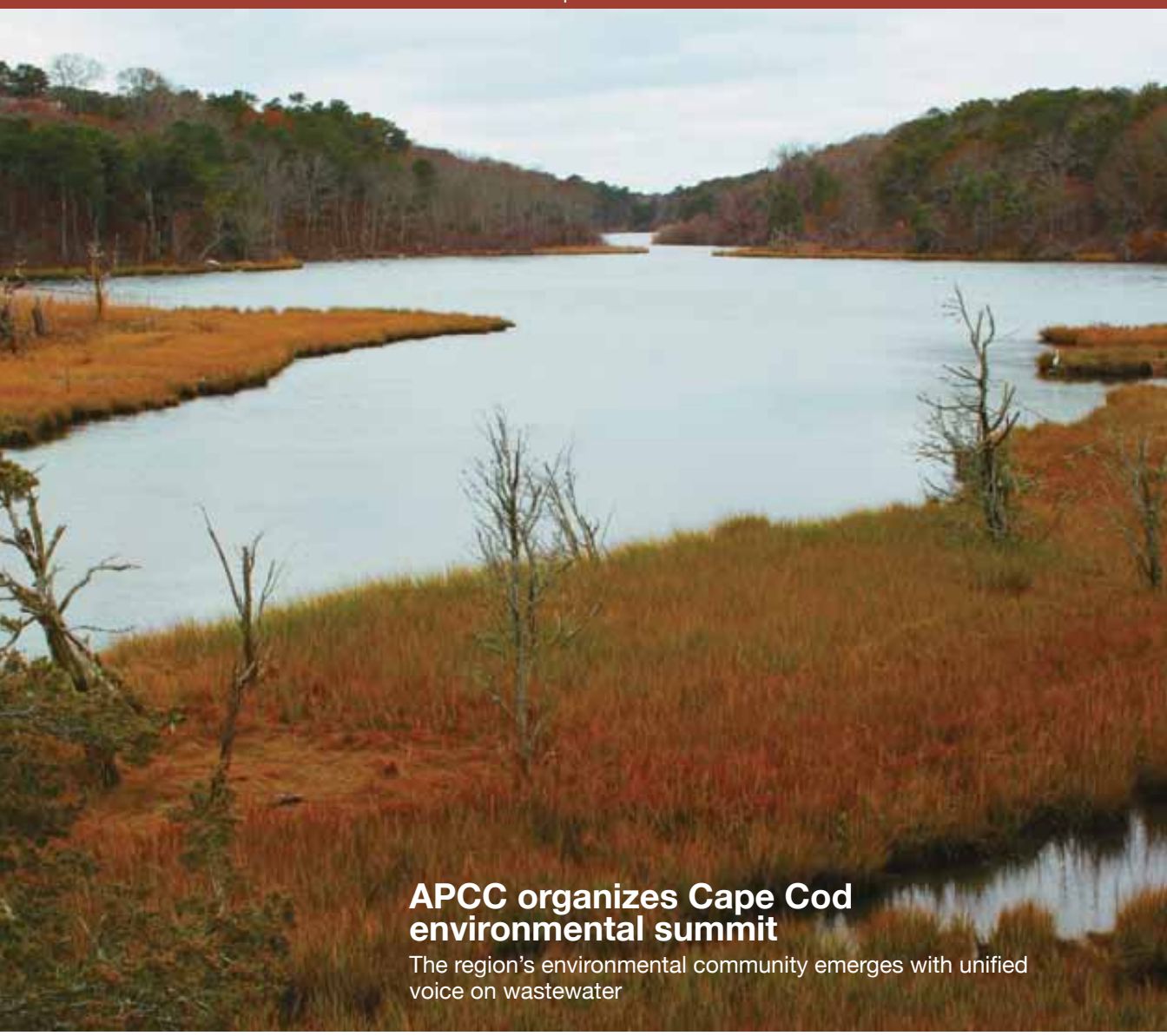
Shore Lines

Newsletter of the Association to Preserve Cape Cod Winter 2012-13



APCC organizes Cape Cod environmental summit

The region's environmental community emerges with unified voice on wastewater

This past September, APCC convened a summit of Cape Cod's land trusts, water quality organizations and other federally tax exempt environmental nonprofit groups to discuss the region-wide problem of wastewater.

This first-of-its-kind summit brought together an impressive 36 organizations from across the Cape with the goal of reaching consensus on a set of core principles centered around the impacts of wastewater on Cape Cod's water resources. Attendees drafted a "Cape Cod Environmental Summit Consensus Statement" that identified wastewater as "the region's number one environmental priority," and which said

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that "immediate action on the part of government, business, and every citizen" was needed to find effective solutions to the problem.

The consensus statement is in the process of being ratified by the participating organizations.

Summit participants agreed on the following fundamental findings:

- Nutrients and wastewater threaten the quality of Cape Cod's groundwater, ponds and coastal waters.
- There is technically sound scientific evidence of nutrient enrichment in our groundwater, coastal waters and ponds.
- Excess nutrients from wastewater and other sources are contributing to the decline of water quality on Cape Cod.

Environmental organization representatives adopted basic principles that underscore the importance of this issue to Cape Cod, agreeing that both fresh and salt water resources define the character and quality of life on the Cape, and that the Cape's economy is inextricably linked to the environmental health and productivity of its water resources.

The consensus statement includes a 10-point set of principles for addressing the challenge. Included among the principles is acknowledgement that there is no single wastewater management solution for all situations. In addition to laying out the need to identify and fund necessary wastewater infrastructure, the statement also encourages communities to adopt a holistic approach that takes into account land use practices, open space preservation, growth management, zoning, stormwater management, drinking water protection, wastewater management, and water quality enhancement.

The statement concludes with the following: "We the undersigned organizations declare the need to address wastewater and nutrient loading of Cape Cod's groundwater, ponds and coastal waters caused by human activity and waste as the number one environmental priority of the region. Each organization… is committed to advancing the principles contained herein and making clean water a reality. We recognize that each organization, business owner, homeowner, citizen, and visitor, not only on Cape Cod but also throughout Massachusetts, benefits from clean water on Cape Cod, and we believe that each should bear a fair and equitable portion of the cost of necessary solutions. Cape Cod is a valuable local, state and national resource.

The complete text of the "Cape Cod Environmental Summit Consensus Statement" can be downloaded at www.apcc.org.

As Cape Cod's environmental watchdog, APCC continues to monitor development proposals and other activities on Cape Cod for potential threats to our environment and natural resources.

Visit

www.apcc.org/position-statements

to read APCC's most recent position statements.

The management team of the Stony Brook Salt Marsh and Fish Passage Restoration Project display plaques commemorating the President's Coastal America Partnership Award, an honor the project received this past September. Project team members are, left to right: Steve Block, National Oceanic and Atmospheric Administration's Restoration Center; Jeremy Bell, Massachusetts Division of Ecological Restoration; Chris Miller, Brewster Natural Resources Department; and Dr. Jo Ann Muramoto, APCC and the Massachusetts Bays Program.

The Coastal Partnership Award is the only award of its kind presented by President Obama's administration for on-the-ground environmental restoration partnerships. The Stony Brook project in Brewster is one of only six projects across the nation selected for the award. The project is restoring 41 acres of salt marsh and improving fish passage to five ponds that provide 386 acres of habitat for river herring and American eel within Brewster's Stony Brook watershed. Numerous project partners and volunteers also received recognition for their participation in the

APCC executive director Ed DeWitt and Honor Roll inductee Gilbert Newton.

APCC's annual meeting is a night of honors

APCC's annual meeting, which was held in October, provided an opportunity to honor several Cape Cod environmental heroes.

Gilbert Newton, Sandwich High School science teacher and former member of APCC's board of directors, received the APCC Honor Roll Award for his years of promoting environmental stewardship and awareness through education.

Clarie Roycroft was presented with the Volunteer of the Year Award for her participation in APCC's salt marsh monitoring program.

The town of Brewster was chosen to receive APCC's Paul Tsongas Environmental Excellence Award for adopting progressive initiatives that advance environmental protection, preservation and restoration within the town.

The APCC Special Recognition Award was given to the Dolphin Trust for its commitment to protecting Cape Cod's environment through charitable giving.

At the meeting, the newest inductees into APCC's Scallop Society were recognized for 25-plus years of membership support.

APCC members also elected two individuals to the organization's board of directors:

Elliott Carr is a retired banker who has lived in Brewster since 1982. He has served on the boards of various state, regional and local nonprofit and civic organizations as well as several town committees.

Donald Palladino retired to Wellfleet in 2006 after careers in the U.S. Army Corps of Engineers, the National Broadcasting Company and Save the Children. He, too, has volunteered his time on numerous nonprofit boards and in town government.

At its November meeting, APCC's board of directors elected new officers for the upcoming term. Elected are Janice Walford, president; Robert Cunningham, vice president; Robert Summersgill, treasurer; and Susan Shephard, clerk.

APCC's website has a new look!

Check it out at www.apcc.org

APCC/USGS embark on study of potential impacts of sea level rise on coastal aquifers

APCC is working with U.S. Geological Survey hydrologists to develop a study that will analyze the effects of sea level rise on groundwater flow in the mid-Cape region. The study will build on previous USGS models of the lower Cape aquifer's response to rising sea level and on studies of the mid-Cape aquifer.

Strong scientific evidence indicates that sea level has been rising in the northeast and will continue to rise. Coastal communities can expect increased coastal flooding and erosion, and changes in coastal landforms, habitat and resources.

On Cape Cod, the effect of sea level rise on the water table and our aquifer also needs to be evaluated. How would rising sea level affect the water table? Rain and melting snow percolate down through Cape Cod's highly permeable soils to recharge the water table at the top of the underlying fresh water aquifer. While the height of the water table depends on recharge, the lowest point of the water table is at sea level.

In areas like Cape Cod that are surrounded by the sea, changes in sea level will affect the height of the water table. As sea level rises, so will the water table. This is a concern in areas where the water table is already close to the surface. Modest changes in water table elevation can result in subsurface flooding that could impact septic systems, infrastructure and property. Water resources, wetlands and ecosystems could also be affected.

The lower Cape model indicated that rising sea level will cause the water table to rise in areas away from streams. In other areas drained by groundwater-fed streams, the water table could drain faster due to increased streamflow caused by the higher water table, resulting in rejuvenated streams. Summarizing the lower Cape studies, rising sea level can impact coastal aquifers by causing changes in height of the water table and depth to groundwater, stream base flow, and the position of the freshwater/saltwater interface. Such changes can have important implications for management of wastewater, water and natural resources and for protection of public health and the environment.

The proposed mid-Cape study would provide information needed for science-based planning to address these issues. Products would include GIS maps of regional changes in water table elevations, cross-sections showing changes in the saltwater-freshwater interface, and tables of streamflow changes for different sea level rise scenarios.

For an expanded version of this article, visit www.apcc.org and click on "Sea Level Rise Study."

Although sewered now, the close proximity of this Falmouth neighborhood to the coastline is a visual example of locations where sea level rise could affect the water table and compromise septic systems and other infrastructure.

There's nothing sweet about the bittersweet vine

On a casual walk down a quiet lane or a wooded path this time of year, one is likely to spy eye-catching clusters of yellow and orange berries from the bittersweet vine. Their warm splash of color in the midwinter bleakness often makes it a tempting source for crafting a seasonal wreath to hang on the front door.

But don't be fooled by the bittersweet vine's cheerful appearance! Introduced to the U.S. from China in the 1800s, Asiatic bittersweet *(Celastrus orbiculatus)* has since established a presence on Cape Cod as an aggressive and destructive invader. This perennial vine can grow up to 60 feet, forming tangled masses that quickly choke out native trees and plants.

The yellow berries split open at maturity in late autumn, revealing three red-orange axils that contain the seeds. The seeds are prolific germinators, and once sprouted, the plant swiftly twines around established vegetation as it seeks optimum exposure to sunlight. Bittersweet berries are usually spread by birds, but mishandling by an unsuspecting property owner—or a holiday wreath maker—also disperses the seeds, allowing new colonies to establish a foothold.

There are recommended actions for keeping bittersweet in check: don't plant bittersweet, never dispose of bittersweet vines or berries in a compost pile, and resist the temptation to harvest bittersweet for use in a wreath or other decoration.

When deciding on plantings for home landscaping, consider native species —they're more environmentally friendly and easier to maintain. A list of recommended native plants is available for downloading at www.apcc.org/native-planting.

APCC maps natural communities for critical habitats atlas project

This past summer and autumn, APCC's 2012 Whitlock Intern, Lindsay Cook, explored Cape Cod's back country with the task of mapping natural communities for APCC's Cape Cod Critical Habitats Atlas update.

APCC first published the atlas in 1990 as a resource to document sensitive natural resources on Cape Cod in order to foster their protection. The updated atlas will involve the collection of new ecologically important field information. Our natural communities mapping project is an example. Natural communities are assemblages of species that occur together and are found in recurring patterns that can be classified and described by their dominant biological and physical features, such as soils, hydrology, and terrain. This system of describing habitats was developed by the Massachusetts Natural Heritage and Endangered Species Program (NHESP).

Examples of natural communities include coastal plain pondshores, sandplain grassland habitat, Atlantic white cedar bogs, coastal interdunal marsh-swales, maritime dune communities, and salt marsh. In Massachusetts, NHESP has identified 105 different types of natural communities, and about 50 types may occur on the Cape. However, only a few natural communities have officially been mapped on Cape Cod due to scarcity of field surveys.

To address this gap, Lindsay conducted a field survey to map natural communities on the Cape, beginning with the Stony Brook valley in Brewster where a variety of coastal, freshwater and terrestrial communities were identified.

Lindsay then focused on mapping coastal plain pondshores. Coastal plain pondshore species are often found along exposed shores of ponds, and often include rare species. She visited about 47 ponds and evaluated their flora. She also ranked pondshores in terms of degree of visible impact by human activities. Her results will enable APCC to prioritize pondshores by the presence of sensitive communities and their need for restoration or protection. Survey data will be used to create GIS maps that will be transferred into a user-friendly online atlas.

Future work will involve continued mapping of additional natural community types, and completing the collection of digital maps of natural communities and other types of habitats. Work on the atlas will also involve collecting available information on other habitats and resources and linkages to existing map sources such as the Massachusetts Ocean Resources Imaging System (MORIS) and others.

Having this information will help us to better protect sensitive natural communities. This project got underway in 2010 with funding from the Mass Bays Program and the Eddy Foundation of Brewster.

Beech forest communities, such as this one in Brewster, are unique and valued habitats on Cape Cod.

Left: Whitlock Intern, Lindsay Cook.

APCC co-presents salt marsh study findings at regional science conference

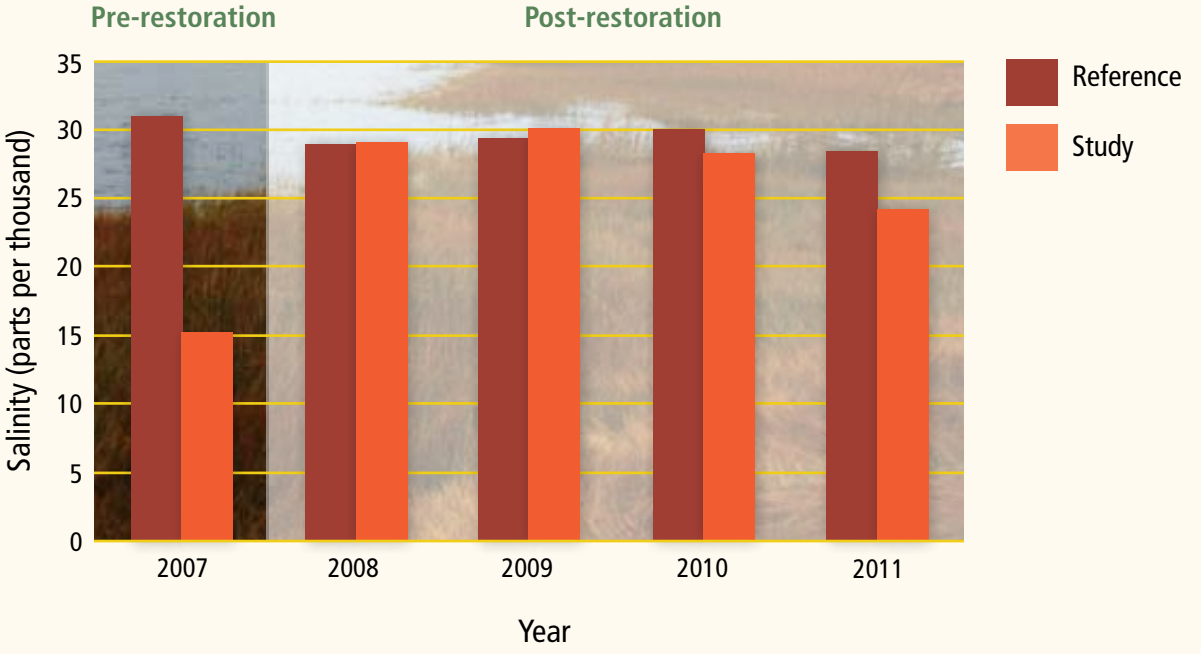
A presentation by APCC biologist Tara Nye and Jeremy Bell of the Massachusetts Division of Ecological Restoration about the effects of tidal restoration at Sesuit Creek salt marsh in Dennis was given at the autumn 2012 New England Estuarine Research Society (NEERS) Conference on Block Island.

NEERS is a non-profit organization with a wide range of members from scientific and educational institutions, government agencies and non-profit organizations. The goal of the conference is to present topical, regional and timely subjects in estuarine and coastal research and encourage networking among the diverse NEERS membership.

The presentation, "Ecological Change in a Formerly Restricted Salt Marsh," focused on restoration, lessons learned, and monitoring results. APCC worked with scientists at the University of New Hampshire to study Sesuit marsh prior to tidal restoration (2007) and post-tidal restoration (2008-2011) to track salt marsh response to increased tidal flow. The most obvious and immediate response detected, depicted in the accompanying graph, was the change in water salinity in the marsh. On the restricted side of the marsh, water salinity measured 15 parts per thousand (ppt) prior to tidal restoration. Post tidal restoration, water salinity jumped to 28 ppt the first year (2008), and stayed high for the duration of our study (2009-2011).

The salt marsh recovery trajectory is showing progress, but the marsh system needs more time to develop. Although water salinity has responded quickly and appropriately, there is still a high percentage of unvegetated ground that is of concern. Monitoring should resume at this site in a few years to track further recovery trajectory and to specifically check on salt marsh vegetation recolonization.

Comparing Average Pore Water Salinity at Sesuit Creek



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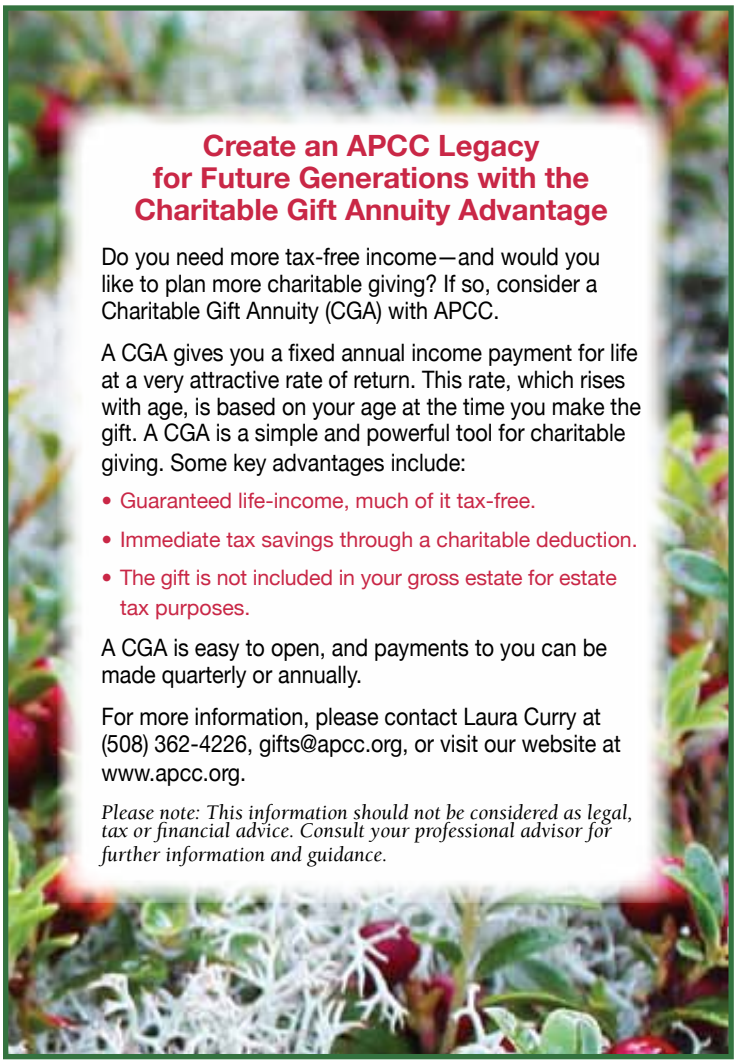
The Association to Preserve Cape Cod is a 501(c)(3) non-profit organization founded in 1968 to foster policies and programs that promote the preservation of natural resources on Cape Cod.

Support comes from over 5,000 members, and from gifts and grants from individuals, foundations and businesses.



Create an APCC Legacy for Future Generations with the Charitable Gift Annuity Advantage

Do you need more tax-free income—and would you like to plan more charitable giving? If so, consider a Charitable Gift Annuity (CGA) with APCC.

A CGA gives you a fixed annual income payment for life at a very attractive rate of return. This rate, which rises with age, is based on your age at the time you make the gift. A CGA is a simple and powerful tool for charitable giving. Some key advantages include:

- Guaranteed life-income, much of it tax-free.
- Immediate tax savings through a charitable deduction.
- The gift is not included in your gross estate for estate tax purposes.

A CGA is easy to open, and payments to you can be made quarterly or annually.

For more information, please contact Laura Curry at (508) 362-4226, gifts@apcc.org, or visit our website at www.apcc.org.

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