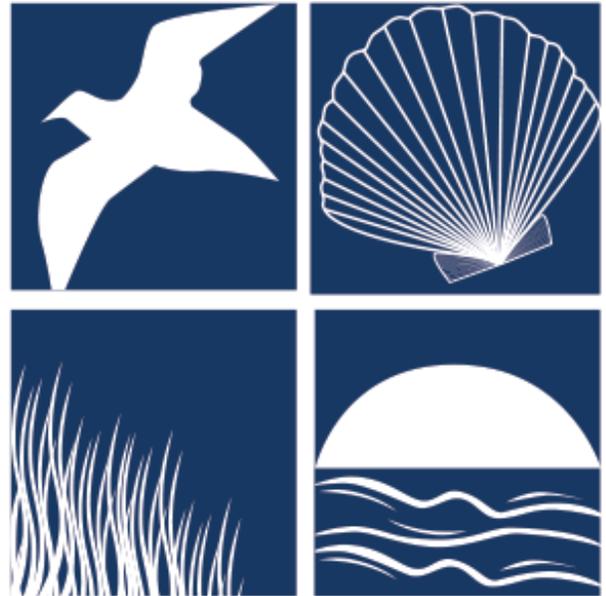


# Shorelines: Spring 2016 Newsletter

[apcc.org/newsletters/2016-spring.html](http://apcc.org/newsletters/2016-spring.html)



## Vision for a new home takes shape



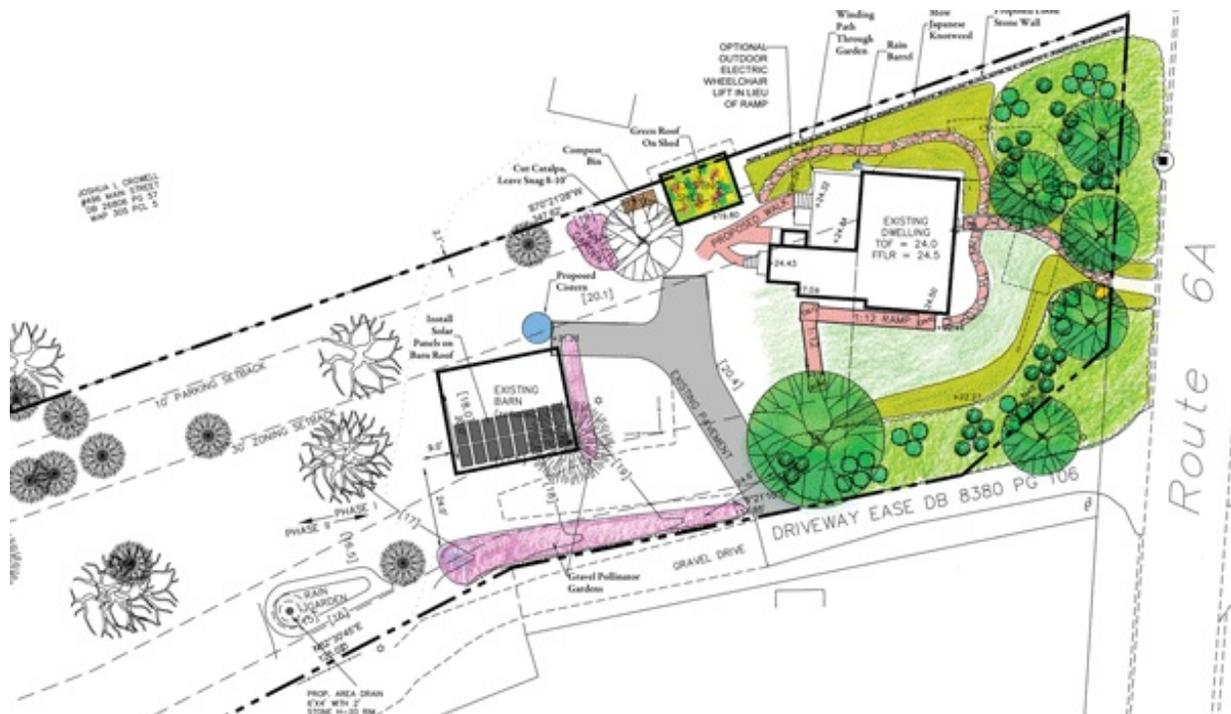
APCC has begun to transform our new home at 482 Main Street (Route 6A) in Dennis into an efficient and economical center for environmental advocacy and education.

We are currently working to make the main building accessible to all by constructing ramps, removing barriers and adding accessible restroom facilities. We are also strengthening some of the original

framing of the 19th century structure to insure the building lasts another 100 years, including handling the added load of APCC's books and files (our electronic file keeping will really help). This summer, we hope to be able to make some energy conservation improvements.

APCC's director of education and outreach, Kristin Andres, is heading up a team to lay out and begin building our living native landscape laboratory. We hope to show everyone that native plants can provide beauty as well as ecological value.

The  
eco-



landscape design will incorporate rain gardens, porous surfaces and native plant communities appropriate for Cape Cod. APCC's stewardship of the property through sustainable land care practices will serve as an example and provide workshop opportunities on site.

Plans continue to be made to update and convert the property's barn into a 21st century education center. The conversion includes using sustainable materials, net zero energy consumption and ecotoilet wastewater management. To maximize roof exposure for solar panels, the barn will need to be rotated. Since the existing stone foundation must be updated, rotating the barn should not add much to the overall cost.

Our goal is to be at work at 482 Main Street no later than April 1. We invite you to drop by and visit the new home



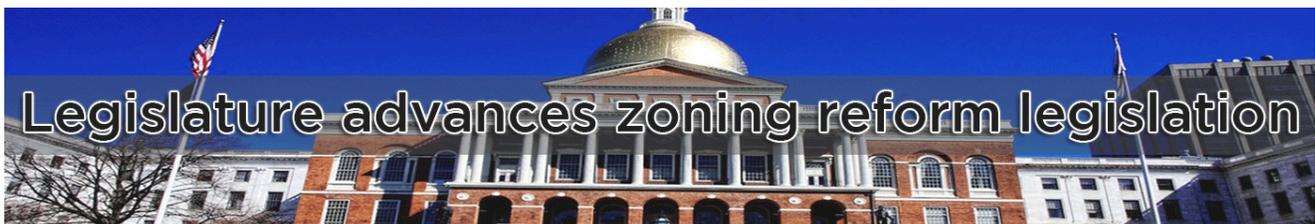
Legislation requiring Massachusetts to develop and implement a management plan for adapting to the effects of climate change has passed the state Senate and is now under consideration by the House of Representatives.

Senate Bill 2121, An Act Providing for the Establishment of a Comprehensive Adaptation Management Plan in Response to Climate Change (CAMP), received unanimous approval in the Senate in January and as of this writing is being reviewed by the House Ways and Means committee. This is the third time in the past two years that the Senate approved CAMP and sent it to the House.

CAMP is one of APCC's top legislative priorities. The legislation would help address the many serious environmental, social and economic challenges to Cape Cod's coastal communities as a result of climate change and sea level rise. Once adopted into law, CAMP would:

- Establish sound climate change management practices that take into account existing natural, built and economic characteristics of the state's most vulnerable areas and human populations.
- Require documentation of the preparedness and vulnerabilities in the state's emergency response, energy, natural resource protection, transportation, communications, health and other systems.
- Establish a regional grant program to provide financial assistance to regional planning agencies such as the Cape Cod Commission for development and implementation of CAMP, including vulnerability assessment and adaptation strategy development.
- Establish a coastal buyback program to acquire by voluntary purchase those properties that are severely and repeatedly damaged by weather.

APCC is a member of the Massachusetts Climate Change Adaptation Coalition, and will continue to work with our coalition partners in advocating for CAMP's adoption into law. Visit [massadapt.org](http://massadapt.org) for more information about CAMP.



In late February, the Massachusetts legislature's Joint Committee on Community Development and Small Businesses issued a favorable recommendation on legislation to overhaul the state's outdated and poorly written zoning and land use laws. The committee released the bill after several months of review and forwarded it to the Senate Ways and Means Committee.

APCC has been a leader in the statewide zoning reform effort for several years and has testified numerous times before the Massachusetts legislature in support of meaningful changes to state land use law. This most recent iteration of a zoning reform bill, An Act Promoting the Planning and Development of Sustainable Communities (Senate Bill 2144), is sponsored by Senator Daniel Wolf.

The state's current land use laws have been in effect since the 1970s and are out of synch with 21st century community planning challenges. Existing provisions in state law actually serve as a disincentive to smart growth planning, and instead encourage sprawl and the unnecessary consumption of land. In fact, Massachusetts has been identified by the American Planning Association as having some of the most antiquated and dysfunctional zoning laws in the nation.

Senate Bill 2144 encourages communities to adopt planning that achieves the state's goals for housing, economic development and natural resource protection. In exchange, it provides strong incentives in the form of enhanced planning tools and preferential consideration for state infrastructure funding and other state funds and grants. At the same time, many of the existing statutory impediments to the achievement of smart growth in Massachusetts are eliminated so that communities on Cape Cod and elsewhere in the state may better manage their growth and shape their futures.

The bill must now move out of Senate Ways and Means and then be passed by the full Senate before it is delivered to the House for consideration. For more information about Senate Bill 2144, visit our [zoning](#) page.



Volunteer counts of river herring are deceptively easy to obtain, but play a critically important role in local, state and interstate decisions on management and protection of river herring.

In 2007, APCC began working with Cape communities and state agencies to encourage monitoring of herring runs to foster restoration and protection of the fish and their habitat. As of 2016, APCC has assisted with the establishment of volunteer herring monitoring programs at 19 run locations across the Cape.



APCC partners with many towns, agencies, organizations and individuals to promote river herring monitoring, protection and management. APCC provides citizen volunteers with training based on a state-approved protocol, technical support and equipment.

There are currently over 200 volunteers Cape-wide participating in the herring counting program. Their dedication to their work is the reason why the Cape has the greatest number of active volunteer herring counting groups in Massachusetts.

In late 2005, declining stocks of river herring prompted the Commonwealth of Massachusetts and other Atlantic states to ban the catch, sale and possession of river

herring. Before 2012, only a few of the larger herring runs in Massachusetts and several runs on Cape Cod were monitored for herring counts. Since 2012, the Massachusetts Division of Marine Fisheries has worked with volunteer herring count groups to utilize herring count data to generate run size estimates, which are one measure of herring population.

In 2010, the Atlantic States Marine Fisheries Commission (ASMFC), which was formed to collectively manage, promote and protect 25 nearshore species of migratory fish common to the Atlantic states, required states to monitor river herring runs, collect information on herring stocks, report annually to ASMFC and to develop sustainability targets based on the best available science. The ASMFC requirement prompted state and federal fisheries managers to turn to volunteer herring counts as one way to obtain the needed population estimates.

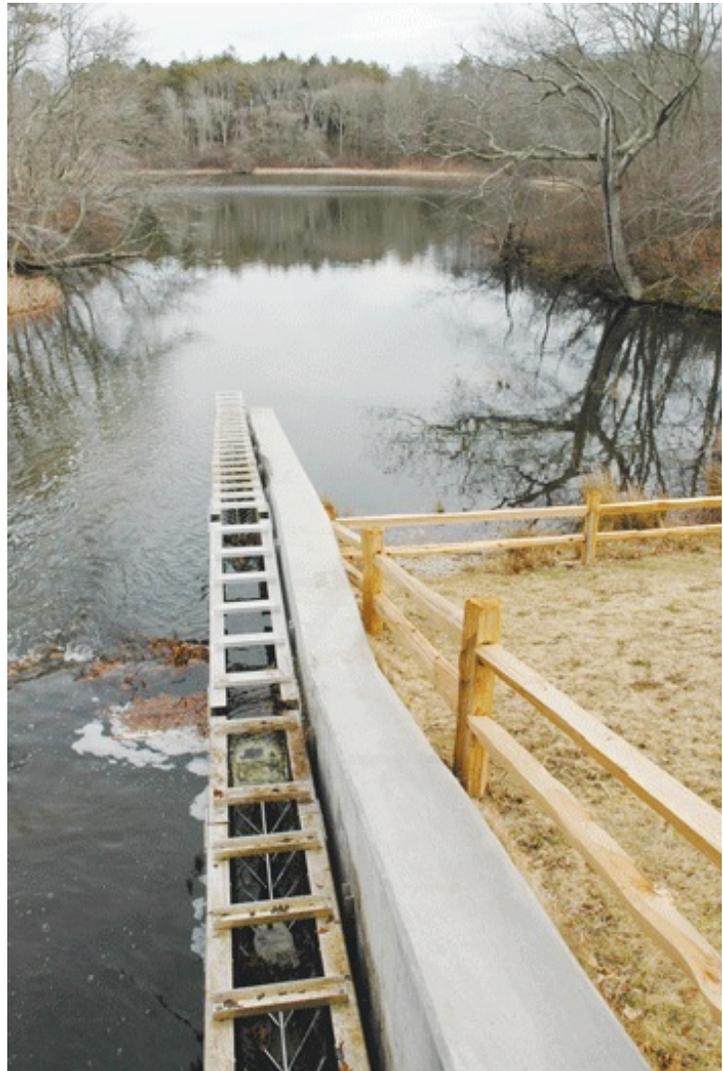
Most of the Cape Cod herring runs where monitoring is conducted by volunteers are runs where environmental restoration is either being planned or has been completed. (See related article below.) Population estimates based on volunteer herring counts remain critically important for tracking how river herring survive and hopefully increase over

time. For more information on river herring counts and Cape Cod run sizes from 2007 – 2015 as well as a complete list of partners participating in the herring counting program, go to [www.apcc.org/herring](http://www.apcc.org/herring).



Fish run restoration projects run the gamut from small projects involving repair or replacement of fish ladders to large projects involving stream channel restoration, tidal flow restoration, or dam replacement or removal. Regardless of the scale of restoration projects, herring counts taken by citizen volunteers provide an important means of monitoring and measuring the success of fish run restoration projects. As an indicator of success, it has generally been observed that herring run sizes in years following restoration are significantly greater than run sizes in years preceding the restoration.

Since the early 2000s, 22 Cape Cod herring runs have been or are being monitored for fish counts. Of these runs, 11 have been restored. Post-restoration herring counts are used to evaluate the success of the restoration efforts. Seven runs are in the restoration planning stage; here herring counts help to establish population levels prior to restoration to enable comparison before and after restoration. One Cape run is being monitored as a control for a restoration project in Plymouth.



Among the restored runs are some of the largest and healthiest runs where run sizes top 100,000 fish: Stony Brook, Mashpee River, Herring River in Harwich, and the Santuit River. Stony Brook provides a dramatic example of restoration success, where run sizes over

several years following restoration exceed pre-restoration levels.

## Herring Run Monitoring Sites

Post-restoration Sites	Pre-restoration Sites
Bridge Pond, Eastham	Coonamessett River, Falmouth
Cedar Lake, Falmouth	Herring River, Wellfleet
Herring River, Harwich	Long Pond / Parkers River, Yarmouth*
Lovers Lane / Stillwater Pond, Chatham*	Marstons Mills River, Barnstable
Mashpee River, Mashpee	Quashnet River, Mashpee
Mill Creek, Sandwic	Red Lily Pond, Barnstable
Pilgrim Lake, Orleans	Scargo Lake, Dennis*
Santuit Pond, Mashpee	Asterisks (*) indicate four new count programs requested this year by municipal natural resource directors.
Stony Brook, Brewster	
Tom Mathews Pond, Yarmouth	
Upper Shawme Pond, Sandwich	
Herring Pond, Eastham* (monitored as a control for an off-Cape restoration project)	

Visit our [herring program page](#) for more information on river herring counts and Cape Cod run sizes from 2007 – 2015 as well as a complete list of partners participating in the herring counting program.

## A closer look at Cape Cod's river herring

The return of river herring has been a rite of spring acted out in Cape Cod waters for thousands of years. Today, crowds of people flock to fish ladders along Cape streams to witness the annual spectacle. But beyond this very visible mass migration of fish, chances are good that many of the onlookers know little else about the life history of river herring.

“River herring” is the common reference to two different species, the alewife (*Alosa pseudoharengus*) and the blueback herring (*Alosa aestivalis*). The two species belong to the family of fish that includes shad, sardines, menhaden and other species of herring. Alewives and bluebacks are very similar in appearance, with a few subtle physical characteristics that distinguish them.

River herring, which have a lifespan of up to 10 years, are anadromous species, meaning they migrate from the ocean to freshwater to spawn. Females reach reproductive maturity by age five, while males mature in three to four years. The adults commonly begin their migration when water temperatures reach about 41°F to 50°F (5°C to 10°C). Actual spawning usually occurs when temperatures rise above 61°F (16°C). It is believed alewives are the first to arrive to spawn, with bluebacks following a little later.



Females produce between 60,000 to 100,000 eggs, which are fertilized by males as the eggs are broadcast over the pond bottom. It takes two to 15 days for eggs to hatch. After spawning, the adults migrate back to the ocean, returning in subsequent years to spawn again. Researchers can tell how many years river herring migrate to reproduce by marks left on their scales each time they spawn.

At every stage in its life cycle, herring are a valuable food source for land and marine mammals, many fish species—including commercially important species—and numerous

species of birds. Consequently, less than one percent of eggs produce juveniles that eventually make it out to sea. Those that do hatch and evade predators spend some time feeding on zooplankton in their freshwater habitat and then head down to the ocean in the summer and fall.

Relatively little is known about the habits of river herring once they migrate to salt water. Studies show that river herring faithfully return to spawn in the particular fresh water body where they were hatched, although there is documentation of occasional strays.

River herring are critical to the health of our coastal watersheds, linking ocean, river and pond ecosystems and providing a source of nutrients to each. But, river herring populations have declined dramatically in recent decades. Dams and other stream obstructions have severely impacted traditional herring spawning habitat. Deteriorating water quality and increases in pond water temperature can impact juvenile herring. Many herring are caught in the nets of ocean trawlers fishing for Atlantic herring, a strictly ocean species.

Concerned about the population decline, Massachusetts joined other Atlantic coast states in declaring a moratorium on harvesting river herring in 2005, and in 2009 the National Oceanic and Atmospheric Administration's National Marine Fisheries Service listed alewife and blueback herring as "species of concern."



APCC welcomes April Wobst as the organization's restoration ecologist, responsible for management of the APCC Restoration Coordination Center and associated restoration projects across the Cape.

In 2015, APCC established the Restoration Coordination Center (RCC) to help towns on Cape Cod with prioritization, planning, implementation and management of restoration projects. APCC met with staff from all 15 Cape towns and identified over 140 restoration projects that towns want to undertake, but lack the resources to implement. These projects include restoration of impaired salt marshes, fish runs and shellfish beds, as well as stormwater projects to improve water quality and habitat.

The goal of the RCC is to complete more restoration projects around the Cape by serving as a resource and management center. The RCC also aims to build public support for restoration to improve our natural resources and environment.

APCC's comprehensive inventory of restoration projects will serve as the basis for prioritizing projects and helping communities to undertake restoration efforts. Through these projects, we can restore resources important to the local towns and the region, including shellfish habitat, migratory fish spawning habitat, and nursery and feeding habitat for many recreational and commercial fish species. Restoration projects will also protect and preserve habitat for other wildlife, such as migratory bird species, and will help make the Cape's shores more resilient to the effects of major storms and sea level rise.

April comes to her role as APCC's restoration ecologist with 10 years of experience working in environmental protection, including project management, long-term ecological monitoring, restoration and invasive species management. Her most recent position was whale program officer for the International Fund for Animal Welfare based in Yarmouthport, where she helped coordinate regional and international projects to protect whales from whaling, ship strikes, ocean noise and entanglement in fishing gear.

Prior to that, April worked as a field technician on invasive species management for the Nature Conservancy, was a biology lecturer at Montgomery County Community College in Maryland and conducted botanical research in Florida, Ohio and Pennsylvania.

[More Newsletters \(Archive\)](#)

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