

# Department of Agriculture



## *At a Glance*

**STEVEN K. REVICZKY, Commissioner**

*Established - 1925*

*Statutory authority - CGS Sec. 22-1*

*Central office – 450 Columbus Boulevard  
Hartford, Connecticut 06103*

*Average number of full-time employees – 64*

*Recurring Operating Expenses – \$5,733,302*

*Capital Purchases - \$0*

***Organizational Structure – Office of the Commissioner, Bureau of Agricultural Development and Resource Conservation, Bureau of Aquaculture, Bureau of Regulatory Services, with Business Office and Human Resource Support from the Department of Administrative Services and legal services provided by the Office of the Attorney General.***

## **Mission**

***The mission of the Department of Agriculture is to foster a healthy economic, environmental and social climate for agriculture by developing, promoting and regulating agricultural businesses; protecting agricultural and aquacultural resources; enforcing laws pertaining to public health, animal health and animal care; and promoting an understanding among the state's citizens of the diversity of Connecticut's agriculture, its cultural heritage and its contribution to the state's economy.***

## **Statutory Authority**

Statutory authority for the Department of Agriculture are found in Sections 12, 22, 26 and other sections of the Connecticut General Statutes.

## **Public Service**

During FY 2015-2016 the Connecticut Department of Agriculture continued to inform the public; media representatives; and local, state, and federal government officials about various aspects of Connecticut agriculture through its Connecticut Weekly Agricultural Report, news releases, small group or one-on-one meetings, interviews, and radio and television appearances featuring Commissioner Reviczky and other key agency staff. Additionally, the Department continued to expand its social media presence by utilizing Facebook and Pinterest. That outreach has easily more than doubled the number of fans of the agency who follow our regular updates.

The Department, through the Bureau of Regulation and Inspection, continued the process of updating its traditional licensing system to the e-license system. Approximately 80% of the agency's licenses, permits and product registrations are now accessible for review in the e-license system. The e-license system provides a web based interface available to the public in which the status of licenses can be determined and lists of licenses and permits can be downloaded facilitating access to information that would otherwise only be available to the public by submitting a more time consuming request pursuant to the Freedom of Information Act.

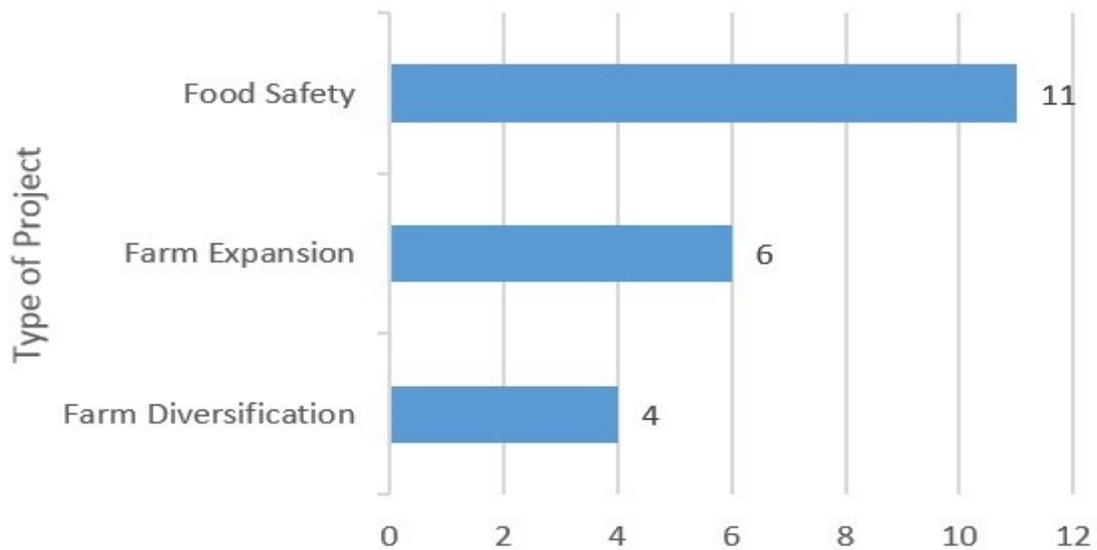
## **BUREAU OF AGRICULTURAL DEVELOPMENT AND RESOURCE CONSERVATION**

### **Agricultural Development**

- Generated \$629,437 in revenue through lease/rental of building space at the Regional Market to 14 local businesses (including distributors and processors of agricultural products and a restaurant using Connecticut Grown ingredients), one national corporation, and a federal agency.
- Generated \$158,000 in revenue through land leases at the Regional Market.
- Generated \$60,700 in revenue through railroad usage fees at the Regional Market.
- Operated the long-running, early-morning farmers' market at the Regional Market featuring 44 Connecticut farmers, attracting thousands of shoppers on weekends and generating \$24,440 in revenue through stall rentals.

- Assisted in coordination and promotion of 137 independently operated certified Connecticut Grown farmers' markets, farm stands and mobile markets featuring 563 certified farmers.
- Administered Connecticut's Farmers' Market Nutrition Programs (FMNPs) to provide \$760,254 in vouchers for Connecticut Grown fruits and vegetables at authorized farmers' markets to 48,574 nutritionally at-risk women, infants, and children and 31,166 low-income seniors.
- Successfully applied for and received \$270,000 from the United States Department of Agriculture's Specialty Crop Block Grant program to fund four projects to solely enhance the competitiveness of Connecticut specialty crops.
- Funded \$460,651 in matching Farm Transition Grants to 16 Connecticut farms for projects with a cost of \$1,399,897 using Community Investment Account funds. For the past several years, the agency has given preference to Farm Transition Grant applicants who seek to use the funding to implement the federal Food Safety Modernization Act.

### 2016 Farm Transition Grant

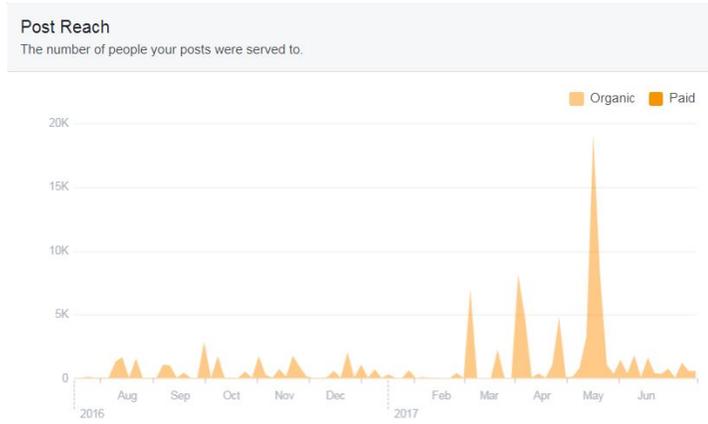


- Funded \$522,490 in matching Farm Viability Grants to 14 municipalities and 14 non-profits for projects with a total cost of \$1,466,386 using Community Investment Account funds.
- Partnered with Food Export Northeast to increase Connecticut exports to international markets.
- Provided 200 certificates of free sale to eligible food companies in need of this required documentation to expedite export shipments.
- Rejuvenated the state's Farm-to-Chef program to connect Connecticut farms with foodservice professionals and markets.

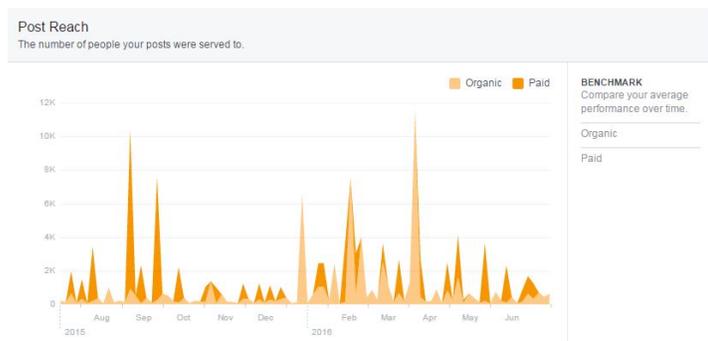
- Organized and coordinated 2016 Farm-to-Chef Week, featuring 66 dining venues offering menus made with Connecticut Grown ingredients. Of the 66 participating venues, 20 were new to the program.
- Continued to strengthen the Department of Agriculture's collaboration with the state Department of Education and its involvement in Connecticut's Farm-to-School program.
- Enhanced the agency's other wholesale market development programs, including those targeting grocers and other retailers, as well as healthcare and other institutions.
- Operated an online marketplace for Connecticut Grown merchandise and apparel, selling \$4,429 in merchandise, helping to strengthen the Connecticut Grown brand.
- Operated three agriculture booths in the Connecticut Building during the 2016 Big E in collaboration with the Department of Economic and Community Development featuring 25 different agricultural organizations or businesses.
- Hosted 2017 Agriculture Day at the Capitol, featuring 45 exhibits showcasing Connecticut agriculture and farm products, in collaboration with the Connecticut Agricultural Information Council.
- Enhanced the agency's website to provide producers, agribusiness, and the general public with agency and agricultural information, increasing voluntary farm business listings on the consumer information pages by 3.5 percent.
- Distributed an additional 7,000 copies of the popular Connecticut Farm Map.
- Provided staffing/administrative support to the Connecticut Farm Wine Development Council to deliver \$35,500 in programming for industry members and consumers.
- Strengthened the agency's social media program to expand public awareness of Connecticut Grown products and agriculture through six Facebook pages with more than 13,100 fans, and two Pinterest pages with 25 boards, 842 pins, 594 followers, and 1,629 monthly views.
- Published and printed 9,000 copies the first annual issue of *Connecticut Grown* magazine, including 9 feature articles covering a wide range of agricultural commodities, services, and issues pertinent to Connecticut agriculture.

- Facebook Reach, FY 16-17:

### Passport to Connecticut Farm Wineries



### Connecticut Department of Agriculture



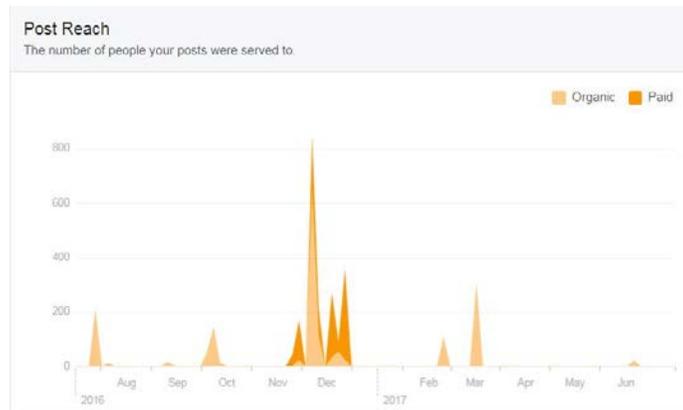
### Hartford Regional Market



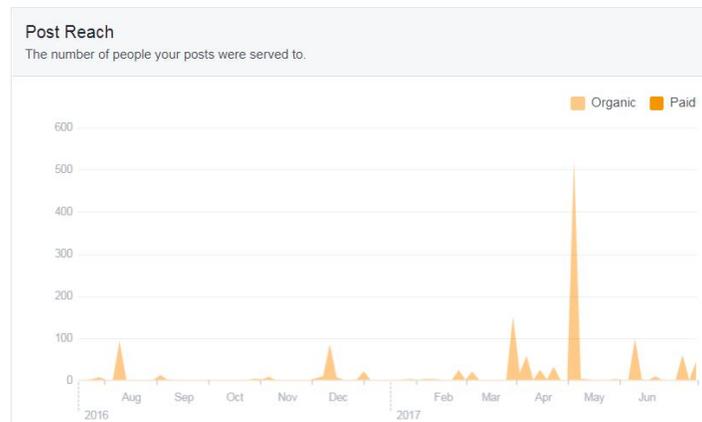
## Connecticut Farm-to-Chef



## Connecticut Grown Store



## Connecticut Farmland Preservation



- Developed and implemented the following Connecticut Grown advertising campaigns:
  1. Connecticut Farm-to-Chef Week: \$2,639, including \$114 on social media (reaching a total of 22,879 people) and the remainder on radio advertising with

WNPR and Total Traffic and Weather Network during peak drive times (reaching more than 104,231 listeners on the Total Traffic and Weather Network alone).

2. The Regional Market's Farmers' Market: \$24,878 on radio advertising with iHeartRadio, CBS Radio (WTIC-AM and digital) and Bomba (in Spanish); \$5,490 on king curbside bus signage (Signal Outdoors) to promote their specialty crops; \$6,432 on print advertising with North End Agents and White Eagle Media; and \$275 on boosted Facebook posts (resulting in a total reach of 67,649).
3. Connecticut Specialty Crops: \$33,384 in federal funds on a variety of media including radio (Pandora, iHeartRadio, Bomba) and social media.

### **Resource Conservation**

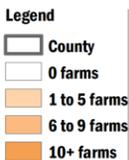
- In fiscal year 2017, acquired development rights on 14 farms totaling 1,386 acres at a total cost of \$7,671,116 (leveraging \$1,449,500 in federal USDA and \$414,196 in municipal funding), bringing the Farmland Preservation Program's total to 343 farms and 42,680 acres.
- In addition, per state statute, conveyed to the Southbury Land Trust a permanent agricultural conservation easement for the 944-acre Southbury Training School farmland preserve. Five agricultural use permits of 10 years in duration were granted to farmers, who are collaborating with the agency on restoring the farmland to active production, including dairy, hay, diversified vegetables, and small fruits.
- Entered into 17 new purchase-of-development rights offer agreements to preserve 1,829 acres, encumbering \$10,151,677.
- Advanced an additional 47 other purchase-of-development-rights (PDR) projects, totaling approximately 4,129 acres at an estimated \$25,810,500 in preservation costs.
- Successfully received \$4,186,750 agreement in federal fiscal year 2016 USDA NRCS Agricultural Lands Easement (ALE) obligated funds in consideration for up to eight PDR projects.
- Submitted application for the federal fiscal year 2017 USDA NRCS program and received pre-approval of \$2,996,500 in additional federal funds towards the permanent preservation of up to eight other farms.
- More than doubled the amount of partnerships with municipalities, from 8 to 18, on a total of 30 ongoing joint farmland preservation projects. These partnerships are occurring in all 8 counties, in rural, suburban and even urbanized areas, including Bethany, Canton, Coventry, Easton, East Windsor, Ellington, Lebanon, Mansfield, Middletown, New Hartford, Newtown, Pomfret, Rocky Hill, Sprague, Southington, South Windsor, Suffield, and Woodstock.
- Also partnered with six land trusts on ongoing cooperative farmland preservation projects, including the Connecticut Farmland Trust, Weantinoge Heritage Land Trust, Joshua's Trust, Southbury Land Trust, Woodbridge Land Trust, and Dutchess Conservancy.

# Protected Farms: CT Farmland Preservation Program

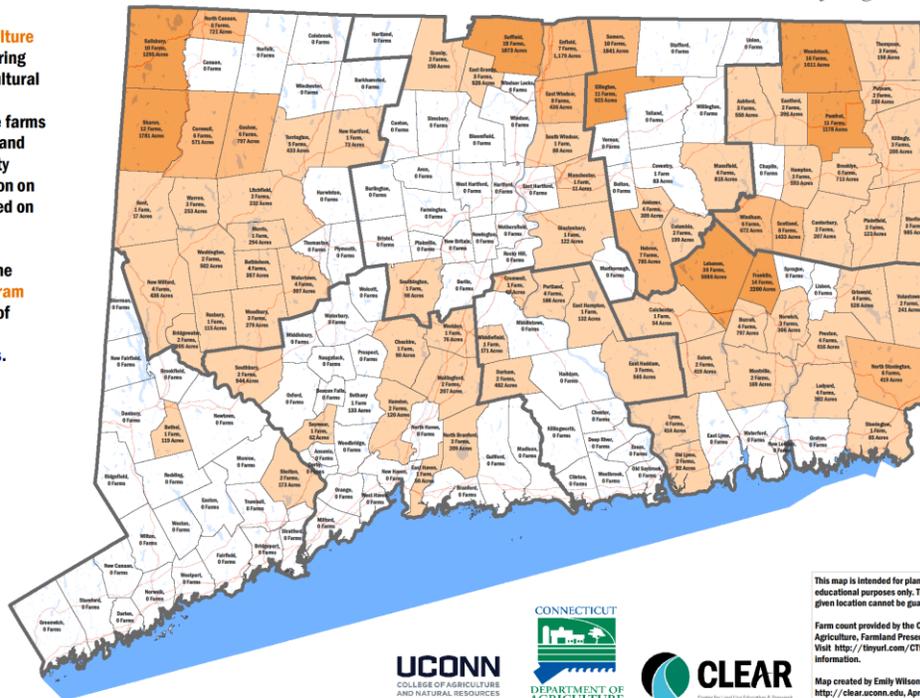
343 Protected Farms as of August 2017

The CT Department of Agriculture preserves farmland by acquiring development rights to agricultural properties in communities throughout Connecticut. The farms remain in private ownership and continue to pay local property taxes. A permanent restriction on nonagricultural uses is placed on these properties.

For more information, visit the [Farmland Preservation Program](http://tinyurl.com/CTfarms) page on the CT Department of Agriculture's website <http://tinyurl.com/CTfarms>.



Many farms are in more than one town and are counted in each.



This map is intended for planning and educational purposes only. The accuracy at any given location cannot be guaranteed.

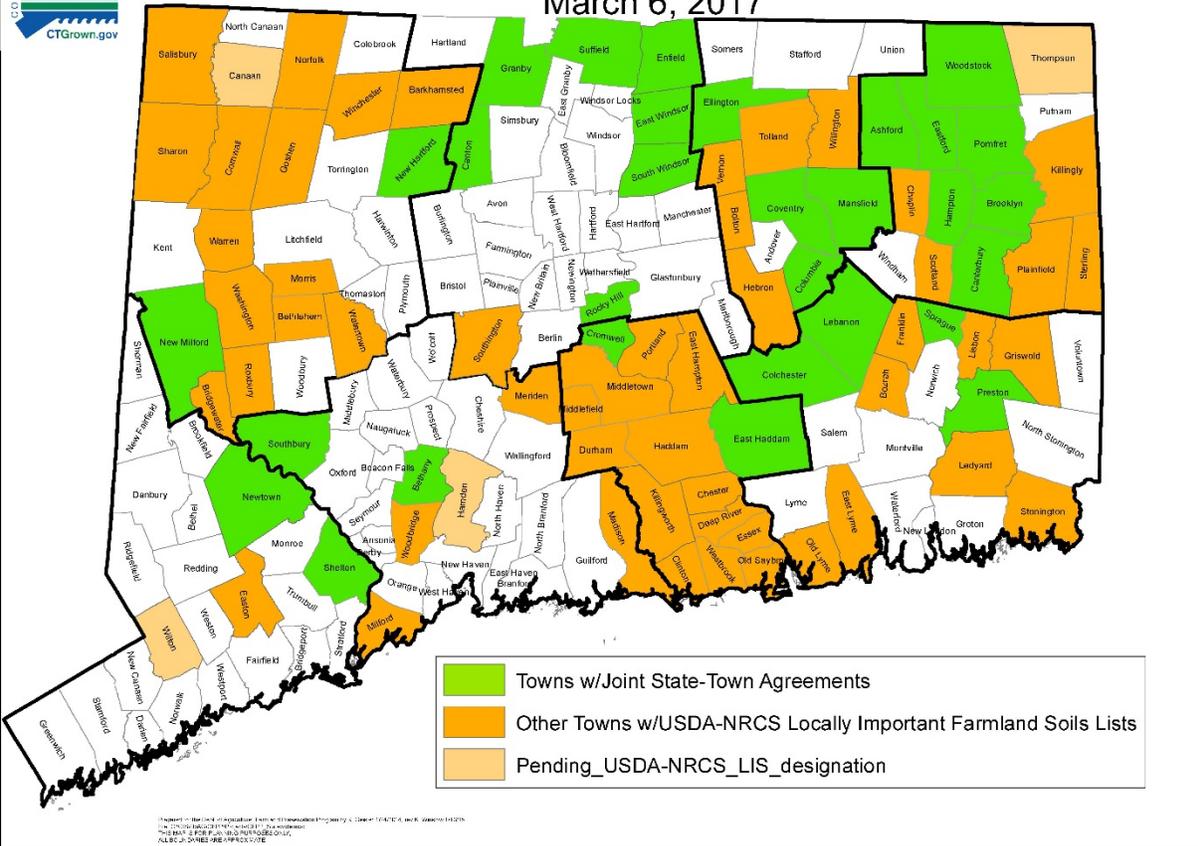
Farm count provided by the CT Department of Agriculture, Farmland Preservation Program. Visit <http://tinyurl.com/CTfarms> for more information.

Map created by Emily Wilson, UConn CLEAR, <http://clear.uconn.edu>, April 2016.

- Preserved two more Community Farms Preservation Program projects comprising 186 acres at a total cost of \$1,270,182, permanently protecting that land for agricultural use in partnership with their respective municipalities, leveraging \$720,000 in federal USDA funds, and \$317,546 in local funds.
- Entered into new agreements with South Windsor and Southington, providing a pathway to partner on the permanent preservation of farms within these towns through the Community Farms Preservation Program, bringing the total number of partnering municipalities in Connecticut to 32.
- Assisted municipalities in applying for and receiving locally important soils designation from the USDA Natural Resources Conservation Service (NRCS), which enables farms in their respective towns become eligible for the Community Farms Preservation Program and for USDA NRCS Agricultural Lands Easement funding. The total number of municipalities with USDA locally-important soils is now up to 83, representing over half of the state's towns.



## COMMUNITY FARMS PRESERVATION PROGRAM March 6, 2017



- Provided \$615,335 in funding through Governor Malloy’s Farmland Restoration Grant to 42 projects with \$1,713,009 in total project costs, bringing more than 381 acres back into active agricultural production, and a total of over 200 applications with an estimated 1,760 acres since the program’s inception.
- Assisted other state agencies, including the Department of Correction, with the execution and administration of four 5-year agricultural-use permits on state-owned farmland.
- Enhanced and operated an improved Connecticut FarmLink website, which averages over 1,600 visits per month and 3,000 page views per month, helping connect farmers to owners with available farmland.

## **BUREAU OF AQUACULTURE**

The Department's Bureau of Aquaculture (DA/BA) is the designated State Shellfish Authority for the State of Connecticut, which participates in the National Shellfish Sanitation Program (NSSP) as a shellfish producing State. The NSSP is the federal/state cooperative program recognized by the U. S. Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Conference (ISSC) for the sanitary control of shellfish produced and sold for human consumption. The purpose of the NSSP is to promote and improve the sanitation of shellfish (oysters, clams, mussels and scallops) moving in interstate commerce through federal/state cooperation and uniformity of State shellfish programs. Environmental Analysts working in the Shellfish Program participate in all aspects of the national program, including the Shellfish Growing Area and Shellfish Plant Standardization Programs.

The ISSC was formed in 1982 to foster and promote shellfish sanitation through the cooperation of state and federal control agencies, the shellfish industry, and the academic community. The ISSC adopts uniform procedures that are incorporated into an Interstate Shellfish Sanitation Program, and implemented by all shellfish control agencies; gives state shellfish programs current and comprehensive sanitation guidelines to regulate the harvesting, processing, and shipping of shellfish; provides a forum for shellfish control agencies, the shellfish industry, and academic community to resolve major issues concerning shellfish sanitation; informs all interested parties of recent developments in shellfish sanitation and other major issues of concern through the use of news media, publications, regional and national meetings, internet, and by working closely with academic institutions and trade associations. Bureau Director David Carey is the Region 2 Regulatory Representative and member of the Model Ordinance Effectiveness Review committee. Bureau staff have been appointed to several important committees and workgroups involved in policy-making at the national level (Aquaculture, Communication, Recall Guidance, and Vibrio Research).

### **Bureau of Aquaculture Accomplishments**

- The Bureau issued 184 Personal Seed Oyster Licenses and 55 Oyster Seed Boat Licenses.
- Staff performed sanitary and records inspections of the 95 shellfish harvest vessels, 42 harvest operations and 25 wholesale dealer/distributors on a biennial basis as minimally required by the NSSP, along with necessary follow-up inspections throughout the year.
- Two Shucker/Packer distributors are inspected a minimum of four times a year.
- Bureau staff collected and analyzed over 7586 seawater samples for fecal coliform bacteria, examined 220 phytoplankton samples for harmful algal blooms, 18 samples for paralytic shellfish poisoning, 105 shellfish tissues for fecal coliform bacteria analysis, and 93 shellfish tissue samples tested for total *Vibrio parahaemolyticus* and total *Vibrio vulnificus*.

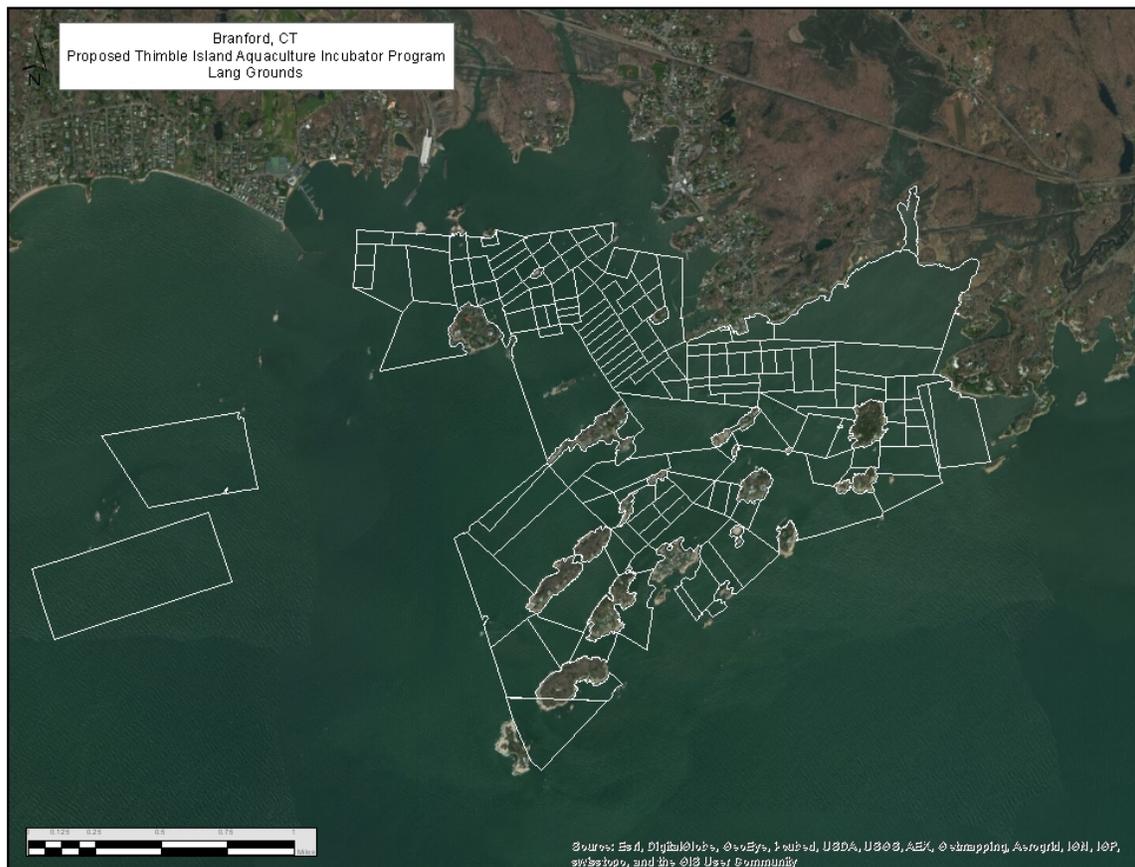
- Twenty-four shellfish tissue, municipal wastewater, and seawater samples were analyzed for MSC (Male-Specific Coliphage) levels, used to evaluate viral impacts. Bureau issued 4 Seaweed- kelp aquaculture certificates. Working with CT DEEP and Federal ACOE on 10 applications, expectations are for four new permits this November.
- The Bureau permitted the first indoor Aquaculture finfish permit for European Seabass for food.
- The Bureau issues ten aquaculture producer permits for finfish grown for stocking ponds in addition to three permits for vocational schools growing finfish for educational programs which are sold to the retail and wholesale market
- The Bureau collaborated with Department of Administrative Services to solicit and contract with a vessel monitoring vendor in response to the US. Food & Drug Administration Program Element Evaluation Report of the Shellfish Program; the Control of Harvest (Patrol) Element of the Shellfish Sanitation Program's compliance with the National Shellfish Sanitation Program Model Ordinance found CT deficient in the direct oversight of commercial harvester relay activities.
  - Direct oversight is required to control the harvest, transport, replanting, and security of the shellstock until the end of the complete relay activity to prevent shellstock from being illegally diverted to direct marketing.
- The Bureau issued eight Branford Aquaculture Incubator Initiative licenses on a total of 40 acres on eight five acre parcels for the planting and cultivating of oysters and hard clams.
- Bureau staff is currently working with the licensees on the aquaculture pre-screen permitting forms, which are required for aquaculture gear by the Army Corps of Engineers and the CT Department of Energy and Environment. The first operation in the incubator area received the federal and state gear permits recently and this operation has planted 800,000 hard clam seed under screens.
- The Connecticut Department of Agriculture, Bureau of Aquaculture Laboratory successfully renewed their certification as an FDA certified shellfish laboratory in accordance with the National Shellfish Sanitation Program (NSSP) Model Ordinance. The three year certification determines conformity with the requirements of the National Shellfish Sanitation Program Model Ordinance.

### **Branford Aquaculture Incubator Initiative**

The acquisition of Town Shellfish Franchise grounds presents a unique opportunity to grow the shellfish industry in Connecticut. The Department had acquired 900 acres of shellfish franchise ground in Branford. The underwater lands of Long Island Sound are held in Public Trust by the State of Connecticut but the shellfishing rights through the 1855 Act "regulating and protecting

the planting of Oysters” were legislated to the Town. The Town Shellfish Commission designated those shellfish rights to individual applicants and those rights continue in perpetuity and can be transferred.

The Department of Agriculture purchased those rights to create an aquaculture incubator area and will administer the planting and cultivating of shellfish on the parcels though licenses allowing individuals to conduct shellfish activities. The intent is to foster the development of new commercial aquaculture enterprises, public awareness of and support for local and sustainable aquaculture, and public stewardship of the environment.



Connecticut's Sustainable Aquaculture Expansion Initiative in Branford will create local economic and environmental benefits:

- Small-scale cage and bottom culture of oysters and clams,
- Diversification into seaweed culture and mussel production,
- Expansion and enhancement of public recreational shellfishing areas,
- Collaborative research projects between the Department of Agriculture, National Marine Fisheries, State and private universities, and Connecticut Sea Grant,
- Potential development of new species and culture technologies,

- New opportunities for Education and Workforce training for the Regional Science Agriculture high schools (Bridgeport, New Haven, and Groton), with an aquaculture focus, and creation of a mechanism for entry into commercial aquaculture ventures, and
- Develop partnerships with Non-Government Organizations, Conservation, and Environmental Organizations.

The Aquaculture expansion Intuitive may result in the concurrent independent development of:

- A shellfish marketing cooperative,
- Development of a name brand,
- A private/public hatchery for stock enhancement and/or habitat restoration in adjacent areas, and
- A Community Supported Aquaculture venture (CSA).

### **Shellfish Growing Area Program**

**Greenwich, CT** - Scientists and engineers from Connecticut Department of Agriculture's Bureau of Aquaculture (CTDABA), U.S. Environmental Protection Agency's New England Regional Laboratory, together with staff from the U.S. Food and Drug Administration (USFDA) Shellfish Sanitation Program completed a hydrographic dye dilution study in April of 2017. The study tracked the flow and dispersion of wastewater discharging into Long Island Sound from the Greenwich Water Pollution Control Facility (WPCF), located on Grass Island in Greenwich Harbor.

Information collected during this study will be used by USFDA and CTDABA to evaluate the impact of wastewater discharges on shellfish growing areas in Greenwich, and will help scientists determine where shellfish may be safely harvested. The Greenwich facility operates an advanced treatment process using ultraviolet disinfection, which has proven to be effective treatment against pathogenic bacteria and viruses contained in sewage, and does not require the introduction of chemicals into the waters of Long Island Sound.

The coastal waters of Greenwich are home to some of Connecticut's most important natural eastern oyster and hard clam producing areas. The information collected during this study will support collaborative oyster resource enhancement projects developed by the Greenwich Shellfish Commission and industry. The goal of the hydrographic dilution study is to protect public health while cultivating essential oyster habitat through science-based management practices.

The Bureau of Aquaculture is in the process of completing Twelve Year Shoreline Pollution Source Surveys in the Towns of West Haven, New Haven, and East Haven. Data collected during the surveys is used to compile a Comprehensive Pollution Source GIS database, with the

long-term goal of maintaining a comprehensive pollution source database for the entire CT shoreline. Pollution sources (such as sewage infiltration to stormwater outfalls) discovered during the surveys are investigated to determine the source of sewage and are referred back to the town for correction. Investigation of pollution sources requires a cooperative effort between the Bureau of Aquaculture, town health officials, public works departments, local environmental groups, and US Environmental Protection Agency.

The Bureau of Aquaculture continues to expand the use of testing shellfish, seawater, and municipal wastewater effluent samples to determine levels of Male-Specific Coliphage (MSC). MSC is an indicator organism that has been accepted by the NSSP for detecting levels of enteric viruses that may be present in growing areas or shellfish tissues. Coliphages are bacterial viruses that infect and replicate in *Escherichia coli*, and are often found in high concentrations in municipal wastewater and to a lesser degree in human and animal feces. Because traditional bacterial monitoring does not accurately indicate the presence of non-bacterial organisms such as human pathogenic viruses, coliphages are potentially important microorganisms for monitoring the microbial quality of waters and shellfish. It also provides a safe way for staff to assess impacts from pathogenic viruses, such as the Norovirus, by using the MSC as an indicator organism. Bureau staff are research partners along with USFDA, University of New Hampshire, New Hampshire Department of Environmental Services, CT Sea Grant, and Spinney Creek Shellfish of Maine on a NOAA Saltonstall-Kennedy project titled, “Assessing Opportunities for Aquaculture in Shellfish Growing Areas Adjacent to Wastewater Treatment Plant Outfalls: Determination of Viral Reduction Performance, Impacts on Shellfish Safety and Informing Harvest Management”. The objective of this research is to develop detection methodology, assessment techniques, and classification strategies related to viral pollution from WTPs near shellfish harvesting areas that will alleviate major constraints that currently limit development and progress of shellfish aquaculture nationwide.

As part of these efforts, Bureau staff will partner on the project “*Shellfish aquaculture and virus pollution near wastewater treatment plants*”. This project was recommended for funding in the 2016 NOAA Sea Grant Aquaculture Research Competition. Bureau staff will work with CT WTPs to gather WPCF monitoring and local environmental data, collect/deliver wastewater and shellfish samples and identify challenging performance conditions; determine classification/management strategies for impacted areas and develop an appropriate sampling plan; help write scientific publications and National Shellfish Sanitation Program Guidance documents, and participate in outreach.

### **Staff Accomplishments**

Department of Agriculture Bureau of Aquaculture staff participate as members on the following Interstate Shellfish Sanitation Conference (ISSC) Committees and Task Force Panels:

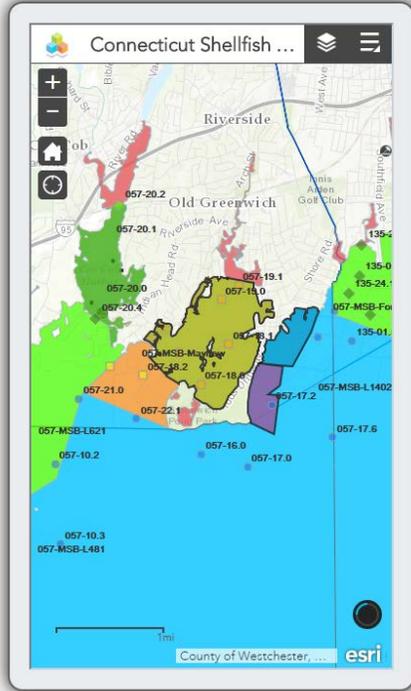
- Vice Chair of Task Force 1 Growing Area
- Aquaculture facility inspection committee
- Research Guidance Committee 2017-18
- Time Temperature Technology Committee 2017-18
- Shellstock Resubmerging Committee 2017-18

- Education Committee 2017-18
- Laboratory Methods Review and Quality Assurance 2017-18
- Model Ordinance Effectiveness Review Committee
- NSSP Evaluation Criteria Committee
- Shellfish Restoration Committee
- Tracability Committee
- Vibrio Research Committee

### **Expanding the Use of Technology for Shellfish Program Management**

Bureau staff has been involved in on-going efforts to develop an expanded in-house geographic and environmental water quality database, which will allow for advanced statistical analysis and reporting associated with shellfish growing area classification and water quality reporting, funded in part by the Connecticut Shellfish Initiative.

Bureau staff has developed an online mapping application for shellfish growing area management, which will allow shellfish commissions, commercial and recreational harvesters to geolocate themselves in the field using a mobile device in order to properly locate shellfish growing areas and get real-time information about the status of the area. The new tool is currently available, however additional tools and applications are under development.



iPhone6s 375 x 667

Figure 1. ArcGIS Online Mobile Application for Shellfish Growing Area Management

### Connecticut's *Vibrio parahaemolyticus* Control Plan

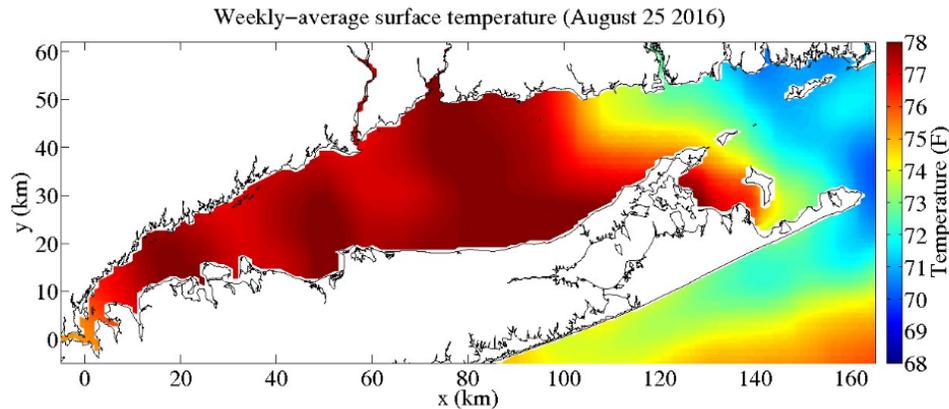
Connecticut shellfish growing waters in Westport, Norwalk and Darien were the source of at least 23 confirmed cases of *Vibrio parahaemolyticus* during the summer of 2013, with another additional 15 cases potentially linked to Connecticut waters. This outbreak occurred with a *Vibrio parahaemolyticus* Control Plan in place which limited time from harvest to refrigeration to 5 hours. The 5 hour limit was not adequate to prevent the 2013 outbreak from occurring, and a more stringent control plan was required in the outbreak area in the years since the 2013 outbreak. Prior to 2013, only sporadic cases had been linked to Connecticut growing areas.

In 2015, the DABA was able to further refine the VPCP triggers for the outbreak area, based upon new data developed using the Long Island Sound Vp Prediction System (Whitney, Ward, & DeRosia-Banick, 2016). In 2015, Connecticut's *V. parahaemolyticus* Control Plan (VPCP) for the 2013 outbreak area was triggered when surface seawater temperatures reached 68°F (20°C) as measured using the NASA G1SST product [incorporated into the Long Island Sound hydrodynamic model] and the NOAA BRHC3 coastal buoy located in Bridgeport, CT. The use of a trigger based on environmental conditions rather than a pre-determined start date proved to be effective during 2015, as no illnesses were confirmed prior to the June 19, 2015 start date of the rapid cooling VPCP.

## Vp Prediction System Development

We have begun development of a Vp prediction system for shellfish in LIS. **At this stage, the results below should be viewed as demonstrating prediction techniques. It is unclear whether these results are representative of actual conditions; further analysis and comparison with observations are needed. These demonstration results are not intended for use in management decisions or for informing shellfish-related issues.** This prediction system involves the following steps:

1) Daily sea-surface temperature (SST) data are acquired from the [GISST product](#) (from the NASA Jet Propulsion Laboratory) that includes observations from satellites. The prior week (7 days) of SST are averaged together to construct the weekly-averaged surface temperature field throughout LIS.



Surface temperatures from GISST satellite-observational product. Temperatures are averaged over the previous 7 days.

Figure 2. Long Island Sound Vp Prediction System, Whitney, Ward and DeRosia-Banick, 2016. 1) Daily sea-surface temperature (SST) data are acquired from the [GISST product](#) (from the NASA Jet Propulsion Laboratory) that includes observations from satellites. The prior week (7 days) of SST are averaged together to construct the weekly-averaged surface temperature field throughout LIS.

Oyster production areas not implicated in the 2013 outbreak operate under a general state-wide *Vibrio parahaemolyticus* control plan, which requires a five hour limit from time of harvest to temperature control (either mechanical refrigeration or icing), shading shellfish on the deck of harvest boats, spraying shellfish with water from approved growing areas to keep them cool, monitoring of shellstock temperatures once on board, and reducing internal temperatures of shellfish to less than 50°F within 5 hours of placing under temperature control. Additionally there are recently adopted national requirements for temperature record keeping and transportation documentation requirements that must be adhered to by harvesters and dealers.

The Bureau of Aquaculture works throughout the year with aquaculture producers to ensure an understanding of the VPCP requirements, as well as educate harvesters that the warmer waters and changing weather patterns must be considered while adopting strategies to reduce the risk of shellfish-related illnesses.

Bureau analysts have spent many hours on-board harvest vessels during 2016 and 2017 evaluating rapid cooling processes and making recommendations to improve existing controls. The ultimate goal is to reduce the risk of illness associated with Connecticut shellfish, in order to ensure that our shellfish industry continues to produce a high quality and safe source of shellfish for Connecticut residents and out-of-state consumers.

The effectiveness of Connecticut's *Vibrio parahaemolyticus* Control Program is characterized by calculating the percent reduction in illnesses from the 2013 outbreak year (Table 1). The

number of illnesses associated with shellfish growing areas within the municipalities of Westport, Norwalk and Darien was reduced from 22 during 2013 to one (1) case in 2014, two (2) in 2015, and one (1) in 2016 achieving an illness reduction of 95.6% in 2014 and 2016 as compared to the 2013 season. Clinical isolates associated with confirmed cases linked to Connecticut growing areas in 2014, 2015 and 2016 provide evidence that the O4:K12 virulent strain is still present in Connecticut growing areas. Based on the results of the post-harvest controls study and on recent illness data, experts in the field believe that these findings provide convincing evidence that the use of ice slurry for rapid cooling has prevented additional outbreak events in 2014, 2015 and 2016.

**Table 1. Confirmed *V. parahaemolyticus* cases linked to Connecticut shellfish, 2010 through 2016.**

Year	Confirmed Vp Cases Linked to CT Growing Area	Multi-State Shellfish Cases Including CT Source
2010	1	2
2011	1	2
2012	1	3
2013	23 (23 outbreak area)	11
2014	1 (Westport)	2
2015	2 (1 Westport, 1 Milford)	8
2016	1 (Norwalk)	2

DABA staff has taken a leadership role in collaborative efforts with FDA and NOAA to develop tools to better forecast risk of *Vibrio parahaemolyticus* illness, and is part of a steering committee tasked with guiding the development of forecasting tools and bringing together academic, regulatory and industry stakeholders to develop regional models, as part of the North East Region Vibrio Forecasting Partnership. Several new forecasting tools have been developed and were released for the 2016 Vibrio season in order to assist shellfish harvesters with identifying the best post-harvest controls and harvest strategies to reduce the risk of Vibrio growth in their product (Figures 4 and 5).

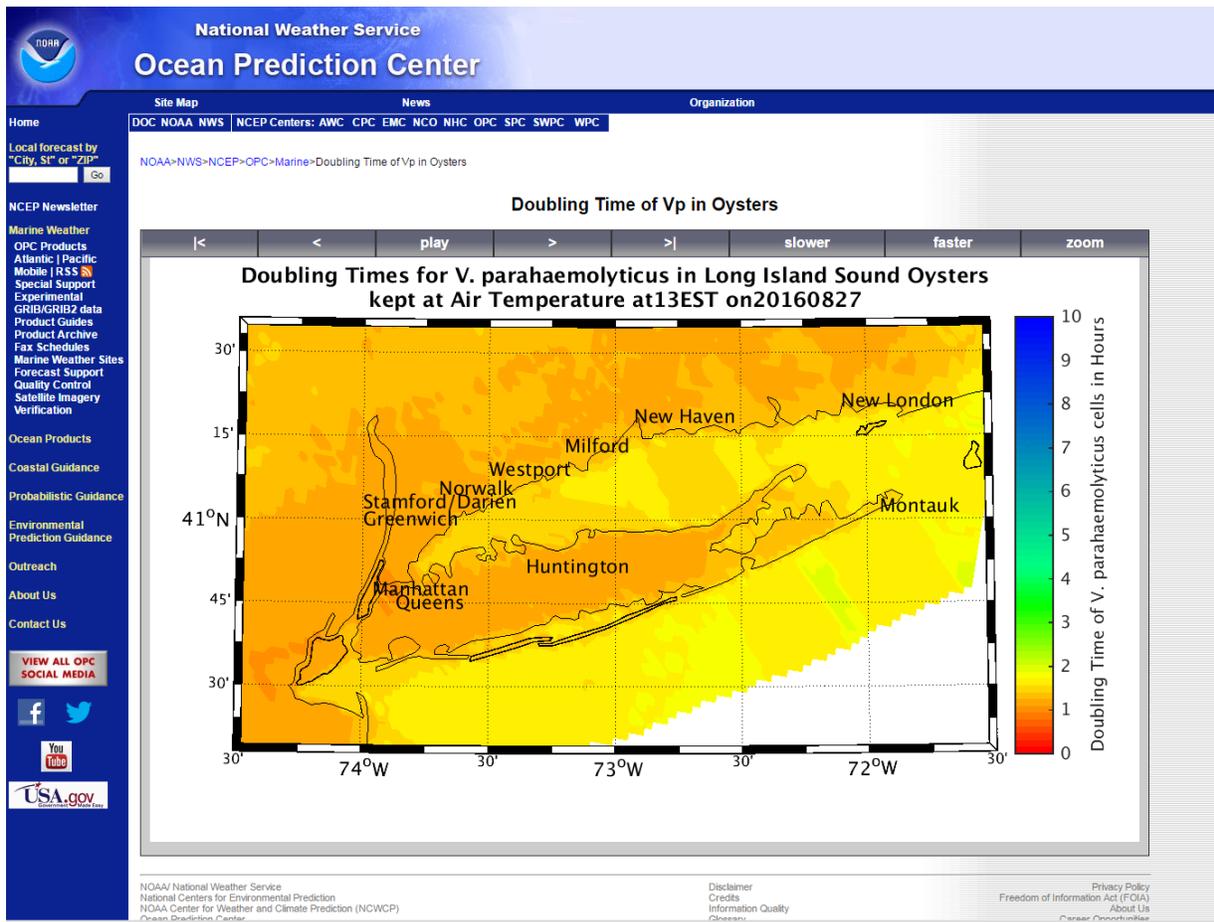


Figure 3. NOAA National Weather Service Long Island Sound *Vibrio parahaemolyticus* bacteria doubling time forecast.

## Milford, CT Best Harvesting Windows

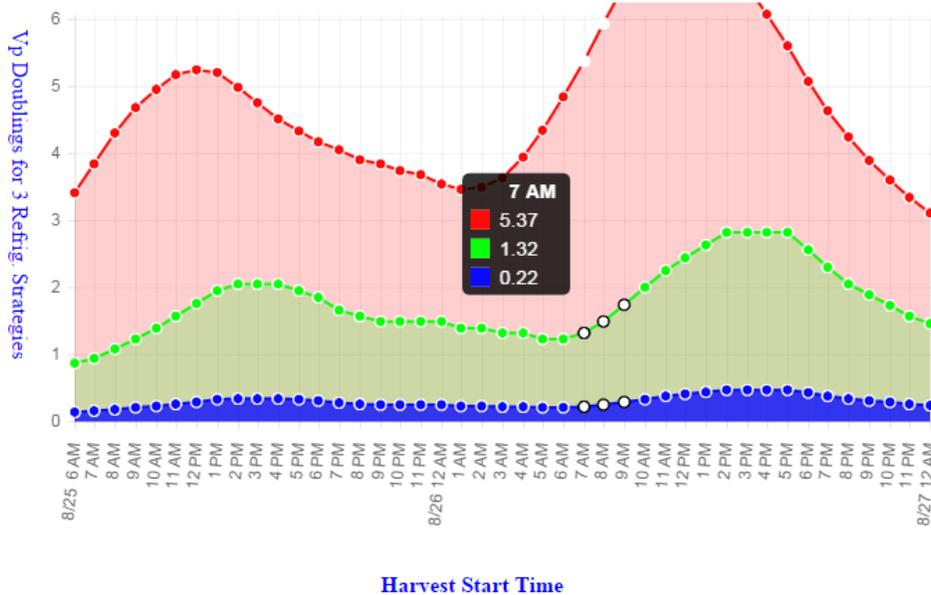


Figure 4. NOAA NWS DABA Tool for 3 post-harvest cooling strategies. Graph illustrates predicted bacteria doublings for *Vibrio parahaemolyticus* bacteria in harvested oysters under 3 cooling strategies. These predictions are based on the established relationship between temperature and bacterial growth, using NWS NDFD air temperature forecasts for selected harvest start times. Levels of Vp bacteria in the oysters begin to increase rapidly once oysters are removed from the water at the time of harvest. More rapid cooling results in lower Vp levels in the oysters, and reduces the risk of illness associated with oyster consumption. This tool is intended to assist oyster producers in choosing an appropriate cooling method and optimal start time of harvest, in order to achieve the lowest number of bacterial doublings when using a given cooling strategy.

### Post-Harvest Cooling Strategies:

- 1) Blue line (Rapid cooling): Oysters placed into Ice Slurry on vessel within 0.5 hours of harvest start time; oysters are cooled to an internal temperature of 50°F within 1 hour of harvest.
- 2) Green line (Immediate On-board refrigeration): Oysters are placed into mechanical refrigeration unit on vessel within 0.5 hours of harvest time; oysters are cooled to 50°F within 5 hours of being placed under refrigeration.
- 3) Red Line (5 hours to refrigeration): Oysters are exposed to air temperature on the deck of the vessel for 5 hours and placed into mechanical refrigeration on shore; oysters are cooled to 50°F within 5 hours of being placed under refrigeration.

## Aquaculture Dairy Laboratory accomplishments.

Bureau of Aquaculture staff serve as the Dairy Laboratory Evaluation Officer for the State of Connecticut and are responsible for evaluating all Appendix N Facilities and Certified Dairy Laboratories along with analysts performing milk laboratory test methods in accordance with the requirements of the Grade “A” Pasteurized Milk Ordinance.

On a bi-annual basis, staff schedules and performs laboratory evaluations of both milk screening facilities and certified laboratories. There are a total of 3 Certified Laboratories and 10 Screening Facilities. In 2017, half of these facilities were evaluated. In addition to 3 new facilities coming online.

In addition to evaluations, staff organize proficiency testing for the labs, supervises the analysts performing the appendix N tests, certifies new analysts which includes: providing written exams

they must pass in order to become a certified analyst; helping to develop and fine tune quality control/quality assurance plans for the labs and answer any questions and offer training to new facilities. There are 53 analysts that are evaluated every two years. In 2017, 9 new analysts were certified to perform the appendix N test.

Staff visit intra-state farms to educate the farms about the necessity of antibiotic screening and organize yearly split samples for the farms to perform to ensure proper testing protocols are being performed. These proficiency splits will be done in November of 2017 for approximately 20 intra-state screening facilities.

In 2017, the current Dairy Laboratory Evaluation Officer successfully became recertified for another 3 years.

## **BUREAU OF REGULATORY SERVICES**

### **FY 2017 Administrative Report**

In September 2016, the Bureau successfully applied for and received federal funding through a multi-year cooperative agreement with the U.S. Food and Drug Administration (FDA) to implement a state produce safety program in compliance with the Produce Safety rule component of the federal Food Safety Modernization Act (FSMA). The federal regulation focuses on setting the first-ever federal regulatory standards for the production, harvest, and handling of fruits and vegetables, in an effort to prevent microbial contamination and reduce foodborne illnesses associated with fresh produce. Public Act No. 17-208, passed during the 2017 legislative session and signed into law by Governor Dannel P. Malloy, designates the Department as the state agency having the authority to implement federal produce safety standards in Connecticut. With phased-in compliance dates based on the value of their produce sold, growers not only in Connecticut, but nationwide, will be required to meet certain standards for the growing, harvesting and packing of produce designed to reduce the incidence of foodborne illnesses associated with the consumption of fresh produce.

In May of 2017, The State of Connecticut Avian Influenza Monitoring and Response Plan (CT AMIRP) was approved to be included in the overall State Emergency Response framework. The Plan was developed by the Bureau with guidance and assistance from the Division of Emergency Management and Homeland Security (DEMHS) of the Connecticut Department of Emergency Services and Public Protection. Assistance was also provided from various State, Local, Federal and industry partners serving on the Avian Influenza Working Group. The purpose the CT AIMRP is to establish procedures to prevent, prepare, respond to and recover from a potential or actual outbreak or incident of Avian Influenza in poultry in the State of Connecticut. The AIMRP is intended to establish and maintain ongoing communication and

coordination within and between the commercial poultry and egg industry and local, state, and federal government agencies concerning the avian influenza threat.

“Agritourism – Protecting Public Health, Animal Health and Your Farm” was a one-day work conference that was initiated and organized by the Bureau and held at the Legislative Office Building in August 2017. In holding the event, the Bureau partnered with the Connecticut Department of Public Health, the U.S. Centers for Disease Control and Prevention, the United States Department of Agriculture, the University of Connecticut and the Connecticut Farm Bureau Association to provide farmers with an opportunity to increase their awareness of the potential risks, with a focus on public health risks, associated with opening their farms to visitors and measures that can reduce such risks. The work conference was held in response to a 2016 incident in which 50 confirmed human *E.coli* O157 infections, the largest known *E.coli* O157 outbreak in the state, was linked to contact with goats and their environment on one goat dairy farm holding open houses for 3 consecutive weekends.

The Bureau secured continued funding through a cooperative agreement with the FDA to implement Animal Feed Regulatory Program Standards. The feed standards establish a uniform foundation for the design and management of State programs responsible for the regulation of animal feed. Part of the funding will be used by the Connecticut Agricultural Experiment Station to support the laboratory’s analytical capability relative to animal feeds.

The Bureau issued \$2,328,341.00 in Dairy Sustainability Grants (down from \$4,051,448.44 in FY 16 due to deficit mitigation) to 100 eligible dairy farms pursuant to the provisions of Public Act No. 09-229.

Complaint investigations conducted were as follows (excluding those conducted by the State Animal Control Unit): 10 consumer complaints (CT Grown advertising, product defects or illness that involved fruits/vegetables, milk, milk products, pet food or livestock feeds); 7 animal welfare complaints; 8 agricultural nuisance/agricultural practices complaints.

## **Dairy Unit**

- Collected and analyzed 1723 samples of processed/manufactured milk, milk products and cheese, 187 samples of raw milk for pasteurization and 198 samples of retail raw milk for compliance with milk safety regulations including the presence of animal drug residues and in the case of retail raw milk, human pathogens.
- Conducted 212 Grade A Dairy Farm inspections, 71 Retail Raw Milk Farm inspections, 101 Milk Plant/ Cheese Plant inspections (including process verification), 42 milk tanker inspections, 3 plant listing audits and 3 farm bulk tank unit (BTU) audits.
- Orders/Warnings issued: 1 stop sale order to a milk processor for product quality

violations; 8 stop sale orders to retail raw milk producers due to product quality violations; 1 stop sale order to a producer of milk for pasteurization due to product quality violations ; 24 warnings for milk quality violations.

### **Office of the State Veterinarian and Animal Health Unit**

- Distributed three thousand two hundred and ten (3,210) doses of Brucella abortus vaccine to veterinarians for use to prevent Brucellosis in cattle (Undulant fever in humans).
- Surveillance tested four thousand one hundred ninety (4,190) head of livestock for Mycobacterium bovis (bovine tuberculosis); distributed 3,980 doses of purified protein derivative (PPD) tuberculin to veterinarians for private testing of livestock for Mycobacterium bovis (bovine tuberculosis).
- Surveillance tested 3,780 poultry from 263 flocks for Avian Influenza and other avian diseases.
- Surveillance tested 718 hogs from 38 farms for Pseudorabies and Brucellosis.
- Orders and Warnings issued: 4 Quarantine Orders due to the detection of canine parvovirus detected in dogs at municipal pounds and pet shops; 2 Quarantine Orders due to livestock importation violations; 1 Quarantine Order to prevent the movement of livestock during a foreign animal disease investigation; 2 Quarantine Orders to prevent movement of livestock during a rabies investigation;
- Pursuant to the provisions of C.G.S. §22-126a, Testing of Animals in Drawing Contests, obtained samples from 7 animals entered in draft pulling (drawing) contests held at Connecticut fairs that were submitted to the University of Florida Racing Laboratory for analysis for the presence of drugs. The presence of performance enhancing drugs was not detected in any of the animals selected for testing during the 2016 fair season. Also pursuant to the provisions of C.G.S. §22-126a, the Bureau banned 8 individuals from entering pulling contests in Connecticut for a period of 1 year due to the detection of drugs in their animals entered in pulling contests in other states. In addition, one other individual was banned from entering contests in Connecticut for a period of 2 years for being a repeat offender.
- With USDA Veterinary Services cooperative agreement funding support, the Bureau continued animal disease surveillance and outreach activities for Avian Influenza, Scrapie and other reportable animal diseases; continued implementation of the National Animal Disease Traceability Program; and partially funded two positions associated with the cooperative agreement programs. The Bureau provided funding to the Connecticut Veterinary Medical Diagnostic Laboratory (CVMDL) at the University of Connecticut to conduct essential diagnostic services and to support personnel needed to

accomplish surveillance goals and to assist in animal disease investigations and disease-free status certifications i.e. National Poultry Improvement Plan (NPIP). State animal health surveillance information is coordinated by the State Veterinarian and shared with USDA through quarterly accomplishment reports and participation in the National Animal Health Reporting System (NAHRS) and the National Animal Health Laboratory Network (NAHLN).

- With USDA Veterinary Services cooperative agreement funding support, the Bureau continued its activities with Animal Disease Traceability, Official Animal Identification requirements and monitoring and enforcing compliance with state and federal laws relative to livestock and poultry interstate movement:
  - Investigated 15 instances of illegal livestock importation.
  - Livestock and Equine Interstate Movement – processed 4,334 Interstate Certificates of Veterinary Inspection (Health Certificates) representing 14,409 livestock and equine animals.
  - Issued 244 livestock import permits representing 1,413 animals.
  - Issued 104 livestock exhibition permits representing 1,253 animals.
  - Issued 1,601 poultry import permits representing 3,640,632 domestic poultry, game birds and Psittacine birds (sold in pet shops).
  - Official Animal Identification Devices issued (pursuant to USDA Animal Disease Traceability Rule): 500 RFID (radio frequency identification device) ear tags issued to producers; 12,000 NUES (metal) ear tags issued to producers and veterinarians; and 13,096 back tags issued to CT licensed livestock dealers.
  - Received 160 Brucellosis Test Charts, 112 Brucellosis Vaccination Certificates, 152 Tuberculosis Tests and 11 Porcine Pseudorabies Test charts.
  - Issued 2,582 Scrapie program ear tags to goat and sheep producers (pursuant to RCSA §§22-278-A1 through 22-278-A14 and USDA Scrapie rule).
  - Entered and updated 3800 Livestock and Poultry Premises in the USDA Emergency Management Response System (EMRS).

### **Food Safety and Agricultural Commodities Unit**

- Samples submitted to the Connecticut Agricultural Experiment Station for analysis: 332 seed samples; 151 animal feed samples; 62 fertilizer samples
- Conducted 11 Shell Egg (table eggs) Safety Program inspections; 4 Poultry Slaughter Program Inspections; and 90 Controlled Atmosphere Apple Storage inspections resulting in the certification 108,000 bushels of apples meeting controlled atmosphere storage standards.
- Good Agricultural Practices (**GAP**) and Good Handling Practices (**GHP**) Fresh Produce

### Audit Program:

Through USDA Specialty Crop Block Grant funding and in conjunction with a Federal-State cooperative agreement with the USDA-Agriculture Marketing Service (AMS) Specialty Crops Inspection Division, a Bureau staff member, is licensed as a USDA auditor and under the direction of the Bureau, provides USDA food safety audits that include Good Agricultural Practices (GAP)/Good Handling Practices (GHP) Audits, Produce GAP Harmonized Audits, and commodity specific audits. These are voluntary food safety audits that verify adherence to the recommendations made in the Food and Drug Administration's (FDA) Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables. Requesting farms/businesses that meet the minimum requirements receive a certificate from the USDA and are listed on the USDA-AMS website. This program will continue to assist Connecticut farmers, re-packers, and wholesalers in remaining competitive nationwide and worldwide as the demand for food safety programs continues to grow.

- Twenty-four (24) audits were conducted on Connecticut farms/businesses to determine if minimum audit requirements outlined by USDA-AMS were met.

### **State Animal Control Unit**

- The State Animal Control Unit investigated 1,804 complaints, 9 livestock damage claims, issued 97 written warnings, 32 infractions, and 63 misdemeanors summons and had 6 arrests. It conducted inspections of 70 municipal dog pounds, 145 pet shops, 418 pet grooming facilities, 213 commercial kennels, 118 dog training facilities, and processed 75 rabies cases where humans or domestic animals were exposed to a rabid animal.
- This past fiscal year, with the cooperation of the New Britain Police Department, the Bureau continues to implement a 96 hour animal control officer's academy. Since 2012 all animal control officers who were recently appointed must complete a minimum of 80 hours of instruction following a curriculum standard as set forth in CGS 22-358(d). Through this academy the curriculum is specific to Connecticut laws and regulations. Instructors include Department of Agriculture staff, State's Attorneys, Police Officers and Veterinarians. This past fiscal year 32 trainees have successfully completed the animal control officer's academy.

## Licensing Unit

- Revenues collected from licensing and product registrations totaled \$2,033,076.75
- The Licensing Unit processed applications and issued licenses and registrations during FY 2016 as follows: 172 Animal Importers, 263 Commercial Kennels, 142 Training Facilities, 431 Grooming Facilities, 96 Pet Shops, 288 Animal Control Officers, 6 Egg Grading Plants, 0 Fur Breeders, 1 Commission Sales Stable, 1 Equine Auction, 97 Poultry Dealers, 42 Livestock Dealers/Brokers, 3 Swine Garbage Feeders, 118 Milk Dealers, 123 Milk Sub dealers, 1 Poultry Slaughter Facilities, 2987 Retail Dairy Stores, 115 Milk Producers, 15 Retail Raw Milk Producers, 5 Raw Milk/Cheese Manufacturers, 181 Milk Examiners (lab techs and bulk haulers), 10 Milk Laboratories, 94 Bulk Milk Tankers, 21 Cheese Manufacturers, 11 Cervidae Herds, 80 Seed labelers, 599 Feed companies (13,403 registered products), 320 Fertilizer companies (4,651 registered products), 28 Liming Material companies (97 registered products), and 177 Soil Amendment Companies (609 registered products), 10 Poultry Mortality Disposal Facilities.

## Animal Population Control Program (APCP)

- For FY 2017, the APCP processed vouchers for 6,649 animals (2669 dogs-40%, 3980 cats-60%) from municipal impound facilities, pets owned by low-income CT residents and feral cats from non-profit organizations. Benefits were provided for 4,553 pets for a 69% overall sterilization compliance rate. From that total, 24 animals were found to be previously sterilized. In addition 9,106 pre-surgical vaccinations were issued, of which one-half were rabies vaccines.

