



Cape Cod Cooperative Extension

Cape Cod Cooperative Extension
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Cape Cod Cooperative Extension, established in Barnstable County in 1916, is the education department for county government. Extension's educational programs focus on agriculture, marine resources, horticulture, aquaculture, shellfish management, natural resources, tick-borne disease, water quality, recycling, household hazardous waste, nutrition, food safety, youth development and environmental education issues facing the county.

The mission of Cape Cod Cooperative Extension is to improve the health, well-being and security of youth, families and communities; conserve and enhance natural resources; and strengthen agriculture and food systems. We fulfill our mission by utilizing the research and teaching capacity of the University of Massachusetts Amherst and Woods Hole Oceanographic Sea Grant program to generate and communicate knowledge while creating approaches, methods, and tools for solving problems. Extension links the Massachusetts land grant university with a larger community of people in collaborative partnerships to address issues of fundamental importance to the people of Barnstable County.

An Act of Congress formed Cooperative Extension nationally in 1914 as a three-way partnership. The three partners were the land-grant university in each state (such as UMass Amherst in Massachusetts), the federal government (through the United States Department of Agriculture), and local government (through Barnstable County).

Cape Cod Cooperative Extension is advised by County Extension trustees, a group of local citizens appointed by the Barnstable County Commissioners. Over 400 volunteers complement and extend staff efforts, contributing their time and expertise to Extension in Barnstable County.

Through the use of workshops, conferences, field demonstrations, technical assistance, radio, television, the Internet and more, Extension brings objective, research-based and credible information people can use every day to improve their lives.

MARINE PROGRAM

Goals: To establish, develop and carry out educational programs in marine resource development; to assist with problems concerning coastal industries and the management of coastal resources; and to transfer technological innovations, educational and informational materials to public officials, educators and marine resource user groups.

Cape Cod Cooperative Extension's Marine Resources Program cooperates with the Division of Marine Fisheries, the Woods Hole Sea Grant Program, the Massachusetts Maritime Academy, the Marine Biological Laboratory, the Massachusetts Department of Agricultural Resources and the local shellfish constables in providing a variety of programs including those listed below.

Barnstable County Municipal Shellfish Propagation Program

The Marine Program of Cape Cod Cooperative Extension and Woods Hole Sea Grant provided \$35,500.00 toward a Barnstable County Municipal Shellfish Propagation Program in FY 2010. These funds assisted with the purchase of 6.9 million hard clam (quahaug) seed and 2800 bags of remote set oysters.

As in recent past years, this quahaug seed and the remote set oysters were purchased from the Aquacultural Research Corporation in Dennis. This municipal propagation effort benefits both the commercial and recreational shellfisheries of all 15 towns, with more than 1,200 commercial permits and 17,100 recreational permits within the region. In addition, the Marine Program provided funding for the testing of shellfish (quahaugs) relayed from the waters of southeast Massachusetts to several communities within Barnstable County.

SOUTHEASTERN MASSACHUSETTS AQUACULTURE CENTER

The Cooperative Extension Office of Barnstable County remains the administrator of the SouthEastern Massachusetts Aquaculture Center (SEMAC). The center is directed by a 13 member board of directors. Funding in the amount of \$50,000.00 was awarded to the center by Department of Agricultural Resources and projects will be carried into FY 2011. Ninety percent of the funding has provided for direct industry assistance by supporting a shellfish research farm network (RFN), marketing, improving public perception, investigating shellfish disease and hard clam mortality issues, and continuing with long term marine water quality monitoring.

Mortality of Hard Clams

Recent large-scale, unexplained mortality of hard clams within Wellfleet Harbor became a focus of SEMAC research in FY 2010. As of this annual report, disease testing and monitoring of plots is ongoing. Additionally, a water quality monitoring unit has been deployed adjacent to the mortality zone(s) and a contract was signed with Dr. Roxanna Smolowitz of Roger Williams University to continue pathology work and analysis. The research efforts and findings to date were presented at a meeting in Wellfleet on 4-30-10, attended by more than 50 growers and interested citizens. Research suggests a combination of two diseases are contributing to the quahaug mortalities but further research is warranted to understand the complexity of this condition.

Research Farm Network

Funding was also set aside for the Research Farm Network (RFN), a program established by SEMAC in 2005 which continues to generate valuable data regarding shellfish culture methodology. In FY 2010 eleven (11) participating shellfish growers, were chosen to represent specific growing areas, and conduct the same controlled experiments. Areas chosen this past season included: Outer Cape Cod (Provincetown Harbor), Inner and Outer Wellfleet Harbor, Nauset Marsh, Pleasant Bay, Cape Cod Bay Flats (Dennis), Barnstable Harbor, Southside of Cape Cod (Chatham), Buzzards Bay, Southeastern Massachusetts Coast (Onset) and the Islands (Cuttyhunk). During the year, growers in the RFN

focused on a comparison of triploid (seedless) oysters and conventionally grown diploid oysters. Growers also maintained and monitored razor clam seed from the 2009 season.

Water Quality Data: Shellfish Disease, etc.

Water quality data has become more important as research continues into shellfish disease, growth and mortality issues within the region. Hence SEMAC continues its water quality monitoring program using the long-term deployment of YSI instrumentation at four locations: Cotuit, Barnstable Harbor, Wellfleet Harbor and Pleasant Bay in Orleans. Live online data is provided via satellite link (Econet) from two of those locations, Cotuit and Wellfleet Harbor. This online data may viewed at: www.yseiconet.com/public/WebUI/Default.aspx?hidCustomerID=88

As noted above the YSI units are also being used to study conditions in Wellfleet Harbor where hard clam mortalities are occurring. In addition, the establishment of long term data sets for water quality at fixed stations within the county will benefit all citizens interested in monitoring trends in water temperature, pH, salinity, etc. over time.

Market competition from other areas of the country prompted SEMAC to provide some marketing assistance to help out growers by encouraging their participation at promotional events. This was accomplished by setting aside a small amount of funding to purchase the cultured shellfish from the growers used at these events. It was envisioned that this assistance would help continue earlier marketing initiatives that promoted Massachusetts Bay State Cultured Shellfish, and would also allow growers in these difficult economic times to have greater flexibility in their attendance at marketing venues and events.

Education and Other Research

SEMAC, Cape Cod Cooperative Extension and the Woods Hole Sea Grant Program sponsored an eight-week course entitled, "Fundamentals of Shellfish Farming: Practical Tools, Tips & Techniques." The instructor for the 2010 winter and spring course was Henry Lind, Shellfish Biologist and former Director of the Eastham Dept. of Natural Resources.

The course, a mixture of classroom instruction, guest presentations from members of the shellfish culture industry and field trips, consisted of eight modules focusing on best management practices. These modules were presented in two-hour segments and included: “*Orientation and Introduction to Shellfish Farming*,” “*Understanding Seed Supply: Hatcheries and Suppliers*,” “*Shellfish Nursery Culture; Oyster Field Planting, Grow-out & Harvest*,” “*Clam Field Planting, Grow-out & Harvest; Predators, Pests, Diseases & Other Bad News*,” “*The Business of Aquaculture and Permitting*.” Eighteen individuals enrolled in the course, and a final exam qualified the students for a Certificate of Achievement awarded by SEMAC, CCCE and Woods Hole Sea Grant. Narration of the course was recorded to accompany the course’s Powerpoint slide presentations for later incorporation into a DVD which will be made available to the interested public as well as individuals interested in taking the course, but unable to attend in person.

Cape Cod Cooperative Extension and Woods Hole Sea Grant co-sponsored a workshop entitled, “*Vibrio Issues When Handling and Harvesting Shellfish*,” on June 29th which was attended by 32 individuals. The primary presentation was given by Robert Rheault, Executive Director of the East Coast Growers Association. Mike Hickey from the Massachusetts Division of Marine Fisheries and staff from Massachusetts Department of Public Health were also on hand to offer additional information and comments.

In its eighth year of data collection, four sentinel aquaculture sites (Brewster, Barnstable, Orleans and Wellfleet) are being monitored for growth and survival of hard clams and oysters as part of a shellfish habitat assessment program. This quantitative assessment has future use when considering dock or dredging projects, can optimize shellfish restoration efforts, assist with shellfishery management decision making and help the shellfish farmers maximize their yields.

ShORE

This was the fourth season that the marine program worked with the shellfish officer research and education (ShORE) group. This network of shellfish

constable research was designed using concepts from both the shellfish habitat assessment and research farm programs, and focuses on municipal aquaculture. In FY 2010, staff worked with four towns Bourne (2 sites), Eastham (1 site), Harwich (3 sites) and Yarmouth (2 sites).

Bay Scallop Ranching

The assessment of bay scallop ranching using underwater fencing as a method of holding scallops and providing predator control continued this past year. This ongoing research is designed to both assess if the fences are a potential method of subtidal aquaculture and also to help towns establish a new type of bay scallop spawning “sanctuary.”

Two experimental fence sites, one in Falmouth and one in Yarmouth, are currently being monitored. 15,000 scallops were stocked late in 2009 and monitored in FY 2010 at the Falmouth site. At the Yarmouth site, several hundred are being monitored at various depths due to unexplained mortality during 2009 and several thousand were grown out in floating cages for stock enhancement.

A new project for the marine program in FY 2010 was eelgrass habitat survey work. Funded through a grant award from and working with The Nature Conservancy, staff collected data on eelgrass habitat “appropriateness” at selected sites in the Cape Cod region to determine what areas may be suitable for future eelgrass restoration projects. Test plantings at three chosen sites will commence this September and will be followed into 2011.

Membership and Associations

Marine staff members work with local, state and federal agencies, and are members of a wide range of committees and subcommittees including but not limited to: the Marine Outreach Guidance Group of the Woods Hole Sea Grant Program, the Massachusetts Bay Committee, the Massachusetts Ocean Partnership, the Cape Cod AmeriCorps Advisory Board, the Barnstable County Coastal Resources Committee, the Barnstable County Shellfish Advisory Committee, the Massachusetts Aquaculture Association, the Massachusetts Shellfish Officers Association and the USDA Northeast Regional Aquaculture Center Extension Network.

IMAGES FROM THE MARINE PROGRAM



Volunteers in Orleans assist with deployment of oyster remote-set bags



Research Farm Network participant with oyster experiment



Water quality monitoring with YSI instruments



Eelgrass density assessment using quadrats

MARINE SCIENCE EDUCATION PROGRAM

The “Coastal Explorer” is a 31-foot Class “A” motor coach that was custom-built as a marine science



educational vehicle and has been in use since September 1998. The Coastal Explorer is equipped with a

computer for use with interactive CD-ROMs, a TV/VCR for showing marine life videos, microscope with video-flex attachment for viewing marine life on the TV screen and saltwater aquariums. There are blue shark and dolphin models displaying both external and internal anatomy, preserved specimens, marine life skulls, interactive games and other hands-on exhibits. Furthermore, the vehicle is handicapped-accessible. The Coastal Explorer program is designed to educate participants of all ages about our unique marine environment in a discovery-learning format.

The “Coastal Explorer” and “Coastal Connections” marine science programs took place in eight Barnstable County towns in summer, ranging from Falmouth and Mashpee to Provincetown and Truro. The “Explorer” visited libraries and museums in 2009. A total of 1,876 adults and children visited the “Explorer,” while an additional 262 children and adults participated in the “Coastal Connections” programs. Attendance for the summer program has further increased from last year, for a total of 2,138.

The “Coastal Explorer” marine science education program had another successful year. The 2009-2010 school year had a total of 18 Barnstable County schools participating in the program over the course



of 19 weeks. A total of 266 marine science classes were conducted for 5,122 students in grades K-8. The Coastal Explorer Curriculum Guide was again updated over the winter, with new information added to provide participating teachers with a current marine science resource for their classrooms. The curriculum follows the science frameworks required for area schools. Exhibits within the “Explorer” have been cleaned and/or revised with several new posters, books, models and two electronic laptop activities added. Ed Enos of the Marine Biological Laboratory (MBL) in Woods Hole again assisted in obtaining specimens for the “Coastal Explorer” aquariums.

While the “Coastal Explorer” was in Truro this past spring, an office digital camera was used to take pictures of the “Explorer” exterior and interior, and students visiting the vehicle, included in this report. Video (online) and photos of some aquarium inhabitants are included here as well.

A record high of nine hundred eighty-five students had participated in the “Whale in the Classroom” program during winter, in grades 3-5. Twenty-two classes took place in seven Barnstable County schools, including the towns of Barnstable, Brewster, Eastham, Falmouth, Mashpee, Truro and Yarmouth. The Whale in the Classroom Curriculum Guide provided 45 participating teachers with further activities and resources about whales.

The summer program featuring “4-H Coastal Connections” programs and “Coastal Explorer” visits were mentioned in the “Cape Week” section of the *Cape Cod Times* and “Calendar” section of *The Cape Codder* newspapers in July and August. The “Whale in the Classroom” classes held at Morse Pond School in Falmouth during February were featured in the school’s weekly newspaper, *Inside The Scoop*. A feature article and photo was



included. The Coastal Explorer visit to Stony Brook Elementary was included in the “Education” section of the May 21st issue of *The Cape Codder*, featuring a paragraph about the “Explorer” and a photo of a visiting first grade classroom.

A display rack is on board the “Coastal Explorer” with further resources available for teachers and/or visitors, including an updated fact sheet about sharks, jellyfish fact sheet, program information about “Whale in the Classroom,” “4-H Coastal Connections Summer Programs 2010” brochure, “Beachcomber’s Guide to Cape Cod Seashores” flyer, 4-H club/recruitment flyer, resource bibliography, and deer tick information. Teachers may also borrow books and/or videos about marine life from the “Coastal Explorer.”

COASTAL PROCESSES & COASTAL HAZARDS **ACTIVITIES**

Town and Regional Organization Technical Assistance

Technical assistance in the form of 20+ site visits, GIS analysis, and follow-up written reports on issues relating to coastal bank stabilization, beach grass for erosion control, proposed revetment construction on coastal banks, and dune restoration were provided to the towns of Orleans, Wellfleet, Eastham, Mashpee, Sandwich, Barnstable, Dennis, Chatham, and Provincetown. Advice and graphics were also provided to citizens from the off-cape towns of Manomet, Marion, and Dukes County.

Interviewed and quoted twice (8/8/2010 & 9/3/2010) in the *Boston Globe* regarding the impacts of Sea Level rise on storms affecting Cape Cod and Manomet beach erosion.

Expertise is actively provided to the coastal sub-committee of the Pleasant Bay Management Alliance (Orleans, Chatham, Harwich and Brewster) and the Dennis Barrier Beach Management Taskforce until the completion of its charter (recommendations to Selectmen) in March 2010. Significant support is being provided to the Pleasant Bay Management Alliance to generate a Coastal Data Atlas (involves coordination with CZM and USACE), which will provide the needed data for subsequent management recommendation documents.

Several conservation commissioners and agents

have expressed an interest in having longshore transport and littoral cells documented across Cape Cod. Work is well underway to map longshore transport and littoral cells along the entire Cape Cod coastline. Products will include presentations and a brief booklet showing the results of the study and describing the value of this management approach.

Organized and presented a **Climate Change Literacy workshop** for invited NOAA offices and NOAA close partners in Southeastern Massachusetts. Presentation topics included brief updates on the State of Climate Science, Expressing Uncertainty, Climate Models and Regional Downscaling, Communicating Climate Science, the NOAA Climate Portal and other regional resources. Communication among participants was encouraged to strengthen local professionals’ abilities to share climate related science and services with stakeholders within the region.

Educational programs were offered in a variety of Coastal Processes topics to ten groups with over 385 in attendance.



4-H PROGRAM

“I Pledge my Head to clearer thinking,
my Heart to greater loyalty,
my Hands to larger service,
and my Health to better living”

The Barnstable County 4-H Program continues after 104 years, providing youth with numerous opportunities for achievement by offering them adult mentors and role models, a safe and enriching environment, skills needed to become productive and contributing members of society and the social and academic experiences to engage them in a lifetime of learning and supporting their communities through community service projects. The 4-H Youth Development Program offers these through a variety of 4-H delivery modes and curricula, which are defined in this report.

4-H Educational Program Delivery and Curriculum

The 4-H Club Program provides youth with a caring adult and a safe place to meet over an extended period of time, providing mentoring and building self esteem. 4-H Projects are oriented for experiential learning which provides knowledge and skills to our youth. The 4-H program has 20 4-H Clubs county-wide, providing hands-on education in a wide variety of areas such as: animal and equine science, healthy lifestyles, consumerism, science and technology, dog training and handling, environmental stewardship, community service, public speaking and more. All youth must sign a code of conduct, permission and liability releases, and health and enrollment forms.

The 4-H After School/Out of School Program

delivery mode is a short-term project where a specific course is held in numerous locations throughout the county. Generally these programs are organized for 6-8 consecutive weeks teaching youth specific subject matter. 4-H After School Programs were planned and implemented in a variety of formats to provide 4-H opportunities to children. Some offerings include: 4-H Animal Lovers (exploring animal science), 4-H Go Green (an ecology/recycling workshop), Kitchen Chemistry (science experiments with everyday ingredients), 4-H Robotics Workshop (a science and engineering program) and 4-H Looking Good/Feeling Good (encouraging healthy lifestyles) and 4-H Fun with Food (discovering nutrition and fitness). Over 4,000 children participated in these types of programs.

4-H School Enrichment Programs reach over one thousand Cape Cod youth by working directly with the principals and staff at local schools, offering them hands-on learning. Schools integrate these activities into their curricula, enriching the classroom with an event or focus area that is pertinent to their area of study. These include 4-H Healthy Kids Fairs, Embryology Projects and Communication projects.

4-H Camp Farley in Mashpee provides an experience to work with youth particularly during summer vacation which is critical to continued academic success, keeping their minds and bodies challenged and occupied. The goal is to go back to the classrooms in September, ready to learn and stay ahead of the learning curve. 4-H Camp Farley hosted

1844 youth during the summer camping season. The 4-H Advisory Council contributed \$1,000.00 in scholarships to 4-H members to attend camp.

A partnership was created this year with 4-H Camps to promote the 4-H program to campers encouraging them to find a local club to enroll in or have their family start a new club. This opportunity was provided through a grant from the Massachusetts 4-H Foundation to work with 4-H alums in an internship program. 4-H developed promotional displays and handouts for campers and their parents. We plan to offer this annually.

4-H Advisory Structure, Fundraising, Event Implementation

4-H Horse Advisory hosted the annual county Horse Bowl Contest with all 4-H horse clubs represented. This volunteer group continues to be very active and sponsors opportunities for members to participate in regional horse related events, competitive programs such as horse shows, Wonderful World of Horses demonstrations at the Barnstable County Fair, judging and show clinics and workshops. The 4-H Horse Advisory also sponsors 4-H shows and clinics giving 4-Hers a chance to learn fitting and showmanship skills which are educational programs for our youth. Veterinary Camps and other Animals Camps and environmental sciences are taught at UMass Amherst to provide a foundation for animal and equine careers and are attended by our 4-Hers.

The **Barnstable County 4-H Advisory Council** is a 12-member board devoted to Cape Cod Youth through the 4-H program. They are “roll up your sleeve folks” who provide the many hands needed to plan and implement numerous events and programs held throughout the year. The 4-H Program is event driven and the Council helps oversee many events such as the annual 4-H Recognition & Awards night, managing the 4-H Kitchen at the Barnstable County Fair, the 4-H Scholarship Committee, educational field trips, community service projects and others.

They also fundraise annually to provide scholarships for 4-Hers to attend 4-H Camps, attend national 4-H events and to further their education beyond high school. This year over \$5,000.00 was awarded to enrolled 4-H youth. This Council supports many

events and activities; without this monetary support we would not be able to offer without large user fees, thus eliminating many children's participation, especially in these tough economic times.

Leadership and Communication the 1st "H" Head to Clearer Thinking

The 4-H Junior Fair Board consists of ten teen 4-H members who learn "behind the scene" skills in event organizing. These teen volunteers commit youthful energy and enthusiasm before, during and after the fair in numerous capacities ranging from clean-up crews, kitchen staff, youth exhibit representatives, office runners, and administrative assistants. They see first-hand how much time and planning goes into successful events. From public speaking skills to safety procedures, working with diverse groups of people, consumerism, and display layout and design and organization skills this is a "learn by doing" experience they never forget.

Monthly 4-H Newsletters are published to provide current information to 400 clients and community outreach regarding programs, events and educational opportunities for 4-H members, volunteers, families and supporters. Volunteer updates or teen notices are communicated as needed for updated information.

4-H Visual Presentation Day held in March hosts 63 youth and 22 adult volunteers for an evening of judged public speaking competitions. The "VP" handbook, written by a Barnstable County 4-H teen member, continues to be a great resource for 4-Hers across the state. The number one fear of adults is public speaking and this 4-H program teaches youth to overcome these fears and succeed at communication skills, which in turn helps them in the classroom, at job and college interviews and more. Many of our 4-Hers use these skills when they appear on the Cape Kids 4-H TV show and other events and media opportunities.

Twenty-one 4-Hers were chosen to represent Barnstable County at the annual State 4-H Visual Presentation Day competing in their classes, with eight achieving "excellent" status.

Resume & Record Workshops were conducted for 15 4-H teens and volunteers teaching valuable tools

for writing resumes to use in college applications, national 4-H applications for events or jobs. From these workshops Barnstable County 4-H members put together their 4-H portfolio then submit them to the MA 4-H judging team. One Barnstable County 4-H teen was selected as a delegate to represent MA 4-H at National 4-H Conference in Washington D.C.

Volunteer Recruitment, Retention and Management the 2nd "H" Heart to Greater Loyalty

Volunteers are the heart of the 4-H program, without them 4-H would not exist. Volunteer time in the Commonwealth is valued at \$26.32 per hour. Approximately 220 volunteers participate in many different ways as 4-H club leaders, on project committees, councils, judges and workshop leaders, middle management opportunities to help with program delivery and events, educational field trips, community service opportunities and others.

The value of our volunteers is estimated very conservatively at 20 hours per year at \$26.32 per hour therefore realizing \$115,808.00 worth of service. Some volunteers exceed this many times over, others may only volunteer six hours per year but this is a significant number. A 4-H Club Leader could potentially give over \$5,000.00 worth of volunteer time annually to their club responsibilities.

A **Volunteer Management System** takes time, patience and continuous communication to maintain and provide information, resources, advice and encouragement. This is critical to ensure quality control for the 4-H program as well as the necessary support for our 4-H volunteers. Organizing orientations, trainings, program updates, coordinating events and dealing with people including parents, teens and children can be challenging and overwhelming at times. However, the value of what volunteers provide, including their time, effort, resources and mentoring, cannot be measured but can be felt for years to come because of the impact they made on a child's life.

As part of the Massachusetts 4-H Program, Barnstable County 4-H mandates the **Volunteer Risk Management Program** which incorporates background information, reference forms, screening, and numerous other details and guidelines. This

necessary but time-consuming task ensures the safety of both 4-H members and volunteers. We require CORI checks on all volunteers and people over the age of 18 who may come in contact with youth at club meetings or functions. All volunteers who judge, teach workshops or come in contact with any youth on a regular basis must go through this process. 4-H require memorandum of agreement procedures as we collaborate with other youth serving agencies and schools so all parties understand the Risk Management information necessary to host 4-H programs.

Community Service the 3rd H Hands to Larger Service

Four county-wide **4-H Community Service projects** were held once again in addition to numerous club projects. The first was our third annual 4-H Food Drive “Cares about Community” which kicked off at the Harvest Festival as we joined the MA 4-H program in offering a community service always in demand. Barnstable County 4-H collected 2,875 pounds of food throughout the county and then distributed it to the Salvation Army, The Vietnam Vets Association, the St. Vincent DePaul Society, the Cape Cod Council of Churches, the Bourne Food Pantry and Champ House. 4-H Clubs collected food items throughout October & November. The 4-H Advisory Council helped set up displays at eight drop-off sites and all 25 Cumberland Farm stores across the county. All 4-H families were asked to participate. This was a huge success and made a valuable impact in our community, especially during these hard economic times.

4-Hers collected supplies requested for “A Baby Center” in Hyannis for at-risk infants and toddlers to help with their daily needs. Over 100 bags, valued at approximately \$40.00 each for a value of 4,000.00, were filled with supplies including diapers, pajamas, socks and other essentials. The Oakridge School in Sandwich also participated, so another collection campaign was organized and an after-school 4-H community service learning workshop was held with 18 children to fill another 110 bags!

The third project had 4-Hers and volunteers making over 1,000 craft items celebrating different holidays and seasons that were distributed to 22 local nursing/

assisted living homes as an intergenerational project.

The fourth project had us once again making fleece pillows for Hospice patients. These pillows are very comforting to the patients and are given to the families after they pass. It was incorporated into a **4-H Community Service Club** that focused their club meetings to make community service projects and donate them. Over 75 pillows were made and donated to the Mary McCarthy Center.

All 4-H Clubs are encouraged to adopt a local cause in their own communities, a few examples are: homemade baby quilts to donate to the Barnstable Housing Authority, placemats and window decorations for nursing home residents and pies for the Noah Shelter in Hyannis. One dog club raised money for local police departments to purchase more bullet proof vests for their police dogs and another to purchase more tables for the Osterville Community Center where their 4-H club meets. Another club devised an “Elves On Horseback” program to raise money for cancer and a rodeo event to raise funds for the MSPCA and A Baby Center.

Healthy Lifestyles the 4th “H” Health to Better Living

Celebrating the 4th “H” Health” initiative continues to be a timely project helping to educate parents and children about fighting childhood obesity and choosing healthy lifestyles. As part of this goal, 4-H “Healthy Kids Fairs” were held at East Falmouth Elementary Schools and the Bourne Middle School to focus on healthy lifestyles for kids reaching a total of 987 youth. Participants learned about healthy food choices, food safety, hand washing, consumerism, integrating math and sciences skills as they shop, and fitness activities. Participants take home “goody bags” filled with educational information and post activities to continue to reinforce good nutrition habits at home.

Another healthy lifestyle event is the annual **4-H “Walk for Healthy Kids”** in May which provides educational activities, food, fun and even a dog agility course for our four-legged friends! Plymouth & Barnstable County 4-H programs collaborate to put on this wonderful family event at the Cape Cod Canal with approximately 150 people attending (and lots of

dogs too!). Some 4-Hers received pledges, half going to their 4-H club to support upcoming projects. The community service project for this year's walk was a Pet Food Drive where we collected bags and bags of pet food.

A new 4-H venture was established in Truro this spring with a 4-H Community Garden project that resulted in two 4-H clubs. One club actually planted and tended the garden the other made scientific observations and drew the garden as it progressed in their gardening journals. Then they harvested their garden and entered vegetables into the Truro Agricultural Fair and have been donating produce to Truro Elementary School.

4-H presented the “**4 R's Recycling Program**” for Earth Day, reached all Truro Elementary students grades K-6 offering four activities to participate in: playing a game from recycled plastics, composting, making recycled crafts and learning about sorting recycled materials into proper receptacles.

Continuing with the fourth “H,” the **4-H Fun with Food Program** offered six programs collaborating with the FNP program. Schools were contacted to host an eight-week course. Flyers were developed, advertised and the program was implemented with rave reviews from principals and parents.

4-H Military Programs

4-H continued to have a very active **4-H club and activities at Air Station Cape Cod/Otis ANG Base**. Thirty-nine children participated in the 4-H Adventure Club with projects from nutrition and fitness to rocketry, robotics, challenge games, crafts and science. This club serves as a wonderful activity for kids who live on the base and are in need of activities.

The program continued to expand adding a middle school aged program providing two 4-H Babysitting Course reaching 23 children. In addition, for children ages 10-12, 4-H offered a 4-H Junior Chef Club where they learned healthy food preparation, nutrition education, food safety and handling, and consumerism. This 12-member club was a huge success with many children having a hands-on-experience learning about new foods and developing

new healthy eating habits. There are still many families to reach out to, but 4-H has quite a presence on Air Station Cape Cod, reaching 51 children weekly!

Some other 4-H Family Events were held at Otis to provide fun educational hands-on activities for parents to participate in with their children, including bowling, school vacation programs, 4-H Summertime Fun “No Child Left Inside” at the pool on base, teaching water safety, sun safety, science activities and more. Some highlights for summer were Animals in the Zoo (learning about many different kinds of animals), Christmas in July, NASCAR races (incorporating science activities) and “Be a Rock Star” (music education).

The Barnstable County 4-H Program and Coast Guard MWR hosted “**Get Ready for School,**” an event for children from Air Station Cape Cod / Otis ANGB and the surrounding area to have an opportunity to help fill their backpacks with all the supplies needed to start school. This program was advertised through flyers, email lists and other publications for military families both on and off the Base.

Marketing and Promotional Opportunities

The **Barnstable County Fair** is an excellent opportunity for the 4-H program to recruit volunteers and members, as well as conduct outreach with other organizations. The 4-H Advisory Council operates the 4-H Kitchen for 12 days before, during and after the Fair, serving homemade food to fair volunteers, workers, 4-H members and visitors. Youth learn consumerism, food safety and handling, food preparation and communication skills while interacting with the public. The net proceeds of this effort constitute the primary budget of the 4-H Advisory Council, much of which is used for 4-H events, programs, scholarships and camperships. Advisory awarded scholarships to six 4-H graduating seniors to pursue higher education.

Over 135 4-H members and 80 volunteers participated in the Youth Exhibit Building activities, the 4-H Kitchen, the 4-H Wonderful World of Horses, the 4-H Dog/Pet Shows and other animal shows during the Fair. 4-H was well represented with

high visibility, achieving a priceless opportunity for marketing 4-H. Youth gain life skills by interacting with the public showcasing accomplishments. Youth learn to plan their resources and time to ensure their area is clean, safe, functional and educational. Volunteers provide guidance and work side by side with 4-Hers, however the 4-H members are completely responsible for their animals or projects.

The **Cape Cod Harvest Festival** provides another opportunity for youth to engage in community service projects, fundraising efforts and demonstrate their 4-H skills and accomplishments. Nearly 85 members and volunteers participated, showcasing 4-H programs to over 2,000 attendees. This is also a major recruitment opportunity for 4-H where parents can inquire about 4-H opportunities and gather information about clubs and programs. Numerous hands-on activities are offered to attendees as well as “make it take it” stations focusing on nutrition and science.

News releases are done on a regular basis along with flyers, brochures, website updates and PSA's to provide information to our 4-H families, potential new families and the general public seeking information to be a part of our program.

Operation Military Kids

Operation Military Kids, a partnership of Army Child & Youth Services, USDA National 4-H Headquarters, and UMASS Extension/4-H, again received \$100,000.00 in grant monies to continue their outreach efforts for geographically dispersed families of actively deployed soldiers. This fourth year of funding allows 4-H to continue “Ready, Set Go” and “Speak Out for Military Kids” trainings, and to continue our “Hero Backpack” program. Barnstable County also applied for and received three mini-grants that were supported by the state grant money to:

OMK offers after-school programs at the Otis Child Development Center, the Bournedale School (Trees and Paper and Oxygen, Oh MY! and Eco Art Challenge) to a total of 44 youth between October and May.

OMK organized and conducted evening activities

for 100 youth who attended the first **OMK Summer Camp** funded by the Department of Defense held at Camp Lyndon in a collaboration between Barnstable County 4-H, Operation Military Kids and YMCA Cape Cod. Two one-week, overnight sessions were offered in the months of July and August of 2009.

4-H trained incoming OMK/Camp staff (35) in a 2-hour RSG training to help sensitize them to the needs of military children who attended the summer camp program. This 2-hour power point presentation includes information on stress and how it manifests itself in the behavior of children, among many other important topics.

Activities were organized for an Army Reserves camping program conducted at YMCA Camp Lyndon (an OMK partner), which hosted 34 children with actively deployed parents overnight for one week. Activities included patriotic crafts, nutritious snacks, and featured the statewide introduction to our MTL (mobile tech lab). The MTL consisted of five laptops, a digital camera, a video-camera, CD's, DVD's and more, allowing youth an opportunity to create cards, photos, and video footage to share with their loved ones.

4-H led a huge holiday community service event for military families living on Otis Air National Guard base and families geographically dispersed throughout Cape Cod. Dollar Tree Stores in Plymouth, Carver and Hanover donated over 5,000 toys (value of \$1.00 per toy, making this a \$5000.00 donation) for stocking stuffers and made available to military families in a number of ways. This year, the 21st Century Zoom program (36 youth) at Barnstable High School helped sort through the toys, stuff stockings, and fill “Santa sacks” which were then delivered in our “Silverado Sleigh” to the Childcare Center on Otis in time for the holiday party. A second truckload of toys was unloaded, sorted and bagged by about 15 members of the Cape & Islands Gay & Straight Youth Alliance (CIGSYA) and shared with military families and other needy families and the organizations that serve them. As a result of this major community service effort, over 200 children were reached during the holiday season.

Barnstable County 4-H, in collaboration with

UMASS 4-H and YMCA Cape Cod, applied for and was awarded a \$40,000.00 grant in March of 2008 from the Department of Defense to offer a free summer camping experience to 80 military children (any branch, with a parent in an active duty status) during two one-week sessions in July and August 2010.

OMK was invited to participate in the “Festival of Trees” at Heritage Plantation during the 2009 holiday season. Youth in 4-H after school programs at Barnstable High School and Barnstable Intermediate School in addition to the YMCA Cape Cod and Peer Leadership. Project Forward produced dozens of beautiful hand-made ornaments in red, white and blue to help display our support of the families who have members serving our country overseas during the holidays.

4-H Afterschool/Out of School and Community Based Initiatives:

The Four Essential Elements:

To know they are cared about by others
(Belonging)

To feel and believe they are capable and successful
(Mastery)

To know they are able to influence people and events
(Independence)

To practice helping others through their own generosity
(Generosity)

4-H offered **sewing programs** to 13 students attending the Barnstable Intermediate School in the fall of 2009, the winter of 2010 and the spring of 2010. Included among the many items that were sewn were shoulder bags, make-up bags, pajama bottoms, and skirts. In addition, Barnstable County 4-H was invited to participate in an Enrichment Cluster during Jan and Feb of 2010 at the Intermediate School, and eight students helped make fleece blankets and pillows for the VNA Hospice Program and for the Veteran Outreach Program.

4-H After-school continued to offer courses in creative science/mathematics/art at the Barnstable Intermediate School in the fall of 2009. Fifteen students at this site also participated in the 2009 National 4-H Science Experiment (“Biofuel Blast”),

which included an online survey component following the experiment. The science experiment was also offered at our collaborative Lights On After school event (with the Boys & Girls Club of Cape Cod) and resulted in Barnstable County winning \$400.00 as the county with the most participants and follow-through in the Commonwealth of Massachusetts.

Twenty-eight **Project Forward** students took part in a two day Disability Awareness/Peer Leadership Program in December of 2009. This was the 10th annual partnership with Project Forward, and students are now ready to speak to other youth groups and school-aged children about coping with a disability. This group made presentations at the college, local elementary schools and a number of other places in a continued effort to sensitize and educate others about the challenges that they face.

A new **4-H Hospitality Program** was formed in cooperation with the Maas family at the Orleans Inn. Seven students met at the Inn twice a month and learned a variety of skills “from soup to nuts” about the restaurant and hospitality business, in addition to basic etiquette. Students spent time in the kitchen prepping food, in the dining room setting tables and learning important placement of dishes and silver, and folding cloth napkins in a variety of styles, as well as participating in lessons on the dos and don’ts of eating in a restaurant. Students then helped serve guests who attended the United Way’s “All Decked Out” affair at the Inn in May of 2010.

Another thriving partnership is between the Barnstable Public Schools and the Barnstable County 4-H program. 4-H continues to be a strong partner in the Intermediate and High School’s **21st Century Learning grant afterschool programs**, and the Safe and Supportive Learning Grant (DESE). Students are invited to attend this program after school at no cost. Activities are designed to improve:

- 1) Learning skills,
- 2) Engagement in learning,
- 3) Problem-solving skills, and
- 4) Relationships with adults and peers.

A total of 49 students participated in the Intermediate School and another 36 participated at Barnstable

High School. Activities enjoyed by the students included Sewing, Environmental Science and Arts, Babysitting, community service projects and more. The most successful program offered this year was a new Photography Club after school at the high school which allowed 20 (ZOOM Program) students an opportunity to learn how to use a digital camera, upload photos and manipulate them digitally, create slideshows, and much more. A field trip to the Cape Cod Art Association on Route 6A added to the students' skills, as did the contributions of a retired photojournalist who volunteered her talent weekly through the 4-H program. Each student created a slideshow at the end of the year, and these were viewed in the Knight Auditorium as the finale to our experience. A variety of photos taken by the students in the Photography Club are posted on the Cape Cod Extension website under the 4-H afterschool link.

Barnstable County 4-H and Boys & Girls Club of Cape Cod co-hosted our third consecutive **Lights On After School Event** on October 16th, raising awareness about the importance of programs and places that keeps the lights on for youth during the hours when schools are not in session. Barnstable County 4-H received a Resolution from the Massachusetts General Court urging continued support of this program, signed by members of the Senate and House of Representatives. Two local citizens were honored for their commitment to youth on the Cape, including Janice Walford, Enterprise Newspapers, and the Honorable Joseph J. Reardon, retired.

The fourth annual "**Meals On Wheels**" **Valentine Cooking Project** provided over 150 homebound seniors with a homemade heart-shaped cookie on their Valentine delivery day tray. According to the staff at Meals On Wheels, the phone starts ringing early in the morning with excited and appreciative seniors professing their appreciation for this gesture. The cookies are made and frozen during the month of January by 8th grade students in the ZOOM program at BHS. In February, the cookies are frosted, decorated, bagged and tagged, and then delivered to the Senior Center for their final destination. This is an upbeat project that puts a smile on everyone's faces, including the bakers!

Barnstable County 4-H teamed up with the **Summer Food Program** to provide recreational activities to youth after lunch on several occasions during the summer of 2009. After the death of Senator Kennedy in August, we made two large banners with multi-colored handprints and donated one to the Kennedy Museum and the other to the Department of Human Services.

The 2008-09 **Cape Youth Force (CYF)** program was a partnership between Barnstable 4-H Youth Development, YMCA Cape Cod and the Cape Cod Foundation. Funding for CYF came from the Cape Cod Foundation (Community Fund for Young People, Priscilla M. Cotter Fund for Youth Activities, and another private donation). Cape Youth Force joined "forces" with the Cape & Islands Youth Congress this year, enabling more students to participate in the grant making process. A total of \$5,000.00 was distributed to six youth-related programs on Cape Cod, designated by the youth themselves.

The **Cape & Islands Youth Congress** is a diverse group of high school individuals who are working together to enhance their community, promote positive change and better prepare themselves and their peers for the challenges they face as young people. In its fourth active year, Congress continued to build momentum, and met four times during the school year, learning about and participating in a debate, learning more about the legislative process in general, and prioritizing issues for youth on Cape Cod prior to releasing an RFP to help address these issues. In addition to this, Congress helped to plan the Youth Summit and served as MC's, workshop facilitators, and panelists.

The **7th annual Youth Summit** was held on March 12th this year at the Harwich Community Center with well over 200 local participants, including students from almost every high school on Cape Cod! The Summit is an event that is sponsored by the Barnstable County Council for Children, Youth and Families each year, with a great deal of support from many other organizations and local businesses. This year's keynote speaker was Steven Gross from the "Life is Good Playmaker Initiative" formerly known as Project Joy, and his work with children in Haiti

was powerfully presented in a series of magical slides which showed them playing and laughing amidst the ruins of their homes and communities. An Extension Educator served on the Summit Planning Committee, and designed a community slideshow to showcase the work of our Cape Cod community, including several high schools, Youth Congress, Cape Youth Force, Barnstable Youth Commission, the Community Youth Project, Girl Scouts, YMCA, Boys and Girls Club, CIGSYA, the Summer Food Program and many more youth-serving organizations. This year's Summit was youth-led and exceeded, much to the delight of the audience, and honored Jacquie Fields as our Community Champion and Harwich High School for exemplary leadership and participation.

4-H is proud of its relationship with Cape Cod libraries, where a variety of programs have been offered for little or no charge to local youth. The 4-H Babysitting Program, offered at over a dozen libraries cape-wide, had 219 participants this past year. The Babysitting program was offered in strategic locations over the winter and spring school breaks in an effort to occupy youth out-of-school time. Upon completion of this eight-hour course, participants received an ID card, a certificate, and a "4-H Babysitter" bag.

4-H co-sponsored **Earth Day 2010** at the Centerville Library, and offered a hands-on workshop on how to make paper to about 75 participants!

4-H also teamed up with AmeriCorps Cape Cod in the spring of 2010 to offer "**Green Thumbs**" to six participants at the BWB Elementary School. Students participated in a variety of growing activities resulting in seedlings that were planted at a nearby farm!

A huge **Hero Backpack ceremony** was conducted at Harwich Elementary School on Flag Day, in front of about 700 students, teachers and parents. Approximately 12 students were the recipients of a hero backpack to thank them for the sacrifice they have made while a parent is deployed overseas. Another 15 students received a hero bag, with dog tags, a disposable camera and a few other goodies to honor them as children of active duty military parents

A 4-H Youth Educator also participated in a two-

day **Suicide Prevention training** offered to youth providers and organizations Cape-wide in an effort to reduce the incidence of suicide on Cape Cod. The Cape & Islands has suicide rates 1 1/2 times higher than the state average (according to the MA DMH) and a Suicide Prevention Project was funded through a capacity building grant submitted by the CHNA 27 (Community Health Network Alliance) by the MA Dept. of Mental Health. This money covered the expenses of many different trainings and awareness campaigns that are addressing this important and preventable public health problem.

A 4-H Educator also participated in a day long Steering Retreat of the **Barnstable County Council for Children, Youth and Families**. This is a group that has received national recognition (three times) for identifying needs and assets, influencing policy, planning and coordinating resources and advocating for solutions to ensure the well being of children, youth and families on Cape Cod.

Priorities for 2009-10 included Cape and Islands Youth congress, Cape Cod Justice for Youth, the 7th annual Youth Summit, Effective Education and the Child Care Planning Project. In addition to this, 4-H co-authored the 2010 application to America's Promise for our 4th designation as one of the 100 Best Communities in America through America's Promise.

Extension Educators participate and plan with colleagues in statewide UMASS programs and attend meetings and professional development opportunities offered through 4-H. Barnstable County 4-H educators continue to contribute on a community, state and national level in a number of ways, including the following:

BARNSTABLE COUNTY COUNCIL FOR CHILDREN,
YOUTH & FAMILIES STEERING COMMITTEE
National 4-H After-School Team
Operation Military Kids Massachusetts & Cape Cod
Cape & Islands Children, Youth and Family Summit
Steering Committee
The 21st Century Learning Grant Advisory Board
The Barnstable Middle School's Safe and Supportive
Learning Grant (DOE funded)
Cape Cod Neighborhood Coalition



This 4-H'er is the personification of joy!



4-H'er Merrick Rubenstein installs bees in a hive with the 4-H Bee Club.



The 4-H Walk for Healthy Kids is a fund-raiser and educational opportunity for club families.



The 4-H Coonamessett Farm Club teaches kids about the care and maintenance of farm animals.



4-H Food Drive brings in TONS of food!



Otis 4-H Adventure Club recognizes Memorial Day by visiting the National Cemetery in Bourne.



Diploma Plus Students engaged in Community Service by making OMK(Operation Military Kids) blankets



Operation Military Kids Camp



Healthy Kids Workshop



Summer Food Program Hands Banner given to Kennedy Family after the death of Senator Ted Kennedy



Sewing Programs at Barnstable Intermediate School

BHS 21st Learning Grant participants pictured in the "Silverado Sleigh" deliver gifts to Otis ANG for Holiday Celebrations



Cape Cod Youth Force

MAP (Massachusetts After-school Planning)
Barnstable County Health and Human Service
Advisory Council
Cape Cod Justice for Youth Collaborative
Youth Suicide Prevention Project
C&I Youth Congress, Cape Youth Force, advisor
Provided training and support to volunteers and
program associates working in conjunction with the
4-HYDP

4-H has also with the **Oral Health (Prevention) Project** on Cape Cod, which is helping to educate parents early on about the effects of toothbrushing and oral care. Since one of the 4 H's is Health, this was a natural partnership, under the competent leadership of BL Hathaway.

NATURAL RESOURCES

Land Management Grants

Six land management grants totaling \$17,000 were funded FY 2010. This competitive grant program was established to provide funds for municipal land management. Projects funded included the establishment of community gardens in Provincetown, Wellfleet and Eastham; the development of a coastal nursery in Barnstable; creating a handicapped accessible trail and picnic area in a Falmouth conservation area; and establishing a new trail system and removal of invasive species in a Chatham conservation area.

Wildfire Assessment and Preparedness

A Wildfire Assessment and Preparedness plan was completed for the 400 acre Old Jail Lane Conservation Area in W. Barnstable. With the completion of this plan, fourteen plans have now been completed throughout the county. All plans are available to the public through the Cooperative Extension website. All plans assess the wildfire risks and make fuel reduction recommendations. Once the town adopts the plan, funds are available to the town for implementation of the highest priority sections of the plan. Implementation grants provided to Bourne, Brewster, Chatham, W. Barnstable, Mashpee and Yarmouth. Implementation grant funds were received from a USDA wildfire grant and Barnstable County.

Septic Inspector Recertification

Forty MA Certified Septic Inspectors received
Barnstable County Annual Report FY 2010

recertification credits by attending two workshops on system inspection. Septic inspectors are required to attend recertification to keep their certification current. This regional workshop allowed municipal employees and private business owners an opportunity to become recertified in a local setting which included local issues and challenges.

Municipal Shade Tree Nursery

Through a nursery established at the Barnstable County Farm, municipalities can purchase low maintenance, sustainable trees and shrubs at below wholesale prices. Working with a group of tree wardens, trees and shrubs are selected to be grown for a variety of municipal uses. During this past year, trees and shrubs were purchased by Mashpee, Orleans, Falmouth, Yarmouth and Barnstable. These trees have been planted along roadways, at schools and cemeteries and around municipal buildings. Several trees were also planted throughout the county complex.

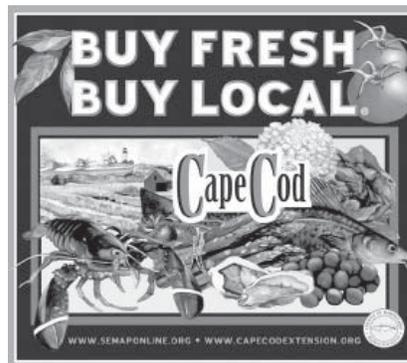
Cape Cod Conservation Network

Through periodic workshops, region-wide training on a variety of conservation topics was made available to conservation agents and commission members. Training topics included coastal processes issues, conservation land management and regulatory programs.

HORTICULTURE/AGRICULTURE

Buy Fresh Buy Local Cape Cod

The Buy Fresh Buy Local Cape Cod project continued



to successfully promote Cape Cod land and sea farms and restaurants and businesses that use locally grown products. The project's goals also include protecting and promoting

Cape Cod farms, strengthening the local economy and providing fresh local food. Working with the contracted coordinator and board of directors, Cape Cod Cooperative Extension manages the grants and provides project oversight. Buy Fresh Buy Local will continue through FY 2011 with another grant from

the Cape Cod Economic Development Council. With this grant the project will expand to include the Cape Cod Hook Fisherman's Association as they plan to market more locally caught fish to restaurants and businesses as well as to residents through a community supported fishery program.

Agriculture Energy Audit

Working in cooperation with the Cape Light Compact and Resource Development office staff, a \$100,000 USDA Rural Development grant was received for conducting and implementing energy audits and renewable energy assessments to agricultural and small businesses on Cape Cod and Martha's Vineyard. Once the energy audits are completed, businesses are eligible for up to 80% for necessary energy improvements.



DEER TICK AND LYME DISEASE PROGRAM

The 2010 Barnstable County Lyme disease program features educational, field surveillance and tick intervention directives. Funded primarily through Barnstable County, our message of tick prevention and tick borne disease awareness continued.

The educational component included animated presentations for green-directed organizations, table displays at assorted outdoor functions and distribution of printed materials at nearly one hundred sites.

Presentations

Presentations were provided at the Harwich Garden Club, the annual NOFA conference, the Chatham Garden Club, at the Golf Course Superintendents meeting, at King's Way Gardeners Club, at the Nauset Newcomers Annual Meeting, at the Yarmouth Horticultural meeting, at a Landscaper Update Meeting, for the Wareham Garden Club, for the Yarmouth Garden Club, for the Cape Cod Museum of Natural History, at an Earth Day table at the Heritage Plantation and at a Lyme disease Forum held in Orleans (a DVD was generated and shown on local cable). The audience at these presentations was estimated at over eight hundred attendees.

UMass Amherst invited Extension Agent Simser to be speaker on deer ticks at the UMass Amherst School of

Public Health and Health Sciences.

Hundreds to thousands of wallet-sized tick identification cards and tick management rack cards were distributed within all fifteen Cape Cod towns, on the islands and within the state. Color tick prevention posters and children's "tick fact" booklets (*Ticks are NOT for Kids*) were handed out in grade schools as part of our ongoing tick awareness project.

"Caution: Deer Tick Habitat" signs aimed at the hiking and golfing public were distributed to conservation groups and also delivered to most area country clubs and golf courses. These ubiquitous signs are observed throughout these sensitive areas, as a warning to the outdoor public.

The deer tick surveillance program, begun in 1998, continued into the 2010 season. The survey includes drag sample monitoring of eight sites within Barnstable County. Along with four sites on Martha's Vineyard and two on Nantucket, the survey provides the basis for relative tick densities as well as comparative tick intervention studies. In 2010, the deer tick nymph population decreased to about 55 tick nymphs per hour, down from about 71 nymph ticks per hour in 2009.

The third program component has focused on continued maintenance of a novel "tick killing" apparatus in Barnstable County, on Martha's Vineyard and on Nantucket Island. This project features a "4-poster" deer feeding station. Each unit includes a central bin, two feeding troughs and four treated vertical rollers.

The host target is the white-tailed deer, the primary reproductive host of the deer tick. Each 4-poster is activated with about four ounces of permethrin, a pesticide that kills ticks, and each device holds up to two hundred pounds of whole, cleaned corn. Deer nibble on corn and contact the vertical rollers, where they receive a dose of the pesticide. As deer are treated, the ticks (and mosquitoes!) on them are killed. Seven tracts of tick-infested property are delineated for treatment with an array of deer stations positioned to treat the surrounding 150 acres. Activation of the project begins in mid- September, and is maintained until late November. Stations are

reactivated in March to treat the spring cohort of adult ticks, and drag sampling is conducted from May-August to determine treatment success. Nymph deer ticks are collected and counted by dragging a flannel sheet along trail edges in treatment and control sites. Values are averaged for a comparison between treated and non-treated areas.

Results from nymph deer tick sampling to date include:

TREATED AREAS (with stations present)						
Site	Town	Field Designation	2007 à 2009		2008 à 2010	
			Nymph ticks/hour		Nymph ticks/hour	
Shawme Crwell	Sandwich	T-1	48	39	11	13
Bridge Creek	Barnstable	T-2	152	29	55	30
Dennis Pond	Yarmouth	T-3	23	33	22	36
Bells Neck	Harwich	T-4	24	28	20	28
Chappaquiddick	Edgartown	T-5	58	62	31	93
Cedar Tr. Neck	West Tisbury	T-6	150	42	48	58
Loring Found.	Nantucket	T-7	40	38	50	14
Average Treatment			71 nymphs/hour	39 nymphs/h	34 nymphs/h	38 nymphs/h

NON-TREATED (Control) AREAS (without stations present)						
Site	Town	Field Designation	2007 à 2009		2008 à 2010	
			Nymph ticks/hour		Nymph ticks/hour	
Burgess Cons.	Sandwich	C-1	24	24	9	14
Jehu Pond	Mashpee	C-2	54	39	10	30
Syrjala Cons.	Yarmouth	C-3	66	38	53	27
Punkhorn	Harwich	C-4	154	214	113	153
Sepiessa Pt.	West Tisbury	C-5	66	61	23	56
Fulling Mill	Chilmark	C-6	105	27	86	70
Almnc Pond	Nantucket	C-7	75	94	50	38
Average Control			78 nymphs/hour	71 nymphs/h	49 nymphs/h	55 nymphs/h

Note that the deer tick life cycle is two years between generations. Nymph tick population values must be arranged between odd to odd or even to even years for a realistic comparison. Thus, the nymph tick population in treated areas dropped from 71 (in 2007) to 39 (in 2009), while control values stayed similar, with 78 (in 2007) and 71 (in 2009). However, in even years the tick population in both treatment and control sites remained unchanged. This is a multi-year project and results will be ongoing through 2012 before the final verdict (“Does it work?”) is delivered.



**Ticks are out year-round...
If the temperature is 35° F or higher then ticks are out questing for a blood meal!**

**DEER TICKS ARE TINY
ADULT FEMALE ON A PENNY**

HORTICULTURE

Technical assistance, reference materials and pesticide information was provided upon request to municipal employees, green industry personnel and the public.

An **IPM Landscape Message** operated from January 1 to December 31, 2009. This message is updated weekly in spring, bi-weekly in summer and early fall, and monthly through the end of the year. Available 24 hours a day, it provides Green Industry personnel and municipal employees with timely information on insect and disease occurrence on turf and woody ornamentals as well as on cultural and IPM practices. It can be accessed via the web at www.umassgreeninfo.org or it is available, for a fee, as a faxed copy.

Site visits for diagnostics were made upon request of Green Industry professionals and municipal departments.

“**Getting the Most from Your Vegetable Garden**,” a lecture on maximizing the harvest, was presented six different times to an audience totaling 327; locations included Brewster (twice), Wellfleet, Marstons Mills, Barnstable and Dennis.

Seventy Green Industry professionals attended a presentation on Plant Identification.

Thirty-five green industry professionals attended a **Spring Horticultural Update**.

Educational information on the outbreak of **Late Blight of potato and tomato** was developed and disseminated to the public. Site visits were made to small farms for identification of infections.

Educational information on a new invasive to this area, **Mile-a-minute weed**, was developed and disseminated to the public.

Forty Green Industry professionals attended a **twilight meeting** to identify pests and weeds in the landscape.

Four hundred individuals attended the third annual “**Cape Cod Horticultural Conference**,” which was coordinated by the Master Gardener program and Cape Cod Extension Educators.

An **update on projected landscape pest problems** was presented to town tree wardens.

Eight hundred businesses statewide subscribe to **HortNotes**, a bi-weekly newsletter for Green Industry, including 49 businesses from Barnstable County. Two thousand three hundred and fifty MA residents subscribe to **Garden Clippings**, a monthly newsletter for the public, including over 350 in Barnstable County.

Information was provided to media reporters on various horticultural subjects. Six live, call-in radio programs were conducted on WCAI.

Twelve thousand copies of the **2010 UMass Extension Garden Calendar**, titled “**The Wonderful World of Plants**,” were sold statewide, with three hundred copies sold to residents of Barnstable County. The calendar focused on selecting low-maintenance plants materials. Work on the 2011 Calendar is in progress.



Fifteen applicants for the 2010 Master Gardener training program were recruited; training began in February. Master Gardener volunteers

Barnstable County
**Deer Tick & Lyme Disease
 Prevention Project**
 Cape Cod Cooperative Extension

David Simser
 Deer Tick Project Coordinator
 Extension Educator



In Barnstable County, our direction is to prevent tick-borne illnesses, including Lyme disease, babesiosis, and anaplasmosis. The deer tick and Lyme disease project was initiated in 1998 and is operational to date. Three interwoven strands of this project feature educational, surveillance and intervention components.

E D U C A T I O N

Our wallet-sized ID card, with color renditions of tick stages and sensible tick tips, is always available. Our "Property Management to Reduce Deer Ticks" brochure, chock-full of practical suggestions, is free, as are informative rack cards, whimsical children's activity booklets, buoyant full color posters, eye catching conservation trail signs and stimulating golf course signs. Visit www.capecodextension.org for downloads and further information.



S U R V E I L L A N C E

Our method of tick sampling is the "drag flag" technique, whereby a double-sided flannel sheet measuring one square meter is pulled through and along a trail's edge while counting to thirty. This survey technique effectively snags nymph (and adult) ticks that are in the host seeking, or questing pose. Ticks along trails are the likeliest to encounter a human or pet host and thus our estimate is based upon this risky population of deer ticks, the poppy seed sized nymph tick.

I N T E R V E N T I O N

In 2004-2005 field intervention featuring "4-poster" deer stations was targeted at reducing the resident tick population on Cape Cod and the Islands. As deer feed on bait (corn) at the station, tickicide-treated rollers brush against the animals' neck, head and ears where many adult ticks feed. The 4-poster delivers a potent topical acaricide to patron deer, ridding their tick load. In previous field trials, placement of a grid of stations reduced the tick population by up to 70%.



staffed the Plant Clinic in the office five days a week from 9:00am-3:00pm July - September; three days/week in October; two days/week in November. The clinic is closed from December through February. Two thousand nine hundred ten citizens of the County contacted the Master Gardeners through the Plant Clinic in FY 2010.

An annual Recognition Program for Master Gardener volunteers was organized and conducted.

Master Gardeners staffed the Demonstration Garden at the Barnstable County Fairgrounds during the nine days of the County Fair. The Garden is staffed during other events held at the fairgrounds, including the Harvest Fest in September.

Thirty young people from various towns on the Cape participated in one of two **Children's Garden** projects located at Long Pond Conservation land in Marstons Mills and at the Brewster Community Gardens. Each young person is paired with a Master Gardener mentor. Meeting once a week from April to October, the garden plots are planned, planted and maintained by the children, with assistance from their Master Gardener mentors. Children learn plant and soil science, are introduced to beneficial insects and are taught how to grow vegetables and flowers organically. The children harvest and take home the produce from their individual garden plots. An educational lesson is introduced each week.

Seventy people attended a ten-week course on "**Backyard Horticulture**", conducted by Master Gardener volunteers, and held in two locations: Harwich and Falmouth.

Master Gardener volunteers produced a weekly gardening show called "**Cape Cod Gardening through the Seasons**" at Cape Community Media Center. Master Gardeners held a "**Season Extending**" workshop at the Harvest Fest as well as a soil-testing clinic on that day.

Master Gardeners made twenty-four presentations to various civic groups on Cape Cod.

NUTRITION EDUCATION PROGRAM

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Food Handling is a Risky Business, a two-hour workshop for foodservice employees and volunteers, was held for 45 business owners in collaboration with the Town of Dennis Board of Health.

Three separate food safety workshops entitled, Food Handling is a Risky Business, were conducted for a total of 34 foodservice employees and volunteers in the food industry.

Food Handling is a Risky Business, a two-hour workshop for food handlers was conducted for 5 staff members of the Child's Wonderland preschool.

Three separate sessions of Food Handling is a Risky Business, a two-hour workshop for foodservice employees and volunteers, was held for 100 staff members of the YMCA. One of these sessions was held as a mandatory orientation training for the 2010 Summer Food Service Program sponsored by the YMCA. The training focused on the unique sanitation challenges presented by the summer program and appropriate safe food handling techniques.

Two sessions of **Food Safety for Volunteers**, a workshop designed for those with little to no prior foodservice, experience was conducted for a total of 29 individuals at the Falmouth Service Center and the Sandwich Council on Aging.



Six food safety certification programs and recertification classes have been offered for the food service industry. ServSafe, a food sanitation

certification program through the National Restaurant Association, fulfills the 1999 Food Code requirements set forth by the Massachusetts Department of Public Health. Seventy-nine food handlers and restaurant managers have successfully passed the national exam of the National Restaurant Association's Educational Foundation as a result.



Two restaurants are currently participating in the **Barnstable County BestBites** project with multiple BestBites menu items that are low in calories, saturated fat, and sodium. Additional educational resources (i.e., menu icons, labels and decals) have been made available to enable the customer to more easily identify healthier menu options.

A Good Agricultural Practices (GAP) training was

coordinated and offered to area growers and farmers in collaboration with UMass Amherst. Forty people completed the training which is part of a necessary step in becoming GAP Certified through FDA.

Two separate trainings have been conducted for the Health Agent Coalition of the Cape and Islands (HAC) on current issues affecting food safety in Barnstable County. Participating health agents receive continuing education credit for attending these trainings. Twenty-five people attended, “**Pre-Planning for Food Establishments before During and After Emergencies.**” Twenty eight people attended the “Farmers Market Food Safety Training and Education” workshop. Resource guides were developed and distributed to accompany both training sessions.

Nutrition Educator is a member of the **Hunger Network of C & I** to address the needs and help with initiatives to help low income families and individuals access food and create healthy meals with it.

Body Walk, an interactive educational exhibit, was conducted at eight elementary schools. Body Walk features an eleven-station tour of the body, from brain to mouth, stomach, small intestine, heart, lungs, bones, muscles, and skin with a focus on the role of nutrition along the way. A total of eight hundred forty-nine students experienced the exhibit. Follow-up activities for use in the classroom were provided to each participating teacher. Additionally, take home materials were developed and provided to every student, allowing them to share the messages with parents.

Three youth programs were conducted at the **Barnstable County Fair** with food safety and nutrition information, demonstrations and activities in the 4-H Youth Building.

Approximately 150 children and family members participated in the **Milk Mustache activity** and received educational materials related to nutrition and bone health at the Stony Brook Elementary School Wellness Expo.

Approximately 50 parents participated in the **Family Wellness Night** at Eastham Elementary School

and received educational materials related to child nutrition.

A nutrition educator participated in the YMCA’s **Healthy Kids Day**. An interactive exhibit, educational materials and a healthy snack sampling were provided to youth and families attending the event.

Approximately 30 families participated in **Fishin’ for Nutrition** activity conducted at the Oak Ridge School Family Fitness Event.

One part-time nutrition educator has been contracted through the **Family Nutrition Program (FNP)** to teach elementary students in an after-school program entitled Fun with Food. Thirty-nine children have participated in three separate series of lessons at Hyannis West Elementary School’s 21st Century Learning Program. The lessons are aimed at improving food choices, incorporating physical activity, and increasing awareness of safe food handling practices.

Two hundred fifty educational contacts have been made with students in grades K-3 at Hyannis West Elementary School through single session **Fun with Food afterschool** activities through the Family Nutrition Program.

Three hundred fifty students participated in the healthy snack and nutrition activity offered as part of Hyannis West Elementary School’s Field Day event.

Thirty children and family members participated in the **Healthy Summertime Celebration** offered through Hyannis West Elementary School’s 21st Century Learning Program and the Family Nutrition Program. Various nutrition activities and snack stations were available for interactive learning opportunities focused on healthful summer snacks and family fitness.

Weekly nutrition-related activities and a snack demonstration made approximately 390 educational contacts of children ages 4-16 at the Faith Assemblies Church and Cromwell Court as part of the **2009 Summer Food Service Program**. Supporting take-home materials regarding fruits and vegetables were made available to all participants, family members,

and staff. Approximately 50 youth participated in nutrition-related activities offered at the Kennedy Rink's Kickoff and Cromwell Court's End of Summer Bash.

Four young mothers attended a **Healthy Fast Food** workshop for the Teen Parent Program at Carriage House in Falmouth.

A parent questionnaire was created and conducted to survey parents of children in Cape Cod Child Development's School-Aged Program to assist in developing appropriate programs, materials and practices related to child nutrition.

A total of twenty-nine staff members of Cape Cod Child Development's School-Aged Program participated in the three separate trainings. The trainings focused on the basics of child nutrition and the importance of staff modeling healthful eating practices at each center.

Approximately 250 children and family members participated in the Healthy Summertime Celebrations held at Cape Cod Child Development's School-Aged Programs in Falmouth, Hyannis and Yarmouth. The food festivals included nutrition activities and the opportunity to make and share healthy snacks with family members.

Fifteen food pantry displays and cooking demonstrations focusing on available ingredients were held at three separate locations totaling 232 people from Harwich Family Pantry, Falmouth Service Center and Grace Chapel.

Twelve issues of "**Nutrition Notes to Go**," a nutrition newsletter focusing on healthful, economical recipes and nutrition topics, has been distributed to clients and volunteers at Falmouth Service Center, Harwich Family Pantry, and Lower Cape Outreach Council at Grace Chapel as part of the Family Nutrition Program.

Three displays were organized in conjunction with **WIC at the Hyannis Farmer's Market** to promote the use of WIC-issued Farmer's Market checks among a low-income audience including Head Start Parents/families. Educational materials and various recipes

were made available as part of the display table.

A **Healthy Fast Food workshop** was conducted for 10 young parents as part of Cape Cod Child Development's Teen Parent Program. Those in attendance participated in hands-on cooking and prepared healthy fast food alternatives.

The **Nutrition Education Program** was present with a display and educational materials at the County Fair at Highfield Hall highlighting Barnstable County government programs and services. The event was sponsored by the Falmouth League of Women Voters and open to the public free of charge.

Nutrition Educator serves on **Cape Cod Child Development's Health and Wellness Advisory Committee** for quarterly meetings.

The **Health Improvement Program (HIP)** offered in collaboration with Cape Cod Municipal Health Group, reached a total of 50 municipal employees and spouses through the six-week series of classes conducted. The program goals include health improvements for participants based on behavioral changes in dietary habits and physical activity promoted through pre- and post-health screenings, twelve 2-hour classes and a grocery store tour.

A **30-minute guest appearance** on a local public access television program, The Home Front, highlighted healthy summer snacking for children over the summer vacation.

Six issues of **Pumpkin Post & Banana Beat** newsletters have been distributed in collaboration with elementary schools throughout Barnstable County to 2131 families with children in kindergarten. The Pumpkin Post series is an educational newsletter including recipes and regular columns on child feeding challenges, seasonal foods, physical activity and menu ideas. The series of six newsletters focus on themes about breakfast, fitness, fruits and vegetables, healthy lunches, goal setting and holiday eating.

Approximately 115 Cape Cod Child Development/Head Start Program staff attended a 45-minute food safety training conducted as part of the organization's

staff training day.

Twenty-six preschool teachers attended **Nutrition and Literacy in Preschool Classrooms**, an interactive in-service with hands-on activities to incorporate into the classroom curriculum.

“**Rainbow on Your Plate**,” a series of two nutrition lessons, has reached 181 Head Start preschool aged children and classroom teachers in ten separate classrooms. Lessons center around eating fruits and vegetables and making rainbows of colors on your plate for healthy eating. Materials are sent home to parents and supporting lesson plans/suggested activities are supplied to teachers for use as classroom enrichment.

Six parents attended “**Frugal Families: Eating Right, Spending Less**,” a series of three classes on meal planning, healthy cooking and tools and tips to eat right and save money for Head Start parents.

Two separate **Health and Wellness screenings**, including nutrition education, were conducted for 30 employees and family members of Cotuit and Yarmouth Fire Departments.

Five “**Healthy Lunch Bunch**” workshops were conducted during the lunch hour, for a total of 51 municipal employees attending, where slideshows and cooking demonstrations were offered. This project was offered in collaboration with Cape Cod Municipal Health Group.

Nutrition education was provided at eight wellness fairs offered along with Barnstable County Health and Environment reaching 148 municipal employees.

Participation in the Cape Cod Wellness Expo in Hyannis featuring an Extension exhibit of nutrition education and the Buy Fresh Buy Local campaign.

“Frugal Families: Eating Right, Spending Less,” a series of three classes reaching 15 parents and preschool teachers was offered in collaboration with Young Children First & Falmouth Public Schools. Lessons focused on meal planning, healthy cooking and tools and tips to eat right and save money.

Twenty-five people participated in **Family Fun Night**
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at North Falmouth Elementary School, engaging in literacy, nutrition and physical activities as part of a community sponsored event for families.

Seven parents attended “**Make it, Taste It! Nutrition for the New Year!**” This workshop co-sponsored by Harwich Early Childhood Council encouraged trying new foods and healthy eating tips for families of young children.

Twelve parents and teachers attended “**Choosy Eaters! Cooking and Nutrition Workshop**” co-sponsored by Mashpee Family and Community Partnership.

Twelve preschool parents attended “Choosy Eaters at The Table” sponsored by Bourne Early Childhood Council. Attendees were presented with information and tips on how to introduce new foods and work with their picky eaters.

Nine preschool parents attended **Easy Cooking-Cook it Quick**, an interactive workshop about healthy eating and creating quick healthy meals for their families.

“Eating Essentials,” a workshop covering the U.S. Dietary Guidelines for Americans, MyPyramid, fats in the diet, and reading nutrition facts labels, was presented to nine people at the Cape Cod Covenant Church Singles Group.

One hundred forty-four copies of “**Eat Well, Live Well Healthy Habits for Older Adults**” were compiled, printed and distributed to Bourne’s Bridging the Years Senior Day Program.

Twenty-eight people visited the older adult nutrition education table and cooking demonstration offered at the Yarmouth Senior Center Health and Wellness Fair.

HOUSEHOLD HAZARDOUS WASTE, WATER QUALITY AND RECYCLING EDUCATION

Cape Cod Cooperative Extension’s Household Hazardous Waste, Water Quality and Recycling Education is comprised on five program areas: 1.) Household Hazardous Waste Education and Disposal, 2.) Mercury Collection Program, 3.)

Sharps Collection Program, 4.) Road and Marine Flares Collection Program and, 5.) Unwanted Medication Disposal Program. The mission of the department is to provide Household Hazardous Waste (HHW) outreach, education and disposal options to all Cape Cod residents and visitors and to provide regional, cost-effective solutions for Cape Cod towns in managing hazardous wastes. The outcomes of the programs are focused on improving both environmental and public health by protecting Cape Cod's sole source aquifer and increasing public awareness of the threats posed by HHW.

Household Hazardous Waste Education and Disposal

In the 2009 Household Hazardous Waste collection period, a total of 19 HHW collections were conducted within Barnstable County (Cape Cod). Collections are broken into regions (Upper Cape, Mid-Cape, Lower Cape and Outer Cape) and are reciprocal with towns within the region. For example: Upper Cape collections occur once during the calendar year in Falmouth, Bourne, Mashpee, and Sandwich. Residents of those four towns can participate in any of the Upper Cape collections thereby providing four disposal dates for Upper Cape residents and homeowners.

HHW Totals

The cumulative totals of the 19 Cape Cod HHW collections are as follows: 3,480 cars representing 4,571 households with an average of 57.1 pounds of hazardous waste came to the collections. The average carload had \$43.78 worth of hazardous waste. A total of 260,930 pounds (130 tons) of hazardous waste was collected at a total disposal cost of \$143,723. Additionally, more than 40 businesses participated in the 19 collections and paid \$6,556 to dispose of their waste. Very Small Quantity Generator (VSQG) businesses are allowed to participate in the collections but are required to pay the entire cost for their waste. Education and outreach for proper HHW disposal is conducted through in-person educational sessions; Cape-wide distribution of nine detailed informational brochures, mailers, public media campaigns; and via product specific information on the Cape Cod Cooperative Extension's website. Additionally, Extension staff conducts community workshops and provides informational sessions at community events.

The HHW program's most prominent outreach tool is the HHW tri-fold flyer that is mailed to every household within Barnstable County. This flyer details all of the most common HHW products, explains which products are not hazardous and provides information on alternative disposal options for waste. The flyer also provides locations and dates for the year's HHW collections and can be saved and used by residents as a reference guide for difficult to manage and hazardous materials in their homes.

Funding for printing and mailing the HHW flyer is provided by Covanta SEMASS (the waste-to-energy facility where much of Cape Cod's waste is transported), and is supplemented by funding from Barnstable County. In 2009, Covanta SEMASS provided 300 digital thermometers and 250 digital programmable thermostats for exchange programs at HHW collections and public education programs.

Barnstable County provides residents with a **toll free Hazardous Materials Hotline – (800) 319-2783**. The HHW program responds to more than 700 annual inquiries from Cape residents who have questions on HHW disposal. HHW staff also assist Cape Cod towns with difficult to manage waste that are anonymously and illegally dropped off at their waste disposal facilities.

Barnstable County provides approximately \$40,000 to defray the cost of HHW collection expenses, including design, printing and mailing of brochures; design and printing of promotional signs, newspaper ads, news releases and public service announcements; design and printing of educational materials for residents and small businesses; payment of set-up fees; personnel to survey and educate participants at collections; and data compilation for every collection.

Mercury Disposal Program

The detrimental health effects of mercury exposure to humans are well documented including health risks to pregnant women and children. Mercury exposure can lead to birth defects, severe damage to the central nervous system (Mad Hatter's Disease) and even death. Because of mercury's unique properties (a metal that remains liquid at room temperature), it has many practical applications that continue to be used in common household items. Most notable are the

glass ampoules on thermostats and electric relays in home heating systems, float switches on bilge pumps, old-fashioned blood pressure gauges, and older style thermometers.

Mercury containing devices are collected at all HHW events and are collected every day at all Cape Cod transfer stations, waste management facilities, and at many home heating supply stores (thermostats) and marinas (float switches in bilge pumps). In calendar year 2009, the Cape Cod Cooperative Extension collected a total of 81.60 pounds of mercury. **Extension continues to be recognized by the Massachusetts Department of Environmental Protection as one of the most successful mercury collection programs in the state.** Individual mercury items collected included 2,145 thermostats, 553 thermometers, 93 electric switches, 101 float switches, 8 blood pressure gauges and 54.33 pounds of elemental mercury. All mercury and mercury containing devices are collected and disposed of through licensed hazardous waste disposal facilities.

The Barnstable County Hazardous Materials Program sponsors mercury thermometer, thermostat and switch collections in cooperation with SEMASS at town HHP collections, Cape Light Compact Energy Fairs, town recycling centers, and more than thirty-five marine, electrical and heating businesses. These exchange programs provide free digital replacement for mercury containing thermostats and thermometers.

Sharps Disposal Program

Sharps (needles, lancets, syringes, etc.) are a common and difficult to manage HHW. Improper disposal of household sharps can lead to accidental “sticks” and disease transmission for transfer station staff and waste haulers. In the past, it was common practice to collect sharps in laundry detergent bottles or similar plastic containers and dispose of them in household trash. Once compacted, these makeshift sharps containers no longer provide adequate protection to staff dealing with compacted waste.

Barnstable County now provides free sharps containers to 14 of the 15 Cape towns. Technical assistance is provided to seventeen fire stations, department of public works, recycling centers and

a health department participating in the sharps collection program funded by Barnstable County. In calendar year 2009, 2,599 one-quart, five-quart and two-gallon containers have been distributed to collection locations; and 170 30-gallon boxes of sharps containers have been disposed of through the licensed medical waste disposal contractor. This program is a model throughout Massachusetts since the July 2006 passage of legislation mandating sharps collection programs for all Massachusetts communities. Cost of this program is approximately twelve thousand dollars per year.

Flares Disposal Program

Road and marine flares are often carried in vehicles and are required for ocean going vessels 17 feet or greater. Many flares contain perchlorate, a salt-like chemical used as an accelerant in the flares. Perchlorate is a known human thyroid inhibitor and the Commonwealth of Massachusetts has recently instituted guidelines for testing for perchlorate in drinking water.

Working with 19 town fire departments and transfer stations a marine and road flares collection program was started in January 2005. A storage locker for flares was set up in the County Complex with approval of the Barnstable Fire Department. In calendar year 2009, 2,068 flares were collected from fire stations and recycling centers for disposal. Barnstable County continues to pay for disposal costs for this program. In addition to benefiting boaters and residents, the program helps to keep public and private wells from being contaminated by perchlorate.

Unwanted Medication Collection Program

Over the past decade concern has grown over pharmaceutical compounds being identified in groundwater and public drinking water. Flushing old or unused medications down the toilet was a traditional practice followed throughout the United States, and has led to water contamination across the country and on Cape Cod. In 2009, Barnstable County developed a “Crush It, Don’t Flush It” education brochure that urges residents to place their unwanted medications in household trash in a crushed, unusable form.

The “**Crush It, Don’t Flush It**” campaign began with

15 community presentations, mailing brochures and flyers to Cape Cod health departments and senior centers, and distributing the more than 2,500 flyers throughout Cape Cod. CCCE staff works closely with Cape Cod police departments to navigate the complex rules surrounding unwanted medication take-back programs at police departments.

The Unwanted Medication Collection Program will be greatly expanded in 2010 and will include posting tear-off informational pamphlets at pharmacies across Cape Cod. Staff will also be tracking changes in federal law that will streamline the unwanted medication collection process.

Continued Education & Outreach

Approximately 30,000 callers and computer-users received up-to-date information from the Barnstable County Hazardous Materials Program, Cape Cod Extension and www.capecodextension.org. Residents, business people and town employees sought information about environmental conservation and hazardous materials, including mercury and sharps collections, flares and ammunition collections, how to dry out unwanted latex paints, sources of mercury in the home, where and when hazardous items are recycled or collected for disposal, and how to reduce the use of hazardous materials in homes and businesses.

Towns increased consumer access to household hazardous products collections and recycling opportunities by posting Cooperative Extension-generated collection information on town web sites and distributing updated fact sheets to residents and businesses.

Educational fact sheets, brochures and bulletins are posted on the Cape Cod Extension website for health departments, departments of public works, water departments, libraries and the general public to access. Towns, businesses, schools, and citizens received information on water quality issues, safer alternatives, septic system maintenance, and indoor air quality issues through on-site visits, telephone calls, newspaper and radio coverage.

GRANTS AWARDED TO EXTENSION



Barnstable County collects expired or unwanted marine and road flares from county towns. Check your local fire/police department or transfer station for information. Check out <http://www.capecodextension.org/Hazardous-Waste-Water-Quality/Flares-And-Ammunition.html> for more information.



Barnstable County collects mercury and is very good at it...one of the top collectors of mercury in the state! Call your local transfer station or Board of Health. Check out <http://www.capecodextension.org/Hazardous-Waste-Water-Quality/Mercury.html> for more information.

Please visit www.capecodextension.org to learn more about these programs and others that are offered throughout Barnstable County.

Development of an Improved Oyster for Massachusetts Shellfish Farmers: Field Test of Seedless Oysters. The

Extension marine program received \$43,368 from the MA Department of Agricultural Resources to propagate and field test seedless oysters. In response to interest from the local shellfish aquaculture industry, seedless oysters are field tested (i.e., bred to be sterile) from spawn to market in a controlled, replicated fashion at over a dozen farm sites, making use of the Massachusetts' Research Farm Network (RFN). This test will provide Massachusetts shellfish farmers a quantitative side-by-side comparison of seedless and diploid oysters, and highlight any differences based on location, including response to disease.

Household Hazardous Waste Collections:

\$28,000.00 was received from American ReFuel's SEMASS for the printing and mailing of the 2009 Household Hazardous Products Collection brochures to resident and business addresses in Barnstable County. Also, approximately, \$10,000.00 in digital thermostats and thermometers were received from SEMASS.

Lyme Disease Grant: \$75,000.00 was received from the US EPA to continue our Deer Tick Intervention and Surveillance Projects. The grant will allow us to continue research using the Four Poster Deer Stations, in Barnstable County, Martha's Vineyard and Nantucket and deer tick surveillance.

Nutrition Education Project: \$11,710.00 was received from UMass Extension Family Nutrition

Programs to conduct nutrition education programs. The Family Nutrition Program (FNP) provides nutrition education for the benefit of those eligible for the Food Stamp Program, including food pantries, parent/parenting teens, and Head Start preschoolers, parents, and staff.

Municipal Wildfire Management: \$30,000.00 was received by the USDA Forest Service for the implementation of the Municipal Wildfire Management Plans. The grant funds were distributed to Barnstable, Mashpee, Yarmouth and Sandwich to help implement the their wildfire protection plans.

Southeastern Massachusetts Aquaculture

Center: A \$50,000 grant was received from the MA Department of Agricultural Resources to conduct several aquaculture research projects and to conduct water quality monitoring in aquaculture areas.

University of Massachusetts Extension: Through a cooperative agreement with the University of Massachusetts in Amherst, Barnstable County received \$57,600 for salaries and \$1,300 for postage.

Woods Hole Oceanographic Sea Grant Program: Barnstable County received \$141,279 as a match for the Aquaculture Specialist, Coastal Processes Specialist, and Marine Program Specialist positions.

Eelgrass Restoration: \$71,379 was received from The Nature Conservancy to explore suitable habitat for Eelgrass on Cape Cod and to plant and monitor eelgrass at three sites.