

2019

FISHERIES DIVISION Notes & Updates (Summer)



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Summer News & Updates

Rick VanNostrand has retired!

It is with both a sense of sadness and admiration that we acknowledge the long and successful career of Rick VanNostrand, who retired on July 31 after providing over 39 years of service to Connecticut's Fish, fish hatchery system, and anglers. Rick grew up in Enfield, spending many an hour during his youth pursuing fish along the shores of the Connecticut River. He received a BS in Biology from the University of Connecticut, Storrs, in 1981. He had already begun his distinguished career with the DEP before graduating, working as a Seasonal Resource Assistant on the Salmon Project at the Rainbow Fishway from May 10 through Nov. 15, 1980. His second season with DEP in 1981 was as a Seasonal Resource Assistant at the Whittemore Adult Atlantic Salmon Holding Facility (also known as the Whittemore Salmon Station or WSS) in Barkhamsted. Before that year was out, Rick started his first permanent position with DEP as a Maintainer 1, working at WSS. He was later promoted to Fisheries Biologist 1 (1984) and Fish Pathologist (1988) while continuing to work primarily at the WSS. Rick had already taken specialized training in Fish Health and Pathology, but in 1989 he was placed on paid educational leave for six months to complete an intensive and comprehensive offering sponsored by the US Fish and Wildlife Service's Fisheries Academy in Leetown, WV titled "Fish Health Management and Disease Diagnosis Course". Investing in Rick's professional training at that time was integral to the ongoing success of our Fish Hatchery Program, continuing to this day. Rick served as DEP's Fish Pathologist until July 2000, at which time he was appointed a Program Specialist 1, with the functional title of Supervisor of Fish Health and Culture. Although his official job title was changed to Supervising Fisheries Biologist in 2017 for organizational reasons, Rick has overseen all aspects of fish health and has had supervisory responsibility for Burlington, Kensington, and Quinebaug hatcheries, along with the WSS (which was mothballed for budgetary reasons in 2003) for the last 19 years. Rick was also well positioned for his role overseeing the hatchery system having worked with, and been mentored by, the late Pete Vernesoni, Mike Vernesoni, and the late James Moulton. Anglers fishing Connecticut's waters, and we, his colleagues, owe Rick a debt of gratitude for his service over the last 39 years. We wish you well in retirement Rick!



Cover: Rick VanNostrand, supervisor of DEEP's Fish Hatcheries, recently retired. See this page for more on Rick's exceptional career at DEEP.

Habitat Conservation and Enhancement

CTDOT CULVERT PROJECTS, FISH PASSAGE AND INSTREAM HABITAT ENHANCEMENTS

HCE staff review all Connecticut Department of Transportation (DOT) bridge and culvert replacement projects as well as many locally regulated projects. Staff ensure that such projects are designed to allow the unrestricted movement of fish upstream and downstream and do not degrade aquatic and riparian habitats. In addition, instream habitat structures are often recommended for installation to restore/enhance instream habitat features or to mitigate unavoidable habitat losses. Permit conditions require project contractors to be assisted by HCE staff during construction to ensure the proper installation of fish passage and habitat structures. During the last quarter our program reviewed eleven proposed new bridge and culvert replacement projects as well as two municipal bridge and culvert replacement projects.

Tributary to Hammonasset River.

Slightly perched culvert on tributary to the Hammonasset River proposed for relining with concrete. HCE proposes to install downstream rock weirs to create backwater into the culvert to provide upstream fish passage.



Higganum Creek.

HCE staff assisted with placement of substrates within Higganum Creek at Dublin Hill Road Bridge Project, Haddam.

I-84 Culverts (Waterbury area).

Stone weirs can be used to provide grade control and impound water to make perched culverts passable to fish. Staff provided on-site oversight to the placement of weirs to correct the perched condition of three I-84 culverts near Waterbury.



Transylvania Brook-Pomperaug River confluence.

The mouth of Transylvania Brook at the Pomperaug River at The Bent in the River passed through two perched corrugated metal pipes. Staff worked with DOT and municipal staff to replace the culvert with a span bridge that restored fish passage and improved habitat.

TOWN OF TOLLAND DEVELOPMENT ASSESSMENT, SKUNGAMAUG RIVER

The HCE Program was asked by the Town of Tolland Inland Wetlands and Watercourses Commission to review an application before the Commission to develop a 4.5 acre parcel adjacent to the Skungamaug River with a proposed Car Wash. The development also involved the crossing of an unnamed tributary to the Skungamaug River with a new culvert. Recommendations were provided to minimize the overall development footprint adjacent to regulated areas and protect the riparian area of the Skungamaug River and its fisheries resources by maintaining a 100 ft. wide “undisturbed” riparian buffer zone.

FRICKS POND DAM REMOVAL, KILLINGWORTH

Staff worked with a local landowner, an engineer, The Nature Conservancy, and a contractor to breach this small dam in the headwaters of the Menunkesetuck River of Rt. 81.

DAM REMOVAL AND STREAM RESTORATION PROJECT, GOSHEN BROOK, LEBANON.

HCE staff are working with a private landowner (Sinnott property) and the Natural Resources Conservation Service (NRCS) relative to the development of a stream restoration project on Goshen

Brook, Lebanon. The proposed project involves removal of a dam and restoration of over 1,500 feet of stream channel. The stream supports a wild Brook Trout population. NRCS is providing funding for the project through their EQIP Program. A preliminary geomorphic study and conceptual design plans were recently submitted for review. In addition to dam removal, stream restoration work will involve the narrowing of the stream channel, creation of spawning habitat and deeper water holding habitats using a series of vortex rock weirs, J-hooks and deflectors. Dam removal will increase stream connectivity over 1 mile.

Dam on Goshen Brook on the Sinnott Property slated for removal.



PAPERMILL ROAD BRIDGE SCOUR PROTECTION, COLCHESTER

Staff worked with The Nature Conservancy, the Town of Colchester, engineers, and a contractor to provide on-site oversight to stream restoration work under this bridge over the Jeremy River. This was the site of the Norton Mill Dam removal two years ago and scour protection for the upstream bridge failed. The contractor returned to fix the scour protection of the bridge footings and regrade the streambed, improving fish habitat. A recent electrofishing survey indicated that this area hosts many juvenile Atlantic Salmon, stocked by the Division.

Additional boulders were added to the base of the bridge footings and grouted into place. A gravel/cobble riffle was rebuilt under the bridge.



COVENTRY LAKE FISHKILL

Staff investigated a fishkill at Coventry Lake in late July. Mortalities primarily involved thousands of juvenile Yellow Perch found along the southwestern shoreline. There was no clear cause of the fishkill; however, the large number of acute and delayed mortalities indicate a single stressor event. Coventry Lake experienced multiple events that may have affected the lake to some degree; including an aquatic herbicide treatment (1 week prior to the kill) targeting Hydrilla, a highly invasive aquatic plant, intense heat wave that warmed lake temperatures and large rain event. Post fishkill investigation concluded

that it is highly unlikely that mortalities were a result of residual effects of the whole lake herbicide treatment.

Dead juvenile Yellow Perch along the southwestern shoreline of Coventry Lake.



WATER CHESTNUT CONTROL, LOWER CONNECTICUT RIVER



Water chestnut is a non-native aquatic plant that can choke bays and coves, degrade fish habitat and limit recreation. Numerous patches pop up on back coves of the lower Connecticut River and staff assist volunteers and NGOs to control these populations. This summer, effort was focused on Salmon Cove (see before and after photos above) and the discharge canal of the former Connecticut Yankee Atomic Power Plant.

COASTAL PERMITTING AND MISCELLANEOUS

In addition to the above projects, staff reviewed permit applications for three coastal dredge projects, three dock and pier projects, two beach grading and nourishment projects, one groundwater remediation project, and one aquaculture project in Long Island Sound.

Diadromous Fisheries Restoration

SPRING DIADROMOUS FISH RUNS

The spring fish runs ended in July with the following highlights:

- A total of 318,707 **American Shad** were passed at Connecticut River watershed gateway fishways, compared to 281,329 in 2018 (5-year average = 326,609).
- Two adult **Atlantic Salmon** were documented passing the Holyoke fishlift. No other salmon were reported in the Connecticut River watershed. All states with the exception of the Connecticut discontinued salmon stocking in the Connecticut river system after 2013. Any salmon that now returned to Holyoke are probably strays that originated as juveniles in Connecticut streams.

AMERICAN SHAD

In addition to those reported in the June 2019 Quarterly Report (see page 20), 447 pre-spawn adult American Shad from the **Holyoke Fishlift** (Connecticut River, Massachusetts) were transplanted to river drainages around the state. The total American Shad stocking numbers for 2019 are: Shetucket River= 147 (in basin – trucked out of the Greenville Dam lift), Naugatuck River= 180, Quinnipiac= 136, Farmington= 180. These transplantations are done to support efforts to restore historic shad runs.

Pre-spawn American Shad exiting the Holyoke Fish lift at the Holyoke Dam on the Connecticut River in Holyoke Massachusetts, in preparation for transport by DEEP staff into Connecticut.



RIVER HERRING

- River Herring work shifted from upstream migration to **downstream migration projects** for the summer. Debris clearing projects were performed below spillways and downstream bypasses to allow for safer emigration this summer and fall. When feasible, water management practices and weir board modifications allowed fish passage facilities to remain open through summer to allow safer passage for adults and early emigrating juveniles.
- Prepped biological samples used to provided age and growth data for the Alewife run at **Bride Lake** in East Lyme. Data will allow staff to track changes in cohort strength, growth, and the percentage of repeat spawners in the population, which will aid in monitoring the status of the run as well as expand our knowledge of Alewife biology.
- Assisted Save the Sound with their continued monitoring of Alewife runs into **Konolds Pond** (West River, Woodbridge) following the removal of Pond Lily Dam and **Whitford Brook** (Stonington) following the removal of Hyde Pond Dam.

SEA LAMPREY

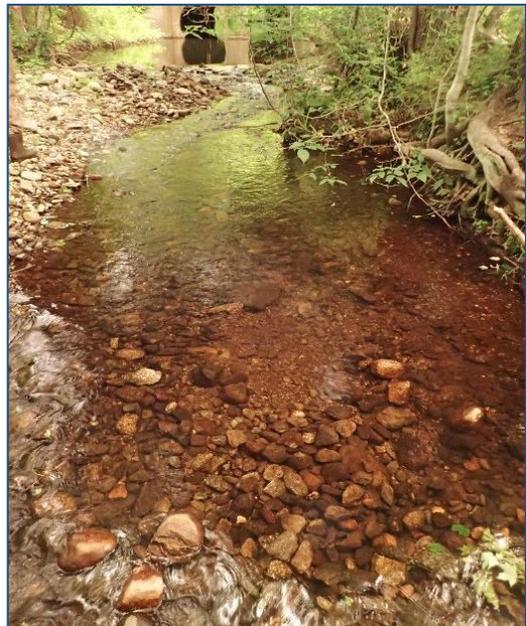
- The annual **Sea Lamprey survey on the Salmon River** and tributaries (including Pine Brook) indicated an estimate of 674 individuals spawned for 2019. A total of 201 nests were counted and the run upstream of Leesville was estimated to be 456, compared to 94 nests and a run estimate of 254 in 2018. Of particular interest was the number of nests located above the Norton Dam removal (2017) site on the Jeremy River. The nests above the removal site indicated that 184 individuals utilized this newly opened habitat in 2019.
- A total of 160 pre-spawn Sea Lamprey from the **Holyoke Fishlift** on the Connecticut River was stocked into the Shetucket River drainage to begin reestablishing historic runs to this system. In addition to those reported in the June 2019 Quarterly Report (see page 20), The totals stocked into the Shetucket River drainage for the year were as follows: **Merrick Brook** (Scotland)- 122, **Beaver Brook** (Franklin)- 69, and **Indian Hollow Brook** (Windham)- 30.

DEEP seasonal resource assistant Charlie Dyke releases pre-spawn Sea Lamprey into Beaver Brook, Franklin.



- In July, spawning nest surveys were performed on all three tributaries to the **Shetucket River** that received transplanted Sea Lamprey. These were 'spot' surveys performed just in areas with the greatest nesting potential (based on substrate). Nest counts on Beaver Brook were used to an estimate of 38 of the 69 stocked individuals that had spawned (see photo below) in the survey area. Nest counts on Merrick Brook provided an estimate that 95 of the 122 stocked individuals had spawned in the survey area. Due to access issues on Indian Hollow, the best areas in that brook could not be surveyed. Surveys outside of that area revealed no nests.

A Sea Lamprey nest located in Beaver Brook, Franklin.



- In addition to the Shetucket River drainage basin, pre-spawn Sea Lamprey from the Connecticut River (Holyoke Dam) were also stocked into the **Saugatuck River** in Westport (78) and the **Norwalk River** in Wilton (80) to support run restoration in these rivers. Follow-up nest surveys were not performed on these rivers by DEEP staff. However, Mianus Chapter of Trout Unlimited performed some nest surveys but results have not yet been provided.

A group of adult Sea Lamprey rest after being released into the Saugatuck River in Westport on June 12th.



AMERICAN EEL

- Upstream passage monitoring of American Eel.** Eel passage through the monitored eel passes will continue until mid-October and to date over 154,000 eels have been passed upstream (Fishing Brook- 57,367; Chapmans Pond- 93,330; and Mill River Eel Pass= 4,667).
- Yellow eel survey.** Staff electrofished yellow eel index sites in the Blackledge, Natchaug and Scantic river drainages. Sampling these sites allow staff to compare local American eel densities with the number of dams above Long Island Sound to where each site is located. It will also allow staff to monitor the progress of re-colonization as improved passage at dams for American eel is provided.

Fisheries Biologist Kevin Job wrangles an American Eel during the yellow eel electrofishing survey as an enthralled seasonal resource assistant Jake Rawlings looks on.



- **Downstream passage monitoring of American Eel (silver phase)** – In addition to The Groton Utilities Conte Airlift Bypass (CAB) which will begin operating for its fourth season, the Connecticut Water Company’s CAB at Kelseytown Reservoir in Clinton has been inspected by staff and is ready for operation for the first time this fall.

Supervising Fisheries Biologist Steve Gephard joins Dr. Alex Haro (USGS) of the Conte Anadromous Fish Lab at the newly constructed Silver eel Conte Airlift Bypass in Kelseytown Reservoir. Water velocities created by the airlift were measured and adjusted.



FISH PASSAGE PROJECTS

- **Upper Collinsville Dam, Farmington River, Canton.** Staff continued to work with Canton Hydro as it broke ground on the new hydroelectric facility at the DEEP-owned Upper Collinsville Dam. The project will include a Denil fishway, an eel pass, and gates for downstream passage for all fish and eels. This work will continue through the next six to eight months.



The view of the Upper Collinsville power canal from under the Route 179 bridge looking downstream to the brick powerhouse. Both this power canal and the tailrace have been de-watered with cofferdams and years of deposited sediment has been excavated. The notch in the dam will host adjustable crest gates that will replace the wooden flashboards that used to be on the dam. The future fishway will pass under the bridge on the far right side.

- **Dolan Dam, Falls River, Essex.** Staff has been working with The Nature Conservancy and partners on a fishway on the second dam on this Connecticut River tributary. It was intended to have been built last year but high stream flows precluded the work. The contractor started the work in August and should complete it in September. When done, the contractor will then move upstream about 1,000 feet and begin work on the Millpond Dam Fishway. Dolan Pond Fishway will be a steep pass style fishway, placed inside a concrete drop structure embedded into the headpond.

The entrance of the Dolan Pond Fishway will be flush with the downstream face of the old stone dam. When the pond is re-filled, only the top of the fishway will be visible from the side of the stream.



- **Other fishway activities.** Staff also assisted the City of New Britain on the inclusion of an eel pass at the Stanley Quarter Pond Dam, which is undergoing repairs. Other consultations included assisting the Eastern Connecticut Conservation District on the bidding of a job to design a fishway at the Shewville Dam (Shewville Brook, Ledyard), and a kick-off meeting for the removal of the Pickers Pond Dam (Oxoboxo Brook, Montville).

MISCELLANEOUS ACTIVITIES & PUBLIC OUTREACH

- Staff attended the spring meeting of the **Southern New England Chapter of the American Fisheries Society** in Massachusetts in June.
- On July 16, staff conducted **electrofishing safety training** for all seasonal employees.
- On July 30, staff participated in the annual meeting of **Riverine Migratory Corridor Work Group** of the Long Island Sound Study. This work group documents progress in providing stream connectivity for diadromous fish and coordinates future actions
- On August 8, staff attended the summer meeting of the **Connecticut River Atlantic Salmon Commission** in Turners Falls, MA.
- On August 14, staff spoke about the fish community of the lower Connecticut River during an annual “fish cruise” on the **RiverQuest** excursion boat.

Marine Fisheries Program

ATLANTIC STATES MARINE FISHERIES COMMISSION (ASMFC) UPDATES.

ASMFC held its Spring Meeting in Arlington, VA on April 29 through May 2. Important outcomes from this meeting include:

- **Striped Bass:** The Striped Bass Management Board voted to **approve Draft Addendum VI for public comment**. Draft Addendum VI was initiated in May in response to the **overfished condition of the striped bass stock**. The Addendum contains various options for 2020 regulation changes that are designed to achieve an **18% reduction in total removals from the striped bass stock**. Two public hearings will be held in Connecticut to gather input on the options in the addendum: **September 23 at DEEP Marine HQ in Old Lyme, and September 25 at Port 5 Hall in Bridgeport** (both hearings will start at 7 PM). A primary decision that the Striped Bass Board will need to make when finalizing Addendum VI at the October ASMFC meeting is whether the **commercial and recreational striped bass fisheries will take an equivalent reduction (18%), or whether the commercial fishery will take a smaller reduction (1.8%), thus necessitating a larger reduction in the recreational fishery (20%)**. Addendum VI also contains several options for recreational regulations on the coast, including a higher minimum length limit (35" or 36", depending on what reduction the commercial fishery takes), and several harvest slot limit options: 28-35", 30-38", and 32-40" under the 18% commercial reduction scenario; 28-34", 30-37", and 32-40" under the 1.8% commercial reduction scenario. The **Addendum also contains the option to mandate use of circle hooks coastwide when bait fishing for striped bass**. ASMFC is seeking public input on all these decision points at the upcoming hearings. If you can't make it to one of the hearings, you can submit written comments during the public comment period (currently open until October 7). For more information, including a link to the Draft Addendum document, see: <https://www.ct.gov/deep/cwp/view.asp?A=2588&Q=609758>.
- **Tautog:** The Tautog Management Board discussed **implementation of a new harvester tagging program for the commercial tautog fishery**. Amendment 1 to the Tautog Fishery Management Plan, approved in October 2017, required coastwide implementation of a tagging program in response to law enforcement reports that there is significant illegal and unreported harvest of tautog, particularly for the live fish market. **Commercial fishermen will be required to tag all harvested tautog with a metal tag that affixes to the gill plate of the fish.** Commercial possession, distribution, or sale of tautog not bearing a tag will be illegal upon implementation of the program. The tagging program was initially slated for implementation in 2019, but was delayed due to issues identifying a suitable tag and applicator. After discussing implementation guidelines at the August meeting, all states



Tautog with commercial tag on gill cover

agreed they will move forward with adopting regulations that will put the tagging program in place for 2020.

- **Horseshoe Crab:** The Horseshoe Crab Management Board discussed a management response to the 2018 **Horseshoe Crab Stock Assessment, which determined that the condition of the horseshoe crab stock in the CT-NY region was “poor” and had deteriorated since the previous assessment in 2013.** The Board determined that management action at the state level (i.e. CT and NY pro-actively moving ahead with regulations to reduce harvest in their horseshoe crab fisheries) was the best path forward, rather than initiating a formal ASMFC management action (i.e. and Addendum to the fishery management plan). In response to the direction from ASFMC, DEEP will undertake a review of the current status of the horseshoe crab fishery in CT and consider potential regulatory changes.

MARINE RECREATIONAL INFORMATION PROGRAM (MRIP)

Marine Recreational Information Program (MRIP). National Oceanic and Atmospheric Administration (NOAA) Fisheries conducts a survey of marine recreational anglers to obtain information about their fishing effort, catch, and participation in marine recreational fishing, and about the demographic, social, and economic characteristics of those who participate in saltwater recreational fishing in United States waters. These data for marine recreational fisheries had been collected through the Marine Recreational Fisheries Statistics Survey (MRFSS) from 1979 until 2008; wherein, it was replaced by the Marine Recreational Information Program (MRIP). The MRIP was created in order to continue improving the collection, analysis, and use of fishing data.

The Access-Point Angler Intercept Survey (APAIS) is conducted at public marine fishing access points (i.e., boat ramps, piers, beaches, jetties, bridges, marinas, etc.) to collect individual catch data, including species identification, total number of each species, length and weight measurements of individual fishes, as well as angler-specific information about the fishing trip and the anglers’ fishing behavior. This field intercept survey is conducted by each of the 13 Atlantic states extending from Maine to Georgia.

Accurate, up-to-date catch, effort, and participation statistics are fundamental for assessing the influence of fishing on any stock of fish. The quantities taken, fishing effort, and seasonal and geographical distribution of the catch and effort are required for the development of rational management policies and plans. Continuous monitoring of catch, effort, and participation is needed to monitor trends, to evaluate the impacts of management regulations, and to project what impacts various management scenarios will have on a fishery. Recreational fisheries data are essential for NOAA Fisheries, the Regional Fishery Management Councils, the Interstate Fisheries Commissions, state conservation agencies, recreational fishing industries, and others involved in



Marine angler with his spearfished trophy Tautog.

the management and productivity of marine fisheries. See the next page for MRIP recreational harvest May-June data for 2017 -2019.

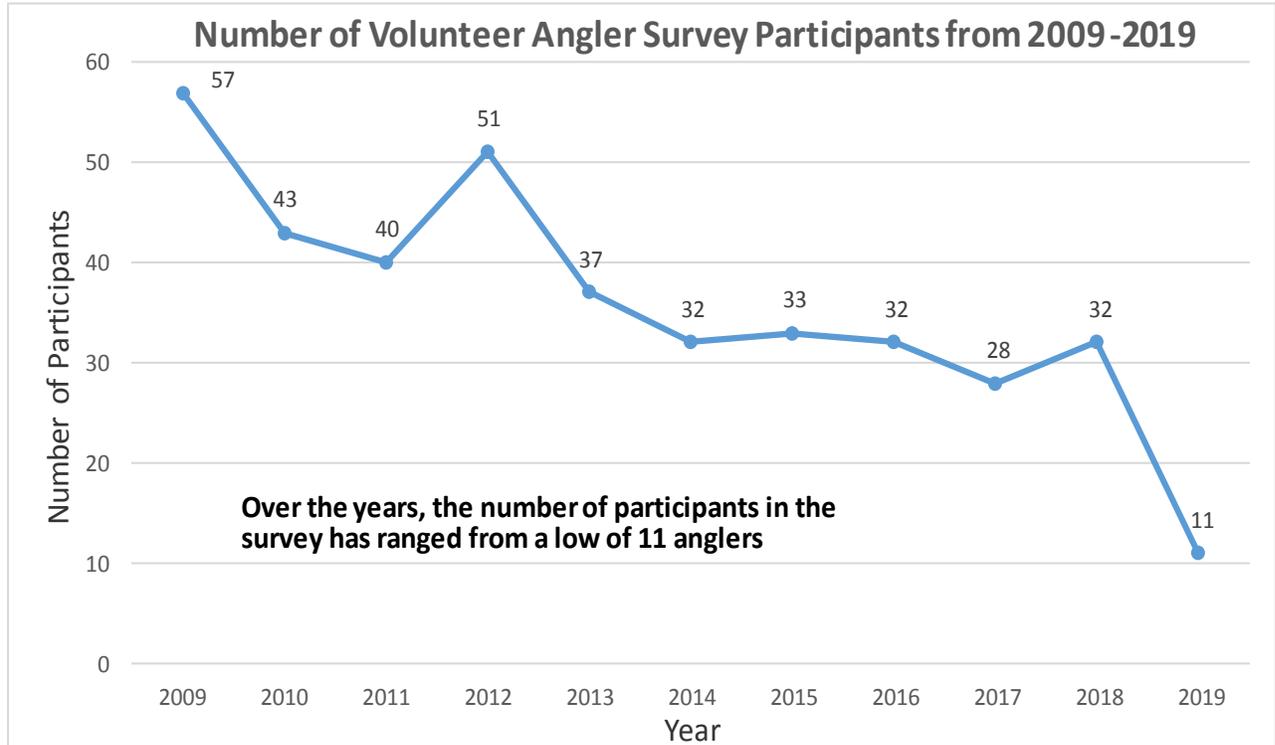
Marine Angler Survey Catch Data: Wave 3 (May-June):

2019		2018		2017	
Total Harvest		Total Harvest		Total Harvest	
Bluefish	140,540	Bluefish	6,646	Bluefish	14,533
Dogfish Sharks	0	Dogfish Sharks	206	Dogfish Sharks	33
Skates/Rays	9	Weakfish	87	Summer Flounder	23,923
Weakfish	84	Summer Flounder	102,789	Winter Flounder	200
Summer Flounder	25,974	Winter Flounder	0	Herrings	105,060
Herrings	5,851	Herrings	15,570	Scup	495,084
Scup	651,861	Scup	876,298	Black Sea Bass	28,269
Puffers	0	Puffers	0	Searobins	26,382
Black Sea Bass	64,075	Black Sea Bass	73,247	Striped Bass	47,038
Searobins	22,845	Searobins	12,043	Skates/Rays	0
Striped Bass	40,139	Striped Bass	60,563	White Perch	2,041
White Perch	683	Toadfishes	426	Toadfishes	0
Toadfishes	0	Cunner	0	Cunner	0
Tautog	687	Tautog	0	Tautog	0
TOTALS	952,748		1,147,875		744,604

The most popular species are in bold font.

MARINE VOLUNTEER ANGLER SURVEY (VAS)

The VAS is designed to **collect trip and catch information from marine recreational (hook and line) anglers who volunteer to record their fishing activities in a logbook.**



Mrs. St Cyr with her trophy Scup caught in western Long Island Sound.

CONNECTICUT MARINE VOLUNTEER ANGLER SURVEY

Rev. 4/2017 - 12 Trip

Angler Code

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TAP

Send Me More Logbooks

Connecticut Department of Energy & Environmental Protection

Bureau of Natural Resources

Marine Fisheries Division

LONG ISLAND SOUND SURVEY (LISTS)

The fall Trawl Survey is scheduled to begin on September 5. We expect to see large volumes of scup of all sizes as well as young of year of many species that utilize Long Island Sound as nursery habitat.

July and August have been busy with fish aging. The Survey collects age samples from five primary species; Summer Flounder, Winter Flounder, Scup, Blackfish and Bluefish as well as Menhaden (a forage species) throughout the spring. Hundreds of samples from each species have been prepared and aged with the purpose of providing critical age data to stock assessments as well as other research needs.

Small gear improvements as well as some boat improvements have been made throughout the summer to help improve Survey efficiency.



A Northern Stargazer sampled earlier this year.

NOTICES TO ANGLERS

- 8/23/2019 [2019 Commercial Fishery Possession Limits](#)
Effective 0001 hours Sunday, August 25, 2019, the black sea bass commercial fishery possession limit will be increased to 100 pounds. (N19-07)
- 8/23/2019 [ASMFC Public Hearing on Striped Bass Management](#)
The DEEP Marine Fisheries Program is hosting two public hearings of the Atlantic States Marine Fisheries Commission to gather input on Draft Addendum VI to the Interstate Fishery Management Plan for Striped Bass. (N19-06)
Public Hearings will be held September 23, 2019 and September 25, 2019.
- 6/28/2019 [Commercial Fishery Possession Limit Adjustment](#)
Effective 0001 hours Sunday, June 30, 2019, the scup commercial fishery possession limit will be decreased to 600 pounds for holders of Scup License Endorsements. (N19-05)

PUBLIC OUTREACH

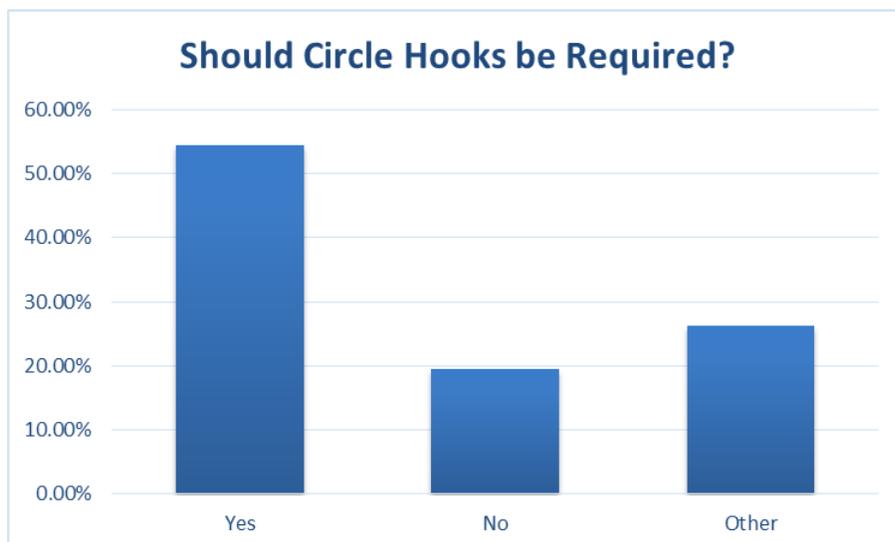
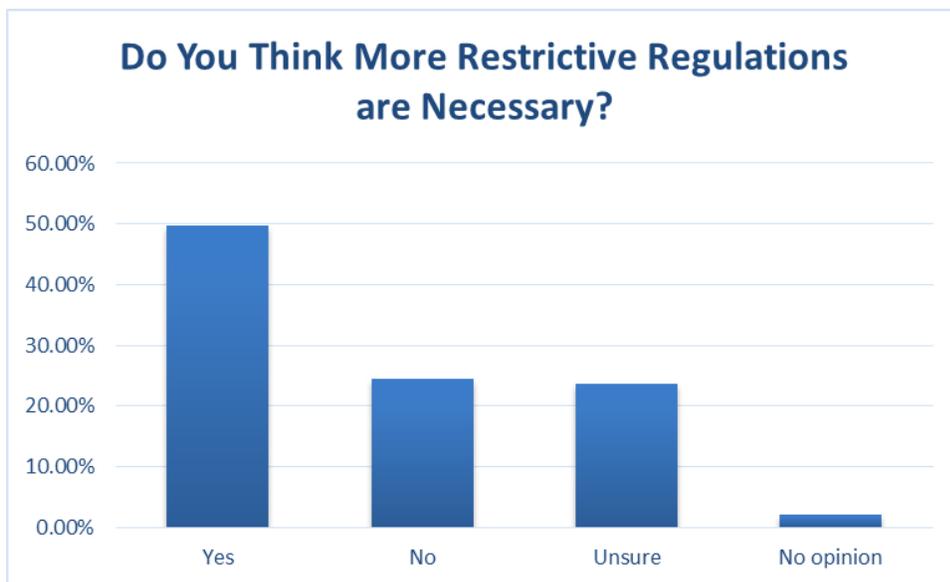
2019 Striped Bass Regulation Opinion Survey: In anticipation of the need to change striped bass regulations in 2020 (see ASMFC updates above), the **Marine Fisheries Program distributed an online “SurveyMonkey” survey to all current holders of a Marine Recreational Fishing License via email.** The survey was intended to raise public awareness of upcoming changes to striped bass management, and

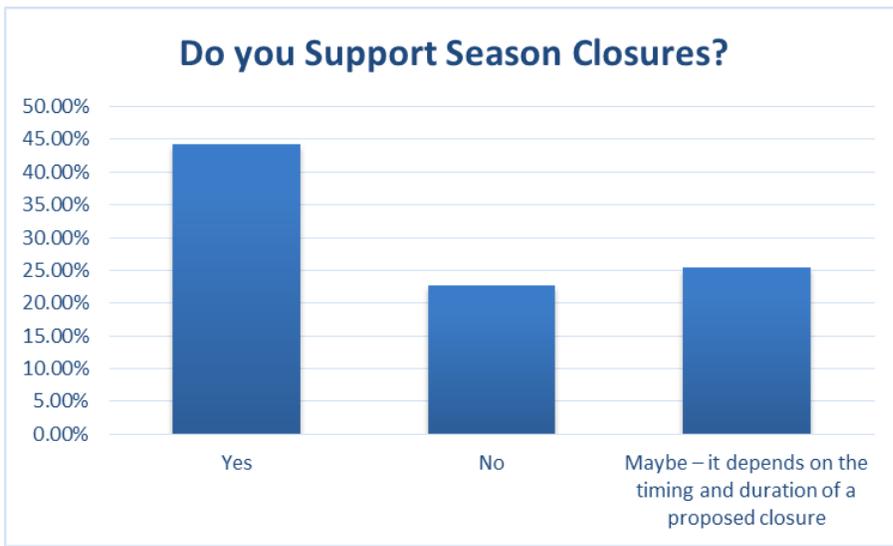
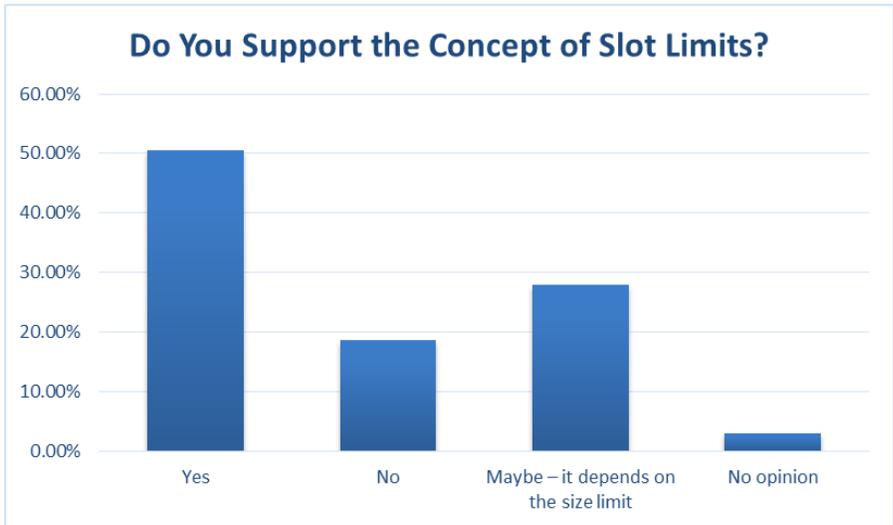
collect feedback on what measures AMFC should take to reduce striped bass fishing mortality. Conservation measures covered in the survey included:

- **Harvest slot limit vs. minimum size regulations**
- **Season closures**
- **Requiring the use of circle hooks while bait fishing for striped bass.**

The survey was open from mid-June to mid-July. A total of **6,896 Connecticut residents participated in the survey, the majority of whom (83%) identified themselves as recreational anglers who targeted striped bass** within the last year.

A majority of survey respondents supported implementation of new regulations to reduce fishing mortality on striped bass. **Slot limit regulations received more support than minimum length regulations**, and there was also majority support for implementation of circle hook requirements. A full summary of survey results will be made available on the DEEP Marine Fisheries Program website in the near future. Below are a summary of some of the results:

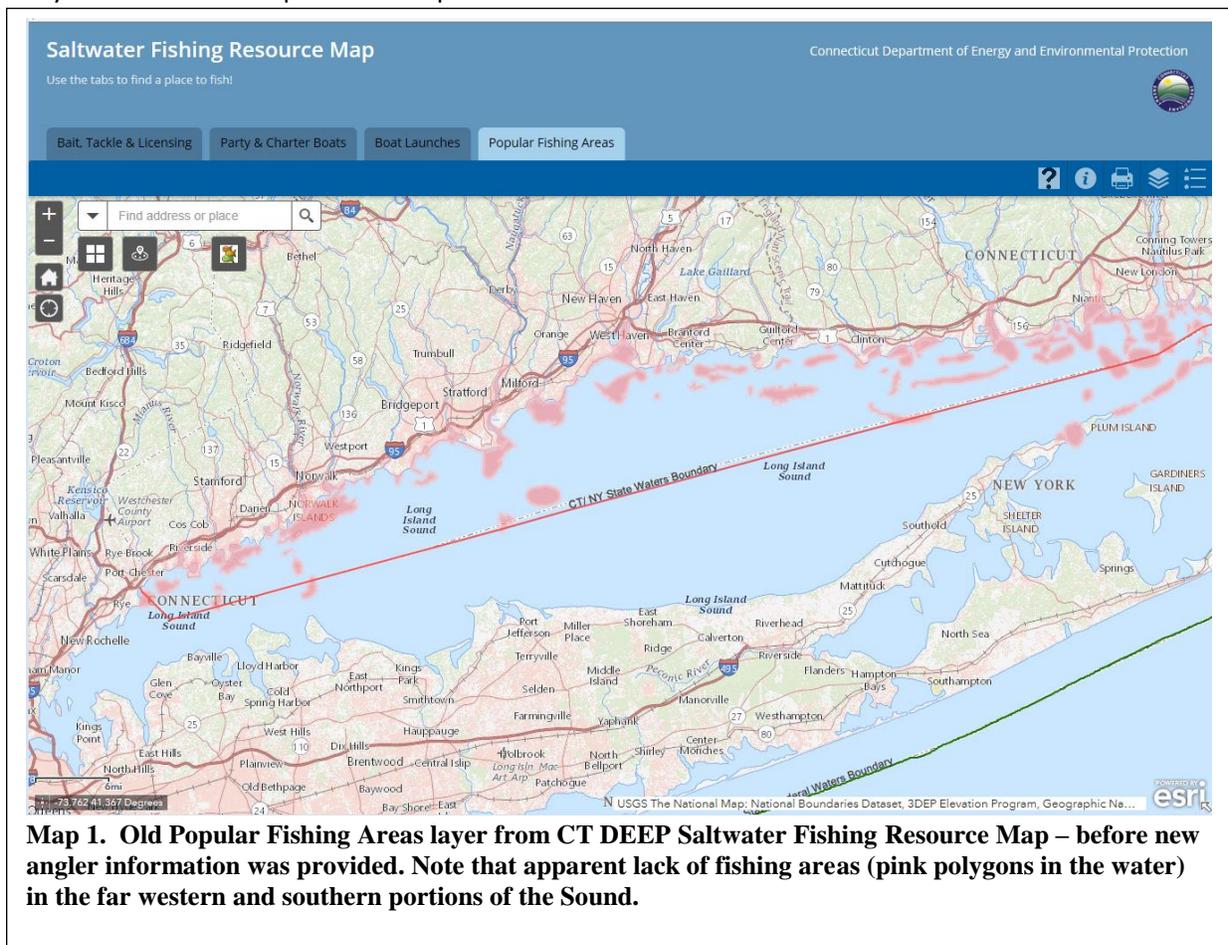




MARINE GIS

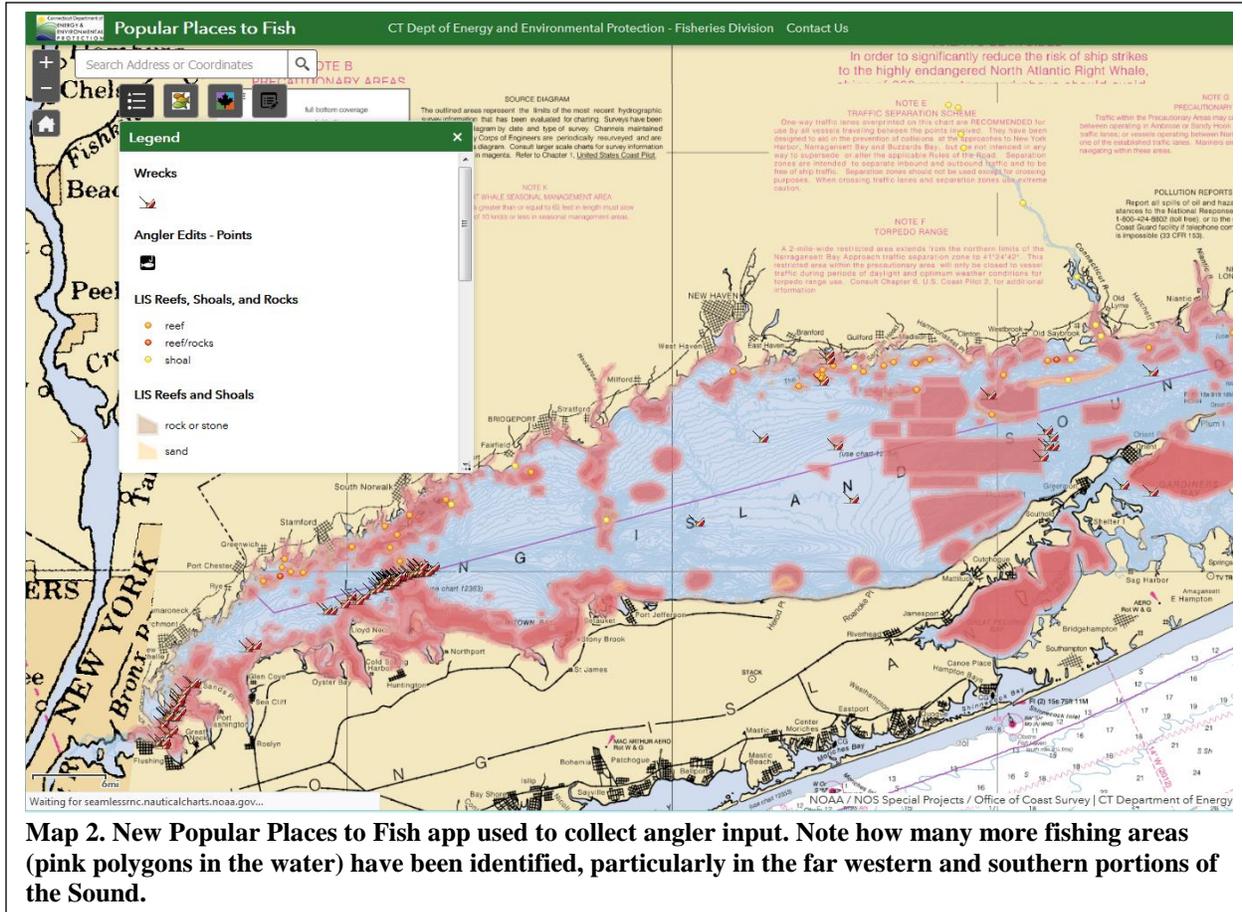
Update on Long Island Sound Blue Plan, Popular Places to Fish App and Saltwater Fishing Resource Map:

New map layers of areas important for recreational angling in Long Island Sound are now part of the Long Island Sound Blue Plan data viewer! This is a significant milestone for the management of recreational fishing interests in our area and it would not have been possible without the assistance of the recreational angling community. DEEP Fisheries staff reached out to recruit avid anglers to help us improve our map layer showing areas in Long Island Sound that were known to be popular and productive places to fish and a number of members of the Fisheries Advisory Council (FAC) were very generous with their time and knowledge to help us achieve this goal (thank you FAC!). The results can easily be seen in this sequence of maps.



The first map of Popular Fishing Areas (Map 1., above), taken from the Saltwater Fishing Resource Map, shows the layer as it existed a couple years ago - **before new angler information was provided**. Note that the far western and southern portions of LIS had no fishing areas identified. We knew this was from a lack of information – not a lack of fishing areas – which is why we started to recruit anglers who would be willing to share their knowledge of fishing areas with us to improve the map layer. **Our efforts**

to recruit anglers were given a huge boost over the past year by the Long Island Sound Blue Plan effort to map all significant natural resources and human uses in the Sound. Through the outreach efforts of The Nature Conservancy staff and CT Blue Plan Team members, more avid anglers were recruited to provide information to help us more accurately map out areas important for recreational fishing in Long Island Sound and immediate vicinity.



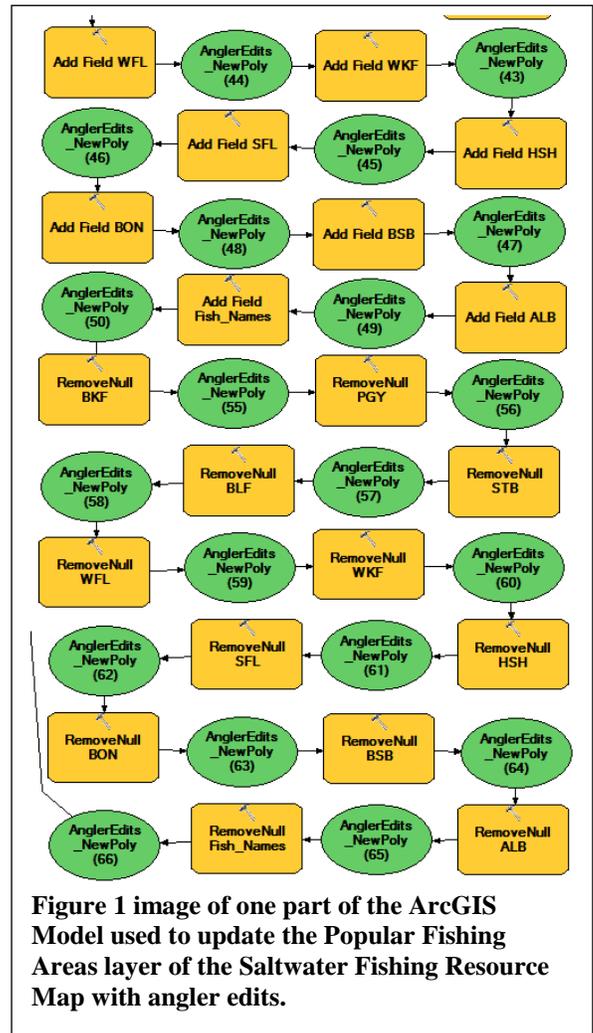
Map 2. New Popular Places to Fish app used to collect angler input. Note how many more fishing areas (pink polygons in the water) have been identified, particularly in the far western and southern portions of the Sound.

The first map of Popular Fishing Areas (Map 2., above), taken from the Saltwater Fishing Resource Map, shows the layer as it existed a couple years ago - **before new angler information was provided**. Note that the far western and southern portions of LIS had no fishing areas identified. We knew this was from a lack of information – not a lack of fishing areas – which is why we started to recruit anglers who would be willing to share their knowledge of fishing areas with us to improve the map layer. **Our efforts to recruit anglers were given a huge boost over the past year by the Long Island Sound Blue Plan effort to map all significant natural resources and human uses in the Sound.** Through the outreach efforts of The Nature Conservancy staff and CT Blue Plan Team members, more avid anglers were recruited to help us more accurately map out areas important for recreational fishing in Long Island Sound and immediate vicinity.

CT DEEP created an app, called Popular Places to Fish, that allowed anglers to interactively map out the areas they knew were important for recreational fishing, and note which species, seasons, or specific types of fishing were relevant for each area. Note that in the resulting Popular Places to Fish

layer there are many more areas identified, especially in the far western and southern portions of Long Island Sound. Although all areas provided by anglers have been added to the initial map layer, not all of the underlying data (such as species or seasons) have been attached yet. This is a fairly labor-intensive geoprocessing task that, perhaps, can best be conveyed by showing a portion of the spatial model used to merge new information from anglers with the pre-existing layer to create the season and species-specific filters used in the Saltwater Fishing Resource Maps. Once the geoprocessing of angler edits is complete, the new Popular Fishing Areas layer will be uploaded to both the Saltwater Fishing Resource Map and the Long Island Sound Blue Plan data viewer.

Fortunately, the spatial depiction of Recreational Fishing Areas was completed in time for the debut of the Long Island Sound Blue Plan data viewer (draft), so potential impacts to these areas can be adequately considered in the marine spatial planning process mandated by the Long Island Sound Blue Plan legislation. See the website for full details on the [Long Island Sound Blue Plan](#), data viewer.



Map 3. Areas important to recreational fishing (polygons with diagonal grey lines in the water) as shown in the Long Island Sound Blue Plan draft data viewer. Additional data (such as species and seasons) will be attached to the polygons once geoprocessing is complete.



CARE & Constituent Services

STAFF UPDATE. The Fisheries Division is pleased to announce the hiring of Andrew Bade, who will serve as the Fisheries Division's Angler Recruitment, Retention, and Reactivation (R3) Coordinator. This is a critical position that will help to grow public and angler support of our Fisheries programs across the Division. Andrew will be tasked with increasing participation in fishing by building off of current efforts and thinking creatively and innovatively to increase our relevance, especially focusing on non-traditional audiences. Andrew will also collaborate with the Wildlife Division R3 Coordinator to develop a comprehensive plan to reach people who have an interest in or awareness of fishing and hunting but need some encouragement in order to give it a try. The plan will also focus on retaining new recruits and existing participants, and encouraging those who have taken a short break to return to these outdoor activities we are so passionate about. Andrew holds a B.S. in Biological Sciences from UConn and is about to earn a Ph.D. from the Aquatic Ecology Laboratory at Ohio State University. Andrew began his career with us in mid-August and his primary station is the Hartford Office.



SPECIAL FISHING EVENTS. Over 1,000 people attended a variety of special fishing events offered this summer. Highlights include:

- **Salt Water Fishing Day:** Partnered with State Parks Division and No Child Left Inside® to host the 8th annual Saltwater Fishing Day at Fort Trumbull State Park on August 10th. The event was planned to coincide with the second FREE Fishing License Day of 2019. Great weather attracted a huge crowd of over 450 people, with all 160 loaner fishing rods out by 11am – just one hour into the day! A variety of marine fish species were caught by participants including snapper bluefish, summer flounder, winter flounder, black sea bass, sea robin, and keeper size scup. Thanks to



The 8th annual Saltwater Fishing Day attracted over 450 people to the Fort Trumbull State Park fishing pier. There was no shortage of fish caught or smiling faces!

the dozens of dedicated CARE volunteer Instructors for making this event such a success year after year. CARE Instructor Jim Murtagh put together this photo slide-show highlighting the day: <http://www.vimeo.com/353230299>

- **Fort Nathan Hale Park Saltwater Fishing Event:** The City of New Haven and Audubon Connecticut celebrated shoreline accessibility enhancements and habitat improvements and enhancements around the new Fort Nathan Hale Park fishing pier on August 17th with a ribbon cutting ceremony. As part of the event and to bring attention to the fishing pier, the CARE program provided fishing poles, bait, and tackle to the 70 people in attendance.
- **Family Fishing Nights:** Hosted four weekend fishing events for 52 Family Fishing Course graduates. Fishing trip locations were spread throughout the state at family friendly locations: Pickett's Pond (Derby), Mohegan Park Pond (Norwich), Butternut Pond (Middletown), and Lake Wintergreen (Hamden). These trips were designed to provide a CARE sponsored opportunity for past students to re-engage with fishing.
- **Connecticut Judicial Branch Staff Development Day:** Hosted 56 Connecticut Judicial Branch employees for an afternoon of learning about marine fish species and fishing on Fort Trumbull State Park fishing pier this June as part of a staff development day. This was per request of the Support Enforcement Services Director, after he and his family had such a great time at our Saltwater Fishing Day event last year.
- **Outdoor Cooking Expo:** In an effort to create awareness of local, sustainable, and viable food sources the Wildlife Division organized an Outdoor Cooking Expo at Sessions Woods, Burlington on August 25th. To showcase the delicious, healthy fish available in CT waters, CARE staff cooked and served "panfish and black sea bass chowder" and fried 12 pounds of porgy fillets to the 100 people who attended the event.



Attendees at the Outdoor Cooking Expo (right) sampling some tasty fish prepared by the ever happy cooks (left) from DEEP.

SUMMER FISHING CLASSES. The CARE *Summer Fishing* program concluded its 21st season of teaching fishing to summer campers! A total of 41 classes were conducted for 822 day campers around the state. All classes included lessons on fish identification, rod and reel assembly, and knot tying, concluding with a fishing trip.

CARE Seasonal Interpretive Guide Katie Costa delivers a lesson on freshwater fish identification and ecology to a group of day campers during a field trip hosted at the CARE Center in Killingworth.



INTRODUCTION TO FISHING COURSES. CARE Instructors and staff hosted 12 multiple meeting “Introduction to Fishing” courses for 258 students this summer. These courses are our very best product for creating anglers. Each course consists of classroom lessons and concludes with an instructor lead fishing trip.

CATCH IT AND COOK IT. On Saturday, June 29th, CARE held the first **“CATCH IT and COOK IT”** class at Winding Trails in Farmington. This course was designed for adults (ages 16 and up) who have some previous fishing experience but would like to learn more about keeping fish they catch for food. Through a PowerPoint presentation, topics covered included what local fish in CT are best options for eating, regulations for keeping fish, tips on targeting these fish, how to clean your catch, and some popular cooking techniques and methods. The second portion of the class had participants filleting, gutting, and scaling bluegills, perch, and crappies. We concluded a great day with cooking fish three different ways: whole panfish over a fire, deep fried porgy fillets, and “poor man’s shrimp” with bluegill fillets. Look for more fish cooking classes and events as we attempt to capitalize on the public’s growing interest in eating wild, sustainable and local fish.



Catch it and Cook it: Students had the opportunity to fillet a few bluegill sunfish as part of the first Catch It and Cook It CARE class last June. The bluegill fillets were then cooked “Poor Man’s Shrimp” style and every last bit was quickly consumed!

Inland Fish Management & Fish Culture

COLDWATER FISHERIES

TROUT AND SALMON STOCKING

- **2019 SUMMER TROUT STOCKING.** The Farmington River Trout Management Area (TMA) on the West Branch Farmington River from the Goodwin Dam to the year round catch and release area was stocked with 2,000 large (>12 inches) Brown Trout prior to the July 4th holiday. The typical Labor Day stocking (1,750 >12 inch fish) of the Farmington River TMA (from below year round catch and release area to the Rt. 177 bridge in Unionville) was not conducted due to warm water temperatures. Provided water temperatures improve stocking should be completed during the first two weeks of September.
- **2019 FALL TROUT STOCKING.** Nearly 63,000 catchable-sized trout have been produced for stocking this fall, nearly 30,000 more than were produced for stocking last fall (2018). Of these, nearly 12,000 (rainbows and browns) will approach 16 inches in length. Additionally 700 will be large brook trout that are greater than 16 inches in length. Brown Trout fingerlings (4,000, 5 in. average) will be stocked into select waterbodies to grow to a larger catchable size to support the spring trout fishery. Stay tuned for our fall stocking reports on Facebook!

The greater than normal trout production raised this year resulted from bonus production while developing a pilot program to increase the number and size of fall stocked trout, allowing for an additional fall stocking event to many of the waterbodies stocked. For example, sites that would have normally been stocked just once in the fall will now be stocked twice, and sites normally stocked twice will now be stocked three times. The additional stocking events should improve and extend the fall trout fishery in many areas and based on angler feedback, we believe this boost will be welcomed by anglers.

- **2019 FALL BROODSTOCK ATLANTIC SALMON STOCKING:** As in the past several years, approximately 1,250 Atlantic Salmon (1,000 2-5 lb. fish and 250 fish averaging 12 lbs. apiece) will be stocked later this fall. These salmon are produced at the Kensington State Fish Hatchery and will be stocked into the Broodstock areas on the Naugatuck and Shetucket Rivers and into Crystal Lake and Mount Tom Pond.
- **WATER TEMPERATURE MONITORING.** Water temperature data loggers (HOBO onset) were again placed in a number of Connecticut streams this spring/summer. The focus was on long-term reference streams. Fish data were collected from five of these temperature sites and will be used in development of regional water temperature/fish population models.

*Photo of HOBO onset data logger
(courtesy of onset HOBO Data Loggers).
These devices are 3-4 inches in length.*



- **GENERAL FISH COMMUNITY SAMPLING.** Stream electrofishing was completed on nearly 130 sites statewide (as of August 30th). This year, a directed focus of this project was to resample streams **where historic wild brook trout population data had been collected during the original Stream Survey study, completed over 20 years ago. Other high-priority sample sites were long-term reference sites, general monitoring sites, and smaller, previously un-inventoried, headwater streams.**

FARMINGTON RIVER SAMPLING We completed our annual Farmington River sampling in late August, netting and measuring 1,423 total trout including 148 broodstock for spawning. We had nearly 30 people helping with the sample each day and the help from the Diadromous Program, HCE, Burlington Hatchery, Quinebaug Hatchery, Marine Fisheries Program and the Water Planning and Land Reuse Bureau was greatly appreciated. Brown Trout population estimates will be generated with the data collected over two days of sampling. All indications are that based on the number of trout observed, the population is in very good shape.



Just two of the 1,423 trout sampled in August on the West Branch Farmington River. On the right, hatchery supervisor Tom Chairvolotti holds up a Brown Trout for the camera during measuring, with other staff in the background.

WILD TROUT/STREAM SAMPLING. One hundred forty-three sites on 72 streams in western CT were sampled to assess the effectiveness of special regulations, to help determine long-term population trends and responses to past weather and flows, to assess habitat enhancement work, and to assess the spread of non-native Mottled Sculpins. Of particular interest was determining the effects of the unusually high flows during the late summer and fall of 2018 through early 2019. Findings varied from stream to stream, with some showing depressed abundance and reproduction of wild trout populations, while others had near-average trout abundance or evidence that the high fall flows had improved upstream passage during the 2018 spawning runs up smaller tributaries.

Reintroduced native Brook Trout in Deep Brook, Newtown had successfully spawned both years since reintroduction, however sampling in 2019 revealed only a few adult brook trout and no young-of-year. Hopefully the remaining adults will have a successful spawn this fall. Reintroduced Brook Trout, as well

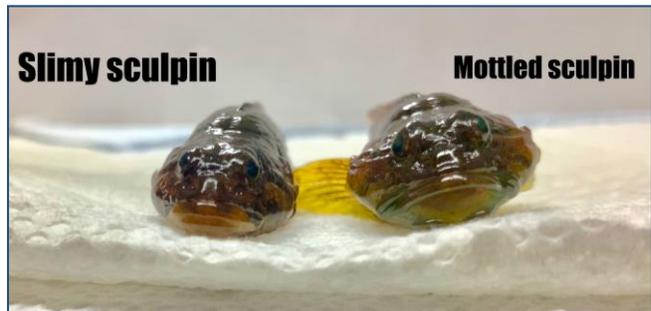
as wild Brown Trout, in the Mill River in Fairfield are still thriving, and appear to be benefiting from the new catch-and-release regulations on two more sections of the river.

Brown Trout fry stocking efforts on the upper Shepaug River, Furnace Brook-Cornwall, Kent Falls Brook, and many other streams around the State continue to produce catchable-size wild-looking Brown Trout in abundance (some up to 20 inches!).

Fish populations were assessed at several culverts in northwest Connecticut, to help prioritize efforts by Housatonic Valley Association (HVA) to work with area towns to replace aging infrastructure that may be barriers to fish, with specific attention to native Brook Trout. All candidate streams had wild Brook Trout populations that could potentially benefit from barrier culvert removal and replacement with more fish-friendly options. Habitat enhancement structures installed in Salmon Creek in Salisbury, with Housatonic Natural Resource Damages (NRD) grant money, and Trout Unlimited project management and oversight, are doing their job providing bank stability and cover for wild trout populations. Pre-construction fish samples were collected at additional sites on Salmon Creek, as well as on the Norwalk River. In future years, sampling will continue to assess effects of habitat enhancement efforts.

Sampling was conducted to assess the spread of non-native Mottled Sculpin (*Cottus bairdii*) populations in the Pomperaug River drainage. In recent years, these Slimy Sculpin (*Cottus cognatus*) look-alikes have achieved very high densities within the main stem of the entire Pomperaug River and its larger tributaries (Sprain Brook, Weekepeemee River, and Nonewaug River). Data suggest that this species may have negative impacts on resident trout and other native fish populations, and are able to thrive in stream conditions that are common in many other trout streams in Connecticut. As of summer 2019, Mottled Sculpins were not found in drainages adjacent to the Pomperaug River (Lee Brook and Pootatuck River) or in any other streams in Connecticut.

HOUSATONIC RIVER. Thermal Refuge enhancement work was completed in the spring at Furnace Brook and Mill Brook in Cornwall, Pine Swamp Brook in Sharon, Kent Falls Brook in Kent, and Powerhouse Brook in Gaylordsville, by DEEP Fisheries staff, HVA interns, Housatonic Fly Fisherman's Association volunteers, and others. These efforts paid off in July and August, when flows in the river were low and warm, and refuges were packed with



Mottled Sculpins have a larger mouth and more teeth than the very similar native Slimy Sculpin, and they seem to thrive in moderate-sized warmer trout streams.



Hundreds of trout packed into Furnace Brook Thermal Refuge in July of 2018, after enhancement work in spring 2018. Similar work was completed in 5 thermal refuges in 2019 with similar results.

trout. No electrofishing was conducted on the Housatonic River in 2019.

At sample sites on lower Furnace Brook in Cornwall, a total of 35 wild-spawned Rainbow Trout young-of-year were collected this summer. In some years, privately-stocked domestic spring-spawning rainbows successfully reproduce in lower reaches of Housatonic River tributaries. Other tributaries were checked, but no additional rainbows were sampled.

In 2018, a Recreational User Survey on the upper 45 miles of the Housatonic in Connecticut revealed heavy use and unacceptable piles of garbage left behind. In recent years, more and more river access has been lost due to inconsiderate users leaving public areas in poor condition. In 2019, more access was lost at the Gaylordsville Bridge, where conditions were even worse in 2019, and the mayor of New Milford, responding to numerous complaints, had the water access area closed and barricaded.

PUBLIC OUTREACH & INFORMATION. The Cole Wilde TMA sign was replaced at the I-84 rest area (Willington) and a new sign was added to the entrance of the Nye-Holman Forest (Tolland) on Route 74. This was a great group effort. James Moore, the new DEEP sawyer, cut, planed and routed the oak signs boards; Fisheries staff stained and painted the posts and signs; and Joe Viele and State Park Division staff assembled and installed the signs.

The new Cole Wilde TMA sign at the entrance to the Nye-Holman State Forest on the Willimantic River.



STAFF UPDATE. The Fisheries Division is pleased to announce the hiring of Brielle Robbins as a Maintainer at the Quinebaug State Trout Hatchery. Brielle grew up in Thompson where she still lives. She's been a seasonal resource assistant at Quinebaug for 3 seasons. She graduated in 2018 from SUNY Cobleskill where she earned a bachelor's of Technology in Fisheries and Aquaculture. Brielle's first day as a maintainer was August 7th.

Newly hired Brielle Robbins disinfecting eggs in the hatch house at the Quinebaug Hatchery on her first day as a Maintainer.



Inland Fish Management & Fish Culture

WARMWATER FISHERIES

NORTHERN PIKE. The statewide Northern Pike fingerling stocking goal (12,864) was exceeded this year by 306 fish as we were able to combine our marsh production 6,038 fish with 7,132 fish purchased from a commercial vendor in Minnesota.

On July 16, 2019 we received 7,132 (after a total travel related mortality of 368 fish) stockable Northern Pike fingerlings (average length 4.2 inches, range 3.1-4.8 inches) from Minnesota. This is the same vendor we use for our Walleye fingerlings. These fish were stocked into Bantam Lake (3,623) and Winchester Lake (3,509). With a few minor tweaks to how and when we get these fingerlings we are hopeful that moving forward we can utilize this vendor to add to our in-state managed marsh production.

The production from DEEP marshes was 6,038 and comprised 4,697 pike resulting from 114,000 fry donated by the Hackettstown Fish Hatchery in New Jersey and 1,341 from the Haddam marsh system. This year we feel the lower than normal production in the Haddam Marsh system being the result of the Lower Marsh was flooded for over 3 weeks in late April/ early May, which not only allowed an unknown amount of production to escape, but it also allowed for a substantial number of fish that would readily feed on juvenile Northern Pike to infiltrate the marsh (e.g. Pumpkinseed, Bluegill, Largemouth Bass, Red Fin Pickerel, Black Crappie, Brown Bullhead and Bowfin). At the Upper Marsh there was a loss of several hundred pike due to anoxic conditions from low water, high water temperatures and decaying organic material. On a more positive note the dredging work performed in 2018 to address the issues with moving water out of the entire Haddam marsh system worked extremely well and we were able to drain both marshes far lower than we have been able to in over a decade.

Number of Northern Pike fingerlings stocked into Connecticut's Pike Management Lakes and the Lower Connecticut River.

Lake	Number Stocked	% of Target Number
Bantam Lake*	5,193	274%
Lower Connecticut River	265	17.7%
Upper Connecticut River	0	Surplus
Mansfield Hollow Reservoir**	4,203	183%
Pachaug Pond^	0	0%
Winchester Lake#	3,509	285%

*Stocked with 494 New Jersey fingerlings, 1,076 Connecticut River fingerlings and 3,623 Minnesota fingerlings.

**Stocked with New Jersey fingerlings.

^Not stocked in 2019 because of lack of fish, and the slated deep and prolonged drawdown slated to begin in 2020 on this lake for dam repair.

#Stocked with Minnesota fingerlings.

WALLEYE. The order for 24,400 4-6 inch Walleye and 3,500 6-8 inch Walleye to be stocked in our public Walleye Management Lakes (WMLs) in 2019 was placed. The fish should arrive in October.

CHANNEL CATFISH. A population estimate using baited hoop nets is being conducted at Batterson Park Pond (Farmington) and Black Pond (Meriden/Middlefield). The nets were initially deployed on 8/26/19. If sufficient personnel and time are available population estimates will be carried out at Lake Kenosia (Danbury) and Burr Pond (Torrington).

Ed Machowski getting ready to deploy a hoop net at Black Pond (Meriden/Middlefield) to sample for catfish.



DOT INTERSTATE INTERCHANGES POND ASSESSMENTS. This summer a graduate student was hired to assess the potential of using ponds located at interstate interchanges as rearing locations for state fish species of special concern. This project was funded through the Wildlife Income Tax Checkoff Program. It was thought that it would be a good preemptive action to have populations that could be readily accessed for use in restoring wild populations that suffered a complete mortality event. The two primary species that we thought might benefit from this would be Banded Sunfish and Bridle Shiner. Kayla Morin, a UConn graduate Student spent several weeks preparing for working in the ponds, learning the gears, researching similar efforts, identifying the limiting life history requirements, defining metrics for project success and connecting with DOT and other landowners to obtain access. As a result of concerns for safety along some Highway sections and an inability to obtain clear access permission through a Right of Way only 5 of the 13 possible ponds could be evaluated. Kayla developed some great field data collection applications that greatly simplified field data collection and analysis. She obtained good overviews of the ponds and their potential. Due to dissolved oxygen problems, predation potential and recapture limitations,



Seasonal Resource Assistant Brandon Smith checking water quality parameters in a Route 9 pond.

it would appear that none of the ponds will meet our needs. Kayla is preparing a detailed report that will spell out the limitations and possible recommendation for these ponds.



(left) Kayla Morin and Brandon Smith seining pond to check for predators or competitors. (right) Kayla Morin valuating aquatic plants that are essential to Bridle Shiner and Banded Sunfish life cycles.

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