency of extreme weather events. Storms gather their strength from the water; the warmer the oceans, the more energy is available to fuel the storm in the form of winds. Warmer air can also hold more water, increasing the odds of unusually large weather systems. Sea level has already risen in our area as a result both of climate change and subsidence, increasing the starting point for storm surge impact.

WATER QUALITY WAS COMPROMISED AND CONTINUES TO BE OF CONCERN

Another concern raised by Sandy that also applies to other storms is water quality. Flood waters will carry any pollutants found in its way, from car and boat fluids, to pathogens, to toxic chemicals from existing contaminated sites. Heavy rains are known to cause discharges of untreated sewage in combined sewer areas and flooded areas thus may contain disease-causing pathogens. In the aftermath of Sandy, even when waters have receded in many areas, many waterways remain affected as several wastewater treatment plants are still off line as they themselves were flooded and/or lost power, causing the release of large amounts of untreated sewage.

Concerns about combined sewer outflow and lack of treatment in areas pervaded after the storm (Riverkeeper)

In addition, at least two oil spills occurred, one in the Arthur Kill and another near Carteret, NJ. The U.S. Coast Guard and spill response teams are working to contain and clean up the spills, and have made progress. It is uncertain as of yet how the habitat surrounding the area will be affected, home to marshes and many wading birds.

Guidance for dealing with cleanup and floodwaters are available from the Centers for Disease Control and Prevention and the Environmental Protection Agency . And, EPA provided additional guidance for areas around the Gowanus Canal. Note that there are current advisories in effect for New Jersey that have been issued for those who might be in contact with the water.

AFTER THE STORM: A CALL TO BUILD RESILIENCE

Storms like Sandy are a painful demonstration of our vulnerability to a changing climate with raising sea levels and more frequent extreme weather events. Lives were lost. Thousands of people were rendered homeless of suffered great damage to their homes. Millions lost power and heat. The whole metropolitan area was disrupted by the lack of transportation.

Following Sandy, a lot of discussion has occurred about what should be done to thwart or reduce future damage, particularly as sea level rise and climate change are only likely to worsen the severity and frequency of these storm events. Discussion ranged from hard engineering solutions to smaller scale solutions. At a minimum, the storm has caused our region to more seriously consider whether and what we build in low-lying areas, and how this infrastructure is designed and protected. There have been warnings and climate adaptation plans developed in the region that take into account storm surge and sea level rise, but Hurricane Sandy provided a devastating glimpse at the extent of the work that needs to be done in the not-so-distant future.

Building resilience into the public transportation system on a small scale by raising subway vents (Washington City Paper).

The storm has raised a conversation in which it is crucial to consider what we need to do to adapt to a new reality, planning and designing for future conditions of increased sea level and frequency of extreme events, rather than planning based on current conditions. Part and parcel to that is a recognition that preserving and improving our natural resources is a critical piece to reducing the short and long-term damage incurred when hurricanes and other extreme events meet our shores. It is also important to keep in perspective that, although some amount of climate change is unavoidable at this point, if we do not act to stop and reverse this trend, the effects can be much more severe in the future.

VOLUNTEER OPPORTUNITIES AND RESOURCES FOR RELIEF

Volunteers clean up after hurricane Sandy in Staten Island

Volunteer opportunities

There are many opportunities for those of us that have not been hit so hard to give a hand to those in need. You can search for opportunities by entering your zip code. Other opportunities:

- Call 1-800-JERSEY-7 (New Jersey only)
- New York City Service (NYC region only)
- Occupy Sandy (both states)
- Please also feel free to share other notices or opportunities at www.facebook.com/nynjhep.

Resources for those affected by Hurricane Sandy:

- New York City area
- New Jersey
- FEMA

HEP AWARDS GRANTS TO INCREASE ESTUARY STEWARDSHIP AND PUBLIC ACCESS

Seven Projects Awarded in 2012

This year, HEP has awarded approximately $57,000 for projects that engage community members to care for and enjoy their shorelines and/or promote education about our shared estuary resources:

- North Brooklyn Estuary Exploration Program, *Human Impacts Institute*
- Raritan Bay & Sandy Hook Bay Stewardship Program for 5th Graders, *Monmouth County Park System*
- Marine Biology Intern Scholarships, *The River Project*
- Gowanus Canal Urban Ecology Lecture Series, *Gowanus Canal Conservancy*
- Days of Fun on Our Raritan River, *Middlesex County Improvement Authority*
- Promoting Access and Stewardship on the Rahway River, *Association of New Jersey Environmental Commissions*
- Hackensack Riverkeeper's Video Series about Combined Sewer Overflows, *Hackensack Riverkeeper*

Intern works with Nina Zain.

For a brief description of these projects, please visit our grants web page: www.harborestuary.org/grants.htm. Here you will find an interactive map showing the location and details of all projects funded to date by HEP.

UPCOMING EVENTS & OPPORTUNITIES

For more events, check out our calendar. To post your Estuary-related event in our calendar, please send us the details!

SAVE THE DATES

November 16 & 17 - *Long Island Natural History Conference* at Brookhaven National Laboratory in Upton, NY.

November 28 & 29 - NJDEP's ***9th NJ Water Monitoring Summit*** at Rutgers' EcoComplex, Columbus NJ. Optional training session on the development of Quality Assurance Project Plans (QAPPs).

May 14 & 15, 2013 - NEIWPCC and Vermont Dept. of Environmental Conservation's ***24th Annual Northeastern Nonpoint Source Pollution Conference*** in Burlington, VT.

FUNDING

American Rivers and NOAA's Community-Based Restoration Program River Grants for dam and barrier removal projects that restore and improve migratory fish habitat. **Deadline: December 7**.

U.S. EPA's ***Environmental Justice Small Grants Program***. **Deadline: January 7, 2013**.

NYC Dept. of Environmental Protection's ***2013 Green Infrastructure Grant Program***. Up to $6 million for green infrastructure projects on private property in the combined sewer areas of New York City. Workshops will be held in November and December. **Application deadline: February 4, 2013 by 4:00 PM**.

ioby (in our backyards), a community funding platform, accepts applications for environmental projects across the nation on an ongoing basis.

AWARDS & OTHER OPPORTUNITIES

EPA's ***Campus RainWorks Design Challenge Competition*** for College Students to Develop Innovative Approaches to Stormwater Management. **Deadline to submit projects: December 14**. Read more...

PUBLIC COMMENT OPPORTUNITIES

Public comment period on the **proposed plan for cleaning up the Raritan Bay Slag Superfund Site** has been **extended to November 27.** Learn more...

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