

# 2014

## Inland Fisheries Division Program Notes & Updates (Fall)



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# Inland Fish Management & Fish Culture

## COLDWATER FISHERIES

**2014 FALL BROODSTOCK ATLANTIC SALMON STOCKING.** Stocked 1,245 Atlantic salmon broodstock into Beach Pond (125), Crystal Lake-Ellington (125 fish), Mount Tom Pond (137 fish), the Naugatuck River (504 fish) and the Shetucket River (354 fish). Due to a moderately severe drought in eastern CT the first stocking of the Shetucket River (from the Scotland Dam to Occum Dam) was re-directed to eastern lakes. Eventually, flows improved and broodstock salmon were stocked into the Shetucket in time for the late fall fishery.



Above. IFD seasonal resource assistant Mats Clark stocking a nice male Atlantic Salmon into the lower Naugatuck River. Left. A Kensington Hatchery raised Atlantic salmon being stocked into the Shetucket River this fall by Thames Valley Trout Unlimited Stocking Coordinator Ray Shafer (Photo by Charles McCaughtry.)

**2014 FALL TROUT STOCKING.** Completed fall trout stocking. Approximately 67,200 trout were stocked this fall, including 14,500 trophy-size Brown Trout (greater than 12 inches in length); 15,000 standard-size (10 inch) rainbows; 32,800 yearling (6-9 inch) Brown Trout; and 4,900 fingerling (< 6 inch) Brown Trout. Stocking occurred in TMAs, several Trophy Trout streams, Trout Parks, and heavily utilized lakes and ponds (for locations and numbers see the fall stocking weekly report click the [Fall Stocking Reports](#) link on [www.ct.gov/deep/freshwaterfishing](http://www.ct.gov/deep/freshwaterfishing)). The yearling Brown Trout were stocked into 12 areas: Roaring Brook [Glastonbury] (4,000), Hockanum River (6,000), East Branch Salmon Brook [Granby] (4,500), Blackberry River (4,500), Coppermine Brook (1,000), Pequabuck River (5,000), Norwalk River (2,000), the Housatonic River TMA's (Bull's Bridge, 2,000 and upper, in the Cornwall/Sharon area, 3,300), and the Mianus River TMA (500). Fingerlings were stocked into the Shepaug River (2,600), and Sandy Brook (2,300).

**Cover photo:** The lower portion of the **Tingue Dam Fishway** on the Naugatuck River in Seymour. In development for over 12 years, this fishway was completed in October, 2014. For more information on the fishway and the October 30<sup>th</sup> dedication ceremony, see pages 11 and 17.



Additionally, in late November 26,000 adult rainbow trout were stocked statewide into the following locations; In western CT; East Twin Lake (2,200), Highland Lake (2,200), Mohawk Pond (1,100), Squantz Pond (2,200), Stillwater Pond (1,100), Tyler Lake (1,200), West Hill Pond (2,000) and West Side Pond (1,000); and in eastern CT; Beach Pond (2,200), Mashpaug Lake (2,200), Coventry Lake (2,200), Gardner Lake (2,200), Crystal Lake (2,000) and Black Pond (Middlefield/Meriden) (2,200). The rainbow trout recently stocked are from the Quinebaug Valley State Trout Hatchery. These fish typically would be retained in the hatchery through the winter to be stocked next spring. However, staff did an excellent job advancing the growth of trout in the hatchery this year, and the standing biomass of fish was higher than desired. These fish were therefore stocked early to maintain water quality of the hatchery water system at acceptable levels. This winter stocking will also provide a nice boost to the ice fishery that occurs in the lakes into which they were stocked.

**2014 BROODSTOCK SEEFORELLEN BROWN TROUT STOCKING.** Plans are underway to stock approximately 400 Seeforellen broodstock Brown Trout in a selected number of lakes and ponds around the state. These fish have an average weight of 15 pounds each, with several individuals exceeding 20 lbs. Stocking is expected to occur sometime around mid-December and locations will be announced via a press release. These fish are truly extraordinary specimens in both size and coloration and it is hoped and anticipated that they will generate excitement among anglers.

**KOKANEE SALMON.** Completed Kokanee broodstock collection at West Hill Pond. A total of 600 adult kokanee was captured with trap nets over an eight day period in mid-October. Adult kokanee at West Hill averaged 17 inches, which is the largest average length since 2005 (17 inches). Of these fish, 228 male/female pairs were transported to the Burlington Hatchery and spawned, providing 249,000 fertilized eggs. This egg take will provide the target number (50,000) of fry for stocking West Hill, as well as 80,000 fry for East Twin Lake, in the spring/early summer of 2015. Surplus kokanee fry will be stocked into Lake Wononskopomuc. An angler survey conducted on West Hill Pond during 2014 indicates that 35% (~6,100 angler hours) of fishing effort from Opening Day of trout season (April 19<sup>th</sup>) through October 31<sup>st</sup> was by anglers seeking Kokanee Salmon. During this survey an estimated 1,000 salmon were caught.

On October 7<sup>th</sup>, 2014, two trap nets were set at East Twin Lake, in standard locations, for Kokanee and trout. A total of 1,975 adult salmon were captured over a 20 day period. These fish averaged 14.5 inches in length. This average size is about 3 inches smaller than in 2011, when adult salmon averaged over 17 inches. The smaller size may be indicative of density dependent competition. A preliminary population estimate indicates that ~4,700



*Spawning Kokanee Salmon in a small tributary to East Twin Lake.*

adult spawning salmon were present in the lake at the time of netting. These data suggest that there was very good survival of the 2011 year class. The IFD is pleased with the results of the re-introduction of Kokanee in East Twin and is optimistic that avid kokanee anglers will once again venture to his location to pursue these “silver bullets”.

### **COLDWATER LAKES MANAGEMENT.**

Completed the open water component (Opening Day through October 31<sup>st</sup>) of an angler survey on West Hill Pond. Preliminary results show total expanded angler effort at 17,044 angler hours, and a total trout catch of 8,076 with about half of those fish being harvested. West Hill Pond was stocked with approximately 12,000 trout this year, and based on the recent survey, 67% of stocked trout were caught. In September 2014, 500 Seeforellen strain and 500 Cortland strain Brown Trout were given unique fin clips and



*Clipping a Cortland strain brown trout for stocking into West Hill Pond*

stocked on the same day into West Hill Pond to assess the catchability of both strains. Only one clipped Brown Trout (Seeforellen) was observed by survey agents after stocking. We will continue to monitor catch of these stocked cohorts during the icefishing component of the survey (2014/2015).

At Highland Lake, a trout population assessment via boat electrofishing was not performed in the fall of 2014 due to a deep-lake drawdown for weed control. At Crystal Lake, nighttime boat electrofishing in mid-October produced 6 Brown Trout, of those; four were recently stocked (late September). However, numerous alewives (103/hr) were captured during the electrofishing sample, which is higher than recent samples (40/hr and 21/hr in 2011 and 2012, respectively), and may indicate an expanding alewife population. This, along with trout growth, will be monitored over the next few years in Crystal Lake. Trap netting at East Twin Lake produced very few Brown Trout, the majority being spring stocked fish. The lack of holdover browns observed supports recent findings that this lake no longer consistently produces holdover Brown Trout. IFD staff believe this is directly related to the concurrent disappearance of the formerly robust landlocked alewife population.

### **STREAM SAMPLING and MONITORING**

- **Statewide stream sampling.** Completed stream surveys during September and October. Even with our reduced numbers of summer seasonal employees, 195 locations were sampled during the summer and fall. All sample data have been entered into long-term databases, and have undergone proofing. Stream sampling data will be available for requests later this winter.
- **Wild Trout Population trends in 2014.** Sixty sites on 26 streams were sampled to assess short-term and long-term trends in Connecticut's wild brook trout and wild brown trout populations, many of which had shown an alarming downward trend in recent years. Eight (47%) historic wild brook trout

populations remained very low compared to historic levels, or showed new declines, while nine (53%) remained strong or showed improvement. Six (26%) historic wild brown trout populations remained low or declined, while 17 (74%) were stable or showed improvement.

- **Brown trout fry stocking assessments.** Sampling was conducted at 28 sites on a representative subset of 15 of the 27 streams stocked with brown trout fry in the spring. Fry survival was moderate to good in nine streams, while survival in six others was reduced, possibly due to high flow events in the spring shortly after stocking.
- **Salmon Creek Habitat Enhancement Project.** For the second year, Inland Fisheries staff assisted Trout Unlimited with assessment of fish populations in Salmon Creek, Salisbury, prior to commencing extensive habitat enhancement work. This project is being funded with a grant awarded to TU from the Housatonic Natural Resources Damages Settlement Agreement (NRD) funds. While some sections of lower Salmon Creek had depauperate coldwater fish fauna, other sections showed moderate abundance and high growth rates of wild brown trout.

*Wild brown trout will benefit from habitat improvements scheduled for Salmon Creek in Salisbury.*

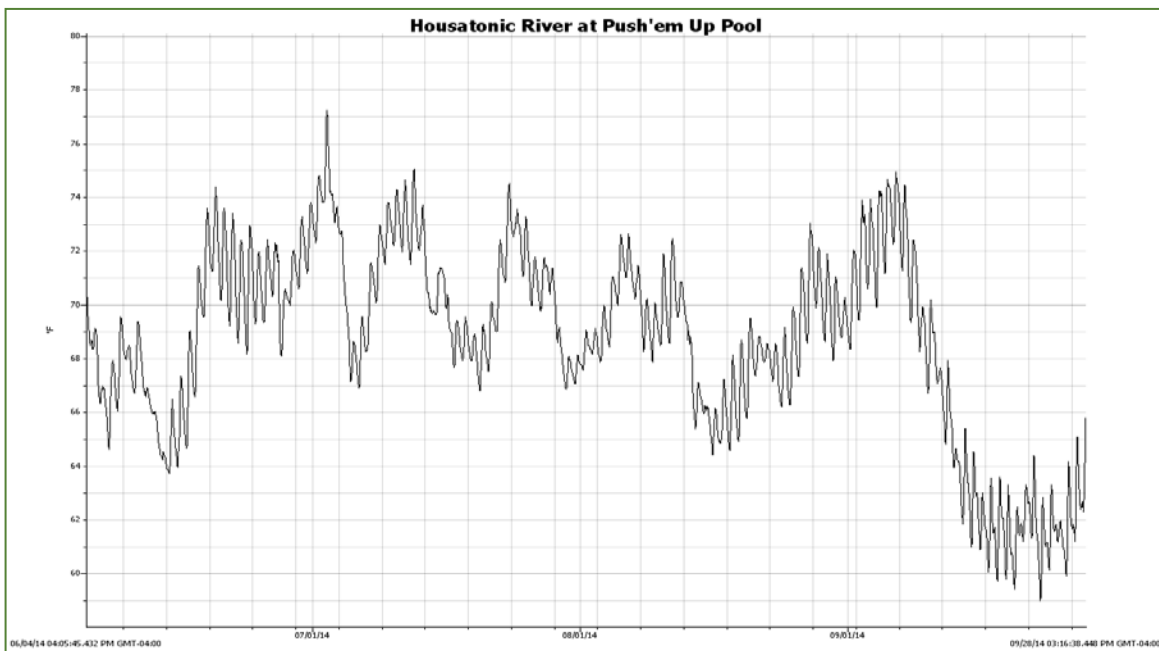


- **Shepaug River.** Approximately 2,600 Farmington River Survivor-Strain brown trout fingerlings were stocked into a test section of the Shepaug River in Washington Depot for the third time this fall. Evaluation of these test stockings has shown improvements to the resident wild brown trout population, and will help determine future trout management in the Shepaug. For the first time, an additional test section of the upper Shepaug was stocked with fry in spring 2014. Late-summer sampling results were very encouraging, revealing an exceptionally high survival rate (192 surviving fingerlings recovered from a 150 m sample section of stream). Increases in summer water releases (beginning in 2010) have resulted in cooler flows, resulting in positive benefits for trout in sections of this river.
- **Water Temperatures.** **Temperature data recorders** were swapped and downloaded from 65 locations in eastern Connecticut. Loggers were lost or not recoverable at 4 locations. There was evidence of a minor drought in portions of Eastern Connecticut with water levels in late September and early October well below normal. In several cases temperature loggers were found high and dry in desiccated stream beds, due to the localized nature of the drought.

Data collected by IFD, DEEP's Bureau of Water Protection and Land Reuse and other cooperators will be used to map stream water temperatures throughout the state. As part of a cooperative project

with USGS's Ben Letcher, water temperature and fish data are being used to develop a Brook Trout resiliency model. This model will allow users to see the likelihood that brook trout will survive in specific Connecticut streams under current conditions and also how the streams will be affected if changes occur due to climate change or construction (loss of forest cover). The initial model has been developed and any additional water temperature data that are collected can be added to improve the model's accuracy at predicting brook trout survival. We are hoping that the model will be available for use by conservation groups and town commissions sometime in the upcoming year.

Temperature data recorders that had been deployed in 42 streams in Western Connecticut were retrieved and downloaded. All but one was recovered. Data showed relatively mild water temperatures throughout the summer, due to frequent rains and relatively cool air temperatures. Of particular note, the Housatonic River in Cornwall briefly reached a summer maximum of only 77.2 °F (at Push'em Up Pool) on July 2. For comparison, last year the maximum temperature in the Housatonic in Cornwall was 85.6°F (on July 19).



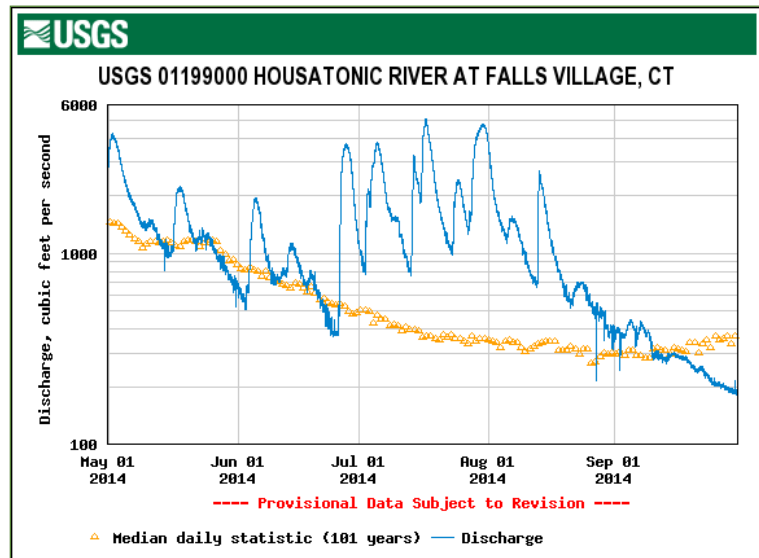
*Water temperature at Push'em Up Pool in the Housatonic-Cornwall TMA during summer, 2014. The temperature briefly reached a maximum of 77.2°F on July 2.*

- **Housatonic River.** Flows were unusually high in the Housatonic River during much of the summer, however, a reduced annual fish sampling was successfully conducted in early September when the river finally receded to suitable flows. Regular summer observations at thermal refuges, and late summer sampling showed that few trout entered thermal refuges at tributary mouths because mainstem water temperatures never reached critically high levels (see also above). Trout survived well in the main river where higher numbers were sampled than in recent years. For the second year in a row, smallmouth bass in the Housatonic River produced a very weak year class due to the high, turbid, and generally cooler-than-average flows. Young-of-year smallmouths were scarce and small in 2013, and absent from samples in 2014, and growth of older smallmouths in 2013 and 2014 was very slow,



(as determined by microscopic scale examination) also due to the unusual low temperatures and high flows.

In the summer and fall of 2014, Inland Fisheries staff assisted the Philadelphia Academy of Natural Sciences with the collection of fish from the Housatonic for biennial PCB contamination testing. This testing, which is funded by General Electric Co., is necessary to monitor the contamination caused by a GE transformer factory in Pittsfield, Mass that was in production during the last century. Results from the 2014 collections will be received next fall. PCB levels in fish sampled in 2012 were generally similar to levels seen in recent years, with some trout, smallmouth bass, and northern pike exceeding FDA limits for regular consumption.



*Flows on the Housatonic River in 2014 were much higher than usual throughout most of the summer. This contributed to good survival of trout in the two TMAs, but poor reproduction and growth of smallmouth bass throughout the upper river.*

- **Housatonic River Enhanced Law Enforcement Initiative.** Natural Resources Damages (NRD) Settlement Agreement grant money used to fund the three-year (2011-2013) increase in patrolling by DEEP Environmental Conservation Police officers on the upper Housatonic River were not depleted, so remaining funds were used to extend the initiative through summer 2014. Patrol logs for this final year will be compiled and summarized this winter.

## WARMWATER FISHERIES

**WALLEYE.** Stocked 32,500 walleye fingerlings on October 28, 2014 into Batterson Park Pond (2,100 fish), Beach Pond (3,460), Gardner Lake (5,250), Mashapaug Lake (2,900), Squantz Pond (4,065), Lake Zoar (9,425), Cedar Lake (Chester) (860), Mount Tom Pond (840) and West Thompson Reservoir (3,600). Staff also stocked an additional 13,150 walleye fingerlings into Saugatuck Reservoir (6,900), Lake Saltonstall (3,245) and Lake Pocotopaug (3,000) (fish in these three lakes purchased by Aquarion Water Company, South Central Connecticut Regional Water Authority, and the Town of East Hampton respectively). The fingerlings stocked this year averaged 5 inches in length.

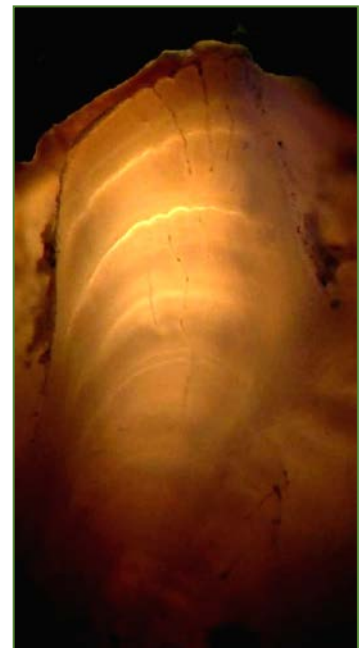
*One of the fingerling walleye stocked this fall.*



**NORTHERN PIKE.** Problem vegetation around the Wyantenock # 4 weir structure was removed with help from DEEP Engineering and Field Support Services Division personnel. This mat of vegetation caused mortality of over 600 fingerling pike by stranding during the drawdown last June. Flooding of some of the pike marshes for the 2015 spawning season (i.e. Mansfield marsh and the Wyantenock marshes) has begun.

**CATFISH.** During the past three months IFD biologists, in collaboration with researchers from Dr. Eric Shultz's Lab in the Dept. of Ecology and Evolutionary Biology at Uconn, made significant progress in the analyses of age and growth rates of Channel Catfish from our management lakes. Catfish ages were estimated using pectoral spines and "otoliths" (ear stones) that were sectioned and viewed through a dissecting microscope with side illumination from a fiber optic cable. Annual growth bands or "annuli" can then be viewed as bright white bands across the surface of the spine or otolith section. This information will help assess how well our catfish are doing in Connecticut Lakes.

*This image of a channel catfish pectoral spine was taken by pointing a smartphone camera through the ocular of a dissecting microscope, a novel technique developed by researchers in the Schultz Lab that is proving surprisingly effective for capturing high quality microscopy images. Annual growth bands or "annuli" can then be viewed as bright white bands across the surface of the spine section.*





**FALL ELECTROFISHING SURVEY.** We completed annual fall monitoring of fish populations by night boat electrofishing in 25 lakes during October and November. Three nights were dedicated to Gardner Lake as part of the Bass Supplemental Stocking Study. Other management lakes sampled this fall were seven Channel Catfish Lakes, four Bass Management Lakes and three Northern Pike Lakes. Sampling was done to collect information on growth rates and relative abundance of fish populations. A Fat Sleeper (*Dormitator maculatus*, Family: Fat Sleeper Gobies) was found in Chapman's Pond, a cove off the Connecticut River in East Haddam. This is the first recorded occurrence of this species in Connecticut. The Fat Sleeper's natural range is in brackish to fresh waters along the Atlantic coast from North Carolina to Brazil. It has been sporadically found as far north as the Hudson River.

*A Fat Sleeper (Dormitator maculatus).  
Photo by R. Lapere.*



**LAKE ANGLER SURVEYS.** Completed the open water portion of angler surveys at nine lakes: Batterson Park Pond (Farmington), Black Pond (Meriden), Gardner Lake (Bozrah/Montville/Salem), Lakewood Lake (Waterbury), Lower Bolton Lake (Bolton), Mashapaug Lake (Union), Pattaconk Lake (Chester), West Hill Pond (Barkhamsted/New Hartford) and Lake Wintergreen (Hamden). These surveys assess angler catch, effort and opinions of IFD management on these lakes. Data obtained will be used by the Bass Management (Black Pond, Gardner Lake, Lower Bolton Lake, Mashapaug Lake), Channel Catfish Management (Batterson Park Pond, Black Pond, Lakewood Lake, Lower Bolton Lake, Pattaconk Lake, Lake Wintergreen), Coldwater Lakes Management (West Hill Pond) and Walleye Management (Batterson Park Pond, Gardner Lake, Mashapaug Lake) projects. Lakewood Lake and Lake Wintergreen are also part of the Community Fishing Waters (CFW) program, a relatively new IFD initiative to provide quality fishing opportunities in urban settings. The 2014 angler surveys at CFW will help IFD assess angling participation generated by stocking trout and channel catfish at these locations. IFD will initiate ice fishing angler surveys on a yet to be determined set of lakes as soon as safe ice forms in the coming months.

**LARGEMOUTH AND SMALLMOUTH BASS.** The *Bass Supplemental Stocking Study* was initiated to determine how bass from unfished water supply reservoirs would perform when stocked into public water bodies. This study is in its third year of field sampling. This past spring Gardner Lake (Salem) was stocked with 201 largemouth bass over 12 inches from Mansfield Hollow Reservoir to compare their survival to that of bass stocked into Gardner Lake in 2013 from an unfished water supply reservoir. The IFD in cooperation with a UCONN PhD student



*At Gardner Lake bass tournaments, Mansfield and resident bass were counted, measured and given identifying spine clips.*

collected results from 29 bass tournament weigh-ins at Gardner Lake between April and October 2014. All resident bass and bass originating from the unfished reservoir and Mansfield Hollow were counted, measured and given an identifying spine clip. Preliminary results indicate that the Mansfield Hollow transplants survived through one fishing season much better than the bass that had been transplanted from the unfished reservoir in 2013. This corroborates our hypotheses that naïve reservoir bass are much more vulnerable to angling than bass from fished water bodies, and that the higher mortality experienced by them is likely due to the additional stress of being caught and released more times than the resident fish.

The second part of this study entailed raising young-of-year bass from four lakes (two unfished water supply reservoirs and two public lakes) in a common environment (a pond at Burlington state Fish Hatchery) to test for differences in resting metabolism and angling vulnerability between fished and unfished populations. Resting metabolism of 25-31 bass from each lake was measured during the fall of 2013 and yielded expected results. The median resting metabolism of bass from the unfished populations was significantly higher than from the public lakes. This adds credence to our hypothesis that angling selectively removes more active, bold and aggressive fish from a population and that these “personality” traits are genetically determined. A controlled angling experiment to test for angling vulnerability began in mid-July 2014 and continued through the end of October. Those bass with resting metabolism measurements have a unique identification number so that angling vulnerability and metabolic rate can be correlated. The pond was seined on November 7<sup>th</sup> to inventory the remaining bass and record the number of times each individual bass was caught by angling.



*DEEP Burlington Hatchery and Warmwater Fisheries Management staff assisting Jan-Michael Hessenauer (UCONN PhD student) in seining the pond.*

# Diadromous Fisheries Restoration

## FISHWAYS & DAMS

- A new fishway was completed at the Tingue Dam on the Naugatuck River in Seymour. This \$6.2 million bypass channel has been in development for over 12 years and was completed in October. Final steps included IFD staff working alongside engineer Jim MacBroom to place rocks in the bottom of the channel to create suitable hydraulics for fish passage.

*Steve Gephard supervises an equipment operator with the placement of rocks in the Tingue Bypass Channel.*



The 500-foot long nature-like fishway is the largest of its kind on the East Coast and is part of a Town of Seymour park. The Inland Fisheries Division will operate the fishway beginning next spring, when underwater video monitoring will assist the evaluation of the fishway. Target species include American shad, alewife, blueback herring, sea-run trout, sea lamprey, American eel as well as many resident species like trout and salmon broodstock. The fishway opens up over 23 miles of habitat in the Naugatuck River!

*IFD's Steve Gephard (left) and Tim Wildman (center) and Jim MacBroom (right) of Milone & MacBroom observe the first water test of the new Tingue Dam Fishway, in the shadow of Route 8. The fishway was not quite finished when this was taken. A new ADA-compliant sidewalk is now in place.*



- A new fishway was completed at the Newman Dam on the Aspetuck River in Westport. The dam was built many years ago by the late actor Paul Newman and the fishway project was sponsored by The Nature Conservancy, with technical assistance by the IFD. This is the second fishway on the Aspetuck and opens up habitat previously restored by the 2012 removal of the Frankel Dam.
- Fishways repairs were conducted at the spillway ladder at Dorr's Mill Pond (Saugatuck River, Westport) and the Versailles Pond Dam Fishway (Little River, Sprague).



- An old fishway on Furnace Brook was rehabilitated by the Housatonic Valley Association (HVA) with IFD technical assistance. The fishway had ceased to function when its entrance pool collapsed several years ago. The HVA hired an engineer to design a fix and the repairs were made in September. This fishway in Cornwall allows trout to move upstream to spawn but more importantly escape the summer warm water and reach cool refuge water in the brook. Diadromous staff worked with HCE and Fisheries Management staff to design and build a trap that HVA and its volunteers will use to monitor movement by trout.



*(left) Sun glare hides the lower fishway but the upper fishway (under the culvert) can be seen with the new trap, designed to retain trout for monitoring and fishway evaluation.*



*(right) Tim Wildman (IFD) and Laura Wildman (design engineer with Princeton Hydro) observe the lower portion of the refurbished Furnace Brook Fishway.*

- The Rainbow Dam fishway was operated during the fall from October 1<sup>st</sup> to November 14<sup>th</sup>. Many juvenile river herring and 72 eels were documented passing down the fishway. Due to the lack of salmon observed in the watershed during the spring and summer, the Leesville fishway was not operated during the 2014 fall season.
- Many other state-owned fishways were closed for the season, including state-owned facilities at Bunnells Pond and Trading Cove Brook.
- Staff continued to work with partners to develop, design, and plan a number of fish passage projects including: Lake Lockwood (eel passage, Clinton), Old Papermill Dam (New Milford), Hanover Pond Dam (hydro development, Meriden), Chapman Pond Dam (fishway & eel passage, Clinton), Karp Family Dam (removal, Suffield), Springborn Dam (removal, Enfield), White Rock Dam (removal, Stonington), Pond Lily Dam (removal, New Haven), Collinsville dams (hydro development, Canton),

Derby Dam (Shelton), Hyde Pond (removal, Groton) and a number of projects that are not yet ready for public discussion.

*This small privately owned Karp Family Dam blocks river herring runs on Stony Brook in Suffield. IFD has been working with the U.S. Fish & Wildlife Service and the North Central Connecticut Conservation District to remove this dam. With luck, it will be gone by Christmas.*



## ATLANTIC SALMON

- Completed the annual electrofishing survey of stocked juvenile Atlantic salmon populations within the Farmington River and Salmon River watersheds. The work was conducted at 53 sites in September and October. Survival and growth of salmon stocked in the Salmon River watershed was poor, probably due to drought conditions experienced during the summer. The drought was not as severe in the Farmington River watershed and juvenile salmon exhibited higher than average growth and survival in most sampled sites.

*A wild Atlantic salmon x brown trout hybrid was captured during the fall electrofishing survey. Hybridization can occur naturally in the wild when both species are present, but is a rare event. In our streams it would most likely occur when precocious male salmon parr mated with female brown trout.*



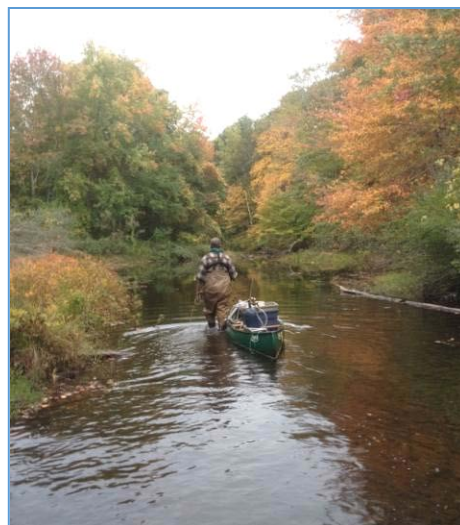
- Assisted in the spawning of Atlantic salmon broodstock at the Kensington State Fish Hatchery in Berlin, CT. A total of 830,000 eggs was taken over a three week period in late October and early November. The eggs will either be hatched at Kensington or sent to schools for the Salmon-in-Schools education program. Eggs hatched at Kensington will either be raised and stocked as adults for the recreational fishery or stocked as young fry in selected Connecticut streams.



- On November 13<sup>th</sup>, staff conducted redd surveys to determine if any of the three sea-run salmon released at the Rainbow Dam fishway during the spring successfully spawned. A number of redds were observed but all were believed to have been made by trout, not salmon. Much of the good salmon spawning habitat is in deep water that is hard to observe so the lack of sightings does not mean that none of the salmon spawned.

## SEA-RUN TROUT

- Stocked 17,700 sea-run brown trout parr in the lower sections of the Shunock and Farm rivers. These were smaller fish that had been graded-out from the population of future smolts being reared at Burlington State Trout Hatchery. It is not known how many will emigrate to salt water in the spring, 2015.



*Using stocking equipment (canoe, oxygen and regulator, tubs and air stones (left) from the Fisheries Management program, Diadromous staff stocked the Farm and Shunock rivers. Seasonal Resource Assistant Patrick Vogt pulls the parr-laden canoe through a stretch of the lower Shunock River (right).*

- Electrofished a section of Blackledge River (Marlborough) to assess the spring stocking of sea-run brown trout fry stocked earlier in the year (spring, 2014). It appears that either survival was low (due possibly to low stream flow and high stream temperatures; temperature data logger recorded ten consecutive days at or above 20 degrees Celsius) or the sea-trout fry moved out of the stocking section. Sea-run brown trout were found in an Atlantic salmon sampling site over one kilometer downstream, in an area that was not stocked with sea-run brown trout fry.



*Diadromous staff measured many nice looking sea-run brown trout parr during the Blackledge River electrofishing sample.*



- Secured all the appropriate permits (USFWS Title 50 and State of Connecticut) to import 35,000 eyed Lijoki strain sea-run brown trout eggs from Finland the first week of January, 2015. As with the first group imported in January of 2014, the eggs will be incubated at the Burlington State Trout Hatchery.
- Fin clipped approximately 8,000 sea-run brown trout parr at the Burlington State Trout Hatchery. These fish are being held at the hatchery until next spring when they will be stocked into Latimer Brook as smolts. It is hoped that in 2015 the majority of these smolts will emigrate downstream to Long Island Sound, where they will reside for two years before returning to Latimer Brook to spawn. Since the smolt stocking site is upstream of the Latimer Brook Fishway, the returning spawners will pass upstream through the fishway, allowing staff to trap, assess, and then release each fish (upstream of the fishway).

*A sea-run trout loses its right pelvic fin for science.*



## RIVER HERRING

- Staff Attended regional river herring workshop in Gloucester, MA. All states presented season summaries (trends in each state), discussed fishway evaluation techniques, ongoing research projects, future grant proposals, and development of a guidance document.
- Staff attended a river herring genetics workshop in Gloucester, MA, co-sponsored by Mass Marine Fisheries Division and the University of Massachusetts. Genetics are becoming a very important research and management tool for the conservation and management of river herring and New England workers are on the forefront of this work. IFD staff will be part of an interdisciplinary-interstate team that will be sampling river herring this coming spring as part of a coast-wide study to identify the origin of river herring being taken as by-catch in the off-shore Atlantic herring fishery as well as an ecological study of how sea-run alewives recolonize Rogers Lake after the construction of a new fishway.

## AMERICAN EEL

- Operated the Gaillard Silver Eel Weir and Trap in cooperation with The Regional Water Authority (RWA). The purpose of this weir is to intercept down-running adult silver eel prior to the eels entering Lake Gaillard. Because Lake Gaillard is a RWA water supply reservoir, the only exit for silver eels out of the lake is to pass through the treatment facility which is fatal to all silver eels. A total of ten silver eels was trapped at the site and then transported and released downstream of the Lake Gaillard Dam so that they may migrate to the ocean and spawn.



*Two silver eels waiting for the taxi ride around Lake Gaillard.*



*The Lake Gaillard eel trap (low flow).*

- Worked with Groton Public Utilities and their consulting engineer to design a system that will allow migrating silver eels to escape this water supply reservoir system and reach the ocean.

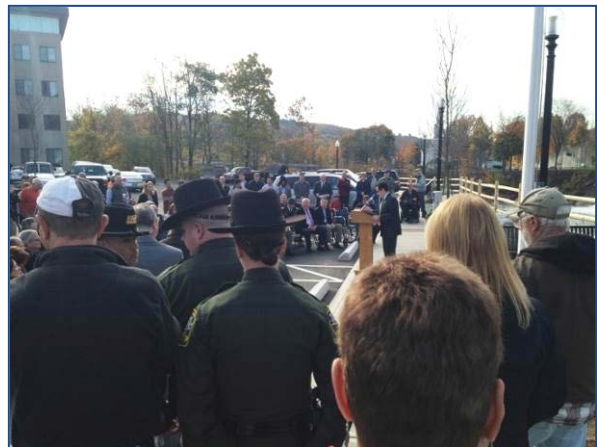
## MISCELLANEOUS ACTIVITIES

- Cleared the access road into Chapmans Pond along the Menunketesuck River in Clinton.
- Assisted with Farmington River “survivor” strain Brown Trout brood stock collection.
- Mentored three Wesleyan University students on a GIS class project to document and map the fish habitat and dams on the Coginchaug River in Middletown and Middlefield.
- Participated with representatives from other DEEP Divisions to review the draft Comprehensive Conservation Plan for the Silvio Conte National Fish and Wildlife Refuge (Connecticut River, U.S. Fish & Wildlife Service).

## PUBLIC OUTREACH

- Made a presentation about the Springborn Dam removal to the Scantic River Watershed Association.
- Made a presentation about anadromous fish habitat conservation to the Atlantic Coast Fish Habitat Partnership.
- Made a presentation about fish passage projects to a CARE instructor's workshop.
- Made a presentation to the Atlantic States Marine Fisheries Commission (ASMFC) Management Board about the progress by the Fish Passage Working Group.
- Gave a tour of four fishways and a dam removal site to the ASMFC's Habitat Technical Committee.
- Participated in the annual teacher orientation workshop for the Connecticut River Salmon Association's Salmon-in-Schools program.
- Participated in the October 30<sup>th</sup> dedication ceremony for the new Tingue Dam Fishway, Naugatuck River, Seymour. The event was attended by Commissioner Klee, Senator Richard Blumenthal, Congresswoman Rosa Delauro, many local elected officials and DEEP staff as well as a who's who of conservationists in the Naugatuck River valley and beyond.

*The assembled crowd listening to Commissioner Klee.*



*The upper portion of the Tingue Dam fishway (see cover for a photo of the lower portion).*



## CARE & Constituent Services

**FALL CLASSES.** Conducted seven CARE classes for over 450 students in Ansonia, Branford (2), Killingworth, Milford, Old Lyme and Simsbury. Several of these classes were Family Fishing Courses, which consist of multiple-meetings with certified instructors and include classroom time and a fishing trip.

**ICE FISHING.** Scheduled 13 Family Ice Fishing classes for 2015 to be conducted in Andover, Ansonia, Chester, Coventry, Farmington, Glastonbury, Litchfield, Mansfield, Milford, New Haven, Oxford, Ridgefield, and Wethersfield. All students will be invited to participate in two family ice fishing events with CARE Instructors on hand to assist: 1) CARE Family Ice Fishing Derby at Coventry Lake on January 31, 2015 and 2) No Child Left Inside® Winter Festival at Burr Pond State Park (Torrington) on February 7, 2015.

**INSTRUCTOR TRAINING.** Hosted an In-service training for 34 active CARE Instructors at DEEP Marine Headquarters. Guest speakers included Inland Fisheries Division (IFD) Supervising Biologists Mike Beauchene and Stephen Gephard.

Mike's presentation included a detailed look at the development and evolution of the CT Youth Fishing Passport (YFP) program. This program is designed to track recruitment and retention of youth joining the population of anglers in Connecticut. CARE Instructors now have the knowledge and background to encourage young anglers to sign up for the YFP and participate in some fun exploratory angling adventures.

Steve Gephard, who leads DEEP's Diadromous Fisheries Restoration and Habitat Conservation & Enhancement programs, offered historical testimony as well as updates in efforts to restore upstream spawning habitat to migratory fish through dam removal and the building of fishways. Steve's passion and enthusiasm sparked the interest of CARE Instructors to request the next in-service training be held at the recently completed fish bypass channel at the Tingue dam on the Naugatuck River, Seymour. CARE staff is constantly striving to increase our volunteer's knowledge of IFD's efforts in restoring and managing our state's fisheries. In-service trainings are critical in developing well-informed and professional CARE Instructors.



**INSERVICE TRAINING.** Volunteer Instructors for the CARE program, like those shown here at this fall's in-service training, volunteered over 4,200 hours of time teaching families about water, fish, and fishing in 2014.

**PROGRAM NUMBERS.** Completed the 2014 CARE student and Instructor reports, documenting over 8,000 students. A total of 130 Certified Instructors and 113 teaching team members contributed over 4,200 hours of volunteer time. The monetary equivalent of Instructor volunteer time used as State match for federal dollars is nearly \$4 million dollars over 29 years of work.

**PROFESSIONAL DEVELOPMENT.** Mike Beauchene and Justin Wiggins attended the bi-annual *Aquatic Resources Education Association* (AREA) national conference in Traverse City, Michigan. Aquatic educators from around the country were in attendance, with much of the focus on angler recruitment and retention. Justin presented efforts being implemented in CT to recruit and retain anglers.

**2014 ANGLER'S GUIDE PHOTO CONTEST.** The response for the Angler's Guide Photo contest was outstanding. We received 214 photos and will be unveiling the winner at the upcoming Annual Trophy Fish Awards Ceremony to be held at the Northeast Hunting and Fishing Show on Saturday night, February 14, 2014.

**EC-PERMITTING PROGRAM.** The new online permitting system for Inland Fishing Tournament/Derby, Marine Fishing Tournament/Derby Registration, Special Regulations on Association Controlled Waters, Importation of Live Fish, and Liberation of Live Fish is up and running. Construction has also been completed for Boating's Marine Event Permit. As of 12/5/2014, a total of 568 Inland fishing tournament permit applications for the 2015 season have been entered into the system, of which 226 were submitted by the applicant directly through the "EZfile" portal. From 8/6/2014 through 11/21/2014, 38 Importation/liberation permits were completed through the new system.



**CT FISHIN' TIPS.** The new monthly electronic newsletter, "CT Fishin' Tips", from the Inland Fisheries Division now has 3,185 subscribers. If you would like to join the distribution list, simply register your email at the link [www.ct.gov/deep/newslettersubscription](http://www.ct.gov/deep/newslettersubscription). Each edition has interesting and timely fish and fishing related content, and also includes links to key programs and information within the Inland and Marine Fisheries Division web pages.





## Habitat Conservation and Enhancement

### HOP BROOK, MANCHESTER, STREAM CHANNEL RESTORATION

As a result of erosion and channel migration problems initially observed by HCE staff in the late 1990s, two Connecticut Light and Power (CLP) transmission towers footings formerly alongside the river bank were now located within the stream channel. To address this issue, over 1,550 linear feet of stream channel was relocated and reconstructed. Stream banks were stabilized with a combination of rock, coir logs, wetland live stake and container plantings. The stream channel was lined with natural cobble/gravel substrates and small boulders. A diversity of instream habitats were enhanced and restored through the installation of five boulder cross vanes, habitat structures designed to concentrate high velocity waters into the stream centerline and create deeper pool habitats for fish. Ultimately, this newly-created channel geometry will protect infrastructure yet allow this section of stream to achieve a dynamic equilibrium. HCE staff assisted with project design, regulatory permit review and provided periodic construction oversight throughout the two month construction period.



(left) Newly restored Hop Brook stream channel. (right) One of five boulder cross vanes installed in Hop Brook.

### ALLYN BROOK, DURHAM, STREAM CHANNEL RESTORATION

Assisted Town of Durham Public Works staff with the installation of five rootwad/boulder habitat structures in Allyn Brook. These habitat structures serve to provide overhead cover/velocity refugia for the resident fish community as well as deflect erosive stream flows away from stream banks. This project was part of an overall channel restoration project in which sediments were removed and the channel restored to a typical cross-section of 21 foot wide by 2.6 feet deep over a distance of approximately 3,200 linear feet. The primary cause of excessive sedimentation was failure of the upstream Mill Pond Dam several years ago. Channel restoration work was completed by DEEP's Wildlife Division WHAMM unit.

*Rootwad with large boulders to ensure stability installed in Allyn Brook.*





## CTDOT CULVERT PROJECTS, FISH PASSAGE AND INSTREAM HABITAT ENHANCEMENTS

HCE staff review all Connecticut Department of Transportation bridge and culvert replacement projects as well as many locally regulated projects. Staff ensure that 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. Per permit conditions, staff are required to assist project contractors during construction to ensure the proper installation of fish passage and habitat structures. Onsite construction management services were provided for the following projects:



- **Long Hill Brook, Middletown (Route 17)**  
Installation of two separate groups of large boulders upstream and downstream of the bridge crossing to provide velocity refugia and increase diversity of instream habitats.



- **Crowley Brook, Preston (Route 2)** Installation of rock weir to create backwater and added water depth into newly sliplined culvert facilitating upstream fish passage for the resident fish community.



- **Tributary to Meadow Brook, Colchester (Route 2)**  
Installation of rock weir to create backwater and added water depth into newly sliplined culvert facilitating upstream fish passage.



- **Turkey Hill Brook, Haddam (Route 9)** Installation of ARMTEC baffle system within sliplined culvert to ensure upstream fish passage for native brook trout.

▪ **Beaver Meadow Brook, Haddam (Route 9)**

Installation of prefabricated concrete weir to create backwater and added water depth into newly sliplined culvert. Weir is designed to facilitate upstream fish passage for wild brown trout and brook trout. Subsequently, a small work crew of HCE and Diadromous staff created a downstream rock weir to expedite passage over the concrete weir during low flow periods.



- **Bloody Brook, Cornwall (Route 4)** Staff assisted the CTDOT with measures to enhance habitat within Bloody Brook in conjunction with the replacement of the Route 4 bridge, Cornwall. Specifically the enhancement measures included the installation of two vortex rock weirs to increase pool habitat, the placement of large diameter boulders along the brook to ensure bank stability and enhance near-shore habitat, and the placement of small diameter bank run cobble and gravel atop the brook bed and within the newly installed twin cell box culvert to provide habitat for the spawning of brook trout.

*Base layer of rounded stone to be overtopped with a finer diameter stone for brook trout spawning habitat.*



**TRIPLOID GRASS CARP (Permitting)**

Private individuals or entities wishing to stock sterile triploid grass carp to manage nuisance aquatic plant growth in their pond must first obtain a permit from DEEP. Applicants must also purchase their fish from commercial hatcheries that have been approved by DEEP to stock grass carp in Connecticut. During the last quarter, HCE Staff received 43 permit applications for the liberation of triploid grass carp. Of those 43 applications, 38 were new applications that required a site inspection by staff. The remaining applications were for the restocking of previously permitted ponds. All applications were checked through the DEEP Natural Diversity Database for locations of threatened or endangered species. To date this year, 118 of the 161 applications submitted to DEEP have been approved with the permits issued for ponds in 61 towns across the state.



### **BASHAN LAKE, DAM REPAIR, BRIDLE SHINER ASSESMENT**

HCE staff completed pre-dam repair monitoring of the bridle shiner population in Bashan Lake, East Haddam. Waters levels in the lake will be drawn down approximately 16 feet over the estimated two year dam repair and lake refill period. Of particular concern is the temporary loss of spawning and nursery habitats utilized by bridle shiner, a fish species of state special concern. Recent sampling has indicated that this short lived species is primarily found in one, small area of the lake.

*Using a seine net to sample for bridle shiner at Bashan Lake.*



### **MARINE WATERS (Permit Review)**

Reviewed nine applications for dredging in coastal waters, including the tidal reaches of streams and rivers. Measures were recommended, as needed, to avoid interference with river herring spawning migrations and winter flounder reproduction.

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