

2014 Summer Newsletter (Click images to read articles)

apcc.org/newsletters/Archives/2014/2014-summer.html

Working to preserve, protect and enhance the natural resources of Cape Cod.



APCC and the Cape Cod Conservation District are working together to identify coastal restoration projects that could benefit from a phase two of the Cape Cod Water Resources Restoration Project (CCWRRP), a federal program administered through the USDA Natural Resources Conservation Service.

APCC and the Conservation District are conducting interviews with towns and other partners, and from that process a list of priority projects will be developed. The list should be finalized by this December.

Projects on the list will be ranked and prioritized using criteria specified in the CCWRRP plan. The resulting list of priority projects will be used when applying for money for the next round of funding.

However, the greatest challenge in this effort continues to be the ability to secure Congressional funding for the CCWRRP.

Cape Cod's shellfish beds, fish runs and salt marshes provide important habitat for many species of shellfish, fish and wildlife. The Cape's economy also benefits from the multimillion-dollar shellfishing and fishing industries. To sustain these dual roles, salt marshes, fish runs and shellfish beds need to be healthy. However, Cape Cod has much impaired habitat: at least 160 stormwater outfalls have affected shellfish beds, 114 tidal restrictions impact salt marshes, and 96 barriers at least partially block fish passages.

To restore these impaired habitats, the innovative Cape-wide CCWRRP was proposed in 2006. Thanks to APCC's advocacy, the project was authorized by Congress in 2009 and received \$6.5 million in start-up funds in 2010. By the autumn of 2013, 24 individual

restoration projects had been completed, including 15 stormwater projects, four salt marsh restoration projects and five fish run restoration projects. Still, much more work remains to be done.



This year, APCC convened a second annual summit of the Cape environmental community. The 2014 Environmental Summit was part of the Cape Coastal Conference held July 5th and 6th at the Cape Cod Community College. Twenty-seven nonprofit organizations and 12 governmental organizations participated in a lively and engaging discussion of environmental monitoring and data collection that is currently being done across a broad range of environmental interests and parameters.

As a result of the summit, APCC is spearheading an effort to create a central inventory of monitoring and data collection being carried out by the Cape's nonprofit environmental community. The map-based inventory will allow anyone to see what is being monitored, where it is happening and who is doing the monitoring. The inventory map will be online at www.apcc.org, and is anticipated to be available to the public as early as this autumn.

As one of the summit participants observed, Cape organizations have documented a large amount of useful information, but for the most part it is simply sitting in file drawers. After the inventory, the next steps include standardizing protocols, performing some analysis and establishing baselines and trends.



Coastal resiliency is the ability of communities and ecosystems to recover from and adapt to the effects of coastal storms, erosion, flooding and rising sea level.

This spring, APCC worked with partners to help the towns of Barnstable, Brewster, Provincetown, Wellfleet and Truro apply for grants to improve their coastal resiliency. Three Cape Cod towns—Provincetown, Brewster and Barnstable—were ultimately awarded grants from the Massachusetts Office of Coastal Zone Management. APCC, in its role as host of the MassBays Program Cape Cod regional coordinator, will be involved in the projects from Provincetown and Brewster.

Provincetown will develop a beach nourishment plan based on the results of a sediment budget study and public input. APCC will assist with outreach and project management. Other partners include the Cape Cod Commission, Provincetown Center for Coastal Studies and the Cape Cod Cooperative Extension.

In recent years, Brewster has suffered coastal erosion amounting to as much as 20 feet of loss in some areas. With its grant, the town will evaluate options for managed retreat from nine town landings on Cape Cod Bay. APCC will monitor coastal erosion and beach habitat. Other partners include the Provincetown Center for Coastal Studies and Brewster town committees.



APCC is benefiting from the talents of three interns this summer. The following is a brief introduction to our 2014 interns and the valuable work they are doing.

Emily Sturdivant: The Whitlock internship provides learning opportunities for graduate level students pursuing careers in environmentally-related fields. APCC's 2014 Whitlock Intern, Emily Sturdivant, is creating an online map of Cape Cod's critical habitats. Her work builds on that of past interns who documented natural communities to update APCC's Cape Cod Critical Habitats Atlas in accordance with the Massachusetts Natural Heritage and Endangered Species Program. Emily came east to Clark University from her Seattle hometown. At Clark she majored in geography and then continued on to get a master's degree in geographic information science. Her academic research has focused on carbon cycling in the Arctic, and included measuring gas flux in Siberian rivers while living on a barge north of the Arctic Circle (no snow, many bugs). Now, Emily is delving into web-mapping with APCC by creating an interactive update of our 1990 critical habitats atlas. After a foray into web-mapping with APCC, she'll continue developing this skill as she transitions from academia to professional GIS adventures.

Two interns are actively involved in APCC's salt marsh program, which this year concentrates on monitoring the health of salt marshes at Cranberry Lane in Chatham, Freemans Pond in Brewster, Namskaket Creek in Brewster-Orleans and Saltmarsh Lane in Pocasset. As an example, the interns will monitor changes to the Freemans Pond salt marsh that have resulted since tidal flow was restored in late 2013. So far, significant increases in water salinity and tidal velocity through the replaced culvert at Freemans Pond have been observed. The interns are also documenting populations of vegetation as well as fish, crabs and shrimp found at the marsh.

Ashleigh McCord: Ashleigh McCord first worked with APCC in 2008, when she spent a year assisting the salt marsh monitoring program as part of her service with AmeriCorps Cape Cod. Originally from Texas, Ashleigh moved to the Cape to participate in the AmeriCorps program, and remained in the area to continue working in positions related to environmental service and education. She now lives in Falmouth, and has returned to APCC as an environmental monitoring intern this summer. She is working both in the field and at the office to collect and analyze salinity, vegetation and fish data from salt marshes across the Cape. This fall, Ashleigh will pursue a master's degree in environmental management at Duke University, where she will focus on coastal environmental management

David Gorrill: For the past 25 years, Cape Cod has been a classroom for David Gorrill, Barnstable High School environmental science teacher and APCC's summer coastal ecology educator for 2014. While still in graduate school, David's National Park application to become an interpretive ranger was accepted by the Cape Cod National Seashore, thereby beginning his education of the ecology of the outer Cape. The job with the National Seashore also became the gateway into his first classroom teaching experience. Life decisions, including getting married, eventually brought David to Barnstable High School where he has taught for the past 21 years. This summer at APCC puts David back into the field collecting salt marsh data, as well as learning techniques that will make an immediate impact on Barnstable High School students. "The opportunity to think about these important connections only comes from getting out and doing," he explained.

APCC's annual internship programs are made possible through endowment programs strengthened by membership support. Find out more at www.apcc.org/internprogram.



This June, APCC was again awarded an annual contract to serve as the regional host for the Massachusetts Bays National Estuary Program. APCC senior scientist Dr. Jo Ann Muramoto will continue to be the regional coordinator. Since 2006, APCC has served as the host of the Cape Cod region of the MassBays Program. Accomplishments include helping towns obtain nearly \$3.2 million in grants for coastal restoration projects, designation of the Cape Cod Bay No Discharge Area, providing the Cape's first stormwater utility outreach workshops, and facilitating coordination of coastal stakeholders.



This summer the governor signed into law a \$2.2 billion environmental bond bill that authorizes the state to borrow money for environmental capital spending projects across the Commonwealth over a four-year period. It provides funding for open space acquisitions, water quality improvement projects, parks and trails, agricultural preservation, renewable energy, habitat protection and environmental restoration initiatives that would benefit Cape Cod and the rest of Massachusetts.

APCC was a strong supporter of the environmental bond bill, and worked with other state environmental organizations to advocate for its passage.

Other state legislation advocated by APCC remains unresolved at the end of the Legislature's 2014 session, including priority bills that address climate change adaptation and zoning reform.



Thanks to the hard work of some APCC members and many other volunteers across the state who collected petition signatures, the proposal to update the Massachusetts Beverage Retainer Recovery Act—commonly known as the bottle bill—is now on the ballot as Question 2 for the upcoming November election.

If adopted by voters, the ballot initiative will update the existing bottle bill to also include a five cents refundable deposit on containers for bottled water, sports drinks, iced teas and fruit juices, expanding the current deposit that only applies to carbonated beverages. The update will capture the millions of cans and bottles for recycling that are now thrown into the trash or end up as litter along roads or in water bodies. It has been estimated that with an updated bottle bill, enough containers will be recycled each year to fill Fenway Park.

The updated bottle bill, which was originally proposed as legislation, has enjoyed popular support, with opinion polls showing more than 70 percent of Massachusetts residents in favor of its adoption. Despite this overwhelming support, the bill has had difficulty passing the state legislature. Its future is now placed in the hands of voters.

APCC strongly supports the updated bottle bill, and urges our members to vote yes on Question 2 on November 4th.



Earlier this summer, a legal appeal challenging the decision by the Cape Cod Commission to

deny a proposed Lowe's Home Improvement Store in South Dennis was dismissed. The appeal was filed by Lowe's in Land Court shortly after the project was denied by the Commission in January. The decision to dismiss the case was agreed to by both Lowe's and the Commission, formally ending any challenge to the Commission's denial of the project.

APCC was actively involved in the comprehensive review of the Lowe's project proposal, testifying at numerous Cape Cod Commission hearings and submitting detailed position statements regarding the potential for significant adverse impacts to traffic, water resources and regional character if the Lowe's were built.

APCC also encouraged our members to take part in the review process, and many across the Cape responded by writing letters and attending the multiple hearings that were held. The large number of individuals who expressed concern to the Commission no doubt contributed to the decision to deny the project.

We are grateful to our members for their participation, and for their continued commitment to the protection of the unique natural resources and character of Cape Cod.



APCC's staff biologist Tara Nye and senior scientist Jo Ann Muramoto, pictured in the photo, stand at the ready at APCC's exhibit for the 2014 Brewster Conservation Day event in July. The display showcased the extensive work APCC has done in the ongoing effort to restore and monitor the salt marsh system and herring run in Brewster's Stony Brook watershed.

APCC's monitoring of the Stony Brook salt marsh documented a dramatic decrease in the invasive *Phragmites australis* population after tidal restoration was achieved through replacement of an undersized culvert. The relative abundance of phragmites dropped from 10 percent to five percent, and the average height was also lower. Salinity levels on the previously restricted side of the marsh increased from an average 11.5 parts per thousand to 15.5 parts per thousand. Increased salinity is a sign the salt marsh is benefiting from greater tidal flow, which is the objective of restoration efforts.

Monitoring of 2013 and 2014 spring herring migrations at the Stony Brook herring run have shown an increase in the run's population.

APCC has also begun mapping the priority natural communities found within the watershed as part of the update of APCC's Cape Cod Critical Habitats Atlas.

Special thanks to Tabitha Harkin for creating the tabletop display of the Stony Brook watershed.



Anatomy of a Sand Dune

As the famous song suggests, one of the reasons for falling in love with old Cape Cod is our collective fondness for the sand dunes that grace its coastal landscape. They are one of the Cape's most familiar features. But in addition to an abundant supply of sand, their existence requires another common Cape Cod trait: wind.

Coastal sand dunes are nearly always on the move. Their size, shape and location are ruled by the Cape's prevailing winds, which constantly pick up sand, carry it and re-deposit it in another location. As sand begins to pile up, the wind blows particles to the peak of a forming dune until it becomes too steep and collapses down the other side. This process repeats itself, causing the dune to migrate according to the direction of the wind.

A dune's nomadic migration across the Cape Cod landscape continues until beach vegetation takes root and stabilizes the mound of shifting sand. These initial plant colonists help hold the existing sand in place, encourage the establishment of other plant species, and build the dune by capturing more blowing sand.

Yet its composition of fine sand makes a dune quite fragile. Any disturbance of its vegetative anchor can be a catalyst for erosion and resumed migration. And the presence of sea walls, groins or other shoreline structures can disrupt the natural supply of sand that feeds the dune.

Despite their fragility, sand dunes play a critical role in protecting the land by serving as a buffer to the ravages of coastal storms. A healthy dune system is an important ingredient in efforts to build coastal resiliency and adapt to the effects of climate change and sea level rise. This was dramatically illustrated in the case of New Jersey's barrier beach coastline. Those seaside communities that invested in building up and maintaining healthy dune systems received relatively minor damage from Hurricane Sandy, while communities where dunes were absent sustained billions of dollars of catastrophic damage to property and infrastructure.