



## CT DEEP INLAND FISHERIES DIVISION

### QUARTERLY REPORT

September 2011

#### *Tropical Storm Irene update*

**State Fish Hatcheries were relatively unscathed by Tropical Storm Irene.** – Thanks to the hard work of our hatchery staff, there were only very minor losses in fish production at our three hatcheries as a result of Tropical Storm Irene. Here's a short overview:

- **Kensington Hatchery-** According to Hatchery Manager Al Sonski, power went out at about 5:00 am on Sunday August 28<sup>th</sup>, and was restored at about 9:00 pm on Monday night. As a result, this ground water supplied hatchery operated on their backup diesel generator for about 40 hours. **There were no losses of fish, flooding or structural damage due to the storm.**
- **Quinebaug Hatchery-** Hatchery Manager Dave Sumner reports that power went out at about 3:00 am on Sunday August 28<sup>th</sup>, and was not restored until 11:00 pm on Thursday night. As a result, the hatchery operated on their backup diesel generator for a continuous 114 hours, greatly surpassing the previous record of 36 hour reliance on the back-up generator that occurred during an ice storm several years ago. The fact that Quinebaug is our largest hatchery and operates solely with groundwater from several large wells (pumping ~4,000 gallons per minute of water through the hatchery) caused considerable anxiety as we were waiting to get back on the grid. Thankfully the generator operated continuously without incident and **there was no loss of fish, flooding, or structural damage due to the storm.**
- **Burlington Hatchery-** There was no loss of power at Burlington according to Hatchery Manager Jamie Hays, but this surface water supported hatchery was subjected to some flooding due to the heavy rains experienced in western Connecticut. If it weren't for the dedication and good efforts of our hatchery staff who tended the ponds and drainage ways during the storm (including overnight), structural damage to the hatchery and loss of fish could have been severe. **Damage to the hatchery was limited to a couple of ponds at the lower end of the main hatchery, and the escape of up to a few hundred brook trout that would have been stocked out next spring.** Total losses cannot be reliably estimated until next spring when the ponds are netted.

#### **Other facilities of the Inland Fisheries Division impacted by Irene:**

- Power was lost for several days at the Connecticut Aquatic Resource Education (CARE) Center in Killingworth, a part of the state that experienced some of the highest power outage rates in the state. According to CARE Program Senior Biologist Tom Bourret, the power came back on Friday evening (day 6) and phone and internet service was restored on Saturday. No structural damage was experienced.
- According to Diadromous Fisheries Biologist Tim Wildman, all state owned fishways were inspected and none were found to be damaged.
- The Inland Fisheries Division is waiting for high water levels to recede before making a final determination on the storm related impacts to our Northern Pike Spawning marshes, which we operate at locations in both eastern and western Connecticut. Of particular concern are the two managed marshes at Haddam Meadows State Park along the Connecticut River in Haddam, where the Connecticut River deposited an undetermined (as of this writing) amount of silt from areas up north (parts of VT were hit particularly hard by Tropical Storm Irene and experienced high rates of erosion). Fisheries Biologists Chris McDowell, Ed Machowski and others will be investigating further in the days ahead.

## ***Inland Fish Management & Fish Culture***

- Completed the annual **summer Fourth of July stocking of the West Branch Farmington River** (West Branch Reservoir to the West Branch TMA upper boundary). Prior to the holiday weekend 2,100 brown trout (12 inches and larger fish) were released. Typically, the West Branch is also stocked each summer just prior to the Labor Day weekend, but due to high flows associated with Tropical Storm Irene, this stocking of 2,000 brown trout was postponed and will be rescheduled later in the fall when flows subside.
- Completed fall **trout stocking plans**. Approximately 32,000 trout (15,000 adult-size rainbow trout, 14,000 trophy-size brown trout, and 3,000 yearling-size brown trout) have been scheduled for stocking this fall. Most Trout Park ponds will be stocked (Stratton Brook Park Pond and Southford Falls Park Pond will not be stocked due to their currently shallow, weedy condition and continuing plans for dredging). All Trout Management Areas and a number of trout ponds are also scheduled for stocking this fall, with the standard stocking regime for the Housatonic River Trout Management Area (TMA) to be completed in mid-September (3,000 Survivor yearlings, 5,000 small adult rainbows and 1,000 trophy browns). In addition, a total of 30,000 brown trout fingerlings will be stocked into several enhanced Wild Trout Management Areas. However, stocking schedules are being reassessed, and dates may have to be readjusted in light of the current high river flows.
- Completed most general **stream fish population sampling** (electrofishing). A total of 142 sample sites on 127 streams were surveyed as of 8/30. This year, population sampling was conducted on 45 new headwater streams. Additionally, 57 previously sampled sites were resampled this year, updating data that was often over 15 years old and allowing us to monitor changes in statewide fish distribution. Water temperature data loggers were placed in 33 eastern Connecticut streams this spring. Data will be used in regional water temperature models of fish habitat and for development of statewide water quality standards.
- Completed **Wild Trout Management Project** stream electrofishing surveys (**102** sites totaling approximately 11 miles). This sampling is to determine trends in wild brook trout and brown trout abundance, survival of stocked fry and fingerlings, and potential for wild trout management in other streams. Approximately 5,000 trout were sampled (95% wild or stocked as fry; 5% stocked as adults). Wild trout abundance varied from stream to stream but on average, abundance of wild brook trout and brown trout fingerlings (hatched spring 2011) was down, probably due to lingering effects of the severe drought conditions in summer 2010 (reduced spawners in poor condition) and extreme flooding in some areas in late winter 2011 which may have dislodged newly-hatched fry. In contrast, brown trout stocked as fry in early/mid spring 2011 contributed greatly to semi-wild trout populations in all streams where fry stocking was assessed.

In 2010, for the first time ever, **wild young-of-year rainbow trout** were found to be abundant in almost every perennial tributary to the upper Housatonic (nine streams). This widespread rainbow trout reproduction was attributed to private stockings of large spring-spawning rainbows and the cool wet summer of 2009 which enhanced survival, condition and spawning potential of these large stocked fish. As a follow-up, these streams were re-sampled in 2011. Wild rainbow yearlings (6-10 inches) were found in six of the tributaries, as well as in thermal refuges on the mainstem Housatonic, however no young-of-year were collected.

The **Housatonic River** was sampled at six mainstem locations and two thermal refuges, to assess trout and smallmouth bass populations and management initiatives, as well as effects of run-of-river flows on all game and non-game species. Trout fared well where thermal refuges were available, while smallmouths were somewhat reduced in number due in part to poor reproduction in 2008 and 2009, likely caused by high spring flows. However, smallmouth reproduction in 2010 and 2011 (years of moderate to low spring flows) was strong and the smallmouth population should rebound as these two year classes mature and recruit to the adult population. Non-game species, comprised mostly of several

minnow species, were found in unusually high abundance along the margins of the river, which may be a response to the more naturalized flows resulting from run-of-river operation.

The **Mill River in Easton/Fairfield** was sampled at six locations to assess the reintroduction of native brook trout, and populations of wild brown trout in the catch-and-release Wild Trout Management Area, the open harvest area and the seasonal adult-stocked TMA. Summer water temperatures in this tailwater stream (50-60°F) are some of the coldest in the State, offering significant potential for increasing year-round trout management. Sampling produced 704 wild trout (406 browns, 280 brookies, 3 tiger trout), and only 15 stocked trout. Reintroduced native brook trout have become well established and are expanding downstream into the Open Harvest Area and the Seasonal TMA. All areas showed good natural reproduction of wild brown trout. An angler survey is planned for spring 2012 to assess angler attitudes regarding expansion of Catch-and-Release regulations and Wild Trout Management.



*One of three naturally produced wild tiger trout (hybrid between brook trout and brown trout) captured in the Mill River (Easton/Fairfield)*

Five sites on the **Shepaug River** were surveyed to assess the effects of the new higher minimum flows and to evaluate the potential for wild trout management. Despite elevated flows during sampling, wild trout were sampled at all locations. The majority of the wild trout were brown trout, but wild brook trout were also present. Most wild trout were young-of-year, age 1, or age 2, however a few larger wild brown trout up to 19 inches were collected. This river continues to show promise with regard to wild trout management.

- Completed **collection of pike fingerlings** at spawning marshes (June – early July). Total statewide production of fingerling pike (6,045) was much lower than project goals (15,700 fingerlings per year). In the East, substantial flooding of the Connecticut River during the collection of broodstock resulted in an extremely low number being caught (70). Additional flooding during the juvenile development phase most likely allowed many juveniles to escape into the Connecticut River. Fingerling production at each marsh was as follows: 70 (averaging 4.0 inches) at the two Bantam Lake marshes; 2,560 (averaging 5.73 inches) at the two Haddam marshes, and 3,415 (averaging 5.23 inches) at the Mansfield Hollow Reservoir marsh. These fingerlings were stocked into Bantam Lake (70), Lower Connecticut River (1,290), Pachaug Pond (2,126) and Quaddick Reservoir (1,280). Due to the limited number of fingerlings available Winchester Lake was not stocked this year.

Work at two managed marshes located in Wyantenock SF (Kent) will be completed this month (September 2011). These two marshes had been offline since 2006 due to leaking dykes and failing water control structures. Additionally, the Wildlife Division's Wetland Habitat and Mosquito Management (WHAMM) personnel began work to control an invasive plant (*Phragmites*) at these two marshes. This will be the first of a three-year program to eliminate this highly invasive plant. Both marshes will be online and used to raise fingerling pike beginning in the spring of 2012.

- Completed the summer portion of roving **angler surveys** of nine lakes. These surveys will provide data relevant to the Bass Management program (Lake Saltonstall, Lake Maltby 2 and 3, Highland Lake and Lake Wonoscopomuc), the Walleye Management program (Beach Pond, Lake Saltonstall and Highland Lake), the Channel Catfish Management program (Mohegan Park Pond), the Northern Pike Management program (Pachaug Pond) and the Coldwater Lakes Management program (East Twin Lake, Lake Wonoscopomuc and Highland Lake). Surveys will assess angler catch, effort and attitudes related to these special management programs.

- Measured largemouth bass and smallmouth bass at **bass fishing tournament** weigh-ins at Pachaug Pond (4 tournaments). Data will be analyzed in conjunction with creel surveys and bass population sampling (electrofishing) that occurred in 2011
- Collected **dissolved oxygen and temperature measurements** at nine lakes (including several important trout lakes) in August. Thermoclines were detected at typical depths this summer. A layer of cold oxygenated water persisted in Beach Pond, Highland Lake, Quonnipaug Lake, Squantz Pond and Crystal Lake. Lakes where “trout water” was lacking included Mount Tom Pond, Mashapaug Lake and Amos Lake.
- Set **Vertical gill nets** in seven lakes to sample for the presence of landlocked alewives. Alewives were collected from Highland Lake, Amos Lake, Squantz Pond, and for the first time, Mount Tom Pond. Alewife abundance appeared to be highest in Highland Lake and Mount Tom Pond. However, no alewives were sampled at Crystal Lake, Mashapaug Lake and Beach Pond, all lakes where alewife had previously been present (they may still be present at low abundance). Nets will be set at Lake Wonoskopomuc and East Twin Lake in early September.
- Building upon last year’s activities, a cooperative effort between volunteer angler groups, the Housatonic Valley Association, the Pomperaug River Watershed Coalition, and the Inland Fisheries Division, two **Housatonic River thermal refuges** were enhanced to increase trout survival through the hot summer. Work completed over two days on both the upper and lower Furnace Brook refuge and Mill Brook refuge was particularly effective in providing shelter and relatively cool water for trout through the summer. Although river temperatures reached into the mid 80s on several afternoons, low mortalities were observed. If not for natural flows, many trout would have been lost because the previous pond-and-release flows would have overwhelmed the cooler water in refuges with warm mainstem water. Late summer sampling and observations made during warm spells confirmed that refuges were effective in protecting trout. Bird predation and poaching on exposed and vulnerable trout within refuges was observed. However, an increased level of law enforcement helped to alleviate the poaching problem.
- Completed 2011 **water chestnut survey/removal** activities. Beginning in 2005, Inland Fisheries (IFD) staff and DEEP (formerly DEP) Geological Survey staff have collaborated to survey the mainstem CT River and associated coves from Hartford to Essex for the highly invasive water chestnut. US Fish & Wildlife Service (USFWS) staff coordinate and lead water chestnut control activities from Hartford north into Massachusetts including major infestations on the Hockanum River and several other sites in the Hartford area. DEEP found and removed plants from more sites than in 2010 and USFWS found (and removed) less plants than in 2010. This year, the Tidewater Institute (with coordination from USFWS) surveyed portions of the lower river, locating and removing much of a new infestation found on Eustasia Island. DEEP IFD staff did not find any plants at the confluence of the Still River and Lake Lillinonah this year, where plants have been found and removed annually beginning in 2006.

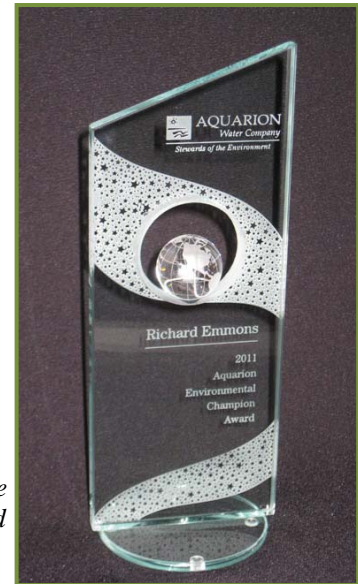
### **CARE & Constituent Services**

- **Summer Fishing** reached another milestone: 30,000 students since the inception in 1992. This year was singularly difficult as we did not have clearance to hire employees until the day before classes began! Also, based on *Best Practices in Aquatic Resources Education* principles, we began changing the target audience of these *Summer Fishing* classes from kids-only to entire families. Our student surveys have revealed that parent involvement is critical in turning students into anglers following completion of our classes. The 1,420 people participating this summer learned in Hartford, Bridgeport, Meriden, New Britain, Torrington, Bristol, Norwalk, Portland, Norwich, Hamden, West Haven, Killingworth, New Haven and Middletown. Each class concluded with a fishing trip.
- Volunteers taught 300 additional students (5,654 so far in 2011) at 15 events in Stamford, Bristol, Andover, Milford, Mansfield, Litchfield, Vernon, Simsbury, Branford, Killingworth, New Haven and

Monroe. Most of these courses involved a fishing trip, with several classes coming to our CARE Center to try their luck at Forster Pond. One of the classes was a partnership with the *Take A Vet Fishing* project that helps patients of the West Haven VA Hospital get outdoors for fishing and fraternity with volunteers from CARE and the Branford Congregational Church assisting.

- Celebrated the dual recognition awarded CARE **Chief Instructor Dick Emmons** of Stamford. Mr. Emmons earned the highest tribute bestowed by the Aquarion Water Company on a private citizen, their *Environmental Champion Award*. U.S. Senator Richard Blumenthal was among those attending the awards ceremony. In an incredible follow-up, Mr. Emmons was named a *Hero of Conservation* by the editors of the national publication *Field and Stream*. Mr. Emmons has had a hand in teaching over 7,600 people about water, fish, and fishing since becoming a Certified Instructor in 2003. Not missing a beat, he quietly responded to these accolades by organizing another Family Fishing Course for Stamford-area families set to begin later this month!

*The award presented to Chief Instructor Dick Emmons by Aquarion Water Company. Dick (from Stamford) has had a hand in teaching over 7,600 people about water, fish and fishing since 2003. His Environmental Champion Award from the Aquarion Water Company earned both Mr. Emmons and the CARE program distinction among peers.*



- Hosted an encore training event for Certified Instructors at Winding Trails Environmental Center in Farmington. This was a follow-up to last summer's training following an invitation by Winding Trails administrators and field staff. Last year 50 CARE volunteers helped with the Walton Pond restoration project. This year 40 of them attended to help construct visual demonstrations of constructed fish habitat structures. Placed along the trail adjacent to the newly-dredged Walton Pond, the boulder and timber fish habitat displays offer visitors insights into what has been created for the bass and sunfish below the waterline.
- Trained 6 new Instructors (632 have been certified so far) at the CARE Center at Forster Pond. Several of them have already taught courses. The extremely-small class size was the result of last-minute cancellations. To avoid this, we are making plans to recruit new volunteers utilizing an email list provide to us by the *Recreational Boating and Fishing Foundation*. CARE staff are also creating a display for the annual meetings of the *Connecticut Recreation and Parks Association* to increase CARE courses in cities and towns across the State.
- Received \$700 worth of bobbers donated by **ctfisherman.com**. The bobbers will be awarded to Family Fishing Course students in the spring of 2012. Students will benefit by having the proper sized tool, eliminating the baseball-sized bobbers often seen. Also, with the new IFD fishing page web address printed on the bobber, students can access the *Connecticut Angler's Guide*, weekly fishing reports, tackle shop lists, trout stocking maps, CARE class schedules and other useful information.

*Bobbers donated to the CARE program by ctfisherman.com will be distributed to students in the springtime of 2012. This will enable access to great information on IFD's fishing webpage.*



- Enhanced education programs at the CARE Center at Forster Pond. In a partnership with Pat Frisketti, Science Coordinator for Hamden Public Schools, selected teachers will teach the CARE curriculum in their 6<sup>th</sup> grade classrooms. Following completion of the lessons, students and chaperones will travel to Killingworth for more training and a fishing trip. This project developed from earlier successes with Hamden teachers and students doing televised trout stocking events promoting Opening Day of the 2010 and 2011 trout seasons.
- Began a second collaboration with Middlesex Community College (MXCC) on a new *Let's Go Fishing* DVD. This production will complement our 10-year old *Water, Fish, and Fishing* curriculum which is also on DVD. The new product will better support our new (shortened-format) Family Fishing Courses. Its design will emulate the popular and successful *Let's Go Ice Fishing* DVD that a CARE/MXCC partnership produced in 2010.
- Received rave reviews by national surveyors, **Responsive Management Inc**, who evaluated CARE Family Fishing Course students. CARE was rated *number one* in 5 categories and was in the top three in 4 others, when compared among 14 programs across the USA that taught fishing. Our students considered themselves anglers following training, gained the confidence to go fishing again on their own, and understood fisheries management. They also reported that they increased fishing participation following their training and actually obtained fishing equipment following graduation from Family Fishing Courses.
- Delivered presentations at professional meetings of the **American Fisheries Society** (AFS) in Seattle (AFS annual meeting) and Old Lyme (Northeast Chapter). CARE staff presented current information on Family Fishing Course success for members of AFS Southern New England Chapter and at a symposium hosted by the AFS Parent Society and the Aquatic Resources Education Association.

### ***Habitat Conservation and Enhancement***

- The Town of Ashford, in partnership with the Inland Fisheries Division and Yale University, initiated work on the **Lead Mine Brook Fish Passage and Restoration Project** (funded by the Eastern Brook Trout Joint Venture Program). A major project objective is to remove and replace existing twin culverts that blocked upstream fish passage at the Axe Factory Road crossing with a clear span timber bridge. The project will restore upstream passage to over 2.9 miles of stream habitat for the native brook trout population



*Perched culverts (2006) that blocked upstream fish passage.*



*Culverts were removed in 2011, providing upstream fish passage. This site is being readied for bridge installation.*

- Completed a Memorandum of Understanding (MOU) between the Connecticut Department of Energy and Environmental Protection (DEEP), American Rivers, Inc. (AR) and the United States Department of Agriculture's Natural Resources Conservation Service (NRCS) to initiate the "**Moosup River Fish Passage and Restoration Project**". The project involves removal of 5 barriers to fish passage along

with the installation of a fishway at the most upstream dam. When achieved, this restoration project will reconnect fish habitats and fish passage within 6.91 miles of the Moosup River. The project will be managed by the IFD Habitat Conservation and Enhancement Program. Funding for the project will come from Millennium Power Partners, LLP power plant project in Charlton, MA per mitigation requirements of a DEEP 401 water quality certificate.

- The triploid grass carp management program is responsible for managing the distribution of triploid (sterile) grass carp throughout the state through a regulated permit system. These fish are used as a nuisance aquatic vegetation control option. From June through August, 2011, a total of 34 Triploid Grass Carp Liberation Permits were issued, resulting in the stocking of 532 triploid grass carp, and twenty-six pond inspections were performed for new and repeat applications.
- Assisted the Town of New Fairfield in monitoring aquatic vegetation in Ball Pond. In 1997 triploid grass carp were authorized for experimental use in Ball Pond (a public lake in New Fairfield) for the express purpose of controlling an expanding and dense colony of Eurasian watermilfoil (a non-native invasive aquatic plant). Four supplemental stockings have been authorized since the initial stocking to maintain sufficient control of invasive plants in the lake. Since 1997 HCE staff have assisted the Town of New Fairfield with annual vegetation monitoring and will continue to evaluate the effects of triploid grass carp introduction on fish habitat and the fish community in Ball Pond.



*Upstream view of Moosup River Dam No. 1, one of the barriers targeted for removal on the Moosup River.*

### ***Diadromous Fisheries Restoration***

- Captured a total of 15 **Atlantic salmon** at the Rainbow Fishway and 9 at the Leesville Fishway during the 2011 spring migration. A total of 111 Atlantic salmon have returned to the Connecticut River to date, compared to 51 in 2010.
- Fishways were closed between the end of June and mid-July. During the summer shut-down period, staff assisted The Nature Conservancy (TNC) with the removal of two low-head dams on the Aspetuck River in Weston.



*TNC and DEEP staff at work removing one of the two concrete dams on the Aspetuck River in Weston.*



*Dam site on the Aspetuck River in Weston after removal.*

- Removed the Kinneytown Eel Pass (Naugatuck River, Seymour) and repaired the climbing substrate. It is scheduled to be re-installed this September. Climbing substrate, secured to the bottom of the eel pass ramp, provides the migrating eels a roughened surface making it easier for the eels to climb. Eel passes in Connecticut typically utilize a geo-textile product as the climbing substrate, which degrades over time requiring replacement every 7-10 years.
- Installed the interim eel pass inside the Rainbow Dam Fishway on the Farmington River. This eel pass is designed to pass eels during the summer when the fishway is closed (July – September). So far this year it has passed nearly 2,000 eels upstream of the 60 foot dam; surpassing the season record of 1,200 eel passed back in 2009. It will be removed the end of September in preparation for the fall opening of the fishway.
- Designed and fabricated a replacement eel pass that will be installed alongside the Greeneville Fishlift (Shetucket River, Norwich). The original eel pass, completely destroyed by the flooding event that occurred on March 30, 2010, featured a single 80 ft. ramp with climbing substrate bolted to the concrete outer-wall of the fishlift and had been operating successfully since 1999. Juvenile American eel climbed the 80 ft. ramp and eventually fell into a trap located on land. Staff would regularly check the ‘catch’ by removing and counting all eels in the trap, after which they were released upstream of the dam. The new ramp is an ‘eel lift’ with two separate 5 ft. eel passes.

The unique feature of the new eel pass is that all of the components (ramps, trap, and water supply) are assembled as one unit allowing staff to raise the whole assembly 18 ft. straight-up out of the water with a winch and pulley system to remove the eels collected in the trap. Once the trap is empty of eels the whole assembly will be lowered back into place to collect more eels. It is anticipated that by having two short ramps, rather than a single long ramp, numbers of eels collected and passed will increase (some eels may not have had the desire to climb the full 80 ft. original ramp). This design will also allow staff to raise it out of harms-way during the winter shut-down and in the event of future floods. It is scheduled to be installed this September.

- Electrofished yellow eel index sites in the Housatonic, Natchaug, and Scantic river drainages. These sites, located in tributary streams, allow staff to compare local American eel densities with the number of dams above Long Island Sound where each site is located. It will also allow staff to monitor the progress on re-colonization as efforts to improve passage for American eel at these dams continues.
- Replaced sections of rotted T-111 siding at the Whittemore Salmon Station (Barkhamsted). While this facility no longer operates continuously, it has been used as a short-term quarantine for trout on occasion.
- Conducted a public “Open House” at the Rainbow Dam Fishway on June 4<sup>th</sup>. The event was held in cooperation with the dam owner (Farmington River Power Company) and was attended by 260 people.
- Visited all of the State-owned fishways and most of the privately-owned fishways to detail damages caused by hurricane Irene. No damage to any fishway was detected.



*The 2011 Rainbow Dam fishway “Open House” attracted 260 visitors.*

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