

## **APPENDIX 7: CONNECTICUT'S WILDLIFE CONSERVATION PARTNERS AND PROGRAMS**

This appendix describes the key federal, state, local, and tribal partners and their programs as part of Connecticut's overall wildlife conservation delivery system. Many of these conservation programs are collaborative efforts. This list is not comprehensive, but presents the key partners and programs, as required in Element 7, that administer or manage significant land and water resources in the state. These groups are considered important stakeholders and their input was solicited throughout the development of this Plan. In some cases, coordination meetings were used for outreach; for others contact was made by letters, phone calls, and/ or email.

### *Department of Energy and Environmental Protection Programs*

The Connecticut Department of Energy and Environmental Protection (DEEP) is charged with conserving, improving and protecting the natural resources and the environment of the state of Connecticut as well as making cheaper, cleaner, and more reliable energy available for the people and businesses of the state. DEEP contains several bureaus and several programs that manage the natural resources of the state and public access to outdoor recreational activities on state lands. Environmental education is coordinated by several divisions. The State Parks Division manages the Core Curricula (Projects Wild, Learning Tree, Wet) and SEARCH Programs (student-science projects), No Child Left Inside, and the Great Park Pursuit; and provides environmental education services for students and the general public. The Inland Fisheries Division manages the CARE program (Connecticut Aquatic Resources Education). The Wildlife Division manages the Conservation Education/Firearms Safety Program (CE/FS) and the Master Wildlife Conservationist program.

### **Office of the Commissioner**

The Office of the Commissioner includes several centralized programs and offices that organize, coordinate, and provide technical assistance to the DEEP bureaus, the public, tribal entities, and the business community.

Connecticut's Environmental Equity Policy incorporates the principles of environmental equity into the agency's program development, policy-making, and regulatory activities. It also develops, oversees, and implements strategic plan environmental equity components; formulates program goals and objectives; and develops related policy and legislative proposals.

The Connecticut Greenways Program maintains a registry of successful greenway projects and a library of greenway literature, maps, videos, and organizations. The program also provides information on grants for project planning and development and planning assistance to municipal boards and commissions. Greenways program staff assist in the technical aspects of project design, coordination, and planning and in the coordination of public-private greenway partnerships.

The Natural Areas Preserve Program was established with the intent of preserving Connecticut's best examples of unique natural communities. The program acts as the Commissioner's agent for the selection, care, control, supervision, and management of the unique ecological communities within all natural area preserves. The program has been inactive since 2005.

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The Office of Legal Counsel responds to National Environmental Policy Act (NEPA) and Connecticut Environmental Policy Act (CEPA) issues. The office advocates environmental issues and mitigation measures, acts as the single point of contact for DEEP, and coordinates and formulates a comprehensive Departmental response on NEPA issues.

The Office of the Chief of Staff includes the Office of Communications and Publications and the Office of Government Affairs. This office provides administrative support for media relations and public information for DEEP, assists the Commissioner and senior staff in the development of policy and public statements, and provides technical assistance to the Commissioner and senior staff on key public policy positions and statements on environmental issues.

### **Bureau of Natural Resources**

The mission of the DEEP Bureau of Natural Resources is to manage the state's natural resources and to provide the public with continued recreational and commercial opportunities for enjoyment and use of Connecticut's natural resources. This is accomplished through a program of regulation, management, research, public education, and conservation law enforcement. The Bureau applies fish, wildlife, and forest management principles and conducts scientific investigations and assessments to protect Connecticut's natural resources and their habitats and to ensure continued natural resource-based recreational and commercial opportunities.

The Bureau consists of four divisions (Wildlife, Inland Fisheries, Marine Fisheries, and Forestry) and a planning, coordination, and fiscal management office. Each of these divisions is briefly described here, along with detailed information about representative conservation programs and projects.

The Wildlife Division manages the wildlife resources of the state, including endangered and threatened species, to provide stable, healthy populations of diverse wildlife species in numbers compatible with both habitat carrying capacity and existing land use practices. It conducts public awareness and technical assistance programs to enhance privately-owned habitat and promote an appreciation for and understanding of the value and use of Connecticut's wildlife; manages wildlife habitat on state forests and wildlife management areas; regulates hunting seasons and bag limits for all harvestable wildlife species within Connecticut; manages public hunting opportunities on state-owned, state-leased and permit-required areas; and conducts, with volunteer assistance, conservation education and safety programs to promote safe and ethical hunting practices.

The Inland and Marine Fisheries Divisions manage Connecticut's fish to provide sustainable populations, commensurate with habitat capability and relevant ecological, social, and economic considerations. It regulates and manages anadromous, marine commercial, and recreational fisheries consistent with interjurisdictional management plans and target harvest objectives; regulates and manages inland fish populations and habitat through various stocking, population manipulation, and habitat preservation and improvement programs; protects and conserves aquatic habitat and associated riparian zones by reviewing and commenting on permit applications for development, water diversion, and habitat alteration; protects endangered species; and conducts public awareness and educational programs to promote an understanding and appreciation for aquatic resources and habitats.

The Forestry Division manages state-owned forest lands for long-term health and vigor, as well as multiple uses for a variety of interests through forest monitoring, tree harvest, forest fire

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protection, and forest conservation education. It provides technical assistance to forest land owners for wood production, recreation, watershed management, wildlife habitat, and aesthetics; provides marketing support to Connecticut's primary and secondary processors of wood products and conducts an urban tree planting and management program; operates a tree nursery for state forestry programs and to supply forest planting stock at cost to Connecticut residents; conducts an aggressive forest fire prevention control program, including training for municipal fire departments, provision of specialized fire equipment, administration of federal funds to rural fire departments, and public education and participation in the Northwestern Forest Fire Protection Commission; and certifies forest practitioners as per CGS Section 23-65h and designates land as "forest land" as per CGS Sections 12-96 and 12-107d.

The Planning, Coordination and Fiscal Management Office of the Bureau coordinates long-range planning for the management of Connecticut's fish, wildlife, forest, and related land and water resources. It coordinates the efficient and effective use of available Bureau fiscal and human resources to maximize benefits to both the public and the resources, and oversees fiscal management of the Bureau budget.

### **Bureau of Natural Resources, Wildlife Division Programs**

The Wildlife Division manages programs for nonharvested and harvested wildlife. A Technical Assistance Program and an Outreach Program allow the Division to share its expertise with the public, and publications produced by the Division are provided on the World Wide Web for widespread public distribution.

#### ***Wildlife Diversity Program***

The Wildlife Diversity Program coordinates research and manages activities for nonharvested birds, reptiles, amphibians, invertebrates, and bats in Connecticut. Avian research and management activities are conducted on raptors, including eagles, ospreys, and barn owls; shorebirds, including state and federally threatened piping plovers, state threatened least terns, and federally endangered roseate terns; songbirds, including bluebirds, and neo-tropical migrants such as cerulean warblers and upland sandpipers; and wetland birds, including pied-billed grebes, bitterns, herons, and egrets. Reptile and amphibian research and management includes state endangered bog turtles and diamondback terrapins. Research and management of invertebrate species includes state endangered and federally threatened Puritan tiger beetles, state endangered ringed boghaunter dragonflies, state and federally endangered dwarf wedge mussels, and state endangered brook floater mussels. Bats also receive research and management attention from the Wildlife Division.

The Program also is responsible for managing Connecticut's threatened and endangered species and has produced a series of fact sheets on threatened and endangered species that are found in the state; these fact sheets are provided free to the public via the DEEP website.

#### ***Habitat Management Program***

The Habitat Management Program strives to maintain, enhance, restore, and manage quality habitat on both state and private lands in order to promote healthy and diverse populations of wildlife, especially state-listed threatened, endangered, species of special concern, and those considered at risk. It maintains and improves opportunities for wildlife-based pursuits by providing outreach, technical assistance, and implementation of a full range of on-the-ground wildlife habitat techniques.

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The Wildlife Division directly administers 90 wildlife management areas (WMAs), totaling 26,393 acres, and provides technical assistance and habitat management on thousands of acres of other state DEEP lands such as state forests, flood control areas, and natural area preserves. WMAs range in size from one to 2,200 acres and contain some of the best wildlife habitat in the state, including coastal salt marshes, the state's largest inland marsh, high quality riparian zones along some of the state's major rivers, large expanses of cool and warm season grasslands, diverse forests, and extensive old fields and agricultural land. On-the ground habitat management and development practices include old field restoration and shrubland management, riparian zone restoration, warm and cool season grass planting, prescribed burning, open marsh water management, excavation of shallow potholes, and control of invasive vegetation.

### ***Harvested Species Management***

The Wildlife Division has several programs for the management of harvested species, including deer, wild turkey, waterfowl, small game, and furbearers. A series of hunting and trapping guides for Connecticut are publicly available and maintain up-to-date information on hunting and trapping regulations, seasons, and locations. The Wildlife Division also provides hunter safety courses to the public, successful completion of which is required prior to purchasing a hunting license. Course information is available for the public at the DEEP website. Pheasants are stocked annually to supplement native upland bird populations, increase hunting opportunity, and meet demand from the fees-paying sportsmen. Public hunting access is managed through controlled access programs on state owned properties in addition to cooperative agreements or leases with sportsmen's organizations, private landholders, or public utilities. A Permit-Required Hunting Program is administered to control public access for small game hunting and offer a quality hunting experience in the field. Opportunities for specialized hunting-related activities, including field dog trials and dog training for licensed hunters, are provided on selected state areas that are managed for that purpose.

### ***Deer Management Program***

The Deer Management Act of 1974 designated deer as a game species and established the authority of the Wildlife Division to manage the deer resource. The Wildlife Division's Deer Management Program is responsible for maintaining healthy deer populations that are within biological and cultural carrying capacity through research, management and educational efforts. Research projects have been initiated to collect and evaluate data to monitor the health and distribution of deer. To develop effective management strategies for deer in urban areas, studies have been initiated to understand public perception about deer and deer management issues and to understand the population dynamics of deer in urban-suburban areas. Deer management activities have focused on modifying the regulated deer-hunting season framework to maximize hunter opportunities and prevent deer overpopulation from occurring. Since 1975, the bag limit has increased from one deer (either sex) per person per year up to 12 deer (5 antlerless and 7 either-sex) per person per year. In two of twelve deer management zones, hunters can harvest unlimited antlerless deer, and the archery season is open for 121 hunting days. In special areas with overabundant deer populations, innovative deer management programs have been developed to significantly reduce deer population size. Deer Program staff has developed informational booklets, prepared educational slide presentations, and often meet with town officials, homeowner associations, sportsmen groups, or other

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special interest groups to discuss deer management issues. Publications about the Wildlife Division's deer management program are provided to the public via the DEEP website.

### **Wild Turkey Program**

Connecticut's wild turkey program began during the early 1970's. Prior to this time, wild turkeys were extirpated from Connecticut. In the winter of 1975, the Wildlife Division obtained 22 wild turkeys from New York and released them in northwest Connecticut. During the next three years this population grew and expanded, allowing the program biologists to begin in-state trap and transport efforts. Between 1977 and 1992, 334 wild turkeys were released in suitable habitat throughout the entire state. By 2000, wild turkeys had been documented in all 169 Connecticut towns and the population grew to over 35,000 birds.

The goal of Connecticut's wild turkey program is to manage wild turkey populations at levels compatible with available habitat and various land uses and to allow for a sustained yield of turkeys for use by the people of Connecticut. To reach this goal, program biologists have developed hunting programs and research projects. In May 1981, wild turkey hunting was permitted in Connecticut for the first time in 170 years. As the wild turkey population grew and expanded so did the hunting programs, which now include spring and fall firearms and fall archery seasons. Research projects have included biological data collection on hunter-harvested birds, gobble count surveys, brood surveys and telemetry studies.

Publications about the Wildlife Division's wild turkey program are provided to the public via the DEEP website.

### **Waterfowl Program**

- In coordination with the U.S. Fish and Wildlife Service: inventories species populations; establishes season lengths and bag limits; and determines harvest totals and the impact of harvest on waterfowl populations
- Conducts population surveys and banding studies
- Provides technical assistance to improve wetland habitats
- Provides technical assistance to resolve nuisance situations caused by geese and swans

### **Small Game Program**

- Monitors species populations; establishes season lengths and bag limits; and determines harvest totals and the impact of harvest on species populations
- Evaluates hunter use of permit-regulated hunting areas

### **Furbearer Management Program**

The Furbearer Management Program includes management, research, and outreach activities for a diverse group of mammals. The mammal species include those currently or historically harvested primarily for their fur value. Many furbearers present management challenges as a result of their frequent conflicts with humans. Examples include bears, coyotes, beavers, and raccoons. Response to these conflicts include educational and outreach efforts; regulatory and policy changes that affect harvest levels and removal options for citizens and nuisance wildlife control operators; and on-site evaluation and response by Department personnel. Education and outreach methods include responses to phone, mail or e-mail inquiries from the public, technical assistance publications, media interviews, presentations to groups, and meeting municipal officials. Annual harvest totals are either determined through pelt tagging or estimated by surveying trappers. A program that allows trapping on state properties is annually

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administered. Research is conducted to monitor population levels and to obtain biological information for selected species.

### **Conservation Education/Firearms Safety Program**

The Wildlife Division's hunter safety program, known as the Conservation Education/Firearms Safety Program promotes an understanding of wildlife management and the development of safe and ethical hunters. Additionally, it fosters an increased awareness of the role that hunters and trappers have in managing the state's renewable natural resources. Connecticut legislation mandates that anyone applying for a firearm hunting, bowhunting, or trapping license for the first time must complete the Conservation Education/Firearms Safety course in the respective sport. In addition to offering courses in the previously mentioned disciplines, the CE/FS program offers public outreach workshops in muzzleloading firearms, hunting wild turkey, and hunting white-tailed deer. The highly motivated trained volunteer instructors, eager to convey their passion of hunting and trapping to another generation of sportsmen, present the hunting courses in nearly every town in the state throughout the year.

### **Technical Assistance Program**

The Wildlife Division's Technical Assistance Program provides assistance to the public on nuisance wildlife complaints and wildlife rehabilitation, which permits individuals to care for sick and injured wildlife. Staff provides habitat improvement recommendations to private organizations and landowners, and other state agencies as well as conducting habitat improvements and administering agricultural agreements on state wildlife management areas.

### **Outreach Program**

The Wildlife Division's ability to effectively manage Connecticut's wildlife depends upon broad public support. Therefore, the Division's Outreach Program promotes wildlife stewardship and awareness through a variety of information, education, and volunteer programs. The Outreach Program develops, produces, and distributes such informational materials as the bimonthly magazine, *Connecticut Wildlife*, fact sheets on wildlife and habitat, Division program summaries, *Just for Kids* pages, brochures, sighting cards, and press releases. Education initiatives include workshops and classroom materials for teachers. The Outreach Unit is actively involved with developing interpretive exhibits and educational programs for the Wildlife Division's Conservation Education Center at the Sessions Woods Wildlife Management Area in Burlington. The unit is also responsible for the coordination of the Master Wildlife Conservationist Program, where adults receive concentrated training on various aspects of wildlife management. Trained individuals are then required to volunteer their services to wildlife research and outreach projects approved by the Wildlife Division.

### **Wetland Restoration Program**

The Division's Wetland Restoration Program promotes environmental stewardship and awareness and responsible mosquito management through a variety of wetland restoration and enhancement techniques, environmentally compatible mosquito management, including the use of Open Marsh Water Management (OMWM), and information and education programs. In cooperation with other DEEP staff, the Wetland Restoration Program designs projects, applies for and receives permits and grants, and implements wetlands restoration and enhancement work and OMWM projects throughout Connecticut. The Wetland Restoration Program has specialized low-ground-pressure equipment (excavators and dozers) and a full time dedicated staff that implements the work. Program staff also has informational materials about the program that are available both in print form and on the Department's website. The

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Wetland Restoration Program restores or enhances approximately 300 acres of wetlands each year, paid for by a variety of funding sources other than general funds of the state.

### ***Natural Diversity Data Base***

The Connecticut Natural Diversity Data Base (NDDDB) is responsible for some coordination and implementation of statewide natural resource data collection, including systematic inventories of fauna and flora, including endangered species, and the development and operation of resource oriented database management systems.

The NDDDB may develop and implement basic data collection, analysis, and interpretation of biologic resources in order to provide information about the character and distribution of all plants and animals of the state. Special emphasis is placed on biological surveys, endangered and threatened species, biophysical relationships, biological data management and impact analysis of proposed land use activities. The Natural Diversity Database is the clearinghouse for such information on rare animals and plants in the state.

### **Bureau of Natural Resources, Inland Fisheries Division Programs**

The Inland Fisheries Division is responsible for management and research on all species of freshwater fish, including diadromous and anadromous species statewide.

#### ***Fisheries Management***

The Inland Fisheries Division has completed fisheries management plans for bass and trout in inland Connecticut waters and actively manages selected waters for northern pike, walleye and kokanee salmon.

Inland Fisheries staff has collected data on fish populations in 180 lakes and 15 Connecticut non-wadeable river sites in the first general fisheries survey of Connecticut lakes and ponds since the 1950s. This survey provides up-to-date information on the fish populations inhabiting these waters, enabling the Inland Fisheries Division to make informed management decisions. Largemouth and smallmouth bass are Connecticut's most popular warm water game fish (> 2.1 million fishing trips per year, DOI 2011). They are also the principal predators in most of the state's lakes and ponds and thus play an important role in determining community structure. Information on both predator and prey populations are needed to effectively manage these fisheries.

A comprehensive survey of the streams and rivers of the State of Connecticut began in 1988. Such a survey had not been done since the 1930's. Data on stream habitat, invertebrate populations, fish populations, and angler use were collected. The Inland Fisheries Division used these data to develop a trout stocking formula that optimizes the allocation of hatchery fish and to develop a statewide trout management plan. In addition, this database provides the information necessary for timely and accurate completion of environmental reviews and allowed the Division to quantify the state's cold water and warm water stream resources.

Management of Northern pike in Connecticut waters is accomplished through enhancement of the pike's natural reproduction in managed spawning marshes, and by stocking the fingerlings that are produced. A series of reports detail the management protocols for Northern pike, which ensures that the most cost efficient method of producing fingerlings is being used. An evaluation of the opportunities and needs for additional pike fisheries will be addressed.

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The Division has created walleye fisheries in twelve lakes. These popular fisheries are maintained by stocking of walleye fingerlings each fall.

Kokanee salmon have supported fisheries for more than fifty years in Connecticut. Each autumn, adult kokanee are trap-netted from East Twin Lake and West Hill Pond, and transported to the Burlington State Trout Hatchery for spawning. There, the eggs are incubated and resulting fry reared until late May. They are then stocked in East Twin Lake, Lake Wononscopomuc, and West Hill Pond. Within three summers, the fry grow into adult salmon 12 - 16 inches long. Burlington Trout Hatchery produces all of the 150,000 kokanee salmon fry distributed in the state. This cost-effective management effort has created unique fisheries at East Twin Lake, Lake Wononscopomuc and West Hill Pond. It is estimated that our present kokanee management program can provide approximately 10,000-15,000 hours of recreational fishing each year.

### ***Connecticut Aquatic Resources Education (CARE) Program***

Division staff members in the Connecticut Aquatic Resources Education (CARE) program have taught over 185,000 citizens about water, fish and fishing since 1986. The program comprises free Family Fishing Classes and angling workshops that foster resource stewardship, promote an understanding of aquatic systems and fishery management decisions, and encourage both an understanding and utilization of aquatic resources ([WWW.ct.gov/DEEP/CARE](http://WWW.ct.gov/DEEP/CARE)). Over 700 certified Instructors have volunteered time to the CARE program. Volunteers have contributed a monetary equivalent over \$3.75 million dollars of in-kind match for federal funding to the Inland Fisheries Division. Summer Fishing classes have reached over 35,000 summer campers, the majority of which were minority youth with classes conducted on urban waters. The CARE curriculum is included in the classrooms of over a dozen schools annually, all of which include a field trip to the CARE Center.

### ***Hatcheries and Fish Culture Programs***

The goal of this Inland Fisheries Division program is to improve the efficiency and effectiveness of fish culture and fish management operations in Connecticut. Staff is involved in the diagnosis and cure of fish health/environmental problems in public fish cultural facilities, as well as fish health problems in wild populations within the state. The State Fish Pathologist undertakes annual inspections and/or monitoring of state hatchery and natural fish populations for bacterial and viral pathogens and fish parasites and assists in alleviating problems by recommending treatments. Outreach efforts are underway, or being developed, to fully extend the services of this program to private fish culture facilities.

The Kensington Atlantic Salmon Hatchery's planned annual production is 850,000 Atlantic salmon eggs and 250,000-350,000 Atlantic salmon fry. Kensington Hatchery releases 1,600 surplus broodstock Atlantic salmon into the Naugatuck River and Shetucket River, providing an estimated 10,000 hours of recreational fishing each year.

Through the Catchable Trout Program, the Inland Fisheries Division produces approximately 700,000 catchable sized (6"-16") brook, brown and rainbow trout and 1,300-4,500 surplus brood stock (2-10 lbs) each year for distribution into the waters of the state. All waters open to public fishing and suitable for trout are stocked; without stocked trout there would be little trout fishing in Connecticut. The numbers of fish stocked in each location depends on total trout production, area open to the public, habitat quality, and fishing pressure. It is estimated



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that the present trout program provides approximately 1.2 million days of recreational fishing each year or approximately thirty-six percent of all the freshwater fishing in Connecticut.

The Inland Fisheries Division also has produced between 300,000 and 400,000 juvenile, "management sized" (1"-6"), trout each year to support federal or state funded research projects, special management programs (such as the eight Trout Management Areas, located on rivers around the state, and trophy trout lakes), and for distribution into the public waters of the state.

Lastly, the Bureau of Natural Resources, Inland Fisheries Division has produced between 250,000 and 650,000 eyed trout eggs annually that are surplus to the needs of our trout culture programs and can be made available to other fish culture operations. These eggs are sold to private commercial fish hatcheries and provide a disease free egg source for them and a small revenue back to the General Fund Conservation Fund. Surplus eggs are often also made available to other Northeastern State Fish and Wildlife Agencies.

### ***Trout Management Areas***

Connecticut has 17 Trout Management Areas (TMAs), nine Trout Management Lakes and 24 Wild Trout Management Areas (WTMA). These areas are all managed with variations of catch-and-release regulations and typically attract more angler days, sustain higher catch rates throughout the year, and are more cost effective (more angler hours per trout stocked) than areas managed under statewide trout regulations. Collectively they provide more than 100,000 angler hours per year. Monitoring provides the information necessary to evaluate the success of TMAs, TMLs and WTMA. Periodic monitoring of all TMAs enables the Division to determine if objectives are being met and to respond to angler inquiries and requests.

### ***Habitat Conservation and Enhancement (HCE) Program***

The Habitat Conservation and Enhancement Program serves as a vital liaison between the Inland Fisheries Division and DEEP regulatory and policy development units (e.g., Inland Water Resources Division and Office of Long Island Sound Programs) that take primary responsibility in regulating permitted activities that potentially impact fish populations. HCE staff interacts directly with federal, state, and local regulatory and planning agencies, as well as private conservation organizations, to provide timely information to conserve, restore, and enhance the state's aquatic environments. Staff also provides site-specific guidance to private landowners managing freshwater and estuarine systems throughout the state. On average, each year the four HCE staff review over 300 regulatory permits, design or facilitate the restoration of 10-15 degraded stream reaches and tidal areas, and initiate or facilitate 10-20 stream or pond enhancement projects. Staff annually provides technical guidance on fisheries management to more than 250 private citizens, managing over 200 ponds and 50 miles of stream resources, and reviews over 25 applications for the use of aquatic herbicides. Project staff responsibilities also include implementation of the legislatively mandated triploid grass carp importation and liberation program in Connecticut. This program requires the review and site inspection of more than 125 permit applications annually in order to ensure that this non-native fish species, stocked for the purposes of managing nuisance aquatic vegetation, does not cause irreparable habitat damage in the waters of the state.

### ***Diadromous Fisheries Assessment and Restoration Program***

The Inland Fisheries Division is actively involved in the protection and enhancement of Diadromous fish runs and collaborates with the U.S. Fish and Wildlife Service (Section 4.6), the

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Connecticut River Watershed Council (Section 4.8) and others to restore diadromous fish runs in the state's watersheds. Diadromous fish play an important ecological role as they transfer energy between freshwater, estuarine and marine ecosystems. In Connecticut, as elsewhere in New England, the numeric size of diadromous fish runs have all been diminished due to human impact on watercourses over the past 300 years.

In order to protect the remaining runs or restore lost runs, Division staff is actively involved in removal of dams and the construction and operation of fishways at state-owned dams and providing technical assistance for fishway construction at privately owned dams. Technical assistance is also provided to DEEP Bureau of Water and DEEP Office of Long Island Sound Programs staff on how to best protect runs in watercourses subject to dredging, filling, bridge construction or demolition, or other in-water perturbations. Division staff monitors the harvest of diadromous fish in state waters in order to promulgate regulations, which ensure stock health and wise use.

### **Bureau of Natural Resources, Marine Fisheries Division Programs**

The Marine Fisheries Division is responsible for management and research on all marine fish species and some marine invertebrates in Connecticut.

#### ***Fisheries Management***

Every commercially and recreationally important marine fish stock in Long Island Sound is fished in more than one state, and most are fished in federal waters as well. In order to coordinate effective management programs, Marine Fisheries Division staff are active members of two marine fishery management organizations intended to coordinate cooperative, interjurisdictional (interstate, state/federal) resource management activities: The Atlantic States Marine Fisheries Commission and the New England Fishery Management Council.

The Atlantic States Marine Fisheries Commission (ASMFC) is an interstate compact authorized by Congress "to promote the better utilization of the fisheries, marine, shell and anadromous fish, of the Atlantic seaboard by the development of a joint program for the promotion and protection of such fisheries." The Commission is responsible for preparation of fishery management plans for migratory or shared fishery resources that occur predominantly in states' waters. Examples of species managed include striped bass, bluefish, summer flounder, winter flounder, weakfish, American lobster, and shad.

The New England Fishery Management Council is one of eight regional councils established by Congress to develop management plans for fishery resources occurring predominantly in the U.S. Exclusive Economic Zone (the "200 mile limit"). Connecticut is one of five member states of the New England Council, a body consisting of government officials and persons knowledgeable about the fisheries who are appointed by the Secretary of Commerce from lists submitted by the Governors of the New England coastal states.

The principal species being managed under New England Council plans are the multi-species groundfish complex (cod, haddock, yellowtail flounder, winter flounder, pollock, whiting, and others), sea scallops, and American lobster. Connecticut is also involved with the Mid-Atlantic Fishery Management Council, which is responsible for development of plans for southern-ranging species (summer flounder, scup, longfin squid). There are a number of species for which jointly prepared plans have been developed between Councils and the ASMFC, notably summer flounder, bluefish, and American lobster.

**Local Anadromous Stock Assessment and Management**

The commercial and recreational fisheries for American shad have had a long and significant history in the state of Connecticut. American shad are currently the only alosine species harvested by directed fisheries in Connecticut waters. While there was once a commercial fishery for river herring and a recreational fishery primarily for bait purposes, harvest of migratory populations of alewife and blueback herring has been prohibited in state waters since 2002. Blueback herring are a state listed species of Special Concern in Connecticut. The commercial shad fishery requires an annual license and mandatory reporting of monthly landings to the Marine Fisheries Division. Both commercial and recreational harvests are restricted to the Connecticut River. Recreational fishing activity in the Connecticut River has a bag limit of six fish and any recreational activity outside of the Connecticut River is limited to catch and release only.

In order to allow a directed commercial fishery to operate in state waters, Connecticut has a Sustainable Fishery Management Plan in place with Atlantic States Marine Fisheries Commission as required by Amendment 3 to the Fishery Management Plan for American Shad. The Marine Fisheries Division has fishery independent monitoring metrics in place to track the sustainability of shad fishing in the Connecticut River. This includes monitoring the annual relative abundance of juvenile Connecticut River American shad and blueback herring since 1978, as well as examining the annual age structure of adult shad since 1974.

The Marine Fisheries Division also conducts research on Atlantic and shortnose sturgeons in Connecticut waters to aid in the protection of these two endangered fish species (both state and federal listing). Marine Division staff has collected information on the numbers, locations, movements, and behavior of shortnose and Atlantic sturgeon. Several seasonal concentration areas for shortnose sturgeon were identified in the Connecticut River and information was collected to synthesize general annual seasonal movements. Information collected on Atlantic sturgeon documented two important concentration areas in Long Island Sound and showed that Atlantic sturgeon make extensive use of the lower Connecticut River seasonally. Atlantic sturgeon have also been documented to move well beyond the salt wedge in the river and make extended forays of several months that can range North of Hartford. Collection of 20 Atlantic Sturgeon less than 55.0 cm total length in the Connecticut River suggests that there may still be a remnant stock native to Connecticut.

All of the Connecticut River basin states have committed to fully restore the river's American shad population to two million fish at the river mouth, and provide passage for 50 percent of the population arriving at the base of each mainstem dam.

**Fisheries Statistics and Assessment Programs**

The Marine Fisheries Division maintains several fisheries statistics and assessment programs. These programs include the Marine Fisheries Information System, the Marine Finfish Survey, two Marine Angler Surveys, the Alosine Survey, and Estuarine Seine Survey. The Division staff also participates in multidisciplinary survey and assessment activities in support of other agency projects (e.g., Long Island Sound water quality surveys).

The Long Island Sound Trawl Survey (LISTS) is a vital component of statewide and coast-wide management plans. Beginning in 1984, standardized survey catch indices have tracked the abundance and distribution of important finfish, squid, and crustaceans (lobster, crabs) in Long Island Sound, independent of current fishery harvest. By comparing Survey data with current

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fishery data (landings, catch/effort, seasonal patterns) Marine Fisheries staff assess each species' harvest against its abundance on an annual basis, and measure the production of young fish entering into the adult population in the coast-wide stock and in the proportion of the stock supported in Long Island Sound. This information allows staff to develop effective management strategies to maintain and enhance the Sound's fish and invertebrate populations. Since 1988 the Division has also conducted an Estuarine Seine Survey to additionally track abundance indices of newly-hatched fish, nearshore forage fish and invertebrates at eight sites along the Connecticut coast.

Marine Division staff has been collecting marine recreational fisheries statistics in Connecticut since 1979, alone and jointly with the National Marine Fisheries Service's (NMFS) coast-wide survey. Annually more than 300,000 marine anglers make over a million fishing trips in Connecticut, catching about four million fish and taking home a harvest of about half that total.

Management of commercial fisheries which range coast-wide requires comprehensive and timely monitoring for effective management. In 1984 Connecticut was the first New England state to develop a comprehensive "Marine Fisheries Information System," a computerized, integrated database of commercial fishery licensing data and catch statistics, to meet this need. This system is now incorporated into the coast-wide SAFIS program in which all coastal states participate.

Historically, Connecticut has given extra attention to the American lobster fishery since its landings were second only to shellfish in total value. Since the 1999 Sound-wide lobster die off, Marine Division staff have participated in several studies in collaboration with academic researchers and members of the lobster industry to identify impacts to this valuable resource from poor water quality and disease agents. In addition, since 1987 Marine Fisheries staff members have been actively involved in identifying the impacts of hypoxia on lobster as well as finfish in the Sound.

### **Local Government Coordination**

Resource Management by municipalities is exercised exclusively over shellfish in beds under town jurisdiction, with the exception of the town waters of West Haven, New Haven, Milford, and Westport (CGS Sec. 26-238 and 26-257). Shellfish resources in the waters of these cities and towns are managed by the Aquaculture Division of the Department of Agriculture. Management by the towns is through appointed shellfish commissions empowered to enact regulations on seasons, quantities to be taken, minimum sizes of shellfish and the methods of harvest. In this manner, local control is exercised over local resources.

The process for enacting or amending town shellfish regulations varies among communities. Generally, proposals may be made by the town shellfish commission or to the commission by interested citizens. Also, most commissions retain shellfish wardens who have law enforcement responsibilities. These individuals often become the most knowledgeable persons regarding the status of the town's resources and the activities of their users. As a result, proposals many times emanate from the shellfish wardens. After due process, which includes review and public hearing, regulations are enacted for the coming fishing season. Generally, the process is repeated each year.

## **Bureau of Natural Resources, Forestry Division Programs**

In Connecticut, the Division of Forestry is responsible for overseeing the health of the state's forestlands, for assessing the potential for wildfires, for initiating urban forestry programs, and for outreach to the owners of approximately 1.8 million acres of private woodlands. The Division of Forestry administers and enforces the Forest Practices Act, including a certification program for foresters and logging professionals ([DEEP: Forest Practitioner Certification](#)). The Division also maintains forestland current-use property tax standards and manages approximately 170,000 acres of state-owned forestland, located within the 32 State Forests.

### ***State Forest Plans***

The Division of Forestry completed the Forest Resource Assessment and Strategy (Forest Action Plan) in 2010 as required in the 2008 Farm Bill. The Forest Action Plan is a guidance document for DEEP's Division of Forestry, and for forest conservation partners in academia, government, extension, and non-profits, as well as municipal and private landowners. The Action Plan is used to provide a baseline and identify key forest related issues and priorities in Connecticut. The identified issues include maintaining forest health and biodiversity, promoting public forest stewardship, protecting private forest stewardship, supporting a sustainable forest based economy, providing for forest based recreational opportunities, and fostering public awareness and support of forests, the importance of forest research, and the role of urban forestry in Connecticut. A series of roundtables were held to provide public input for development of strategies to address these forest issues. Visions, principles, and action steps were created, with strong agreement among stakeholders, and will be utilized in determining Division of Forestry and conservation partner strategies.

Currently, there are 32 State Forests in the Connecticut State Forest system. In managing these lands, the Division of Forestry seeks to develop a vigorous, resilient forest environment capable of sustaining the wide range of demands that the public places on these lands. The Division's professional Foresters work to insure that these forests remain healthy and vigorous while serving the needs of the citizens of Connecticut.

The Forestry Division provides stewardship for Connecticut's forest resources by preparing comprehensive plans for the management of DEEP-controlled forest resources to enhance forest health and vigor while maximizing the values of the forest for various uses such as wildlife, water quality, recreation, aesthetics, and forest products. The Division provides active silvicultural management of DEEP-controlled forest resources in conformance with forest management plans and use the State Forests as demonstration sites for forest stewardship education programs.

### ***Private Landowner Assistance***

The Division of Forestry Service Foresters provide technical advice and assistance to owners of forestland throughout the state. This service is available to private citizens, municipalities, conservation groups or other private or public organizations. Specific areas of technical assistance and advice are in forest stewardship planning, forest products marketing, Christmas tree management, invasive species management, forest health and insect and disease management, forest recreation and aesthetic management, federal cost-share programs, and forest land current use taxation (PA-490).

**Urban and Community Forestry**

Urban forestry is a program within the Division of Forestry that promotes the importance of trees in connection with the built environment. This includes trees in small towns and large cities, and anywhere where people live, work, and play. It includes solitary trees in people's backyards and those along streets, trees in parks and parking lots, trees in commercial areas and even the relatively undeveloped stands of trees that are often part of urban open space.

The importance of trees includes the biophysical benefits trees provide, such as cleaning of the air, reducing storm water runoff, and the reduction in energy consumption that comes from cooling buildings. It also includes the social and health benefits provided by trees. These include the sense of place trees provide, the impacts of trees on asthma and on heart disease, and the way trees engage people. Sometimes the role of trees is direct, as through the reduction of the urban heat island effect, and sometimes indirect, as in the way trees foster a sense of exploration and connection to nature.

The urban forestry program seeks to provide those who practice urban forestry with the informational and practical tools needed to plant and maintain these trees and sustain and grow the urban forest. This work is done through workshops, networking, partnerships, direct outreach, and grants. The America the Beautiful small grant program has been the workhorse tool of the program since its inception, as it allows for the funding of some 5-15 small grants annually to municipalities and non-profits throughout the state. Other efforts include Tree City USA, the Connecticut Urban Forest Council, work with other programs within DEEP, and a close affiliation with the USDA Forest Service. Urban forestry also has a role in wildlife programs, such as through the "urban oases" project developed jointly by the City of New Haven and Audubon Connecticut.

**The Forest Protection Program**

The Division of Forestry maintains an active forest fire prevention program and a specially-trained force of firefighting personnel to combat fires that burn an average of 500 acres of woodland per year. Staff members provide specialized wildland fire training to fire departments, the Connecticut Fire Academy, and DEEP employees. Through the Connecticut Interstate Fire Crew, the Division also has crews ready to assist the US Forest Service in controlling large fires across the nation. In addition, the program administers the federally-funded Volunteer Fire Assistance grant program, which provides federal funds for equipment purchases and training to fire departments serving rural communities in the state. The Division participates in the Northeastern Interstate Forest Fire Protection Compact to coordinate mutual aid between state, federal, and provincial partners in fire prevention and suppression efforts among northeastern states and adjacent Canadian provinces. Daily forest fire danger reports are distributed on-line to the public at [www.ct.gov/deep/forestfiredanger](http://www.ct.gov/deep/forestfiredanger). In conjunction with the Connecticut Agricultural Experiment Station, the Division of Forestry is prepared to respond to other threats to the health of Connecticut's forests, including those threats posed by insects and disease.

**Forestry Legacy Program**

The Forestry Division administers the federal Forest Legacy Program in Connecticut in conjunction with the Land Acquisition and Management Division to acquire development rights to lands possessing qualities important to the maintenance of forest ecological values within

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specific critical areas of the state. This program has helped to permanently protect 8,125 acres of land, mostly forestland, under pressure of development.

### **Forest Stewardship Education**

In addition to the above forest resources stewardship and protection programs, the Forestry Division also includes a Forest Stewardship Education program that promotes general public awareness and understanding of, and support for, sound forest stewardship principles, and enhances technical skills in forestry professionals through the Stewardship Program, in cooperation with the UConn Cooperative Extension System. This education program provides educational outreach in the areas of urban trees (Arbor Day), tree and forest concepts (Project Learning Tree), and forest ecology, in cooperation with the Department's Goodwin State Forest Conservation Center and the Connecticut Forest and Park Association. Division staff assists in conducting certification inspections of Tree Farms and in the business of the Connecticut Tree Farm Committee of the American Tree Farm Program as well.

### **Forest Practices Act**

The Division of Forestry implements the provisions of Connecticut General Statute Section 23-65 f through o, the Forest Practices Act. The Act requires all forest practitioners who advertise, solicit, contract, or engage in commercial forest practices within this state at any time to be certified by DEEP in accordance with the provisions of this statute. Practitioners must pass a rigorous examination to obtain certification and must submit continuing education credits to retain and renew. A Directory of Certified Forest Practitioners is available on the Forestry web page to aid forest landowners who wish to engage a professional consulting forester to assist in managing their forests or a professional forester or logger in harvesting forest products.

### **Connecticut Geological Survey**

The Connecticut Geological Survey (formerly the State Geological and Natural History Survey) is responsible for the coordination and implementation of statewide natural resource data collection inventories in the following areas: surficial and bedrock geology, land cover, remote sensing; monitoring networks for quantity and quality of surface and groundwater, and climate. The Connecticut Geological Survey Program promotes scientific inquiry, economics, and geoscience education for the State of Connecticut. The Survey compiles geoscience information, provides mapping services, and develops interpretive maps and reports for use in environmental policy, resource management, hazards mitigation, and educational outreach.

The Survey works cooperatively with state colleges and universities, state and federal agencies, municipalities, and professional organizations to meet the geoscience information and mapping needs of DEEP and the public.

### **Technical Publications Section**

The Technical Publications Section provides publication services to the agency with special emphasis on the manuscripts of the former State Geological and Natural History Survey and makes available natural resource and environmental maps and documents through the operation of a publications sales outlet and a lending library.

### **Bureau of Outdoor Recreation**

The Bureau of Outdoor Recreation aims to provide for the conservation and management of statewide recreation lands and resources through the acquisition of open space and the

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management of resources to meet the outdoor recreation needs of the public. The Bureau accomplishes this mission by acquiring lands for conservation and recreation purposes, providing public use compatible with long-term protection of the natural resources base, developing appropriate public facilities, participating in the state's tourism industry, and providing conservation law enforcement support to protect Connecticut's natural resources. The current Outdoor Recreation Plan called SCORP (State Comprehensive Outdoor and Recreation Plan) will be revised after 2016. The Statewide Comprehensive Outdoor Recreation Plan is a planning document that identifies outdoor recreation issues of statewide significance and evaluates the supply of and the demand for outdoor recreation resources and facilities in Connecticut.

The State Parks Division administers the planning, development, operations programs, and maintenance of the lands and facilities within the state park system; provides for water based recreation within the state inland waters and beaches; manages a system of campgrounds; establishes and manages a statewide trail system of recreational trails; manages and operates historic and cultural sites; operates and maintains state boat launch access areas; provides for interpretation of historic and natural resources; and provides for the protection of the system's resources through its park law enforcement personnel.

The Environmental Conservation Police Division enforces fish and wildlife, shellfish, boating, park, and forest laws and regulations; conducts law enforcement actions on the various permits issued by fisheries, forestry, parks, and wildlife divisions; issues marine event permits; provides training and assistance to local, state, and federal agencies with respect to enforcement of natural resource laws and regulations; and provides educational instruction on various wildlife topics to schools and civic organizations.

### **Bureau of Air Management**

The objective of the Bureau of Air Management is to protect human health, safety, and the environment and enhance the quality of life for the citizens of Connecticut by managing air quality, radioactive materials, and radiation. The Bureau accomplishes its mission by controlling and reducing air pollution and by maintaining the most comprehensive monitoring network in New England for measuring air quality; by regulating the use, transportation, and storage of radioactive materials, and monitoring for radioactive accumulations from nuclear power plants; by developing and implementing regulations, policies, procedures, and standards for carrying out Connecticut's air and radiation control laws and regulations; and by issuing air pollution control permits and taking appropriate enforcement action when laws or regulations are violated.

The Bureau consists of three divisions: Air Planning and Standards Division, Radiation Division, and Air Engineering and Field Operation Division.

### **Bureau of Materials Management and Compliance Assistance**

DEEP's Bureau of Materials Management and Compliance Assistance strives to protect public health, safety, and the environment by minimizing adverse effects from the treatment, storage, disposal, and transportation of solid and hazardous wastes, hazardous substances, and pesticides. The Bureau achieves this mission by educating the public and by developing and implementing regulations, policies, procedures, standards, and grant programs to administer the existing and emerging federal and state waste management laws. The Bureau's range of



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responsibilities includes encouraging pollution prevention and recycling; developing necessary facilities for the proper management of solid waste, recyclable materials and non-recyclable hazardous waste; regulating the generation, transportation, treatment, storage, and disposal of hazardous wastes; developing capacity and expertise to respond to emergency spill and contamination incidents; developing comprehensive programs for the environmentally safe transport, handling, and disposal of petroleum products; and regulating the use of pesticides and minimizing human and non-target species exposure.

The Bureau consists of the Waste Engineering and Enforcement Division, Permitting and Enforcement (Water), and the Emergency Response and Spill Prevention Division.

### **Bureau of Water Protection and Land Reuse**

The mission of the Bureau of Water Protection and Land Reuse is to protect and restore the state's surface waters and groundwaters, water-related resources that protect public water supply, human health, and safety, hazard mitigation, river restoration, preserve and enhance water based recreation, propagation of fish and aquatic life, and the natural character and economic well being of the State of Connecticut.

The Bureau achieves its mission through the adoption of water quality standards for the state's surface water and groundwater resources, regulation of municipal and industrial wastewater discharges, management of water withdrawals, construction on and adjacent to coastal and inland water resources, enforcement of the water quality, mitigation of natural hazards, control of floodplain development, river restoration, water resource protection, remediation of waste disposal sites, monitoring and assessment of water quality, management of the Connecticut Clean Water Fund, and development of strategies to abate or prevent water pollution.

The Bureau also conducts water quality monitoring in Connecticut's wadeable streams, rivers, lakes, and estuaries. The water quality assessments utilize benthic macroinvertebrate and fish community analysis, ambient physical/chemical data, indicator bacteria monitoring and beach closures, intensive surveys, toxicity tests, sediment and tissue analyses, and volunteer data (CT DEP 2004). Although the 2004 assessment report concluded that Connecticut's water quality has improved, it also concludes that there remains room for further improvement, especially in addressing nonpoint sources of pollution (CT DEP 2004).

The Bureau consists of four divisions: Planning and Standards Division, Remediation Division, Inland Water Resource Division, and Office of Long Island Sound Programs.

The Inland Water Resource Division regulates activities in the state's inland wetlands and watercourses and floodplains, including oversight of municipal Inland Wetland Commissions; enforces the state's inland wetlands and floodplain protection statutes; manages allocation of water resources through diversion permitting; provides grants for river restoration; and prevents or mitigates natural disasters through flood warning and dam safety programs.

The Office of Long Island Sound Programs (OLISP) coordinates programs within the Department of Energy and Environmental Protection that have an impact on Long Island Sound and related coastal land and water. OLISP implements, oversees, and enforces the state's coastal management and coastal permit laws and regulations, manages programs to protect and restore coastal resources and habitat, and helps coastal towns plan and implement programs to protect coastal resources and encourage water-dependent uses of the shorefront.

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The Office implements Connecticut's federally-approved coastal zone management program pursuant to the federal Coastal Zone Management Act of 1972, as amended (CZMA). The Permitting and Enforcement section of OLISP is responsible for coastal permitting and enforcement actions pursuant to the state's various coastal regulatory authorities. Staff efforts include everything from pre-application guidance to post construction inspection, from investigation of complaints through enforcement resolution.

The Coastal Planning section of OLISP is responsible for coastal planning and policy analysis. Staff are responsible for municipal, state and federal coastal management consistency for all activities landward of the high tide line, and coordinate closely with coastal permit staff in the review of those activities that are, in whole or in part, below the high tide line. Staff members are assigned to specific coastal communities and serves as liaisons between these municipalities and other DEEP units, since many coastal projects and issues involve multiple permits and reviews.

Finally, the Technical Services section is responsible for providing the technical expertise for the Office's resource management efforts. This section works closely, not only with the other OLISP sections, but with the technical experts throughout the agency to ensure an interdisciplinary approach to coastal resource and ecosystem management. Specific responsibilities include the following:

- Plan, design, and implement restoration of coastal habitats
- Administer the Department's Long Island Sound Research Program and Fund
- Provide technical assistance with respect to coastal resource impact assessments and restoration plans
- Develop new and update existing spatial data for the coastal area to support the Department's overall geographic information system and data management initiatives
- Coordinate with state and federal resource experts in the development and implementation of coastal resource programs and specific efforts
- Conduct special coastal resource management planning studies of a technical or scientific nature

The OLISP is funded through the State of Connecticut and the National Oceanic and Atmospheric Administration. In 1985, the Environmental Protection Agency (EPA), along with New York and Connecticut, formed the Long Island Sound Study (LISS). This is a bi-state partnership consisting of federal and state agencies, user groups, concerned organizations, and individuals dedicated to restoring and protecting the health of the Sound and the overall ecosystem. The OLISP is currently drafting a Coastal and Estuarine Land Conservation Plan (CELCP) with the goal of identifying priority land conservation needs along Connecticut's coast; the planning process is similar to this plan but with the specific objective of identifying priority lands for land acquisition.

### **Bureau of Energy and Technology**

The Bureau of Energy Technology Policy (BETP) works on local, state, and regional energy policy issues at DEEP. BETP staff members develop plans and policies to implement Connecticut's Comprehensive Energy Strategy, oversee the planning and implementation of the state's energy efficiency programs, work with the state's Energy Efficiency Board, administer the state's Weatherization Program, develop plans and policies related to renewable energy projects, and develop and implement Connecticut's climate change action plan.

### **Public Utilities Regulatory Authority**

The Public Utilities Regulatory Authority (PURA) is statutorily charged with regulating the rates and services of Connecticut's investor owned electricity, natural gas, water, and telecommunication companies and is the franchising authority for the state's cable television companies. In the industries that are still wholly regulated, PURA balances the public's right to safe, adequate, and reliable utility service at reasonable rates with the provider's right to a reasonable return on investment. PURA also keeps watch over competitive utility services to promote equity among the competitors while customers reap the price and quality benefits of competition and are protected from unfair business practices.

### **Bureau of Central Services**

The Bureau of Central Services includes many offices, including Indian Affairs and Financial Management. The Indian Affairs Coordinator provides tribal contacts and information, acts as the Commissioner's designee to the Connecticut Indian Affairs Council (CIAC), prepares DEEP's and other state agencies' comments, concerns, and recommendations to the CIAC, advises the CIAC regarding state policy and concerns, and acts as the single point of public contact for all Indian-related issues. Within the bureau, the Office of Financial Management provides fiscal and administrative support to the Department.

The Office of Planning and Program Development, Division of Land Acquisition and Management reviews, appraises and develops proposals for acquisition or exchange of real property acquired by the Department of Environmental Protection; develops easement or leases for use of DEEP land and tenants; surveys state land boundaries and investigates boundary disputes; manages property documents for department owned and managed lands; and coordinates state and federal funding programs for municipal outdoor recreation, open space acquisition and development.

### *Connecticut Department of Agriculture*

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

### **Shellfish and Aquaculture Programs**

The Department of Agriculture, Bureau of Aquaculture and Laboratory Services (DA/BA) responsibilities include leasing submerged state lands for shellfish operations including aquaculture, classifying shellfishing waters, monitoring water quality, identifying sources of pollution, seeking corrective actions, and licensing of all commercial shellfish operations. These operations also include scientific studies, as well as commercial seed oyster harvesting. DA/BA is also involved in seed oyster enhancement activities through its cultch program and licenses conch (whelk) fishing. The enforcement of laws relating to illegal harvesting is handled by the Department of Energy and Environmental Protection, Environmental Conservation Police Division working cooperatively with municipal enforcement officials.

The Department chairs an interagency planning and steering committee on aquaculture, which includes the Departments of Energy and Environmental Protection, Consumer Protection, and Economic Development. The committee is developing a comprehensive strategy for the

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planned development of aquaculture in Connecticut. The strategy will address regulatory issues, marketing opportunities, disease control, aquaculture for natural stock enhancement, and financial assistance programs for aquaculturists.

### **Animal Control Division**

The Animal Control Division is responsible for the investigation of injury, property damage, and nuisance caused by dogs. The Division staff works with state and local authorities in dealing with rabid and suspect rabid animals, verifies rabies vaccination status for dogs and cats, and provides transportation and handling of specimens for testing. Dog damage claims are investigated and appraised. Training and counseling is provided for municipal animal control officers and local officials are assisted in dog licensing procedures. Investigations of dog related incidents, including, but not limited to, cruelty to animals, nuisance, roaming, and licensing violations are part of this division's responsibility.

### **Environmental Assistance Program**

Connecticut is able to offer technical and financial support to farm businesses in their farm waste efforts through the "Partnership for Assistance on Agricultural Waste Management Systems" (the "Partnership"). This partnership consists of the following cooperators: USDA Natural Resources Conservation Service (NRCS), USDA Farm Service Agency, UConn Cooperative Extension System, Connecticut Conservation Districts, the Connecticut Department of Energy and Environmental Protection and the Connecticut Department of Agriculture.

In cooperation with the "Partnership", the USDA Environmental Quality Incentive Program (EQIP) provides cost sharing for agricultural improvements that will help meet water quality and other environmental objectives (Section 4.6). Based on state priorities, EQIP offers five to ten year contracts that provide incentive payments and cost sharing for conservation practices.

Another source of financing within the "Partnership" is available through the Connecticut Department of Agriculture's Environmental Assistance Program (EAP) for Connecticut farmers. This program allows for the Connecticut Commissioner of Agriculture to reimburse any farmer for part of the costs that qualify under the EAP in order to maintain compliance with Connecticut Department of Energy and Environmental Protection approved agricultural waste management plan.

### **Farmland Preservation Program**

The Department of Agriculture preserves farmland by acquiring development rights to agricultural properties. The farms remain in private ownership and continue to pay local property taxes. A permanent restriction on nonagricultural uses is placed on these properties. Nationally, farmland preservation has been recognized in the federal Farm Bill and Connecticut's Farmland Preservation has qualified for participation in the federal Farmland Protection Program.

The main objective of the farmland preservation program is to secure a food and fiber producing land resource base, consisting primarily of prime and important farmland soils, for the future of agriculture in Connecticut. A goal of preserving 130,000 acres, with 85,000 acres of cropland continues to be in effect for the Department of Agriculture. So far, 26 percent of this 130,000-acre goal has been met through the purchase of development rights program.

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### ***Connecticut Department of Transportation, Bureau of Policy and Planning, Office of Environmental Planning***

This Office develops and administers policy on environmental issues (e.g., clean air, noise and water resources) affecting the Department's programs and projects; prepares and oversees environmental documents required by the state and federal laws and regulations. These documents include: transportation, air, noise, and historic/archaeological studies; state and federal water resources permit applications for Department projects. The Office also performs environmental surveillance of construction activities to ensure compliance with permits and acts as a liaison with state and federal regulatory agencies regarding environmental issues and the State Historic Preservation Office regarding cultural resources.

### ***Connecticut Office of Policy and Management***

The Connecticut Office of Policy Management (OPM) is within the Governor's office and formulates public policy goals for the state. The Office of Policy and Management (OPM) functions as the Governor's staff agency and plays a central role in state government, providing the information and analysis used to formulate public policy for the state and assisting state agencies and municipalities in implementing policy decisions on the Governor's behalf. OPM is composed of seven divisions that report to the Office of the Secretary: Administration, Budget and Financial Management, Criminal Justice Policy and Planning, Finance, Intergovernmental Policy, Labor Relations, and Policy Development and Planning.

The OPM prepares a *Conservation and Development Policies Plan for Connecticut* to guide state policies and programs every five years. The most recent plan covers the period from 2013 to 2018 ([http://www.ct.gov/opm/lib/opm/igp/org/cdupdate/2013-2018\\_cd\\_plan.pdf](http://www.ct.gov/opm/lib/opm/igp/org/cdupdate/2013-2018_cd_plan.pdf)) and provides a blueprint for conservation, development, and environmental protection in the state. The Office of Policy and Management work in conjunction with the Department of Energy and Environmental Protection to facilitate the implementation of the revised State Plan at the local and regional levels. In May 2015, OPM informed the BNR that the WAP conformed to the 2013-2018 Conservation and Development Plan, which officially makes the WAP in compliance as per CGS 16a-31(e).

### ***The Connecticut Open Space Initiative (Green Plan)***

The Connecticut Open Space Initiative originated in 1998 as a result of collaboration between the Governor, the Connecticut General Assembly, the Blue Ribbon Task Force on Open Space, and DEEP. In 2001, DEEP published a Green Plan outlining achievements of the Open Space Initiative to date and a strategy for conserving at least 21 percent of the state's land area as open space by 2023. Connecticut's Open Space Protection Program, located within the DEEP Division of Land Acquisition and Management, provides a diverse landscape that offers outdoor recreation, protects water supplies, preserves fragile natural communities and habitats for plants and animals, offers green spaces accessible to city residents, and maintains a working natural landscape for the harvest of farm and forest products. The goal of the program is "to have at least ten percent of Connecticut's land area held by the state as open space for the beneficial use and enjoyment of the public as additions to the state's system of parks, forests, wildlife, fisheries and natural resource management areas; and to have a total of 21 percent of the state's land preserved as open space by the year 2023 in state, municipal, private nonprofit, water utility and federal ownership" (*Connecticut General Statutes Section 23-8(b)*).

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In the first three years of the program (1998-2001), \$103.5 million were allocated via the Recreation and Natural Heritage Trust Fund, the Open Space and Watershed Land Acquisition Grant Program, and the Charter Oak Open Space Trust to purchase additional state lands and provide matching funds for municipalities, nonprofit land conservation organizations, and water utility companies to purchase open space lands. As of 2001, 68 percent of the state-owned targeted acreage (217,000 of 320,576 acres) had been met and 65 percent of the non-state owned acreage target (227,740 of 352,634 acres) had been reached. The program continues to make significant progress towards its 2023 goals, focusing on lands that protect water access sites, natural areas, greenways, scenic and historically significant properties, forests, habitat for native plant or animal species listed as threatened, endangered, or of special concern, Class I or Class II watershed and areas that protect water quality, and sites in urban areas and that preserve local agricultural heritage.

### *University of Connecticut Programs*

The University of Connecticut (UConn) has several programs and projects focusing on Connecticut's landscape, flora, and fauna and their management. The majority of these programs have partnerships with DEEP, federal natural resource agencies, municipalities, and non-governmental organizations.

Many of these programs are housed under UConn's Center for Land use Education And Research (CLEAR), which has both education and training programs and landscape research programs (<http://clear.uconn.edu>). One such landscape research program is the Laboratory for Earth Resources Information Systems (LERIS), a remote sensing and geospatial analysis program that studies ecology and the environment, land use, and land cover in Connecticut (<http://clear.uconn.edu/%5C/LERIS/index.htm>). LERIS has been recognized as a Center of Excellence by the National Aeronautics and Space Administration (NASA). In addition, NASA established a Regional Earth Resource Applications Center, locally named NAUTILUS (Northeast Access to Useable Technology in Land Planning for Urban Sprawl) within CLEAR to survey urban sprawl and management in the state. The Connecticut's Changing Landscape Project allows UConn and its partners to educate local, state and federal managers (and the public) about land use patterns trends that affect the state's natural resources (<http://clear.uconn.edu/projects/landscape/index.htm>).

The CLEAR at UConn also has natural resource programs that provide technical information and assistance to municipalities, nonprofit organizations, and the public. The Nonpoint Education for Municipal Officials (NEMO) program was initiated in Connecticut, but has since spread to several other states. NEMO educates local land use managers on the impacts of land use decisions on the state's natural resources (<http://nemo.uconn.edu/>). The Forest Stewardship Program and the Urban and Community Forestry Program, operated in conjunction with the UConn Cooperative Extension Service, DEEP, and the U.S. Forest Service, provide technical assistance to private forest landowners and municipalities on the sustainable management of forest habitats (<http://www.canr.uconn.edu/ces/forest/>). Working with the Ruffed Grouse Society (Section 4.8), the Forest Stewardship Program also has a Coverts Program to enhance, restore and preserve woodland habitat for ruffed grouse, woodcock, and other game species. Finally, CLEAR includes the Green Valley Institute, which partners with Quinebaug and Shetucket Heritage Corridor, Inc. (Section 4.4) to provide the public and local planners with natural resource information on which to base land use decisions.

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In addition to CLEAR, UConn has several other programs that support the conservation of fish and wildlife resources in Connecticut. The Cooperative Extension Service, supported by the U.S. Department of Agriculture (Section 4.6), offers localized expertise to landowners and the public on animal health and agriculture, nutrition, plant horticulture and gardening, natural resources, land use, and the environment (<http://www.extension.uconn.edu/>). The Connecticut Sea Grant is a partnership between UConn and the National Oceanic and Atmospheric Administration (Section 4.6) that is dedicated to environmental education, natural resource management, and scientific research on the aquatic resources and industries in Connecticut (<http://www.seagrants.uconn.edu/>).

The Wildlife and Fisheries Conservation Research Center is a privately funded program at UConn that conducts scientific research on the ecological needs of wildlife, uses that research to foster educated stewardship of wildlife resources, and increases public knowledge of conservation principles, wildlife values, and scientifically sound management practices (<http://wfcc.uconn.edu/>). The center can perform contract ecological studies for state, federal and private entities. The UConn Center for Conservation and Biodiversity is a partnership with the university, the Connecticut State Museum of Natural History, and the Geological and Natural History Survey of the Connecticut State Department of Environmental Protection (Section 4.1; <http://www.eeb.uconn.edu/department/bioconctr/>). This program provides scientific expertise on local, national, and international issues of conservation and biodiversity and offers workshops on conservation biology to inform conservation professionals with the latest research on ecological resources. The Center for Conservation and Biology is currently compiling an Invasive Plant Atlas of New England (IPANE; <http://www.eddmaps.org/ipane/>).

UConn also supports the conservation of fish and wildlife by maintaining a vast Biological Collections program of modern and fossil plants and animals (<http://www.eeb.uconn.edu/department/collections/>) and the Map and Geographic Information Center (MAGIC), a public digital library of natural resources information and data (<http://magic.lib.uconn.edu/>).

### ***Local Coordination: Municipal Programs and Plans***

Municipalities are critically important in delivering local conservation. There are 169 municipalities in Connecticut and they are organized through nine regional planning units, which were consolidated from the 15 planning units in the original CWCS. All the planning units were contacted with information about the WAP revision. The local municipalities within Connecticut are responsible for making zoning, development and land use decisions. Coastal municipalities develop local coastal management plans, working with the DEEP Office of Long Island Sound on their development and implementation. Some coastal municipalities administer leasing and regulation programs for shellfish beds within their jurisdictions. In addition to these individual programs and plans, many municipalities have joined forces in regional planning and protection efforts to conserve watersheds and valleys of importance. DEEP can provide technical and financial assistance to these efforts, often as a state partner in their development and implementation. A selection of municipal programs and plans that contribute to the conservation of fish and wildlife resources in Connecticut are summarized below.

### **Farmington River Watershed Association**

Founded in 1953, the Farmington River Watershed Association (FRWA) has been working six decades to protect the River and to restore the natural resources of the watershed. The FRWA is a citizen-based, non-profit 501(c)(3) organization at the forefront of restoration and conservation issues such as water quality, water allocation, recreational usage, open space, and wetland and floodplain protection. They work with federal, state, and local governments, business and industry, and the people of the watershed's 33 communities to protect the river and the region's natural resources. The FRWA also has a wide range of Research, Education, and Advocacy programs to protect the river and its watershed. The Farmington River Watershed Association is an example of a multiple municipality approach to fish and wildlife conservation. The Farmington River Biodiversity Project (FRBP) was a regional initiative to research and preserve the biodiversity in the Farmington River Valley, and was coordinated by the Farmington River Watershed Association and the Metropolitan Conservation Alliance (<http://frwa.org/>; [http://frwa.org/publications/biodiversity\\_report\\_final.pdf](http://frwa.org/publications/biodiversity_report_final.pdf)). The official FVBP report was released to the local working group in February 2007. Along with the official report, FRWA is working on a set of implementation support documents that have been designed to help land use officials and town citizens understand the "toolbox" of available conservation measures that will help protect our Valley's natural heritage.

As a follow-up to the release of the Biodiversity Study Final Report, FRWA is working with towns to promote implementation of land use practices that will protect the important natural areas described in the final Biodiversity Report.

### **The Last Green Valley**

The Quinebaug and Shetucket Rivers Valley in northeastern Connecticut and south-central Massachusetts is commonly referred to as the "Last Green Valley" along the Boston to Washington, D.C., metropolitan corridor. The valley and its surrounding hills are relatively undeveloped, with more than 70 percent of its land area farm and forestland. The U.S. Congress designated the Quinebaug-Shetucket Rivers Valley as a National Heritage Corridor in 1994 due to its unique natural character.

In 1999, the 35 municipalities (26 in Connecticut, 9 in Massachusetts) within the valley were incorporated into the National Heritage Corridor. The municipalities (and other partners) subsequently formed the Quinebaug-Shetucket Heritage Corridor, Inc. (QSHC), to pool resources and collaborate on the preservation of the corridor through a regional municipality project (<http://www.thelastgreenvalley.org>). This nonprofit organization includes non-municipal members (e.g., state and regional entities, the National Park Service, Congressional delegations, individuals, businesses) and serves as the official management authority for the National Heritage Corridor. The roles of the QSHC are to be a catalyst for collaboration between local, state, and federal government entities, a facilitator and educator to encourage others to protect the corridor's resources, and as a project manager for specific projects or programs that further the mission of the QSHC. The QSHC also is a funding source for conservation projects within the corridor, with both a Partnership Program Grants Program and a Historic Preservation Grant Program.

### **Connecticut River Gateway Commission**

The Connecticut River Gateway Commission was established by the Connecticut General Assembly in 1973 as a state-local compact to protect the Lower Connecticut River Valley



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(<http://www.ctrivergateway.org/>). The legislated mission of the Commission is to “preserve the unique scenic, ecological, scientific, and historic values of the lower Connecticut River valley for the enjoyment of present and future generations of Connecticut citizens.” The Commission focuses its efforts within the Gateway Conservation Zone, which includes a 30-mile long area and eight member towns that have views of the Connecticut River (Chester, Deep River, East Haddam, Essex, Haddam, Lyme, Old Lyme, Old, Saybrook). The main goal of the Commission is to preserve the scenic beauty of the valley. To that end, they have protected as much as 2,500 acres through scenic easements and purchase of development rights. The Commission also has regional zoning administration rights, and has enacted standards for building height, setbacks, allowable land uses, and impervious surface coverages for lands within its Conservation Zone.

### **Connecticut Association of Conservation and Inland Wetlands Commission**

A coalition of municipalities in Connecticut formed the Connecticut Association of Conservation and Inland Wetlands Commission (CACIWC) in 1974 to serve as a source of information and education to municipal Commissioners and staff serving on local Conservation and Inland Wetland Commissions (<http://www.caciwc.org/>). The CACIWC also allows individual and organization members, but only municipality members are voting members. Municipal conservation commissions have the authority to inventory natural resources, develop drought and watershed management plans, make recommendations on proposed land use changes, and manage or supervise municipally-owned open space. The Inland Wetlands Commissions oversee the protection of inland wetlands and watercourses, issuing local permits similar to the federal wetlands permit program. The CACIWC has initiated efforts to protect open space and control invasive species and offers public outreach activities to educate citizens on the preservation and management of Connecticut’s natural resources.

### ***Federal Programs***

The following key federal partners were contacted to inform and engage in the WAP revision effort. Coordination meetings were held with some partners to exchange program information and solicit input during each stage of the Plan process. Other partners were contacted by letter, phone, and/or email and their input and review was requested.

Several federal agencies have fish and wildlife conservation programs within the state of Connecticut. Many of these agencies regularly partner with DEEP to protect, restore, and mitigate for impacts to the state’s valuable fish and wildlife habitats. Some of the agencies offer grant programs for state, local, and private conservation projects, while others have acquired land directly for conservation. The state also collaborates with some of these agencies on the scientific study and management of fish and wildlife resources and habitat.

### **U.S. Fish and Wildlife Service**

The U.S. Fish and Wildlife Service (USFWS) has several fish and wildlife conservation efforts in Connecticut. The National Wildlife Refuge System has established the Stewart B. McKinney National Wildlife Refuge (NWR) headquartered in Westbrook, protecting valuable coastal habitat. The Salt Meadow Unit of the Stewart B. McKinney NWR has preserved over 400 acres of coastal habitat near Westbrook, and the Falkner Island Unit near Guilford and the other nine units have preserved additional island and aquatic habitats in coastal Connecticut.

In 1991, the U.S. Congress established the Silvio O. Conte NWR within the Connecticut River watershed. After a thorough evaluation of the fish and wildlife conservation needs throughout

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the entire 7.2 million acre watershed (in four states), the USFWS identified 180,000 acres of “special focus areas” in need of protection ([http://www.fws.gov/refuge/Silvio\\_O\\_Conte/](http://www.fws.gov/refuge/Silvio_O_Conte/)). The state of Connecticut contains 28,330 acres of land targeted for acquisition by the USFWS to build the Silvio O. Conte NWR, currently 512 acres have been purchased. Of these 28,330 acres, 11,235 acres are non-forested wetland, 15,495 acres are upland habitats (agricultural, riparian and forest), and 1,600 acres are small, scattered sites for the protection of endangered and rare species. Table 7a.1 lists several of the high priority sites targeted for fish and wildlife conservation within Connecticut.

**TABLE 7a.1. THE TEN LARGEST HIGH PRIORITY AREAS IN THE CONNECTICUT RIVER WATERSHED IDENTIFIED BY THE USFWS FOR PROTECTION WITHIN THE SILVIO O. CONTE NATIONAL WILDLIFE REFUGE.**

Special Focus Area	Acres
Meshomasic Highlands	20,000
Hamburg Cove/Eightmile River and East Branch	2,200
Great Island Marshes/Black Hall River/Lieutenant River	2,120
Salmon Cove	2,000
Windsor Meadows/Farmington River Mouth	1,550
Wangunk Meadows	1,155
Selden Creek	1,115
Lord Cove	1,110
Salmon River including tributaries below dams	965
Round and Boggy Meadows/Mattabesset, Coginchaug Rivers/Wilcox Island	860

In addition to preserving land for the conservation of valuable fish and wildlife resources within Connecticut, the USFWS has provided several million dollars in grants for conservation projects in the state in recent years. These funds have come from the Coastal, Partners, and Landowner Incentive Programs, and recent accomplishments include the restoration of over 400 acres of saltmarsh, 500 acres of freshwater wetland, and 600 acres of grassland habitats throughout the state through the Partners Program. The USFWS is also a partner in the Long Island Sound Study, which identifies and funds the restoration of coastal and estuarine habitats in Connecticut and New York.

The management of federally listed species within Connecticut is coordinated by the New England Ecological Services Field Office in Concord, New Hampshire. The Southern New England-New York Bight Coastal Program in Charlestown, Rhode Island, collaborates with states and partners adjacent to Long Island Sound on habitat restoration projects, land conservation, and the identification of priority coastal habitats and threats to coastal and marine habitats. The Connecticut River Coordinator in the USFWS’s Fisheries Program works to protect fish and wildlife habitats in Connecticut, focusing on the restoration of migratory fish to the Connecticut River basin (<http://www.fws.gov/r5crc/>). The USFWS also maintains a Law Enforcement Special Agent in Hartford to enforce existing federal fish and wildlife conservation laws and occasionally assist state law enforcement efforts.

## **U.S. Geological Survey**

The U.S. Geological Survey (USGS) has several on-going natural resource programs and projects within Connecticut and Long Island Sound that contribute to the conservation of fish and wildlife resources. The Coastal and Marine Geology Program, regionally based out of Woods Hole, Massachusetts, created the Long Island Sound Environmental Studies Program in 1995 to coordinate scientific studies of the Sound, studying the geology, contaminants, and environmental issues in particular (<http://woodshole.er.usgs.gov/project-pages/longislandsound/index.htm>). Collaborating with DEEP and other partners, the USGS has completed benthic sedimentary environment mapping projects in or adjacent to Milford, Hammonasset Beach State Park, Norwalk Islands, New Haven Harbor, Niantic Bay, Falkner Island, Fishers Island Sound, and many other locations throughout the Sound (<http://pubs.usgs.gov/of/of00-304/index.htm>). These mapping projects can aid in the identification of priority areas for restoration and protection of aquatic resources; contaminant and sediment transport studies can assist in the avoidance and containment of known pollutants when targeting aquatic habitats in the greatest need of conservation.

The Water Resources Division (WRD) of the USGS has on-going projects to study water quality and quantities in Connecticut (<http://ct.water.usgs.gov/>). The WRD initiated an intensive scientific survey of the water quality of the Connecticut, Housatonic and Thames River basins as part of the National Water-Quality Assessment Program in 1995 (<http://pubs.usgs.gov/circ/circ1155/pdf/circ1155.pdf>); one of the results of this study was to issue fish consumption advisories for some rivers and lakes where contaminant levels in fish have exceeded safe levels. The scientists with the USGS have also collaborated with DEEP and others on population studies of the federally listed roseate tern, historic and current streamflow levels, the restoration of Atlantic salmon in the Connecticut River, and the presence and transport of toxic contaminants in the state's surface and groundwater.

The Biological Resources Division (BRD) of the USGS also has scientific programs to aid in the understanding and conservation of fish and wildlife resources within Connecticut. Recent projects include the Connecticut River Initiative and the New England GAP. The Connecticut River Initiative is a BRD regional science initiative to bring diverse biological data from many sources together to enhance public and private decision making. The evaluation of various Atlantic salmon restoration techniques, including passage around migration obstructions, is an example of this program's initiatives. The New England GAP includes the development of a high-resolution vegetation map for an area in central and western Connecticut that will be used as a pilot evaluation for the rest of New England. In addition, the BRD maintains a repository of bird banding information and coordinates avian census projects, amphibian and reptile monitoring, and other biological studies through the Patuxent Wildlife Research Center in Maryland.

## **U.S. Department of Agriculture**

### **Natural Resources Conservation Service (NRCS)**

The Natural Resources Conservation Service (NRCS) offers several programs for private landowners to conserve and protect fish and wildlife resources (<http://www.nrcs.usda.gov>). These programs typically are administered with the assistance of the USFWS and in Connecticut, the state Department of Agriculture. The grant programs offer a means for the state to collaborate with private landowners to achieve fish and wildlife conservation goals in a

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cooperative manner. The NRCS is also an active partner in the Long Island Sound Study program.

In cooperation with the Connecticut Department of Agriculture's "Partnership for Assistance on Agricultural Waste Management Systems," the USDA Environmental Quality Incentive Program (EQIP) provides cost sharing for agricultural improvements that will help meet water quality and other environmental objectives. Based on state priorities, EQIP offers five to ten year contracts that provide incentive payments and cost sharing for conservation practices such as watershed protection measures. The EQIP obligated \$3,056,930 for 33 Connecticut landowner projects in FY2003 and allocated \$8,021,300 in FY2004. For more information see <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>.

The Agricultural Act of 2014 established the Agricultural Conservation Easement Program (ACEP). It repealed the Farmland and Ranch Protection Program, the Grassland Reserve Program, the Wildlife Habitat Improvement Program, and the Wetland Restoration Program. However, it does not affect the validity or terms of any contract, agreement, or easement entered into prior to the date of enactment on February 7, 2014.

ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments, and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect, and enhance enrolled wetlands.

### **National Resources Inventory Program**

The U.S. Department of Agriculture has been monitoring the status and trends of non-federal land use through its National Resources Inventory (NRI) Program for many years. According to these data, Connecticut has one of the highest proportions of developed land in the country (<http://www.nrcs.usda.gov/technical/NRI/>). Between 1992 and 1997, approximately 39,400 acres of land were converted from undeveloped to developed land use in Connecticut, for an average conversion of 7,900 acres of non-federal land a year. This trend is slower than the state's long-term development rate of 8,400 acres/year from 1982 to 1997. Altogether, the NRI estimates that 83,900 acres of non-federal land were developed in Connecticut between 1982 and 1997. Although this conversion rate ranks 43<sup>rd</sup> in the nation for 1992-97, the state ranks fourth in the country in the proportion of non-federal land (28.6%) that was developed within the state in 1997 (USDA 2000).

### **U.S. Forest Service**

There are no National Forests within the state of Connecticut. Nevertheless, the U.S. Forest Service (USFS) offers technical and financial assistance to states; operates national programs on invasive species, forest and rangeland management (including fire), and biological diversity; and tracks the status, distribution and health of forestland throughout the country (<http://www.fs.fed.us/>).

According to the USFS Forest Inventory and Analysis program, Connecticut had 1.9 million acres of forest in 1998, covering 60 percent of the state's land area (<http://www.fs.fed.us/ne/fia/states/ct/index.html>). The USFS did not detect a significant change in the amount of forestland in Connecticut between 1985 and 1998, but the proportion of forestland classified as "urban forest" increased from 44,000 to 117,000 acres during this

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period (a 165% increase). The dominant forest type is oak/hickory (51% of the timberland), with northern hardwoods making up the bulk of the rest of timberland forest type (29%). The remaining forest types are elm/ash/red maple (9%) and white/red pine (7%). The USFS has also determined that the red maple is the most common tree in the state, with sweet birch the second most common species and eastern hemlock the third. Red oaks and red maple are the most harvested tree species on Connecticut's timberlands.

### **Environmental Protection Agency (EPA)**

The Environmental Protection Agency (EPA) is the federal agency responsible for enforcing the Clean Air Act, Clean Water Act, and other environmental regulations that protect Connecticut's fish and wildlife resources. The agency has a specific presence in Connecticut through its coordination of the Long Island Sound Study, with its Long Island Sound Office in Stamford (<http://www2.epa.gov/aboutepa/epa-region-1-new-england>). Through the Long Island Sound Study (LISS), DEEP has collaborated with the EPA and other partners to monitor hypoxia and nutrient loads in the Sound, map benthic habitats, restore vital coastal and marine habitats, and increase public awareness of the threats to the Sound. As of 2013, LISS partners have restored 1,427 acres of coastal habitat and opened 295 river miles for migratory fish to travel between the brackish Long Island Sound waters and upstream freshwater rivers and lakes. As of 2013, the Long Island Sound Futures Fund has funded 22 habitat restoration projects and the planning of five projects for future restoration efforts.

In addition, the EPA, in conjunction with DEEP, completed a process similar to this Plan in 1997 which pulled together hundreds of experts in related natural resource arenas to identify the key resource areas in need of protection in Connecticut. This Resource Protection Areas Project process and resulting maps provided background material for both The Nature Conservancy's Ecoregional Conservation Plan for the North Atlantic Coast and this Connecticut Plan.

### **National Oceanic and Atmospheric Administration (NOAA)**

The National Oceanic and Atmospheric Administration (NOAA) administers several natural resource programs that affect Connecticut's fish and wildlife resources (<http://www.noaa.gov>). The National Ocean Service (NOS), National Weather Service (NWS), and the National Marine Fisheries Service (NMFS, or NOAA-Fisheries) are all agencies within NOAA. NOAA is the primary federal agency charged with protecting the nation's marine resources, including federally listed marine species such as sea turtles (when they are in the water; the USFWS has jurisdiction over nesting sea turtles) and shortnose sturgeon. Federal fishery management plans (FMPs) and the implementation of Essential Fish Habitat (EFH) regulations are also NOAA functions. As a result of these interests, NOAA maintains a research and regulatory presence in Long Island Sound and also participates in the relicensing of hydropower dams on Connecticut rivers, with a particular concern for anadromous fish.

The Connecticut Sea Grant Program falls under the NOAA as well (Section 4.2). The NOS's Office of Coastal Management oversees state coastal zone management agencies (the Office of Long Island Sound within DEEP), authorizing and funding their management programs (<http://coast.noaa.gov/>). The agency has provided funding and educational resources to the DEEP Office of Long Island Sound Program, collaborated with UConn on the NEMO program (Section 4.2), and has funded research projects to develop decision-support tools related to the management of coastal habitats, impervious surfaces, and beach nourishment. NOAA is the

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leading federal agency regarding the research and restoration of submerged aquatic vegetation (SAV) and has collaborated with (and funded) the Long Island Sound Study on numerous restoration projects in Connecticut.

In addition, NOAA's Office of Response and Restoration produces oil spill ecological risk maps and responds to the clean-up and restoration of damaged ecosystems following oil and fuel spills (<http://response.restoration.noaa.gov>). NOAA also manages a national network of National Estuarine Research Reserves, but none are located in Connecticut (<http://nerrs.noaa.gov>).

### **National Park Service**

The National Park Service (NPS) maintains a portion of the Appalachian National Scenic Trail in northwestern Connecticut, the Weir Farm National Historic Site in the southwestern part of the state in Ridgefield and Wilton, and coordinates the Quinebaug and Shetucket Rivers Valley National Heritage Corridor. Over 51 miles of the Appalachian National Scenic Trail run through Connecticut along the Housatonic River valley and the Taconic Mountains (<http://www.nps.gov/appa/index.htm>). The Weir Farm consists of 74 acres that preserve the farm of American Impressionist painter J. Alden Weir (1852-1919); the NPS maintains the farm for its historic artistic landscape and operates visiting and resident programs for present-day artists (<http://www.nps.gov/wefa/index.htm>). Finally, the NPS is collaborating with private and business entities, non-governmental organizations, local and state governments to preserve a National Heritage Corridor along the Quinebaug and Shetucket Rivers ([www.thelastgreenvalley.org](http://www.thelastgreenvalley.org)). Although the NPS owns no federal land as part of this conservation effort, the agency lends technical expertise and resources to the project.

### **Department of Defense**

The U.S. Department of Defense operates five military bases within Connecticut. The Air Force operates the Bradley IAG Air National Guard base at Windsor Lock (126 acres), along the Connecticut River, and the Orange Air National Guard base in New Haven (29 acres). The Navy operates the New London Submarine Base on the Thames River at Groton (1812 acres). The Army maintains an engine production plant in Stratford (115 acres) and an Army National Guard Major Training Center in Niantic named Camp Niantic. In addition, the U.S. Coast Guard, which falls under the Department of Homeland Security, operates the U.S. Coast Guard Academy in Groton and maintains bases along the Connecticut coast.

Altogether these military bases account for over 2,082 acres of federal land ownership in Connecticut. Each base is required to develop Integrated Natural Resource Management Plans (INRMP) for the management of fish and wildlife resources on their lands. Through the Defense Environmental Restoration Program, the U.S. Army Corps of Engineers coordinates with DEEP on the investigation, clean-up, and restoration of 55 current and former military facilities in the state that may be contaminated by hazardous or toxic waste, contain unexploded ordnance, or have unsafe structures and debris.

### **U.S. Army Corps of Engineers**

The U.S. Army Corps of Engineers (USACE) is the federal agency that oversees the protection of wetlands and waters of the U.S. through the Section 404 of the Clean Water Act permit program and the Section 10 of the Rivers and Harbors Act permit program. These permit

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programs protect the wetlands and waters of Connecticut by avoiding, minimizing, and mitigating for impacts to these important habitats. The New England District of the USACE is located in Concord, Massachusetts (<http://www.nae.usace.army.mil>). The Water Management Section of the New England District monitors river and reservoir levels, managing both water quantity and quality in many of Connecticut's rivers and lakes. The USACE operates 12 flood control dams and many of their resulting lakes, which are co-managed for natural resource and outdoor recreation uses (e.g., Black Rock Lake, Mansfield Hollow Lake, Colebrook River Lake).

The Civil Works program of the USACE New England District is responsible for dredging federal navigation channels and harbors in Connecticut (e.g., Bridgeport, New Haven, Norwalk), as well as the management of the resulting dredged materials. This section of the USACE designs, constructs, and manages a variety of water resource development projects in the state, including aquatic ecosystem restoration, flood control, and shoreline stabilization projects; DEEP is a partner on many of these projects, including the USACE's collaboration with the Long Island Sound Study. The USACE has partnered with the City of Stamford on a recent project to restore riparian and aquatic habitats along two miles of the Mill River and with Coastal America to identify potential dam removals, eelgrass restoration projects and enhancement of wetland and aquatic habitats in Connecticut.

### *Connecticut Tribes*

Connecticut has two federally-recognized Native American tribes.

#### **Mohegan Tribal Nation**

The Mohegan, a federally recognized tribe, owns the 240-acre Mohegan Indian Reservation along the west bank of the Thames River south of Norwich, near the village of Uncasville (<http://www.mohegan.nsn.us>). This tribal nation was recognized officially by the state of Connecticut in 1638, but did not receive its federal recognition until 1994. The tribe operates the Mohegan Sun Casino, the third largest casino in the country, from which revenues are generated to support the tribe's cultural and land management programs. The Mohegan also operate the Tantaquidgeon Indian Museum, the oldest Indian-run museum in the U.S., in Uncasville.

This tribe has developed exemplary energy and emissions efficiency and clean-up programs. Their natural resource projects include wetland restoration and fish passageways and additional opportunities exist for both terrestrial and aquatic collaborative SWG projects.

#### **Mashantucket Pequot Tribal Nation**

The Mashantucket Pequot Tribal Nation, federally recognized in 1983, is a member of the Native American Fish and Wildlife Society (NAFWS) and has previously received SWG funding from the USFWS (<http://www.pequotmuseum.org/default.aspx>). The Mashantucket Pequot Indian Reservation is the largest parcel of tribal land in the state, covering 1,250 acres. The tribe is actively pursuing the preservation of 500 acres of Great Cedar Swamp and offers cultural and natural resource educational programs through its Mashantucket Pequot Museum and Research Center. The Foxwoods Resort and Casino is operated by the Mashantucket Pequot, providing a source of funding for the tribe's archaeological, educational, and land management initiatives.

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This tribe was successful in receiving a tribal SWG grant on fox research. Additional opportunities exist for conserving the wildlife and habitat in greatest need of conservation on these lands.