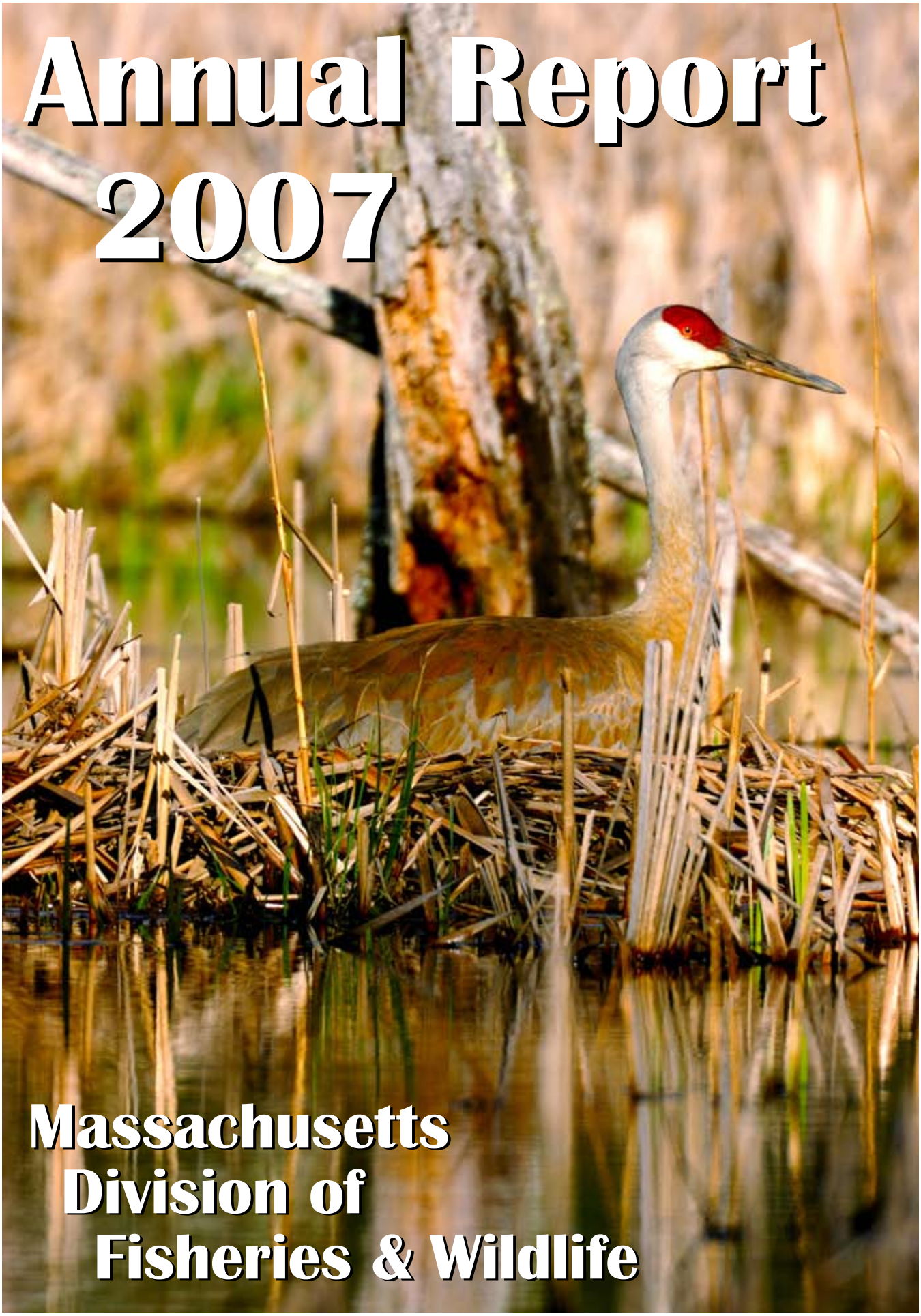
Annual Report 2007



Massachusetts Division of Fisheries & Wildlife

Annual Report 2007

Massachusetts Division of Fisheries & Wildlife

Wayne F. MacCallum
Director

Julie Delaney, *Administrative Assistant*

Jack Buckley
Deputy Director
Administration

Rob Deblinger, Ph.D.
Deputy Director
Field Operations

Debbie McGrath
Field Headquarters Administrative Assistant
and Clerical Supervisor

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About The Cover:

An adult male Sandhill Crane, *Grus canadensis*, takes his turn incubating two eggs in its nest of cattail strips. The broken fragments have been pulled together and shaped by the adult cranes onto a floating mat of vegetation, on a remote western Massachusetts beaver pond. May of 2007 marked the first time this species has ever been confirmed breeding and nesting in Massachusetts. One of the two eggs successfully hatched and fledged in July.

Read the full story in MASSACHUSETTS WILDLIFE magazine, No. 2, 2007. Photo by Bill Byrne/MDFW

All photos by Bill Byrne unless otherwise credited.

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THE BOARD REPORTS

George Darey
Chairman

The Massachusetts Fisheries and Wildlife Board is a group of seven persons, each selected for a demonstrated interest in wildlife. By law, the persons appointed to the Board are volunteers, receiving no remuneration or expenses for their service to the Commonwealth. Five of the seven are selected on a regional basis, with one member, by statute, representing agricultural interests. The two remaining seats are held by a professional wildlife biologist or manager, and a representative with a specific interest in the management and restoration of those wildlife populations not classified as game species. Each member is appointed to a five year term by the Governor. The Board oversees operations of the Division of Fisheries and Wildlife, reviews the agency's programs, and sets policy and regulations pertinent to wildlife in the Commonwealth.

Over the course of the year the Board has continued its tradition of holding its monthly meetings at locations around the state, holding public hearings on proposed regulatory changes, and addressing many issues of specific concern. While many different matters and issues were brought before the Board this year, most of its time was spent in scrutiny and review of agency programs and proposals for regulatory changes. Among the items examined were:

Deer Management Regulations & Chronic Wasting Disease (CWD)

After hearing a presentation from Deer Project Leader Bill Woytek covering the 2006 deer harvest, the Board voted to approve staff recommendations for antlerless permit allocations for the 2007 season. The Board is very pleased that, following sampling of more than 1700 animals, no Chronic Wasting Disease has been found in Massachusetts; and trusts that the restrictive emergency regulations it instructed the Director to implement last year will prevent this terrible and mysterious disease from entering the state.

NHESP Funding

The Board heard an excellent presentation by Deputy Director Jack Buckley on the funding needs of the Natural Heritage and Endangered Species Program. At various points in the past this program's funding has come from the General Fund, the Inland Fish & Game Fund, Income Tax "check-off" contributions, Bond Funding, and Environmental Review fees. At present there are two primary sources of revenue: the Tax Check-off, which is flat and has been impacted by competing funds, and Environmental Review fees. The Board was asked to initiate permanent funding for this program, which at this time survives on discretionary funding, and it voted unanimously to support that vision. The NHESP clearly needs a line item for funding that, in combination with existing revenue sources, will adequately support a comprehensive endangered species program. As this program is critical to the agency's long term conservation efforts, the Board will continue to work to establish a secure funding source.

Quabbin Lake Trout Regulations

The Board heard a presentation by Aquatic Biologist Todd Richards on Quabbin Reservoir's 5-year Experimental Slot Limit for lake trout late last year, and noting that sampled lake trout grew only a quarter inch per year and gained less than 2 ounces per year, the Board agreed with staff that the slot limit had failed to achieve its intended goals and should be rescinded. Following a public hearing, the Board voted unanimously to end the slot limit and return to the 18 inch, two fish daily limit.

Coyote Review

The Board heard a presentation from Assistant Director Tom O'Shea relative to the biology, values, and conflicts related to the eastern coyote. This included a thorough review of the current hunting season and related regulations. In order to enhance public perception of value and resolve conflicts involving this species, staff recommended expanding hunting season opportunities, increasing hunting hours, improving hunter effectiveness (by updating the definition of buckshot; permitting shot sizes from B through FF; rescinding the Director's daytime rifle restrictions in Barnstable, Bristol, Dukes, Nantucket and Plymouth counties; and clarifying the permissible use of night vision), thus addressing problem coyote conflicts and confirming the value of the resource.

The Board voted to hold two public hearings in two different areas of the state on these proposals, one in May, and another in June. A vote on the proposed regulation changes will be taken early in the next fiscal year following review of all comments received.

Online Licensing

Online sales of licenses has gone very well and provided a great convenience to members of the public who have availed themselves of this option. The system has worked almost flawlessly with the exception of some crashes during the online release of antlerless deer permits, and that problem appears to have been corrected. However, as the new administration came into control,

Eastern coyote.

the fund which allowed the agency to recover a small fee ($2.00) to recover non-labor costs such as credit card fee, postage and paper stock for each license was eliminated. When advised of this situation, the Board voted unanimously to send a letter to the office of Administration & Finance stating that, absent the ability to charge the $2.00 handling fee, 2007 licenses would not be sold online. The Board expects this situation to be resolved shortly.

Waterfowl Regulations

The Board heard its annual presentation from Waterfowl Project Leader H Heusmann on the migratory bird hunting frameworks, proposed season dates, and bag and possession limits for the 2006 waterfowl seasons. The only significant change from last year was that the bag limit for hooded merganser was doubled. Following a public hearing on these proposals, the Board voted unanimously to accept them.

On another waterfowl-related matter, the Board voted unanimously to endorse the Maritime Land Securement and the Miners Marsh projects, both conducted by Ducks Unlimited with funds resulting from the sale of Massachusetts waterfowl stamps. Both of these projects have been completed and have resulted in substantial, permanently protected waterfowl habitat in the Maritime Provinces of Canada.

Comprehensive Wildlife Conservation Strategy

The Board was pleased to hear an update presentation on the Comprehensive Wildlife Conservation Strategy from CWCS Coordinator John O'Leary. The CWCS went to the National Review Team for acceptance, and was recognized by Defenders of Wildlife as one of the top 12 such plans in the country. The Board again commends all the staff involved in producing this exceptionally important document.

Beaver in Massachusetts

The Board heard a presentation by Furbearer Project leader Colleen Olfenbuttel on the status of beaver in Massachusetts. The ballot referendum of 1996 clearly tied the hands of the agency in regards to management options for this valuable resource, and as a result the population has increased uncontrollably and complaints have increased to record levels. Authority over beaver issues was delegated to local Boards of Health in 2000, and now more beaver are being taken under emergency permits than were formerly taken under standard trapping regulations. Unfortunately there is no reporting requirement, the public and even the conservation commissions are often confused about current regulations, and the message that beaver are better utilized than wasted appears to fall on deaf ears. While bills come up regularly in the legislature to correct this situation, the Board is not optimistic that an urban majority will support help for the rural communities that suffer the brunt of the consequences. The agency's educational efforts continue, but the loss of management options and control precludes the agency from doing much else to help rectify the problem.

Miscellaneous

The Board was very pleased to dedicate a portion of the Salisbury Wildlife Management Area in honor of Geoffrey Walker of Newbury. Given that Mr. Walker has served the agency, Ducks Unlimited and his local community through his lifetime of tireless work to conserve salt marsh habitat, the Board voted unanimously to support a request from GOAL to authorize this dedication. The presentation event, attended by various dignitaries and the media, took place in August in conjunction with the annual waterfowl hearing.

The Board was also very pleased to hear two presentations by Tom O'Shea on the subject of Avian Influenza, a disease with the potential to impact humans and wildlife resources, especially waterfowl and shorebirds. The agency is moving to develop public education materials to help hunters and others who may come in contact with wild birds to avoid infection, and in general is getting prepared for dealing with the possible appearance of this disease in North America. The Board recognizes that the agency is truly on the front lines in regards to wildlife-borne diseases, and must carefully weigh the pros and cons of various techniques to deal with such diseases as EEE and West Nile Virus to protect both public health and environmental resources.

The Board heard an excellent presentation on the agency's trout hatchery program from Dr. Ken Simmons, Chief Culturist, and was gratified to hear of many long overdue improvements at all the hatchery facilities thanks to the use of year-end capital funds. These funds, suddenly made available by the Commonwealth, had to be applied for and expended promptly, or lost. Thanks to its commendable administrative staff, the agency was able to acquire these funds, which were also used to repair and improve other agency facilities,

Department of Fish & Game Commissioner, Mary B. Griffin with cub on bear survey.

including all District offices and Field Headquarters. The Board is very grateful for these funds, which were expended with extreme efficiency on much needed facility improvements.

The Board also heard an overview from staff biologist Peter Mirick on the Massachusetts Outdoor Exposition, now in its 10TH year, and a history of FAWNS, the nonprofit corporation which produces this free public event. We commend all those involved in providing this hands-on experience and much needed public outreach designed to introduce youth and adults to all our traditional outdoor skills.

The Board also heard a presentation on the Biodiversity Habitat Initiative from Deputy Director Jack Buckley; voted to endorse, at no cost to the agency, a bumper sticker promoting woodcock in conjunction with the Ruffed Grouse Society, Cowl's Lumber and the Wildlife Management Institute; heard a presentation on the status of the endangered Right Whale by Assistant Director Tom French; heard a presentation by Chief of Information and Education Ellie Horwitz on the agency's Information and Education programs; and heard a presentation by Dr. Ken Simmons on the practices and procedures for the use of avian nets in agency hatcheries to prevent or reduce predation of hatchery fish by piscivorous birds.

The Board voted unanimously to send a letter endorsing the desire of the Office of Law Enforcement to move into the Department of Fish & Game, and also offered a vote of appreciation and thanks to outgoing commissioner Dave Peters, who all agreed had had a greater impact on the agency than anyone else who ever served in that position.

The Board would like to thank outgoing Commissioner David Peters for his exceptional support and work on behalf of the agency during his tenure, and it welcomes and looks forward to working with the new Commissioner, Mary Griffin. It would also like to thank and congratulate Assistant Director Tom French for the exemplary job he performed as Acting Commissioner during the administration's transition.

A continuing concern of the Board is the issue of winter draw-downs and herbicide treatments, both of which are conducted to reduce aquatic vegetation in various bodies of water. This agency lacks the authority to regulate these practices, and it is not even required that this agency be notified of such treatments, despite the fact that they can have major impacts on aquatic systems and fisheries resources. The only exception occurs when species listed under the Massachusetts ESA are involved. This situation is a problem that needs to be addressed, and it will remain a priority issue for the Board in the coming year.

The Board voted on the recommendation of Acting Commissioner Tom French to re-appoint Ms. Marilyn Flor and Mr. Thomas Rawinski as full members of the NHESP Advisory Committee; to upgrade Mr. Glenn Motzkin from associate to full member; and to reappoint Mr. Blair Nikula as an associate member.

The Board would also like to note that the agency received the 2007 Environmental Education Award from the Environmental Business Council. The Board congratulates Ellie Horwitz and the agency's I & E staff for their efforts in environmental education.

FISHERIES

Mark S. Tisa, Ph.D.
Assistant Director for Fisheries

Introduction

Fishing, hunting, and wildlife related recreation are an important recreational activity for residents and nonresidents of Massachusetts. According to the 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, more than 278,000 Massachusetts residents age 16 and older went freshwater fishing during 2001. Additionally in 2001, more than 47,000 nonresidents fished the state's lakes, ponds, rivers and streams. The average angler in the Commonwealth fishes 14 days a year and spends $632.00 on direct and indirect expenses. Fishing pressure in Massachusetts is estimated at 40 trips/acre versus the national average of 27 trips/acre. The American Sportfishing Association estimated expenditures of $271,798,345 for freshwater recreational fishing in Massachusetts in 2006: healthy recreation that generated over $32 million in state and local tax revenue and supported some 3,858 jobs.

The Commonwealth's aquatic resource inventory includes a variety of both lotic (fast flowing) and lentic (slow flowing) fisheries habitat ranging from coldwater, wild trout fisheries to warmwater panfish fisheries. There are approximately 2,675 lakes and ponds, totaling about 142,681 surface acres. Ponded waters are mostly less than 500 acres in size. The two largest bodies of water, both man-made drinking water supplies, are the Quabbin (25,000 acres) and Wachusett (5,000 acres) Reservoirs. The largest river in Massachusetts is the Connecticut River with 72 miles (7,284 acres) transecting the Commonwealth. The 2,027 named streams flow about 10,704 miles and comprise approximately 14,900 acres. The protection, management and enhancement of these inland fisheries resources and their associated habitats involved several ongoing fisheries projects.

Anadromous Fish Investigations

General

In FY07 the Division hired three seasonal (six-month) workers to stock Atlantic salmon fry, conduct the Atlantic salmon smolt production assessment work in Connecticut River tributaries, and staff the West Springfield fishway on the Westfield River. An additional three seasonal (three-month) workers were hired to staff the Essex fishway on the Merrimack River. Northeast Utilities, as directed by the conditions of their FERC hydroelectric license, hired seasonal employees for the Holyoke fishway, and Northeast Utilities and USGS employees from the Conte lab counted fish at the Turners Falls fishway. DFW supervised these activities.

1,370,287 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery and the White River National Fish Hatchery were scatter-planted from shore into tributaries of the CT River in MA in spring 2007. Because 2007 fish passage operations are ongoing at this time, this report will summarize 2006 fish passage activities. No major malfunctions were experienced at any of the fishways on the Connecticut or Merrimack rivers in Massachusetts in 2006. An American eel upstream passage facility originally installed at the West Springfield Dam on the Westfield River in the summer of 2001 was remodeled during the summer of 2005.

Connecticut River

The Project Leader actively participated in the Connecticut River Atlantic Salmon Commission (CRASC), and continued as the chair of the CRASC Technical Committee and the CRASC Shad Studies Group. He also participated in the Connecticut River/Long Island Sound Eco-team (CTR/LIS ET) and as a member of the CTR/LIS ET fish passage sub-committee. The Project Leader was actively involved in the re-licensing of the Holyoke #4 Project on the Holyoke Canal; re-licensing of the Woronoco hydroelectric project on the Westfield River in Russell, MA; applications for FERC exemptions at the Westfield Paper Dam in Russell, MA, the Ice House Dam in Ayer, MA, and the Alternatives Project on the Mumford River in Northbridge, MA. The FERC re-licensing process has also begun for two projects on the Housatonic River in MA (Glendale and Willow Mill). Many telephone, electronic, and written requests for information were also answered by the Project Leader. The Atlantic salmon egg rearing program (ASERP) continued in 30 schools in the CT River watershed. The Project Leader was actively involved with the River Restore Program, acting as the Division of Fisheries and Wildlife's representative on the Dam Removal Triage team. This involved traveling around the state looking at and evaluating dams that may be removed. One dam on Yokum Brook in Becket, MA was removed during 2006.

Holyoke

The City of Holyoke (Holyoke Gas and Electric Co.) bought the Holyoke Hydroelectric project from Northeast Utilities in 2002. The Project Leader has been involved in ongoing negotiations with the new owner to settle the outstanding issues and finalize the FERC license for the project. Holyoke Gas and Electric Co., as directed by the conditions of their new FERC hydroelectric license, hired seasonal employees for the

Holyoke fishway in spring 2006. The Project Leader supervised their activities. The Holyoke Fishway was rebuilt between the 2004 and 2005 fish passage seasons. Improvements included:

- New tailrace lift tower, bucket, and hoist
- New spillway lift tower, bucket, and hoist
- Redesigned spillway entrance gallery and crowder
- Wider exit flume
- New salmon traps
- New shad trap and truck facility
- New counting room and second counting window

The new fishlift was operated for upriver fish passage from April 2 through July 14, 2006, except during periods of high water. Seven species of anadromous fish were identified and enumerated during the spring/summer fish passage season. The number of Atlantic salmon trapped at the fishlift decreased from 131 in 2005 to 118 in 2006. Fourteen Atlantic salmon were radio-tagged and released at Holyoke as per agreement with HG&E.

The total number of shad lifted in 2006 (154,722) was 21% of the record high passage of 1992. 2006 shad passage was 62% of the previous five year mean, and 61% of the previous ten year mean. Examining the cumulative percent of shad passed at Holyoke, 50% of fish passed this project on the 42nd day of passage, May 27. A total of 155 American shad were sampled for biological data on five days between May 8 and June 16. Fork length, weight, sex and scale samples were collected from184 individuals. This represents 0.1% of the total American shad passed for the year, and between 0.3% and 1.5% of the daily shad passage at the facility. The weighted percentage of the run sampled (the total number of fish passed on days of sampling expressed as a percentage of the entire run) was 17%. The weighted sex ratio of American shad lifted at the Holyoke facility in 2006 was 63% males and 37% females.

Fishlift personnel trapped a total of 1,979 shad for within-basin restoration efforts.

Blueback herring passage in 2006 (21) was 0.003% of the maximum passage of 1985, 1% of the previous 5 year mean and 0.1% of the previous 10 year mean.

Sea lamprey passage in 2006 (17,620) was 33% of the record passage of 1998 and was 33% of the previous five-year mean and 37% of the previous 10 year mean.

Gizzard shad passage (127) was 6% of the previous five-year mean and 1.5% of the previous 10 year mean.

Turners Falls

The Spillway, Cabot, and Gatehouse facilities were operated during the anadromous fish passage season in 2006 (May 5 through June 30). Due to staff limitations, passage was recorded on video tape to be reviewed later by representatives of the Conte Anadromous Fish lab and/or Northeast Utilities. All ladders were monitored from 06:00h until the loss of daylight made video monitoring impossible around 20:00h. All fishladders remained open for passage twenty-four hours each day.

Fourteen adult Atlantic salmon were allowed to pass the Holyoke fish passage facility. Of these, eight were observed passing the fish ladders at Turners Falls.

The number of shad passing the Gatehouse fishladder in 2006 (11,991) was 3% of the maximum passage of 1992, 88% of the previous 5 year mean and 30% of the previous 10 year mean.

The number of shad passing the Spillway fishladder in 2006 (2,577) was 22% of the maximum passage of 1992, 91% of the previous 5 year mean and 82% of the previous 10 year mean.

The number of shad passing the Cabot fishladder in 2006 (11,991) was 13% of the maximum passage of 1992, 119% of the previous 5 year mean and, 95% of the previous 10 year mean.

Examining the cumulative percent of shad passed at Gatehouse, 50% of fish passed this ladder on the 48th day of operation, May 2, 2006.

Examining the cumulative percent of shad passed at Spillway, 50% of fish passed this ladder on the 48th day of operation, May 2, 2006.

Examining the cumulative percent of shad passed at Cabot, 50% of fish passed this ladder on the 47th day of operation, May 1, 2006.

Only 1.2% of the shad lifted at Holyoke (154,722) passed the Gatehouse observation window, well below the restoration goal of 50%.

Westfield River

The West Springfield fishway was operated for upriver passage during spring/summer (April 3 through July 7, 2006). Closures due to high water occurred on April 24 and May 12-17. Five species of anadromous fish and six species of resident fish were identified and enumerated during the spring/summer fish passage season.

An eelway for upstream passage of juvenile American eel was constructed in the lower section of the fishway in August of 2001. The eelway was remodeled in 2005 and operated for upstream elver passage from July 20 through September 25, 2005.

During the spring/summer season, 34 Atlantic salmon were trapped. 32 salmon were transported by personnel of the United States Fish & Wildlife Service to the Richard Cronin National Salmon Station, Sunderland, MA. Two salmon were transported from the fishway to the upper Westfield River.

A total of 1,534 American shad; 1,276 sea lamprey; 1 striped bass; 0 blueback herring; 2,525 American eel; and 0 gizzard shad were passed upstream in spring/summer 2006. The shad passage represents 32% of the record high of 4,720 in 2001.

Atlantic Salmon Fry Stocking, Survival and Habitat Assessment

Between April 9 and May 5, 2006, 1,370,287 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery and the White River National Fish Hatchery were scatter-planted from shore into the Deerfield River Basin (16 tributaries), the Westfield River (three main branches and 23 tributaries), the Fall River (mainstem and one tributary), Four Mile Brook, the Manhan River (one branch and one tributary), Mill Brook (Northfield), the Mill River in Williamsburg (two branches and two tributaries), and the Sawmill River.

The Westfield Watershed Association (private group) organized two fry stocking days (83,000 fry total).

Index sites on streams stocked in 2005 were sampled by electrofishing to evaluate Atlantic salmon fry growth and survival. Fifty sites on forty-three streams were sampled by personnel from the Massachusetts Division of Fisheries and Wildlife in 2006.

A single-pass technique utilizing a battery powered backpack shocker was employed on all streams sampled. All fish seen were captured. Fish were held in live cars after capture, identified to species, and measured for total length. Upon completion of subsequent 'work up', all fish were released back into the index site. Index sites were selected to be proportionately representative of the habitat types in each stream. To prevent over or under estimation due to disproportionate stocking, index sites were selected, whenever possible, near the middle of a stocking section. The area of stream sampled was obtained by measuring the length of the sampled section and multiplying by the mean width for that section determined from the habitat survey data sheets.

Population estimates for each age class were obtained by expanding the number of salmon captured by the historical sample efficiency at each site (calculated in past multi-pass depletion samples). Survival was calculated by dividing the population estimate for that year class by the number of units surveyed multiplied by the stocking density of that year class. An estimate of spring 2007 smolt production was produced by multiplying the population estimate of 2+ salmon by the estimated over-winter survival (.65).

A survey of the total amount of Atlantic salmon habitat in the tributary waters of the Connecticut in Massachusetts is now largely complete. An estimated 49,281 units (one unit equals 100 square meters of river area) of Atlantic salmon habitat have been assessed through this effort.

Merrimack River

In 2006 the Project Leader actively participated in Merrimack River Policy and Technical Committee meetings as well as several working group meetings.

The two mainstem fishlifts on the Merrimack River in Massachusetts were operated and monitored for anadromous fish passage during the spring/summer of 2006.

Essex Dam

During the spring of 2006 the Essex Fishlift was operated for 46 days between April 27 and July 14. For the fall season the fishway was operated from September 15 through November 1. Anadromous fish were identified and enumerated at the counting station. Atlantic salmon were trapped for brood stock purposes and transported to the U.S. Fish and Wildlife Service hatchery in Nashua, New Hampshire.

Anadromous fish passage at the Essex project was disappointing in 2006. The main reason for the low fish numbers was the record rainfall which caused unusually high river flows and prevented CHI from installing the flash boards on the dam until June. With no boards up on the dam, the fishway could not be cleaned out and re-opened after the flood.

Forty nine adult Atlantic salmon were counted at the Essex fishlift during spring 2006. No salmon were seen in the fall. All were trapped for broodstock purposes. The captured salmon were transported to the U.S. Fish and Wildlife Service National Fish Hatchery at Nashua, New Hampshire to be spawned.

The total number of shad lifted in 2006 (574) was 0.8% of the record high passage of 2001. 2006 shad passage was 1.2% of the previous five year mean and 1.4% of the previous ten year mean. No shad were trapped and trucked to locations both in-basin and out-of-basin for restoration efforts in MA, NH and ME in 2006. No shad were sampled for biological information in 2006.

From 1996 through 2000 the numbers of river herring passing through the Essex fishway steadily increased from 51 to 23,585. In 2001, however, herring passage declined to only 1,550 fish. This decline continued in 2002 with only 526 herring observed. Herring passage rebounded in 2003 (10,866) and 2004 (14,945). 2005 passage was 98. 2006 passage was 1,105; this was 0.3% of the record high passage of 1991. 2006 herring passage was 20% of the previous five year mean and 19% of the previous ten year mean.

Total number of sea lamprey, striped bass, and gizzard shad passing through the Lawrence fishlift were 111; 0; and 0 respectively.

Pawtucket Dam

Operation of the Pawtucket Dam fish elevator began on May 1, one week after shad began to move through the Lawrence fishway, approximately 12 miles downstream, and concluded on May 14 when the Merrimack River experienced a near 100 year flood event which closed the fishway and submerged and damaged several gate operating motors. The system was operated seven days per week, generally from 7:00 a.m. to 6:00 p.m. Frequency of lifts varied between 0.5 to 2 hours based on the density of fish observed in the hopper bucket.

Estimates of fish passage were made by CHI employees who observed the hopper bucket during each lift.

The estimated total number of anadromous fish passed at the Lowell facility is as follows: American shad, 0; river herring 27; sea lamprey 9; striped bass 0; American eel 2; gizzard shad 0. This represents 0% of the shad, 2% of the river herring, and 8% of the sea lamprey passing through the Lawrence fishway this season. Table 2 lists the annual runs of anadromous fish counted at the facility from 1986, the first year of operation, through 2006.

No sea-run Atlantic salmon were seen at the Lowell fishlift. All sea-run Atlantic salmon that enter the Lawrence fishlift, downstream, are captured and removed for broodstock. However, a large number of domestic broodstock from the sport fishery in the mainstem of the Merrimack River in New Hampshire were seen in the vicinity of the Lowell fishlift. These can be harvested legally in the Massachusetts portion of the Merrimack and its tributaries upstream of the Essex Dam in Lawrence.

Hatchery/Trout Program

The Division met its annual trout production goal of between 400,000 and 450,000 pounds in FY07. This production goal is based on the rearing capacity of each hatchery (determined by a combination of the quantity and quality of the water supply and rearing space) and the limits imposed by the National Pollution Discharge Elimination System permit that each hatchery is issued by the Massachusetts Department of Environmental Protection and the Federal Environmental Protection Agency. The Division's four trout hatcheries produced a total of 447,059 pounds of trout comprised of 668,189 brook, brown, rainbow and tiger trout in FY07. This includes the entire fall 2006 and spring 2007 stocking seasons (Tables 1 and 2).

A total of 400,542 pounds of trout were stocked during the spring of 2007. This included 352,680 rainbow trout that ranged between 9 and 18+ inches long; more than 178,000 of these averaged 14 inches or longer. The spring stocking also included 108,767 brook trout that ranged between 6 and 18+ inches long; 145,702 brown trout that ranged between 6 and 18+ inches long; and 8,175 tiger trout that were more than 14 inches long (Tables 1 and 2).

2007 Fish Production

Table 1. Summary of the number trout produced and stocked from each of the Division's four trout hatcheries in FY07.

(Fall stocking 2006 and Spring stocking 2007)

Species	Size Cat. (inches)	Number of fish				Total No. of Fish
		Bitzer	McLaughlin	Sunderland	Sandwich	
Rainbow Trout	11+	0	102575	0	0	102575
	12+	32900	20565	53730	9776	116971
	14+	6500	143360	0	28280	178140
	18+	0	0	0	359	359
	Sub-total	**39400**	**266500**	**53730**	**38415**	**398045**
Brook Trout	6 - 9	19100	28400	0	4700	52200
	9+	0	0	47196	0	47196
	12+	0	0	0	8968	8968
	18+	0	0	0	403	403
	Sub-total	**19100**	**28400**	**47196**	**14071**	**108767**
Brown Trout	6 - 9	27900	0	0	4600	32500
	9+	0	25619	32375	0	57994
	12+	26400	0	29057	6645	62102
	18+	0	0	0	606	606
	Sub-total	**54300**	**25619**	**61432**	**11851**	**153202**
Tiger Trout	14+	0	0	0	8175	8175
						0
	Sub-total	**0**	**0**	**0**	**8175**	**8175**
	Total	**112800**	**320519**	**162358**	**72512**	**668189**

Table 2. Summary of the weight of trout produced and stocked from each of the Division's four trout hatcheries in FY07.

(Fall tocking 2006 and Spring stocking 2007)

Species	Size Cat. (inches)	Weight of fish (lbs) Bitzer	McLaughlin	Sunderland	Sandwich	Total Wgt. of Fish (lbs)
Rainbow Trout	11+	0	45373	0	0	45373
	12+	27272	18840	26487	7118	79717
	14+	8389	155303	0	32028	195720
	18+	0	0	0	1487	1487
	Sub-total	**35661**	**219516**	**26487**	**40633**	**322297**
Brook Trout	6 - 9	4097	7657	0	1175	12929
	9+	0	0	10553	0	10553
	12+	0	0	0	7958	7958
	18+	0	0	0	1011	1011
	Sub-total	**4097**	**7657**	**10553**	**10144**	**32451**
Brown Trout	6 - 9	7442	0	0	1074	8516
	9+	0	8051	9719	0	17770
	12+	23673	0	24642	5915	54230
	18+	0	0	0	1800	1800
	Sub-total	**31115**	**8051**	**34361**	**8789**	**82316**
Tiger Trout	14+	0	0	0	9995	9995
	Sub-total	**0**	**0**	**0**	**9995**	**9995**
	Total	**70873**	**235224**	**71401**	**69561**	**447059**

Table 3. Summary of landlocked salmon and Atlantic salmon produced at the Roger Reed Hatchery in FY07.

Species	Size Category (inches)	Number	Weight (lbs)
Landlocked salmon	smolts (8+)	13,570	2,163
	Sub-total	**13,570**	**2,163**
Atlantic salmon	green eggs	2,070,000	—
	unfed and feeding fry (1+)	761,300	294
	adults (15+)	275	3,240
	Sub-total	**2,831,575**	**3,534**

A total of 52,865 trout weighing 46,517 pounds were stocked in the fall. The fall-stocked trout included 45,365 rainbow trout and 7,500 brown trout, all averaging more than 12 inches long.

The Roger Reed Hatchery in Palmer continued its important role in both the Atlantic salmon restoration program and the landlocked salmon program for Quabbin Reservoir in FY07. A total of 1,770 landlocked salmon smolts were produced and stocked into Quabbin Reservoir in September 2006. In May of the following year, 9,800 landlocked salmon smolts averaging 7.2 inches long were stocked into Quabbin Reservoir. An additional 2,000 landlocked salmon smolts were delivered to the state of New Jersey in return for 300,000 brown trout eggs. A total of 2.07 million Atlantic salmon eggs were collected from broodstock held at the station and distributed among cooperating hatcheries in New England. A total of 761,000 Atlantic salmon fry were also produced and stocked into rivers and streams in the Connecticut River drainage basin within Massachusetts. In addition, 275 adult broodstock salmon produced at Roger Reed Hatchery were stocked in selected waters across the Commonwealth. A summary of the numbers of each of the fish species produced by the Roger Reed Hatchery is enumerated in Table 3.

Improvements to the infrastructure at each of the five hatcheries were made in FY07. At McLaughlin Hatchery the parking lot was repaved and the sidewalks

were redone to bring them into compliance with the Americans with Disabilities Act. In addition, a pipeline was installed between the hatch house rearing tanks and the waste treatment plant in order to allow draining the fish wastes directly to waste treatment rather than through the outside raceway system. In addition, preventative maintenance was done on well number one and well number three. Each well was redeveloped and a full service performed on both turbine pumps and motors. A new domestic drinking water well drilled in 2002 for the hatchery administration building was put into service. At Sunderland Hatchery, the main parking lot was repaved, and the garage was updated with new vinyl siding, metal roof and garage doors. Metal roofs were also installed on both pump houses. At Palmer Hatchery the windows in the hatchery building were replaced with energy efficient vinyl windows. A full gutter system was also installed and the chimney was rebuilt. At Montague Hatchery the roof of the storage building was re-shingled. At Sandwich Hatchery the office building and garage were updated with new energy efficient vinyl windows, new cedar siding and trim, and new roofs. The concrete floors on 10 raceway pools were also replaced.

There were three changes to hatchery staff in 2007. Jessi Manty was hired as a Wildlife Technician I at McLaughlin Hatchery to fill the vacancy created by the resignation of Eric Jefts in May 2006. Michael Dumont was hired as Wildlife Technician I at Sunderland Hatchery to fill the vacancy created by the promotion of William Musiak to Wildlife Technician II. Mr. Musiak had filled the vacancy created by the retirement of Leslie Chadwick in March 2006. Darren Guertin was hired as Wildlife Technician I at Montague Hatchery to fill the vacancy created by the retirement of Karl Hansen in January 2007.

Warmwater Fisheries Investigations

Esocid Stocking Program

The Division relies entirely on spring and summer surpluses from other states for esocid stocking. In recent years, the Division's historic sources of esocids have begun to scale back their production of northern pike, and some have completely discontinued the rearing of tiger muskies. As a result, the Division stocked many fewer esocids than in the past. As a result of a surplus from New Jersey, however, 16,512 northern pike ranging in size from three to six inches were stocked into three waterbodies: East Brimfield Reservoir, Brimfield; Quinsigamond Lake, Shrewsbury/Worcester; and Holland Pond, Holland. No tiger muskies were available for stocking this year.

Freshwater Sportfishing Awards Program

For over 40 years the Freshwater Sportfishing Awards Program has been awarding pins to anglers who catch trophy size fish from the waters of the Commonwealth. Minimum qualifying weights are currently in place for 22 different species of fish. Upon weighing a fish on a state-certified scale, the angler receives a bronze pin

Six year old Renee Wilda receives an award plaque from Director Wayne MacCallum to commemorate the catch of her 8 lb. 15 oz. Rainbow Trout.

depicting the species of fish, with the weight and year of catch stamped on the back. In addition to the bronze pin, the angler who weighs in the largest fish of the year for each of the categories is awarded a plaque and gold pin at the Eastern Fishing and Outdoor Exposition held in February at the DCU Center in Worcester. Affidavits are still being received for 2007, so results from 2006 are presented here. A combined total of 683 pins were awarded in all 22 categories (260 for youth and 423 for adult) for calendar year 2006.

The fifth annual Angler of the Year Award (presented to the angler who submits the highest number of eligible species) was presented to Joe Baker of Lowell who weighed in "pin fish" of 14 different species. The Division is currently working on several new components to the program including: catch and release and a Master Angler category which should be in place for the 2008 season.

Bass Tournament Creel Analysis

The Fisheries Section has been monitoring the results of black bass (largemouth and smallmouth bass) tournaments for over 10 years to help establish a long term database of variables such as catch rates and average fish size for specific waters. Any organization which requests the use of a facility governed by the Office of Fishing and Boating Access (OFBA) to hold a fishing event must receive a special use permit. As part of the permit requirements, the OFBA includes a creel sheet to be completed by the fishing club at the close of the event. Additionally, individual bass clubs as well as the Massachusetts Chapter of B.A.S.S. (Bass Anglers Sportsman Society) have been given creel sheets in an attempt to obtain information on tournaments held on non-OFBA ramps. The creel sheets are also available for download on the Division's website. The completed creel sheets are mailed to the Warm/Coolwater Project Leader at Field Headquarters. The creel seeks the following information: club name, date of event, location of event, start and end time, number of anglers, number of anglers weighing bass, number of anglers with limits of bass, total number of bass weighed in by species, total number of bass over five pounds, number

2006 Freshwater Sportfishing Award Program Gold Pin Winners

Species	Number of pins	Weight and Location	Angler
Broodstock salmon Adult	18	20 lb 3 oz Comet Pond, Hubbardston	Mark Walters, Millbury
Broodstock salmon Youth	5	12 lb 9 oz Onota Lake, Pittsfield	Brandon Tworig, Cheshire
Brook trout Adult	13	4 lb 12 oz Wachuset Reservoir, West Boylston	Paul Schnare, Sr., Worcester
Brook trout Youth	2	2 lb 9 oz Quinapoxet River, West Boylston	Randy Watson, Sterling
Brown Trout Adult	15	10 lb 11 oz Swift River, Belchertown	Roger Pyzocha, Ludlow
Brown trout Youth	1	3 lb 0 oz Comet pond, Hubbardston	Mike Charon, Leominster
Bullhead Adult	13	3 lb 13 oz Plugs Pond, Haverhill	Roger Aziz, Jr., Methuen
Bullhead Youth	30	3 lb 0 oz Spectacle Pond, Sandwich	Sean Finerty, Sandwich
Carp Adult	26	31 lb 15 oz Connecticut River, Northampton	Christian Lemieux, Montgomery
Carp Youth	9	26 lb 0 oz Merrimack River, Haverhill	Austin Aziz, Methuen
Chain pickerel Adult	19	6 lb 12 oz Long Pond, Rutland	Paul Swan, Worcester
Chain pickerel Youth	21	4 lb 14 oz Onota Lake, Pittsfield	Joshua Raposo, Tiverton, RI
Channel Catfish Adult	18	20 lb 8 oz Connecticut River, Hatfield	Michael Zalesky, Willimasburg
Channel catfish Youth	3	8 lb 2 oz Connecticut River, Agawam	Erik Wagner, Feeding Hills
Crappie Adult	46	3 lb 4 oz Congamond Lakes, Southwick	Roger Paye, Westfield
Crappie Youth	14	2 lb 5 oz Long Pond, Lakeville	Michael Farrell, Lakeville
Lake Trout Adult	28	16 lb 1 oz Quabbin Reservoir	Brian Janhunen, Gardner
Lake trout Youth	5	12 lb 15 oz Quabbin Reservoir	Ken Peet, Belchertown
Landlocked salmon Adult	4	6 lb 8 oz Wachusett Reservoir, West Boylston	Todd West, Jr., Worcester
Landlocked salmon Youth	0	NA	NA
Largemouth bass Adult	26	10 lb 8 oz Mary's Pond, Rochester	Joseph Cerrato, Jr., Middleboro
Largemouth bass Youth	23	9 lb 2 oz Massapoag Lake, Dunstable	Bruce Burns, Jr., Dunstable
Northern pike Adult	11	30 lb 0 oz Hamilton Reservoir, Holland	Michael Keough, Holland
Northern pike Youth	3	18 lb 15 oz Onota Lake, Pittsfield	Ryan Makes, Pittsfield
Rainbow trout Adult	7	9 lb 8 oz French River, Oxford	David Rose, Charlton
Rainbow trout Youth	3	8 lb 15 oz Garfield Lake, Monterey	Renee Wilda, Hadley
Shad Adult	17	7 lb 5 oz Merrimack River, Lawrence	Roger Aziz, Jr., Methuen
Shad Youth	2	5 lb 13 oz Connecticut River, Holyoke	Kayla Wilson, Chicopee
Smallmouth bass Adult	31	6 lb 8 oz John's Pond, Mashpee	Al Goncalves, Fairhaven
Smallmouth bass Youth	34	5 lb 4 oz Flax Pond, Brewster	Neil Connell, Brewster
Sunfish Adult	37	1 lb 5 oz Mashpee-Wakeby Pond, Mashpee	Dean Lisiewicz, Orange
Sunfish Youth	41	1 lb 4 oz Connecticut River, South Hadley	Nicholas Sorbi, South Hadley
Tiger muskie Adult	2	13 lb 7 oz Housatonic River, Housatonic	Derick Ransford, Canaan, NY
Tiger Muskie Youth	0	NA	NA
Tiger trout Adult	9	5 lb 4 oz Mattawa Lake, Orange	Adam Anderson, New Salem
Tiger trout Youth	11	2 lb 8 oz Spectacle Pond, Sandwich	Sean Finerty, Sandwich
Walleye Adult	7	6 lb 13 oz Connecticut River, Montague	Edward Dodge, Jr., Greenfield
Walleye Youth	1	6 lb 13 oz Connecticut River, Sunderland	Austin Burdick, Florida
White catfish Adult	21	7 lb 6 oz Mashpee-Wakeby Pond, Mashpee	Eddie Lemieux, Acushnet
White catfish Youth	7	5 lb 1 oz Coonamesset Pond, Falmouth	Otto Connon, East Falmouth
White perch Adult	46	2 lb 15 oz Wachusett Reservoir, West Boylston	Ernie Charon, Leominster
White perch Youth	23	2 lb 4 oz Quabbin Reservoir	Ethan Sprague, Orange
Yellow perch Adult	9	1 lb 14 oz Wequaquet Lake, Barnstable	Jeff Capute, Centerville
Yellow perch Youth	22	1 lb 13 oz Sheep Pond, Brewster	Drew Keese, West Chatham

of bass returned alive by species, total weight, winning weight and the weight of the biggest bass of the event. There is also room for the club to include comments. This information is entered into a database to allow the Division to detect long term trends in the bass populations in some of the Commonwealth's most heavily fished waters. Creel sheets are still being received for the 2007 tournament season, so results from the 2006 season are presented here.

In 2006, a total of 232 usable creel sheets were sent to Field Headquarters. These 232 tournaments represented 62 different bass clubs fishing on 49 different waters. A total of 7,041 largemouth bass and 1,263 smallmouth bass were weighed in for a catch rate of approximately one bass per 3 ½ angler hours. The average weight of a bass weighed in was 1 lb. 15 oz.. Seventy eight percent of all anglers weighed at least one bass, while 31% caught a limit (five bass total of either species). 99% of all bass

were returned to the water alive at the close of the tournaments. These indices have not changed significantly since tracking began in 1996. For waters with more than four tournaments, Quaboag Pond, Brookfield, produced the highest number of bass over five pounds (25) over nine tournaments. Long Pond, Lakeville, produced the highest percent of anglers weighing bass (96%), with Manchaug Pond, Douglas/Sutton, producing the highest percent of anglers with limits (50%). A breakdown of the number of tournaments by waterbody revealed that most waters host only a few tournaments a year, while the two highest occurrences continue to take place on Congamond Lake and the Connecticut River (which hosted 29 and 27 respectfully). Over time, this data will aid in detecting possible changes to the bass fishery.

Fish Kill Investigations and Environmental Review

Fish Kill Investigations:

Pursuant to the 1999 Fish Kill Memorandum of Understanding between the Department of Environmental Protection (DEP), the Division of Fisheries and Wildlife (DFW), the Division of Environmental Law Enforcement (DELE) and the Department of Food and Agriculture (DFA), DFW, as the coordinating agency, received 35 calls, 24 of which involved dead fish. Of these 24 reports, 11 required field investigations by DFW or DEP personnel to determine the cause of the mortality. The final disposition of the 24 calls was 19 natural kills, 2 agricultural operations, 1 low flow conditions, and 2 were pollution related.

Environmental Review:

In 2007, DFW reviewed and provided comments on all major projects affecting fisheries resources published in the *Environmental Monitor*. DFW also provided technical information to a wide variety of consultants, town and state officials on local projects. There were 128 requests to review project proposals potentially affecting 146 different named waters (117 rivers and streams and 29 ponds) statewide. Eighty four percent of the requests were received from environmental consulting contractors to fulfill DEP and MEPA filing requirements. The remainder of the requests were from state agencies such as DCR, DEP, MassHighway and EOEA (8%); federal agencies such as the Army Corp of Engineers and the USEPA (3%); local entities such as conservation commissions, departments of public works, water districts and lake associations (2%); and private entities such as power companies and rod & gun clubs (3%) . Fisheries resources were partitioned as follows: warm water (21%), coldwater (19%), stocked (24%), anadromous (9%), rare, threatened or endangered (4%), marine (2%), unknown (17%) and no fisheries resources (4%). The majority of the projects were bridge replacements/rehabilitations over streams (23%) and road reconstruction including culvert replacements (19%). The remaining reviews involved new construction (24%); lake management issues such as drawdowns, aquatic vegetation management, dam repairs, new docks, fish passage and stream bank stabilization (25%); proposed new well sites (5%); and projects such as combined sewer overflows, NPDES reviews and admission to the MWRA (4%).

Fisheries Survey and Inventory Project

FY07 Stream Survey project involved participation in the following segments:

1. Statewide Fisheries Survey and Inventory
2. Target Fish Community Development
3. Index of Biotic Integrity Development
4. Coldwater Fishery Resource Designation

1. Statewide Fisheries Survey and Inventory

Watersheds were sampled as part of the 5-year basin cycle using a standard sampling protocol. Of 431 sites sampled in FY07 (Appendix I, page 79), the majority of the samples were in the Westfield (67), Nashua (48), Chicopee (46), and Deerfield (42) watersheds. More than 10 samples were also taken in seven other watersheds (Table 4) and fewer than 10 samples were taken in an additional 10 watersheds. The sampling resulted in the collection of 35,731 fish of 40 different species

Table 4. Watersheds and number of samples in each watershed sampled in FY07.

Westfield	67
Nashua	48
Chicopee	46
Deerfield	42
Connecticut	34
Millers	29
Housatonic	21
Merrimack	21
Blackstone	19
Concord	15
Hudson	14
Taunton	14
South Coastal	11
Charles	8
Parker	8
Buzzards Bay	7
Boston Harbor	6
Mt.Hope/ Narragansett	6
Quinebaug	5
Farmington	4
Ipswich	3
Cape Cod	2
French	1
Grand Total	**431**

(Appendix II, page 86). Requests for potential stream survey and inventory sampling locations in the above watersheds were solicited from agencies and stakeholders and were used to prioritize sampling locations. For a complete description of stream survey methods, see the FY05 Annual Report.

2. Target Fish Community Development

Efforts continued on the development of the Target Fish Community and were based on Bain and Meixler (2000). The Charles River Target Fish Community was completed by the CRWA and Cornell University in consultation with regional fisheries experts.

Refinements to the Target Fish Community concept were forwarded by federal and state fisheries experts from the northeast. When combined with Statewide Fisheries Survey and Inventory, the Target Fish Community concept continues to illustrate that our river fish communities are being impacted by water quality and quantity issues and habitat alteration. The Target Fish Community illustrates what a river fish population should look like in Southern New England and represents a measurable goal for restoration. A plan was further developed to use inventory procedures, Target Fish Communities, Indexes of Biotic Integrity, and MesoHabitat Mapping to set priorities for habitat protection and restoration statewide. Data and Target Fish Community Analyses were employed and published in Armstrong et al. (2004).

The Executive Office of Environmental Affairs, as part of their ongoing development of a statewide water policy, planned for the funding of two positions at MDFW to expand the Target Fish Communities project and develop a statewide Index of Biotic Integrity.

The positions were filled in November of '05 and two biologists began work to develop Target Fish Summaries and Indexes of Biotic Integrity statewide.

Indexes of Biotic Integrity

Indexes of Biotic Integrity (IBIs) are multimetric indicators of the health of resources found at a given site. The concept relies on developing a test score at areas determined to be in good or excellent biological health, and relating the scores of other resources to these reference points. The goal of the IBI project is to use existing data and GIS coverage to develop a framework of IBIs for Massachusetts

Almost 2000 sites have been sampled from 1998-2006. Many of these sites (ca.1,000) will qualify as acceptable for inclusion in the IBI process. All information collected goes through a filtering process. This filtering process involves omitting samples based on assessment of sampling gear, sampling efficiency, adherence to sampling protocol, etc. Data for upstream basins are being analyzed for all remaining samples and anthropogenic factors will be identified for each basin. This information will be placed into a biological disturbances gradient to identify the range of impacts present in Massachusetts' stream systems. We will develop the necessary number of IBI (Index of Biotic Integrity) frameworks to encompass eco-regional differences found throughout Massachusetts. Metrics developed for each IBI will be adapted from traditional IBI metrics (i.e., species richness and composition, trophic composition, fish abundance and condition), and a flow metric based on habitat use categories developed for fish species will be incorporated to address impacts of low-flow on fish communities and aquatic resources.

The Smallmouth Bass, known for its leaps, is a very popular species among warm-water fishermen.

A summary report is now in progress for the IBI section of this work and will be available in the 2008 Annual Report.

Statewide Target Fish Community Progress

Work in FY07 focused on following the TFC methodology and applying it to all basins statewide. A report on this was prepared by staff biologist Michael Kashawagi.

3. Coldwater Fisheries Resource Designation

A project to identify waters that MDFW considers to be Coldwater Fishery Resources (CFRs), initiated in FY01, was continued and updated based on the fish samples collected in FY07. The current list of waters contains nearly 700 streams statewide. Future efforts are being planned to create GIS coverage that include all coldwater resources.

The Division should be contacted in the event that a waterbody does not appear on this list. This list of CFRs is useful as a screening tool to highlight sensitive

environmental areas, not as a definitive list of all waters that are CFRs. Each year, as subsequent sampling results are recorded, the list of CFRs will be updated to reflect the most current information.

DEP is currently in the process of completing their triennial review of the MA Water Quality Standards. A project was initiated with DEP to:

1) list all of the waters in the MDFW CFR database as existing uses; and

2) increase the number of streams protected as designated uses in this round of the water quality standards revisions.

This effort resulted in the inclusion of 135 streams as designated coldwater in the Water Quality Standards.

In the future, MDFW will participate in a pilot project with DEP to determine the range of natural thermal regimes encountered by the coldwater resources in the state and develop standards that protect this habitat.

A DFW District Wildlife Tecnician loading Rainbow Trout into a stocking tank.

Fisheries Section Staff

Mark S. Tisa, Ph.D.
Assistant Director of Fisheries

Richard Hartley, *Warmwater Fisheries Project Leader*
Colleen Hubbard, *Secretary*
Todd Richards, *Stream Fisheries Project Leader*
Ken Simmons, Ph.D., *Chief Fish Culturist*
Caleb Slater, Ph.D., *Anadromous Fish Project Leader*
Leanda Fontaine, *Fisheries Technician*

Hatchery Staff

McLaughlin

James Hahn, *Manager*
Jennifer Ayre, *Bacteriologist*
John Sousa, *Assistant Manager*
Kurt Palmateer, *Assistant Manager*
Mark Coughlin, *Wildlife Technician I*
Alan Jackson, *Wildlife Technician II*
Chris Paterson, *Wildlife Technician I*
Susan Townsend, *Wildlife Technician II*
Jessi Manty, *Wildlife Technician I*

Montague

John Williams, *Manager*
Holly Hubert, *Assistant Manager*
Darren Guertin, *Wildlife Technician I*
Douglas Isles, *Technician II*
Rick Gamlin, *Wildlife Technician I*

Palmer

Daniel Marchant, *Manager*
Arthur Pellegri, *Assistant Manager*
Jason Johnson, *Wildlife Technician I*

Sandwich

Craig Lodowsky, *Manager*
Adam Davies, *Assistant Manager*
Amber Courier, *Wildlife Technician I*
Greg McSharry, *Wildlife Technician I*

Sunderland

Charles Bell, *Manager*
Brian Guerin, *Assistant Manager*
Michael Dumont, *Wildlife Technician I*
Bill Musiak, *Wildlife Technician II*
Edward Siwicki, *Wildlife Technician II*
Andrew Ostrowski, *Wildlife Technician I*

WILDLIFE

Thomas K. O'Shea
Assistant Director for Wildlife

The Wildlife Section oversees research and management of all avian and mammalian species within the Commonwealth of Massachusetts which are primarily utilized in any way for meat, fur or sporting purposes. The Wildlife Section is also responsible for the agency's forestry project and upland habitat program on over 121,000 acres of state Wildlife Management Areas. The overall goal of the Wildlife Section is to promote wildlife biodiversity; conserve the Commonwealth's game species; resolve and mitigate human-wildlife conflicts; and provide and enhance wildlife recreational opportunities.

Managing wildlife recreation, conservation, and restoration projects in the third most densely populated state in the nation is certainly a challenging task. In meeting the agency's goals, Wildlife Section biologists are faced with significant issues relating to human-wildlife conflicts occurring statewide from urban to rural environments while striving to maintain wildlife populations at levels that are in balance within the biological carrying capacity of their habitat and the cultural carrying capacity of the public. Wildlife Section biologists and foresters also have the tremendous task of working to stem declines in certain species and their associated habitats resulting from losses due to development and natural and human-induced changes in the landscape.

Wildlife Section staff must meet demands related to wildlife management and recreational opportunities in a state with 73,000 hunters. Expenditures from sportsmen and women in Massachusetts are estimated at 71 million dollars annually according to statistics from the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

The Wildlife Section's efforts are devoted primarily to research and management of wildlife populations of species that are hunted or trapped, as well as to active habitat management to support wildlife populations and species in greatest need of conservation. The Wildlife Section is also responsible for the Division's pheasant stocking program, the testing and registration of problem animal control (PAC) agents and falconers, and the licensing and inspection of commercial deer farms and certain other propagators' facilities.

The Wildlife Section has a staff of wildlife biologists and foresters who conduct projects throughout the state with assistance from District personnel and in cooperation with the U.S. Fish & Wildlife Service and the Massachusetts Cooperative Fish & Wildlife Research Unit (USGS). Biologists and foresters within the Wildlife Section engage in wildlife management programs under the following general classifications:

- Monitoring and research of wildlife populations and habitat
- Population analysis
- Harvest management
- Community-based human-wildlife conflict management
- Restoration of wildlife
- Ecological research
- Public use and methodology surveys
- Sustainable forest management
- Early-successional habitat management
- Habitat protection

Upland Game Bird Monitoring

Northern bobwhite quail: Quail populations are indexed through biennial whistle count surveys; 18 survey routes (6 per county) are equally distributed in Bristol, Plymouth, and Barnstable counties. These survey routes have remained largely unchanged for >35 years. In 2007, no (0) northern bobwhite quail were detected. Counts of whistling male bobwhite quail have been declining for >15 years; however this is the first year in which no quail were detected.

Mourning dove: Mourning dove populations are monitored annually as part the U.S. Fish and Wildlife Service's (USFWS) Call Count Survey. This is a standardized effort conducted nationwide to index mourning dove populations. The number of doves heard on five of eight Massachusetts survey routes in 2007 was equal to or higher than the number heard on the same routes in 2006. The total number of calling doves heard on eight comparable routes in 2007 (100) was slightly below the 10-year long term average (109). The 10-year average of the number of doves seen or heard on Call Count survey routes has remained stable across New England; the 40 year long term average shows a slight (1-2%) increase. Doves are a popular game bird throughout most of the country, however hunting of mourning doves is not permitted in Massachusetts.

American woodcock: Woodcock populations are indexed through the Singing Ground Survey (SGS), an effort that exploits the unique, conspicuous courtship behavior of male woodcock each spring. The SGS methods are standardized and are conducted across

most states east of the Mississippi River. Eleven (11) randomized spring woodcock singing ground surveys were conducted in 2007. The total number of singing woodcock heard on comparable routes decreased nearly 60%. Heavy spring snow storms in April probably influenced breeding activity in 2007.

Each year, the USFWS surveys woodcock hunters through the Harvest Information Program (HIP). In 2006, HIP data indicated that in Massachusetts, approximately 1327 hunters bagged roughly 3052 woodcock (2.3 birds per hunter), a slight increase from 2005 (1.7 birds per hunter). The recruitment index (ratio of immature birds per adult female) for 2006 was 1.6, and slightly higher than in 2005 (1.3).

Ruffed grouse: Ruffed grouse breeding activity is monitored annually through roadside drumming surveys that exploit distinctive male courtship behavior. The average number of drums per stop (ANDS) along 29 random routes in 2007 was 0.21, approximately 33% higher than in 2006 (0.16), and two times higher than in 2005 (0.10). This increase in 2007 was most pronounced in the Western (ANDS = 0.50) and Connecticut Valley (ANDS = 0.27) Districts, indicating an overall upward trend in grouse breeding activity. Grouse breeding activity remains very low in the Northeast and Southeast district, despite areas of suitable habitat.

To provide additional information on true grouse abundance, a pilot study was initiated to assess the efficacy of accurately measuring the abundance or density of ruffed grouse statewide. Ten (10) transects covering approximately 70 km (43.5 miles) were sampled; 20 grouse flushes were recorded. Sample size precluded calculation of reasonable density estimates; however, the encouraging initial survey results justified an expanded effort in late summer and early fall 2007.

Waterfowl Surveys and Management

Division personnel continued to conduct nest box checks on 52 sites used by the Division of Fisheries & Wildlife to monitor wood duck populations statewide. Nesting success in 2006 was reduced by extensive spring flooding (rainfall was 400% above normal in May in northeastern Massachusetts, with less but still substantial rainfall in other parts of the Commonwealth). Summer checks revealed 399 wood duck nest starts (similar in number to last year) in 586 available boxes, with 254 successful hatches (64% vs. 76% last year). In addition, there were 79 hooded merganser hatches from 155 starts.

Massachusetts participates in the Atlantic Flyway Resident Goose Banding Program. Our goal is to band 1000 geese each year to provide data for the federal database. Geese are captured by round ups conducted during the summer molt. A total of 1,013 Canada geese were banded at 68 sites in 61 towns in Massachusetts this year. The total included 334 goslings and 679 adults. Crews also captured an additional 294 previously banded geese. In addition, cloacal swabs from five geese on each of 40 sites were taken as part of a nationwide Avian Influenza surveillance program.

After 16 years of service our old airboat was replaced with a new model, which has an aluminum hull and an automotive engine with a belt drive reduction unit. The new boat ran well over all and was better than the old boat in button bush and water willow, but it experienced some problems with oil leaks, a bolt falling out of the generator, and a broken belt that reduced program success. That, along with being unable to launch the boat on two nights, plus a scarcity of ducks on three sites, led to an average catch of only 28.7 birds per trip, far fewer than the normal average of 40-45 birds per trip.

Staff made 16 trips and banded 459 birds, with catches ranging from 0 to 94. Among the birds banded were 307 wood ducks, 89 mallards, and two American black ducks. Although not scheduled to participate in a federal band reporting rate study involving "reward banding" a sample of black ducks and adult mallards this year, we did band two black ducks and four adult mallards with reward bands left over from 2005. In addition to the airboat banding, five wood ducks and 49 mallards were banded by bait trapping at two sites in western Massachusetts. Twenty five mallards from five different locations were sampled for Avian Influenza.

During September 6-25, Massachusetts conducted a resident Canada goose season with a five bird daily bag limit. The Migratory Bird Hunter Harvest Information Program (H.I.P) of the U.S. Fish and Wildlife Service estimated a September season harvest of 4,300 geese. This compares to a harvest estimate of 4,100 last year.

Duck hunting seasons in the Atlantic Flyway continued with the liberal option of 60-day seasons and a six bird daily bag limit. The Canada goose season was 60 days with a two bird daily bag limit in the Central and Coastal waterfowl hunting zones; and 45 days with a two bird daily bag limit beginning October 20 in the Berkshire zone. During the sea duck season, we contracted with a guide to collect samples for Avian Influenza surveillance from common eiders and longtailed ducks.

The annual Midwinter Waterfowl Survey was flown in January under very mild conditions. American black duck numbers were above the previous year, but still low with only 17,025 counted, 12% below the 10 year average. Mallard counts (3,748) were 2% higher than the 10 year average. Canada goose numbers (9,915) were 14% below the 10 year average. The overall waterfowl count of 105,986 was 3% below both last year and the 10 year average.

Between January 16 and February 15, 2006, Massachusetts held a late, resident Canada goose season in the Central waterfowl zone, while the season in that portion of the Coastal zone north of Cape Cod ran January 23 to February 15. The USFWS estimated a harvest of 3,900 geese compared to 4,000 birds last year.

During April and May staff participated in the Northeastern States Waterfowl Breeding Survey. This survey is based on sampling randomly selected, one kilometer square plots. Massachusetts checked 93 of the 1,455 plots used in the survey. Ten states participated in the 2006 breeding pair survey for waterfowl. Delaware did not participate this year due to a changeover in personnel, but estimates could be adjusted for this situation. The population estimate for mallards was 345,742 pairs ± 13%. The estimate for black ducks was 24,907 pairs ± 34%; wood ducks, 194,578 pairs ± 17%, and Canada geese, 384,715 pairs ± 15%. Data from this survey is used to set hunting season regulations tailored to the Atlantic Flyway.

Massachusetts entered its ninth year of the new federal Migratory Bird Hunter Harvest Information Program (HIP). HIP is designed to replace the present survey based on collecting names of duck stamp buyers at post offices, and will allow for more specialized surveys of various migratory bird species. Waterfowl and woodcock hunters are required to register each time they buy a new license by calling a 1-800 number. Hunters were also able to register on line through the state's new internet registration system.

The project leader reviewed and scored a total of 56 North American Wetland Conservation Act large grant requests during the fall 2005 and spring 2006 application rounds. This work is done under the auspices of the Atlantic Coast Joint Venture project. He also attended the technical section and Council meetings of the Atlantic Flyway Council in South Carolina and New York.

Wild Turkey Range and Harvest Evaluation

The 17th consecutive fall either-sex turkey season was held from Oct. 30 to Nov. 3, 2006. The open zone included wildlife management zones (WMZ) 01 through 09 and 13. There were 14,881 eligible permittees. A record low total of 107 turkeys was taken, including 28 (26.2%) in Worcester County, 25 (23.4%) in Hampshire County, 24 (22.4%) in Franklin County, 25 (23.4%) in Berkshire County, 7 (6.5%) in Hampden County, 3 (2.8%) in Middlesex County, and none in Dukes or Norfolk counties. There were 25 adult males (23.4%), 25 immature males (23.4%), 56 females (52.3%) and 1 un-aged male (0.9%) harvested.

The 28th Massachusetts spring gobbler hunt was held in April-May 2007. The four-week open zone included WMZs 01 through 10 and 13. The two-week open zone included Zones 11 and 12. A record total of 14,413 permit applications were received. A record harvest of 2481 turkeys was attained (the 16th straight year over 1000; the 9th over 2000). There were 341 persons (2.4%) who took their second bird in the bag, as compared to 343 persons (2.4%) in 2006. The overall estimated success rate for taking one turkey was 14.8%, as compared to 13.4% in 2006. The Worcester County harvest was 641 (25.9%), followed by Berkshire (465, 18.7%), Franklin (425, 17.1%), Hampshire (239, 9.6%), Hampden (186, 7.5%), Middlesex (157, 6.3%), Plymouth (140, 5.7%), Essex (88, 3.6%), Bristol (79, 3.2%), Norfolk (52, 2.1%), Barnstable (8, 0.3%), and Dukes (1, <0.1%). Adult males comprised 1627 (66%) of the take, as compared to 1434 (63%) in 2006.

Black Bear Distribution and Harvest Investigations

A record total of 5789 bear hunting permits were issued for the 2006 hunting season (3593 in 2005). The 2006 season was expanded to allow hunting during three weeks in November (rather than one). A near-record total of 148 bears were taken during the 35-day split season, including 125 during the 17-day September segment and 23 during the 18-day November segment. Seventy-eight males and 70 females were taken in Berkshire (n=76), Franklin (n=32), Hampden (n=17), Hampshire (n=18), and Worcester (n=5) counties. There were 17 non-hunting mortalities (19 in 2005-06) including 11 road kills, 2 depredation kills, 2 injured and euthanized, 1 diseased animal, and 1 illegal kill. A total of 113 problem bear complaints was received (108 in 2005-06) including 31 depredations on bird feeders, 29 residential complaints, 20 trash and garbage complaints, and 10 apiary and 10 livestock (primarily poultry) depredations. Additional untallied complaints were received by the Office of Law Enforcement and by local officials.

Black Bear Cub Production and Survival

Responsibility for the black bear field study long conducted by the University of Massachusetts (in cooperation with MassWildlife) shifted to the DFW in 1999. Fourteen radio-collared female bears were active in July 2006. One radio-collared sow was harvested legally during the September hunting season, and one lost its collar in October. During winter 2007, 9 of the 12 remaining bears were tracked to their winter dens. Six bears had a total of 14 cubs (7 males, 7 females) and 3 bears had a total of 5 yearlings (1 male, 4 females). One bear has been missing since spring 2005; one sow was disturbed in the den by local residents in February 2007 (apparently no young) and did not re-den; and a third sow was active all winter (≥1 yearling). Four female yearlings were radio-collared, and one male yearling was ear-tagged. A male cub from an abandoned den in Shelburne was fostered with a litter in Northampton. No bears were captured in barrel traps or by incidental means. One ear-tagged male was killed while depredating beehives in May 2006, and two other ear-tagged males were harvested legally during the September and November hunting seasons. Fifteen radio-collared females were being monitored as of July 1, 2007. The status of a 16th radio-collared sow is unknown.

Furbearer Project

The furbearer program is responsible for the management of, and research on, 14 species of wildlife in the Commonwealth. This group includes beaver, muskrat, bobcat, eastern coyote, red and gray fox, river otter, fisher, striped skunk, mink, long-tailed and short-tailed weasel, raccoon and opossum.

Massachusetts' furbearers are abundant and widely distributed throughout the state. The populations of these species are scientifically managed and secure. None are threatened or endangered. The value of the Commonwealth's furbearer resource is very diverse and includes economic, ecological, cultural, biological, aesthetic and educational benefits for individuals in the state.

The furbearer management program presents many challenges to wildlife managers and uses various options including habitat manipulation, public education and regulated hunting and trapping as tools in the management of these renewable resources. A combination of techniques is used to:

1. Control problem animals;
2. Regulate wildlife populations;
3. Reduce habitat degradation;
4. Reduce crop and property damage;
5. Aid in the recovery of endangered species;
6. Allow a sustainable harvest of renewable furbearer resources.

These activities provide recreational and economic opportunity for citizens and households in the state. A total of 2,763 furbearers were harvested in the 2006-2007 season. The harvest by species was 730 beaver, 38 bobcat, 242 coyote, 582 fisher, 97 river otter, 46 red fox, 45 gray fox, 234 raccoon, 36 mink, 1 weasel, 8 skunk, 25 opossum, and 679 muskrat.

Regulated trapping is an important component of wildlife management programs. It is the most practical and effective method to control wildlife population growth. Regulated trapping, conducted by a trained and licensed public, is used by wildlife professionals to regulate wildlife populations and thus to reduce negative aspects associated with high wildlife populations. Residents of the state derive financial benefits due to decreased amounts of property damage caused by furbearers, and by diminishing the need to pay control agents.

The Division of Fisheries and Wildlife heavily regulates the harvest of furbearing animals. Massachusetts has complex laws and regulations that govern trapping. These regulations include:

1. Mandatory licensing of trappers;
2. Mandatory trapper training;
3. Restrictions on the size of traps;
4. Restrictions on types of traps;
5. Restricted seasons for trapping;
6. Restricted areas for trapping;
7. Mandatory regular checking of traps;
8. Mandatory tagging of traps to identify the owner.

Furbearer Management

In response to the growing interest and concern among sportsmen and women of the Commonwealth and its many communities and municipalities, the Fisheries & Wildlife Board requested staff to conduct a review of the eastern coyote in Massachusetts. After a comprehensive, science-based review of coyote biology, values and human-coyote conflicts was conducted by staff, recommendations for changes in state coyote regulations were presented to the Board in January.

The most significant proposed changes involved expanding the coyote hunting season by five weeks (to overlap with the deer season), and adding coyotes to the list of 25 species that Problem Animal Control (PAC) officers are currently authorized to remove.

Pelt Sealing:

Due to current confusion regarding the tagging requirements for certain furbearers, the language of 321 CMR 3.02(5) was changed so that all beaver, bobcat, coyote, fisher, fox, wild mink, and river otter that are taken or salvaged must be brought to a designated representative of the Division and sealed with an official seal by said representative. Pelt sealing is used to gain harvest and distribution information for beaver, otter, red fox, gray fox, bobcat, coyote, mink, and fisher statewide. During the 2006-2007 trapping season, the Division sealed 1,816 animals.

Wildlife Depredation and Damage

Division personnel responded to complaints involving furbearer species causing the loss of domestic livestock and pets. Specific furbearer species causing concern are eastern coyote, red fox, gray fox, fisher, raccoon, and skunk. Site visits were conducted and technical advice given in an attempt to eliminate or alleviate damage situations. The agency currently offers brochures describing the natural history and methods the public can use to prevent conflicts for 7 of the 14 furbearer species.

Coyotes currently occur in every community in Massachusetts except those on Martha's Vineyard and Nantucket. Complaints about eastern coyotes rank as the highest source of phone calls received by the agency relative to wildlife, and have been recorded from more than 340 different towns in the Commonwealth since 1990. Most complaints report property damage and/or public safety concerns about coyotes in residential areas and include attacks on pets, denning in or around human structures, and livestock and crop depredation.

Wildlife Diseases

In addition to conducting surveillance to detect avian influenza (waterfowl) and chronic wasting disease (deer/moose), Wildlife Section staff cooperate with the Department of Public Health in monitoring rabies and tick-borne diseases, and also participate in a consortium of federal, state, and local organizations through the Animal Surveillance and Education Committee, Tufts School of Veterinary Medicine.

Deer Project

The statewide 2006 harvest of 10,479 deer is the 7th highest harvest reported in Massachusetts since 1966. It includes a record archery harvest (Table 1). The 2006 white-tailed deer harvest by sex/age and the number of antlerless deer permits allocated and issued by wildlife management zone (WMZ) for Massachusetts are shown in Table 2. Overall, there was a 12% decrease in harvest from the 2005 hunting season, with over a 20% decrease in female harvest statewide. Statewide there was an increase of 7% in the archery season harvest; a 13% decrease in the shotgun season harvest; and a 36% decrease in the muzzleloader season harvest. The decreases can be related to poor hunting conditions during portions of the shotgun and muzzleloader seasons, as well as a decrease in the number of antlerless deer permits issued in 10 of 15 WMZs. The 2006 deer harvest by season and wildlife management zone is displayed in Table 3.

In response to a request from residents in WMZ 13 (Martha's Vineyard) the Fisheries and Wildlife Board voted to extend the shotgun season to 12 days to address concerns about the density of deer and a high incidence of Lyme disease.

This was the fourth year since the change in the antlerless deer permit system required a hunter to have an antlerless deer permit to harvest an antlerless deer in *any* deer season. The changes have increased hunter opportunity statewide while regulating deer harvest across all WMZs (see Figure 1). Overall, we have been able to increase deer densities in three zones (WMZs 2, 4S and 4N); maintain deer densities in four zones (WMZs 1, 5, 6 and 12); and decrease deer densities in eight zones (WMZs 3, 7, 8, 9, 10, 11, 13 and 14). We have achieved our deer density goals in nine of the 15 WMZs (1, 2, 3, 4N, 5, 6, 7, 8 and 12) which are located mainly in western and central Massachusetts. Currently the deer population statewide is estimated to be between 85,000 and 95,000. Densities range from 10-12 deer mile^2 in western Massachusetts to >40 - 60 deer/mile^2 on the islands of Martha's Vineyard and Nantucket in eastern Massachusetts.

The antlerless deer permit (ADP) allocation for 2006 was 43,850 permits, a 2% decrease from 2005, while

Table 1. The 2006 White-tailed deer harvest by season and sex/age class.

Season	Adult Male	Female	Male Fawn	Unknown sex	Total	% Harvest
Paraplegic	5	0	3	0	8	
Archery	2068	1039	266	12	3385	32%
Shotgun	2690	2285	616	13	5604	53%
Muzzleloader	540	791	148	3	1482	14%
Subtotal	5305	4115	1033	28	10479	
Quabbin	67	45	5	0	117	
Total	5370	4160	1038	28	10596	

Table 2. The 2006 white-tailed deer harvest by deer sex/age and the number of antlerless deer permits allocated and issued by Wildlife Management Zone for Massachusetts.

WMZ	Adult Male	Female	Male Fawn	Unknown sex	Total Harvest	ADP Allocation	ADP Issued
1	136	70	5	0	211	750	725
2	266	24	3	3	296	150	145
3	384	272	40	0	696	3500	3386
4N	275	60	13	0	348	400	393
4S	144	24	2	0	170	350	335
5	358	182	40	1	581	1650	1605
6	113	55	9	1	178	550	529
7	327	235	53	1	616	2800	2694
8	530	355	87	5	977	4000	3892
9	498	460	119	2	1079	4700	4748
10	807	864	186	9	1866	9050	8810
11	954	948	248	4	2154	9700	9399
12	125	85	19	0	229	900	856
13	207	295	120	0	622	2700	1248
14	160	178	86	0	424	2650	834
Unknown	20	7	3	2	32		
Statewide	5304	4114	1033	28	10479	43,850	39599

Table 3. The 2006 deer harvest by wildlife management zone and season.

WMZ	Paraplegic	Archery	Shotgun	Muzzleloader	Total
1	1	46	142	22	211
2	0	86	172	38	296
3	1	137	442	116	696
4N	0	106	198	44	348
4S	0	54	95	21	170
5	0	139	363	79	581
6	2	30	122	24	178
7	0	193	342	81	616
8	0	263	571	143	977
9	4	350	563	162	1079
10	0	828	770	268	1866
11	0	851	996	307	2154
12	0	49	129	51	229
13	0	134	416	72	622
14	0	107	269	48	424
Unknown	0	12	14	6	32
Statewide	8	3385	5604	1482	10479

39,599 permits (90%) were actually issued (there was insufficient demand to sell all allocated permits in some zones). Nearly 41% of the issued permits were sold over the counter as additional antlerless deer permits for those zones where allocation exceeded demand. These additional permits resulted in a bag limit increase in the WMZs involved.

We are continuing to determine cause-specific mortality for deer in three study areas (eastern, western and north-central Massachusetts) by monitoring existing collared deer. Currently there are 28 deer radio-marked in Massachusetts, with 15 in the west, 4 in the north-central, and 9 in the east. Non-harvest mortality continues to exceed harvest mortality in all three study areas and survival rates remain high. Some of these deer were collared as adults in 2000 and 2001 and are still alive.

Each year the DFW offers a special hunting opportunity for paraplegic sportsmen.

In accordance with the USDA-APHIS guidelines for Chronic Wasting Disease (CWD) Surveillance, we continued with our surveillance program. Deer heads were collected from each deer management zone to obtain the number of samples required to generate a statistically valid, stratified sample for Massachusetts. During the 2006 deer seasons, Massachusetts collected 464 samples. Results indicated that CWD was not detected. We will continue surveillance efforts in the 2007 season with funding provided by the USDA-APHIS, especially in the WMZs that border New York and/or contain captive deer facilities.

Moose Project

Traditionally, the DFW has collected data concerning moose sightings from the public, moose found dead, and moose vehicle accidents (MVAs). These indices are used for determining population trends and for estimating the moose population in Massachusetts. There have been 1,218 reports submitted to the DFW concerning moose since 1924. In 2006 there were 89 reports made to the DFW concerning moose. These included 40 MVAs, 15 sightings, 2 euthanized, 11 dead moose, 1 public safety kill, 1 illegal kill, 3 research captures, 7 LART responses, and 9 relocations of problem moose. The trend in moose sightings reported to the DFW continues to decline, however we had a 35% increase in the number of reported MVAs from 2005.

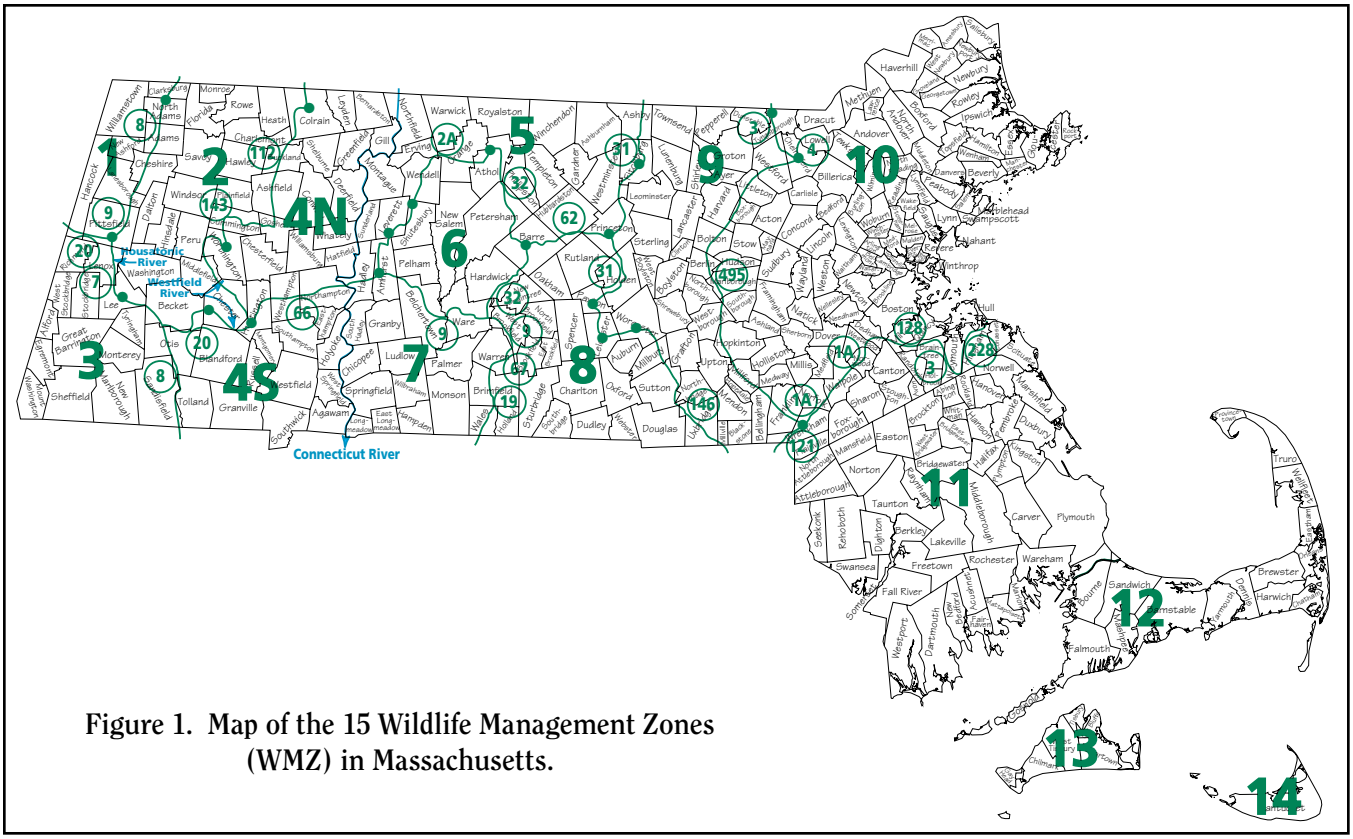


Figure 1. Map of the 15 Wildlife Management Zones (WMZ) in Massachusetts.

Figure 2 shows the number of moose-vehicle accidents from January 1980 through 2006. Moose vehicle accidents are all moose that were struck and killed on Massachusetts highways, plus all moose that were struck by vehicles but walked away from the accident. There have been 286 MVAs in Massachusetts from 1980 to 2006 (Table 4). Figure 3 shows the number of MVAs by town from 1980 to 2006. The MVA rate for 2006 was 3.34 moose per month. This is a 35% increase from 2005 (Figure 2). The 2006 MVA rate is above the five year MVA average of 2.68 per month, and the 10 year average of 1.76 per month. We feel that this is a minimum number, as not all MVAs are reported to the DFW or to the Environmental Police, and often the DFW learns about the incidents indirectly through newspaper reports.

The current moose population in Massachusetts is estimated to be between 850 and 950 animals. We use a basic population model that incorporates sighting rates

Figure 2. Moose vehicle accidents reported in Massachusetts from 1980 to 2006.

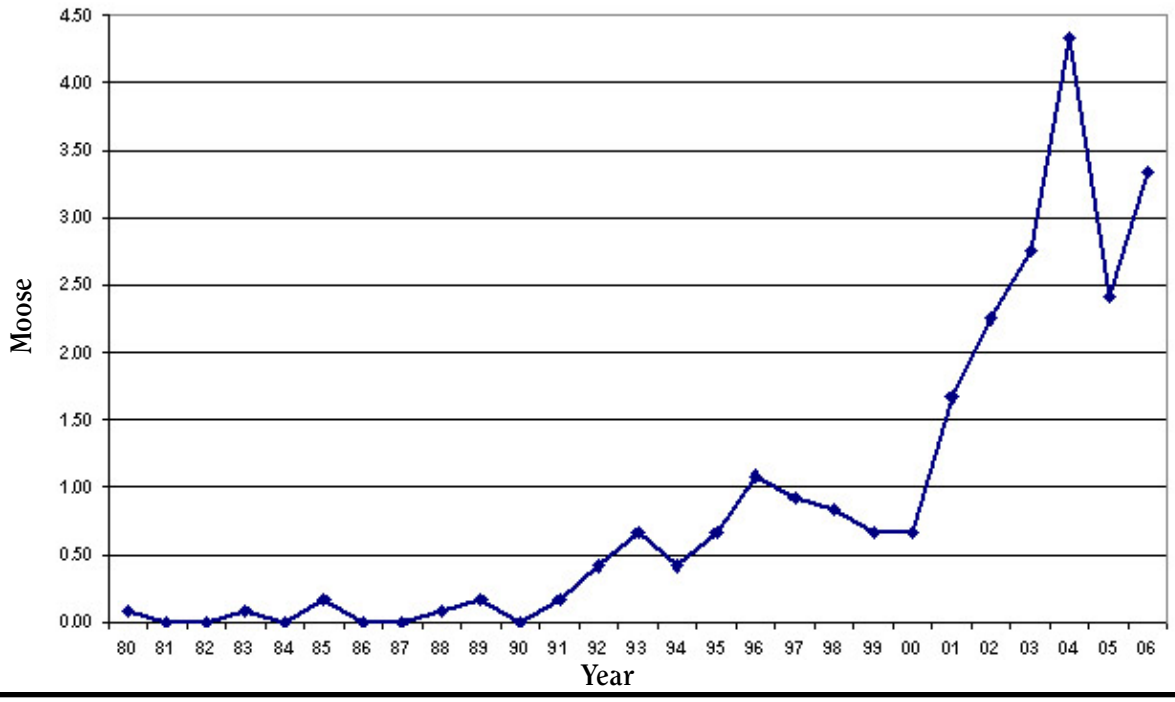


Table 4. The moose mortality reported in Massachusetts from 1980 to 2006.

Total MVA is the sum of roadkill and collisions, while total mortality is the sum of total MVA and other mortality.

Year	Roadkill	Collisions	Total MVA	Other Mortality	Total Mortality
1980	1	0	1	0	1
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	1	0	1	0	1
1984	0	0	0	0	0
1985	2	0	2	0	2
1986	0	0	0	3	3
1987	0	0	0	0	0
1988	1	0	1	1	2
1989	2	0	2	2	4
1990	0	0	0	0	0
1991	2	0	2	4	6
1992	5	0	5	5	10
1993	8	0	8	4	12
1994	5	0	5	3	8
1995	8	0	8	4	12
1996	12	1	13	5	18
1997	11	0	11	4	15
1998	6	4	10	8	18
1999	8	0	8	9	17
2000	8	0	8	7	15
2001	18	2	20	9	29
2002	22	5	27	12	39
2003	28	5	33	7	40
2004	43	9	52	15	67
2005	24	5	29	20	49
2006	28	12	40	15	59
Total	243	43	286	137	427

Table 5. Moose sighting rates per 100 hours of deer hunting, and moose vehicle accidents by Wildlife Management Zone (WMZ) in 2006.

WMZ	Sighting Rate (100 hrs/hunting)	Moose Vehicle Accidents
1	0.06	1
2	1.21	5
3	0.19	3
4N	0.32	4
4S	0.92	1
5	0.76	9
6	1.48	4
7	0.31	2
8	0.25	5
9	0.11	5
10	0.02	1
11	0.00	0
Statewide	0.24	40

from the deer hunter survey and available moose habitat in the 12 Wildlife Management Zones (WMZ) that we feel has potential for moose (Figure 1). Cape Cod and the islands are not included in this estimate. Currently, the sighting rate across the Commonwealth is 0.24 moose/100 hours of deer hunting, which is an increase from the 0.22 moose/100 hours of deer hunting in 2005 (Table 5). Also, this was the first year since 2001 that no moose were reported in the survey in WMZ 11.

Chronic Wasting Disease surveillance and monitoring was extended to moose in 2006. Staff collected three samples from road kill and sick moose during the fall. Chronic Wasting Disease was not detected.

In early spring of 2006, staff began a research project with the USGS Cooperative Fish and Wildlife Research Unit and the University of Massachusetts in which GPS collars are used to evaluate moose movement and habitat use in Massachusetts at a fine scale. The Unit collared nine moose with GPS units in 2006. The collared animals are a mix of problem animals that have been relocated, previously collared moose that were recaptured and re-collared with GPS units, and free ranging, non-problem moose. So far two collars have been recovered. One moose died and the second was recaptured and re-collared due to an issue with the collar. The preliminary data has been downloaded and looks good in spite of the collar failure. The Wildlife Section plans to place GPS collars on additional animals this year and include a couple of translocated moose in the sample.

Forestry Project

The Forestry Program is a component of the Division's Biodiversity Initiative, which seeks to maintain and restore the native diversity of flora and fauna through active land management. The Forestry Program focuses on creating a distribution of successional stages from young forest habitat to biologically mature (late-seral) forest habitat in a landscape context that will conserve the biological diversity of species and communities within the forest ecosystem.

The forestry program's objectives are:

1) Build a forest inventory data base, prepare GIS-based landcover maps, and establish property boundary lines in the field for each wildlife management area (W.M.A.).

2) Use inventory data to design and carry out both commercial forest harvesting operations and non-commercial management activities to meet landscape composition goals for successional forest habitats that maintain biological diversity using ecological regions (eco-regions) as the fundamental planning units for management.

3) Conduct pre- and post-treatment biological monitoring to determine the response of wildlife populations to forest cutting operations.

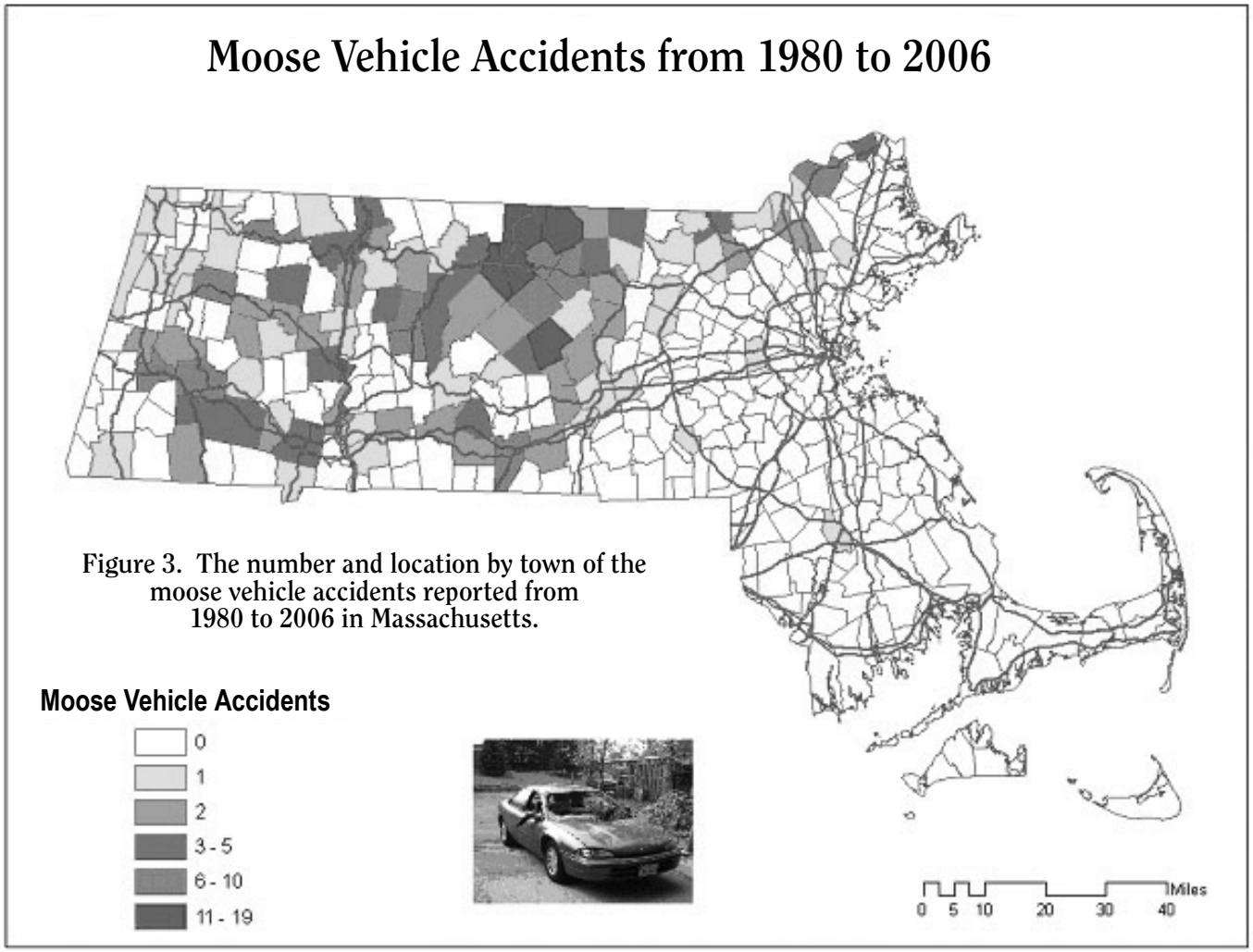


Figure 3. The number and location by town of the moose vehicle accidents reported from 1980 to 2006 in Massachusetts.

DFW Forestry Program landscape composition goals include 15-20% young forest habitat ≤30 years old, 10-15% biologically mature forest habitat ≥150 years old, and 65-75% mid-successional forest habitat 30-150 years old. The Forestry Program Leader and two Management Foresters conduct commercial forest harvesting operations through a public, competitive bidding process in compliance with DFW forest management guidelines to create young forest habitat. The guidelines provide a sequential checklist of steps for each sale to insure that landscape conditions are assessed, and that management activities reflect landscape conditions. Prior to any cutting operation, DFW foresters consult with District staff to address local access and aesthetic issues, and with personnel from the Division's Natural Heritage & Endangered Species Program to conserve state-listed species and priority natural communities on W.M.As. All forest management activities receive permits from the Department of Conservation and Recreation under the Massachusetts Forest Cutting Practices Act.

Forest Certification

Lands held and managed by the Division of Fisheries and Wildlife continue to operate as certified, sustainably managed forestlands under the international Forest Stewardship Council (FSC) criteria for sustainable forestry (see http://www.mass.gov/envir/forest/). This independent, third-party certification assures the general public that all forest cutting practices employed on these lands are sustainable on an ecological, economic, and social basis. Information on DFW forest management is available to the general public at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_mgt_home.htm.

One major requirement of certification is that the DFW complete management planning for all of its properties over the next few years. In FY07, in cooperation with forest managers from the Massachusetts Department of Conservation & Recreation (DCR), the DFW took a lead role in revising a complete draft forest management assessment for the Connecticut River Valley ecoregion of Massachusetts. These assessments include a public meeting and comment process, and identify a series of forest management issues and opportunities that impact both public and private forestlands.

DFW foresters completed the first draft plan for the Connecticut Valley Forest Management Zone (FMZ). This draft plan will be reviewed within the DFW during FY08, and is scheduled for public review in FY09. FMZ plans describe current forest conditions, establish a desired future condition, and describe both active and passive management practices intended to achieve the desired condition on DFW lands within an ecoregion context.

DFW foresters also established a formal outline for Site Plans that describe planned and completed harvesting activities at individual W.M.As. Details on Site Plan contents are available at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_site_plans.htm.

Forest Inventory & Analysis

DFW foresters and contracted vendors completed a total of 1,163 forest inventory points covering 46,520 acres this year. Overall, 2,313 sample points representing 92,500 acres have been completed over the past four years. The forest inventory provides a comprehensive assessment of wood products, as well as shrub and herbaceous cover on DFW lands. The FY07 sampling completes the major inventory effort on DFW lands. DFW will continue to add forest inventory points to new fee acquisitions, but expects to sample <100 points per year in the future.

Forest Cutting Operations & Management Activities

DFW foresters initiated two timber sales this year, including an eight acre sale at the Chalet W.M.A. in Dalton that included 19,000 board feet of northern hardwood timber and 19 cords of firewood; and a 22 acre sale at the Stafford Hill W.M.A. in Cheshire that included 33,000 board feet of northern hardwood timber and 200 cords of aspen pulpwood (timber sale preparation includes marking of trees to be cut, marking of trees to be retained, location of wetland resource areas, rare species habitat, and priority natural communities, lay out of temporary access roads, and preparation of Chapter 132 Forest Cutting Plans). Following a review of forest cutting plans for these two sites by the Natural Heritage and Endangered Species Program, rare species concerns were identified at the Stafford Hill site, and mitigation including restrictions on timing of harvesting were implemented to conserve rare species.

The harvest operation at the Chalet W.M.A. was marked by the DFW in November 2006, and carried out by the former landowner between December 2006 and February 2007 under timber rights retained by the former owner when the property was conveyed to DFW in 1986. The harvest operation at Stafford Hill was marked in May 2007, and a forest cutting plan and site plan were completed in June 2007. This harvest will be publicly bid during the fall of 2007 and could be conducted during the winter season of 2007-2008.

In addition, harvesting was completed this year on two of six timber sales that were initiated/completed in FY06 (19 acres at the Peru W.M.A., and 23 acres at the Moose Hill W.M.A.). Harvesting was begun on two of these six timber sales (90 of 130 acres at the Montague Plains W.M.A. were completed, and 20 of 62 acres at the Birch Hill W.M.A. were completed), and work has not yet begun on the remaining two (30 acres at the Phillipston W.M.A., and 30 acres at the Herm Covey W.M.A.). Three of these six operations (Montague Plains W.M.A., Birch Hill W.M.A., and Herm Covey W.M.A.) occur in rare species habitat, and all activities at these sites are carried out in full compliance with mitigation for rare species conservation supplied by the Natural Heritage and Endangered Species Program.

DFW Foresters authorize various timber cutting operations to manage wildlife habitat.

The operation at the Peru W.M.A. (19 acres, 232,000 board feet of softwood timber, plus 190 cords of pulpwood) was completed in February 2007, and converted a plantation of exotic Norway spruce to a mixed stand of native northern hardwood and native red spruce trees.

The operation at the Moose Hill W.M.A. (23 acres, 108,000 board feet of mixed softwood and hardwood timber, plus 66 cords of firewood and about 175 cords of pulpwood) was completed in March 2007 and created edge habitat along existing hay fields on DFW lands that are maintained through an agricultural license agreement.

The operation at the Montague Plains W.M.A. (130 acres 550,000 board feet of softwood timber plus 2,200 tons of pulpwood) was partially completed (about 90 of 130 acres) during January and February 2007, then had to be suspended to comply with seasonal rare species mitigation provided by the Natural Heritage and Endangered Species Program (the operation will likely be completed during the winter season of 2007-2008). This is a cooperative effort between the DFW's Forestry and Natural Heritage Ecological Restoration Programs

to establish relatively open habitat characterized by dispersed, mature pitch pine trees over scrub oak and native grasses that can be maintained with prescribed burning.

The operation at the Birch Hill W.M.A. (62 acres, 356,000 board feet of softwood timber, plus 24 cords of firewood and about 450 cords of pulpwood) was partially completed (about 20 of 62 acres) in February and March of 2007, then had to be suspended to comply with seasonal rare species mitigation provided by the Natural Heritage and Endangered Species Program (the operation will likely be completed during the winter season of 2007-2008). This operation is designed to convert white pine and red pine plantations into young forest habitat composed of diverse, mixed stands of native hardwood and white pine.

The operation at the Phillipston W.M.A. (30 acres, 284,000 board feet of timber, plus 82 cords of firewood and about 550 cords of pulpwood) was partially completed (about 10 of 30 acres) in June of 2007 and will likely be completed early next year. This operation is designed to convert pasture pine (white pine growing on abandoned pasture land) into young forest habitat composed of a diverse mixture of native hardwoods and white pine.

The operation at the Herm Covey W.M.A. (30 acres, 214,000 board feet of timber plus 155 cords of firewood and about 150 cords of pulpwood) will likely be cut during the winter of 2007-2008 to comply with seasonal rare species mitigation provided by the Natural Heritage and Endangered Species Program. It will be the second harvest of a modified two-cut shelterwood system designed to create young forest habitat by releasing established regeneration of white pine, red oak, and white oak that was established after the first shelterwood cut was applied to this site in the year 2000.

Sale preparation includes marking of trees to be cut, marking of trees to be retained (including mast-producing trees such as black cherry, American beech, and red oak to enhance wildlife habitat after the cut), location of wetland resource areas, rare species habitat, and priority natural communities, layout of temporary access roads, placement of water bars and other erosion control structures, and preparation of Chapter 132 Forest Cutting Plans. All sales are prepared in compliance with the Division's Forest Management Guidelines, which seek to create a distribution of forest successional stages (from early-seral to late-seral forest) in a landscape context that will maintain biological diversity. Intensity of cutting varies from moderate (group shelterwoods) to high (Aggregate Retention Cuts - ARCs), but groups of mature trees are retained on all sites. Planned harvests are typically designed to regenerate mixed stands of white pine, red and white oak, and high quality northern hardwoods including black cherry and white ash.

After sale preparation, DFW Foresters supervise logging activities (e.g., insure that small diameter, unmerchantable stems are cut to facilitate regeneration of quality hardwoods, insure that retained trees are protected from damage by logging machinery, insure that logging slash is reduced throughout the cut to facilitate public access, and insure that erosion control measures are maintained). A portion of the monetary value for all sales is realized in the form of 'in-kind' services on the W.M.As. Services may include grading, liming, fertilizing and seeding of landing areas; improvement and subsequent stabilization of existing woods roads using Massachusetts Best Management Practices (BMP's); and felling and slash reduction of non-merchantable trees to encourage regeneration of desired tree species and enhance early-successional wildlife habitat. All income from a timber sale is generally not received in the same fiscal year the sale is marked. When a sale is awarded through the public bid process, the qualified vendor submitting the highest bid is awarded the contract. Ten percent of the high bid is due at the time the contract is awarded, and the balance (90%) is due prior to the start of cutting, or within one year of the contract award, whichever comes first. Vendors are given up to two years to complete cutting so that they can take advantage of variable market conditions.

Biological Monitoring

Breeding bird surveys were conducted on portions of the Hiram Fox W.M.A. in Chester in June 2007. Data analysis indicated that a diverse and relatively stable breeding bird community occurs at the Hiram Fox site. In addition, a cooperative research project with the U.S. Forest Service Northeastern Research Station and the Massachusetts Audubon Society investigated breeding bird diversity as well as bird nesting success continued at a previously harvested site on the Fox Den and Montague Plains W.M.As.

Vascular plant surveys were conducted at the recent Stafford Hill W.M.A. timber harvest site this year. The relative abundance of all vascular plants in the forest understory and overstory is noted during these surveys, and special attention is given to identifying invasive, exotic plant species for subsequent control efforts, and to identifying any rare plants that were not previously known on the site in order to design appropriate mitigation during harvesting activities. Results for previous timber sale sites are available at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/plant_surveys.htm.

Upland Habitat Management Program

The Upland Habitat Management Program (Upland Program) is a component of the Biodiversity Initiative established under the 1996 Open Space Bond Act to maintain and restore native diversity of flora and fauna through active land management. The Upland Program focuses on reclaiming abandoned field and other early-successional habitats, which have become increasingly scarce over the past 75 years.

The specific goals of the Upland Program are to:

1) Foster and apply the best available science to identify appropriate sites for management of declining early-successional habitats (e.g. abandoned agricultural fields, aspen forest stands, abandoned orchards) while maintaining extensive, unfragmented forest lands.

2) Implement strategies and techniques to manage and restore declining early-successional habitats to ensure they continue to support native flora and fauna.

3) Systematically monitor the effects of habitat management on plant and animal communities to ensure that managed habitats continue to support the native biodiversity of Massachusetts.

4) Identify habitats where Upland Program objectives are complementary with Ecological Restoration Program objectives and pursue joint endeavors with that program.

Project Accomplishments:

Abandoned Field Reclamation

Francis Crane W.M.A., North

In January 2007, 22.1 acres of abandoned fields and hedgerows were removed to create and enhance grassland habitat. Following completion of this project, the grassland area on this W.M.A. totals 172 acres and supports a variety of state-listed grassland species. A Brontosaurus mower was used to cut invading trees and shrubs, primarily autumn olive. A whole-tree harvester and forwarder were used to cut and remove dying red pine hedgerows and other conifers.

Francis Crane W.M.A., South

In winter 2006-07, 70.6 acres of pitch pine and oak forest were thinned to restore savannah habitat. A feller-buncher, grapple skidder, and whole-tree chipper were used to cut and remove larger trees (>4" dbh). A Fecon mowing head mounted on an ASV-100 loader was used to mow smaller trees and shrubs in preparation for future maintenance by prescribed burning.

Fox Den W.M.A.

The first phase of this 55-acre project to reclaim an abandoned orchard and regenerate an adjacent aspen stand began in February 2006 (see FY06 performance report). In August 2006, a whole-tree harvester and grapple skidder were used to remove most merchantable trees from the project site. In March 2007, a feller-buncher and grapple skidder finished the project by cutting and burning all remaining trees, except those designated for retention.

Hiram Fox W.M.A.

During summer 2007, a 27 acre abandoned pasture adjacent to a 27 acre active hayfield owned by the DFW was reclaimed using a Brontosaurus mower. A tree shear and grapple skidder were used to cut and burn on site non-merchantable birches and other trees on 5.6 acres of abandoned Christmas tree plantation and other areas adjacent to the pasture and hayfield.

Poland Brook W.M.A. (Maintenance)

During summer 2007, the first maintenance mowing was initiated on this project site, which was originally reclaimed in 1997-98. A Fecon mower was used to mow small trees and shrubs on 17 acres of former pasture. Prescribed grazing by cows, sheep, and goats was used to maintain a separate 11 acre abandoned hayfield.

Poland Brook W.M.A. (Reclamation)

During summer 2007, reclamation of 12 acres of abandoned fields was completed using a feller-buncher, grapple skidder, and whole-tree chipper for removal of larger trees (>4" dbh), and a Fecon mower for mulching of smaller trees and shrubs.

Project Accomplishments:

Invasive Plant Control

Cass Meadows, Millers River W.M.A.

In May 2007, contractors performed a follow-up mechanical treatment of glossy buckthorn within 400 feet of a public water supply well. Contractors manually pulled or used a weed wrench to remove glossy buckthorn and other invasive plants over 2.6 acres.

Crane W.M.A.

In summer 2007, contract licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, and other invasive woody plants over 126.1 acres of coastal grassland.

Peru W.M.A.

In November 2006, a DFW licensed pesticide applicator selectively applied herbicide to Asiatic bittersweet and other invasive exotic plants in a cut-stem treatment over one acre within an abandoned orchard reclaimed in 2005.

Stafford Hill W.M.A.

In November 2006, a DFW licensed pesticide applicator selectively applied herbicide to common buckthorn and other invasive exotic plants in a cut-stem treatment over 3 acres of abandoned pasture prior to reclamation.

Westborough W.M.A.

In summer 2007, contract licensed pesticide applicators selectively applied herbicide using backpack sprayers to control invasive exotic plants over 10 acres of shrubland which had been mowed in 2006.

Biological Monitoring

Site Monitoring

To determine the success of habitat treatments over time, a long-term monitoring program of birds, butterflies, and vegetation was implemented during the summer of 1999 on Upland Program sites across the state. During summer 2007, breeding bird surveys occurred on 9 different sites. In a cooperative project with the U.S. Forest Service, post-fledging bird and vegetation surveys occurred on 10 sites. A post-reclamation

vegetation survey was conducted at Cass Meadows, Millers River W.M.A.

Site	Survey Type*	Acres
Bill Forward WMA	B	20
Cass Meadows, Millers River WMA	B, V	55
Herm Covey WMA	B, P, V	57
High Ridge WMA	B	191
Hiram Fox WMA	B	63
Leyden WMA - South	B, P, V	55
Peru WMA	B	14
Poland Brook WMA	B, P, V	40.5
West Hill Dam Project, U.S. Army Corps	B	40
Fox Den WMA	P, V	55
Green River WMA	P, V	33
Leyden WMA - North	P, V	79
Muddy Brook WMA	P, V	34
Natty Pond WMA	P, V	10
Stafford Hill WMA	P, V	132
Taconic Trail State Forest	P, V	55.5
TOTAL		934

*B = Breeding bird survey, P = Post-fledging bird survey, V = vegetation survey

Evaluation of Bird Habitat Use of Upland Program Sites

The results from the various monitoring efforts indicated clearly that target species of greatest conservation need benefit from Upland Program management activities. Data indicate that following initial reclamation work, target species abundances peak at 5-6 years following treatment, and therefore maintenance mowing should typically be applied every 8-10 years.

Keystone Program

The Upland Program once again provided $12,000 to fund the Keystone (formerly 'Coverts') Program, a three-day forestry and wildlife habitat conservation workshop for individuals that are in a position to impact conservation in their communities (keystone individuals). These individuals may, for example, serve on local Conservation Commissions and/or Land Trusts, or may own undeveloped property available for wildlife habitat management. The community leaders that participated in the Keystone workshop in the spring of 2007 are responsible for the stewardship and management of more than 13,500 acres of land trust or municipal lands, as well as over 4,800 acres of private forestland across the Commonwealth. Dr. David Kittredge, the UMass Cooperative Extension Forester, and Mr. Paul Catanzaro, Extension Forestry Specialist, organize the workshop, and invite knowledgeable speakers to discuss topics including Massachusetts land use history, the Forest Cutting Practices Act, elements of wildlife habitat, habitat management techniques, and habitat types including early-successional habitats.

Wildlife Section Staff

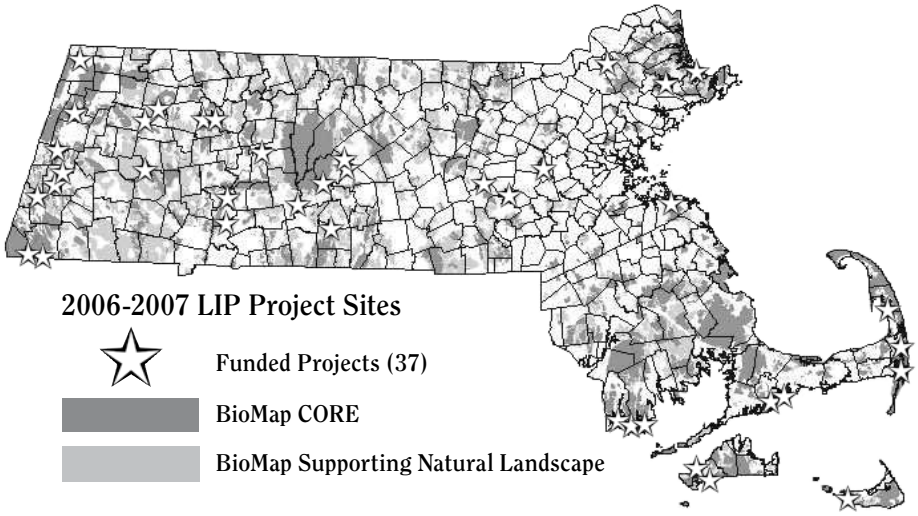
Thomas K. O'Shea
Assistant Director for Wildlife

James Cardoza, *Black Bear/Turkey Project Leader*
Lori Cookman, *permit Specialist*
James DeNormandie, *Forestry GIS Specialist*
Thomas Early, *Wildlife Biologist*
Nicole Hamilton-Smith, *Chronic Wasting Disease Research Assistant*
Brian Hawthorne, *Forester*
H Heusmann, *Waterfowl Project Leader*
Anne-Marie Kittredge, *Forester*
Jill Liske-Clark , *Upland Program Coordinator*
Trina Moruzzi, *Wildlife Biologist*
John Scanlon, *Forestry Project Leader*
David Scarpitti, *Upland Game Bird Biologist*
Tara Wooley, *Wildlife Technician*
Vacant, *Deer/Moose Project Leader*
Vacant, *Furbearer Project Leader*

Landowner Incentive Program

Ken MacKenzie
Coordinator

Figure 1. 2006-2007 Landowner Incentive Program (LIP) Projects



The Massachusetts Landowner Incentive Program (LIP) addresses the conservation and restoration of wildlife habitat on private lands identified by the BioMap project as being critical for species-at-risk conservation.

Private landowner participation is fundamental to the successful conservation of fish and wildlife in Massachusetts and to meet the challenges associated with habitat management. Many landowners want to do the right thing, but do not know where to start. Recognizing this, the LIP Program establishes a partnership between state biologists and landowners through which landowners work toward their land management goals. These partnerships promote and educate landowners about management techniques that increase the biodiversity of Massachusetts through land and wildlife stewardship. The LIP Program also helps private landowners bear the financial burden of such habitat management. This cost-share program aids landowners with funding to resourcefully and responsibly manage wildlife habitat, conserving natural communities and species-at-risk, as a viable means of protecting our natural heritage.

Funding for this program was allocated by Congress through the U.S. Fish and Wildlife Service (USFWS) to support the efforts of state fish and wildlife agencies. States must compete to receive these funds. The Division has been successful in receiving LIP grant funds in each year that they have been available.

Land Stewardship is increasingly important in Massachusetts. Land is being developed at a rapid pace and certain habitats (especially dynamic habitats like grasslands and young forests) are being lost. Large areas of open land (farms) are being sold for development as the property is passed from one generation to the next.

A 50-acre grassland restoration project in Williamstown, MA

140-acre calcareous fens bordered by red maple-tamarack swamp in Sheffield, MA

The LIP provides landowners interested in restoring and maintaining wildlife habitat on their property with financial and technical assistance. Currently the goals of the program are to:

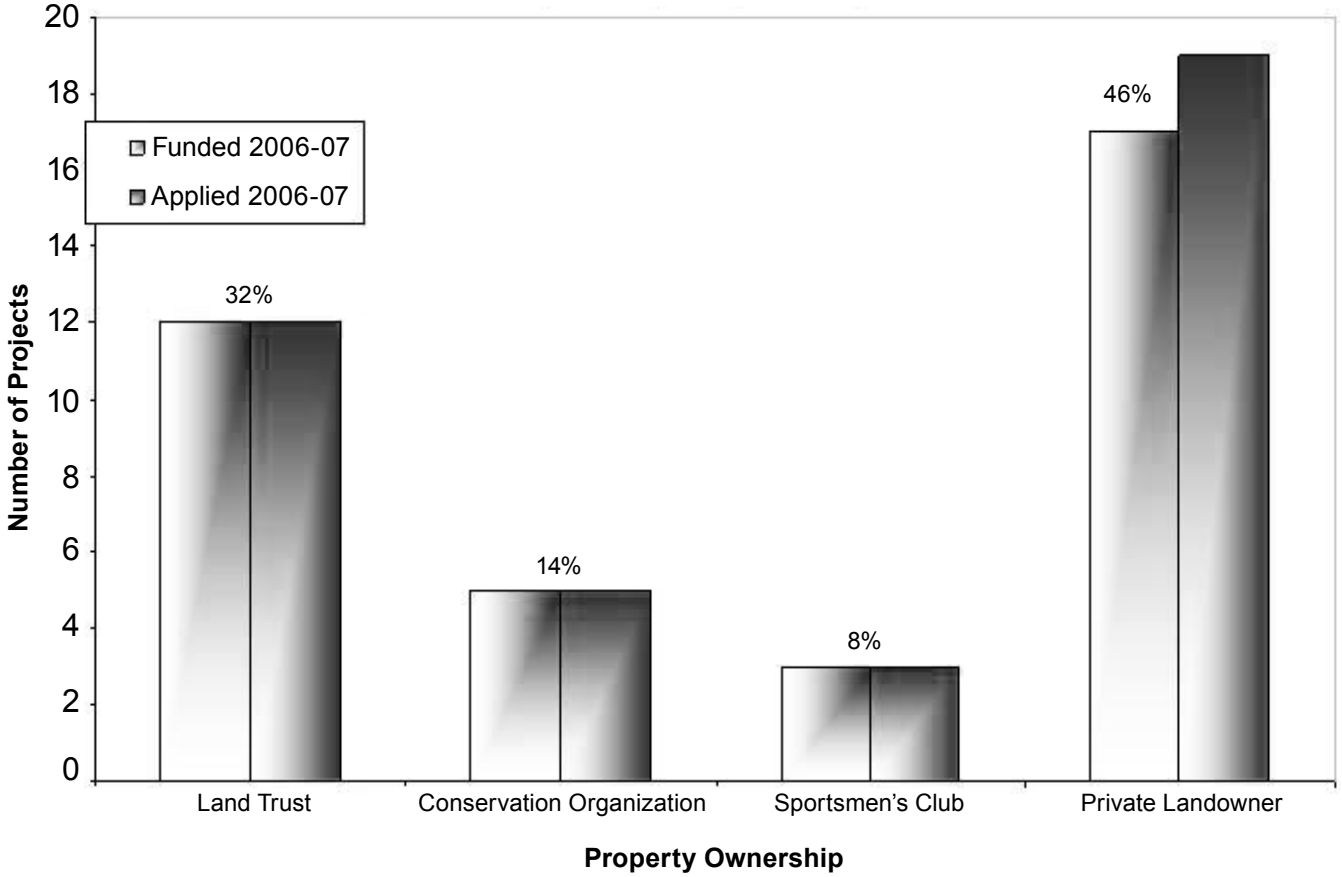
1. Identify and reclaim appropriate sites for management of declining habitats (especially open land: old field and early-successional forest, wetlands, coastal habitat and pine barrens).
2. Manage and control exotic and invasive plants.
3. Enhance wildlife habitat for species-at-risk.
4. Provide technical and financial assistance and guidance for landowners to manage their property for wildlife.

LIP Update

During FY07, LIP received applications for species-at-risk habitat improvement/restoration on about 2000-acres of private lands. Of these applications, 37 were selected for funding in FY07 (Figure 1). Eight (8) of the 37 projects selected will require a LIP Covenant that will be filed with the deed for 10 years. DFW will be partnering with these private landowners on 1,973 acres, funding projects for $845,000.

- Of the 37 projects awarded, 12 went to land trusts, 5 to conservation organizations, 3 to sportsmen's clubs, and 19 to other private landowners (Figure 2).

Figure 2. Projects by Ownership

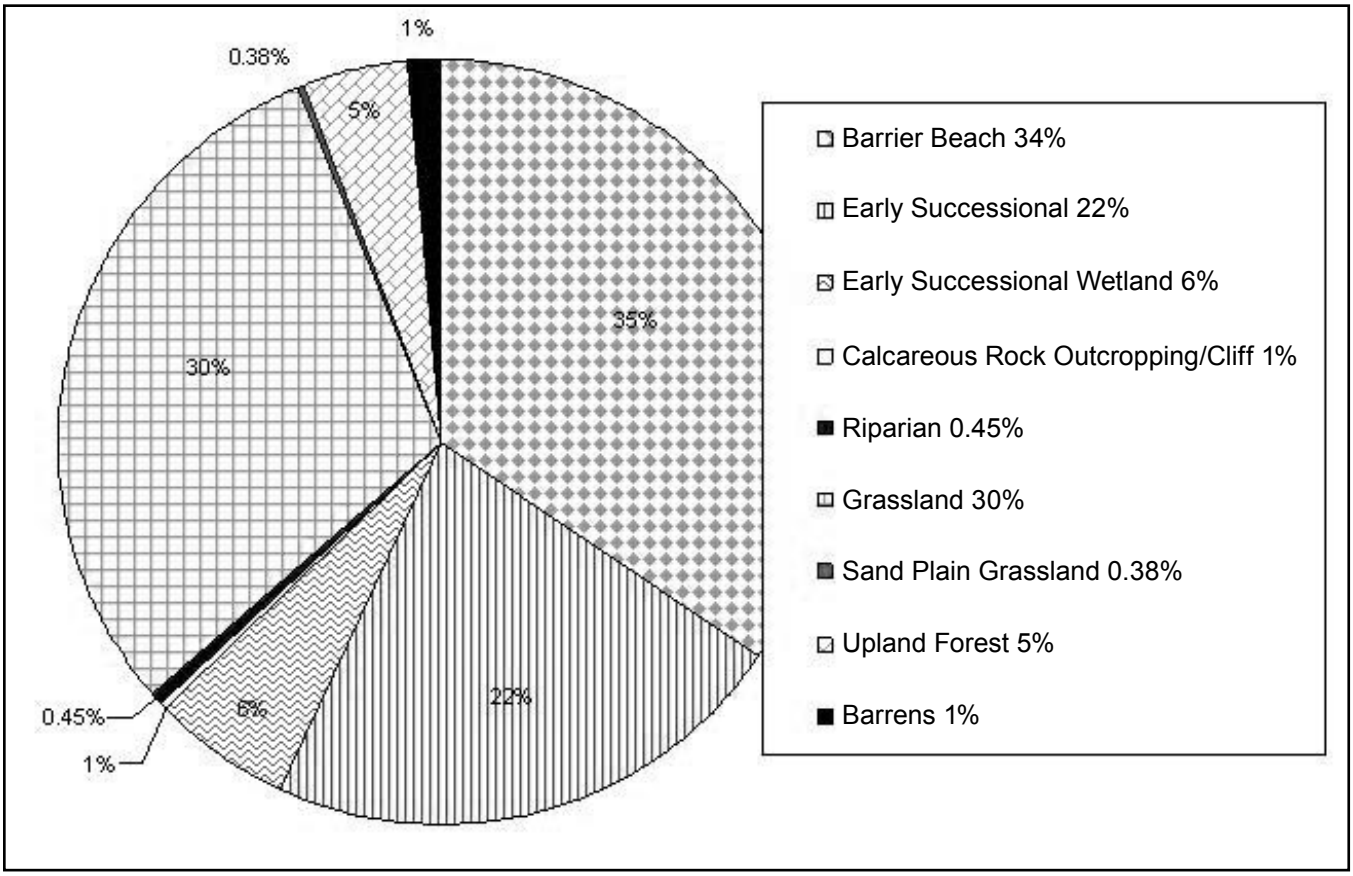


- Of the 1,973 total acres involved in the projects awarded, 1,077 acres were in coastal habitats, 710.5 acres were in early successional upland, 195 acres were in early successional wetlands, 937.3 acres were in grasslands, and 11.8 acres were in Pitch pine-Scrub oak forest (Figure 3).
- Of the projects awarded, 78% had permanent protection, 16% were enrolled in Chapter 61, and 5% had no conservation protection. The projects without land protection were required to sign a land covenant requiring the landowner to keep the project area as wildlife habitat for a minimum of 10 years.
- Of the projects awarded, 100% applied for manual restoration, 89% applied for an invasive/exotic plant removal, 51% applied for the seeding or planting in their project area, and none applied for a prescribed burn.

The 2006-2007 Massachusetts LIP Projects will benefit hundreds of native plant and animal species. Natural Heritage has identified at least 122 species-at-risk of statewide importance that will benefit from this year's projects (15 invertebrates, 69 vascular plants, and 38 vertebrate animals).

To date, DFW has funded 54 different landowners through LIP projects and has provided technical assistance to over 200 landowners on nearly 5,000-acres of private land across the state from Cape Cod to the Berkshire Mountains (Figure 4). Through this program DFW has contributed over $1.4 million to the conservation of wildlife species-at-risk on private land over the program's two year history.

Figure 3. Acres by Habitat



The Landowner Incentive Program focuses on upland habitats in decline in Massachusetts. Specifically LIP is working with landowners on restoring grasslands, old fields, pitch-pine scrub oak and beach habitat and early successional habitat. Additionally, controlling invasive plants such as buckthorn, multiflora rose and oriental bittersweet are among the priorities of LIP.

NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM

Thomas W. French, Ph.D.
Assistant Director

Revised Priority & Estimated Habitat Maps

The Natural Heritage & Endangered Species Program (NHESP) completed a multiyear project in FY06 to delineate habitat "footprints" for each observation point for all current observations of 442 rare plant and animal species listed under the MA Endangered Species Act. This large project was the basis for the revisions made in FY07 to Natural Heritage's Priority and Estimated Habitat maps. These new habitat maps were completed at the beginning of the fiscal year. In August and September large town habitat maps were produced and distributed to most towns across the state. In September, the 12th Edition of the Natural Heritage Atlas, a large-format 200+ page wire-bound atlas, was finalized and printed. All the new regulatory maps were produced using GIS and, for the first time, color aerial photos were used as base maps. The new habitat coverages were also posted as down-loadable layers from MassGIS and were made available on a web-based viewer. The revised Priority and Estimated Habitat maps for use with the MA Endangered Species Act and Wetlands Protection Act regulations, respectively, became effective on September 1, 2006. After this large project was complete, Natural Heritage modified its routine data processing and mapping procedures to maintain and update these habitat footprints on an ongoing basis as new or updated rare species data are received and processed.

DCR Biodiversity Stewardship Initiative

NHESP staff worked with the Office of Natural Resources in the Department of Conservation and Recreation (DCR) this year to continue developing ways of providing biodiversity data products and technical assistance for the management of Massachusetts' forests, parks, and reservations. The project was made possible through special bond funding by the Executive Office of Environmental Affairs.

Six DCR properties were examined in FY07: Blue Hills Reservation; Myles Standish State Forest; Mount Tom State Reservation; J.A. Skinner and Mount Holyoke Range State Parks; and Mount Sugarloaf State Reservation. For each property, Natural Heritage prepared an in-depth report, containing information and maps of rare species, natural community, and vernal pool locations and descriptions; property biodiversity inventory needs; educational opportunities; adjacent areas important for additional land protection; and boundaries of Priority and Estimated Habitats of Rare Species. Importantly, Natural Heritage also delineated management units on each property which comprise coherent areas of rare species habitat and other resources, and also provided DCR with prioritized management recommendations for each unit.

2006 Field Season Summary

Birds

Bald Eagle: During the summer of 2006 there were 25 known territorial pairs of Bald Eagles in Massachusetts. Of these, 22 pairs laid eggs and 16 pairs successfully fledged 33 chicks. In 2005, there had been six fewer territorial pairs, four fewer successful pairs, and 17 fewer chicks fledged. This is the 17th year that Bald Eagles have raised young in Massachusetts since their restoration. During these 17 years a total of 225 chicks are known to have fledged from wild nests.

Peregrine Falcon: The number of pairs of Peregrine Falcons increased from 9 in 2003, to 11 in 2004, to 13 in 2005 and 2006. Of these, 9 pairs laid and hatched eggs in 2006 and collectively fledged 22 chicks (11 female, 6 male and 5 of unknown sex) successfully. This is compared to the 9 pairs that successfully fledged 27 chicks in 2004, and six pairs that fledged 14 chicks in 2005. The greater losses of eggs and young chicks in 2005 were thought to have been caused by rain storms. No new territorial pairs were located this year.

Common Loon: In 2005, 27 territorial pairs of loons were observed on 12 waterbodies. In 2004, 28 pairs had been found on 10 waterbodies. In 2006, surveys were incomplete. To date, no waterbodies other than Quabbin and Wachusett Reservoirs have ever been found to support more than one territorial pair of Common Loons.

2006 Loon Nesting Summary

Waterbody	# Adults	# Chicks at end of July
Hycrest Pond	1 pair	0
Paradise Pond	1 pair	1
Hayes Pond	1 pair	0
NoTown Res.	1 adult	0
Lake Wampanoag	1 pair	1
Upper Lake Naukeg	3 adults	0
Bickford Pond	1 pair	2
Waterbody	**# Nesting Pairs**	**# Chicks at end of July**
Wachusett Res.	3	1
Quabbin Res.	7	3

Roseate and Common Terns.

Terns, Laughing Gulls, Black Skimmers: Cooperators in Massachusetts surveyed 129 coastal sites in 2006 for the presence of breeding Roseate Terns (*Sterna dougallii*), Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), Least Terns (*Sterna antillarum*), Laughing Gulls (*Larus atricilla*), and Black Skimmers (*Rhynchops niger*). Seventy-six sites were occupied by nesting birds of one or more of these species. Roseate Terns, which nested at 5 sites, increased 9.6% to 1,648 pairs. Common Terns increased slightly (3.6%) to 16,001 pairs distributed among 27 sites. Least Tern numbers were stable at 2,615 pairs; they nested at 59 sites. Laughing Gulls, which nested at just one site, increased 13.7% to 1,492 pairs. Five pairs of Black Skimmers and at least two pairs of Arctic Terns nested; only one nesting site was confirmed for each of these species.

Buzzards Bay Tern Restoration Project: Collectively, Bird, Ram, and Penikese Islands supported 1,622 "peak season" pairs of Roseate Terns (vs. 1,480 in 2005; +9.5%) and 4,751 "peak season" pairs of Common Terns (vs. 4,893 in 2005; -2.9%) (Table 1).

Bird Island: Common Terns numbered 1,866 pairs, about the same as in 2005, and productivity was 0.55 fledglings/pair. There was a huge jump in Roseate nesting, from 680 to 1,111 pairs. This reflects a major shift to Bird from Ram, after last year's Great Horned Owl predation at the latter. Roseate productivity was very good at 1.29 fledglings per pair.

Ram Island: Common Tern numbers were stable at 2,129 pairs. Productivity was 0.77 fledglings per pair. Roseate numbers dropped sharply from 724 pairs in 2005 to 463 pairs this year. This reflects a continuing shift to Bird I. as Roseates seek to avoid Great Horned Owl predation. In 2005, predation was severe, but in 2006 it was moderate. Roseate productivity was good at 1.00 fledglings per pair. In October, the Division of Fisheries & Wildlife and Polatin Ecological Services controlled *Phragmites* using a glyphosate herbicide.

Penikese Island: Common Tern numbers were stable at 756 pairs; productivity was 1.10 fledglings/pair. Roseate Tern numbers dropped from 79 to 48 pairs, and productivity was only 0.44 fledglings per pair. While over 100 Roseate nests were laid on Penikese this year, most of them were abandoned by the time the census was conducted, resulting in the low estimates of pairs and productivity. At least three chicks that hatched on Penikese in 2003 returned to nest this year. **These probably are the first "native" Penikese Island Roseate Terns to breed in half a century.**

PCB Analyses: The underlying purpose of this project is to restore tern populations that were damaged by PCBs from New Bedford Harbor in the past. As part of the monitoring, staff of the DFW, Dr. Ian Nisbet, and others have been collecting unhatched eggs at intervals since 1993. Egg contents were analyzed for PCBs at the laboratory of the U.S. EPA Atlantic Ecology Division, Narragansett, RI. Results of these preliminary analyses indicate that **exposure of the terns to PCBs is rapidly declining to non-toxic levels**, which is necessary for successful restoration.

Piping Plover: A coast-wide network of cooperators reported breeding pairs of Piping Plovers at 99 sites in Massachusetts during May and June 2006. An additional 67 potential nesting sites were censused, but no breeding pairs were detected. The *Index Count* (statewide census conducted June 1-9) was 466 pairs, and the *Adjusted Total Count* (total number of breeding pairs statewide estimated over the entire season) was 482 pairs. Two regions harbored 64% of the total breeding pairs in the state: the Lower Cape (39%) and the Upper Cape (24%). Individual sites with the largest numbers of pairs were South Beach, Chatham (53 pairs), Sampson's Island-Dead Neck, Barnstable (26), South Monomoy Island, Chatham (24), Sandy Neck , Barnstable (23), Crane Beach, Ipswich (22), Nauset Spit, Orleans (16), Duxbury Beach in Duxbury and Plymouth (14), Coast Guard Beach, Eastham (14), and Race Point-North, Provincetown (14). Although the 14 largest sites, i.e. those with $\geq$ 10 pairs, supported 52% of all pairs in the state, the 61 smallest sites, those with 1-3 pairs, collectively accounted for 22% of the total pairs. Overall productivity for the Massachusetts breeding population was 1.33 chicks fledged per pair, based on data reported for 472 of 482 (98%) pairs.

American Oystercatcher: Observers reported a total of 191 pairs of American Oystercatchers at 69 sites in Massachusetts during May and June 2006. No oystercatchers were detected at an additional 160 sites that were censused. Individual sites with the largest numbers of pairs were the Coskata-Coatue area of Nantucket (32 pairs), South Monomoy Island, Chatham (13), Tuckernuck Island (13), North Monomoy Island, Chatham (8), "Minimoy Island", Chatham (8), South Beach, Chatham (8), and Norton Point Beach, Edgartown (7). Statewide, at least 92 chicks were reported to have fledged from149 pairs for which productivity could be determined, for an overall productivity of 0.62 chicks fledged per pair.

Gull, Cormorant, and Wading Bird Breeding Colonies: Cooperators completed the first year of a two-year, statewide census of coastal waterbird nesting colonies in Massachusetts during May and June 2006. This is the first comprehensive census of gull, cormorant, and coastal wading bird breeding colonies conducted since 1994-1995. Censuses were completed on all the North Shore islands, most of the Boston Harbor islands, multiple sites on Nantucket, the islands of Tuckernuck and Muskeget, and the Elizabeth Islands. Compilation of the 2006 census data is on-going. We anticipate that the census will be completed in 2007 with field surveys planned for the remaining Boston Harbor islands, North and South Monomoy islands, and sites on Martha's Vineyard.

Reptiles and Amphibians

Red-bellied Cooter: In 2006, a total of 62 nests were located by July 17th at the primary nesting pond by contractor John Crane. These nests contained 852 eggs (average = 13.7 eggs/nest), of which 679 hatched (10.95/nest). Of these, 143 were kept for headstarting and 536 were released directly into the wild where they hatched. Twenty-two of the 62 nests (25%) were dug up and moved because they were originally in the way of cranberry bog operations. Incubation time varied from 61 to 85 days with an average of 75 days.

Plants

Rare Plant Inventory: During the field season, 129 plant records were updated, searched for, or discovered.

Mountain Sedge, *Carex deflexa* was rediscovered in Florida, MA, having not been documented from the Commonwealth since 1920. In addition, newly discovered stations of state-listed plants included Frie's Pondweed, *Potamogeton friesii* (E, Stockbridge); Bush's Sedge, *Carex bushii* (E, Ware); and Mitchell's Sedge, *Carex mitchelliana* (T, Brewster).

Herbarium Collections Research: Several small research projects involving rare plant species utilizing herbarium collections were undertaken. Roundleaf Shadbush, *Amelanchier sanguinea* (SC) was determined to be much more rare in Massachusetts than previously thought based on a careful review of museum voucher specimens. Field studies are on-going to determine whether this taxon is better ranked Endangered or Threatened.

Northern Bog Violet, *Viola nephrophylla* (E), was determined to have no current museum voucher specimens for Massachusetts. Field studies are on-going to determine whether this taxon should be ranked State Historic.

Emery's Sedge, *Carex emoryi*, a confirmed new taxon to Massachusetts, was found to be represented by vouchers in the UMass collections. Fieldwork failed to relocate this species in its former location; more inventory will be done. In the meantime, this plant was added to the Watch List.

Auburn Panic Grass, *Dichanthelium acuminatum* ssp. *acuminatum* (WL), a taxon not attributed to any states north of New Jersey in the recently-published *Flora of North America Vol. 25* was confirmed to be at least historically present in Massachusetts using museum voucher specimens.

Invasive Species

A new edition of ***A Guide to Invasive Plants in Massachusetts***, published jointly by the DFW, The Nature Conservancy, and the New England Wild Flower Society was completed. The new *Guide* is an identification reference for all 66 of the species on the MIPAG approved list of invasive species.

Special Projects

Protecting the Globally Imperiled and Vulnerable Plants of Massachusetts

NHESP botanists undertook a major new project this year funded by the USFWS and entitled: Protecting the Globally Imperiled and Vulnerable Plants of Massachusetts. This 5-year project has three primary objectives: 1) To assess which of the 38 Globally Imperiled and Vulnerable (G1-G3) plant taxa in Massachusetts are in greatest need of a conservation plan in Massachusetts; 2) To develop and write succinct, action-oriented conservation plans for the species that do not yet have one, which clearly prioritize conservation needs for these species in Massachusetts (e.g., inventory, monitoring, population recovery, habitat management, and land protection); and 3) To utilize available Federal, Regional, and State conservation plans to carry out the rare plant conservation plan recommendations in Massachusetts. During the first year of this project, it was determined that five of the 38 taxa have Federal plans, 10 have Regional (New England Conservation Program) plans, and 23 have no written conservation plans. This finding confirms the need for deliberate and focused planning for most of the Commonwealth's Globally Imperiled and Vulnerable rare plant species. We began to meet our second objective of developing in-state conserva-

Red-Bellied Cooter.

tion plans by 1) prioritizing the 23 taxa in need of plans based on degree of global and state rarity and threat; 2) allocating each taxon to a project year; and 3) developing a conservation plan format. Finally, the third objective of carrying out conservation plan recommendations for the three federally listed plants was moved forward by undertaking the following three sections:

1) Following the recommendations of Federal Recovery Plans for the following species:

Sandplain Geardia, ***Agalinis acuta***: Population census work was conducted at three Martha's Vineyard locations for *Agalinis acuta*. Of these, a naturally occurring site yielded a count of 2,173 plants (up from 2005), a satellite colony was estimated by sampling to contain about 2500 plants (up from 2005), and a third site showed a decline to only 40 plants. Efforts to develop sampling methodologies for a large recovery population established in 1997 on a DFW Wildlife Management Area in north Falmouth, MA were undertaken by the USFWS and DFW. This population showed a dramatic increase in numbers (with an estimate of >96,000 plants) and area occupied in 2006.

Management activities to retard natural succession (woody plant invasion) using herbicides at the Wildlife Management Area in Falmouth were carried out in the fall of 2006.

Small Whorled Pogonia, ***Isotria medeoloides***: A complete census of the two largest populations of *Isotria medeoloides* in Massachusetts was conducted in 2006. The largest population in Leominster had not been counted completely since 2003 when 118 individuals were observed. The August 2006 count of only 68 plants confirmed a suspected decline in the population and the need for planning management intervention. The second largest Massachusetts site (Manchester) was also surveyed in August 2006 and found to have 29 plants at that time. This site actually has several outlying subpopulations with historically small numbers of individuals. These were also resurveyed in 2006. Unfortunately, no *Isotria* plants were found at these clearly mapped locations despite thorough searching. A new search was conducted with no luck at one new site in close proximity to a couple of these historic subpopulations as well as at an area in Sterling a few miles from the Leominster site.

No active management was undertaken at *Isotria medeoloides* sites in 2006, but the Division is close to completing a Conservation Restriction with the owner of the Leominster site which will allow some active management in the near future. Internal discussions are underway about thinning the canopy at this site.

Northeastern Bulrush, ***Scirpus ancistrochaetus***: The single known site for *Scirpus ancistrochaetus* (Montague) was visited in September 2006. Water levels were high at the pond, but 22 clumps of a *Scirpus* species suspected to be *S. ancistrochaetus* were observed on floating mats of vegetation. A few immature flowering culms (bud stage) were found, but identification could not be confirmed. Failure to achieve maturation of flowering culms during the growing season is reported in the literature for this species. A brief *de novo* search for a new location for the species was done about a mile north of the known site in a slough along the Millers River. This site deserves a more intensive survey in the future.

Photo by Bruce A. Sorrie

Sandplain Geardia, *Agalinis acuta*.

2) Carefully reviewing and prioritizing the conservation actions specified for Massachusetts in the 10 Regional conservation plans. Additional priorities identified by NHESP staff were also included, especially for occurrences which have been discovered since the publication of the Regional plans.

3) Developing a draft of Massachusetts' conservation plan for Nantucket Shadbush, *Amelanchier nantucketensis*, a globally-rare taxon identified through this project as being without a plan. Several recommendations made in the draft plan were executed this year, including an extensive inventory effort for this species.

Small Research Contracts

The Program was unable to fund new Small Research Projects this fiscal year due to a shortage of funds.

List Changes

During the year, three species were added to the Rare, Threatened and Endangered Species list, 11 were removed, and the status of two on the list was changed. In addition, the scientific names of 16 species were updated to conform to recent changes in taxonomy. These changes of listing status are as follows:

Northern Wild Comfrey – added to list as Endangered

New England Northern Reed Grass – added to list as Endangered

Mitchell's Sedge – added to list as Threatened

Spring Salamander – deleted from list
Spotted Turtle – deleted from list
Carter's Moss Animal – deleted from list
Olive Vertigo – deleted from list
Appalachian Brook Crayfish – deleted from list
Beaverpond Club Tail – deleted from list
Spring Oakworm Moth – deleted from list
Boreal Wormwood – deleted from list
Elderberry Long-horned Beetle – deleted from list
Eastern Saline Sedge – deleted from list
Knotted Pearlwort – deleted from list

Sand Violet – changed from Endangered to Special Concern
Climbing Fumitory – changed from Threatened to Special Concern

Regulatory Review

The following table summarizes the environmental reviews conducted during FY07.

Review Type	Count
Conservation & Management Permit	18
Data Release	122
MESA Information Requests	705
Forest Cutting Plan	180
MESA Project Reviews	925
MEPA	130
Notice of Intent	1441
Scientific Collection Permit	105
Other	138
Total	3764
Vernal Pools Certified	328

Data Management and Data Products

	New Records	Updates to Existing Records
Vertebrates	91	383
Invertebrates	36	131
Plants	42	552
Communities	39	5

Land Protection

In fiscal year 2007, the Division of Fisheries & Wildlife spent about $7.6 million to protect just over 4,000 acres of land across the state, bringing the agency's total land holdings to approximately 165,000 acres. Several of this year's acquisitions were of particular relevance to protection of rare species and exemplary natural communities, as noted below.

Northeast Wildlife District

Acquisition of a CR on the 160-acre Surrenden Farm property along the Nashua River in Groton protected habitat for the Blanding's Turtle (Threatened species) and three rare riverine dragonflies. Conservation restrictions on more than 500 additional acres on the Nashua and Squannacook Rivers will be donated to the agency by the Town of Groton and its partners in the next year as part of this project, protecting even more habitat for the Blanding's Turtle, six species of rare dragonflies, the Wood Turtle (Special Concern species), and Blue-spotted and Four-toed Salamanders (both Special Concern species).

Southeast Wildlife District

MassWildlife acquired a conservation restriction on 296 acres of the Plymouth Town Forest, protecting the shorelines of five Coastal Plain Ponds plus habitat for the Northern Red-bellied Cooter (Endangered species), New England Boneset (Endangered species), seven other rare plants, four rare dragonflies and damselflies, two rare freshwater mussels, and the Eastern Box Turtle (Special Concern species).

Central Wildlife District

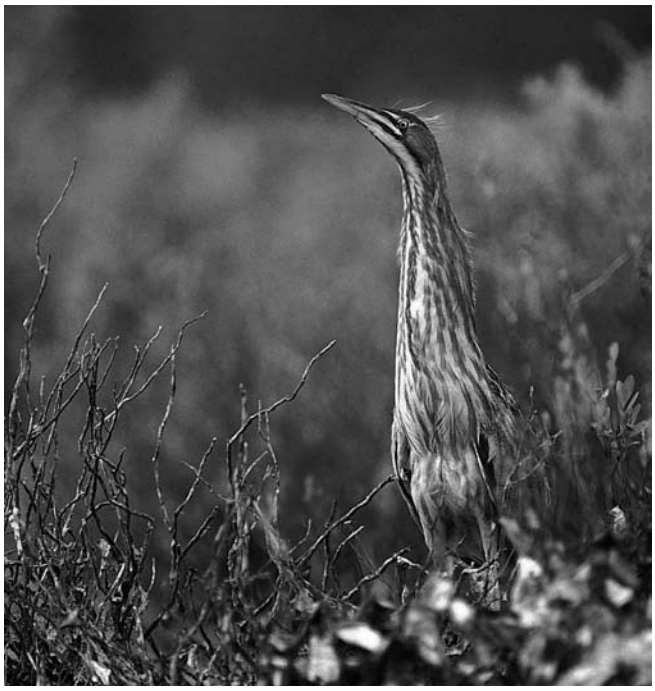
Purchase of a CR on 270 acres along Muddy Brook in Hardwick extended protection of this important riparian corridor for the Wood Turtle (Special Concern species).

Valley Wildlife District

Protection of a rare natural community, the Black Gum-Swamp White Oak "Perched" Swamp in Whately, continued this year with the acquisition of two parcels totaling 102 acres abutting the existing Whately Great Swamp W.M.A.

Western Wildlife District

In Windsor, acquisition of a 91-acre field across Rt. 8A from the Eugene Moran W.M.A. protected foraging habitat for the Northern Harrier (Threatened species). During inspection of the property, an American Bittern (Endangered species) was observed standing in a small wetland at the back of the parcel.



American Bittern.

Natural Heritage And Endangered Species Advisory Committee

Full members are: Kathleen Anderson (Chair), Marilyn Flor, Joseph S. Larson, Mark Mello (Vice Chair), Stephen M. Meyer, Thomas Rawinski and Jonathan A. Shaw (Secretary).

Associate members are: William Brumback, Brian Cassie, Timothy Flanagan, Glenn Motzkin, Blair Nikula, Wayne Petersen, Mark Pokras, Bryan Windmiller.

The committee held 10 scheduled meetings this year. August has been a traditional vacation month for the Committee. All of these meetings were held at the Westborough Field Headquarters.

The Committee's Vice Chair and friend, Dr. Stephen Meyer, died after a long illness on December 10, 2006. Steve was a professor of political science at the Massachusetts Institute of Technology where he taught and conducted research in environmental policy for 25 years. In 2005 he was awarded the Frances Sargent Conservation award by DFW, and in June 2006 the National Park Service presented him with a Conservation Hero award. His most recent book, ***The End of the Wild***, was published by MIT Press in September 2006.

Committee members Kathleen Anderson, Mark Mello, and Jonathan Shaw were re-appointed to three year terms. Associate member Glenn Motzkin was appointed as a full member, and associate member Brian Cassie resigned.

Business of the Committee included:

- The NHESAC Annual Report for FY05 was approved.
- A Species Listing Criteria Working Group was formed with members from the DFW Board and NHESP staff. This working group provided progress reports to the Advisory Committee on a regular basis.
- The Committee heard presentations from agency staff on the following issues:
- Massachusetts Marine Mammal Stranding Network – Tom French
- Duties and Functions of the Nongame Migratory Bird Technical Section of the Atlantic Flyway Council and Implementing the Comprehensive Wildlife Conservation Strategy– John O'Leary
- Avian Influenza – Tom French
- Massachusetts Biodiversity Program – Jack Buckley
- Bird Island Tern Habitat Restoration Project – Carolyn Mostello
- Update on the "Guide to Invasive Plants in Mass", MPAG and Aquatic Invasive Species Group Efforts – Bill Brumback and Paul Somers
- Status of the Coyote in Massachusetts – Tom O'Shea
- Turtle Conservation Initiative: An Update – Lori Erb
- **Other presentations to the Committee included the following:**
- Update on Preserving Newbury/Newburyport Common Pastures – Marlene Schroeder, Parker River Clean Water Association
- Deer Management on Quabbin Reservation: History, Herd Reduction and the Ecological Response – Dan Clark, Wildlife Biologist, DCR
- Searching for Native Phragmites – Thomas Rawinski

DFW Herpetologist Lori Erb searching for endangered Bog Turtles.

Natural Heritage and Endangered Species Program Staff

Thomas French, Ph.D., *Assistant Director*

Henry Woolsey, *Program Manager*

Kim Ausmus, *Administrative Specialist*
Katherine Blake, *Intern (seasonal)*
Kelly Boland, *Spotted Turtle Biologist (seasonal)*
Tara Boswell, *GIS Manager*
Amanda Breon, *Ram Island Tern Assistant (seasonal)*
Christopher Buelow, *Restoration Assistant (seasonal)*
Caroline Causey, *Bird Island Tern Manager (seasonal)*
Rachel Charrow, *Bird Island Tern Assistant (seasonal)*
Amy Coman, *Endangered Species Review Assistant (part year)*
Mary Davis, *Penikese Island Tern Manager (seasonal)*
Karen Dolan, *Finance and Projects Administrator (part year)*
Melissa Dow Cullina, *Botanist*
Lori Erb, *Turtle Conservation Biologist*
Heather Foley, *Conservation Data Specialist*
Marea Gabriel, *Aquatic Ecologist*
Jennifer Garrett, *Conservation Planning Botanist (part year)*
Jenna Garvey, *Endangered Species Review Assistant (part year)*
Sarah Haggerty, *Endangered Species Review Biologist*
Lynn Harper, *Habitat Protection Specialist*
Emily Holt, *Endangered Species Review Assistant (part year)*
Tara Huguenin, *Natural Heritage Database Manager*
Holly Jensen, *Spotted Turtle Biologist (seasonal)*
Kim Justham, *Conservation Data Assistant (part year)*
Jacob Kubel, *Forest CMP Zoologist*
Jennifer Loose, *Invertebrate Zoologist (part year)*
Sarah Maier, *Conservation Data Assistant (part year)*
Misty-Anne Marold, *Endangered Species Review Biologist*
Scott Melvin, Ph.D., *Senior Zoologist*
Carolyn Mostello, *Tern Project Leader*
Dan Nein, *Endangered Species Review Biologist (part year)*
Michael Nelson, *Invertebrate Zoologist*
Jessica Patalano, *Data Manager (part year)*
Lisa Plagge, *Vernal Pool Biologist*
Emily Pollom, *Penikese Island Assistant (seasonal)*
Matthew Purvis, *Ram Island Manager (seasonal)*
Jonathan Regosin, Ph.D., *Regulatory Review Manager*
Lee Ripma, *Intern (seasonal)*
Eve Schluter, *Endangered Species Review Biologist (part year)*
Rebecca Skowron, *Endangered Species Review Assistant*
Tim Simmons, *Restoration Ecologist*
Paul Somers, Ph.D., *Botanist*
Deborah Stevens, *Finance and Projects Administrator*
Chloe Stuart, *Conservation Planning Projects Manager*
Patricia Swain, Ph.D., *Natural Community Ecologist*
David Szczebak, *GIS Manager (part year)*
Amanda Veinotte, *Endangered Species Review Assistant*
Kathy Wilensky, *Plant Watch List Coordinator*
Derek Yorks, *Bog Turtle Biologist (seasonal)*

INFORMATION & EDUCATION

Ellie Horwitz
Chief, Information and Education

The Information and Education Section has the responsibility and challenge of keeping sportsmen and other constituents apprised of regulations, laws, and recreational opportunities related to wildlife. It provides news about wildlife and maintains a flow of information about wildlife related issues. In order to enhance public understanding of wildlife management and compliance with laws and regulations, the Section maintains an active program of educational outreach to develop a public which is aware of, and in tune with, wildlife issues.

Information and Outreach

The website has become the primary portal through which members of the public seek information from the Division of Fisheries and Wildlife.

Agency Email Inquiries

Staff processed 5988 e-mail messages this year which came to the agency via the website. Spring and fall are when the most e-mails are sent, primarily due to fishing and hunting season related inquiries. E-mail inquiries received by month were:

July	473	January	382
August	471	February	344
September	624	March	364
October	790	April	573
November	604	May	468
December	453	June	442

Website Visitation

In December of 2006, state ITD staff changed their measuring metrics to an Analog system. According to current ITD protocol, the most useful numbers for evaluating website use are "Successful requests for pages" which represents pages viewed by users and "Distinct Hosts Served" which is an approximation of the number of visitors. This is as close to a tally of distinct visitors as is possible and is a vast improvement over the previous "number of hits" method of measurement.

Successful Requests for Pages were:

June 2007	285,103
May 2007	240,405
April 2007	267,564
March 2007	235,132
February 2007	157,269
January 2007	157,269
December 2006	151,106

Distinct Hosts Served

An approximation of the number of visitors to the website.

June 2007	95,094
May 2007	106,148
April 2007	99,558
March 2007	81,714
February 2007	59,851
January 007	60,768
December 2006	55,230

Redesigned Agency Website Launched

After many months of discussions, planning and implementation, the agency's newly designed website was launched on June 4. An interdisciplinary team consisting of Rick Kennedy, Dave Szczebak, Chloe Stuart, Kim Ausmus and Marion Larson worked on this project to improve website navigation and enhance accessibility. As of the end of the fiscal year, accessibility issues for pdf's are still an issue and are being addressed in order to have the site certified accessible by the end of September 2007.

MassWildlife News

MassWildlife News is an electronic newsletter that is sent free of charge to anyone who requests it. The Section produced 14 issues of the *MassWildlife* News this year. During the year, 1329 people signed up to receive this publication, swelling the list of subscribers to a total of 4728. Sign up sheets are available at all District offices, most exhibit venues, and also at selected public presentations offered by staff. Several hundred new subscribers signed up in response to an email message which was sent out to all on-line license buyers in January. The hard copy mailing list was reviewed and purged to eliminate duplication. Currently, approximately 1400 individuals and groups receive the *MassWildlife* News by 3RD class surface mail.

Special advisories were sent out regarding:

- **July 2006:** Antlerless Deer Permit Drawing Results
- **August 2006:** Salisbury Marsh W.M.A. Access Dedication for Geof Walker
- **September 2006:** LIP Field Day Event, Amherst Waterfowl Stamp Contest Winner and Exhibit
- **October 2006:** Burrage Pond Land Event, Hanson. Leadmine Mtn. Land Event, Sturbridge LIP Applications Available

After many months of discussions, planning and implementation, the agency's newly redesigned website was launched on June 4.

- **Janury 2007:** Westborough Phone Number Change
- **February 2007:** Coyote Incident in Framingham
- **June 2007:** Launch of Agency's Redesigned Website

Media Services

Section staff track all news articles that mention the Division of Fisheries & Wildlife. This year they reviewed a total of 2465 clippings, up slightly from the 2384 clippings received the previous year. A breakout of these clippings by month is:

July	179	January	207
August	241	February	184
September	155	March	274
October	172	April	298
November	187	May	311
December	158	June	257

Publications other than newspapers which carried articles originating with the agency included:

• Sudbury Valley Trustees Member Newsletter, Winter 2006

Your Wild Neighbors: Focusing on common wildlife about which some people often express concerns

• Animal Control Officers Association of Massachusetts, December 2006

An Introduction to Finding Wildlife Information for Animal Control Officers

(Distributed by email to 180 ACOs.)

• Animal Control Officers Association of Massachusetts, June/July 2007

Young Wildlife and what to do when you find it

• Mass. Municipal Association Quarterly, August 2006; Staff of the Wildlife Section were consulted on various wildlife topics. The entire issue was devoted to wildlife and human interactions.

• Mass. Veterinary Medical Association (MVMA) Newsletter, August 2006

Exotic Pets Illegal in Mass., reprinted from *MassWildlife* News (1,100 subscribers)

• MVMA Newsletter, May/June 2007

Bears and Bird Feeders, reprinted from *MassWildlife* News (1,100 subscribers)

TV and Radio Interviews

Radio and television interviews were arranged for agency staff as follows:

• July 2006: *Habitat restoration and species composition on the Eugene Moran W.M.A.*, Tony Gola and Jill Liske-Clark on WFCR Public Radio, Amherst

• August 2006: *Eastern Box Turtle Restoration project funded by NHES on Montague Plains W.M.A.*, Lori Erb on WFCR Public Radio, Amherst

• March 2006: *Hunting & Fishing*, Marion Larson on WESO, Southbridge

• May 2006: *Falcon chick banding in Worcester,* Channel 4 WBZ TV

• June 2006: *Coyotes in Massachusetts*, Tom O'Shea, on WBUR Radio

• June 2006: *Bald Eagle Restoration and Delisting,* Tom French, WGBH TV Channel 2

• June 2006: *Bear sightings in Worcester,* Jim Cardoza, Channel 5 TV WHDH

• June 2006: *Eagle Banding on Wachusett Reservoir,* Central District, Channel 4 WBZ TV

Production of Annual Materials

Licenses and Abstracts

Production of licenses, abstracts and stamps ran smoothly with all materials arriving at Field Headquarters on schedule. In addition to the annual Abstracts of Fish and Wildlife Laws and Regulations, abstracts were prepared of the regulations pertaining to the hunting of migratory birds and regulations pertaining to the trapping of furbearers. The Section Chief also worked closely with the agency's financial staff to update the license sellers' manual.

Waterfowl Stamps

Selection of the artwork for the following year's waterfowl stamp is always an involved process. In February, notices are sent to a growing list of artists. Artwork, received at the end of June, is carefully screened to ensure that each entry meets the rigorous standards of the competition in that each entry must depict a species not used in the previous five years and that the artwork shows a decoy made by a deceased Massachusetts decoy maker. Once the art has been verified, a panel of judges review the artwork. Art for the 2007 waterfowl stamp was selected in a competition held at the Springfield Science Museum in September of 2006. The five judges selected a painting of a goldeneye drake by an unknown carver and submitted by artist Matthew Schulz of Osterville, MA. Mr. Schulz, a notably successful young artist, is a former winner of the Massachusetts Junior Duck Stamp Program. Following the contest, the Museum hosted a reception celebrating the waterfowl stamp program and honoring Mr. Schulz. The artwork remained on public display at the museum through the end of September and was much enjoyed by visitors.

Archery and Primitive Firearms Stamps

Design for the 2007 Archery and Primitive Firearms stamps was once again selected in open competition. For this year, the judges selected a painting of the head and back of a ten-point buck submitted by artist Joy Keown of Laramie, WY. Following the competition, Ms. Keown's painting was reproduced on the 2007 archery and primitive firearms stamps.

Publications

The Division's most visible publication is ***Massachusetts Wildlife***, a 40 page, full color quarterly which is sent to more than 22,000 paying subscribers, a rate which appears to be holding steady. The four issues produced this year, # 3, 2006 to # 2, 2007, covered a wide variety of fisheries, wildlife and outdoor-related subjects including resource management, education, habitat enhancement, rare and endangered species, history, general nature interest and "how to" articles for the hunter, fisherman and nature observer. Articles that promoted MDFW programs included a first hand account of how the Landowner Incentive Program (LIP) helps keep land open; a centerfold and article presentation promoting tax form check-off donations; an examination of how the agency and Ducks Unlimited work together to secure waterfowl habitat; and how one individual, Geof Walker of Newbury, has served the Commonwealth in his crusade to conserve and restore salt marsh habitat. There was also a feature article on the challenges involved in the management of whitetail deer, including a comparison between management in Massachusetts and in Vermont. There were two botanical "field guide" articles with photos of each species covered, one on identifying our common ferns, the other on identifying woodland grasses. There were feature articles on the discovery of the first recorded nesting of the Sandhill Crane in Massachusetts and Black Bear behavior in corn fields, both made exceptional by Bill Byrne's extraordinary photographs; another on life at sea for a rookie marine fisheries biologist; and another covering a research study on road mortality of turtles. "How to" articles included shad fishing on the Merrimac River; fishing with grass shrimp (freshwater); removing skunk odor; ice fly fishing; and backyard habitat management. We also featured an article on the revival of the Student Conclave that will help improve the education of wildlife management majors from colleges all over the Northeast; and a tribute to our most famous native bass fisherman, the late Bill Plummer of Westborough.

MASSACHUSETTS WILDLIFE *magazine*.

Other Publications

In addition to the Annual Materials and the magazine, the Section produced and printed (or reprinted) a variety of materials needed for the smooth operation of ongoing programs.

Two major publications were issued during the year. ***A Guide to Invasive Plants in Massachusetts*** was prepared by Section staff and published in cooperation with The Nature Conservancy and the New England Wildflower Society. In addition to this, staff updated and added color to a new edition of the ***Homeowner's Guide to Bats***. Staff also worked with project Leader Ken McKenzie on the production of a brochure to promote the Landowner Incentive Program. Other items produced were:

- Massachusetts Division of Fisheries & Wildlife's Annual Report
- Manuals and certificates for Project WILD, Angler Education, and the Massachusetts Junior Duck Stamp Program

- Reprint of ***Critters of Massachusetts*** booklet
- Update of assorted ***Living with Wildlife*** sheets
- Track cards – used as handouts for public programs
- Handout sheets with information on waters stocked with trout, areas stocked with pheasants, lists of maps of Wildlife Management Areas, new land acquisitions, best bets for bass, waters stocked with northern pike and tiger muskies, and the Sportfishing Award affidavit form
- Bear, Turkey and Antlerless Deer Permits and associated notification cards
- Deer check station cards
- Assorted signage.

Exhibits

The agency had a presence in the form of a display or exhibit in the following venues:

August

- Waquoit Bay Watershed Block Party, Falmouth
- Peter Rabbit's Annual Animal Day, Sandwich
- Marshfield Fair, Marshfield

September

- Franklin County Fair, Greenfield
- 10TH Annual Massachusetts Outdoor Expo, Sturbridge
- Topsfield Fair, Topsfield

October

- Freetown Forest Fun Day!

February

- 27TH Annual Standish Sportsmen's Show, East Bridgewater
- Worcester Fishing and Outdoor Expo – 36-46,000 attendees
- Springfield Sportsman's Show
- Springfield Camping and RV Show – This was a joint exhibit with Dept. of Conservation and Recreation. It was the first time we participated and it may be useful to continue to provide an agency presence at this show which caters mostly to RV campers.

March

- Mass. Association of Conservation Commissioners Conference, Worcester
- 17TH Massachusetts Land Conservation Conference, Worcester

Photography

Staff photographer Bill Byrne continues to provide images in support of agency programs.

In addition to specific shooting assignments for ***Massachusetts Wildlife*** magazine, the photographer has the important quarterly tasks of reviewing all available images, making certain that there is a sufficient supply of high quality images for the editor's selection process, and assisting with final image selection for each issue. In addition, the photographer provides and reviews images for such annual publications as the Abstracts of Fish and Wildlife Regulations, the agency's Annual Report and other publications as required. In addition to this, he provides images, as requested, to individuals and organizations working for wildlife and protecting the lands and natural resources of the Commonwealth.

Subjects photographed "on assignment" for articles appearing in ***Massachusetts Wildlife*** included Avian Influenza (AI goose sampling), summer bass fishing on Cape Cod, the essence of skunks, trout stocking, and common ferns, to mention just a few.

He provided images for the Abstracts of the MA Fish and Wildlife laws and regulations and for the agency's Annual Report. Extensive time and effort were also expended in preparation of a brochure for the Massachusetts Outdoor Heritage Foundation.

In addition, the photographer continued with ongoing black bear photography and developed an extensive photo essay on bears and their relation to field corn ("Maize Bears") published in ***Massachusetts Wildlife*** issue # 3, 2006. He also documented two historic wildlife events in the Commonwealth: the first nesting of Sandhill Cranes in Massachusetts; and the return of nesting Peregrine Falcons to Mt. Tom, both published in ***Massachusetts Wildlife*** issue #2, 2007

In addition to the usual photographic duties, Mr. Byrne spent many long days and hours processing digital image files to develop the working components of an I&E Photo Library. This image bank has grown dramatically, and will continue to grow. Digital images are now the dominant format for DFW staff use, but quality transparencies are still being taken, scanned and digitized for DFW use, and added to the Photo Library. The Photo Library has already proved its value many times over to administrators. It will soon be available on-line to all DFW staff.

Education Programs

Public Education Programs

Staff members of the Information & Education Section have offered programs to civic, community, conservation and sportsmen's groups about a variety of wildlife issues. Outreach by the Education Coordinator focused on groups of educators, students and youth gatherings, but was also highlighted at other public events. Through these wildlife education programs (general wildlife, wildlife in your back yard, endangered species, living with wildlife, etc.), public appearances at conferences, community reading days, and workshops, we continue to reach suburban and urban youth, international students, scouts, department of youth services secure treatment residents, pre-service teachers, undergraduate and graduate college students, formal and non-formal students, and other adult audiences.

Formal or School-based Education Programs

Pam Landry Coordinator

Project WILD: Twenty-one Project WILD facilitators offered 28 workshops: 11 WILD, 2 Aquatic WILD, 1 Proyecto WILD (project WILD in Spanish), and 11 combination WILD/Aquatic WILD. Three workshops were cancelled due to under enrollment. Those that were conducted reached a total of 387 educators who work with students in grades K-12 statewide. Project WILD was also represented at the well-attended Boston Flower Show Educators Night, which reached over 250 educators & children.

The facilitators' annual gathering was held at Buttonwood Park Zoo, New Bedford. Nineteen (19) of the program's 52 facilitators and three guests enjoyed a day of camaraderie, updates, recognition and a presentation on "Wide Open Spaces: Habitats in Decline in Massachusetts." Facilitators also viewed the "Berkshires to the Sea" exhibit.

Nineteen educators attended a three way (Project WILD, Project WET, Project Learning Tree) facilitator training. This training brings the total of 2006-2007 Project WILD facilitators to 71.

Junior Duck Stamp Program (JDS): Students in grades K-12 from across the Commonwealth submitted 388 pieces of artwork to this "conservation through the arts" program. Entries were received from public, private and home schooled students, scouts, individuals, and private art studios. Artwork entered into the program was judged by a panel of five wildlife artists in a process which took place at the USFWS Great Meadows Wildlife Refuge. The subsequent awards ceremony, attended by students, families, teachers and sponsors, was held at USFWS Region 5 Headquarters. The painting of a Northern Pintail by Eric Funk, Acton-Boxborough Regional High School, was selected as Best of Show and represented Massachusetts at the National Competition. Combinations of the top 100 pieces of art were part of a statewide traveling exhibit which appeared in 13 different venues. The Buttonwood Park Zoo hosted a waterfowl drawing workshop for students presented by Maura Conron, an artist and past JDS judge. Sponsors of the JDS program include MassWildlife, USFWS, Massachusetts Waterfowlers, Inc., Massachusetts Wildlife Federation, and the MA Chapter of Ducks Unlimited.

Massachusetts Envirothon: The Division of Fisheries and Wildlife continues to be heavily involved in this natural resource program, reaching over 500 urban & rural high school students annually through teacher and student workshops. The Division's Education Coordinator further enhances the program through her service on the state education committee, preparing the wildlife exam, attending monthly committee meetings, providing wildlife related information to the current issue question, and attending the competition itself. The 2007 Envirothon was held at Mt. Wachusett Community College, a site that highlighted the current issue of Energy Conservation and Renewable Energy for Massachusetts Communities.

Kaci Kus took second place in the grades 4-6 category of the 2006 Massachusetts Junior Duck Stamp Program's competition.

Secretary's Advisory Group on Environmental Education: The Section Chief represents DFW on the Secretary's Group for Environmental Education (SAGEE), an advisory group which serves the Secretary of Environmental Affairs and the Commissioner of Education. In her capacity as a member of the group's higher education committee, she made arrangements for an on-line course, Fundamentals of Environmental Education, to be offered in the Fall of 2007 through Framingham State College. This course is based on a course of the same name developed by the University of Wisconsin, Stevens Point and the Environmental Education Teaching and Assessment Program (EETAP), but has been modified to connect students to materials that are specific to Massachusetts including the Massachusetts Learning Standards, Benchmarks on the Road to Environmental Literacy, The Massachusetts Environmental Education Plan and to a network of Regional Environmental Education Associations.

Skills Programs

Hunter Education Program **

Susan Langlois, Coordinator

It is the mission of the Massachusetts Hunter Education Program to protect the lives and safety of the public, promote the wise management and ethical use of our wildlife resources, and encourage a greater appreciation of the environment through education. The Hunter Education Program is a public education effort providing instruction in the safe handling of firearms and other outdoor activities related to hunting and firearm use. Funding is derived from the sale of hunting and sporting licenses, and from federal excise taxes on firearms and archery equipment. Massachusetts offered its first hunter safety course in 1954, and to date has graduated more

** Because of its size and importance the Hunter Education Program stands alone in the organizational structure of the agency. It is included in this report because of its functional relationship to the agency's skills programs.

than 161,000 students. The program is administered by the Massachusetts Division of Fisheries and Wildlife and courses are taught by certified volunteer instructors. All courses are offered free of charge.

Courses

Courses were offered in six disciplines across the state. A total of 4,072 students participated in the Hunter Education Program in FY07. Participation levels have increased 12% from the previous year (3,617 students) and are consistent with the five year average of 3,411 students. The following is a summary of course offerings and statistics on student participation:

Basic Hunter Education courses provide information on the safe handling and storage of hunting arms and ammunition, hunting laws and ethics, wildlife identification, wildlife management, care and handling of game, basic survival skills and first aid.

Seventy-nine courses were offered. Courses were 12-18 hours in length. A total of 2,969 students participated; 2,771 successfully completed the course; 8 failed and 181 did not complete the course. Students are asked to volunteer information on age, gender and ethnic background on their registration forms. Of those who provided this information, five hundred fifty eight (558) students were minors (10 –14years old), 525 were 15-17 year old minors, and 85 were minorities. Three hundred forty eighty (348) women participated.

Bow Hunter Education courses are designed for both the experienced and novice hunter. Course topics include the selection of equipment, safety, ethics, bowhunting methods, and care and handling of game. Students may bring their archery equipment to class to obtain advice on its use and care. This certificate is recognized in other states where Bow Hunter Education certificates are required.

Twenty-two courses were conducted. Course length ranged from 8-12 hours. A total of 688 students participated; 671 successfully completed the course; 13 failed the course and five did not complete the course. One hundred and ten students were 10-14 years of age and sixty-eight were 15 -17 years of age. Based on volunteered information, there were at least three minority students and 41 women students.

Trapper Education is mandatory for all first-time trappers. This course includes both classroom work and field training. Students learn the proper use of traps and how to set them, the identification of fur bearing animals and their habitat, trapping laws and ethics, and landowner relations.

Three courses were offered to a total of 136 registered participants. Course length was 10-11 hours. Of those who signed up, 131 successfully completed the course; two failed the course, and three did not complete the course. Fourteen women were identified. One minority, six minors (10 –14 years old) and seven minors (15-17 years old) attended.

Black Powder Education covers the selection of hunting equipment, state laws, the safe handling of muzzleloaders, and powder storage. *A Certificate of Completion from the Basic Hunter Education course is a pre-requisite for all students under 18 years of age.*

Five courses were conducted. Course length was 10 – 15 hours. Sixty-four students participated. Fifty-nine successfully completed the course, one failed the course and four were incomplete. Four women were identified. Five minorities, three minors (10–14 years old) and two minors (15-17 years old) attended.

Map, Compass & Survival Program: This one-day course includes both classroom work and field training. Topics include wilderness survival and instruction in the use of a compass and topographical map for land navigation.

Nine courses were conducted (2 in Pittsfield, 7 in Westminster). Courses ranged from 8-10 hours in length. A total of 200 students participated. All successfully completed the course. Thirteen minorities, twenty-six minors (10 -14 year olds) and thirteen minors (15-17 year olds) attended. Thirty-nine women were identified.

Waterfowl Identification This course teaches the identification of migratory waterfowl, but also covers the shooting characteristics of steel shot, hunting safely from boats, and the proper use of decoys.

One ten-hour course was held with fifteen students participating. All successfully completed the course. One minor (10-14 years old) attended.

Shooting Range Development and Enhancement

It is our objective to provide access for the public to range facilities for hunter education and shooting sports purposes by assisting shooting club range development and improvement activities. A total of $50,000.00 was made available to clubs for Shooting Range Maintenance and Enhancement projects this year. Four clubs responded with nine project proposals. Three individual project proposals from three clubs were selected to be funded. The selected clubs were notified of the awards. Two clubs assented and began work on the projects once all contracts and supporting documentation was finalized. Paid invoices were submitted by the clubs and reimbursed for approved costs associated with the projects. Follow-up site visits are conducted by DFW staff.

Angler Education Program

Jim Lagacy, Coordinator

The Angler Education Program seeks to involve people, primarily children, in our aquatic outdoors though the experience of fishing. This program has several components set up to introduce people to fishing and the outdoors, including Family Fishing Festivals, Basic Fresh-Water Fishing Classes, Fishing Clinics, and a Fishing Tackle Loaner Program.

The Angler Education component is staffed by a team of volunteer instructors. Currently there are 99 established volunteer instructors as well as 15 Instructors in

Training (instructors who have completed the program's training course during the year) in 10 workshop groups. Among the 114 instructors, 65 were active during this year. The program coordinator advertised for instructors through news releases, at three winter sportsmen's shows (The Eastern Fishing and Outdoor Exposition, Worcester; The Springfield Sportsmen's Show; and the Massachusetts Striped Bass Fishing Show in Foxboro) and by word of mouth through the existing instructor network. Potential instructors were then required to participate in an Instructor Training course held at the Division's Field Headquarters in Westboro or to apprentice within a local ARE workshop group.

Family Fishing Festivals and Derbies — Ten Family Fishing Festivals were held this year. These ranged in size from approximately 75 to 600 participants, for a total of approximately 3,100 people. These events are set up as an introduction to fishing where instructors make available rod and reel combinations, terminal tackle and bait at no charge, and, when the manpower allows, they provide some basic instruction in casting, fish identification, and knot tying. The instructors also participated (as volunteers and providing equipment on site) in five fishing derbies, including two for anglers with special needs (Disabled American Veterans events) totaling another 1,000 participants. Total estimated participation for Festivals and Derbies this year was 4,100 people.

Three- and Five-Week Basic Fresh-Water Fishing Courses — Ten courses were held this year with approximately 205 student participants. Four groups (Berkshire, Greater Worcester, Metro West, and Pioneer Valley) sponsored and held these classes. The Coordinator has asked the instructors to consider an alternative format for these fishing courses, as participation has declined significantly over the past 10 years. Because of this, the program has added a short format three-week course as an alternative to the traditional five week offering. The three-week course includes two classroom sessions and one field session, whereas the five-week course includes four classroom sessions and one field session. We will be monitoring these two formats over the next few years to see what effect course length has on levels of participation.

Fishing Clinics and other short programs — These programs, while short in duration, seem to be the most popular. Clinics are generally two hours long. They involve a short lecture on the basics of beginner level angling, followed by casting instruction and a healthy dose of fishing. Also in this category, instructors have offered short ice fishing programs, stocking programs, casting programs, and educational talks (scout groups/etc.) on fishing. Handouts are generally provided, and classes are kept small enough to allow the instructors to work with participants one on one. Fifty of these short programs, conducted by the Coordinator and numerous volunteer instructors, were offered this year in various parts of our state. Approximately 2,300 individuals (mostly children) participated.

The Angler Education Program was a big hit at the 2006 Massachusetts Outdoor Exposition.

Tackle Loaner Program — The Angler Education Program maintains fishing equipment at the DFW Field Headquarters in Westboro for loan to various groups throughout the state. Over the course of the past year, the Program loaned equipment on 23 separate occasions totaling 560 rod and reel combinations. This equipment was borrowed by various groups/agencies including the Massachusetts Department of Conservation and Recreation, U.S. Army Corps of Engineers, U.S. Fish &Wildlife Service, various sportsmen's clubs, and others. Along with the rod and reel combinations, the program also provided the necessary terminal tackle and various educational materials.

Communications — ***Shortcasts***, the program newsletter, was issued twice during the year. Other communications through mail, email, and telephone conversations also kept program volunteers informed and up to date.

Becoming an Outdoors-Woman

Ellie Horwitz, Coordinator

Becoming an Outdoors-Woman (B.O.W.) is a program designed for women ages 18 and up. The program provides basic skills instruction to women who have expressed an interest in participating in outdoor activities and field sports. Because of gender, cultural barriers and lack of suitable equipment, women have been, and are, under-represented among persons who enjoy and feel a commitment to the natural resources of the Commonwealth. A survey released in November 2006 by the National Sporting Goods Association documented the

fact that the number of women hunting had increased by 75% between 2001 and 2005. NSGA attributes this in large part "to programs designed to introduce females to hunting and shooting." To address this, DFW offers a program coordinated by a staff member and conducted by volunteer instructors. The program provides a relaxed and comfortable venue for basic instruction in a variety of outdoor skills. Because this program is expected to be self-supporting, a good deal of the Coordinator's time is spent raising funds to underwrite the costs involved in presenting these workshops.

Over the course of FY07 eleven workshops were offered as follows:

Date	Topic	Participants
July	Springfield Safari – A BOW sampler	30
July	Foraging and Feasting – Wild Edibles	12
October	Marksmanship	12 (full)
November	Deer Hunting Seminar	12
December	Deer Hunt	20 (full)
March	Turkey Hunting Seminar	12
March	Gear Day at Kittery Trading Post	12
April	Shooting Sports	40 (full)
May	Turkey Hunt	10 (full)
May	Archery	16
June	BOW Weekend, Lenox (27 workshop options)	68
Total Workshop Attendees		244

Instruction was provided by specialists who volunteered their time and services in order to share their expertise and their passion for outdoor activities with newcomers. All sessions were evaluated by participants and productive feedback was used to enhance future programs. As in past years, shooting and hunting workshops filled extremely rapidly, underscoring the need for introductory programs in this area.

Following a policy established in 2005, all workshop sites are reviewed for handicapped accessibility, workshop flyers alert individuals with handicaps that special arrangements will be made to accommodate their needs, and workshops were advertised through "All Outdoors" (a program which reaches individuals with physical disabilities.) The Program Coordinator continued to work with the Board of Project INSPIRE, a collaborative of private venture and the Universal Access program within the Department of Conservation and Recreation.

In addition to in-state activities, the Program Coordinator represented the Commonwealth at the international conference of BOW program coordinators.

Conservation Camp

In August 2006 the Mass. Junior Conservation Camp held its fourth session at the Chesterfield Boy Scout Reservation. A total of 125 youngsters attended the program, which serves campers on a "one-time" basis. As in the past, DFW staff assisted in the development of an instructional schedule, and coordinated arrangements with instructors. Agency staff and volunteers offered

The grounds of Springfield College provided BOW participants with the opportunity to enjoy outdoor experiences in an inner city environment.

Basic Hunter Education and Bow Hunter Education courses for campers, conducted instruction in wildlife management, fisheries management and game preparation and cooking skills (From Field to Table), conducted an Information Quiz which serves as a tool to evaluate participants' learning of outdoor information and skills, and participated in the graduation ceremonies.

Agency Visibility

In an effort to increase public identification of agency staffers, T-shirts, polo shirts, dress shirts, field jackets, caps and coveralls were purchased and made available to agency staff members.

Other Projects

During this year the Section Chief spent considerable time and effort with counterparts from New Hampshire and New York in planning, fundraising, and preparing for the Annual Conference of the national Association of Conservation Information (ACI) which will be held in Massachusetts in July of 2007.

ACI 2007 MASSACHUSETTS
ASSOCIATION for CONSERVATION INFORMATION, INC.

Information & Education Staff

Ellie Horwitz, *Chief*

Bill Byrne, *Senior Photographer*
Jill Durand, *Circulation Manager*
Suzanne Fritze, *Receptionist*
Jim Lagacy, *Coordinator, Aquatic Resources Education*
Pam Landry, *Education Coordinator*
Susan Langlois, *Coordinator, Hunter Education Program***
Marion Larson, *Outreach Coordinator*
Peter Mirick, *Publications Coordinator*

** Because of its size and importance the Hunter Education Program stands alone in the organizational structure of the agency. It is included in this report because of its functional relationship to the agency's skills programs.

DISTRICT REPORTS

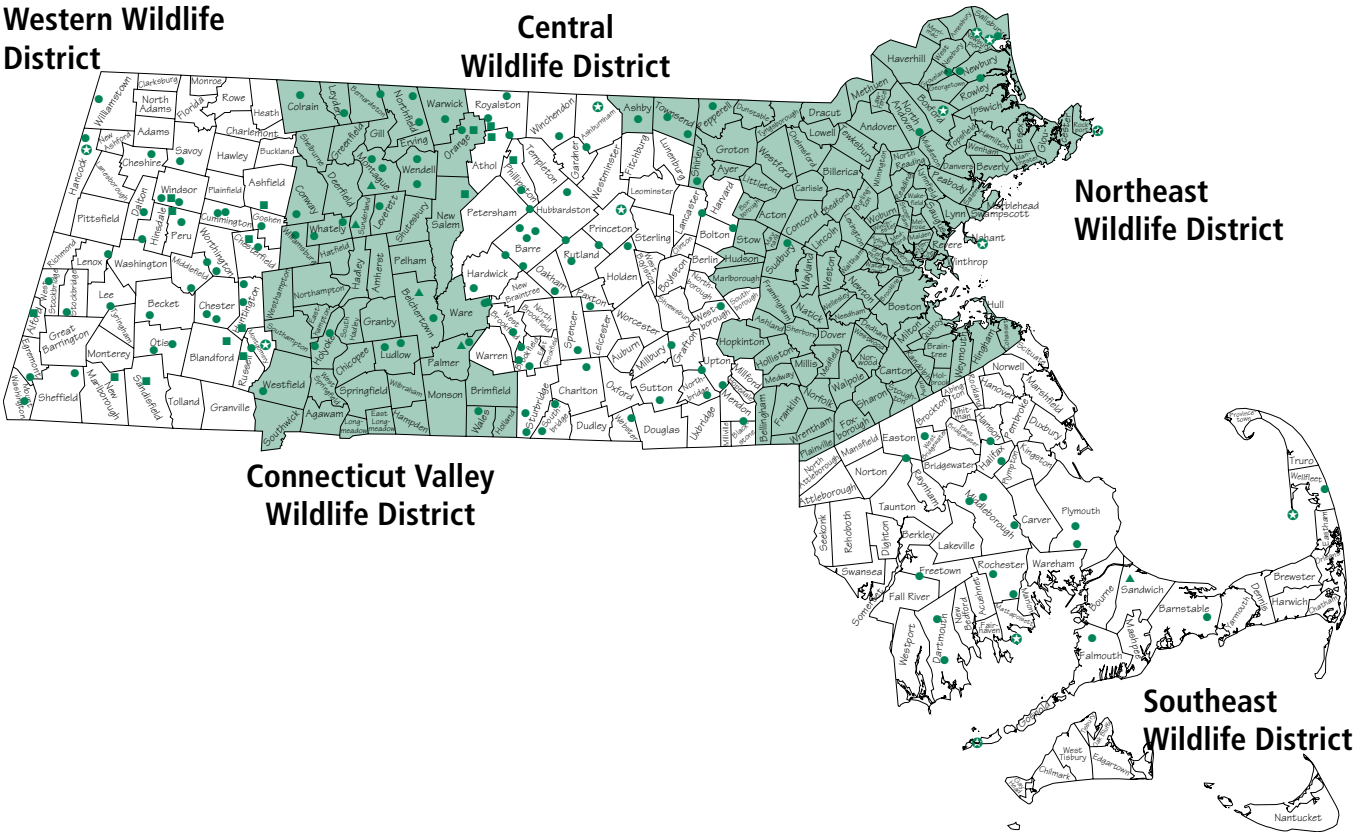
Northeast Wildlife District, Patricia Huckery, *Supervisor*
Southeast Wildlife District, Jason Zimmer, *Supervisor*
Central Wildlife District, Bill Davis, *Supervisor*
Connecticut Valley Wildlife District, Ralph Taylor, *Supervisor*
Western Wildlife District, Andrew Madden, *Supervisor*

Most people who contact the Massachusetts Division of Fisheries and Wildlife do so through one of the state's five Wildlife Districts. The District offices are the Division's field stations, administering wildlife lands, conducting on-site management, enhancing recreational opportunities and addressing the wildlife issues pertinent to their individual regions. District personnel sell licenses, stamps and selected permits out of the field offices, and District staff members distribute licenses, abstracts, stamps and other materials related to the sale of hunting, fishing, and trapping licenses to vendors in their District. They assist officers from the Division of Law Enforcement to support public adherence to wildlife laws and regulations, and they assist the staff of the Wildlife Lands Section in locating titles, landowners and boundaries, and in making arrangements for the acquisition of lands for wildlife.

During the past year, staff from all of the Districts conducted administrative activities and participated in a wide variety of research programs initiated by the Division's biological staff based at the Westborough Field Headquarters. (See Section reports for the status of these projects.) Among the research/survey projects conducted by District staff are the annual mid-winter eagle survey; waterfowl inventory and banding/collaring; census of wild turkey, mourning doves, woodcock, ruffed grouse and quail. District staff members also monitor the water quality of lakes and streams prior to releasing fish into them.

District staff members enhance recreational opportunities throughout the state by stocking brown, brook, rainbow and tiger trout, northern pike, tiger muskies and broodstock salmon into waters scheduled to receive them. They also release pheasants on Wildlife Management Areas (W.M.As.) and in open covers. They operate check stations where sportsmen register deer, bear, turkeys and furbearers taken during the designated hunting and trapping seasons.

District staff members monitor and maintain the Wildlife Management Areas in their region, cutting brush, mowing, trimming trails, designing forest cut-



ting operations, planting shrubs and maintaining roads and parking areas. They emplace gates, erect signs and make other arrangements related to the protection and management of the agency's lands, buildings and vehicles. They also build and maintain nesting boxes for wood ducks, bluebirds and bats, and establish cooperative agreements with farmers raising crops on the agency's lands.

District Supervisors and Managers are the agency's "point persons," spending many hours with civic and conservation groups including sportsmen's clubs and leagues, and responding to inquiries from interested citizens. They provide technical advice on wildlife matters -- particularly on the handling of nuisance animals. In this context, District staffers deal with a large volume of beaver complaints, deer damage complaints, questions about coyotes, and other issues dealing with the impact of wildlife on human activities and vice versa.

In addition to the activities that are common to all of the Districts, there are certain projects that require the participation of staff from only certain Districts.

Northeast Wildlife District

Administration

Land acquisition activities for this District included reviewing parcels for their ecological and recreational significance; reviewing options for the dispersal of Natural Resource Damage funds from the Charles George Landfill Trust in Tyngsboro/Dunstable; and actively participating in spring/fall parcel and focus area meetings led by Dennis McNamara and Lynn Harper.

The District Supervisor attended monthly meetings of the League of Essex County Sportsmen's Clubs, Norfolk County League of Sportsmen's Clubs, and Middlesex County League of Sportsmen's Clubs, and also attended the annual meeting of the MA Sportsmen's Council. The League of Essex County Sportsmen's Clubs honored the District Manager with a Certificate of Appreciation for her work on the preservation and conservation of natural resources.

The 5-year capital plan was updated in preparation for any future year-end capital funds that may become available. Staff worked on securing permits and approvals for capital projects proposed by the Northeast District Office.

Research and Conservation Activities

Wildlife

The District worked closely with Department of Conservation and Recreation (DCR) staff who checked deer at Harold Parker State Forest and Willard Brook State Park. Staff collected tissue samples from as many deer as hunters would allow. These samples were subsequently tested for Chronic Wasting Disease. The District office maintained a 6-day/week deer check station from October 16 through January 2. It sold over 3000 over-the-counter Antlerless Deer Permits (ADPs), with hundreds of hunters lining up on the first day of permit sales to buy a coveted Zone 9 ADP. Four (4) deer were taken at the agency-sponsored paraplegic hunt at the Devens RFTA. Staff regularly monitored 10 radio-collared deer throughout the winter and spring seasons.

Five thousand (5,000) pheasants were released onto five Wildlife Management Areas and 11 open covers (reduced from 14 covers based on the Division's comprehensive landscape analysis designed to improve the quality of the hunting experience). Pheasants scheduled for release to the three sites in Norfolk County ranked as "poor" by this analysis, were released on more suitable, nearby sites.

Twenty-two (22) Special Pheasant Stocking Permits were issued for the Martin Burns Wildlife Management Area between the dates of January 5 and March 31. That is up from 10 permits issued during the previous fiscal year. Concord Rod & Gun Club, Harvard Rod & Gun Club, and Danvers Fish & Game Club conducted successful Youth Pheasant Hunts at the Bolton Flats and Martin Burns Wildlife Management Areas.

Five breeding plot surveys were conducted as part of the general waterfowl survey in the Northeast and Central Districts, and waterfowl were banded through airboat operations. There was no swan survey this year, but Northeast District staff assisted with the Canada goose banding project on over 15 sites. At the request of hunters, staff added another blind at the Delaney Wildlife Management Area, which now offers a total of 11 blinds. There were 18 applicants for waterfowl permits at Delaney.

Twenty five (25) wood duck nest box sites containing a total of 137 nest boxes were maintained this year. Staff cut and prepared approximately 100 cedar poles for future use in the wood duck project.

District staff tagged 5 coyote, 183 beaver, 77 fisher, 1 red fox, 16 otter, 1 mink and 2 bobcats. Five grey fox pups, rescued by teenagers in Chelmsford during the spring floods, were transported to the Cape Wildlife Center, in Barnstable.

Staff responded to numerous calls about living with wildlife, particularly coyote, turkey, fisher, bear and deer. The number of bear calls increased markedly, particularly in Carlisle, Concord, Pepperell, and Groton. Staff helped folks understand the difference between problem and normal behavior of wildlife, and what to do to protect their pets, and shrubbery. District staff met with town selectmen, counselors, health officers, animal control officers and conservation commissions to help them understand the behavior of these animals, to teach them how to live with them, and what to do about individual problem animals.

Fisheries

District staff assessed 34 sites in five drainages: Parker River (8 sites – 4 brooks/rivers), Charles River (6 sites – 4 brooks), Concord River (13 sites – 11 brooks), Boston Harbor (6 sites – 3 brooks/rivers), and Merrimack

The Massachusetts Fish & Wildlife Board was pleased to dedicate a portion of the Salisbury Wildlife Management Area in honor of Geoffrey Walker of Newbury. Mr. Walker has served the agency, Ducks Unlimited and his local community through his lifetime of tireless work to conserve salt marsh habitat. The presentation event took place in August in conjunction with the annual waterfowl hearing.

River (19 sites – 12 brooks/rivers). High water once again hampered fish sampling at the Essex Dam fish lift in Lawrence.

District staff stocked a combined total of over 130,000 trout during spring and fall: 10,800 browns and rainbows in 2 rivers and 19 ponds in the fall, followed in the spring by +/-120,000 trout in 45 ponds, 5 major rivers, and 68 brooks and minor rivers. A total of 450 salmon were also stocked in 9 ponds throughout the District. These salmon were made available to the DFW by the U.S. Fish & Wildlife Service.

Northeast District staff responded to a fish kill on Mill Creek in Chelsea and worked with the Department of Environmental Protection, U.S. Environmental Protection Agency, U.S. Coast Guard and the Chelsea Hazmat group. Thousands of killifish and mummichogs were killed, as well as some horseshoe crabs.

Natural Heritage & Endangered Species Program

The Merrimack River bald eagle pair returned to the West Newbury nest, and successfully fledged a chick. Central District staff joined the Northeast District crew to ensure that the chick was banded safely.

Staff participated in the second annual Merrimack River Eagle Festival sponsored by the MA Audubon Society. The weather and eagles cooperated, and at one moment a dozen eagles were visible at the tip of Deer Island in Newburyport. Folks were also treated to the sight of three juvenile eagles feeding on the ice.

Peregrine falcon chicks were banded at the Customs House, Boston, and at an old abandoned mill building in Lawrence. A new peregrine falcon nesting location was discovered on top of a University of Massachusetts student dorm in Lowell. Two piping plover breeding sites were checked.

Limited surveys for 4-toed salamander nests and nesting females were conducted in Middlesex and Essex Counties as part of a species distribution and abundance study. The study entailed field observation of pre-selected wetlands to identify suitable nesting habitat (i.e. sphagnum hummocks) and investigation of suitable habitat for eggs and attending females.

District Supervisor Pat Huckery contributed to the update of vernal pool criteria in the Vernal Pool Certification Guidelines document produced by the Division. She also worked with Marea Gabriel, Aquatic Ecologist, on a freshwater mussel guidance document for use by applicants filing under the MA Endangered Species Act.

Information and Education

Staff attended various meetings and training sessions including Carlisle's Conservation Coffee where the District Supervisor provided an update on the status of beaver, Wildlife Society meetings, deer aging classes, chain saw training, survey sampling workshop with the Division of Marine Fisheries, and the MA Turtle Symposium. A presentation on moose was given to the

Squannatissit Chapter of Trout Unlimited, Environmental Police officers learned about beaver and the law from District staff, and Department of Conservation & Recreation vernal pool training for foresters was held at Boxford State Forest.

Other meetings, training sessions and workshops attended or given by staff included Publications Review Group Meeting, Northeast Endangered Species & Wildlife Diversity Technical meeting, freshwater mussel workshop at Oxbow National refuge, firearms safety course, TTOR Managing Land & Visitors workshop, ArcView and GPS Training. The District Supervisor and District Wildlife Biologist also attended a 2-day workshop on animal immobilization conducted by Safe Capture International at the Franklin Park Zoo.

District personnel assembled and staffed the agency's exhibit at the Topsfield Fair with some scheduling and personnel help from agency I & E staff. A beaver flow device was added to the exhibit this year, along with permissible and restricted beaver traps. These items generated increased public interest in beaver management. Section personnel also staffed the Wilmington and Worcester Sportsmen Shows.

Wildlife Management Areas and Other District Activities

District staff set-up and participated in the Devens Paraplegic Sportsmen's Deer Hunt, Delaney W.M.A. controlled waterfowl hunts, and controlled pheasant hunts and a special Youth Pheasant Hunt at Martin Burns W.M.A. Staff mowed roads, parking areas and trails; maintained equipment, posted boundary signs, set up duck blinds, picked up trash, checked public access launching ramps and town ramps, and investigated wildlife issues reported by members of the public. Considerable field work was performed specific to the following W.M.As:

Dunstable Brook W.M.A. – District technicians completed reconnaissance and posted boundary signs around the entire perimeter of this area. The District Supervisor worked with the EOEA and US Fish & Wildlife Service on a wildlife survey and management plan.

John C. Phillips Sanctuary – District staff met with representatives from the Department of Conservation & Recreation to walk a proposed access route through the sanctuary to a timber harvest at Boxford State Forest.

Delaney W.M.A. – The District issued a camping permit, 15 dog trail permits, and 256 target range permits for this W.M.A. Dogs continue to dominate the reported conflicts at Delaney W.M.A. It was discovered that the Delaney W.M.A. was listed on several dog walking websites as a location to run dogs off-leash. This has led to significant overuse of the area by dog walkers, dog excrement build-up on trails and at the parking lot, and conflicts among dogs and between owners. A local citizens' group is working to keep the area clear of dog excrement by conducting clean-ups, and installing bags and garbage cans for this purpose.

Hunting Hills W.M.A. and CR – District staff worked with the Shirley and Lunenburg Conservation Commissions to update the baseline report on this area, review a possible trespass, and meet with landowners to resolve an encroachment problem. Land agent Phil Truesdell helped determine the property line and the offending fence was subsequently moved outside this area. Staff also clearly posted the field access strip from the parking lot to the larger portion of the area protected by a Conservation Restriction.

Squannacook River W.M.A. – The District granted temporary access across this Wildlife Management Area to a logging operation on adjacent South Fitchburg Rod & Gun Club property. In return, the logging operator closed off a number of illegal ATV trails.

Crane Pond W.M.A. – District staff worked with staff of the Natural Heritage & Endangered Species Program on an "Ash Street follow-up." Ash Street is a problematic dirt road that passes through wetlands on agency property. There are rare species and wildlife issues associated with maintenance and operation of this road.

Ashby CR – Staff investigated unauthorized forestry activity on the Ashby Conservation Area. The operation was temporarily stopped until a Forest Cutting Plan, as mandated under the Conservation Restriction, was approved by the Division.

William Forward W.M.A. – Planning for the Ox Pasture Brook dam removal project continues to move forward. In an effort to promote salt pan feeding habitat for waterfowl, District staff modified Farmer Colby's License Agreement to prohibit ditch clearing on the salt marsh. Farmers Hoyt and Herrick met with District Manager Huckery to resolve access issues that had emerged over the past year.

Martin Burns W.M.A. – The District Supervisor met with concerned pheasant hunters to discuss vegetation management. As a result, the District stepped-up chain saw and flail mower work on the fields of greatest interest to pheasant hunters. Staff assisted with wetland delineations in preparation for expanded restoration work planned by our habitat restoration staff. Cedar trees were donated for planting to a non-profit, memorial park proposed for the Town of Amesbury.

Mt. Watatic Reservation – Management Plan committee meetings continued throughout the fiscal year, but snowmobile use remains an unresolved issue.-

Salisbury Marsh W.M.A. – Staff spruced-up the Salisbury Marsh W.M.A. access off Sweetapple Tree Lane for the Geof Walker Overlook dedication. The dedication was well attended by family members, Division personnel, USFWS staff, sportsmen, members of the conservation community, and legislators.

Southeast Wildlife District

Administration

Many infrastructure improvements at the District Headquarters were completed. Among these projects were construction of new ADA-compliant bathrooms, construction of a new storage room, installation of new windows and doors, emplacement of a new roof over the entire main office building, installation of a new garage door, exterior painting, installation of a heating unit for the metal workshop, upgrades to the security system, stabilization of the main office floor and installation of a new telephone system.

Many significant equipment improvements were also completed this fiscal year including purchasing necessary safety gear and equipment utilized in controlled burning; water measuring devices such as staff gauges and water temperature data loggers; electric trolling motors utilized in aquatic surveys; a new chainsaw; repairs and upgrades to tractor equipment and mowing parts; a new trailer and power winch for the District's electrofishing boat; plow blades; various hand and power tools; boundary marking supplies and equipment; a new GPS unit; a Tomahawk capture net and other much needed field equipment. The infrastructure and equipment upgrades completed this fiscal year have greatly improved the District's ability to meet our mandate and mission in a safe and effective manner.

Several District personnel received training during this fiscal year. The District Supervisor attended the SafeCapture Chemical Immobilization of Animals course at the Franklin Park Zoo and a SIKES Act workshop in Baltimore. District Technicians received training in wildlands fire fighting, chainsaw techniques and safety, and the safe operation of all-terrain vehicles.

Research and Conservation

Wildlife

Southeast District personnel continued to assist with a wide variety of wildlife-related projects throughout the year as assigned by Westborough Biologists. The staff completed annual breeding surveys for ruffed grouse, northern bobwhite, woodcock, mourning dove and various waterfowl species. The District Supervisor again participated in the USFWS annual mid-winter aerial waterfowl surveys along the entire Massachusetts coastline.

The District Supervisor and District Wildlife Biologist assisted in a major review and revision of the pheasant stocking program. They provided the Wildlife Section with field habitat survey information and technical assistance relative to various aspects of the stocking program and stocking areas in the Southeast District. District staff worked to revise stocking schedules and protocols based on the review to provide a better upland hunting experience.

District staff continued to operate biological check stations for white-tailed deer and wild turkeys and performed routine inspection and tagging of furbearers. A total of 91 deer and 11 turkeys were checked and over 100 furbearers were tagged at the District Office.

The District Wildlife Biologist and Fisheries and Wildlife Technicians assisted with annual Canada goose banding efforts and the additional task of sampling geese for Avian Influenza. Nesting boxes were created, maintained and monitored for wood ducks, eastern bluebirds and American kestrel on various state and private properties.

The District Supervisor assisted in the location and capture of a sick/injured white-tailed deer fawn in Carver that had come into contact with numerous individuals, and then arranged for rabies testing to ensure public health and safety. District staff also assisted the Animal Rescue League of Boston and captured an emu that was loose within the fenced boundary of the New Bedford Municipal Airport.

The District cooperated with DCR Forester Jim Rassman and the Ruffed Grouse Society to design a timber harvest project within the Freetown-Fall River State Forest. The project was designed to create early-successional habitat that would benefit a wide array of both game and non-game species while concurrently improving the upland game hunting experience within our stocked, cooperative W.M.A.

The District worked with the Division's Upland Habitat Management Program and Ecological Restoration Program to design and begin the execution of several habitat projects at the Francis A. Crane Wildlife Management Area in Falmouth. One aspect of the project involved creating additional sandplain grassland habitat to benefit a number of rare plants and animals, while the other portion of the project was designed to create early-successional habitat for a wide variety of common and rare, game and non-game species.

District staff continued to maintain and improve water control structures on the Burrage Pond W.M.A., and seasonally flooded various portions of the property to provide additional feeding and resting areas for migratory waterfowl and other waterbirds. Further, we began the process of developing a grant application through the North American Wetlands Conservation Act (NAWCA) that will provide funding for a project that will restore portions of old cranberry bogs to their original state as natural wetlands.

Invasive species such as knotweed, purple loosestrife, common reed (*Phragmites*), multiflora rose and autumn olive were controlled on several of our W.M.As., including Burrage Pond, Noquochoke, F.A.Crane and Quashnet River. This was done through a combination of methods, and often in cooperation with the Upland Habitat Management Program. District staff also assisted with prescribed burns at F.A.Crane W.M.A. and on the Massachusetts Military Reservation to create and enhance grassland and early-successional habitats.

Fisheries

In July 2006, fish sampling assistance was provided to university researchers studying Maquan Pond in Hanson and Furnace Pond in Pembroke. In May 2007, fish sampling assistance was provided to the Mass. Dept. of Environmental Protection in collecting fish from ponds on the Cape Cod National Seashore for contaminant analysis.

During the summer of 2006, fisheries surveys were completed on six ponds. Stream surveys were completed on 18 streams and several wild trout waters as part of the statewide stream survey. Temperature and dissolved oxygen profiles were conducted on eleven ponds -- primarily trout ponds. In September 2006, a triple pass survey to determine wild brook trout population responses due to habitat improvement activities was completed on the Quashnet River. Stream temperatures were monitored with recording thermographs placed in the Quashnet, Mashpee, Childs, Coonamessett, Santuit, Eel, Jones, Indianhead and Weir Rivers. In October 2006, wild brook trout were sampled from Red Brook as part of a cooperative research study with Dr. Saul Saila of Rhode Island. An infestation of Asian clams (*Corbicula sp.*) was documented in Long Pond in Lakeville.

Four fish kills were reported in July and August of 2006. Area ponds and rivers were examined for potential fish kills after an August 2006 aerial pesticide spraying to control mosquitoes that could transmit the Eastern Equine Encephalitis virus. No fish kills were found. One fish kill due to bog operations was reported in winter 2007, and a fish kill was reported in Cook Pond in Fall River in May 2007.

The District Aquatic Biologist, Steve Hurley, attended workshops on herring, on Cape Cod ponds in peril, and also served on the Waquoit Bay NERR Research Advisory Group. In May 2007, an article on brook trout restoration activities by Hurley entitled, "Bring Back the Natives" was published in the InSeason supplement to the Enterprise newspapers of Cape Cod.

The District Aquatic Biologist was actively involved in monitoring MMR cleanup plans as a member of the Plume Containment Team (PCT) and served as the department representative to the Santuit Pond Preserve management team. The Division of Marine Fisheries was assisted in a striped bass tagging project. The District Aquatic Biologist was also involved in providing technical assistance on potential stream restoration activities on town owned cranberry bogs on the Quashnet and Coonamessett Rivers as well as on Red Brook. He also presented a talk on the status of sea run trout in Massachusetts at a meeting of New England fisheries professionals.

Routine maintenance projects such as trash pickup and vegetation control were performed at angler access areas at Agawam Mill Pond, Ashumet Pond, Bakers Pond, Great Herring Pond, Johns Pond and Washburn Pond.

Technical assistance was provided in assessing potential impacts of a proposed liquefied Natural gas terminal in Fall River and a proposed alum treatment of Long Pond in Brewster/Harwich.

Natural Heritage and Endangered Species Program

District staff assisted the Natural Heritage and Endangered Species program with a variety of projects in addition to conducting rare species inventories of several of our W.M.As. The most assistance was provided to the Tern Restoration Project, with District personnel assisting with boat and equipment maintenance, habitat improvements on Bird and Ram Islands, and nest/chick monitoring during this fiscal year.

The District Supervisor investigated two eastern box turtle mortalities that were discovered by consultants working on a natural gas pipeline project on the Shawme Crowell State Forest and the Massachusetts Military Reservation. Data on each mortality was collected and provided to NHESP, and the carcasses were taken to Westborough.

The District Supervisor investigated reports of a sick, immature bald eagle within the Freetown-Fall River State Forest and captured the eagle. The District Wildlife Biologist transported it to Tufts Wildlife Veterinary Clinic for evaluation and potential treatment.

The District Wildlife Biologist and District Supervisor also assisted with the annual mid-winter eagle count, recording a total of 9 individual eagle observations. District staff assisted in the examination of four eagle chicks (two were banded) among the three confirmed eagle nests in the District. Floats and signs to protect eagle nesting areas were maintained by the District Wildlife Biologist. District Fisheries and Wildlife Technicians assisted in the monitoring and banding of two peregrine falcon chicks in Fall River.

Rare species surveys and vernal pool evaluations were completed on several Division properties including Dartmoor Farms W.M.A., Church Homestead W.M.A. and Meetinghouse Swamp W.M.A. District staff also provided technical assistance and project oversight during the cleanup of a food grade oil spill into rare species habitat within the Hockomock Swamp W.M.A. resulting from an overturned tanker truck.

Enhancement of Outdoor Recreation

The staff provided for another safe and successful pheasant and quail hunting season by stocking 7,920 pheasant and 3,280 quail on six Wildlife Management Areas and over 18 open covers throughout the District. Eight-week old pheasants were again delivered to the Samoset Rod & Gun Club, a participant in our club bird rearing program, to be raised and stocked in open covers during the pheasant season. The District also provided 44 pheasants to the Carver Sportsmen Club and Falmouth Rod & Gun Club for use in the Division's Young Adult Pheasant Hunt. District personnel were on hand to assist with both hunts.

The District stocked its fall allocation of 10,800 trout into 25 ponds and stocked its spring allocation of 112,300 trout into 45 ponds and 40 streams. The District continued its close cooperation with the Sandwich State Fish Hatchery; providing the Hatchery with assistance in computer operations and in routine hatchery operations such as trout spawning and unloading of feed. A fish stocking demonstration was given to a group of Hanover Cub Scouts in Spring 2007 and stocking was filmed for file footage for the ***On the Water*** TV show.

The District stocked its allocation of Atlantic salmon into Long and Little Ponds in Plymouth and Peters Pond in Sandwich in October 2006; and into Long and Little Ponds in Plymouth, Peters Pond in Sandwich, and Cliff and Sheep Ponds in Brewster in December 2006. Tiger muskies were stocked into Lake Sabbatia in Taunton and South Watuppa Pond in Fall River on July 13, 2006.

In preparation for hunting seasons, District personnel mowed and maintained roads, trails, parking areas and fields within the W.M.As. to provide safe and effective access and hunting opportunities to the general public. Signage was installed or maintained at the Popponesset Beach Fisherman's Access, Burrage Pond W.M.A., Mashpee Pine Barrens W.M.A., Old East Sandwich Game Farm W.M.A. and the Francis A. Crane W.M.A. Significant parking lot improvements were made at the Old Sandwich Game Farm W.M.A. to reduce erosion and degradation of the banks of Scorton Creek while concurrently improving the aesthetics of the access area. District staff also removed two large metal tanks from this property to improve aesthetics and public safety.

The District operated and managed controlled access hunting opportunities for white-tailed deer, coyotes and wild turkeys on the Massachusetts Military Reservation. This effort provided 675 deer hunters and 27 turkey hunters with access to roughly 12,000 acres of habitat on the MMR. A total of 8, 59, and 8 deer were killed during the archery, shotgun and muzzleloader seasons, respectively. One male turkey was killed during the spring turkey season. Combined, these two controlled access hunting opportunities provided a total of 1,633 days of recreational hunting.

Boundary marking was conducted at many of our properties including Bearse Pond Access Area, Cooks and Harlow Pond, Spectacle Pond, Noquochoke W.M.A., Purchade Brook W.M.A., Taunton River Access Area, Old Sandwich Game Farm W.M.A., East Sandwich Fish Hatchery, Rocky Gutter W.M.A., Triangle Pond W.M.A., Sly Pond Natural Heritage Area, Church Homestead W.M.A., Copicut W.M.A., Quashnet River W.M.A. and the Taunton River W.M.A. Boundary marking aids the public that visits DFW properties and assists in the management of the areas.

ATV trails were blocked on several properties and trash/debris were routinely picked up at all DFW properties and boat ramps. A gate was repaired at the Rocky Gutter W.M.A. and a new security box was installed to provide access to emergency vehicles.

Technical Assistance

Technical advice and support were provided to many local Animal Control Officers, Police Departments, Boards of Health and Conservation Commissions, as well as to the Environmental Police on issues dealing with fisheries, wildlife and their habitats. Many of these issues relate to the review of the potential impacts to fish and wildlife associated with proposed development projects, suburban wildlife and conflicts with humans, and other public health and safety concerns regarding fish and wildlife. The entire staff assisted with the many calls that the District receives each year, particularly in the spring and early summer, pertaining to coyotes, foxes, Canada geese and other common suburban species. Sheets from the "Living with Wildlife" publication series and educational messages were provided to many individuals and organizations to assist in dealing with human-wildlife conflicts.

The District Supervisor regularly attended meetings of the Barnstable, Bristol and Plymouth County Leagues of Sportsmen, the Monomoy National Wildlife Refuge and Nomans Land Island National Wildlife Refuge Comprehensive Conservation Planning Team meetings, and the Cape Cod Rabies Task Force meetings. The District Aquatic Biologist regularly attended meetings of the Assawompsett Pond Complex and the Massachusetts Military Reservation's Plume Containment Team. The District Land Agent regularly attended the Mashpee National Wildlife Refuge Management Team meetings.

Each year a considerable amount of time is spent in providing technical assistance to the Air Force Center for Environmental Excellence and their contractors in relation to the Massachusetts Military Reservation (MMR) cleanup. Construction impacts on the Crane W.M.A. from the treatment systems and investigational wells were monitored and recommendations were made for reducing impacts on flora, fauna and public use.

Information and Education

District personnel continued to provide information and educate the general public, as well as a wide variety of other agencies and organizations, through publications, presentations and attending meetings and events throughout the region.

The District Supervisor presented the results of the agency's review of eastern coyote management in Massachusetts at meetings of the County Leagues of Sportsmen, at a meeting of the Cape Cod Rabies Task Force, at a meeting of the Cape and Islands Senior Environmental Corps, and at several other public meetings and events. A general "Living with Coyotes" presentation was also made to officials, teachers, parents and children within the Kingston public school system. The District Supervisor also gave a presentation on how to safely and effectively view wildlife at an event sponsored by the Norwell Public Library and gave presentations on American bald eagles at the Westport Public Library and at an event sponsored by the Paskamansett Bird Club in Westport.

A DFW Wildlife Technician stocks trout in the Quinnepoxet River.

The District Aquatic Biologist gave a presentation on fisheries management and trout to youth groups, as well as presentations on sea run trout and general fisheries management to the Cape Cod Chapter of Trout Unlimited and at the Ponds in Peril Conference. The Wildlife Biologist gave a talk on Beavers and Wood Ducks at the Massachusetts Audubon Society's Water Lecture Series at Duxbury Beach.

Southeast District personnel prepared and staffed displays for the Thornton Burgess Society's Animal Day, the Marshfield Fair, Waquoit Bay National Estuarine Research Reserve Watershed Block Party, the Freetown State Forest Fun in the Forest Day, the Yarmouth Boy Scout Field Day, the Standish Sportsmen Show, the Barnstable County Rabies Awareness media event and the Massachusetts Beach Buggy Association's Spring Meet.

District staff continue to engage in conversations with the general public, including hunters, fishermen, hikers, bikers, dog walkers, etc. in an effort to educate them about our activities and relevant fisheries and wildlife issues. The District also continues to work closely with the Cape and Islands Senior Environment Corps to develop fisheries and wildlife projects and to engage the public in DFW activities. District staff put a significant amount of effort into promoting our educational programs; Hunter Education Program, Becoming an Outdoors-Woman Program and the Massachusetts Junior Conservation Camp through publication displays at the District Office and at presentations to local organizations.

Central Wildlife District

Administration

Wildlife Technician Paul LeBoeuf retired on May 11, 2007 after 20 years of service to the Division. Land Agent Brandon Kibbe started with the District on July 17, 2006.

Infrastructure improvements including replacement of windows, heating, air conditioning, flooring, interior doors, garage doors and storage were made to the District office.

Wildlife

District personnel oversaw the operation of 16 deer check stations, 12 turkey check stations, and one black bear check station. They also completed surveys of ruffed grouse, American woodcock, and mourning dove. Canada goose census, which included banding, swabbing to check for avian influenza, and collaring, was done on approximately 1,000 birds. A census of collared birds was completed in August. Waterfowl breeding plots were surveyed.

Staff checked on 362 wood duck nesting boxes and erected 52 new boxes at various wetland sites. Turkey brood reports were submitted during the turkey brood study period.

Scheduling and stocking of 12,900 Ring-necked Pheasant was completed and 7,000 seven week old pheasants were distributed to 12 sportsmen's clubs and two correctional institutions for rearing. Pheasants were released on 15 Wildlife Management Areas (W.M.As.), five town

coverts and participating club properties. Bolton Flats was available for the winter pheasant hunting opportunity in Central District. Two applications were received for winter pheasant hunting permits. A review of the statewide pheasant stocking program was completed by Westboro staff with input from the Districts. Stocking sites were ranked to establish stocking priorities.

Bluebird, kestrel, and songbird nesting boxes were constructed and erected on W.M.As. The U.S. Army Corps of Engineers, Tully Dam office, assisted with preparation of a new Bluebird Trail sign for the High Ridge W.M.A.

Nuisance animal reports were addressed and recorded. Technical assistance was provided and site visits conducted where necessary. The majority of reports related to beaver, coyote, bear, fisher and fox. Reports of illegal activity were forwarded to the Environmental Police.

Several moose/vehicle collisions were documented and data was collected from those specimens which could be salvaged. Large animal response training for the handling of moose and bear was undertaken by District staff in Athol, Auburn, Phillipston, Holden, Worcester, W. Brookfield, Oakham and Petersham. A yearling female moose was relocated twice from problem situations in Holden. She was ultimately destroyed by the Environmental Police at a Royalston campground as a threat to public safety.

Peregrine falcons nested successfully in downtown Worcester for the fourth consecutive year. Three chicks were banded. The District assisted the Northeast District in evaluating peregrine nest sites in Lowell and Lawrence.

The bald eagle nesting territory at Wachusett Reservoir in Boylston was active and produced one chick. The chick was banded with assistance from DCR, the Commissioner of the Department of Fish and Game and the Secretary of the Executive Office of Energy and Environmental Affairs. The Quaboag Pond eagle pair produced two chicks which were banded. Assistance was provided to the Southeast and Northeast Districts for eagle banding in Middleboro, Lakeville, Fall River and West Newbury. A total of five chicks were banded at those sites.

Nesting rafts for common loons were floated by DCR at Quabbin and Wachusett Reservoirs, and a loon nesting attempt at Paradise Pond in the Leominster State Forest was protected by posting signage invoking Massachusetts General Law Chapter 131, Section 86. The District compiled statewide loon nesting data for submission to the Natural Heritage Program database.

An artificial nesting platform was erected at the A-1 Suasco impoundment site in Westborough in cooperation with the Organization for the Assabet River. The platform is designed to support an osprey nest, but may be used by great blue heron or great horned owl.

Fourteen Wildlife Management Areas were maintained, with efforts directed at fields, roads, parking lots, gates, prevention of dumping, and ATV deterrents. Upland Program field reclamation projects continued at the Winimussett and West Hill W.M.As. Additional vegetation control was conducted at Bolton Flats and Birch Hill W.M.As. A total of 34 acres of woody growth was cut to reclaim fields and promote early successional vegetation.

A boundary question at the Moose Hill W.M.A. was resolved and a town zoning variance granted to an abutter requiring the moving of a portion of a barn off of the W.M.A. The abutter complied with the terms of the variance. Sections of boundaries were identified, posted and GPS coordinates were taken at Merrill Ponds, Moose Hill, Winimusset and Oakham W.M.As.

License Agreements were finalized with one snowmobile club and three groups of model airplane hobbyists regarding activities permitted on W.M.As. Other agreements were maintained with 17 central Massachusetts farmers, primarily for growing hay and corn.

Six boat ramps were visited and trash was removed. Discussions were initiated with the town of Brookfield to formalize their use of Division property at South Pond as a swimming beach. The town is also investigating discontinuing a section of the former Lake Road to allow the Office of Fishing and Boating Access to properly engineer parking, boat launching and drainage.

Meetings were held and a Notice of Intent filed by the Town of Athol for construction of a pedestrian bridge over the Millers River at the Division's Cass Meadows section of the Millers River W.M.A. A License Agreement between the town and Division to allow the activity is pending.

Forestry work was conducted under the guidance of Division Foresters at the Moose Hill, Birch Hill and Phillipston W.M.As. Approximately 130 thousand board feet of timber were harvested.

The District participated in Lands Committee and Parcel Ranking meetings. Ten parcels in Central District were protected by fee acquisition or conservation restriction.

Fisheries

Central District staff surveyed 47 streams to assess fish populations and water conditions, focusing especially on the Nashua and Chicopee River basins.

The District provided a shockboat and assisted Westboro biologists and the EPA with the statewide sampling of 10 lakes and ponds. EPA took tissue samples of selected species for later analysis.

Eight waterbodies were sampled to determine trout survival potential during the summer months. A Hydroscout lab unit was used to measure temperature and dissolved oxygen levels at 0.5 meter intervals.

Hatchery-raised trout were stocked in 36 ponds and lakes as well as 22 rivers and 32 streams in Central District. The District added Perley Brook Reservoir in Gardner to the stocking list after assessing water conditions and public access. Cowhee Pond, also in Gardner, was investigated but not added due to a lack of suitable trout water. The District recommended both water bodies be opened to the public for fishing. Stocking participants included Cub Scouts, school groups, Trout Unlimited and central Massachusetts legislators.

Broodstock salmon from the Roger Reed hatchery in Palmer, MA and the White River National Fish Hatchery in Bethel, VT were released into Comet Pond and Quinsigamond, Whalom, Wallum and Webster lakes.

Technical assistance was provided to DCR relative to fisheries questions raised by the construction of an illegal dam at Rice Reservoir in Brookfield.

Public access sites were investigated with representatives from the Office of Fishing and Boating Access at Whitmanville Reservoir, Leadmine Pond, South Meadow Pond, South Pond and the Millers River.

Northern pike fingerlings donated by the state of New Jersey were stocked in Flint Pond in Shrewsbury.

Information and Education Activities

District personnel set up and helped staff the agency booth at the Eastern Fishing and Outdoor Exposition at the Worcester DCU Center. Personnel also staffed stations and otherwise assisted with the Massachusetts Outdoor Exposition at the Hamilton Rod and Gun Club in Sturbridge.

District staff released specially tagged trout at Pratt Pond, Upton; Lake Quinsigamond, Worcester; West River, Uxbridge and Mill River, Blackstone for the Tags and Trout program.

The District assisted with the Neighborhood Nature program at Elm Park in Worcester by providing mounted specimens of native wildlife, and an exhibit including handouts and wildlife-related materials was staffed at a Boy Scouts of America event in West Boylston.

Other District Activities

The District Supervisor attended meetings and functions of the Worcester County League of Sportsman Clubs. The District Manager, Biologists and Technicians attended meetings with various federal, state and local agencies and private organizations including the Nipmuc Rod and Gun Club, Singletary Rod and Gun Club, Mahar Regional High School Fish and Game Club, Audubon Society, Fisherville Redevelopment LLC, Blackstone River National Heritage Corridor Commission, the American Chestnut Foundation, Ecotarium, MidState Trail Committee, Wachusett Greenways, East Quabbin Land Trust, Northboro Trails Committee, Central Mass. Regional Planning Commission and Friends of the Upton State Forest. Programs were provided to various sporting and civic organizations.

A 300 seedling orchard of young chestnut trees was maintained at the District office in cooperation with the American Chestnut Foundation and DCR.

Connecticut Valley Wildlife District

Administration

The District Supervisor attended regular meetings of the Hampden County Sportsmen Council, the Hampshire County League of Sportsmen, and the Franklin County League of Sportsmen. The District Supervisor and District Biologists participated in various meetings with federal, state, local agencies and land trusts - focusing primarily on land acquisition and management.

Special Use Permits Issued: Over the course of the year, the District issued 16 camping permits for the area along the Swift River. It issued five field trial permits and three winter pheasant hunting permits.

Wildlife

Valley District staff completed ruffed grouse drumming routes, assisted with the resident Canada goose survey, the mid-winter bald eagle survey, and the wild turkey brood survey.

Staff banded 90 geese at eight sites. Staff also assisted in an airboat-based duck banding program.

Staff maintained 180 wood duck nesting boxes at 48 sites. Other bird nesting boxes, including kestrel boxes, were maintained at several Wildlife Management Areas as well.

The Valley District responded to requests from Environmental Police to take action when incidents involving moose and black bear in inappropriate locations occurred. This resulted in staff chemically immobilizing and relocating five moose and three bear. District staff radio-collared and monitored five moose (three bulls, two cows) during this reporting period.

Staff monitored the survival and reproduction of 16 radio collared bears during the reporting period. One yearling female bear dropped its collar. A 5 year-old bear was shot during the hunting season. The male slipped its collar and was shot during the hunting season. Eleven females were checked in their den sites during February and March to determine reproductive success and first year cub survival. Six bears had 14 newborn cubs (7M:7F). Of the five females that could be expected to have a total of 12 yearling cubs, four had at least seven yearling cubs which survived the first year.

Fisheries

Fisheries staff conducted stream surveys in the Deerfield River Basin in conjunction with the DEO and with projects originating with fisheries biologists at DFW's Field Headquarters.

Natural Heritage and Endangered Species Projects

Eagles

The Valley District is now monitoring all breeding territories and banding all eaglets (in trees that can be

climbed safely) at the Quabbin Reservoir and west to the New York line. District staff assisted in climbing to 24 eagle nests and banding 27 chicks statewide. The District Wildlife Biologist assisted in the aerial segment of the mid-winter eagle survey at Quabbin Reservoir and at the Connecticut River, and also assisted in compiling and summarizing statewide eagle data as well.

Peregrines

Staff banded a total of 10 chicks in the District: three at the UMASS Library, Amherst; three at Monarch Place, Springfield; and four at Mt. Sugarloaf, Deerfield. Staff also attempted to access a new nest at Mt. Tom in Easthampton which produced one chick, but it was not banded.

Loons

Three loon rafts were maintained at the Quabbin Reservoir.

Enhancement of Recreation

Staff stocked 10,000 pheasants on 34 town covers and 19 Wildlife Management Area covers during the six week pheasant hunting season. Five sportsmen's clubs within the Valley District participated in the Club Pheasant Rearing Program. District staff distributed 704 seven-week-old pheasants to these clubs in June.

Staff stocked 130,000 rainbow, brook and brown trout in the fall of 2006 and spring 2007. They also stocked 200+ surplus brood stock Atlantic salmon, dividing them among Lake Mattawa (Orange), Lake Metacomet (Belchertown), Fivemile Pond (Springfield) and Lake Congamond (Southwick)

During the fall, District staff administered a controlled waterfowl hunt at the Ludlow W.M.A.

Eight hunters applied and participated in the hunt.

The District Wildlife Biologist was responsible for coordinating the checking of all harvested deer, bear, turkey, and furbearers in the District. The District office is staffed to check all species. In addition, the Valley has 10 deer, nine turkey, two bear, and two furbearer check stations scattered throughout the District. District staff man five biological deer check stations during the first week of deer shotgun season.

Technical Assistance

District staff provided technical support, manpower and repair capability for the McLaughlin Trout Hatchery, Westboro Field Headquarters and other Districts; equipment as requested. The District also provided manpower and equipment to repair raceways at the Sunderland State Trout Hatchery.

Public Outreach

District staffers took a leading role in representing the agency at both the Franklin County Fair and the Springfield Sportsmen's Show. In preparation for the Franklin County Fair, staffers gathered fish from local waters for display at the fair; updated display materials and spent four days working the MDFW booth where they met the public and responded to questions relating to wildlife and wildlife management. They also provided wildlife programs in a variety of different venues.

The District Supervisor regularly attended meetings of the Hampden County Sportsmen Council, the Hampshire County League of Sportsmen, and the Franklin County League of Sportsmen. The District Supervisor and District Biologists participated in meetings with federal, state and local agencies, and land trusts, focusing primarily on land acquisition and management.

The District's Aquatic Biologist served as Past President of the Southern New England Chapter of the American Fisheries Society and also as a member of the Finance Committee of the Northeastern Division of the American Fisheries Society.

Land Management

Habitat management and invasive plant control

District staff cleared a total of 32 acres of early successional habitat at three W.M.As. (nine acres at Herm Covey W.M.A., nine acres at Poland Brook, and 14 acres at Southampton) with the District brush cutting milling head. An additional 39 acres were mowed with the District tractor and rotary brush cutter (17 acres at Poland Brook and 22 acres at Southampton W.M.A.).

Clean up

Staff helped organize the clean up of Montague Plains W.M.A. by utilizing the *Source to Sea* Volunteer Crew in the Montague/Greenfield area, and provided a 30 yard dumpster to facilitate trash removal.

Access Maintenance and Improvement

Existing signs and access were maintained at all Wildlife Management Areas in the district.

Western Wildlife District

Administration

Two changes to Western District personnel occurred in FY07. In November, Dana Ohman was hired as the Western District Aquatic Biologist. In June 2007, James Pinhiero resigned his position as Wildlife Technician I.

Important improvements were made to the Western District headquarters this year. These projects included the construction of a new storage facility at the District headquarters. Other successfully completed projects included new exterior siding for the main office building, new interior carpeting, insulation in exterior and interior walls and ceiling, removal of trees along power lines and removal of hazardous materials from the headquarters facility. These improvements, along with the addition of a high speed internet connection, have greatly improved functionality and energy efficiency.

Wildlife

District staff participated in ongoing research programs such as goose banding and nest box monitoring and production. The Wildlife Biologist and technicians

serviced, repaired and established new wood duck boxes throughout the District. They also constructed and installed nest boxes for kestrels and bluebirds. The Wildlife Biologist and Technicians conducted breeding bird censuses for woodcock, grouse and mourning dove. District staff also participated in the mid-winter eagle survey.

District personnel continued to monitor movement of radio collared deer and moose. The Wildlife Biologist participated in the Hy Fox Breeding Bird census for the 22ND consecutive year. The Wildlife Biologist also assisted the Natural Heritage Program in finding and documenting rare plant locations and attended the annual New England Plant Conservation Program (NEPCOP) meeting.

Western District personnel worked closely with staff of the Connecticut Valley District in eagle banding and bear collaring efforts.

District personnel responded to multiple reports of injured wildlife. This often required transportation of wildlife to rehabilitators or veterinary clinics including Tufts Veterinary Hospital in Grafton. Numerous hawks and owls were stabilized and transported for rehabilitation. The Wildlife Biologist and District Manager participated in large animal response and immobilization training.

Fisheries

The Aquatic Biologist and Technicians monitored winter water quality as part of the ongoing assessment of trout stocked waters. They conducted fish surveys on numerous streams, rivers and ponds throughout the District. They also deployed and collected data from thermographs placed to monitor temperature in headwater streams and larger rivers. District staff provided support for numerous fisheries projects including salmon fry stocking.

The Aquatic Biologist, with the assistance of the Wildlife Biologist and Technicians, investigated and documented fish kill reports.

Lands

The District Supervisor and Wildlife Biologist participated in land meetings and reviewed and prioritized potential land acquisitions.

The District Wildlife Technicians managed vegetation on eight W.M.As. under the guidance of the Wildlife Biologist and Biologists from Field Headquarters. Staff also posted miles of property boundaries on both new acquisitions and existing lands. Staff from this District applied considerable time and skill in creating new signs for management areas, fishing access sites, and catch and release areas to better inform the public about available recreational opportunities.

Considerable effort was put forth to reduce the resource damage associated with off-road vehicle use. Specific efforts included the blockage of a long used trail on the Mt. Tekoa Wildlife Management Area (W.M.A.). Boulders were placed, roads were repaired, and berms were constructed. Additional efforts such as felling trees or creating obstructions to off road vehicles were also utilized on many W.M.As. Unfortunately, despite the time and effort expended, off-road vehicle use continues to be a major problem on most of our properties.

The Wildlife Biologist and District Supervisor issued and renewed license agreements for land use on W.M.As. consistent with agency conservation objectives. The Wildlife Biologist assisted the Appalachian Mountain Club in a cooperative cleanup effort on the Mt. Tekoa W.M.A.

Enhancement of Recreation

District staff successfully carried out duties associated with recreational fishing and hunting. As in other Districts pheasant were stocked in suitable covers. Trout were stocked into 24 lakes and ponds and 56 streams and rivers to enhance recreational fishing. Pheasants were stocked in Wildlife Management Areas (W.M.As.) and local covers. Deer, turkey and bear check stations were staffed and District personnel assisted the Wildlife Section in collection of Chronic Wasting Disease (CWD) samples at these stations.

Both the Aquatic Biologist and Wildlife Technicians participated in salmon and esocid stocking. This required travel to Vermont, Pennsylvania and New York to obtain fish and deliver them to Massachusetts for recreational anglers to enjoy.

Technical Advice

The District Clerk fielded hundreds of calls asking for technical assistance. District staff, particularly the Clerk, District Supervisor and District Biologists, answered these inquiries with professionalism and expertise. The Clerk also handled high volumes of walk-in traffic and issued permits and licenses to hundreds of sportsmen. In addition to advising the public at large, District staff was often called upon to provide technical assistance to other agencies or user groups. The District Supervisor devoted considerable time to issues surrounding cleanup of the Housatonic River. The District Supervisor attended Citizens Coordinating Committee (CCC) meetings as a Division representative to the cleanup efforts. Significant time was spent reviewing documents and proposals on the subject. The District Supervisor also helped in sampling efforts related to the cleanup and consulted with other agencies on the subject.

The Aquatic Biologist provided technical expertise to other agencies such as United States Fish and Wildlife Service, Natural Resource Conservation Service, Department of Conservation and Recreation and the Riverways program. District personnel assisted or advised on multiple aquatic habitat restoration projects including the modifications of fish migration barriers and dam removals.

The Wildlife Biologist answered calls seeking advice on dealing with black bear. Many calls were handled over the phone. However, the Wildlife Biologist also met with land owners and farmers having problems with bears to provide on-site advice. Remedies included installation of electric fencing and other site specific behavior modifications.

Public Outreach

Staff presented information and gave presentations to many groups including Berkshire Humane Society, school groups, Boy Scouts, homeowners associations, Student Conservation Association, and Trout Unlimited. The District Supervisor regularly attended and presented information at Berkshire and Hampshire County League meetings.

District staff represented the agency at the Springfield Sportsman Show, the Westfield Watershed Symposium, LAPA West Annual Meeting and a symposium on the cleanup of PCBs.

District personnel conducted classes at the Becoming an Outdoorswoman (B.O.W.) annual weekend workshop and provided support for the annual paraplegic sportsmen's deer hunt.

District Personnel

Northeast Wildlife District

Patricia Huckery, *District Manager*
Dennis McNamara, *Land Agent*
Erik Amati, *Wildlife Biologist*
John Sheedy, *Aquatic Biologist*
Bob Desrosiers, *Wildlife Technician*
Michael Huguenin, *Wildlife Technician*
Rachel Nichols, *Wildlife Technician*
Steve Wright, *Wildlife Technician*
Sue Ostertag, *Clerk*

Southeast Wildlife District

Jason E. Zimmer, *District Supervisor*
Steve Hurley, *Fisheries Manager*
Dick Turner, *Wildlife Manager*
Ed Kraus, *Wildlife Technician*
Jeff Breton, *Wildlife Technician*
Daniel Fortier, *Wildlife Technician*
Aaron Best, *Wildlife Technician*
Camie Marsh, *Clerk*
Joan Pierce, *Land Agent*

Connecticut Valley Wildlife District

Ralph Taylor, *District Supervisor*
David Fuller, *Wildlife Manager*
David Basler, *Fisheries Manager*
Barbara Bourque, *Clerk*
Gary Galas, *Wildlife Technician*
Kevin Peloski, *Wildlife Technician*
Walter Tynan, *Wildlife Technician*
James Wright, *Wildlife Technician*
Will Steinmetz, *Land Agent*

Central Wildlife District

Bill Davis, *District Manager*
Mark Brideau, *Fisheries Biologist*
Bob Chapin, *Wildlife Technician*
Priscilla MacAdams, *Clerk*
Bridgett McAlice, *Wildlife Biologist*
Scott Kemp, *Wildlife Technician*
Michael Morelly, *Wildlife Technician*
Brandon Kibbe, *Land Agent*

Western Wildlife District

Andrew Madden, *District Supervisor*
Anthony Gola, *Wildlife Manager*
Dana Ohman, *Fisheries Manager*
Nancy Dewkett, *Wildlife Technician*
Dale Beals, *Wildlife Technician*
Jim Pinheiro, *Wildlife Technician*
Tammy Ciesla, *Wildlife Technician*
Elna Castonguay, *Clerk*
Peter Milanesi, *Land Aquisition Agent*

WILDLIFE LANDS

William J. Minior
Chief of Wildlife Lands

Land acquisition conducted this year by the Division of Fisheries and Wildlife and the Department of Fish and Game proved to be fairly successful throughout the Commonwealth with 44 projects completed. Acquisition occurred in two waves, with about a dozen projects recorded in late December and January, and over half of the 2007 projects recorded after June 1ST. A handful of projects were scattered in between. Seven to ten projects were completed per District with acreage figures per District ranging from 640 to 1,141. Although the Department of Fish & Game (DFG) expended approximately $ 7.6 million in this effort, a significant amount of funding was also leveraged/received from various other sources.

Acquisitions varied in size from a 0.1 acre access on Spectacle Pond in Wareham to the 400 acre Herron property in Leyden. Sixteen projects in excess of 100 acres were completed this year, including five in excess of 200 acres. Land was protected in 35 different towns and on 34 different DFW areas, including six new areas. Nine Conservation Easements (CE) accounted for 1,268 acres (approximately one third of the total acreage protected this year) and CEs remain a most useful tool in the DFW's land protection efforts. Six of these CEs were acquired at no cost to DFW for various reasons including alternate funding sources, court settlement, R&E mitigation and DFW involvement in other associated projects.

Gifts or acreage acquired at no cost to DFW were a major part of our land protection efforts. Twelve gift projects totaling 1,149 acres (29% of acreage protected) were completed. Six of these projects were CEs and represented 780 acres.

Third party non-profit environmental organizations again provided valuable direct and indirect assistance to our land protection program. The Massachusetts Land Conservation Trust gifted a fee interest in property, while the Grafton Land Trust, Metacomet Land Trust and Essex County Greenbelt Association gifted CEs to DFW. Mount Grace Land Conservation Trust pre-acquired two properties for conveyance to DFW, while Valley Land Fund, MA Audubon and other organizations provided pre acquisition assistance through negotiations and for due diligence on DFW projects.

The Division's protection efforts this year resulted in the protection of just over 4,000 acres at a total cost to the DFW of approximately $7.5 million. DFW currently has care and control of over 164,000 acres statewide.

Land Acquisition in FY07

Western Wildlife District	
Expended	$2,479,550.00
Acreage	1,141.2
Cost/acre	$2,172.76
Connecticut River Valley Wildlife District	
Expended	$1,698,900.00
Acreage	752.0
Cost/acre	$2,259.18
Central Wildlife District	
Expended	$584,260.00
Acreage	809.4
Cost/acre	$721.84
Northeast Wildlife District	
Expended	$2,287,340.00
Acreage	664.8
Cost/acre	$3,440.64
Southeast Wildlife District	
Expended	$573,000.00
Acreage	639.8
Cost/acre	$895.59
Total Expended:	**$7,623,050.00**
Total Acreage Acquired:	**4,007.2**
Average Cost Per Acre:	**$1,902.34**

The above figures include Departmental acquisitions. It should be noted that the acreage figures and costs of those properties acquired with FY07 funds and RECORDED for FY07 between 8/1/06 and 7/31/07 are included herein. Ancillary costs are not included.

Western Wildlife District

Acreage was added to seven different DFW areas in eight towns in the Western District (WD) this year. Ten fee acquisitions were completed, including six acquisitions in excess of 100 acres, with two of these exceeding 200 acres. The largest purchase in the Western District is the 223.5 acre Mongillo property in the Towns of Chesterfield and Middlefield which includes approximately 2,100 feet of frontage on the Middle Branch of the Westfield River and increases the overall acreage of our Fox Den W.M.A. to approximately 4,825 acres. The 31.6 acre Collingwood acquisition on Three Mile Pond in Sheffield was the most costly District acquisition. It contains over 800 feet of pond frontage, was the last remaining undeveloped parcel on Three Mile Pond, and it was about to be developed. The 91 acre Piekos property in Windsor has an extensive common bound-

ary with the Moran W.M.A., provides exceptional views, contains significant field habitat, and was also slated for development. Other sizeable additions were made to the Hancock W.M.A., Fox Den W.M.A., Savoy W.M.A., Hiram Fox W.M.A. and Westfield River access.

Approximately 1,141 acres were protected in the District this year at a cost of about 2.48 million dollars. Although project development seemed painfully slow at times, seven of the ten acquisitions were completed in June, making FY07 a very successful land protection year in the District.

Connecticut River Valley Wildlife District

Ten fee acquisitions were completed in the Connecticut Valley District including DFW's largest acquisition of the year, the 400 acre Herron property which more than doubled the size of the Leyden W.M.A. The Herron property, which was acquired with TNC assistance, contains some of the highest elevations in this vicinity, some of which has been cleared and now supports low bush blueberries. The cleared areas provide some outstanding panoramic views. The 41 acre Partridge property in Orange was pre-acquired by Mount Grace Land Conservation Trust and represents a complete inholding within DFW's Tully Mountain W.M.A. It provides valuable open field habitat in a primarily forested area. The 50 acre Adamovich property straddles the Westfield/Southwick town line and connects the two major portions of DFW's 184 acre Honey Pot Road Natural Heritage Area. This is one of the best herpetological sites in the Commonwealth. Acquisition of this tract will enhance management capabilities and provide substantially increased recreational opportunity. Valuable additions were also made to DFW's Whately Great Swamp, Mount Toby W.M.A., Montague W.M.A. and Satan's Kingdom W.M.A. The thirty acre Smead property was generously gifted as an addition to our Whately Ponds Fish & Wildlife Area.

The Valley total of 752 acres includes land abutting eight different DFW areas in eight towns, and was acquired at a cost of approximately 1.7 million dollars.

Central Wildlife District

Conservation Restrictions/Easements played a major role in the Central District's land protection efforts this year, accounting for nearly 75% of the acreage protected. Five of the nine projects and 588 of the 806 acres were protected through the use of CRs. Three of the four largest projects were CRs. The largest District acquisition is the approximately 270 acre NEFF/Nields CR in Hardwick which is the link between the Quabbin Reservation and DFW's 1,500+ acre Muddy Brook W.M.A. DFW also acquired a CR on the 128 acre Daniels Farm in Blackstone and Mendon from the Metacomet Land Trust as part of a court settlement, and two CRs from the Grafton Land Trust representing an approximately 90 acre addition to our Martha Deering W.M.A. MGLCT, Inc. conveyed a 99 acre CR in Phillipston to DFW as part of the Quabbin Corridor WCE project. This project was funded through the Forest Legacy program.

Fee additions to DFW holdings included 119 acres to the Muddy Brook W.M.A., 80 acres to Birch Hill W.M.A., and 23 acres to North Brookfield W.M.A. The Central District now has over 37,000 acres under DFW management and control.

Northeast Wildlife District

This was a successful year for land acquisition in the Northeast District with the completion of eight projects totaling 665 acres. The two largest projects were CRs which accounted for 58% of the land protected. The 178 acre Throne Hill WCE in Groton was acquired at no cost because of rare and endangered species mitigation on a proposed multi-lot subdivision. This CR provides valuable rare species habitat in an area of the Commonwealth where open space is rapidly disappearing. The 160 acre Surrenden Farms WCE in Groton abuts DFW's 97 acre Ayer Game Farm property and is part of a much larger acquisition effort spearheaded by the Trust for Public Lands. A future CR on the approximately 500 acre Groton Town Forest was agreed upon as part of this deal. The Essex County Greenbelt Association gifted the approximately 47 acre Newbury Commons Pasture WCE in Newbury as part of a grant agreement with the Executive Office of Energy and Environmental Affairs (EOEEA).

The fee interest in 90 acres was added to our Salisbury Marsh W.M.A., along with a 16 acre addition to our 2,250+ acre Crane Pond W.M.A. The Town of Tyngsborough conveyed a 78 acre tract abutting DFW's Elbow Meadow W.M.A. This tract was acquired with Charles George Landfill and MassHighway Route 3 mitigation funds. The Division of Capital Asset Management conveyed the care and control to DFW of a 99 acre MassHighway tract abutting our Boxborough Station NHA.

Southeast Wildlife District

Southeast land projects covered a broad spectrum in size this year, ranging from the 0.1 acre Spectacle Pond access to the 296 acre Plymouth Town Forest WCE. A total of 640 acres was protected at a cost of approximately $570,000.00. The Plymouth Town Forest CR and a 1.7 acre gift from the Town provide extensive protection to DFW's Harlow/Cooks Pond NHA and also provides for use of this previously closed area for compatible public recreation including hunting and fishing. Black Brook W.M.A. was created with the purchase of 230 acres in the town of Middleborough.

The Massachusetts Land Conservation Trust conveyed a total of 112 acres to DFW with assistance from the Mass Waterfowlers. This land represents a major inholding within the SE Bioreserve.

Land Agents

Peter Milanesi, *Western District*
Bill Steinmetz, *Connecticut Valley District*
Brandon Kibbe, *Central District*
Dennis McNamara, *Northeast District*
Joan Pierce, *Southeast District*

Western Wildlife District

Wildlife Management Areas: 29	**Acres**	**Tract #**
Agawam Lake	779.8	254
Becket	239.6	60
Chalet	7,080.3	86
Cummington	194.0	240
Day Mountain	332.4	264
Eugene Moran	1,663.8	91
Farmington River	1,760.3	211
Fisk Meadows	1120.8	88
Fox Den	4,824.6	100
Green River	489.2	125
Hancock	411.0	123
Hinsdale Flats	1,544.5	89
Hiram H. Fox (formerly Canada Hill)	3,381.8	48
Hop Brook	424.8	112
Housatonic Valley	817.9	67
John J. Kelly	267.0	85
Jug End*	1,233.8	191
Knightville	721.0	244
Lilly Pond	349.7	255
Maple Hill	345.1	148
Mount Tekoa	1,422.0	231
Otis	83.5	124
Peru (Includes Tracy Pd.)	5,106.9	30 & 113
Powell Brook	224.0	115
Savoy	1,540.8	64
Stafford Hill	1,591.6	56
Taconic Mountain	157.3	232
Three Mile Pond	1,127.1	181
Walnut Hill	812.0	190
	40,050.8 acres	

*Jointly owned and managed with DCR

Wildlife Conservation Easements: 11		
Alford Spring	640.0	269-1
Ashfield	101.0	247-1
Blanford	986.0	249-1,2&3
Chesterfield	491.0	248-1&2
Dalton Fire District	2,754.0	253-1
Huntington	78.0	250-1
Mount Plantain	1,337.4	241
New Marlborough	239.0	246-1
Sandisfield	692.0	245-1,2&3
Tyringham	678.0	252-1
Wright/Mica Mill	1782.0	243
	9,735.4 acres	

River Access: 5		
Green River(Egremont)	21.5	292
Hoosic River	5.9	213
Housatonic River	129.5	103
Konkopot River	8.8	114
Westfield River (W)	518.0	94
	683.7 acres	

Wildlife Sanctuaries: 2		
E. Howe Forbush	268.0	16
Grace A. Robson	69.5	24
	337.5 acres	

Wildlife District: 1		
District Headquarters	2.1	13

Natural Heritage Areas:	**Acres**	**Tract #**
Bullock Ledge	15.5	212
Dolomite Ledges	198.3	227
Fairfield Brook	203.3	226
Hawley	169.0	277
Jug End Fen	38.8	147
Kampoosa Fen	72.0	173
Lanesboro	88.6	233
Nordeen Marsh	22.9	102
	808.4 acres	
TOTAL WESTERN DISTRICT	**51,617.9 acres**	

Connecticut River Valley Wildlife District

Wildlife Management Areas: 28	**Acres**	**Tract #**
Catamount	413.0	119
Coy Hill(V)	211.6	221
East Mountain	347.9	202
Facing Rock	1,556.1	179
Herman Covey**	1,475.1	49
Honey Pot/Westfield	227.0	174
Lake Warner	94.8	180
Leadmine(V)	344.0	170
Leyden	759.0	200
Millers River(V)	65.84	A62
Montague	1,543.8	118
Montague Plains	1,493.0	234
Mount Toby	287.5	222
Orange	1,605.2	229
Palmer	1,045.3	178
Pauchaug Brook*	161.3	74
Poland Brook	645.7	70
Satan's Kingdom	1,992.0	107
Shattuck Brook	156.1	293
Southampton	130.9	262
Tully Mountain	1,187.4	225
Tully River(V)	59.0	272
Wales	207.1	172
Warwick	379.0	126
Wendell	585.7	144
Whately	360.6	182
Whately Great Swamp	441.4	235
Williamsburg	88.0	127
	17,863.4 acres	

*WMA and Connecticut River Access

**Combination-Hatchery(McLaughlin), WMA and District Hdqtrs.

Wildlife Conservation Easements: 3		
Amherst/Pelham ALA	36.9	274
Ludlow Reservoir	1750.0	271
North Quabbin CRs		257
New Salem	59.0	
Tully River	250.0	
	2,095.9 acres	

Islands (Connecticut River): 2		
Shepherd's Island	15.0	80
Sunderland Islands (2)	9.0	189
	24.0 acres	

Fish Hatcheries: 4		
Bitzer	150.6	7
McLaughlin (inc. in Herman Covey WMA)		
Reed	301.0	8
Sunderland	47.7	9
	499.3 acres	

Game Farm: 1

Wilbraham*	137.2	4

*Turned over to Town in 99. CR retained on 137.2 acres.

River Access: 9

Connecticut River	82.3	117
Deerfield River	20.5	201
Green River(V)	58.2	185
Mill River	23.0	239
Sawmill River	51.0	176
Sibley Brook	13.4	152
Tully Brook	77.0	177
Ware River(V)	14.0	A63
Westfield River(V)	76.8	111
	416.2 acres	

Pond Access: 3

Little Alum Pond	0.5	128
Lake Lorraine (PAB)	0.3	129
Lake Rohunta	2.5	209
	3.3 acres	

Fisheries & Wildlife Areas: 1

Whately Ponds	70.0	294

Natural Heritage Areas: 5

Rainbow Beach	30.9	142
Mt. Toby Highlands NHA	100.0	159
Mt. Tom	72.7	238
Darwin Scott Memorial	27.3	157
Honey Pot NHA	234.1	175
	465.0 acres	

TOTAL VALLEY DISTRICT **21,574.3 acres**

Central Wildlife District

Wildlife Management Areas: 41	**Acres**	**Tract**
Ashby	48.5	134
Bennett	281.2	A77
Birch Hill	3,832.5	50
Bolton Flats	1,177.9	90
Breakneck Brook	1,409.0	158
Coy Hill***	654.2	221
E. Kent Swift	200.5	84
Fish Brook	221.0	130
Four Chimneys	200.0	77
High Ridge*	2,326.8	98
Lackey Pond	150.5	165
Lawrence Brook	947.5	108
Leadmine(C)	296.0	170
Martha B. Deering	272.4	237
McKinstry Brook	348.3	184
Merrill Pond (System)	729.0	10
Millers River(C)	3,485.1	62
Mine Brook	780.5	258
Moose Brook	495.3	132
Moose Hill	567.1	59
Muddy Brook	1572.3	167
North Brookfield	102.6	278
Oakham	707.6	153
Palmer***	208.0	178
Phillipston	3,486.3	31
Popple Camp	1,161.0	A31
Poutwater Pond (formerly North Street)	378.0	133
Prince River	749.0	113
Quaboag River	1,677.4	55
Quacumquasit	179.9	131
Quisset	635.0	196
Raccoon Hill	628.0	151
Richardson	467.2	106
Savage Hill	1,109.7	150
Thayer Pond	131.0	171
Tully Mountain	119.5	225
Tully River(C)	9.0	272
Ware River(C)	291.4	63
Westboro****	894.6	35
Winimusett	651.1	61
Wolf Swamp	913.9	217
	34,463.7 acres	

*Management and control under DFW 1,673.7 acres
DFW owned in fee 282.0 acres
*** Listed and managed under Conn. Valley District
**** 467 acres added from a 97 DCAM transfer

Wildlife Conservation Easements: 10

Burnshirt River	5.64	160
Carter Pond	280.0	155
Hunting Hills	53.7	183
Leadmine Mountain	826.0	295
Moose Brook	125.0	296
North Quabbin CRs		257
Phillipston (Secret Lake)	212.0	
Quabbin Corridor	99.3	301
Tully River	6.6	
Quabbin	28.0	161
Quabbin Corridor(MGLCT/Wilson)	99.3	301
Stillwater River	29.0	162
	1,665.2acres	

Wildlife Sanctuaries: 2

Susan B. Minns	140.0	20
Watatic Mountain	100.0	25
	240.0 acres	

River Access Areas: 5

Blackstone/West River	28.0	76
Five Mile River(inc 17 ac CR)	195.5	120
Natty Brook	95.2	220
Quinapoxet River	32.0	66
Seven Mile River	77.0	275
	427.7 acres	

Natural Heritage Areas: 4

Chockalog Swamp	52.5	286
Clinton Bluff NHA	42.0	154
Podunk Marsh	15.0	104
Quag Pond Bog	31.0	197
	140.5	

Marshes - 1

Quinsigamond Marsh	59.0	156

Pond Access - 6

Cusky Pond	23.75	163
Fisherville Pond	1.6	166
Glen Echo Lake	1.0	149
Mossy Pond	16.1	267
South Meadow Pond	0.25	266
Sputtermill Pond	58.5	164
	101.2 acres	

Forest: 2	**Acres**	**Tract #**
Hamilton	70.0	75
Northboro	88.8	51
	158.8	
TOTAL CENTRAL DISTRICT	**37,256 .1 acres**	

Northeast Wildlife District

Wildlife Management Areas: 11	**Acres**	**Tract #**
Ashby	1,020.0	134
Crane Pond	2,251.6	38
Dunstable Brook	131.6	283
Hunting Hills* 35	6.4	183
Martin H. Burns	1,554.5	37
Mulpus Brook	177.7	203
Nissitissit River	364.9	71
Pantry Brook	410.9	29
Salisbury Marsh	610.8	279
Squannacook River**	1,112.4	53
William Forward	2,122.5	36&82
	10,113.3	

*Includes 53.7 acre CR in CD
** 21 acres title vested in DEM

Wildlife Conservation Easement (WCE): 6		
Ashby	148.0	280
Groton	127.0	289
Newbury Common Pasture	46.7	304
Pepperell Springs	255.0	285
Surrenden Farms	159.7	299
Throne Hill	177.5	302
	913.9	

Wildlife Sanctuaries: 5		
Carr Island	110.5	18
Egg Rock	2.0	17
J.C. Phillips	391.0	15
Milk Island	29.0	19
Ram Island	20.0	23
	552.5	

Game Farm: 1		
Ayer	96.9	1

Wildlife District: 1		
District Headquarters	1.9	11

Fisheries & Wildlife Area: 1		
Flint Pond	81.9	28

Forest: 2		
Acton	36.0	207
Townsend	60.0	33
	96.0	

Pond Access: 4		
Knops Pond	0.6	52
Mascopic Lake	0.3	65
Baddacook Pond	0.2	A52
Long Sought For Pond	1.0	143
	2.1	

Salt Marsh: 1		
North Shore	335.65	47 & 58

River Access: 7		
Concord River	23.6	97
Ipswich River	1.8	204
Nashua River	68.5	110
Sucker Brook	12.0	297
Sudbury River*	139.1	121
Trapfall Brook	45.4	109
Weymouth Back River**	16.4	135
	306.8	

Natural Heritage Areas: 4		
Boxboro Station	124.2	188
Eagle Island	5.0	199
Elbow Meadow	210.3	101
Hauk Swamp	55.0	206
	394.5	
TOTAL NORTHEAST DISTRICT	**12,895.4 acres**	

*Held jointly with D.E.M.
**Departmental acquisition

Southeast Wildlife District

Wildlife Management Areas: 21	**Acres**	**Tract #**
Black Brook	230.0	300
Burrage Pond	1,859.7	265
Copicut	3,874.1	141
Church Homestead	163.0	287
Dartmoor Farms	473.0	236
Erwin Wilder	450.0	A83
Frances A. Crane	1,912.8	27
Freetown Swamp	337.0	298
Gosnold	3.5	96
Haskell Swamp	2,866.5	218
Hockomock Swamp	4,454.5	83
Hyannis Ponds *	357.0	187
Meetinghouse Swamp	109.0	214
Noquochoke	204.6	208
Peterson Swamp	250.0	81
Purchade Brook	120.0	215
Red Brook	400.0	260
Rochester	70.0	57
Rocky Gutter	3,054.7	68
Taunton River	179.0	219
West Meadows	221.9	34
	21,590.3	

Wildlife Conservation Easements: 6		
Acushnet River	30.2	263
Angeline Brook	50.7	273
Camp Cachalot	789.0	223
Plymouth Pine Hills	188.0	288
Plymouth Town Forest	296.0	303
Santuit Pond	293.0	268
	1,646. 9	

Wildlife Sanctuaries: 4		
Billingsgate Island	0.5	14
Penikese Island	60.0	21
Ram Island	2.0	22
Tarpaulin Cove	4.5	93
	67.0	

Wildlife District: 1		
District Headquarters	23.8	12

Fish Hatcheries: 1	**Acres**	**Tract #**
Sandwich	60.0	5
Game Farm: 1		
Sandwich	133.0	3
Salt Marsh: 6		
Brayton Point	2.2	169
Chase Garden Creek	56.4	205
Eastham	7.4	136
English	191.5	146
Fox Island	87.1	192
South Shore	22.4	69
	367.0	
River Access: 7		
Bread & Cheese Brook	5.2	291
Canoe River	116.6	282
Childs River	0.2	193
Mashpee River	56.5	78
Nemasket River	0.5	122
Quashnet River**	426.0	32
Taunton River	8.9	219
	613.9	

* NHESP priority area-Departmental taking

** 360 acres of Quashnet held jointly with DEM

Pond/Coastal Access: 13		
Agawam Mill Pond	1.7	216
Bakers Pond	1.7	79
Bearse Pond	5.8	72
Clapps Pond	68.4	87
Cooks Pond	3.0	73
Dogfish Bar Beach (PAB)	2.4	210
Lake Snipatuit	0.5	92
Robbins Pond	1.0	284
Sandy Point	0.2	54
Scorton Creek	5.5	228
Spectacle Pond	0.5	224
Triangle Pond	81.9	256
Wakeby Pond	15.9	242
	188.5	
Military Lands: 7		
Dillingham Lot	37.0	
Fisk Forestdale Lot	117.0	46
Hog Pond Lot	26.2	42
Lawrence Pond lot	10.0	43
Mashpee Pond Lot	25.0	40
Poponesset Beach	2.0	41
Springhill Lot	7.0	44
	224.2	
Hatchery Land: 1		
No. Attleboro Hatchery	36.5	99
MA Military Reservation (MMR): 1		
	15,000.0	281
Fisheries & Wildlife Area: 3		
Muddy Pond	72.0	95
Provincetown Rte.6 Corridor	122.0	276
South Barrier Beach(Leland)	99.5	194
	293.5	

Natural Heritage Areas: 11		
Grassy Pond	59.4	168
Grassy Pond (Dennis)	7.2	230
Harlow/Cooks Pond	53.6	145
Head of the Plains	2.0	138
Katama Plains *	18.5	140
Mashpee Pine Barrens	193.2	105
Miacomet Heath	3.8	186
Olivers Pond	12.0	139
Sly Pond	192.0	137
South Triangle Pond	10.3	198
Thad Ellis	1.5	195
	558.4	
TOTAL SOUTHEAST DISTRICT	**40,802.5 acres**	

Total Acreage Area by Area Type
(Through FY07)

Wildlife Management Areas: 130	124,078.5 acres
Wildlife Sanctuaries: 13	1,197.0
Fish Hatcheries: 5	559.3
Game Farms: 3	367.1
River Access: 33	2,448.3
Salt Marsh: 7	702.7
Lake, Pond & Coastal Access: 26	295.0
Fisheries & Wildlife Areas: 5	445.4
NHESP Areas: 32	2,366.8
Conservation Restriction/Easements: 35 (Some CRs are included in W.M.As.)	16,057.3
MA Military Reservation: 1	15,000.0
Other*	626.3
GRAND TOTAL	160,139.6

**Includes: Military Lands, Forest Areas, Wildlife Districts, Islands, Hatchery Land, MDC/F&W Areas and Marsh Management Areas.*

Above figures include departmental acquisitions.

Black bear may be found feeding in cornfields.

FEDERAL AID PROGRAM

Kristin McCarthy
Federal Aid Coordinator

Project Objectives: To implement the Division of Fisheries and Wildlife's (DFW) Federal Aid program, acting through the Deputy Director, including overview of documentation, reporting, compliance with acts and regulations, and other requirements for administration of federal grants, as well as serving as liaison between the grantee and the Region 5 office of the U.S. Fish and Wildlife Service (FWS), grant administrator for the U.S. Department of the Interior.

Federal Aid in Wildlife Restoration (Pittman-Robertson)

The Massachusetts Division of Fisheries and Wildlife (DFW) apportionment of Federal Aid in Wildlife Restoration funds ($2,611,045) was an increase from last year's apportionment. These funds are available for wildlife restoration projects and hunter education. Six projects received reimbursement from these funds including hunter education, wildlife population trends and harvest surveys, waterfowl research and management, wildlife habitat management, program coordination, and land acquisition.

Federal Aid in Sport Fish Restoration

(Dingell-Johnson and Wallop-Breaux)

The State's Federal Aid in Sport Fish Restoration Act apportionment of $3,490,891 represents an increase over last year's apportionment. These funds were divided as follows: The Department of Fish and Game Public Access Board (PAB), which is responsible for constructing and maintaining motorboat access facilities received $523,633.65 (15%) and the balance of $2,967,257.35 was equally divided ($ 1,483,628.68 each) between the Division of Marine Fisheries and the Division of Fisheries and Wildlife (DFW). Eight grants were reimbursed with the PAB and DFW share of the D-J and W-B funds. The Public Access Board in cooperation with DFW had four boat accommodations grants active in FY07. The Division of Fisheries and Wildlife had four projects reimbursed under the Sport Fish Restoration Program. The DFW's fish restoration activities include aquatic resources education, program coordination, hatchery operations, hatchery maintenance, fish distribution, anadromous fish coordination, and technical assistance.

State Wildlife Grant Program (SWG)

The Division of Fisheries and Wildlife's FY07 State Wildlife Grant apportionment of $925,613 was an increase from the previous year. SWG funds were obligated toward five projects. Activities reimbursed under SWG funds include fish community research, anadromous fish restoration, biodiversity impact review, biodiversity inventory and research, biodiversity conservation mapping and planning, habitat evaluation, and land acquisitions. SWG funds were also used in the development of our Comprehensive Wildlife Conservation Strategy (CWCS). In order to establish eligibility for continued SWG funding the DFW was required to develop a CWCS and submit it to the USFWS by October 1, 2005. Our commitment to develop this CWCS under SWG was submitted and approved on April 10, 2002. The Massachusetts Comprehensive Wildlife Conservation Strategy (CWCS) was submitted and has been approved by the National Acceptance Advisory Team (NAAT).

The final version of the document can be found in the menu of the Habitat Section on the agency's web page.

The Endangered Species Act (Section 6)

The Division of Fisheries and Wildlife continues to receive minimal Endangered Species Section 6 funding. The DFW's FY07 apportionment of $30,000.00 was used to reimburse the Globally Imperiled and Vulnerable Plants project.

Landowner Incentive Program (L.I.P.)

The Division of Fisheries and Wildlife submitted an application under the FY07 US Fish and Wildlife Service competitive Landowner Incentive Program this year to receive additional L.I.P funding. At the time this report was prepared the USFWS had not announced the FY07 awards. In FY06, the Division received a combined award of $180,000.00 under the competitive Land Owner Incentive Program, which was a decrease when compared to the FY05 award of $655,000. The Landowner Incentive Program awards are divided into two tiers. Our FY06 Tier I funding of $180,000.00 will be used for project coordination. Tier II is used for Program Implementation. The Division was not awarded FY06 Tier II funding. For more information relating to the agency's FY07 activities under the Land Owner Incentive Program please see the Landowner Incentive Program annual report (page 30).

Chronic Wasting Disease Surveillance and Management

In FY04, through a grant provided by the US Department of Agriculture, Animal and Plant Health Inspection Service, the Division was able to establish a

Chronic Wasting Disease Surveillance and Management Program. The FY07 CWD apportionment of $75,000.00 represents a decrease from the previous year's apportionment of $90,000.00. The CWD funds are used to fund the agency's CWD Surveillance and Management Program. For more information relating to DFW's FY07 activities under the Chronic Wasting Disease Surveillance and Management Program please see the Wildlife Section annual report.

Avian Influenza Surveillance and Monitoring

In FY07, the Division received $40,000 in federal assistance through the US Department of Agriculture, Animal and Plant Health Inspection Service for Avian Influenza monitoring. The funding was used to conduct statewide Avian Influenza surveillance efforts. For more information relating to Avian Influenza surveillance efforts please see the Wildlife Section annual report.

Audits

In July 2005, representatives from the U.S. Department of Interior and the US Fish and Wildlife Service Diversity and Civil Rights Department conducted a Civil Rights Audit of the Division of Fisheries and Wildlife. These Civil Rights Audits are conducted periodically by the Department of Interior to monitor agencies' (participating in federal assistance programs) compliance with various Civil Rights Acts. The final audit report was issued in February 2006. In FY07, the agency worked on implementing the recommendations in the report and submitted the Grantees Reaction to the audit report in February 2007. Implementation efforts will continue in the near future. In FY07 the Division of Fisheries and Wildlife and the Department of Conservation and Recreation were co-awarded the 2006 Federally Assisted Recreation Access Award for providing equal access to federally funded programs, activities, and services.

Other Matters

Additional duties of the Federal Aid Coordinator include responding to requests for information from governmental entities, conservation groups and members of the public; DFW inventory management; overview of project performance and financial reporting; project assistance (both field and office); field visits; and to serve as the liaison between U.S. Fish and Wildlife Federal Aid personnel and the DFW.

Project Personnel

Kristin McCarthy, *Federal Aid Coordinator*

Jessica Lane, *Assistant to Federal Aid Coordinator*

John O'Leary, *State Wildlife Grants Coordinator and Landowner Incentive Program Supervisor*

In FY07 Wayne MacCallum, Director of the Division of Fisheries and Wildlife and Tom McCarthy, Universal Access Coordinator for the Department of Conservation and Recreation, were co-awarded the 2006 Federally Assisted Recreation Access Award.

MAINTENANCE & DEVELOPMENT

Gary Zima
Senior Planner

The Division of Fisheries & Wildlife continues to place a high priority on maintaining and upgrading its facilities. The highlight to our projects this year was a series of infrastructure improvements made with a supplementary Priority Capital Allocation. Year end capital funds also enabled us to address numerous upgrade and maintenance issues at all District Offices and Fish Hatcheries (see District and Fisheries Sections of this report for details), as well as at the Westborough Field Headquarters complex.

At DFW Field Headquarters all woodwork on the exterior of Building A was scraped and painted. Additional projects involved extensive waterproofing of brickwork and foundation walls, additional attic insulation over both the East and West wings, and the replacement of two remaining windows in the basement of Building A. Health and Safety upgrades began outside of Building A with the installation of a handicapped accessible deck and entry way. Emergency lighting and exit signs were updated within the building. Improvements to the water service included the installation of a water meter and a series of backflow prevention valves. A new security panel in Building A now enables the security of all buildings to be tied into the same system. For safety reasons, the power line to Building C was upgraded to better accommodate the electrical needs of current office and computer equipment. To accommodate the safety of our growing staff, a 320 foot concrete walkway was installed to connect buildings B and C with the main building (Building A).

Major equipment purchases at the Westboro Field Headquarters complex included an upgraded postage machine in Building A and new shelving units, chairs and tables for the paper storage trailer (Building E).

Administrative Staff

Gary Zima, *Senior Planner*

Bruce Walker, *Facilities Maintenance Specialist*

LEGISLATIVE REPORT

Jack Buckley
Deputy Director & Legislative Liaison

Chapter 137 of the Acts of 2006

AN ACT REMOVING AUTOMATIC QUALIFICATION FOR CERTAIN LICENSES

Approved: July 6, 2006

Summary:
This act removes the provision in law that allowed an individual with an FID card to purchase a hunting or sporting license without having met the requirement of hunter safety education. In doing so, the act closes an exemption from mandatory hunter safety education.

PERSONNEL REPORT

Peter Burke
Personnel Officer

New Hires

Name	Title	Date	Comments
Ohman, Dana J	Aquatic Biologist I	11/05/06	
Guertin, Darren	Wildlife Technician I	05/06/07	
Schluter, Everose N.	Scientist	03/18/07	
Knox, Christopher	Contracted Seasonal Employee	04/01/07	
Morris-Siegel, Jacob	Contracted Seasonal Employee	04/01/07	
Perlberg, Jay	Contracted Seasonal Employee	04/01/07	
Houghton, Winslow	Scientist	04/22/07	
Addison, Lindsay	Researcher	04/29/07	
Baker, Charles	Contracted Seasonal Employee	04/29/07	
Chaplin, Robert	Contracted Seasonal Employee	04/29/07	
Cunningham Jenny	Researcher	04/29/07	
Flieger,Lindsay	Contracted Student Intern	04/29/07	
Lawson, Sarah	Contracted Seasonal Employee	04/29/07	
Luecke, Sarah	Scientist	04/29/07	
Blake, Katherine	Researcher	05/07/07	
Kubel, Jacob	Scientist	05/07/07	
Sabourin, Melanie	Scientist	05/07/07	
Ebel, Jonathan	Contracted Student Intern	05/17/07	

Promotions

Name	Title	Date	Comments
Szczebak, David	Conservation Biologist III	02/05/07	
Plett, Kathleen	Program Coordinator I	02/18/07	
Dumont, Michael W.V.	Wildlife Technician I	11/05/06	
Manty, Jessi	Wildlife Technician I	11/05/06	
Marold, Misty Anne	Conservation Biologist II	02/04/07	
Scarpitti, David	Game Biologist I	01/02/07	
Huguenin, Tara	Conservation Biologist I	05/06/07	
Haggerty, Sarah	Conservation Biologist II	05/06/07	
Veinotte, Amanda	Administrative Assistant II	05/06/07	
Skowron, Rebecca	Administrative Assistant II	05/06/07	
French, Thomas	Program Manager VI	05/15/07	

Transfers

Name	Title	Date	Comments
Mostello, Carolyn	Scientist	9/3/2006	

Reallocations

Name	Title	Date	Comments
Cavaliere, Mary	Accountant I	09/03/06	change unions from 1 to 6

Terminations

Name	Title	Date	Comments
Nein, Daniel	Conservation Biologist II	09/01/06	
Sheppard, Patricia	Fiscal Officer VI	09/09/06	
Hansen, Karl	Wildlife Technician I	01/05/07	retired
Olfenbuttel, Colleen	Game Biologist III	02/13/07	
Yung, Helen	Receiving Teller I	03/06/07	retired
LeBoeuf, Paul	Wildlife Technician II	05/11/07	retired
Woytek, William	Game Biologist III	06/25/07	transferred to DLE

Terminations, *continued*

Pinheiro, James	Wildlife Technician I	06/29/07	resigned
Money, Erin	Contracted Seasonal Employee	07/22/06	
Blake, Katherine A.	Contracted Student Intern	07/12/06	
Breon, Amanda A.	Scientist	07/15/06	
Causeway, Caroline F.	Scientist	08/01/06	
Charow, Rachel H.	Scientist	07/15/06	
Purvis, Matthew F.	Scientist	08/01/06	
Davis, Mary W.	Scientist	08/12/06	
Pollom, Emily L.	Scientist	08/12/06	
Ripma, Lee A.	Contracted Student Intern	08/12/06	
Morris-Siegel, Jacob	Contracted Seasonal Employee	09/30/06	
Ryan, Jennifer Loose	Scientist	11/11/06	
Garvey, Jenna	Researcher	03/24/07	
Kashiwagi, Michael	Scientist	06/30/07	
Corcoran, Claire	Planner	06/30/07	
Stuart, Chloe	Scientist	06/30/07	

Work Hour Changes

Name	Title	Date	Comments
Mary Cavaliere	Receiving Teller I	8/28/2006	
Jill Durand	Clerk III	9/18/2006	
Jill Durand	Clerk III	12/4/2006	

Work Out of Grade

Name	Title	Date	Comments
Jessica Patalano	Conservation Biologist I	10/15/2006 to 11/27/2006	Paid as FOVI
Henry Woolsey	Environmental Analyst III	1/8/2007 to 5/15/2007	paid as PMVI

FINANCIAL REPORT

Administrative Staff
Jessica Patalano, *Chief Financial Officer*

Procurement and Payables
Yunus Khalifa, *Purchasing Coordinator*
Kerry Meagher, *Contract Coordinator*
Gail Gibson
Lillian Hew
Kathleen Plett
Betty Sienczyk

Revenue
Robert Oliver, *Revenue Coordinator*
Mary Cavaliere
Carl Lui
Pam Quigley

Permits
Robert Arini

Information Technology
Rick Kennedy
Robert Morley

How the Sportsmen's Dollar Was Spent

Inland Fish and Game Fund

July 1, 2006 to June 30, 2007

PROGRAMS/ASSESSMENTS	EXPENDITURES	PERCENTAGES
Administration:		
Administration	$1,343,473.04	
Information-Education	$660,912.20	17%
Total	$2,004,385.24	
Fisheries and Wildlife Programs:		
Hatcheries	$1,449,592.7	
Game Farm	$411,594.80	
Seasonals	$68,021.71	53%
Cooperative Units	$100,496.03	
Fisheries and Wildlife Management	$4,276,152.60	
Total	$6,305,857.89	
Other Programs:		
Land Acquisitions	$1,350,092.00	
Waterfowl Management Program	$42,775.15	15%
Hunter Safety Program	$390,537.28	
Total	$1,783,404.43	
Other Assessments:		
Group Insurance and Other Fringe Benefits	$1,787,085.00	15%
Total	$1,787,085.00	
TOTAL EXPENDITURES	**$11,880,732.56**	

Summary
Revenues, Expenditures and Fund Equity
Natural Heritage & Endangered Species Fund
July 1, 2006 to June 30, 2007

REVENUES	
Natural Heritage and Endangered Species Tax Checkoff Donations	$195,838.66
Sales	$51,102.60
Federal Aid Reimbursements	$1,046,241.63
Federal Aid Indirect Reimbursements	$29,268.04
Leatherback Sea Turtle Health Study	$16,991.00
Tern Restoration	$443,824.00
Massachusetts Endangered Species Act Fees	$542,501.42
Contracts	$12,080.00
Direct Donations	$2,683.95
Interest	$2,304.50
TOTAL REVENUES:	***$2,342,835.80***
EXPENDITURES	
*Natural Heritage and Endangered Species Program	$789,591.82
Tern Restoration	$126,889.15
Wildlife Habitat Incentive Program	$11,563.00
Fringe Benefit Costs	$139,004.00
TOTAL EXPENDITURES:	***$1,067,047.97***
TOTAL FUND EQUITY:	***$2,045,863.83***

*100% of total expenditures charged to Natural Heritage Fund for FY07

Other Funds and Programs
Expenditures Division Wide
July 1, 2006 to June 30, 2007

CAPITAL OUTLAY FUNDS:	
Land Protection	$29,355.00
Statewide Turtle Protection Plan	$75,487.18
Heritage Mapping for Biodiversity	$249,606.88
Forest Certification	$190,834.90
Upland Habitat Management	$169,057.11
Staffing for Land and Infrastructure Programs	$669,551.99
Water Policy Implementation	$93,415.89
Hatchery Facility Repairs	$517,064.35
District/Westborough Field Headquarters Repairs	$845,812.23
TOTAL CAPITAL EXPENDITURES	***$2,840,185.53***
Interdepartmental Service Agreements with Department of Conservation and Recreation:	
Resource Management Plan	$72,042.83
Rare Species Planning and Identification	$33,893.84
Conservation Management Practices	$17,153.94
TOTAL ISA EXPENDITURES	***$123,090.61***

Summary
Revenue and Fund Equity
Inland Fish and Game Fund
July 1, 2006 to June 30, 2007

DEPARTMENTAL REVENUES:	
Fishing,Hunting, and Trapping Licenses	$4,706,355.58
Archery Stamps	$140,526.90
Primitive Firearm Stamps	$157,784.10
Trap Registrations	$1,405.00
Waterfowl Stamps, Administration	$12,080.75
Waterfowl Stamps, Ducks Unlimited	$12,942.00
Waterfowl Stamps, Other	$38,826.00
Wildlands Stamps	$903,130.00
Antlerless Deer Permits	$192,097.60
Bear Permits	$30,427.50
Turkey Permits	$73,257.50
Special Licenses,Tags and Posters	$53,831.00
Magazine Subscriptions	$114,361.40
Sales,Other	$65,927.40
Fines and Penalties	$69,600.00
Rents	$259,231.95
Prior Year Refunds	$-
Miscellaneous Income	$19,271.33
PAC	$24,815.00
NSF Charge/Debt. Collection	$154.00
Total	**$6,876,025.01**
FEDERAL AID REIMBURSEMENTS:	
Dingell-Johnson (Fisheries)	$1,200,659.76
Pittman-Robertson (Wildlife)	$3,575,437.85
Indirect Cost Reimbursements	$832,886.73
Total	**$5,608,984.34**
TAXES:	
Gasoline Tax Apportionment	$893,679.70
OTHER FINANCIAL SOURCES:	
Reimbursement for Half-Price Licenses	$132,298.75
Investment Earnings	$49,973.42
Total	**$182,272.17**
TOTAL REVENUE	***$13,560,961.22***
FUND EQUITY AS OF JUNE 30, 2007	**$13,409,852.00**

License and Stamp Sales

July 1, 2006 to June 30, 2007

Type of License	Unit Cost	Quantity	Amount
Resident Citizen Fishing	22.50	101,341	2,280,172.50
Resident Citizen Minor Fishing	6.50	5,114	33,241.00
Resident Citizen Fishing (Age 65-69)	11.25	4,238	47,677.50
Resident Cit. Fishing (Over 70, etc.)	FREE	11,212	0.00
Non-Resident Citizen/Alien Fishing	32.50	6,902	224,315.00
Non-Resident Citizen/Alien Fishing (3 day)	18.50	2,217	41,014.50
Resident Fishing (3 day)	7.50	1,037	7,777.50
Non-Resident (Citizen) Minor Fishing	8.50	260	2,210.00
Duplicate Fishing	2.50	405	1,012.50
Quabbin 1-Day Fishing	5.00	1,924	9,620.00
Resident Citizen Trapping	30.50	275	8,387.50
Resident Citizen Minor Trapping	6.50	16	104.00
Resident Citizen Trapping (Age 65-69)	15.25	25	381.25
Duplicate Trapping	2.50	23	57.50
Trap Registration	5.00	281	1,405.00
Resident Citizen Hunting	22.50	20,588	463,230.00
Resident Citizen Hunting (Age 65-69)	11.25	925	10,406.25
Resident Citizen Hunting (Paraplegics)	FREE	289	0.00
Resident Alien Hunting	22.50	59	1,327.50
Non-Resident Citizen/Alien Hunting (Big Game)	94.50	2,316	218,862.00
Non-Resident Citizen/Alien Hunting (Sm. Game)	60.50	956	57,838.00
Resident (Citizen) Minor Hunting	6.50	1,287	8,365.50
Duplicate Hunting	2.50	277	692.50
Resident Citizen Sporting	40.00	31,508	1,260,320.00
Resident Citizen Sporting (Age 65-69)	20.00	2,420	48,400.00
Resident Citizen Sporting (Over 70)	FREE	8,917	0.00
Duplicate Sporting	2.50	589	1,472.50
TOTAL LICENSE SALES (GROSS)		***205,401***	***4,728,290.00***
Current Year Stamp Sales			
Archery Stamps	5.10	27,665	141,091.50
Primitive Firearm Stamps	5.10	31,063	158,421.30
Wildlands Stamps	5.00	167,975	839,875.00
Non-Resident Wildlands Stamps	5.00	12,651	63,255.00
Waterfowl Stamps, Administration	1.00	10,808	10,808.00
Waterfowl Stamps, Ducks Unlimited	1.00	10,808	10,808.00
Waterfowl Stamps, Other	3.00	10,808	32,424.00
TOTAL STAMP SALES (GROSS)		***271,778***	***1,256,682.80***
Previous Years Stamp Sales			
Archery Stamps		27	220.00
Primitive Firearm Stamps		46	378.80
Waterfowl Stamps, Administration		2,134	2,142.00
Waterfowl Stamps, Ducks Unlimited	1.00	2,134	2,134.00
Waterfowl Stamps, Other	3.00	2,134	6,402.00
TOTAL STAMP SALES (GROSS)		***6,475***	***11,276.80***
Fees Retained and Adjustments by Clerks			(22,885.67)
Refunds			(313.60)
TOTAL			**(23,199.27)**
TOTAL LICENSE/STAMP SALES (NET)			***5,973,050.33***

APPENDIX I

FY06 STREAM SURVEY SAMPLE SITES

(Note: UNT = Unamed Tributary)

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Blackstone	Kettle Brook	1732	5132800	8/21/2006	Leicester
Blackstone	Miscoe Brook (2)	2006	5131950	9/20/2006	Upton/Northbridge
Blackstone	Scott Brook	1727	5133125	8/16/2006	Holden
Blackstone	UNT to Blackstone River	1793	5131780	9/28/2006	Uxbridge
Blackstone	UNT to Blackstone River	1794	5131780	9/28/2006	Uxbridge
Blackstone	UNT to Center Brook	1798	5131977	9/28/2006	Upton
Blackstone	UNT to Center Brook	1795	5131977	9/28/2006	Upton
Blackstone	UNT to Center Brook	1543	5131978	9/14/2006	Upton
Blackstone	UNT to Center Brook	1797	5131977	9/28/2006	Upton
Blackstone	UNT to Center Brook	1796	5131977	9/28/2006	Upton
Blackstone	UNT to Kettle Brook	1731	5132980	8/21/2006	Leicester
Blackstone	UNT to Manchaug Pond	1580	5132060	8/2/2006	Douglas
Blackstone	UNT to Mumford River	2009	5132240	6/14/2007	East Douglas
Blackstone	UNT to Sewall Brook	1726	5132620	8/16/2006	Boylston
Blackstone	UNT to UNT to Whitin Reservoir	1730	5132422	8/18/2006	Douglas
Blackstone	UNT to Wallis Pond	1729	5132355	8/18/2006	Douglas
Blackstone	UT(Douglas Woods Brook)	1728	5132420	8/18/2006	Douglas
Blackstone	WARREN BROOK	1725	5132000	8/16/2006	Upton
Blackstone	WEST RIVER	2005	5131800	9/21/2006	Uxbridge
Boston Harbor	Mill Brook	1655	7341600	7/24/2006	Westwood
Boston Harbor	Mill Brook	1654	7341600	7/24/2006	Westwood
Boston Harbor	Mill Brook	1603	7341675	7/21/2006	Medfield
Boston Harbor	MINE BROOK (2)	1653	7341650	7/21/2006	Medfield
Boston Harbor	PURGATORY BROOK	1656	7341250	7/24/2006	Westwood/Norwood
Boston Harbor	PURGATORY BROOK	1604	7341250	7/25/2006	Westwood
Buzzards Bay	BREAD AND CHEESE BROOK	1637	9560150	7/19/2006	Westport
Buzzards Bay	BREAD AND CHEESE BROOK	1636	9560150	7/31/2006	Westport
Buzzards Bay	BREAD AND CHEESE BROOK	1639	9560150	7/19/2006	Westport
Buzzards Bay	Hemlock Gutter (UNT to Bread & Ch. Bk.)	1638	9560155	7/19/2006	Westport
Buzzards Bay	Paskamanset River	1623	9559900	7/18/2006	Dartmouth
Buzzards Bay	SHINGLE ISLAND RIVER	1635	9560175	7/31/2006	Dartmouth
Buzzards Bay	UNT to Bread & Cheese Br	1640	9560152	7/19/2006	Westport
Cape Cod	CHILDS RIVER	1622	9662975	9/21/2006	Falmouth
Cape Cod	CHILDS RIVER	1938	9662975	9/26/2006	Falmouth
Charles	Beaver Brook	1782	7240300	7/17/2006	Hopkinton
Charles	Dirty Meadow Brook	1657	7239800	7/20/2006	Sherborn
Charles	Dirty Meadow Brook	1601	7239800	7/20/2006	Holliston
Charles	Dopping Brook	1658	7239825	7/20/2006	Holliston
Charles	Dopping Brook	1599	7239825	7/20/2006	Sherborn/Holliston
Charles	Sewall Brook	1600	7239750	7/20/2006	Sherborn
Charles	Stop River	1921	7239925	7/12/2006	Norfolk
Charles	UNT to Charles River	1602	7239870	7/21/2006	Medfield
Chicopee	BROAD BROOK (2)	1963	3625350	8/17/2006	Ludlow
Chicopee	BURNSHIRT RIVER	1693	3628075	8/31/2006	Phillipston-Templeton
Chicopee	BURNSHIRT RIVER	1695	3628075	9/13/2006	Templeton-Phillipston
Chicopee	BURNSHIRT RIVER	1918	3628075	9/13/2006	Templeton
Chicopee	Burnshirt River (headwaters)	1556	3628110	7/14/2006	Templeton
Chicopee	Camel Brook	1566	3626825	7/18/2006	Shutesbury
Chicopee	CANESTO BROOK	1976	3628050	7/14/2006	Barre
Chicopee	CANESTO BROOK	1943	3628050	9/19/2006	Templeton
Chicopee	CANESTO BROOK	1942	3628050	9/19/2006	Hubbardston

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Chicopee	CANESTO BROOK	1941	3628050	9/19/2006	Hubbardston
Chicopee	Caulkins Brook	1970	3625225	8/21/2006	Wilberham
Chicopee	CHICOPEE BROOK	1965	3625475	8/17/2006	Ludlow
Chicopee	COYS BROOK	1686	3626050	8/17/2006	North Brookfield
Chicopee	COYS BROOK	1915	3626050	8/17/2006	North Brookfield
Chicopee	COYS BROOK	1687	3626050	8/17/2006	North Brookfield
Chicopee	Danforth Brook	1930	3627650	8/16/2006	Hardwick
Chicopee	DANFORTH BROOK (2)	1916	3627675	8/16/2006	Hardwick
Chicopee	DANFORTH BROOK (2)	1692	3627675	8/30/2006	Hardwick
Chicopee	JABISH BROOK	1956	3626550	7/29/2006	Belchertown
Chicopee	JABISH BROOK	1769	3626550	9/18/2006	Pelham
Chicopee	LAMBURTON BROOK	1544	3625875	9/21/2006	Brookfield
Chicopee	MOOSE BROOK	1917	3627725	8/30/2006	Barre
Chicopee	MOOSE BROOK	1691	3627725	8/30/2006	Barre
Chicopee	MOOSE BROOK	1690	3627725	8/30/2006	Barre
Chicopee	Pleasant Brook	1560	3628000	7/14/2006	Barre
Chicopee	Roaring Brook	1957	3625400	7/31/2006	Belchertown
Chicopee	Sucker Brook	1940	3626025	9/18/2006	North Brookfield
Chicopee	Sucker Brook	1696	3626025	9/18/2006	North Brookfield
Chicopee	SWIFT RIVER (E.B.)	1688	3627200	8/23/2006	Phillipston
Chicopee	SWIFT RIVER (E.B.)	1689	3627200	8/23/2006	Petersham
Chicopee	SWIFT RIVER (E.B.)	1694	3627200	8/31/2006	Petersham
Chicopee	SWIFT RIVER (M.B.)	1563	3627125	7/18/2006	New Salem
Chicopee	SWIFT RIVER (M.B.)	1567	3627125	7/18/2006	New Salem
Chicopee	SWIFT RIVER (W.B.)	1568	3626800	7/18/2006	Wendell
Chicopee	SWIFT RIVER (W.B.)	1928	3626800	7/18/2006	Shutesbury
Chicopee	Taylor Brook	1958	3625725	8/3/2006	Warren
Chicopee	TUFTS BROOK	1960	3625700	8/3/2006	Warren
Chicopee	UNT to Burnshirt River	1559	3628135	7/14/2006	Hubbardston
Chicopee	UNT to Chicopee Brook	1964	3625480	8/17/2006	Ludlow
Chicopee	UNT to Purgee Brook	1757	3626660	9/11/2006	Pelham
Chicopee	UNT to Sucker Brook	1939	3626035	9/18/2006	New Braintree
Chicopee	UNT to Vinica Brook	1969	3625531	8/21/2006	Wales
Chicopee	UNT to Vinica Brook	1968	3625530	8/21/2006	Wales
Chicopee	UNT to WB Swift River	1558	3626815	7/17/2006	New Salem
Chicopee	West Wachusett Brook	1562	3628375	7/14/2006	Princeton
Chicopee	Wine Brook	1561	3628125	7/14/2006	Philipston
Concord	Cold Spring Brook	1668	8248375	7/18/2006	Hopkinton
Concord	Cold Spring Brook	1619	8248375	7/18/2006	Ashland
Concord	FORT POND BROOK	1671	8246850	7/19/2006	Littleton
Concord	Heath Hen Meadow Brook	1669	8247000	7/18/2006	Stow
Concord	Hop Brook	1665	8247825	7/17/2006	Sudbury
Concord	LANDHAM (Allowance) BROOK	1667	8247900	7/17/2006	Framingham
Concord	LANDHAM (Allowance) BROOK	1666	8247900	7/17/2006	Framingham
Concord	Mill Brook	1620	8246700	7/19/2006	Billerica
Concord	Nagog Brook	1664	8246900	7/14/2006	Acton
Concord	Nagog Brook	1616	8246900	7/14/2006	Acton
Concord	NASHOBA BROOK	1672	8246875	7/25/2006	Acton
Concord	Sawmill Brook	1744	8246725	8/3/2006	Concord
Concord	UNT to A-1 Site	1593	8247628	7/14/2006	Westborough
Concord	UNT to A-1 Site	1594	8247628	7/14/2006	Westborough
Concord	UNT to River Meadow Brook (Hales Brook)	1670	8246526	7/19/2006	Billerica
Connecticut	Ashuela Brook	1787	3421200	7/28/2006	Gill
Connecticut	Blue Meadow Brook	1755	3418775	9/8/2006	Southampton
Connecticut	Brewer Brook	1989	3418950	8/10/2006	Westhampton
Connecticut	Broad Brook	1988	3419875	8/10/2006	Hatfield
Connecticut	Chestnut Hill Brook	1511	3420675	9/1/2006	Leverett
Connecticut	DOOLITTLE BROOK	1990	3420225	8/14/2006	Leverett
Connecticut	DRY BROOK	1592	3421150	7/28/2006	Gill
Connecticut	Fall River	1846	3420925	8/17/2006	Gill
Connecticut	Fall River	1847	3420925	8/17/2006	Bernardston
Connecticut	GODDARD BROOK	1750	3420625	9/1/2006	Montague
Connecticut	MANHAN RIVER (N.B.)	1824	3418400	8/21/2006	Westhampton

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Connecticut	MANHAN RIVER (N.B.)	1826	3418400	8/22/2006	Easthampton
Connecticut	MILL BROOK (2)	1845	3421450	8/17/2006	Northfield
Connecticut	MILL BROOK (2)	1758	3421450	9/11/2006	Warwick
Connecticut	MILL RIVER (2)	1496	3419825	7/28/2006	Deerfield
Connecticut	MILL RIVER (3)	1997	3420175	8/24/2006	Amherst
Connecticut	MILL RIVER (E.B.)	1837	3419150	8/3/2006	Williamsburg
Connecticut	MILL RIVER (N.B.)	1979	3417700	7/27/2006	Wilbraham
Connecticut	MILL RIVER (W.B.)	1806	3419225	8/10/2006	Williamsburg
Connecticut	MILL RIVER (W.B.)	1807	3419225	8/10/2006	Williamsburg
Connecticut	Red Brook	1747	3420750	8/30/2006	Leverett
Connecticut	Roaring Brook	1495	3420125	7/28/2006	Conway
Connecticut	ROARING BROOK (1)	1992	3420250	8/14/2006	Shutesbury
Connecticut	ROARING BROOK (1)	1991	3420250	8/14/2006	Leverett
Connecticut	Roberts Meadow Brook	1986	3418900	8/9/2006	Westhampton
Connecticut	Roberts Meadow Brook	1985	3418900	8/9/2006	Westhampton
Connecticut	SAWMILL RIVER	1817	3420550	8/24/2006	Montague
Connecticut	SHATTUCK BROOK	1848	3421000	8/17/2006	Bernardston
Connecticut	Sodom Brook	1825	3418450	8/21/2006	Westhampton
Connecticut	Spaulding Brook	1514	3420650	8/30/2006	Montague
Connecticut	UNT to Dudleyville Brook	1749	3420720	9/1/2006	Leverett
Connecticut	UNT to Sawmill River	1746	3420715	8/30/2006	Leverett
Connecticut	West Wait Brook	1591	3421325	7/28/2006	Northfield
Connecticut	Williams Brook	1513	3420700	8/30/2006	Leverett
Deerfield	ALLEN BROOK	1507	3313125	7/20/2006	Greenfield
Deerfield	Basin Brook	1742	3315550	7/24/2006	Hawley
Deerfield	Bear River	1834	3313950	8/9/2006	Conway
Deerfield	Bear River	1510	3313950	7/20/2006	Ashfield
Deerfield	Black Brook	1499	3315750	7/24/2006	Savoy
Deerfield	Burrington Brook	1512	3314625	8/31/2006	Heath
Deerfield	Chapel Brook	1741	3313800	7/21/2006	Ashfield
Deerfield	CHICKLEY RIVER	1760	3315425	9/11/2006	Savoy
Deerfield	CHICKLEY RIVER	1840	3315425	8/8/2006	Hawley
Deerfield	CHICKLEY RIVER	1832	3315425	8/8/2006	Hawley
Deerfield	COLD RIVER	1859	3315675	8/11/2006	Charlemont
Deerfield	COLD RIVER	1498	3315675	7/27/2006	Florida
Deerfield	Davis Mine Brook	1739	3315250	8/31/2006	Rowe
Deerfield	DRAGON BROOK	1509	3313875	7/20/2006	Shelburne
Deerfield	Drakes Brook	1768	3314000	9/18/2006	Ashfield
Deerfield	East Glen Brook	1785	3313250	7/18/2006	Leyden
Deerfield	East Glen Brook	1508	3313250	7/20/2006	Greenfield
Deerfield	Fife Brook	1743	3316350	7/27/2006	Florida
Deerfield	Glen Brook	1506	3313225	7/20/2006	Greenfield
Deerfield	GREEN RIVER	1851	3312925	8/16/2006	Colrain/Leyden
Deerfield	GREEN RIVER	1849	3312925	8/16/2006	Guilford, VT
Deerfield	Gulf Brook	1497	3315800	7/27/2006	Savoy
Deerfield	Johnny Bean Brook	1709	3313725	7/21/2006	Conway
Deerfield	McCard Brook	1786	3313100	7/18/2006	Greenfield
Deerfield	MILL BROOK (1)	1706	3313075	7/8/2006	Bernardston
Deerfield	MILL BROOK (2)	1858	3315175	8/11/2006	Charlemont
Deerfield	MILL BROOK (3)	1500	3315450	7/24/2006	Hawley
Deerfield	MILL BROOK (3)	1833	3315450	8/8/2006	Hawley
Deerfield	NORTH RIVER	1805	3314100	8/15/2006	Colrain
Deerfield	North River, East Branch	1854	3314275	8/14/2006	Colrain
Deerfield	North River, East Branch	1856	3314275	8/14/2006	Halifax, VT
Deerfield	PELHAM BROOK	1857	3316075	8/11/2006	Rowe
Deerfield	POLAND BROOK	1836	3313750	8/9/2006	Conway
Deerfield	Potash Brook	1710	3315475	7/24/2006	Hawley
Deerfield	Ruddock Brook	1748	3314875	8/31/2006	Buckland
Deerfield	SOUTH RIVER	1835	3313650	8/9/2006	Conway
Deerfield	Trout Brook	1712	3315700	7/24/2006	Charlemont
Deerfield	UNT to Chickley River	1711	3315485	7/24/2006	Hawley
Deerfield	UNT to Drakes Brook	1761	3314035	9/11/2006	Ashfield, Conway
Deerfield	UNT to Dunbar Brook	1714	3316480	7/27/2006	Monroe
Deerfield	West Branch Brook	1853	3314600	8/15/2006	Heath

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Deerfield	West Branch North River	1852	3314375	8/15/2006	Colrain
Farmington	CLAM RIVER	1529	3107125	8/24/2006	8/24/06
Farmington	Sandy Brook	1528	3106875	8/24/2006	Sandisfield
Farmington	Slocum Brook	1527	3106975	8/24/2006	Tolland
Farmington	Valley Brook	1756	3107700	9/8/2006	Granville
French	UNT to Little River	1581	4230280	8/2/2006	Oxford
Housatonic	Churchill Brook	1719	2105900	8/8/2006	Pittsfield
Housatonic	DANIELS BROOK	1721	2105925	8/8/2006	Lanesborough
Housatonic	Fenton Brook	1532	2103925	9/12/2006	Egremont
Housatonic	FURNACE BROOK	1523	2104275	8/8/2006	Richmond
Housatonic	KARNER BROOK	1533	2103900	9/12/2006	Egremont
Housatonic	KARNER BROOK	1788	2103900	7/28/2006	Egremont
Housatonic	May Brook (UNT to Windsor	1771	2105460	9/18/2006	WindsorReservoir)
Housatonic	May Brook (UNT to Windsor	1799	2105460	9/18/2006	WindsorReservoir)
Housatonic	Merry Brook	1754	2104675	9/7/2006	Tyringham
Housatonic	RAWSON BROOK	1520	2103625	8/9/2006	Monterey
Housatonic	Sleepy Hollow Brook	1791	2104200	8/8/2006	Richmond
Housatonic	Swann Brook	1519	2103600	8/9/2006	Monterey
Housatonic	TOWN BROOK	1738	2106000	8/23/2006	Lanesborough
Housatonic	TOWN BROOK	1773	2106000	7/7/2006	Lanesborough
Housatonic	Tyler Brook	1736	2105500	8/23/2006	Windsor
Housatonic	UMPACHENE RIVER	1518	2103575	8/9/2006	New Marlborough
Housatonic	UNT to Town Brook	1720	2106020	8/8/2006	New Ashford
Housatonic	WASHINGTON MT. BROOK	1783	2104975	7/17/2006	Lee
Housatonic	WASHINGTON MT. BROOK	1781	2104975	7/14/2006	Lee
Housatonic	WEST BROOK	1784	2104575	7/17/2006	Lee
Housatonic	YOKUN BROOK	1792	2105075	8/8/2006	Lenox
Hudson	Bashbish Brook	1536	1302800	9/12/2006	Mt Washington
Hudson	Birch Brook	1716	1100600	7/27/2006	Williamstown
Hudson	BROAD BROOK	1790	1100525	8/2/2006	Williamstown
Hudson	City Brook	1535	1302875	9/12/2006	Mt Washington
Hudson	GREEN RIVER (1)	2004	1100650	8/31/2006	Williamstown
Hudson	Hopper Brook	1774	1100675	7/7/2006	Williamstown
Hudson	KINDERHOOK CREEK	1789	1202150	8/2/2006	Hancock
Hudson	KITCHEN BROOK	1777	1101525	7/12/2006	Cheshire
Hudson	Sherman Brook	1717	1100875	7/27/2006	North Adams
Hudson	SOUTH BROOK	1737	1101475	8/23/2006	Cheshire
Hudson	Thompson Brook	1713	1100775	7/27/2006	New Ashford
Hudson	Thunder Brook	1778	1101550	7/12/2006	Cheshire
Hudson	UNT to W. Br. Of Green R.	1715	1100730	7/27/2006	Williamstown
Hudson	Wright Brook	1534	1302850	9/12/2006	Mt. Washington
Ipswich	Black Brook	1587	9253700	7/14/2006	Hamilton
Ipswich	UNT to Ipswich River	1588	9253860	7/14/2006	Topsfield
Ipswich	UNT to Ipswich River	1780	9253985	7/14/2006	North Reading
Merrimack	BENNETTS BROOK	1643	8451525	7/26/2006	Ayer/Littleton
Merrimack	BENNETTS BROOK	1605	8451525	7/26/2006	Ayer
Merrimack	Cobbler Brook	1649	8450500	8/2/2006	Merrimac
Merrimack	Cobbler Brook	1650	8450500	8/2/2006	Merrimac
Merrimack	EAST MEADOW RIVER	1652	8450525	8/10/2006	Haverhill
Merrimack	Fishin Brook	1615	8450625	8/10/2006	Haverhill
Merrimack	Harris Brook	1610	8450850	7/31/2006	Methuen
Merrimack	Harris Brook	1611	8450850	7/31/2006	Methuen
Merrimack	Hawkes Brook	1612	8450775	7/31/2006	Methuen
Merrimack	Hawkes Brook	1648	8450775	7/31/2006	Methuen
Merrimack	Joint Grass Brook	1609	8451700	7/28/2006	Dunstable
Merrimack	LITTLE RIVER	1651	8450575	8/10/2006	Haverhill
Merrimack	Reed Brook	1644	8451450	7/26/2006	Westford
Merrimack	Stony Brook	1646	8451200	7/27/2006	Westford
Merrimack	Stony Brook	1645	8451200	7/27/2006	Westford
Merrimack	Trout Brook	1607	8451050	7/28/2006	Dracut
Merrimack	Trout Brook	1608	8451050	7/28/2006	Dracut
Merrimack	UNT to Artichoke River	1613	8450440	8/14/2006	W. Newbury
Merrimack	UNT to Back River	1614	8450340	8/22/2006	Amesbury
Merrimack	UNT to Bridge Meado Brook	1647	8451635	7/27/2006	Tyngsboro

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Merrimack	UNT to Bridge Meadow Brook	1606	8451640	7/27/2006	Tyngsboro
Millers	Cheney Brook	1571	3523050	7/19/2006	Orange
Millers	ELLINWOOD BROOK	1564	3522850	7/17/2006	Athol
Millers	Fish Brook	1701	3523225	7/1/2006	Royalston
Millers	Jacks Brook	1589	3522400	7/11/2006	Northfield
Millers	Kenny Brook	1554	3523750	7/12/2006	Royalston
Millers	KEYUP BROOK	1703	3522375	7/11/2006	Northfield
Millers	KEYUP BROOK	1996	3522375	8/23/2006	Northfield
Millers	KEYUP BROOK	1995	3522375	8/23/2006	Erving
Millers	KEYUP BROOK	1702	3522375	7/11/2006	Northfield
Millers	LAWRENCE BROOK	1552	3523325	7/12/2006	Royalston
Millers	MILLERS RIVER	1570	3522150	7/19/2006	Wenchendon
Millers	MILLERS RIVER	1569	3522150	7/19/2006	Ashburnham
Millers	MOSS BROOK	1704	3522475	7/11/2006	Warwick
Millers	OSGOOD BROOK	1993	3522425	8/22/2006	Wendell
Millers	OSGOOD BROOK	1994	3522425	8/22/2006	Wendell
Millers	Poor Farm Brook	1759	3523075	9/11/2006	Orange
Millers	PRIEST BROOK	1553	3524150	7/12/2006	Royalston
Millers	Riceville Brook	1565	3522900	7/17/2006	Athol
Millers	Rich Brook	1555	3523550	7/12/2006	Athol
Millers	Spud Brook	1723	3524275	8/11/2006	Winchendon
Millers	Spud Brook	1722	3524275	8/11/2006	Winchendon
Millers	Thrower Brook	1557	3522875	7/17/2006	Athol
Millers	TULLY BROOK	1707	3523250	7/19/2006	Warwick
Millers	TULLY BROOK	1708	3523250	7/19/2006	Warwick
Millers	UNT at Ellis Rd	1674	3524085	7/10/2006	Westminster
Millers	UNT to E. Br. of Tully River	1705	3523280	7/12/2006	Orange
Millers	UNT to Templeton Brook	1724	3524130	8/11/2006	Templeton
Millers	WHETSTONE BROOK	1977	3522450	7/26/2006	Wendell
Millers	WHETSTONE BROOK	1978	3522450	7/26/2006	Wendell
Mt.Hope/Narragansett	COLE RIVER	1634	6134550	8/7/2006	Swansea
Mt.Hope/Narragansett	East Branch Palmer River	1633	5334350	8/8/2006	Rehobeth
Mt.Hope/Narragansett	Oak Swamp Brook	1630	5334125	8/29/2006	Rehoboth
Mt.Hope/Narragansett	ROCKY RUN RIVER	1629	5334100	8/30/2006	Rehobeth
Mt.Hope/Narragansett	Runnins River	1631	5334025	8/10/2006	Seekonks
Mt.Hope/Narragansett	West Branch Palmer River	1632	5334275	8/8/2006	Rehoboth
Nashua	ASNEBUMSKIT BROOK	1678	8145500	7/27/2006	Holden
Nashua	Babcock Brook	1936	8145900	8/7/2006	Princeton
Nashua	Babcock Brook	1934	8145900	8/7/2006	Princeton
Nashua	Babcock Brook	1937	8145900	8/7/2006	Princeton
Nashua	BOWERS BROOK	1908	8144400	7/14/2006	Harvard
Nashua	BOWERS BROOK	1907	8144400	7/14/2006	Harvard
Nashua	BOWERS BROOK	1677	8144400	7/14/2006	Harvard
Nashua	Connelly Brook	1935	8145750	7/31/2006	Sterling
Nashua	Connelly Brook	1911	8145750	7/31/2006	Sterling
Nashua	Connelly Brook	1910	8145750	7/31/2006	Sterling
Nashua	EAST WACHUSETT BROOK	1923	8145875	8/4/2006	Princeton
Nashua	EAST WACHUSETT BROOK	1929	8145875	8/7/2006	Princeton
Nashua	EAST WACHUSETT BROOK	1924	8145875	8/4/2006	Princeton
Nashua	FALL BROOK	1914	8144800	8/14/2006	Leominster
Nashua	FALL BROOK	1931	8144800	8/11/2006	leominster
Nashua	FALL BROOK	1683	8144800	8/11/2006	Leominster
Nashua	FALLULAH BROOK	1548	8144850	7/10/2006	Fitchburg
Nashua	French Brook	1676	8145150	7/20/2006	Boylston
Nashua	French Brook	1904	8145150	7/20/2006	Boylston
Nashua	James Brook	1920	8143925	8/3/2006	Groton
Nashua	KEYES BROOK	1675	8146050	7/10/2006	Princeton
Nashua	KEYES BROOK	1905	8146050	7/20/2006	Princeton
Nashua	Monoosnuc Brook	1685	8144825	8/15/2006	Fitchburg
Nashua	Monoosnuc Brook	1684	8144825	8/14/2006	Fitchburg
Nashua	Monoosnuc Brook	1913	8144825	8/14/2006	Fitchburg
Nashua	Muschopauge Brook	1926	8145625	7/27/2006	Rutland
Nashua	Muschopauge Brook	1925	8145625	7/27/2006	Rutland
Nashua	PEARL HILL BROOK	1551	8144200	7/10/2006	Townsend

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Nashua	Rocky Brook	1680	8145925	7/31/2006	Sterling
Nashua	Steam Mill Brook	1903	8146025	7/26/2006	Princeton
Nashua	Steam Mill Brook	1927	8146025	7/20/2006	Princeton
Nashua	STILLWATER RIVER	1804	8145700	9/25/2006	Sterling
Nashua	STILLWATER RIVER	1800	8145700	9/26/2006	Sterling
Nashua	STILLWATER RIVER	1801	8145700	9/26/2006	Sterling
Nashua	STILLWATER RIVER	1803	8145700	9/25/2006	Princeton/Sterling
Nashua	STILLWATER RIVER	1802	8145700	9/26/2006	Sterling
Nashua	TRAPFALL BROOK	1549	8144250	7/10/2006	Ashby
Nashua	TROUT BROOK (2)	1679	8145350	7/20/2006	Holden
Nashua	TROUT BROOK (2)	2003	8145350	7/20/2006	Holden
Nashua	UNT to Steam Mill Brook	1902	8146035	7/26/2006	Princeton
Nashua	UNT to Stillwater River	1906	8145710	7/10/2006	Sterling
Nashua	UNT(Trapfall Brook)	1550	8144255	7/10/2006	Ashby
Nashua	Wekepeke Brook	1912	8144750	8/9/2006	Sterling
Nashua	Wekepeke Brook	1932	8144750	8/9/2006	Sterling
Nashua	Wekepeke Brook	1933	8144750	8/9/2006	Sterling
Nashua	Wilder Brook	1909	8145850	7/31/2006	Sterling
Nashua	WILLARD BROOK	1547	8144175	7/10/2006	Ashby
Nashua	WILLARD BROOK	1546	8144175	7/10/2006	Ashby
Parker	Beaver Brook	1596	9153375	8/14/2006	West Newbury
Parker	Cart Creek	1597	9153315	8/14/2006	Newbury
Parker	Cart Creek	1659	9153315	8/17/2006	Newbury
Parker	Little River	1662	9153175	8/21/2006	Newburyport
Parker	Little River	1598	9153175	8/21/2006	Newburyport
Parker	PARKER RIVER	1661	9153150	8/18/2006	Georgetown
Parker	PARKER RIVER	1660	9153150	8/17/2006	Boxford
Parker	UNT to Little River	1663	9153195	8/21/2006	Newburyport
Quinebaug	EAST BROOK	1959	4129350	8/3/2006	Warren
Quinebaug	STEVENS BROOK	1980	4129500	7/27/2006	Wales
Quinebaug	UNT to East Brimfield Reservoir	1961	4129290	8/10/2006	Brookfield
Quinebaug	UNT to East Brimfield Reservoir	1966	4129291	8/21/2006	Brookfield
Quinebaug	UNT to Sawmill Brook	1971	4128945	8/21/2006	Wales
South Coastal	Bassett Brook	1626	9457775	9/13/2006	Duxbury
South Coastal	EEL RIVER	2000	9458000	8/24/2006	Plymouth
South Coastal	EEL RIVER	2001	9458000	8/24/2006	Plymouth
South Coastal	EEL RIVER	2002	9458000	9/7/2006	Plymouth
South Coastal	HERRING BROOK	1627	9456650	9/13/2006	Pembroke
South Coastal	JONES RIVER	1625	9457650	9/13/2006	Kingston
South Coastal	Littles Creek	1621	9457150	9/22/2006	Marshfield
South Coastal	Littles Creek	1673	9457150	9/22/2006	Marshfield
South Coastal	Smelt Brook	1628	9457675	9/11/2006	Kingston
South Coastal	UNT to Eel River	1998	9458010	8/24/2006	Plymouth
South Coastal	UNT to Eel River	1999	9458010	9/13/2006	Plymouth
Taunton	Beaverdam Brook	1586	6236250	7/13/2006	Middleboro
Taunton	Beaverdam Brook	1545	6236250	7/11/2006	Middleboro
Taunton	Billings Brook	1541	6235675	7/5/2006	Sharon
Taunton	CANOE RIVER	1542	6235850	7/6/2006	Foxborough
Taunton	CANOE RIVER	1539	6235850	7/6/2006	Mansfield
Taunton	Monponsett Brook (Palmer Mill Br.)	1779	6236775	7/13/2006	Halifax
Taunton	Otis Pratt Brook	1585	6236150	7/13/2006	Middleboro
Taunton	Queset Brook	1775	6237525	7/12/2006	Easton
Taunton	Robinson Brook	1583	6235625	7/10/2006	Foxboro
Taunton	Robinson Brook	1582	6235625	7/10/2006	Foxboro
Taunton	SHUMATUSCACANT RIVER	1538	6237025	7/7/2006	Abington
Taunton	Stump Brook	1919	6236675	8/17/2006	Halifax
Taunton	UNT to Canoe River	1540	6235865	7/5/2006	Easton
Taunton	Whitman Brook	1776	6237550	7/12/2006	Easton
Westfield	BRONSON BROOK	1838	3211550	8/7/2006	Worthington
Westfield	Case Brook	1524	3209400	8/24/2006	Blanford
Westfield	Cone Brook	1734	3210950	8/23/2006	Peru
Westfield	DEPOT BROOK	1972	3210600	8/22/2006	Becket
Westfield	DEPOT BROOK	1751	3210600	9/7/2006	Washington
Westfield	Dickinson Brook	1814	3208975	8/30/2006	Granville

Watershed	Waterbody Name	Sample ID	Saris/Palis	Date	Town
Westfield	Dickinson Brook	1595	3208975	8/7/2006	Granville
Westfield	Drake Brook	1718	3208950	8/7/2006	Granville
Westfield	Drowned Land Brook	1772	3212375	9/18/2006	Windsor
Westfield	FACTORY BROOK	1975	3210475	8/24/2006	Middlefield
Westfield	GLENDALE BROOK	1735	3210900	8/23/2006	Peru
Westfield	GLENDALE BROOK	1515	3210900	8/9/2006	Middlefield
Westfield	Goldmine Brook	1740	3210175	9/8/2006	Chester
Westfield	Hume Brook	1517	3212175	8/9/2006	Windsor
Westfield	Kearney Brook	1844	3211625	8/7/2006	Worthington
Westfield	KINNE BROOK	1810	3210800	8/31/2006	Chester
Westfield	LITTLE RIVER	1811	3211100	8/31/2006	Huntington
Westfield	Lloyd Brook	1525	3209425	8/24/2006	Blanford
Westfield	Meadow Brook	1501	3211925	7/21/2006	Plainfield
Westfield	MILL BROOK (1)	1841	3211950	8/2/2006	Plainfield
Westfield	MILL BROOK (1)	1827	3211950	8/2/2006	Plainfield
Westfield	Morgan Brook	1753	3210650	9/7/2006	Becket, Washington
Westfield	MUNN BROOK	1813	3208825	8/30/2006	Southwick
Westfield	Nye Brook	1818	3209925	8/23/2006	Blandford
Westfield	Paucatuck Brook	1983	3208350	8/3/2006	West Springfield
Westfield	Paucatuck Brook	1981	3208350	8/3/2006	West Springfield
Westfield	Peebles Brook	1526	3209350	8/24/2006	Blanford
Westfield	Phelon Brook	1521	3209225	8/7/2006	Granville
Westfield	Pond Brook	1823	3211050	8/21/2006	Huntington
Westfield	POWDERMILL BROOK	1984	3208575	8/8/2006	Westfield
Westfield	POWDERMILL BROOK	1987	3208575	8/9/2006	Westfield
Westfield	Roaring Brook (1)	1822	3210000	8/22/2006	Huntington
Westfield	Roaring Brook (2)	1820	3210125	8/23/2006	Chester
Westfield	SHAKER MILL BROOK	1745	3210625	8/23/2006	Washington
Westfield	SHAKER MILL BROOK	1531	3210625	8/23/2006	Becket
Westfield	SHAKER MILL BROOK	1973	3210625	8/22/2006	Becket
Westfield	Shaw Brook	1767	3212150	9/13/2006	Windsor
Westfield	STAGE BROOK	1819	3209850	8/23/2006	Russell
Westfield	STONES BROOK	1763	3211825	9/13/2006	Goshen
Westfield	STONES BROOK	1842	3211825	8/2/2006	Goshen
Westfield	SWIFT RIVER	1830	3211775	8/4/2006	Cummington
Westfield	SWIFT RIVER	1503	3211775	7/21/2006	Hawley
Westfield	SWIFT RIVER (N.B.)	1504	3211800	7/21/2006	Plainfield
Westfield	Tillotson Brook	1522	3209075	8/7/2006	Granville
Westfield	Tower Brook	1812	3211700	8/31/2006	Chesterfield
Westfield	Tower Brook	1831	3211700	8/4/2006	Chesterfield
Westfield	Tuttle Brook	1733	3210925	8/23/2006	Peru
Westfield	UNT to Depot Brook	1752	3210710	9/7/2006	Washington
Westfield	UNT to Mill Brook	1766	3211973	9/13/2006	Plainfield
Westfield	UNT to Mill Brook	1762	3211970	9/12/2006	Plainfield
Westfield	UNT to Paucatuck Brook	1982	3208365	8/3/2006	West Springfield
Westfield	UNT to Savoy Hollow Brook	1770	3212410	9/18/2006	Savoy
Westfield	UNT to Stones Brook	1764	3211835	9/13/2006	Goshen
Westfield	UNT to Stones Brook	1765	3211830	9/13/2006	Goshen
Westfield	UNT to Stones Brook	1505	3211835	7/21/2006	Goshen
Westfield	UNT to Swift River	1502	3211865	7/21/2006	Ashfield
Westfield	WALKER BROOK	1809	3210300	9/1/2006	Chester
Westfield	Watson Brook	1530	3210700	8/23/2006	Washington
Westfield	WEST BRANCH BROOK	1839	3211525	8/7/2006	Chesterfield
Westfield	WESTFIELD BROOK	1843	3212050	8/3/2006	Windsor
Westfield	WESTFIELD BROOK	1516	3212050	8/9/2006	Windsor
Westfield	WESTFIELD RIVER (E.B.)	1828	3211030	8/4/2006	Cummington
Westfield	WESTFIELD RIVER (E.B.)	1829	3211030	8/3/2006	Windsor
Westfield	WESTFIELD RIVER (M.B.)	1816	3210725	8/25/2006	Middlefield/Worthington
Westfield	WESTFIELD RIVER (M.B.)	1815	3210725	8/25/2006	Chester
Westfield	WESTFIELD RIVER (W.B.)	1808	3210075	9/1/2006	Chester
Westfield	YOKUM BROOK	1974	3210550	8/24/2006	Becket

APPENDIX II
FY07
FISH SPECIES SAMPLING

Species, Number Sampled, and Average Length (in Millimeters) of Fish Sampled

Common Name	Number Sampled	Mean Length
American eel	610	201
Atlantic salmon	2593	98
Banded killifish	16	66
Banded sunfish	277	59
Black crappie	3	163
Blacknose dace	10,865	57
Blueback herring	6	50
Bluegill	675	70
Bridle shiner	10	51
Brook trout	6485	101
Brown bullhead	326	98
Brown trout	651	134
Central Mudminnow	24	63
Chain pickerel	79	166
Common shiner	672	69
Creek chub	1367	69
Creek chubsucker	28	83
Fallfish	520	98
Fourspine stickleback	103	33
Golden shiner	490	75
Lake chub	5	86
Landlocked salmon	316	96
Largemouth bass	124	87
Longnose dace	2776	76
Longnose Sucker	82	119
Mummichog	5	78
Pumpkinseed	928	74
Rainbow trout	18	250
Redfin pickerel	599	118
Rock bass	1	112
Sea Lamprey	17	112
Slimy sculpin	3446	59
Smallmouth bass	17	66
Spottail shiner	4	32
Swamp Darter	8	44
Tesselated darter	184	60
White perch	2	118
White sucker	1196	113
Yellow bullhead	107	126
Yellow perch	96	100