

Department of Agriculture

At-a-Glance

Steven K. Reviczky, Commissioner

Established: 1925

Statutory Authority: CGS. Sec. 22.1

Central Office: 450 Columbus Boulevard, Hartford, CT 06103

Number of Employees: 64

Recurring operating expenses: \$5,733,302

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 aquaculture 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 Titles 4, 12, 22, 26 and other Titles of the Connecticut General Statutes.

Public Service

During FY 2017-2018 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.

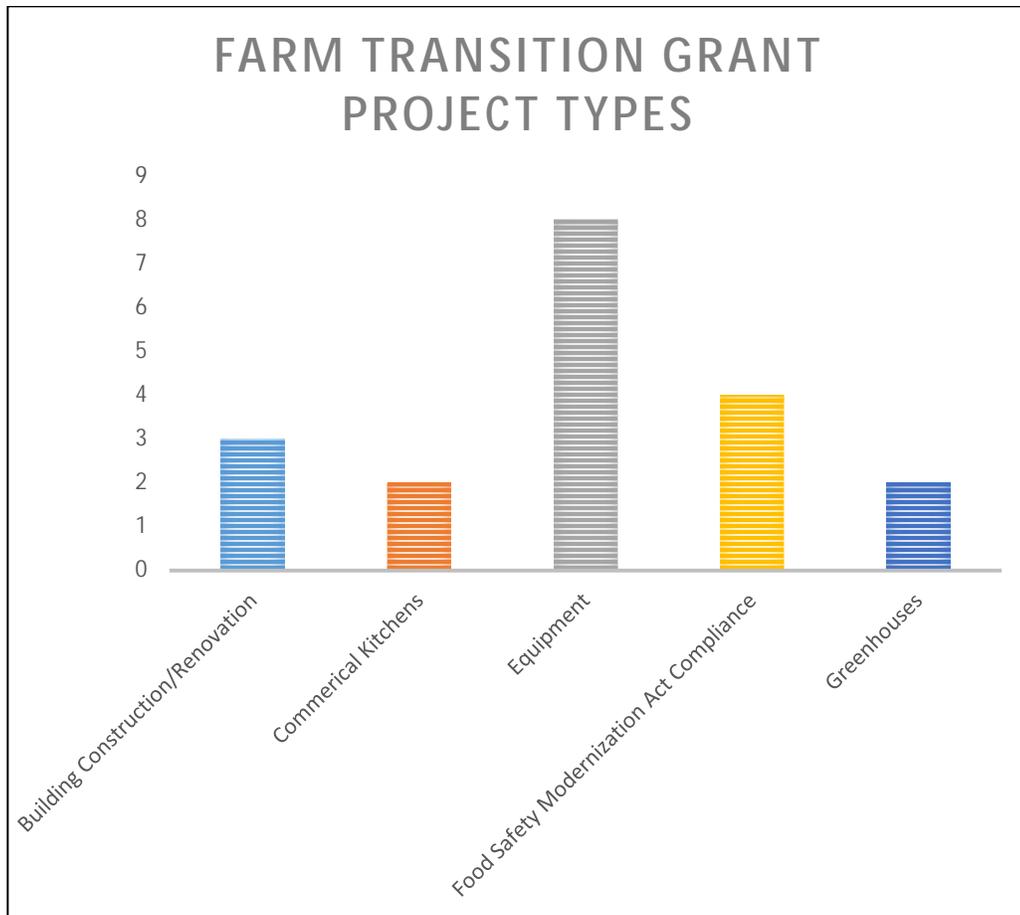
The Department, through the Office of the Commissioner, has transitioned all licensing processes to the enterprise eLicense system. Over half of the agency's licenses and permits can now be obtained or renewed online, increasing productivity for office staff and convenience for the general public. Most of the Department's license records are also accessible for review in this system. The public's access to this information, whether a single license lookup or a complete roster of all licensees of a particular type, can be easily downloaded, facilitating access to information that would otherwise only be available to the public by submitting a request pursuant to the Freedom of Information Act.

Additionally, the Department's Animal Population Control Program continued to increase the level of immunization against infectious animal diseases by providing sterilization and vaccination benefits for dogs and cats to (1) Connecticut residents for dogs and cats adopted from municipal pounds; (2) to low income residents for dogs and cats that they own; and (3) to non-profit organizations engaged in activities aimed at reducing the population of feral cats.

BUREAU OF AGRICULTURAL DEVELOPMENT AND RESOURCE CONSERVATION

Agricultural Development

- Generated \$560,652 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 \$185,405 in revenue through land leases at the Regional Market.
- Generated \$51,600 in revenue through railroad usage fees at the Regional Market.
- Operated the long-running, early-morning farmers' market at the Regional Market featuring 43 Connecticut farmers and vendors, attracting thousands of shoppers on weekends and generating \$35,045 in revenue through stall rentals.
- Assisted in coordination and promotion of 170 independently operated certified Connecticut Grown farmers' markets, farm stands and mobile markets featuring 342 certified farmers.
- Administered Connecticut's Farmers' Market Nutrition Programs (FMNPs) to provide \$841,800 in checks for Connecticut Grown fruits and vegetables at authorized farmers' markets to 35,849 nutritionally at-risk women, infants, and children and 31,166 low-income seniors.
- Successfully applied for and received \$320,920 from the United States Department of Agriculture's Specialty Crop Block Grant program to fund five projects to solely enhance the competitiveness of Connecticut specialty crops.
- Funded \$445,800 in matching Farm Transition Grants to 19 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.



- Funded \$449,150 in matching Farm Viability Grants to 9 municipalities and 15 non-profits for projects with a total cost of \$1,145,472 using Community Investment Account funds.
- Partnered with Food Export Northeast to increase Connecticut exports to international markets.
- Provided 189 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. Through monthly newsletters, email blasts, and Facebook interaction, the Farm-to-Chef program has reinvigorated connections between producers and culinary professionals.
- Organized and coordinated 2017 Farm-to-Chef Week, featuring 57 dining venues offering menus made with Connecticut Grown ingredients. Of the 57 participating venues, 5 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.
- Meetings with the CT Farm-to-School Collaborative open discussions the Department of Agriculture the Connecticut State Department of Education, School Nutrition Association of Connecticut, and UCONN Extension to better inform our decisions regarding farm to school objectives and plans of action.

Independent discussions with State Department of Education representatives and DoAg staff with regard to events such as CT Grown for CT Kids Week in October, the Department of Defense Fresh program, and the Fresh Fruit and Vegetable Program here in Connecticut have allowed for discussions regarding advancement of efforts between agencies.

- Enhanced the agency's other wholesale market development programs, including those targeting grocers and other retailers, as well as healthcare and other institutions.
- Including training for producers and wholesale buyers within the food industry. Individual meetings and conversations with DoAg staff and buyers and users of Connecticut Grown have allowed the agency to develop our efforts for increased sales and use of Connecticut farm products.
- Operated an online marketplace for Connecticut Grown merchandise and apparel, selling \$27,737.08 in merchandise, helping to strengthen the Connecticut Grown brand.
- Operated three agriculture booths in the Connecticut Building during the 2017 Big E in collaboration with the Department of Economic and Community Development featuring 28 different agricultural organizations or businesses.
- Hosted 2018 Agriculture Day at the Capitol, featuring 50 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 6.6 percent.
- Distributed an additional 3,500 copies of the popular Connecticut Farm Map.
- Provided staffing/administrative support to the Connecticut Farm Wine Development Council to deliver \$47,500 in programming for industry members and consumers, including one educational event, one wine passport contest, wine tasting and sales by glass and bottle in the Connecticut Building at the Big E, and development of an electronic application of the wine passport.
- Strengthened the agency's social media program to expand public awareness of Connecticut Grown products and agriculture through seven Facebook pages with more than 16,500 fans, and two Pinterest pages with 28 boards, 1,035 pins, 674 followers, and 909 monthly views.
- Published and printed 12,000 copies the second annual issue of *Connecticut Grown* magazine, including 7 feature articles covering a wide range of agricultural commodities, services, and issues pertinent to Connecticut agriculture.
- Facebook Reach, FY 17-18:



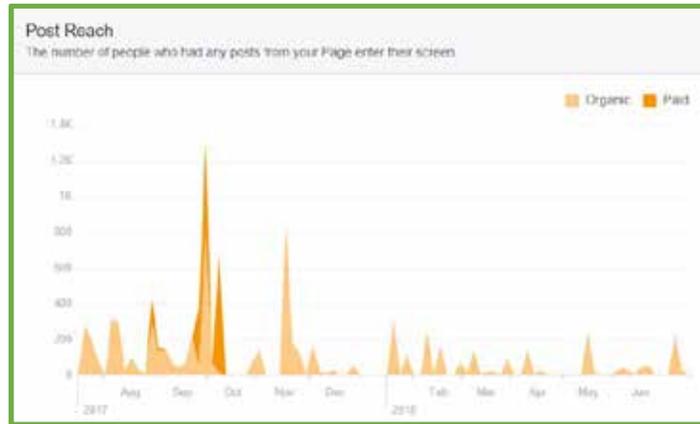
Connecticut Department of Agriculture



Hartford Regional Market



Connecticut Farm-to-Chef



Connecticut Grown Store



Connecticut Farmland Preservation



Connecticut Dairy – new, launched January 25, 2018



- Developed and implemented the following Connecticut Grown advertising campaigns:
 1. Connecticut Farm-to-Chef Week: \$2,615, including \$90 on social media (reaching a total of 7,593 people) and the remainder on radio advertising with Total Traffic and Weather Network during peak drive times (reaching more than 104,330 listeners on the Total Traffic and Weather Network alone).
 2. Connecticut Specialty Crops: \$8,429.70 in federal funds on a variety of media including radio (Pandora, iHeartRadio, Bomba) and social media through September 2017 when the grant funding period concluded, resulting in more than 957,000 impressions and more than 800 clicks to the website through radio promotions and nearly 56,000 impressions on social media with more than 1,500 clicks to the website.
 3. WIC FMNP Voucher Redemption: \$5,250, including \$2,520 on Bomba for 156 spots total over six weeks and \$3,000 on iHeartRadio/Total Traffic and Weather Network for 139 aired spots with matching online streaming over six weeks, resulting in a 31% increase in WIC check redemption in October 2017 in comparison to October 2016.

Resource Conservation

- In FY 17-18, acquired development rights on 6 farms totaling 791 acres at a total cost of \$4,775,855 (leveraging \$1,866,414 in federal USDA and \$188,878 in municipal funding), bringing the Farmland Preservation Program's total to 353 protected farms and 43,448 acres.
- Managed and made farmland restoration improvements for five agricultural use permits which include dairy, hay, diversified vegetables, and small fruit production.
- Entered into 19 new purchase-of-development rights (PDR) offer agreements to preserve approximately 1,730 acres, encumbering \$11,454,600.
- Advanced an additional 40 other PDR projects, totaling approximately 3,870 acres at an estimated \$19,878,500 in preservation costs.
- Successfully secured \$3,100,400 in USDA federal obligated funds from two Agricultural Lands Easement (ALE) cooperative agreements in federal fiscal year 2017 in consideration for up to eight PDR projects.

- Submitted application for the federal fiscal year 2018 USDA ALE program and received pre-approval of \$1,964,600 in additional federal funds towards the permanent preservation of up to seven other farms.
- Continued advancing partnerships with 18 municipalities, on a total of 28 ongoing joint farmland preservation projects. These partnerships occur in all 8 counties, in rural, suburban and even urbanized areas, including Canton, Easton, East Windsor, Ellington, Lebanon, Mansfield, Middletown, New Hartford, New Milford, Rocky Hill, Sprague, Southington, South Windsor, Suffield, and Woodstock.
- Also collaborated with multiple land conservation trusts on ongoing cooperative farmland preservation project partnerships, including the Canton Land Conservation Trust, Connecticut Farmland Trust, Weantinoge Heritage Land Trust, Southbury Land Trust, Woodbridge Land Trust, and Dutchess Conservancy.

Protected Farms: CT Farmland Preservation Program

353 Protected Farms as of April 2018

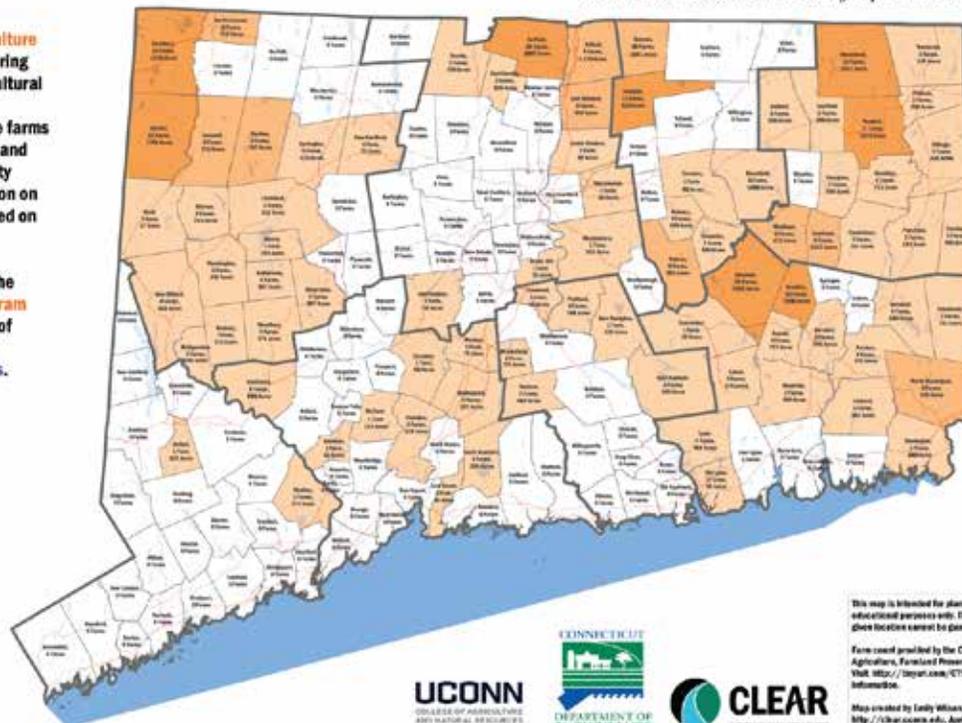
The CT Department of Agriculture preserves farmland by acquiring development rights to agricultural properties in communities throughout Connecticut. The farms remain in private ownership and continue to pay local property taxes. A permanent restriction on nonagricultural uses is placed on these properties.

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>.

Legend

	County
	0 farms
	1 to 5 farms
	6 to 9 farms
	10+ farms

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



UCONN
UNIVERSITY OF CONNECTICUT
OFFICE OF NATURE RESOURCES
AND NATURAL RESOURCES

CONNECTICUT
DEPARTMENT OF
AGRICULTURE

CLEAR
CONNECTICUT LAND EVALUATION AND RATING

This map is intended for planning and educational purposes only. The accuracy of 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 2018.

- Preserved another Community Farms Preservation Program farm comprising 70 acres at a total cost of \$1,089,650, permanently protecting the farmland for agricultural use in partnership with the Town of Rocky Hill who contributed \$188,878, while also leveraging \$550,000 in federal USDA funds.
- Maintained 32 partnership agreements with municipalities for the permanent preservation of farms within these towns, through the Community Farms Preservation Program.
- 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 89, now representing more than half of the state's 169 towns.

- Provided over \$600,000 in funding through the Farmland Restoration Grant to 42 projects with \$1,288,400 in total project costs, bringing more than 320 acres back into active agricultural production, for a total of more than 265 applications with an estimated 2,356 acres since the program's 2012 inception.
- Enhanced and operated an improved Connecticut Farmlink website, which averages more than 1,730 visits per month and 2,900 page views per month, helping connect new and beginning farmers to owners with available farmland.



Analytics for Connecticut Farmlink website, as of July 2018 www.ctfarmlink.org

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 238 Personal Seed Oyster Licenses and 78 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.
- Bureau staff collected and analyzed over 4833 seawater samples for fecal coliform bacteria, examined 220 phytoplankton samples for harmful algal blooms, 8 samples for paralytic shellfish poisoning, 112 shellfish tissues for fecal coliform bacteria analysis, and 16 shellfish tissue samples tested for total *Vibrio parahaemolyticus* and total *Vibrio vulnificus*.
- Twenty-six shellfish tissue, municipal wastewater, and seawater samples were analyzed for MSC (Male-Specific Coliphage) levels, used to evaluate viral impacts.
- Eight kelp producers were licensed by the Bureau
- The Bureau participated in an open house for the grand opening of the first indoor finfish Aquaculture facility permitted in Connecticut. Ideal Fish is a recirculating aquaculture systems company dedicated to bringing fresh seafood to local markets. As the only commercial scale facility of its kind in the Northeast, this state-of-the-art \$14 million dollar operation is producing sustainably raised European Seabass.
- The Bureau issued ten aquaculture producer permits for finfish grown for stocking ponds in addition to three permits for vocational schools growing finfish for educational

SHELLFISH VESSEL MONITORING SYSTEM

In accordance with the NSSP MO, the designated authority (in this case, the Department of Agriculture) must develop and maintain an effective program to control the harvest, transport, replanting, and security of shell stock until the end of the complete relay activity to prevent shell stock from being illegally diverted to direct marketing. This is to ensure compliance with the NSSP-MO and to protect public health.

Previously, the department and the DEEP relied on random patrols and a dispatch call in line to monitor vessel activity, as is required under the NSSP-MO, to determine compliance with the federal requirements. The FDA has found this practice noncompliant with National program standards in recent years, and continued deficiency could result in a prohibition to ship shellfish out of state, inflicting significant harm on the industry.

In October of 2017, the department implemented a voluntary vessel monitoring (VMS) project in conjunction with the dredging of the federal channel in the Housatonic River in Stratford. This is the largest and most productive designated public seed oyster bed in the State of Connecticut. Shellfish companies were allowed to participate in the oyster seed transplant program through a voluntary agreement to install the department's VMS devices. Seventy-two vessels participated in this pilot program. Preliminary reports estimate that approximately 300,000 bushels of oysters have been removed from the Housatonic River under two transplant programs, with a value of \$15 million.

The VMS units enable the department to ensure the security of the transplanted polluted oysters, and protect depuration practices by ensuring that the transplanted oysters remain planted for a minimum of six months and that unauthorized vessels do not remove oysters prematurely. Beginning with the 2018-19 license year, VMS will be a license requirement for all vessels that conduct relay activity in restricted or prohibited waters.

The department and many industry members acknowledge the VMS project has provided access to oysters previously not accessible under the requirements of the National Shellfish Sanitation Program Model Ordinance (NSSP-MO). This program will allow the Department to remain in compliance with the requirements of the National program, while protecting the industry from illegal activities. In the future, the Department plans to use the tracking data collected to inform resource management/enhancement efforts. In addition, all shellfish licenses will be converted to an electronic format and available for DEEP enforcement officers in the field.

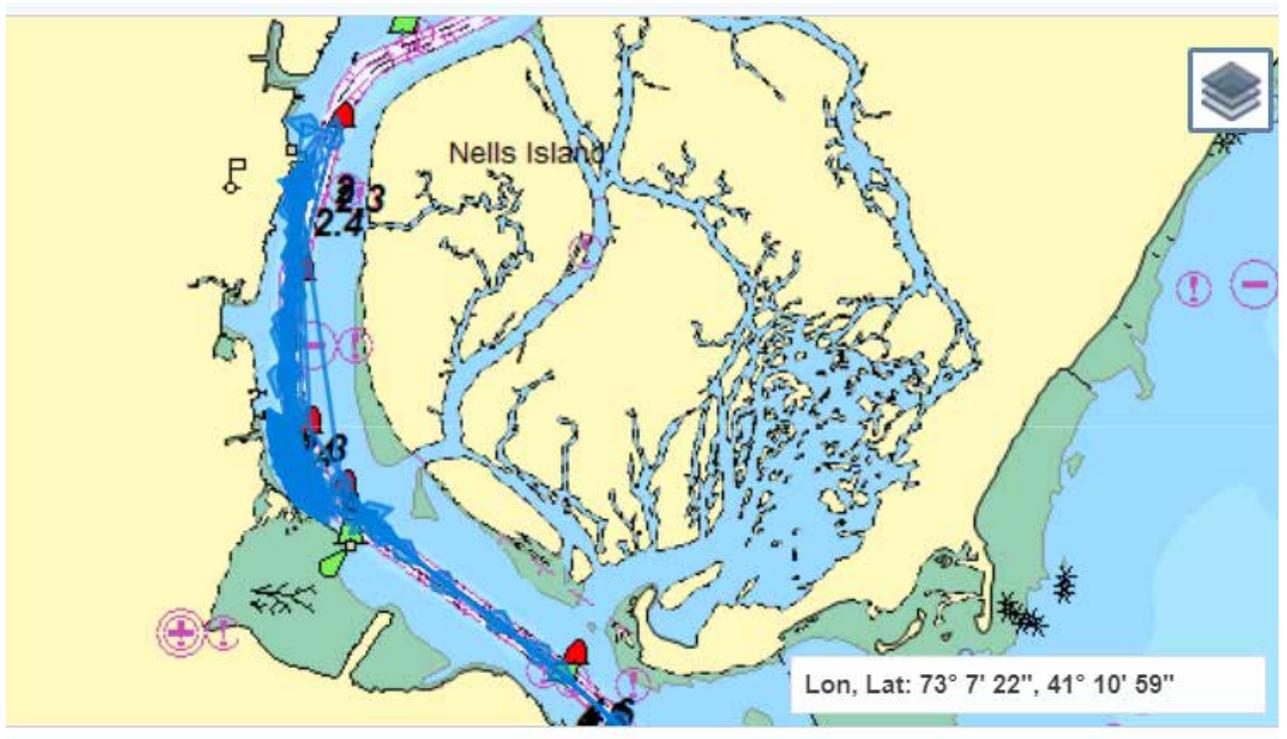


Figure 1. Example vessel track of a vessel working in the Housatonic River navigational channel.

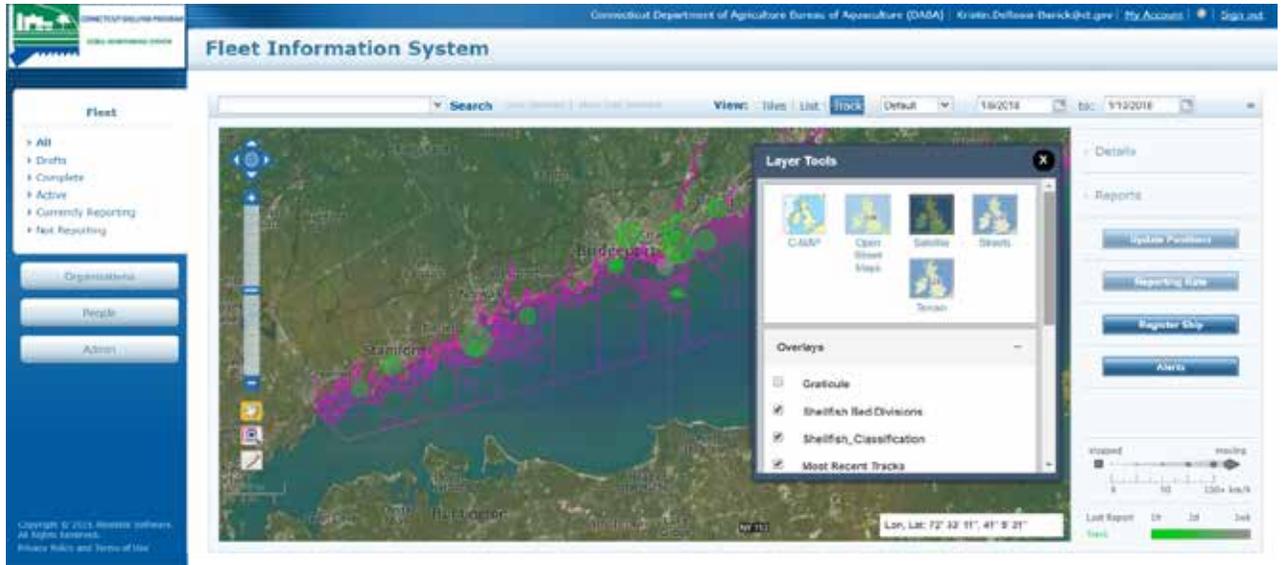
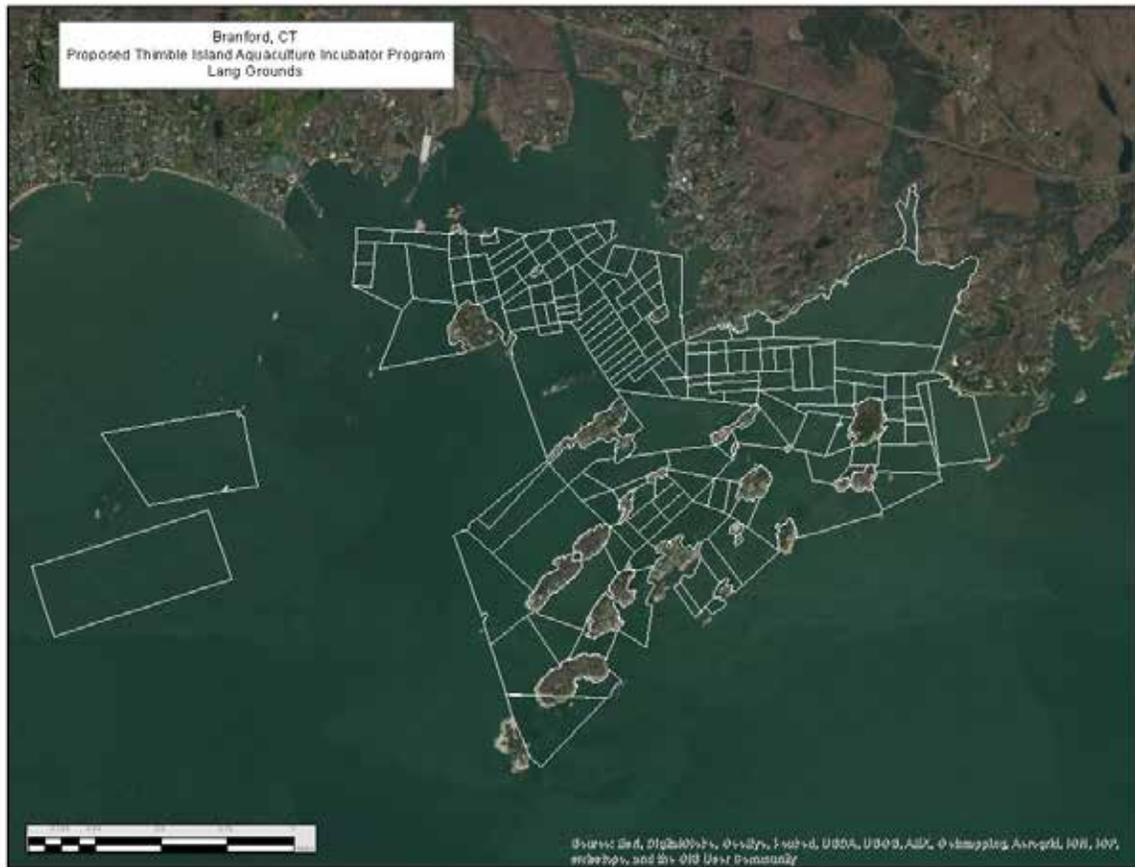


Figure 2. Example dashboard from the Fleet Information System showing the location of active vessels (green) overlaid with shellfish bed boundaries (purple).

Branford Sustainable Aquaculture Initiative

The acquisition of Town Shellfish Franchise grounds presents a unique opportunity to grow the shellfish industry in Connecticut. Underwater lands of Long Island Sound are held in Public Trust by the State of Connecticut however shellfishing rights were legislated to the Town through the 1855 Act “regulating and protecting the planting of Oysters.” The Town Shellfish Commission designated those shellfish rights to individual applicants and those rights continue in perpetuity and can be transferred.

The Department acquired 900 acres of this shellfish franchise ground in Branford in 2014. 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 through 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.



The Branford Sustainable Aquaculture Initiative 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.
- Develop partnerships with Non-Government Organizations, Conservation, and Environmental Organizations.

Shellfish Growing Area Program

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 USDA, 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.

Bureau staff has been working with the Mystic sewage treatment plant to gather 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
- Traceability Committee
- Vibrio Research Committee

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 inadequate 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 has proven effective.

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.

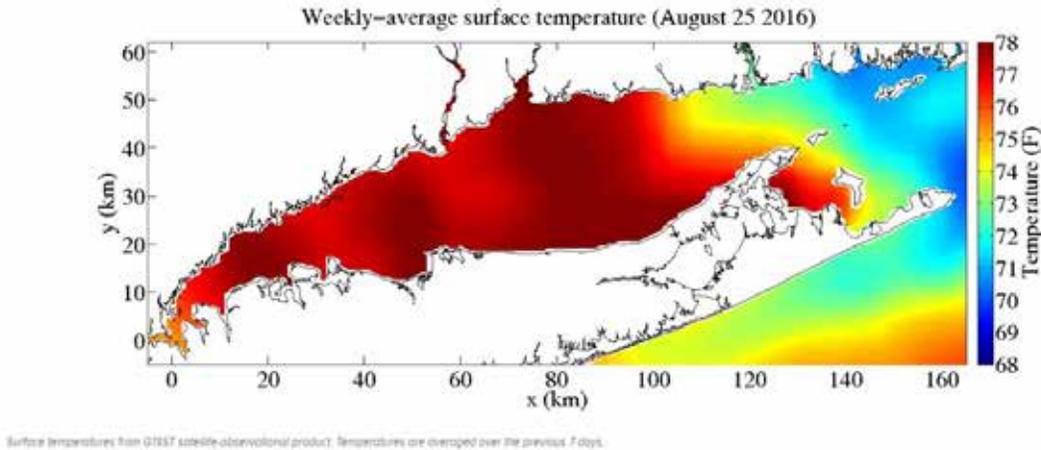


Figure 1. Long Island Sound Vp Prediction System, Whitney, Ward and DeRosia-Banick, 2016. 1) Daily sea-surface temperature (SST) data are acquired from the [GISST product](#) (from the NASA Jet Propulsion Laboratory) that includes observations from satellites. The prior week (7 days) of SST are averaged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

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 during the years since the 2013 event.

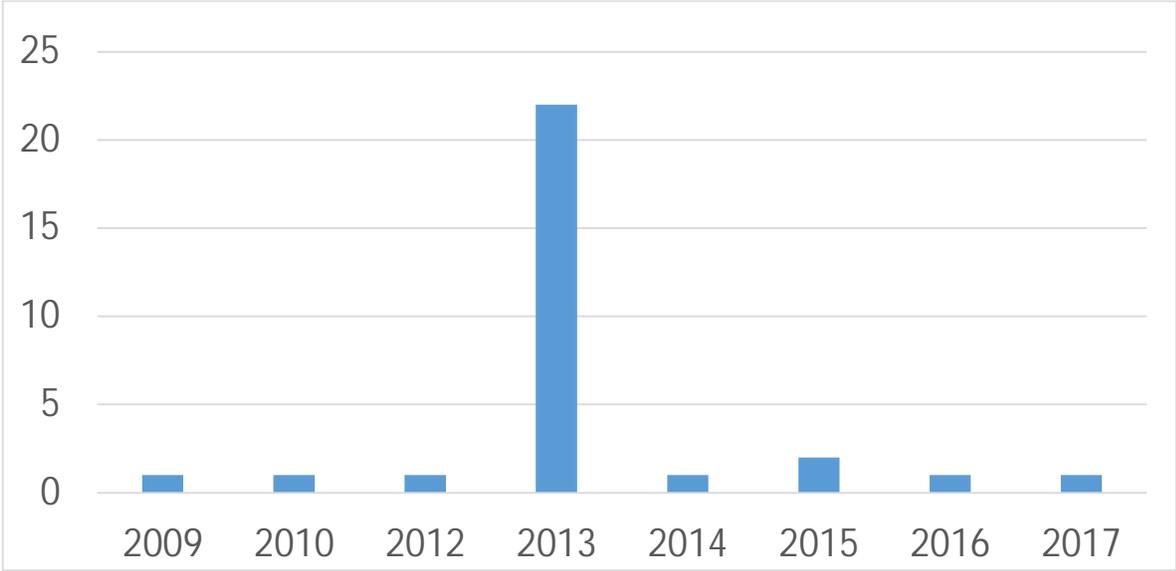


Figure 3. Confirmed *V. parahaemolyticus* cases linked to Connecticut shellfish, 2009 through 2017

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).

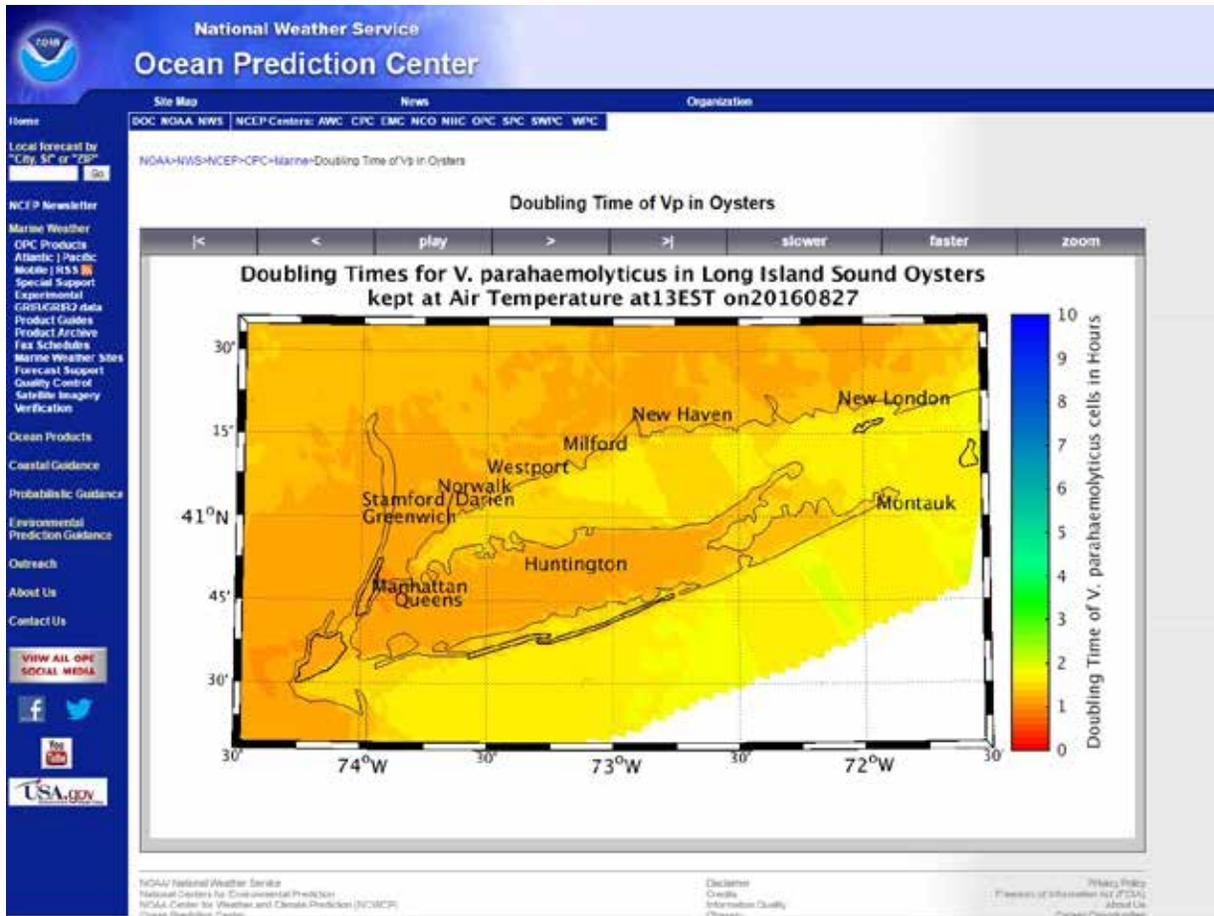


Figure 3. NOAA National Weather Service Long Island Sound *Vibrio parahaemolyticus* bacteria doubling time forecast.

Milford, CT Best Harvesting Windows

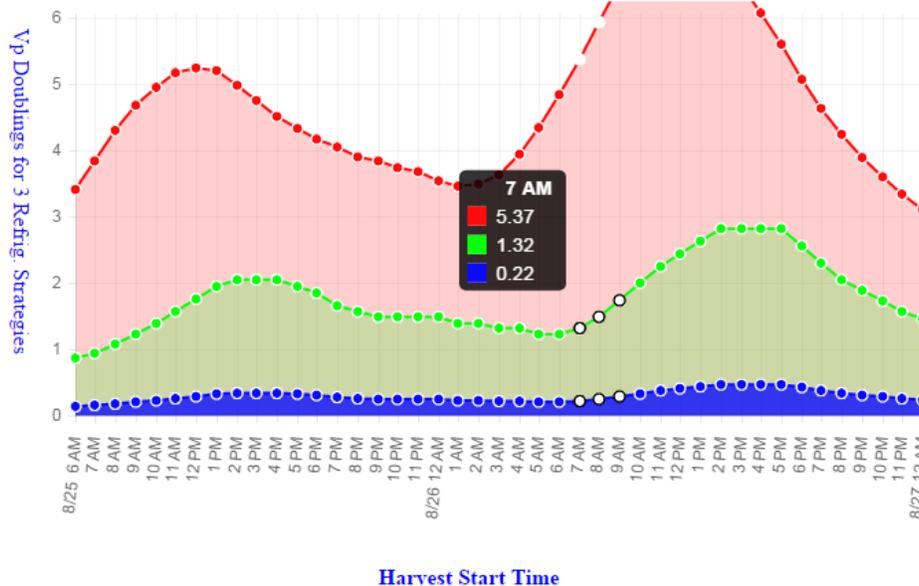


Figure 4. NOAA NWS DABA Tool for 3 post-harvest cooling strategies. Graph illustrates predicted bacteria doublings for *Vibrio parahaemolyticus* bacteria in harvested oysters under 3 cooling strategies. These predictions are based on the established relationship between temperature and bacterial growth, 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:

- 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.
- 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.
- 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 2018 Administrative Report

The Bureau of Regulatory Services is responsible for enforcing state laws and regulations and certain federal laws in fulfilling the Department's mission relative to protecting public health and safety; ensuring the safety of both plant and animal derived food products; ensuring the general health and welfare of all domestic animals including livestock and poultry; and managing emergency preparedness and response activities for animal disease outbreaks and natural disasters.

The Bureau is organized in to four functional units: (1) Food Safety and Agricultural Commodities; (2) Dairy/Milk Safety; (3) Office of the State Veterinarian and Animal Health; and (4) State Animal Control. Although each unit has separate and distinct responsibilities, certain situations and conditions necessitate collaboration and cooperation between staff of the various units. To that end, and in the interest of maximizing available resources, the Bureau continues to expand its efforts in cross training staff to ensure that field staff are qualified to fulfill more than one job discipline.

The Bureau continues to secure non-state funding for program support. The Bureau has multi-year cooperative agreements with the United States Food and Drug Administration (FDA) to implement state programs to enforce (1) the Produce Safety Rule of the Food Safety and Modernization Act (FSMA) and (2) the FDA's American Feed Program Regulatory Standards (AFRPS). The Bureau continued its yearly cooperative agreements with the U.S.D.A.'s Animal Plant and Health Inspection Service, Veterinary Services (APHIS, VS) fund activities (1) relative to reportable poultry and livestock disease surveillance and (2) animal disease traceability.

The Bureau is responsible for administering Dairy Sustainability Grants pursuant to the provisions of Public Act No. 09-229. The Bureau issued Dairy Sustainability Grants to 98 eligible dairy farms.

Investigations conducted as a result of complaints received included: 8 consumer product complaints involving CT Grown advertising, product defects or illness that involved fruits/vegetables, milk, milk products, pet food or livestock feeds; 12 animal welfare complaints (excluding those conducted by the State Animal Control Unit); 7 agricultural nuisance/agricultural practices complaints; 15 instances of

illegal livestock importation into the state.

Inspections of 72 vendors were conducted at 15 farmers markets for compliance with “Connecticut Grown” law (C.G.S. §22-38) resulting in 24 violations noted of “CT Grown” labeling/signage or egg labeling laws. The majority of the violations were corrected by vendors at the time of the inspections.

Dairy Unit

- Collected and analyzed 1525 samples of processed/manufactured milk, milk products and cheese, 206 samples of raw milk for pasteurization and 186 samples of retail raw milk for compliance with milk safety regulations and the presence of animal drug residues including 45 samples for a new tetracycline drug testing pilot program. The retail raw milk samples are also tested for the presence of human pathogens. Staff collected 198 water samples for testing from dairy production and processing facilities and 23 milk samples for vitamin analysis.
- Conducted 238 routine Grade A Dairy Farm inspections, 64 Retail Raw Milk Farm inspections, 110 routine Milk/ Cheese Plant inspections, 48 Pasteurizer Equipment tests, 49 Bulk Milk Tanker inspections, evaluated 20 milk plant samplers, evaluated 45 milk hauler samplers, conducted 212 Special inspections of dairy producers and manufacturers, 8 inspections of milk sub-dealers/depots, 2 Milk Plant listing audits, 5 Farm bulk tank unit (BTU) audits, 1 HACCP audit and 1 Single Service manufacturer audit.
- Orders/Warnings issued: 3 stop sale orders to milk processors for product quality violations; 3 stop sale orders for retail raw milk producers for product quality violations; 2 stop sale violations to producers of milk for pasteurization due to product quality violations. We issued 13 warning letters for milk quality violations.
- Dairy Unit Staff organized 2 milk hauler sampler training meetings and conducted an antibiotic split sample testing program for intra-state producers. Dairy staff attended 4 training courses. All dairy staff attended the Preventative Controls Qualified Individual (PCQI) course required by the new FSMA federal regulations.

Office of the State Veterinarian and Animal Health Unit

- Distributed 2,350 doses of Brucella abortus vaccine to veterinarians for use to vaccinate female calves to prevent Brucellosis in cattle (Undulant fever in humans).
- Surveillance tested 1,795 head of cattle for Mycobacterium bovis (bovine tuberculosis) surveillance program; distributed 2,760 doses of purified protein derivative (PPD) tuberculin to veterinarians for private testing of livestock for Mycobacterium bovis (bovine tuberculosis).
- Surveillance tested 4,137 poultry from 291 flocks for Avian Influenza and other avian diseases.
- Surveillance tested 444 swine at 28 farms for Pseudorabies and Brucellosis.
- 8 Quarantine orders issued for highly contagious livestock, poultry and pet diseases (C.G.S. §22-279).

With USDA 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).

Also, 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:

- Livestock and Equine Interstate Movement – processed 3,672 Interstate Certificates of Veterinary Inspection (Health Certificates) representing 10,335 livestock and equine animals moving into and out of this state.
- Issued 267 livestock import permits representing 3,023 animals imported into this state.
- Issued 85 livestock exhibition permits representing 776 animals.
- Issued 1,648 poultry import permits representing 2,853,789 domestic poultry, game birds and pet birds imported into this state.
- Official Animal Identification Devices issued (pursuant to USDA Animal Disease Traceability Rule): 2187 RFID (radio frequency identification device) ear tags issued to producers; 5,399 NUES (metal) ear tags issued to producers and veterinarians; and 8,000 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 the USDA Scrapie Eradication rule).
- Entered and updated 4249 Livestock and Poultry Premises in the USDA Emergency Management Response System (EMRS).
- Commission Sales Stables and Livestock Dealer record reviews for compliance with C.G.S. §§22-277 and 22-387: records of the one licensed livestock auction in the state involving 11 sale days and records for a three- month period each for 4 licensed livestock dealers were reviewed. The review revealed violations of both state and federal laws for record keeping, interstate movement of livestock, and official animal identification.

Food Safety and Agricultural Commodities and Unit

Produce Safety Rule of the Food Safety Modernization Act (FSMA)

The Bureau successfully completed year two of the 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). Bureau staff continues to collaborate with national, regional, and local partners to best serve the produce industry and its stakeholders in Connecticut.

Highlights of year two efforts include:

- Filling a third staff position (Agricultural Marketing and Inspection Representative) funded entirely by the FDA cooperative agreement and dedicated to assist with implementation of the state produce safety program
- Participation in seven training events that provided training for 120 fruit and vegetable growers aimed at reducing the risk for microbial contamination during the growing, harvesting, packing, and holding of fruits and vegetables.
- Initiated the process of collecting farm inventory data to identify farms that will be covered by the FSMA Produce Safety Rule and subject to produce inspections.
- 34 outreach events aimed at educating farmers, consumers, commercial produce buyers and agriculture stakeholders about produce safety.
- Developed an “On Farm Readiness Review Program” which includes onsite visits with farmers and mock inspections to help them prepare for official inspections slated to start in early 2019.
- Entered into a Memorandum of Understanding with the University of Connecticut (UConn) Extension providing funding from the FDA cooperative agreement to assist in implementing the states produce safety program by conducting activities relative to training, outreach and gathering farm inventory data.

USDA Good Agricultural Practices (GAP) for producing fruits and vegetables

This program is designed for market access for produce growers. A second staff member achieved USDA, AMS certification to conduct GAP audits. Twenty-nine (29) audits were conducted on Connecticut farms/businesses to determine if minimum audit requirements outlined by USDA, AMS GAP program were met.

Sample collection for analysis by the Connecticut Agricultural Experiment Station

- 335 - seed samples
- 88 - animal feed samples
- 68 - fertilizer samples

Products Registered

- 12,208 Commercial animal feeds, including pet foods

- 3,540 Fertilizers
- 486 Soil Amendments
- 114 Agricultural Liming Materials

Shell Egg Inspection Program
(table egg producers with less than 3000 birds)

- 2 Registered producers
- 12 Inspections

Poultry (slaughter) Processor Inspection Program
(meat bird producers with less than 3000 birds)

- 2 Registered producers
- 4 Inspections

Controlled Atmosphere Facility Storage (apples)

- 3 registered facilities
- 80 inspections
- 4 certifications

FDA Contract Inspections

- 19- BSE Inspections (for materials at risk of transmitting Bovine Spongiform Encephalopathy)
- 4 Veterinary Feed Directive Inspections

Animal Feed Regulatory Program Standards (AFRPS)

The Agricultural Commodities Division continues to make progress towards full implementation of the 11 Animal Feed Regulatory Program Standards (AFRPS), and will achieve full implementation in 2020. This Cooperative Agreement with the Food and Drug Administration (FDA) will benefit the Department and Connecticut citizens by:

- Establishing a uniform foundation for the management and design for the Connecticut Animal Feed Program.
- Provide the ability to better achieve and maintain program improvements to help ensure the integrity and safety of the animal feed supply.

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 AFRPS focus is on a regulatory foundation that includes: standardized training, standardized inspection program, auditing, animal feed related illnesses or death and emergency response, enforcement program, outreach activities, planning and resources, assessment and improvement, laboratory services and a product/ingredient sampling program.

State Animal Control Unit

- The State Animal Control Unit investigated 1,003 complaints, 5 livestock damage claims, issued 111 written warnings, 18 infractions, 5 misdemeanors summons and had 6 arrests. It conducted inspections of 77 municipal dog pounds, 120 pet shops, 406 pet grooming facilities, 219 commercial kennels, 131 dog training facilities, and processed 69 rabies cases where humans or domestic animals were exposed to a rabid animal.
- The Bureau continues to conduct an annual 96-hour instructional training program for animal control officers (ACO Academy) with the assistance and cooperation of the New Britain Police Department. Newly appointed municipal animal control officers must complete a minimum of 80 hours of instruction following a curriculum standard as mandated by C.G.S. §22-328. Approximately 30 new municipal animal control officers receive certificates of completion each year. Instructors include Department of Agriculture staff, State's Attorneys, Police Officers, Veterinarians and other subject matter experts all of whom volunteer their time.