

—Legislation included the provision for a process for the Director to revoke certain permits and licenses⁶⁵, provision for a process to provide fishing privileges for patients in veterans' hospitals⁶⁶, and a requirement for the Metropolitan District Commission to issue rules and regulations relative to fishing in the Quabbin Reservoir⁶⁷.

1947-48⁶⁸: Surveys of ponds and lakes continued in Berkshire County. The Division purchased land along the Bungay River in North Attleborough and then conveyed the same to the federal government for use as a fish hatchery.

—There were 403,755 brook trout; 141,785 brown trout; 150,065 rainbow trout; 179,930 sockeye salmon; 1022 smallmouth bass; 500 largemouth bass; 102,875 yellow perch; 5650 white perch; 32,835 black crappie; 249,615 horned pout; and 12,980 pickerel stocked.

—The upland game season was delayed 12 days due to a fire emergency but was extended the same number of days on the closing end.

—There was again a record deer harvest, totaling 3977 (2073 bucks and 1904 does).

—Wild turkeys (n=66) were again stocked in the Quabbin Reservation but were badly affected by the severe winter. There were also 27,300 pheasants and 6012 quail stocked.

—A game cover improvement project was initiated to provide food and cover to game animals, especially pheasants, during the winter and spring months. Nine pheasant release pens and nine food patches were set up in six counties. There was severe winter damage to the pens.

—Legislation included provision for a closed season for most hunting between September 20 and October 19⁶⁹; a requirement for certain information on hunting, fishing, and trapping licenses⁷⁰; a detailed revision of the laws regarding trapping and providing for trap registration⁷¹; and a reorganization of the Department of Conservation and a provision to establish the Board of Fisheries and Game⁷².

THE DIVISION OF FISHERIES & GAME—THE LATER YEARS, 1948-1969:

A SUMMARY

—The Legislature created a 5-member "Fisheries and Game Board" with administrative and regulatory powers, to be appointed by the Governor for 5-year terms, with an initial staggered entry. The Board held its first meeting on October 6, 1948 and elected a Chairman and Secretary.

—The Director of Fisheries and Game (and the Superintendent of the Bureau of Wildlife Research and Management were both appointed by the Board (i.e., not gubernatorial appointments as in past years). The first Director so appointed was Robert H. Johnson (in office 1948-55), succeeded by Charles L. McLaughlin (1955-63), Francis W. Sargent (1963-64), and James M. Shepard (1964-75). Three of these left the Division for more lucrative positions and one (McLaughlin) died in office.

—The Board's concerns between 1948-1969 included a sustainable and sufficient source of funds, fiscal accountability, maintaining efficient and capable staff, restoration and improvement of facilities, increasing hatchery production, expansion of educational programs, attention to habitat improvement, development of policies based on sound research, deleterious environmental issues, the increasing demand for services from the general public, and the fostering of good relationships with farmers and landowners.

—The Board developed its first formal Policy document and organizational chart in 1957.

—The Division instituted a "District" system in 1950, headed by a "District Manager", to facilitate contact and familiarity with constituents and to efficiently provide for stocking of fish and to engage in field activities on a local basis. The four Districts were settled in permanent facilities in the Central, Northeast, Southeast, and Western sections of the state by 1954.

—The Department was reorganized as the "Department of Natural Resources", to include Fisheries & Game, Forests & Parks, Law Enforcement and Marine Fisheries.

—The Director was given regulatory powers to set seasons, dates, [most] methods of take, and like matters after holding a public hearing and with the concurrence of the Board.

—The Inland Fisheries and Game laws (G.L. c. 131) were recodified in 1967, to be effective in 1968.

—A \$1.00 license fee increase in 1966 was designated for the purchase of land but was not matched by the Legislature as was desired.

—New hatcheries were opened at Podick Springs in Sunderland (1952) and in Belchertown (1969, named for the late Director Charles L. McLaughlin). The Marshfield Game Farm closed in 1963 and was sold soon thereafter.

—The Phillips Wildlife Laboratory in Upton was found to be inadequate and in poor repair. In 1955, the Bureau of Wildlife Research and Management moved to an unused building on the grounds of the Lyman School for Boys in Westborough. This facility, renamed the "Field Headquarters", gradually became unsuitable and attempts to acquire or construct a substitute began in 1969.

—A fish elevator was constructed at the Holyoke Dam in 1955 and began passing shad. Despite initial problems, the facility was passing 15,000 shad by 1955. The multi-state cooperative venture increased and there were 5600 salmon stocked below Holyoke in 1967. The four affected New England directors requested the Federal Power Commission to require the five power project on the Connecticut River to install and maintain functional fishways.

—Massachusetts assented to the Dingell-Johnson federal aid in fisheries program in 1951 and began a study of trout on the Westfield River.

—The detailed lake and pond surveys of the state were completed and the remainder of the 5-volume (1942-1955) series published.

—Sea-run brook trout studies were initiated on Cape Cod and determined that the fishery was small but unique. Staff recommendations were to stock brook trout, purchase the better streams and improve them through habitat management.

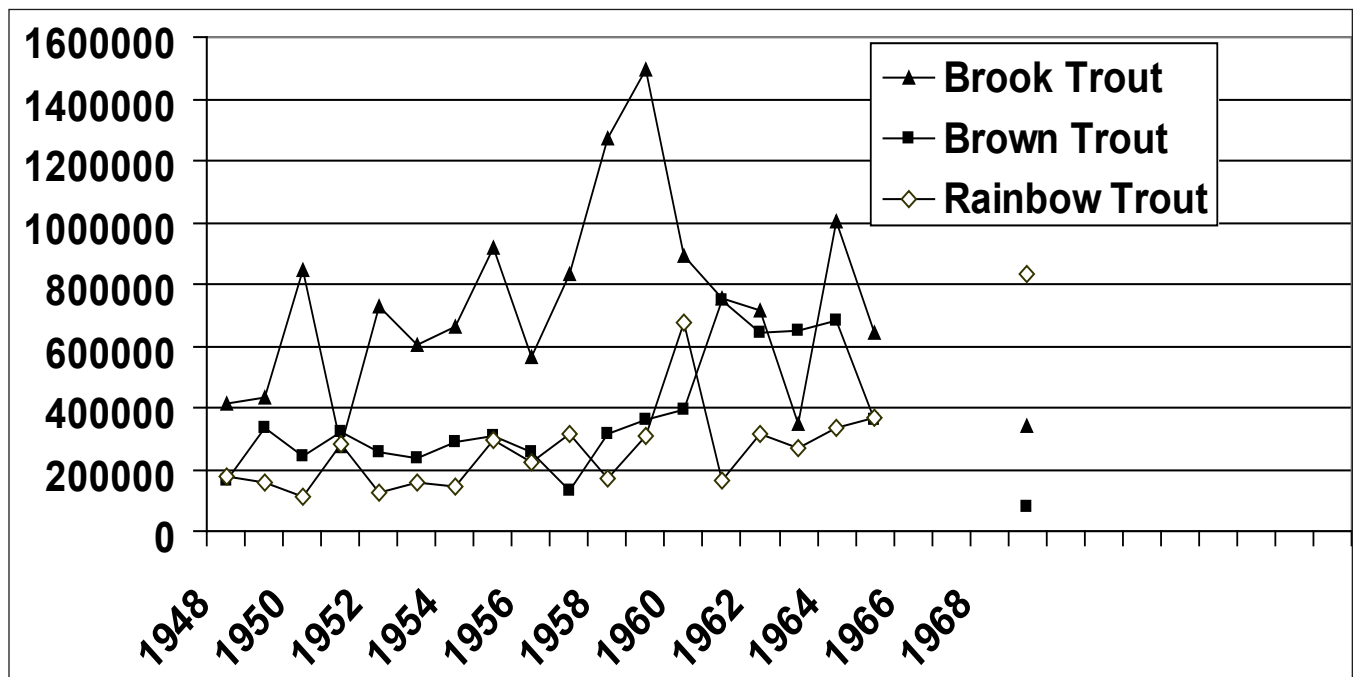


Figure 42. Numbers of Brook, Brown and Rainbow Trout (all age classes) stocked in Massachusetts waters, 1948-1969.

—The Quabbin Reservoir was opened to limited shore fishing in 1947 and to limited boat fishing in 1951. The stocking of lake trout in Quabbin was successful, producing substantial angler interest. Smelt stocking resulted in a huge population which later resulted in blockage of water intake mechanisms and required control. Walleye stocking was unsatisfactory despite repeated attempts. Stocking of landlocked salmon began in 1965.

—Kokanee salmon were stocked in Onota Lake but the experiment ultimately failed. Walleye initially did well in Lake Chauncey but did not successfully establish. Northern pike were successfully introduced to Cheshire Reservoir.

—Salvage units were renamed “pondfish management” units and tasked to undertake pond management as well as the removal or transfer of warmwater fish. Most “sunfish” and bluegills were now destroyed rather than relocated to other water bodies. Larger or more desirable fish, such as black bass or chain pickerel, were (at least initially) transferred to public waters open to fishing.

—Excluding 1966-69—when no breakdowns were given—there were $\approx 13,746,400$ brook, $\approx 6,561,200$ brown, and $\approx 5,985,400$ rainbow trout stocked from the hatcheries (Figure 42).

—In addition to trout, variable (but sometimes substantial) numbers of lake trout, largemouth bass, smallmouth bass, black crappie, yellow perch, white perch, walleye, chain pickerel, horned pout, smelt, and miscellaneous forage fish were reared or salvaged and stocked (variably as adults, fingerlings, or fry).

—Warm-water rearing systems were developed at the Harold Parker pond system in North Andover and the Merrill Pond system at Sutton. Largemouth bass, chain pickerel and some smallmouth bass were reared there and later stocked in suitable waters.

—The experimental deer checking station program was expanded in 1949. By 1963, deer populations were shifting eastward and Worcester County ranked first in the

harvest. Mandatory deer checking was implemented in 1966 and an antlerless deer permit system was put into effect in 1967.

—The first season-regulated black bear season began in 1952. After a highly publicized incident involving illegally-released bears in Berkshire County in 1969, the hunting regulations were changed in 1970 to provide for a permit-only 1-week bear season.

—Beaver management began with the trapping of nuisance beaver and their relocation to more suitable areas. There was a one-time experimental trapping season in 1946 followed by a consistent regulated season commencing in 1948.

—Winter banding (principally black ducks) began in 1966 and summer banding (using an airboat) in 1967. Canada goose transplants to central and western Massachusetts began in 1967.

—Other wildlife studies included ruffed grouse population surveys, pheasant management, wood duck banding and nesting investigations, response of the two cottontail species to habitat management, furbearer investigations, hunter surveys, and mourning dove and quail call surveys. Habitat and facilities management and development also consumed much time by the Districts.

—Experimental stockings of ruffed grouse on Martha's Vineyard and sharptailed grouse on Nantucket were unsuccessful.

—There were ≈1,228,000 pheasants (including club stockings), ≈94,500 bobwhite quail, 991 *Coturnix* quail, and ≈41,500 snowshoe (white) hare liberated.

—A methodology for sexing day-old pheasant chicks was developed at the University of Massachusetts and implemented at the game farms in order to eliminate the cost of raising excess hen pheasants.

—The Massachusetts Cooperative Wildlife Research Unit was formed at the University of Massachusetts in 1948. Graduate students later completed theses (among others) on black duck feeding habits, bobcat, river otter, ruffed grouse, snowshoe hare, wild turkey restoration in Quabbin, woodcock, cover-mapping of the state, posted land surveys, and an economic survey of sportsmen.

—The Massachusetts Cooperative Fisheries Research Unit was formed at the University in 1963 with studies first initiated on white perch and rock bass and a biological survey on the Westfield River.

—The first direct appropriation for Information & Education was made in 1949. The new publicity agent, Bryant R. Chaplin (1926-1992), began the issuance of a semi-monthly newsletter "*Massachusetts Wildlife*". This newsletter began publication in a magazine format in 1955.

—The Information & Education Section developed "Safety Zone" signs (1952) and facilitated their distribution. During the same year, the Section designed the first Division insignia (later modified).

—In cooperation with the U.S. Army and the American Optical Company, the Section initiated a landmark study showing that the visibility of fluorescent orange clothing was superior to that of red as a hunter safety measure.

—The Section presented television programs on "Dateline Boston", "Critter Corner", "R.F.D. #3", from 1957-1967.

—A sport fishing awards program was begun in 1962 with the presentation of pins to anglers taking fish of or larger than a specified size. Starting in 1963, gold pins were presented to the angler taking the largest fish in each category.

—Booklets were published on cottontails, fur facts and trapping, pheasants, trout stream and trout pond management, and wood duck.

—The Massachusetts Junior Conservation Camp opened at Swann State Forest in Monterey in 1949.

—Birch Hill in northern Worcester County was acquired as the first public shooting ground in 1949. This was followed in the 1950s by acquisitions in West Bridgewater, Becket, Sudbury, Phillipston, Falmouth, Peru, and Westborough. Acquisition of large tracts in Essex County began in 1960 and continued. Bond monies allowed the purchase of substantial acreage in Belchertown, Chester, Phillipston, along the Quaboag and Squannacook rivers. The Realty Section was formalized in 1967 and new wildlife management areas acquired in Conway, Lenox, Middleborough, Savoy.

“CONSERVATION IS THE SCIENCE OF MAN’S SUCCESSFUL LIVING IN RELATION TO NATURE AND HER RESOURCES”¹: 1948-1959

The 1950s² saw the entry of the U.S. into the Korean War (1950-53), the hardening of the Cold War, the unraveling of the structure of DNA by James Dewey Watson and Francis Harry Crick (1953), the increasing popularity of television (29 million by 1954), the development of the poliomyelitis vaccine (1954), the first silicon transistor (1954), the launching of the first earth satellite (1957), and the admission of Alaska into the Union (1959). The U.S. population^{3,4} was 150,697,361 and that of Massachusetts 4,690,541.

Massachusetts experienced the Worcester tornado (1953), the extreme back-to-back hurricanes *Carol* and *Edna* (1954) and the opening of the Massachusetts Turnpike (1957). A devastating forest fire arose in Myles Standish State Forest in May 1957 as a result of three incendiary fires, two of which were suppressed. Despite the efforts of 2500 firefighters, the third ultimately burnt 12,500 acres, stopping only when it reached the Atlantic Ocean. The factory towns continued to decline in the post-World War II slump. A new demand arose for scientists and engineers and the consequent growth in electronics, computer science, and graduate education drove the development of hundreds of new businesses along the Rte. 128 belt⁴. Fast-food chains began to arise and drive-in theaters peaked. Returning veterans working a 40-hour week now built homes, started families, and purchased automobiles, leading to a substantial interest in the Massachusetts state parks and forests⁵. Attendance at those facilities tripled over that of the pre-war period.

The game propagator and biologist Wallace Byron Grange¹ (1906-1987) believed wildlife population cycles to “necessarily” affect game abundance, while also acknowledging the “inevitability” of habitat change. Grange also promoted the use of fire as a management tool and was suspicious of poisons as predator or pest control measures. Durward Leon Allen (1910-1997), a research biologist and professor, promoted

a resource philosophy that people arose from the land and can only survive as a component of it. Resource professionals had an obligation to the future as well as to the present “...resilient, adaptable, and forever searching outward in our environment...”⁶. The ecologist, educator and one-time trapper Paul Lester Errington (1902-1967), one of the founding fathers of The Wildlife Society, strikingly illuminated the dynamic life of marshes and their value to the human psyche: “Greater familiarity with marshes... could give man a truer and more wholesome view of himself in relation to nature”⁷.

Building on the precedent of their previous *Extinct and Vanishing Mammals* (1942), the American Committee for International Wildlife Protection produced a companion volume on *Extinct and Vanishing Birds*⁸. A different approach was taken by the activist Peter Matthiessen (b. 1927) who set forth a detailed history of the extinction and endangerment of the wildlife of North America⁹ as a consequence of human action.

The author, columnist, and big-game hunter Robert Chester Ruark, Jr.’s. (1915-1965) two autobiographical—although fictionalized—books¹⁰ about an “Old Man”¹¹ and a “Boy” yearningly evoked Ruark’s coming of age in coastal North Carolina and the value of a kindly mentor to a lonely youth. The humorist and sportsman Corey Ford (1902-1969), a New Hampshire transplant, brought forth memories of a different kind with his risible tales^{12,13} of the “Lower Forty Hunting, Shooting, and Inside Straight Club”, which appeared monthly in *Field and Stream* in the 1950s and 1960s.

The first post-war fisheries reference books addressed fish culture, field techniques in stream improvement, and the theoretical concepts of fishing¹⁴. None were well-suited for use as texts. William Edwin Ricker (1908-2001) published a short statistical manual¹⁵ (later expanded¹⁶ and widely used) on methods of estimating fish populations. Karl Frank Lagler (1912-1985), a fisheries professor at the University of Michigan, wrote the first commercially published book¹⁷ written for a course. Soon thereafter, George Armytage Rounsefell (1905-1976) and Watson Harry Everhart (1918-1994) produced the first general text on fishery science¹⁸.

The Massachusetts Cooperative Wildlife Research Unit was formed in 1948 at the University of Massachusetts (Amherst) under the leadership of William Gulliver Sheldon¹⁹ (1912-1987), an explorer, author, and wildlife ecologist. Sheldon led the Unit until his retirement in 1972, advising dozens of graduate students, closely cooperating with the Division of Fisheries & Game on research needs, and publishing a widely respected monograph on American woodcock.

Congress enacted the Federal Aid in Sport Fish Restoration (“Dingell-Johnson”) Act²⁰ in 1950, a counterpart to the earlier Pittman-Robertson Act [PR], to provide financial assistance for state fish restoration and management plans and projects. The Act provided for a 10% excise tax on fishing rods, creels, reels, and artificial lures, baits and flies, and 3% on fish finders and electric motors, as well as other revenue sources, which was to be returned proportionately to the states for approved projects. As with PR, the Act required participating states to pass “...laws for the conservation of fish, which shall include a prohibition against the diversion of license fees paid by fishermen for any purpose other than the administration of said State fish and game department”. Massachusetts assented to the Act in 1951²¹.

By 1952²², the four administrative national flyway councils and the National Flyway Council were operating as advisory entities to the U.S. Fish and Wildlife Service for setting migratory bird regulations.



Figure 43. Coyote, Quabbin Reservation.

In Massachusetts, white-tailed deer had recovered from the low point in the 1890s, causing the season to be closed between 1898-1909. Some insular or near-insular areas of the state, including the Elizabeth Islands²³, Nantucket²⁴, and the Prescott Peninsula²⁵ in the Quabbin Reservation, were adjudged to be “overpopulated” with deer by the 1940s-1950s.

Hybrid swarms of coyote-like canids began appearing in New Hampshire²⁶ and New York²⁷ in the 1920s-1930s. These were later replaced by larger canids commonly termed “eastern coyotes” (Figure 43). Similar coyotes^{28,29} were first confirmed in Massachusetts in 1957-58³⁰ when specimens were collected in New Salem and Otis.

The animals continued to increase in numbers and distribution and by the 2000s they were found statewide except on Martha’s Vineyard and Nantucket.

1948-49³¹: This was an outstanding year in many respects, including the inception of the Division as a “separate legal entity” under the administration of a 5-man administrative board (Table 3) elected for staggered terms, the incorporation of the former Division of Wildlife Research & Management into the Division as a Bureau, and the separation of the Conservation Officers (and the Coastal Wardens) into a separate Division of Law Enforcement. The Division had 45 permanent employees and 49 temporary employees.

—The Fisheries and Game Board was appointed with “due regard for geographical representation” with no more than one member per county. Additionally, one member must have been actively engaged in farming for three years prior to appointment and one actively interested in the propagation and protection of wild birds and mammals. On October 6, 1948, the Governor appointed Ludlow Griscom (1890-1959) of Cambridge, Matthew T. Coyne of Millbury, James W. Cesan of Agawam, Oscar J. Anderson of Wellesley Hills, and Frederick D. Retallick of Pittsfield to the Board. At their first meeting³², the Board elected Mr. Griscom as Chair and Mr. Coyne as Secretary.

—The Board proposed the following short-term programs: a business approach guaranteeing a dollar in value received for each dollar expended, coordination of all personnel into an efficient smooth-running organization utilizing to the fullest extent all the capabilities of the staff, restoration of hatcheries and game farms to maximum efficiency, investigation of methods of increasing hatchery production, improvement of methods of game stocking and release to minimize stocking losses, and expansion of educational programs. In the long term, the Division must be attentive to programs of field and stream habitat management, develop sound policies based on research, and study serious on-going problems including habitat loss to development, predator control, deforestation, pollution, and deterioration of farmer and landowner relations.

—The sale of hunting and fishing licenses for 1948 was the greatest in the history of the Division, totaling \$611,901 in net receipts. The totals included 121,959 resident citizen fishing, 68,238 resident citizen hunting, and 62,074 resident citizen sporting.

There were 11,846 free licenses of three classes.

—Stocking trips went well and for the first time all fish sent to open waters were weighed. Pumps were installed on two stocking trucks and were so satisfactory and useful that five more will be in operation for next season.

—An office was established at the Conservation Service Building in Stow for a biological and parasitological laboratory.

—Leases were renewed for public fishing grounds on the Farmington, Millers, Squannacook, and Westfield rivers resulting in sections of eight rivers under lease.

—The lake and pond survey continued under Dr. McCabe and Mr. Swartz and the surveys in Plymouth, Berkshire, and Barnstable counties were completed³³.

—The fishing season was ideal over much of the state but the deer kill was below the previous years, perhaps due to the mild winter and lack of tracking snow.

—There were 413,630 brook trout, 166,210 brown trout, 177,380 rainbow trout and 244,692 “pondfish” (smallmouth bass, yellow perch, white perch, black crappie, horned pout, and pickerel) stocked.

—There were also 41,880 pheasant and 5430 quail liberated. The Division continued to cooperate in the “matching program” whereby it matches bird-for-bird those purchased and liberated by sportsmen’s clubs. All liberations were completed so that both pheasants and quail were of proper size and age before stocking. The purchase of proper food was a problem at game farms and it became necessary to develop agency-specific game bird formulas.

—The Bureau of Wildlife Research and Management under Superintendent Robert L. Jones was shifting from research to habitat management and the new Cooperative Wildlife Research Unit at the University of Massachusetts was taking over much research.

—The habitat projects included planting of wildlife shrubs, control of water chestnut on the Sudbury River, and erection of wood duck nesting boxes. Water chestnut was being sprayed with a mixture of 2-4-D and diesel oil. Since 1943, the agency has used federal aid funds to experiment with nesting boxes for wood ducks and during the winter of 1947-48 a program for large-scale erection of boxes on poles statewide was initiated. To date, state personnel have erected 514 boxes. A total of 740 war-surplus ammunition boxes were sent out to cooperators to turn into wood duck boxes.

—The waterfowl survey was investigating waterfowl food habits and an analysis of waterfowl hunting pressure and harvest statistics. The on-going pheasant cover survey was completed with visitations to Martha’s Vineyard and Nantucket.

—A cottontail rabbit trap-and-transfer program was initiated, initially limited to the immediate vicinities of Boston and Ipswich. Beaver management was begun with the trapping of nuisance beaver and their transplant to more remote forested areas. There were nine beaver handled during 1947-48.

—Legislation included changes to the deer hunting laws regarding shooting of deer causing damage³⁴, an authorization for the issuance of fishing licenses to certain resident aliens³⁵, provisions for the identification requirements to obtain hunting <etc.> licenses³⁶, a provision that deer and moose damage will not be paid on posted land³⁷,

and a revision of the suite of laws relating to trapping and providing for beaver trapping³⁸. A legislative resolve called for a study of the organization and administration of the Department of Conservation³⁹.

1949-50⁴⁰: The Board continued to evolve under the staggered-entry process established upon its inception with Matthew T. Coyne elected as the new Chairman.

—The Podick Springs tract in Sunderland was acquired as a future adjunct to the Sunderland Hatchery.

—Production at the fish hatcheries was nearing maximum capacity. However, an increase will come from 50% of the production of the new federal North Attleborough Hatchery and from the future development of Podick Springs.

—The summer drought of 1949 was the warmest and driest in the history of the Division. This affected production at the hatcheries and pumps had to be put in operation for the first time.

—Richard Hamilton Stroud (1918-2006) was appointed as the first [Chief] Aquatic Biologist. The aquatic biologist will work to improve pond fishing by applying the principles of sound pond management. The salvage units will now be called “pondfish management” units as their duties will include management as well as the salvage (removal) of fish from various ponds.

—Sunfish and bluegills will now either be transferred to “kiddie” pools or destroyed. The total poundage destroyed was: suckers, 1903 lbs.; bluegills and sunfish, 1528 lbs.; carp, 320 lbs.; and eels, 90 lbs.

—A creel census of ice fishermen was conducted, with an emphasis on pickerel. A population study of white perch was done, with the results showing a need to remove the minimum legal length and increase the bag limit. Panfish population control was initiated to remove overabundant species.

—There were 10 leased public fishing grounds along eight rivers, totaling 72.2 miles of stream.

—The biological survey of lakes and ponds continued and the results for northeastern⁴¹ and northcentral⁴² Massachusetts were completed.

—There were 433,290 brook trout, 334,080 brown trout, and 156,850 rainbow trout stocked. There were also 44,360 lbs. of miscellaneous pond fish (smallmouth bass, yellow perch, white perch, black crappie, horned pout, and pickerel) salvaged or propagated and liberated.

—Game farm production exceeded last year’s all-time high, although the number of birds liberated was slightly less. The worst outbreak ever of so-called “Quail Disease” was experienced at one of the game farms, necessitating quarantine of the affected or exposed birds. However, the game farms can no longer continue largely on a put-and-take basis. Production costs now result in diminishing returns in the take of birds liberated.

—There were 30,125 pheasants, 7058 quail, and 1999 white hare liberated.

—Birch Hill in northern Worcester County was acquired as the first public shooting ground and wildlife development area. Considerable time was spent finalizing the lease of this 4500-acre tract from the Army Corps of Engineers⁴³.

—There were four large-scale projects underway with the Bureau of Wildlife Research & Management, including the planting of lespedeza for quail, the live-trapping and transplanting of cottontail rabbits, inception of the new Pond Management crew, and the establishment of a demonstration cottontail rabbit habitat management tract at the Upton State Forest.

—General wildlife studies underway included a fall grouse population survey, management of a wildlife shrub nursery, cooperation with sportsmen in controlling snapping turtles (which depredate waterfowl), continued wood duck nesting work (there are now 1358 nesting boxes), water chestnut control, pothole blasting in marshes, pheasant habitat management, beaver harvest monitoring and trap-and-transplant, and the tallying of game harvest data.

—Dukes County was opened to deer hunting for the first time in 1949. The checking station program was expanded in 1949 and 18 stations processed 1200 deer (27% of the total kill). A preliminary study of trapping and furbearers was initiated.

—For the first time, a direct appropriation was made for Information & Education. One of the first programs was the inception of the semi-monthly news bulletin, *Massachusetts Wildlife*, which now has 714 subscribers. There were 12,750 copies printed of 17 issues.

—The Massachusetts Junior Conservation Camp was established at Swann State Forest in Monterey with 81 boys enrolled in the first session.

—The state ornithologist worked primarily on waterfowl, conducting population studies, developing a program of emergency winter feeding, and processing and analyzing previously-collected data. There was heavy winter mortality of black ducks at Ipswich in 1947-48⁴⁴.

—Legislation included the further regulation of trapping^{45,46}, a provision for the issuance of free licenses to blind persons⁴⁷, revisions to the closed season on all birds and mammals⁴⁸, a provision that no license is needed for training hunting dogs if no firearm is carried⁴⁹, and the enactment of various provisions relative to the taking and hunting of certain mammals⁵⁰. A legislative resolve directed the Division of Waterways to conduct a survey of great ponds and the rights of access thereto⁵¹.

1950-51⁵²: There were no changes in administrative personnel and it will be possible to continue those programs which have proved sound and productive and projects now in progress may be completed as planned.

—The district manager plan, inaugurated during the past year, was already proving its worth. Temporary facilities were being used for office space while permanent offices are being acquired or constructed.

—Satisfactory progress was being made at the Podick Springs Trout Rearing Station and at the new federal hatchery in North Attleborough.

—Massachusetts agreed to participate in the new federal Dingell-Johnson program^{21,53}, which provides funds for fisheries studies similar to the existing Pittman-Robertson program for game programs.

—Pond management crews did much to restore many waters of the state to a proper biological balance. The pond management units were also engaged in the removal or trash fish from many ponds and salvaged game fish from various public water supplies

(closed to fishing) and distributed the same to open waters. Nearly 1 ¼ tons of suckers and bluegills were removed from Billington Sea in Plymouth alone.

—Stream leases for public fishing grounds increased to 80 miles of stream bank with the addition of an area along the Shawsheen River. Areas set aside for fly fishing were being studied because the sportsmen's clubs favor such areas.

—The biological survey of ponds and lakes continued in Franklin, Hampshire, and northern Worcester counties.

—Water chestnut control continued on the Sudbury and Concord rivers and two scattered ponds. The total area infested was reduced from 50 to five acres.

—There were 844,615 brook trout, 242,960 brown trout, 108,865 rainbow trout, and 118,100 miscellaneous pond fish (smallmouth bass, largemouth bass, yellow perch, white perch, black crappie, horned pout, and pickerel) propagated or salvaged and stocked.

—The sportsmen's club rearing program greatly increased total stocking. There were 55,840 pheasants, 7376 quail, and 1898 white hare liberated from all sources.

—Game management included the continuance of trap-and-transfer of cottontails from closed areas to areas open to hunting or to beagle training. The annual ruffed grouse population survey also continued.

—Field crews worked on the experimental cottontail habitat project at Upton and maintained the wildlife shrub nursery at the Worcester State Hospital.

—Native furbearers were being studied as to their status and importance to the state's economy. During 1950-51, fur produced an income of ≈\$264,040 to trappers, of which ≈201,810 (76%) was represented by muskrats.

—The Cooperative Wildlife Research Unit completed a study on bobcat life history, food habits, populations and distribution⁵⁴.

—The state ornithologist continued to develop programs for feeding winter waterfowl and to prepare new studies of waterfowl distribution and the age and sex composition of harvested ducks.

—The Information & Education Section continued with press releases, the *Massachusetts Wildlife* bulletin, and public speaking engagements. Photography is playing an increasingly important role. The Junior Conservation Camp hosted 170 youths.

—Legislation included abolishment of the closed season on wood duck⁵⁵, changes to the season dates for trapping⁵⁶, imposition of penalties for the careless and negligent use of a firearm while hunting and requiring deer hunters to wear red clothing⁵⁷, increases in license fees⁵⁸, a requirement for fur buyers to keep records⁵⁹, and an authorization for the Director, with the consent and advice of the Board, to acquire certain lands "for fish and wildlife management programs or propagation"⁶⁰. A legislative resolve⁶¹ continued the survey of great ponds by the Department of Public Works.

1951-52⁶²: The Division's finances are now sound due to the increase in license fees and depletion of the reserve funds has been avoided. The reserve fund now stands at \$523,432. Ample funds are available for normal operation and the continued progress of the Division.

- Human population growth has reduced the amount of area once open to fishing and hunting. Available areas must be made more productive and cordial relations with landowners must be fostered.
- The new trout rearing station at Podick Springs has been completed and is anticipated to increase the number of stockable trout by $\geq 100,000$.
- The opening of Quabbin Reservoir to boat fishing is a major development with great potentialities. The Division will cooperate with the M.D.C. to introduce large species of game fish.
- The public fishing grounds continued to be popular, with slight additions on the Assabet and Shawsheen rivers during the year.
- The fisheries project completed the survey of lakes and ponds in central, eastern, and western Massachusetts⁶³ and presented recommendations and a discussion of findings.
- A modern fish management policy was formulated to integrate fisheries management and research. The “generally wasteful and harmful” practice of stocking small pan fishes has been curtailed. The program also featured population control “by one method or another”. During the year, $\approx 38,150$ lbs. of black crappie, carp, eels, horned pout, shiners, white perch, yellow perch, snapping turtles, and miscellaneous species were removed from 25 ponds and lake by poisoning or fyke nets. Only the largest fish were salvaged and transferred to fishable waters, including 1544 smallmouth bass, 144 largemouth bass, and 2869 pickerel. A small number of other panfish were stocked in youth fishing ponds.
- There were 272,575 brook trout, 322,770 brown trout, 283,845 rainbow trout, 11,400 smallmouth bass, and 7500 largemouth bass stocked.
- The largest overall pheasant production in the Division’s history was realized. There were 67,463 pheasants (including 18,130 from the sportsmen’s club rearing program), 8773 quail, and 1125 white hare liberated.
- The four wildlife management districts perform field activities that have been developed by the research staff at the Phillips Wildlife Laboratory, including wood duck box work, operation of deer checking stations, furbearer censuses, habitat improvement, water chestnut control, pond management and reclamation (i.e., removal of “undesirable” fish by netting or chemicals and subsequent restocking with game fish), and educational activities.
- The game research staff continued the grouse wing and tail study, the wildlife shrub nursery, the demonstration cottontail habitat management project, wood duck nesting and blood parasite study, and furbearer investigations and beaver management. Substantial work was being done on facility construction, habitat management, and game surveys at the Birch Hill area.
- An intelligently informed public is imperative and the work of the Information & Education personnel is essential. The Information & Education Section has grown to two information specialists and a photographer.
- Another concept of this [I&E] work is now coming on the scene in Massachusetts: “The new idea (new for Massachusetts) is called conservation education”. The Division, in cooperation with “Wildlife Conservation Inc.”, operates a conservation camp.

Several schools (including Newton) are considering conservation programs, and the district managers are being called upon to work with youth groups.

—The ornithologist worked primarily on waterfowl studies, including an intensive banding program in the Newburyport-Plum Island area.

—Legislation included an authorization for the Director to set rules and regulations for archery hunting⁶⁴, an authorization for the Division to purchase the Pantry Brook area in Sudbury⁶⁵, changes to the license fees for trapping licenses⁶⁶, and a provision for pollution control measures and enforcement on marine and inland waters⁶⁷.

1952-53⁶⁸: For the first time in the history of the agency, Division income exceeded \$1 million (\$1,015,990). The reserve stands at \$571,999. The Board has adopted a policy that the reserve will not be allowed to get less than \$250,000. Surplus in excess of \$250,000 may be directed to capital outlay.

—Superintendent Jones resigned in September 1952 and was succeeded by Allan S. Kennedy. Miss Lizzie Rimbach retired in 1953 after nearly 50 years of service (since 1904).

—The Department was reorganized⁶⁹ and is now the “Department of Natural Resources”, including the Divisions of Fisheries & Game, Forests and Parks, Law Enforcement, and Marine Fisheries.

—Regulatory powers were delegated to the Director, who, with the concurrence of the Board, may set rules and regulations for seasons and bag limits for fish and game^{70,71,72,73}, following a public hearing.

—Seven miles of leased stream bank were not renewed by the landowners. Over 10,000 people took advantage of the limited boating facilities at Quabbin Reservoir in 1952.

—The fisheries staff began its first project under the Dingell-Johnson Act with a study of trout in the Westfield River drainage.

—The Sunderland and Montague hatcheries are now rearing lake trout and walleye. The entire production is slated for stocking in the Quabbin Reservoir. In addition, Vermont provided 10,000 lake trout fingerlings, which will also be stocked in the Quabbin.

—There were 728,690 brook trout, 254,530 brown trout, 122,550 rainbow trout, 23,800 smallmouth bass, and 27,500 largemouth bass stocked.

—Trout pond management continued with the thinning of overabundant and “weed” fishes. Salvage and transfer was minimized, with only large fish or those suitable for youth ponds, being saved and transferred to other waters. There were 46,100 lbs. of black crappie, bluegills and pumpkinseeds, carp, chubsuckers, eels, golden shiners, goldfish, horned pout, rock bass, white perch, white suckers, yellow perch and snapping turtles removed and destroyed from 21 water bodies. Some larger smallmouth and largemouth bass and chain pickerel were salvaged and liberated elsewhere.

—The wildlife program continued the grouse wing and tail study, maintenance of the Harold Parker State Forest field trial area, and the shrub nursery. Federal Aid projects included the cottontail habitat demonstration area, wood duck nesting research, deer checking stations, water chestnut control, quail food plantings, testing of cock-only pheasant stocking at Westover Air Force Base, and furbearer investigations and a muskrat census.

—The Cooperative Wildlife Research Unit at the University of Massachusetts has studies underway on woodcock, bobwhite quail, ruffed grouse, snowshoe hare, and an economic survey of Massachusetts sportsmen.

—There were 47,480 pheasants stocked (plus about 18,785 from the sportsmen's club rearing program), 8318 quail, and 1875 white hare.

—The Information & Education specialists continued with their publication of bulletins and flyers, developed and staffed exhibits at seven shows, participated in the Junior Conservation Camp, and handled two special events, including the Podick Springs Hatchery dedication.

—The I&E Section also developed "Safety Zone" signs which were tested successfully in Littleton. More signs will be distributed to district managers for use elsewhere. The Section also developed an insignia for the agency which is reduced on the cover of the [1952-53] Annual Report [it featured a pheasant, which was later replaced by a ruffed grouse]. However, since state administrative policy prohibits non-approved insignias on state vehicles, its current use will be limited.

—The state ornithologist continued with the waterfowl survey work, which resulted in data which are better in quality and greater in quantity than any previously available.

—Legislation included an authorization for the use of dogs to hunt waterfowl on coastal waters during the deer season⁷⁴, a requirement for the display of hunting <etc.> licenses open to view⁷⁵, a requirement for a deer tag on hunting licenses and application of same to harvested deer⁷⁶, protection for salmon in the Connecticut River and its tributaries⁷⁷, and an authorization for the state to enter into a compact with Connecticut for the protection of anadromous fish on the Connecticut River⁷⁸.

1953-54⁷⁹: The Division's financial status is now very satisfactory. Although annual outlay was at an all-time high, income nonetheless exceeded expenditures. The Division's Boston office moved from Ashburton Place to Tremont Street in October 1954.

—The sale of licenses again broke all records. This may be due to the new requirement that sportsmen wear their licenses "open to view". Administrative staff designed a new license form which corrected some of the difficulties encountered when the 1954 license was worn.

—A problem was encountered in distributing pins and license holders to town clerks, based on previous year's license sales. Rather than hire extra help, the materials were packaged by the public fishing grounds personnel and distributed by hatchery and game farm staff and the District Managers.

—Changes in salary grades beginning July 1, 1954 corrected some of the inequities which existed in the pay of Division personnel.

—The four districts are now headquartered at Pittsfield (West), Upton (Central), Acton (Northeast), and Monument Beach (Southeast).

—It is necessary to find new quarters to house the Phillips Wildlife Research Laboratory, now at a old C.C.C. camp in Upton. The present facilities are dilapidated, unsuitable for occupancy, and not worth the monies to repair them.

—Lands at West Meadows in West Bridgewater were being acquired by the Division. Properties in Becket are also under consideration.

—The leased public fishing grounds continued to be popular. However, difficulties were encountered due to a lack of parking, resulting in anglers blocking entryways or parking in unsafe situations.

—The fisheries research staff worked on stream surveys on the Ipswich, Merrimack, and Millers rivers, investigated the salter trout population on the Quashnet River and Scorton Creek on Cape Cod, and began a full-time project on the Quabbin Reservoir to determine fishing pressure and the total annual creel.

—The production of legal-size fish was again exceeded at the fish hatcheries. The demand for larger fish for stocking great ponds taxed the rearing facilities but was met due to a supply of high-quality fish food and the dedication of hatchery personnel.

—Once again, lake trout eggs and fingerlings were received from New York and Vermont for rearing and liberation at the Quabbin. Walleye eggs were also obtained from New York and will be reared in the bass ponds at Palmer for subsequent liberation at Quabbin.

—There were 602,790 brook trout, 235,010 brown trout, and 155,030 rainbow trout stocked. There were also 2800 smallmouth bass, 17,000 largemouth bass and 152,515 walleye reared at Palmer and stocked.

—Ten ponds totaling 248 acres were reclaimed in seven counties. There were 50,025 lbs. of black crappie, bluegills and pumpkinseeds, carp, chubsuckers, eels, golden shiners, horned pout, white perch, white suckers, yellow perch, and snapping turtles removed. There were 7205 lbs. of game fish, pan fish, and forage fish moved to public waters.

—Game projects under federal aid included deer harvest investigations; quail habitat management; furbearer investigations (principally beaver, mink, muskrat, and otter); game surveys at Birch Hill; cock-only pheasant stocking; and cottontail habitat management. The first season-regulated black bear hunting season was opened from October 20 to December 31.

—Game production at the game farms was helped by an early laying season. There was a slight increase in the number of pheasants provided to the club rearing program. There were 62,820 pheasants liberated, plus another 10,135 from the club program. There were also 8600 quail and 2500 white hare liberated.

—The Cooperative Wildlife Research Unit was conducting intensive research on woodcock, ruffed grouse, and white hare. An economic study of hunting and fishing in Massachusetts was completed⁸⁰. The state is being cover-mapped from aerial photographs and the cover types will be overlaid on topographic maps. This will be highly important for long-range game management planning.

—There was substantial activity in the Information & Education Section, much of which derived from the new powers of the Director to set rules and regulations. The staff continued to work with schools to promote conservation education. I&E staff also arranged three special events: (1) the burial of a time capsule with Division material in Hyannis, to be opened in 2053; (2) the presentation of an award from the American Association for Conservation Education to Professor R.E. Trippensee, to be presented by the Governor; and (3) a skunk beauty contest at the Boston Sportsmen's Show.



Photo © MassWildlife

Figure 44. Boulder Cottage, Westborough, first Field Headquarters, about 1959.

The wildlife photographer resigned, thus photo activity is currently reduced to existing materials.

—The ornithologist was finalizing his analyses of the 3-year banding study and the sex and age composition of harvested black ducks. He also prepared a pamphlet⁸¹ on a proposal for more effective waterfowl management in the “Northeastern” Flyway.

—Legislation included a clarification of the circumstances under which a hunting <etc.> license may be revoked⁸², a definition of “coastal waters”⁸³, a provision that trout in coastal waters may be taken only by hook-and-line⁸⁴, and a requirement that minor hunters lacking a previous license must obtain a certificate of competency in the handling of firearms⁸⁵.

1954-55⁸⁶: Finances were such that the Board is drawing up a budget for 1956-57 which will provide for extended future programs.

—The future of good fishing was “particularly promising” due to the effects of sound pond and stream management.

—The findings of a legislative study committee have been reported in Senate Bill 640. This appeared to provide an intelligent and constructive approach to administrative and organizational problems.

—Regulatory powers to fix seasons and bag limits “entrusted to the Director and the Board” increased the harvest and allowed a more intelligent management of wildlife.

—Sportsmen were concerned about the difficulty of gaining access to some of the great ponds. Land access continued to be a problem in finding places to hunt and fish. The Board will continue to urge appropriations for land purchases to take advantage of desirable locations at reasonable cost. . The acquisition of the Pantry Brook area in Sudbury was completed and a tract of 840 acres in Phillipston and Hubbardston was purchased. The Youth Services Board transferred 174 acres of farm and forest in Westborough to the Division.

—The Youth Service Board also gave the Division an old brickwork structure (Figure 44) (the former “Boulder” building) on the grounds of the Lyman School for Boys in Westborough to replace the antiquated Phillips Laboratory in Upton.

—The Central District (“District Two”) moved into the Field Headquarters, and the Southeast District (“District Four”) moved into a new headquarters in Bournedale.

—The Squannacook River received very heavy fishing pressure and emphasis will be placed on obtaining more leased stream bank.

—The fisheries research staff completed stream surveys on the Ipswich, Merrimack, Millers, and Westfield rivers, and begun that on the Taunton River. Stream improvement work continued with experiments on stream bank plantings and current-modifying structures.

—The salter trout study showed an upstream migration of trout from tidal waters during the fall. Stocked trout migrate into salt water and are not confined to brackish areas. During 1954, 60% of harvested brook trout in the sample streams were current hatchery stock and only 10% were native fish.

—In the Quabbin Reservoir, the 1954 season showed 45,450 anglers taking 156,750 fish weighing 53,070 lbs. The walleye stocking seemed to be successful. Ten ponds were reclaimed for trout management and 13 ponds reclaimed for warm-water species. The fish removed were not tallied.

—Lake trout eggs were again obtained from New York and Vermont, and the fingerlings stocked in Quabbin. Walleye eggs were also obtained from New York.

—There are now two locations for warm-water fish rearing: the Merrill Ponds system at Sutton, and the Harold Parker Pond system in North Andover. The Merrill ponds are being used for pickerel and Harold Parker for largemouth bass. Alewives are used as a forage fish.

—There were 665,250 brook trout; 285,700 brown trout; 142,300 rainbow trout; 61,220 lake trout; 3200 smallmouth bass; 8200 largemouth bass; 4.865 million wall-eye fry; and 500 walleye adults stocked.

—A program of sexing day-old chicks was instituted at the game farms to decrease the number of hens reared and provide space for rearing more legal cocks. A new type of shipping rack was developed for stocking trucks. Quail production was reduced by one-third due to suitable populations in the quail habitat. Quail were liberated only in Barnstable, Bristol, Dukes, Nantucket, and Plymouth counties, with a few released experimentally in Norfolk County.

—There were also 76,830 pheasants (including those from the club program), 5899 quail, and 2500 white hare stocked.



Photo © MassWildlife

Figure 45. Massachusetts Fish & Game Board, 1956. Left to Right: Superintendent Allan S. Kennedy, Board Members Powell Cabot, Frederick A. McLaughlin, Matthew T. Coyne (Chairman), James W. Cesan, Director Charles L. McLaughlin.

—The game research projects included white-tailed deer investigations, farm game management projects (54 farms, 6 clubs), wood duck nesting checks, Birch Hill surveys and habitat development, cottontail management, cock-only pheasant stocking trials, and bobwhite quail investigations. The furbearer project was nearly completed.

—The Cooperative Wildlife Research Unit continued with projects on woodcock, ruffed grouse, and statewide cover-mapping. The white hare project was completed and showed that the stocking of imported white hare in locations well occupied by native hare is uneconomical⁸⁷.

—There were 3500 names on the *Massachusetts Wildlife* mailing list, and another 3900 were held back for lack of funds. Two events, “Wildlife Week” and “Hunt Safely Week”, were held and accompanied by proclamations from the Governor. The public fishing area staff again handled the license allotment and distribution with the aid of propagation staff and the districts.

—The emphasis on shows was largely shifted to the District Managers, who are to participate in the smaller shows in their Districts. Twelve booklets and pamphlets were produced and distributed. Two films were completed and two others shot but not produced. The new Division insignia [with grouse] was designed and adopted and an initial supply for vehicles was purchased.

—The ornithologist was analyzing the 1951-54 data set of black duck bandings in Essex County. Experimental trapping and banding of greater scaup at Moon Island was attempted with little success.

—Legislation included a provision that applicants for hunting <etc.> licenses need not personally appear⁸⁸, an authorization for the issuance of fishing license to aliens⁸⁹,

an authorization for the sale of live bait on Sunday⁹⁰, an authorization for the Director to acquire lands in Barre and Phillipston⁹¹, and a provision that persons will not be subjected to a fine for failure to display a license until the third offense⁹². A legislative resolve⁹³ provided for a study relative to hunting and fishing in the state.

1955-56⁹⁴: Charles LeGro McLaughlin (1918-1963), formerly Chief Game Biologist, replaced Robert Holm Johnson (1914-1987) as Director. Mr. Johnson took a position as Assistant Director of the U.S. Fish and Wildlife Service.

—Three of the original five appointees still served on the Fisheries & Game Board (Figure 45), J.W. Cesan, M.T. Coyne (Chair), and F.D. Retallick.

—The transfer of personnel from Upton to the new Field Headquarters in Westborough was completed in late 1955.

—Land along the Quashnet River in Falmouth and Mashpee was purchased, marking the first time property was bought for a public fishing ground. Property was purchased along Trout Brook in Peru, and negotiations are underway for additional acreage. An excellent parcel of land on the Dalton-Pittsfield line was purchased as the future site of the Western District headquarters.

—A fish elevator was constructed and operated at the Holyoke Dam, successfully passing 5000 shad. The lift required intensive hand labor and quickly became obsolete⁹⁵. However, the Holyoke Water and Power Company received the first Conservation Service Award, presented by the Department of the Interior, for successfully installing and operating the first such lift on the Atlantic coast.

—Several large water bodies, previously closed, have been opened to fishing with the cooperation of local water commissions.

—Fisheries stream survey research was nearing completion with work on the North and Taunton drainages.

—The salter trout study now consists of an intensive survey of five occupied trout streams by mark and recapture of stocked fish, creel surveys and electrofishing.

—The Quabbin Reservoir surveys showed 32,300 fishing trips by 27,818 anglers, catching 90,790 fish. Boat fishermen accounted for 60.2%, shore fishermen 26.0%, and night fishermen 13.% of the total participants.

—Bass and pickerel were again raised at the Merrill Pond system in Sutton and at the Harold Parker ponds. The severe August 1955 hurricane “virtually wiped out” the Sutton system, but 10,060 pickerel were salvaged and distributed. Repairs were begun in early 1956. The hurricane also caused severe damage at the Palmer hatchery, where 14 inches of rain were recorded.

—For the first time, the total statewide trout distribution was carried out by Division personnel. Previously, it was a cooperative venture between Conservation Officers and the staff of the Division’s propagation section.

—There were 915,610 brook trout; 310,400 brown trout; 295,550 rainbow trout; 8735 lake trout; 4620 largemouth bass; 13,390 smallmouth bass; and 4.88 million walleye [fry] stocked

—Eight ponds were reclaimed for trout management from which 17,700 lbs. of warm-water fish were removed. There were eight warm-water ponds reclaimed by fyke

net, removing 10,090 lbs. of “weed” and stunted pan fish, and 11 reclaimed by rotenone.

—The Game Research Section undertook 12 federal aid projects during the year, including a white-tailed deer harvest and reproduction study, farm game restoration, wood duck nesting checks, Birch Hill studies, cottontail habitat management, and a cock-only pheasant harvest study. The furbearer project has been completed⁹⁶ and data analysis from the bobwhite quail project is nearing completion.

—There were also 53,430 pheasants (plus 20,030 furnished to the sportsmen’s club program), 5925 quail, and 2500 white hare stocked.

—The Cooperative Wildlife Research Unit continued with long-term studies on woodcock and ruffed grouse. The cover-mapping of the state will be completed during the next fiscal year.

—*Massachusetts Wildlife* was published in magazine format⁹⁷. There were four issues produced during the year. “The value of this magazine as a medium of wildlife information and education cannot be overestimated”.

—The Information & Education Section also issued several news releases and three feature articles, prepared proclamations for the Governor for “Wildlife Week” and for the opening of the upland hunting season, and increased its audio-visual activity, aided by the new darkroom at Westborough. A once-monthly commitment to provide material for a regularly-scheduled animal program on local television was fulfilled, with 12 programs shown.

—Legislation included provisions regulating hunting from watercraft⁹⁸, an authorization for the Director to take land in West Bridgewater by eminent domain⁹⁹, and a provision for commercial permits to net carp and sucker¹⁰⁰. Two legislative resolves^{101,102} revived and expanded the 1955 Resolve relative to a study of hunting and fishing in Massachusetts.

1956-57¹⁰³: The balance in the Inland Fisheries & Game Fund was decreasing at an “alarming rate” due to increased costs and the Division will soon have to curtail present operations or seek further income. The reserve is now \$429,100 and the Board does not wish it to go below \$250,000.

—The Central District has moved to a farmhouse on Rice Lane in Westborough. Each of the four Districts now has a headquarters building on Division lands.

—Realty staff acquired 90 acres at Flint Pond in Tyngsborough to be managed for warm-water fish and 1000 additional acres at Peru.

—Negotiations were underway for 3000 acres which were to have comprised the inland portion of the federal Parker River National Wildlife Refuge. A field trial area for beaglers, the first of its kind in the country, was developed at Westborough.

—The Board authorized the Director to obtain permanent fishing rights on stream by purchase or easement, rather than renewing leases every five years.

—The Fisheries Research Section stepped up its evaluation of reclaimed and rehabilitated ponds, conducting creel surveys on 46 natural and reclaimed ponds. Fyke netting was an inadequate technique for reclaiming larger ponds and should be replaced by rotenone poisoning.

—The creel census at Quabbin continued. Several 6-lb. lake trout were taken and good runs of landlocked smelt were observed.

—Production of fish and game emphasized quality rather than quantity for some years, resulting in higher-grade fish. In the current year, the largest number (n=352,201) ever of 9-inch-plus fish were stocked. The stocking of lake trout in the Quabbin Reservoir was successful and ≥ 1000 fish were taken this year.

—There were 566,310 brook trout, 253,330 brown trout, 219,830 rainbow trout, and 56,895 lake trout stocked.

—The game research staff continued to examine reproductive tracts of harvested and road-killed deer, undertook censuses of white hare, cottontails, and pheasants at Birch Hill, and evaluated the responses of two species of cottontails to habitat management at Upton. Water chestnut control efforts continued along the Assabet, Concord, and Sudbury rivers and at two ponds in Middlesex and Hampshire counties. A marked reduction in chestnut was noted as a result of these efforts.

—Work continued on the wood duck banding and nesting project and a detailed report is expected at some future date. The quail survey and habitat management project was completed¹⁰⁴.

—There were 43,390 pheasants (plus 9880 provided to the sportsmen's club program), 4840 quail, and 2469 white hare liberated. Eastern equine encephalitis affected production at one game farm. Aerial, mist, and power spraying was done at the three eastern game farms under the guidance of the local mosquito control groups.

—The Cooperative Wildlife Research Unit continued woodcock banding and is preparing three scientific articles. The cover-mapping project was completed¹⁰⁵ and reproductions of topographic maps with vegetative overlays are available for distribution to public agencies. Work continued on the ruffed grouse and river otter projects. A study of posted lands was begun in September.

—The Information & Education Section released 97 stories and 25 more were released through the Districts. Special events included the observance of National Wildlife Week and Arbor Day. The Section participated in 16 fifteen-minute television programs. There were 21 flyers and mimeographed handouts produced during the year.

—Legislation included the authorization of yellow clothing (in lieu of red) while hunting deer¹⁰⁶, an authorization for the Director to increase the season length and bag limit for pheasant, quail, and grouse¹⁰⁷, an authorization for the taking of carp and sucker by archery¹⁰⁸, the provision of additional authority for the Director in acquiring public shooting grounds¹⁰⁹, and a provision for the issuance of a permit to possess quail for dog training¹¹⁰.

1957-58¹¹¹: The Board, with the assistance of the Director and his staff, prepared an organizational document and a revised policy manual¹¹² stating in detail the general and specific policies concerning all phases of the Division's activities.

—The balance in the Inland Fisheries & Game Fund continued to decrease, to \$310,150. The Board does not wish it to go below \$200,000 [sic]. The Board and the Director will recommend that the Legislature increase the license fees to a level that will arrest, if not overcome, the decline in receipts.

—The Division now owns seven public shooting grounds >100 acres in size, totaling 5360 acres, plus two small parcels. There are also five leased areas, totaling 22,055 acres. Public fishing grounds were leased on 10 rivers in Berkshire, Essex, Franklin, Hampshire, Middlesex and Worcester counties.

—The fisheries research staff continued an intensive creel census at Quabbin, which showed that the lake trout catch for six months in 1958 was greater than the 12-month creel in 1957. The stocking of 37,000 smelt in 1953 resulted in a huge smelt population. Stocking on 9-12 inch brook, brown, and rainbow trout showed that average first-year weight gains for brown and rainbow trout doubled or tripled, while that for brook trout was negligible.

—The salter brook trout study was completed¹¹³. The salter resource was modest in size, but is unique. Recommendations were to stock brook trout in selected streams, purchase the better streams, and improve the streams by accepted techniques.

—There were 13 trout ponds reclaimed with 72,400 lbs. of fish removed, and 17 warm-water ponds partially or totally reclaimed, with 102,640 lbs. removed.

—Haphazard salvage and stocking of warm-water fish was virtually eliminated under the current Fish Management Policy. There were 665 smallmouth bass, 2789 yellow perch, 1965 horned pout (bullhead), 11 pickerel, and 407 miscellaneous panfish salvaged for stocking in 28 managed waters.

—There was interest in constructing a new fish hatchery near to the Quabbin Reservoir and the Division will shortly recommend this to the Legislature.

—The summer of 1957 reflected one of the lowest rainfalls ever in the state, seriously hindering activities at the hatcheries. Nonetheless, fish production exceeded that of 1956.

—The Division continued to rear largemouth bass and chain pickerel at the pond systems in Sutton and North Andover. There were 833,170 brook trout; 131,090 brown trout; 314,955 rainbow trout; 33,430 lake trout; 24,945 largemouth bass; 1097 pickerel; and 425,000 walleye [fry] stocked.

—Game research continued with deer checking (1470 deer examined) and harvest management, habitat improvement on public shooting grounds, game surveys at Birch Hill, and bobwhite whistle counts.

—Trapping and tagging of cottontails at Upton over eight years showed that 39% of all rabbits survived ≥ 6 months, and that the survival rate for New England cottontails was greater than that for Eastern cottontails.

—Quail propagation was decreased to 2000 birds. All propagation was carried out at the Sandwich Game Farm except for some slight experimental work with *Coturnix* quail at Marshfield.

—Heavy wet snow in March 1958 caused significant damage to the pens at Ayer Game Farm. Over 200,000 ft² of poultry netting was crushed, requiring a considerable expenditure in labor and materials.

—There were 37,265 pheasants (plus 7480 for the club rearing program), 2910 quail, and 2222 white hare liberated.

—The Cooperative Wildlife Research Unit was finalizing studies on river otter, posted land, and the evaluation of forest cover types as game cover.

—One of the most serious problems confronting the Information & Education Section was the need “for increased information going not only to the sportsman but also to the public in general regarding the activities and programs of the Division”.

—*Massachusetts Wildlife* magazine continued in the same format with six issues annually. The circulation increased to 20,200 recipients.

—The Information & Education Section was given the opportunity to present a half-hour weekly television program on “Dateline Boston”. Staff limitations precluded acceptance of this offer; however, a monthly half-hour program was agreed to. Seven programs were shown in Boston and five others later shown in Springfield. This endeavor won a merit award from the American Association for Conservation Education. Section staff also appeared as guests on 13 “Critter Corner” shows on another Boston station.

—The Division also participated in 12 shows and fairs, of which all except the Boston show were handled by the Districts.

—Legislation included extension of legal protection to all except five wild birds¹¹⁴. A legislative resolve provided for a study relative to a new fish hatchery in the Quabbin area¹¹⁵.

1958-59¹¹⁶: The Division’s surplus decreased to \$231,853. However, the Legislature approved the request for a license increase in FY60. Ornithologist Joseph A. Hagar retired in April 1959.

—The purchase of a 1404-acre tract of land in Falmouth was finalized, which also provided access to Ashumet Pond.

—There were 15,000 shad passed at the Holyoke Dam⁹⁵.

—Pond reclamations continued with 12 ponds totaling 238 acres reclaimed for trout and 11 totaling 594 acres for warm-water species. The trout pond management booklet was completed¹¹⁷.

—The lake, brown, and rainbow trout populations in the Quabbin Reservoir were rapidly being enlarged through the development program. Stocking of walleye has unsuccessful. Smelt were extremely abundant and control measures were necessary to protect the water interests of the M.D.C.

—Hatchery personnel produced a record total of 1,886,119 trout, at 27¢ per trout raised. There were 1,271,040 brook trout; 311,490 brown trout; 173,580 rainbow trout; 29,132 largemouth bass; 15,400 smallmouth bass; 4402 pickerel; and 4.9 million walleye [fry] stocked.

—The game program expended much time on statewide development of the public shooting grounds, including land clearing, opening and maintaining trails and parking lots, planting wildlife shrubs, and maintaining wood duck boxes.

—The Division has been attempting to control water chestnut since 1947 using 2-4-D and spraying of fuel oil. The large concentrations were broken up, but small patches persist and need yearly attention.

—The new 150-acre beagle training area at Westborough was being managed intensively and there was a tremendous increase in the rabbit population.

—A new statewide game harvest survey was developed and random postal questionnaires sent to 2600 hunting license holders. Pheasants were the most-hunted species, followed by cottontails, ruffed grouse, and gray squirrels. More than twice as many cottontails were taken than any other species, followed by gray squirrels, pheasants, and black ducks.

—The grouse drumming and quail whistling censuses were run again during the year. Division staff participated in the mid-winter waterfowl census for the U.S. Fish and Wildlife Service.

—An evaluation of pheasant stocking using leg-banding showed that the average return from stocking on public shooting grounds was 62%. Birds raised and released by sportsmen's clubs showed a 21% return.

—The production of wood duck ducklings at Great Meadows in Concord was nearly equal to the 1957 total. However, there was a substantial drop in nesting attempts in other areas of the state.

—The highest harvest of deer ever recorded occurred in 1958 with 4887 shot, of which 36 were by archers. For reasons of economy, deer checking stations were operated only on Monday and Saturday.

—There were 42,330 pheasants (plus 7754 from the club rearing program), 3534 quail, and 1960 white hare stocked.

—The Information & Education Section's greatest need was for youth education. The Section also needs more personnel in the visual-aids and writing fields. Thirty-one television shows for "Dateline Boston" and other shows and 12 TV news strips were produced. The subscription list for *Massachusetts Wildlife* increased to 23,818.

—The Cooperative Wildlife Research Unit continued with long-term woodcock and grouse studies. The posted land study has been completed¹¹⁸. There are >2 million acres of land closed to hunting, of which 600,000 would be opened if the hunters asked permission. David Kenneth Wetherbee (1927-1997) of the Bureau of Sport Fisheries and Wildlife has been hired to assist Dr. Sheldon and will be researching chemical control measures for blackbirds.

—Legislation included a provision for the allowable firearms for night hunting of raccoon and opossum¹¹⁹, an authorization for the possession of certain unprotected mammals without a permit¹²⁰, a requirement for certain measures to prevent the resubmission of bountied bobcats¹²¹, a provision that enforcement officers may kill certain dogs killing deer¹²², an increase in license fees¹²³, and specifications of the circumstances under which landowners may hunt or fish without a license¹²⁴. A legislative resolve provided for a study by the Division of wildlife habitat in the Quabbin watershed¹²⁵.

1959-60¹²⁶: The decrease in the Division's reserve funds was halted due to the license fee increase.

—Land acquisition reached a new high with the purchase of 3300 acres in four towns in Essex County from the federal government. A few smaller parcels were also acquired. Negotiations were underway regarding a large tract of land west of the Connecticut River.

—The fisheries research staff was concerned about fish kills brought about by the indiscriminate use of insecticides. The Field Headquarters was designated by the U.S. Department of Public Health as the “processing and collecting” agency for a study on the impact of pollution on the fish populations of the state.

—The Quabbin Reservoir investigations continued. There is no longer a problem with smelt impacting water production and distribution. There have been several substantiated reports of walleye catches.

—Five trout ponds and six warm-water ponds (were reclaimed. A stream reclamation project is now underway and 75,000 lbs. of “trash fish” were removed from 40 miles of the Deerfield River, which was restocked immediately with fingerling and adult trout.

—Creel surveys were conducted on opening weekend on 27 water bodies throughout the state.

—There were 1,498,220 brook trout; 363,475 brown trout; 308,850 rainbow trout; 45,275 largemouth bass; 12,160 smallmouth bass; 3364 pickerel; and 7.5 million wall-eye [fry] were stocked. In addition, 14,210 alewives, 35,000 fingerling yellow perch, and one-half million “forage minnows” were distributed to state rearing facilities and managed waters.

—The land development program worked on grounds and facilities, graded and maintained roads, planted >10,000 trees and shrubs, and salvaged 40,000 feet of lumber from forest thinnings.

—The Quabbin wildlife survey (c. 78, Resolves of 1959) was completed¹²⁷.

—The Game Research Section continued with a postcard survey of hunters, deer harvest management, grouse drumming counts and wing-and-tail surveys, quail whistle counts and winter waterfowl surveys.

—The wood duck nesting project showed a sharp decline in duckling production and a decline in the resident breeding population of wood ducks. This was attributed to a shortage of young ducks returning to their natal areas.

—Bobwhite quail production was intentionally decreased and half the production was purchased and used for liberation comparisons. Quail reared at Sandwich were superior to those purchased. The rearing of *Coturnix* quail for field trials was continued.

—The stocking of cock pheasants was an all-time record. There were 54,240 pheasants (plus 8468 from the club rearing program), 1776 bobwhite quail, 432 *Coturnix* quail, and 1280 white hare stocked.

—At the Cooperative Wildlife Research Unit, a two-student study on the New England cottontail has been completed by one student¹²⁸ and the second thesis is in progress. A graduate student was also working on an experimental turkey restoration project at the Quabbin Reservation. Eight wild-trapped birds were obtained from West Virginia and released on the Prescott Peninsula. Further releases are planned. A critical aspect will be to get more wild-trapped birds from other states.

—In the Information & Education Section, the highlight of the year’s program was an exhaustive cooperative venture on the merits of fluorescent vs. non-fluorescent clothing as hunter safety measures^{129,130}. This was a cooperative investigation among the Division, the Division of Law Enforcement, the U.S. Army, and the American Optical

Company. The study conclusively showed that non-fluorescent red was relatively ineffective and that fluorescent “Hunter Orange™” color had superior visibility.

—The first Division-wide employee’s conference for in-service training was held at the Field Headquarters for two days in February 1960. Sessions were given on most Division activities.

—There were 12 “Dateline Boston” and 12 “Critter Corner” TV shows presented during the year. There were also a few cooperative ventures with Connecticut on “R.F.D.#3”, which was shown on a Hartford station which reaches the Connecticut River Valley area.

—Legislation included a prohibition on the use of archery or firearms on the Greylock Reservation during certain times¹³¹, authorization for the wearing of orange garments while deer hunting¹³², a repeal of the statutory close season [all hunting] during a certain fall period¹³³, an authorization for the trapping of certain nuisance beavers¹³⁴, further regulating the issuance of alien hunting licenses and firearms permits¹³⁵, and a requirement for the purchase of a stamp for hunting deer during the archery season¹³⁶.

“THE CONTROL OF NATURE IS A PHRASE CONCEIVED IN ARROGANCE”: THE 1960s

The 1960s were a turbulent and violent, yet innovative, decade¹, with the assassinations of President John Fitzgerald Kennedy (1917-1962), Robert Francis Kennedy (1925-1968), and Martin Luther King, Jr. (1929-1968); the launching of the first weather satellite, “Tiros I” (1960); the admission of Hawai’i as the 50th state (1960); the failed Bay of Pigs invasion (1961); the Cuban Missile Crisis (1962)—the only time the U.S.A. ever raised its forces to Defense Condition 2; the Tonkin Gulf Resolution (1964), paving the way for the use of conventional military forces in Vietnam; widespread civil rights marches and demonstrations, and the Civil Rights Act of 1964; the inception of Medicare (1965); the successful deployment of the Advanced Research Projects Agency’s ARPANET (1969); and a spate of violent urban riots and angry student protests. U.S. scientists developed the first pulsed laser (1960) and Apollo 11 landed the first men on the moon (1969).

In Massachusetts, the strong Hurricane *Donna* peaked with 140 mph winds and the Callahan Tunnel (1961) and the University of Massachusetts at Boston (1964) both opened. A raging forest fire in Myles Standish State Forest in May 1964 burnt 5500 acres and 25 structures. Between 1954-56, there were 68 new manufacturing plants built along Rte. 128; by 1963 there were 400 new ones². Urban renewal in Boston caused the city to lose more housing units than it built, while the suburbs gained 89,000.

In the 1950s, cover-mapping from aerial photographs revealed that Massachusetts was 64.7% forested (3.34 million acres)³, with timber production by the 1960s amounting to ≈115 million board feet of lumber and 19,000 cords of pulpwood annually⁴. The state’s forests began to decline soon thereafter due to land clearing for residential, commercial, and industrial development.

In 1960, Congress passed the so-called “Sikes Act”^{5,6} to promote effectual planning, development, maintenance and coordination of wildlife, fish and game conservation and rehabilitation in military reservations. The Department of Defense was charged to coordinate with the U.S. Fish and Wildlife Service in developing integrated conservation management plans for military installations.

The Endangered Species Preservation Act of 1966⁷ marked the beginning of the U.S. government’s efforts to protect rare species. Its primary focus was habitat protection⁸. However, there was no process beyond consultation to determine threat and there were no prohibitions on take. Three years later, the 1966 Act was followed by the Endangered Species Conservation Act of 1969⁹. This statute expanded federal acquisition authority, defined the types of wildlife covered by the Act, and authorized the Secretary of the Interior to develop a list of rare species and to prohibit most importation of these species⁸. Indigenous species—doubtless because of state’s rights concerns—received less legal protection than did foreign ones.

The Wildlife Society’s *Manual of Game Investigational Techniques*¹⁰ (1960) was long-awaited and sorely needed. The importance of wildlife management techniques was recognized by early wildlife professionals and a limited-edition manual¹¹ was in use at the University of Michigan in 1939. However, World War II interrupted the Society’s techniques committee, which was not revived until 1957. The new “Techniques Manual” did not establish standards but sought to report the best procedures known and used at the time¹².

In 1962, the marine biologist and writer Rachel Louise Carson (1907-1964), alarmed by the widespread and increasing use of synthetic pesticides—and their consequent deleterious effects on wildlife¹³—published the impeccably researched and influential *Silent Spring*¹⁴. Bitterly and aggressively attacked by the chemical companies¹⁵, Carson’s book held up under scrutiny, eventually advancing the national environmental movement, the deregistration (in the USA) of DDT and similar organochlorines, and the creation of the Environmental Protection Agency. Soon thereafter, and also highly influential, the politician Stewart Lee Udall (1920-2010) encouraged the enactment of environmental legislation and warned of pollution, misuse of natural resources, and the loss of open space¹⁶.

The pioneering ecologist Victor Ernest Shelford (1877-1968)—mentor of Charles Elton—was a co-developer of the concept of biomes, or ecosystems. Shelford expanded this concept to North America, integrating climatic, edaphic, and other abiotic factors with animal and plant life to describe the continent as it appeared in 1500-1600¹⁷. Raymond Frederic Dasmann (1919-2002), a field biologist who studied under Aldo Leopold’s son Aldo Starker Leopold (1913-1983), also helped shape the environmental movement, promoting biodiversity and the role of indigenous peoples, and rebutting the proposition that community growth was dependent on exploitation of natural resources. His text *Wildlife Biology*¹⁸ reflected these concepts, exposing students to the basic ecological principles against which management practices need be tested.

The preeminent field biologist, conservationist and advocate George Beals Schaller (b. 1933) became highly regarded for his scrupulous observations of the behavior of free-ranging mammals in Africa, Asia, and South America. His initial 2-year study *The Mountain Gorilla*¹⁹, like Adolph Murie’s keen observations of wolves and coyotes, worked to dispel myths about the animal and set standards for later behavioral studies. Paul L. Errington also worked to dispel myths, arguing that predation did not determine the population levels of most prey and that compensatory mechanisms

quickly caused resilient populations to rebound. “Predation...is as natural as anything could be... Predation belongs in the way of Life”²⁰.

The farmer and soil conservationist Eugene Marcel Poirot (1899-1988), writing in a slim volume from a vanity press, heeded Leopold’s admonition that the land is all. Poirot condemned the wasteful and damaging agricultural practices resulting from political ineptitude, bleeding the 40% of dirt farmers living on <\$2000 annually. Poirot called wistfully to the sharp-shinned hawk wafting over his fields “I am the farmer who guides the thread of life into human foods under a set of nature’s laws”²¹.

Kenneth Dixon Carlander’s (1915-2002) extensive, detailed summaries of life histories of freshwater fish²²—a basic source for fisheries biologists—entered its third edition (to be followed in later years by two supplementary volumes).

The Cape Cod National Seashore was created in 1961²³ as a unit of the National Park Service and in 1962 the Commonwealth transferred the Province Lands State Park²⁴ to the United States as a component of the Seashore.

1960-61²⁵: The West Meadows property was finally nearing acquisition of all the desired parcels. Local officials were visited by land acquisition staff to enlighten them as to why the Division is also interested in acquiring the “vast” Hockomock Swamp. More funds must be allocated for the purchase of open lands and the Board sought to maximize opportunities for the prudent purchase of suitable lands. The majority (59%) of hunters still utilized private lands.

—The fisheries program prepared a comprehensive trout stream management bulletin²⁶.

—The walleye stocking program at Quabbin was discontinued as the water was too infertile and too acidic for this species. However, 900 final walleyes were nonetheless transferred from a Massachusetts lake to Quabbin.

—The Quabbin Reservoir project continued with an evaluation of trout stocking, observations of spring smelt runs, and creel censuses at the three boat launching areas.

—There were nine ponds totaling 929 acres reclaimed for trout fishing and five totaling 197 acres for warm-water fishing. There were parts of several streams in Worcester County reclaimed and restocked for trout management.

—There was an increase in the total poundage of fish raised at the six hatcheries and stocked into open waters. There were 891,840 brook trout; 390,400 brown trout; 674,725 rainbow trout; 8570 largemouth bass; 1788 smallmouth bass; 2557 chain pickerel; and 8000 yellow perch stocked.

—The statewide development program required a majority of the time spent by the districts. All work was conducted on state-controlled lands, enhancing public access and providing the best game covers. Over 500 acres of new land was cleared, ~400 acres of food patches were planted or maintained, and ~11,000 trees and shrubs were planted. Control measures on water chestnut seem to have checked its spread, and no spraying was conducted this year.

—The 1960 hunting season was the best in many years, due to liberalized open seasons, a naturally high population of indigenous species, and a record release of 57,910 cock pheasants.

—The Game Research Section continued with the postcard game harvest tally, an analysis of the statewide deer harvest, quail and mourning dove call counts, winter waterfowl surveys, an evaluation of wood duck nesting success, and observations of the experimental turkey stocking in Quabbin. Five more wild-trapped West Virginia turkeys were released in April 1961.

—Bobwhite quail production was increased to provide for liberation on public hunting grounds. *Coturnix* quail production for field trials continued the same as for the previous year. An open-pen rearing program for pheasants will be tried at one game farm.

—There were 67,620 pheasants (plus 7320 for the club program), 3362 quail, and 2500 white hare liberated.

—Seventy-six cottontails were trapped in the Central District and released at Birth Hill in order to establish an eastern cottontail population in an areas where only New England cottontails now exist.

—Damage complaints, especially beaver, occupied much district time. Beaver complaints were handled by live-trapping, dynamiting of dams, and issuance of kill permits.

—At Otis Air Force Base, Southeast District personnel issued permits for civilians to hunt deer. Nine ruffed grouse were live-trapped and transferred to Martha's Vineyard.

—Progress was made in attaining permanent Civil Service status for the Information & Education staff. The I&E Chief has just attained permanent status after 12 years as a temporary employee. The first wildlife journalist position was approved and filled.

—*Massachusetts Wildlife* now has a subscription list of 32,657 subscribers. The magazine received honorable mention for excellence in a field of 11 entries at the 1961 conference of the American Association for Conservation Information [AACI].

—There were 21 "Dateline Boston", 12 "Critter Corner", seven "RFD-3", and two special TV shows developed and presented. There were 514 bookings of the Division's films, viewed by ≈41,120 people. The film "Be Seen" also received an honorable award in international competition. A booklet on the cottontail in Massachusetts was published²⁷ and won second place in the international awards program of the AACI.

—The Junior Conservation Camp conducted its final session at the Swann Forest site, with 148 youths attending. Camp planning and administration was done by I&E since the former private administrative group, "Wildlife Conservation, Inc.", had disbanded.

—Dr. Reuben E. Trippensee retired from the University of Massachusetts. The New England cottontail study was continued. Dr. Sheldon and an assistant were preparing a manuscript on the long-term woodcock study.

—Legislation included a clarification of the method of marking bountied animals²⁸, an authorization for enforcement officers to kill certain dogs killing deer in Franklin County²⁹, an authorization for the Director to grant easements for electrical power lines across certain properties in Essex County³⁰, and authorizing the federal government and the Division to acquire certain properties in Concord and Sudbury for migratory bird conservation³¹. A legislative resolve provided for a special commission to investigate the authority of the Division to acquire certain lands³².

1961-62³³: The Board considered the most pressing problem facing the Division to be its insufficient revenue stream and the consequent decline in the reserve monies in the Inland Fisheries & Game Fund. The reserve now stands at less than \$169,500 and the Board believed it necessary to have at least \$200,000 to provide for emergencies.

—The Board also noted that the agency's salaries are insufficient to retain key personnel: "Over the years, a number of top personnel with several year's experience in Massachusetts have left for better income". Massachusetts must realize that it is competing with the rest of the country and place itself in position to attract and retain the best personnel possible.

—A sizeable new area in Chester, Huntington, and Worthington was added to the Division's public hunting grounds. Smaller parcels were acquired or are in the process of acquisition in the Northeast and Central Districts.

—The second major river reclamation project was conducted this year on 13 miles of the Squannacook River. The evaluation phase of the Deerfield River reclamation was completed and the endeavor was deemed a success. The project produced better fishing, better quality fish, and a larger creel. A new technique was developed and is now in use providing for the selective poisoning of certain species of fish in unbalanced ponds. Four ponds totaling 193 acres were treated with rotenone as the first step towards warmwater management. of these water bodies.

—The U.S. Public Health Service gave the Division a 3-year \$12,000 grant to operate a pesticides laboratory at the Field Headquarters to determine pesticide and herbicide levels in terrestrial and aquatic animals.

—The Board established a split season for the fishing season, with stream fishing opening before that for ponds.

—The creel census at Chauncey Pond showed that the experimental stocking of wall-eye there was a "definite success".

—The Sunderland Hatchery was converted to a yearling-only production schedule in a effort to control a recurring disease issue. The number of raccoons and predatory birds increased this year with noticeable losses of trout at all hatcheries.

—There were 756,840 brook trout; 748,815 brown trout; 161,080 rainbow trout; 58,931 largemouth bass; and 3866 chain pickerel stocked.

—Habitat development work at public hunting grounds in 17 towns continued and the usage of these areas increased 19% over the past year. There were 50,000 board feet of lumber produced as a result of selected thinning and made available for use in Division installations.

—Analyses of the deer harvest showed that the protected Quabbin herd has little effect on the surrounding towns, in which the harvest fluctuated consistently with the statewide kill.

—The postcard game harvest showed that there were fewer waterfowl hunters than in 1960 but that those few took more waterfowl. Estimated usage of all public hunting grounds was 47,000 hunter trips, with most hunters traveling ≤ 20 miles to the site.

—Quabbin turkeys were transplanted to Mount Washington and October Mountain State Forests and there was a private release of 16 birds in Otis.

—A study of imported white hare was undertaken in which some hare were released immediately and others were held and fed for 17-46 days. No immediate conclusions were drawn.

—There was again a record production of cock pheasants at the game farms. There were 49,000 pheasants (plus 8150 from the club program), 2556 bobwhite quail, 387 *Coturnix* quail, and 2500 white hare liberated.

—The Cooperative Wildlife Research Unit continued with evaluation of the turkey stocking, a New England cottontail study on an island in the Quabbin³⁴, and experiments in clearing open areas in the Cadwell Forest.

—The circulation of *Massachusetts Wildlife* has increased to 36,676. If each magazine was read by an average of three persons, the estimated readership is ≈110,000.

—The Junior Conservation Camp came under the Division's full supervision during the year and was put in operation at the new site in Spencer. The new camp is quite superior to the former location in Swann Forest. It will have an expanded staff, increased campers, better equipment, and will see the inception of achievement tests in 1962.

—The Information & Education Section prepared 19 "Dateline Boston", 12 "Critter Corner", and two "RFD-3" television programs. The "Dateline Boston" series received a first place award from the American Association for Conservation Education for a program on stream pollution.

—There were eight "Show Me" public events conducted for the press and prominent individuals.

—Legislation included an increase in the penalty for illegal killing of wild turkeys³⁵, a requirement for hunters to wear fluorescent red or orange clothing when hunting deer with a firearm³⁶, an amendment to the "Blue Laws" to allow hunting on all legal holidays³⁷, an authorization for the Director to acquire properties in Petersham³⁸ and Peru³⁹, an authorization for the Director to permit shooting preserves in three counties⁴⁰, an act establishing the Public Access Board and providing funding to the Division (and others) from gasoline tax monies⁴¹, and an authorization for the granting of easements for electrical power lines in Newbury, Rowley, and Wilbraham⁴². A legislative resolve provided for an investigation and study by the Division relative to the granting of certain free licenses⁴³.

1962-63⁴⁴: Director Charles L. McLaughlin was killed in an automobile accident in January 1963. Francis William Sargent⁴⁵ (1915-1998), a former commissioner of natural resources and director of marine fisheries, was appointed to succeed him.

—The Board advised that all citizens benefit from the Division's activities, yet the financial burden is borne almost entirely by sportsmen. There are certain fundamental problems in the agency's operation. The possible solutions include a management analysis of the licensing program (recently completed) and the results are being scrutinized.

—The statutes should be changed so as to allow for license sales outlets other than city and town clerks, as is done in other states. The 14 current license forms will be reduced to two basic forms. This will be a cost-saving measure.

—Secondly, the Division's salaries are below the national average for similar states

and “extremely” far below those for federal service; and, thirdly, there is a pressing need for substantial additional funding for land acquisition.

—The Marshfield Game Farm is antiquated, was designed for rearing waterfowl rather than pheasants, and has limited land area. The property should be disposed of and its current production absorbed at other facilities.

—Leases for public fishing grounds continued on the Farmington, Squannacook, and Westfield Rivers. Acreage was added to the Peru, Phillipston, and West Meadows Wildlife Management Areas. Two other large parcels are under option.

—There were eight ponds and one stretch of river reclaimed for trout management and six ponds reclaimed for warm-water fish.

—The U.S. Public Health Service has increased its grant for pesticide analyses to \$15,000 annually and the Massachusetts Audubon Society donated a gas chromatographer to the Division.

—There were 715,930 brook trout; 639,800 brown trout; 311,975 rainbow trout; 34,700 largemouth bass; and 2700 chain pickerel stocked. In addition, 200,000 lake trout eggs were received from New York and reared at the Montague and Sunderland hatcheries and the resulting fry stocked in Quabbin.

—Statewide development activities on wildlife management areas absorb ~60% of the Districts’ time.

—The Game Research Section continued with the postcard survey of game harvest; deer harvest and herd composition analyses; quail, dove, and waterfowl censuses; studies of wood duck nesting success and brood survival; and hunter utilization surveys of wildlife management areas.

—Tag returns of liberated white hare were evaluated. The returns showed that 56% of released hare moved ≥ 2 mile from the release site. Holding and pre-release conditioning of hare was an added expense and has not proven beneficial to survival.

—There were 69,145 pheasants (plus 7528 in the club program), 3575 bobwhite quail, 497 *Coturnix* quail, and 2500 white hare liberated.

—The new Natural Resources building at the University of Massachusetts has been completed. The Cooperative Wildlife Research Unit continued the evaluation of turkey stocking, the Cadwell Forest project, and a study of the effects of DDT on migratory passerine birds. Results of the long-term woodcock study were in the second draft.

—Evaluations of the wild turkey restoration project at Quabbin continued under a graduate student. The transplant to Mount Washington was still being evaluated, while turkey numbers at October Mountain State Forest have substantially declined. The private release in Otis failed.

—The mailing list for *Massachusetts Wildlife* continued to grow about 900 names per new issue and is now ~42,120.

—There were 16 “Dateline Boston”, 30 “Critter Corner”, and four special television programs conducted. There were 22 “show-me” events for the press and the public conducted by the Districts.

—The I&E Section instituted the Massachusetts Freshwater Sportfish Awards pro-

gram “last spring”. Anglers catching an eligible fish of a certain size received a bronze pin. There are plans to award a special gold pin for the top fish in each award category.

—Legislation included a prohibition on loaded firearms in motor boats except for the hunting of waterfowl⁴⁶, expansion of the authority of enforcement officers to shoot dogs killing deer⁴⁷, a prohibition on most usages of poison for killing birds and mammals⁴⁸, a provision that permits for commercial shooting preserves shall expire annually⁴⁹, and a charge directing the Director to prepare plans for a new fishery hatchery at the Quabbin⁵⁰.

1963-64⁵¹: Director Sargent resigned in December 1963 and was replaced in January 1964 by James Mortimer Shepard (1924-2004), a career employee of the Division and District Manager of the Northeast District. Allan S. Kennedy resigned as Superintendent of the Bureau of Wildlife Research and Management on June 30, 1964. John Starrett of the Division successfully swam the English Channel and was written up in the media.

—The Board decided to sponsor and encourage a greatly accelerated program of land acquisition. The intent was to establish a continuing dedicated fund for this purpose, half of the monies for which will come from license fees and half from the General Fund. Legislation to this effect will be filed in FY65.

—The Division has received title to the Squannacook River property, purchased by the Middlesex County League of Sportsmen via donations. There are options to buy three parcels on the Swift River.

—The Marshfield game farm was closed at the end of the 1963 rearing season and will be sold⁵².

—Long-range plans were completed for both the fisheries and game programs, qualifying the Division for federal recreation funds. It was a very dry year and the Division assisted firefighters by providing District staff and hatchery trucks equipped as tankers.

—The fisheries research program continued the Quabbin investigations, which showed that lake trout were reproducing in the reservoir.

—Ten trout ponds totaling 484 acres were reclaimed and one pond of 203 acres was partially reclaimed.

—There were 346,830 brook trout, 646,975 brown trout, 265,810 rainbow trout, and 42,452 lake trout fingerlings stocked.

—The statewide development program continued work on the district facilities and management areas, including maintenance of roads and trails, postings of signs and boundary markers, planting of trees and shrubs, control of noxious plants, maintenance of nesting structures, and similar tasks.

—For the first time, the Worcester County deer harvest ranked #1 in the state. However, the kill in Barnstable County was 50% below the 11-year average.

—The wood duck project (Figures 46a. and 46b.) continued with an emphasis on Great Meadows National Wildlife Refuge using nest box checks and banding traps. Only 24% of tagged ducklings were traced to flight stage, suggesting poor brood survival. A majority of the young birds trapped were not web-tagged and must have originated from natural cavities.



Photo © Daniel Grice (Great Meadows)

Figure 46a. Wood Duck project at Great Meadows National Wildlife Refuge, Concord.

Figure 46b. Banded Wood Duck.

—Eggs (n=212) of five species (83% wood ducks) from sites in Middlesex and Worcester counties were analyzed for DDT. Over 90% of the 27 black duck eggs from the Sudbury-Concord valley were positive and contained three times as much DDT as the wood duck eggs from Great Meadows.

—There were 63,155 pheasants (plus 6750 from the club program), 4035 bobwhite quail, 24 *Coturnix* quail, and 2483 white hare liberated, of which 1136 were tagged. Tag returns showed that only 19 of the tagged white hare were taken by hunters.

—The Information & Education Section provided 161 news stories, processed 1118 news clippings, and 28 TV clips. *Massachusetts Wildlife* subscriptions reached 48,344. There were 18 “Dateline Boston”, 14 “Critter Corner”, and five “Western Massachusetts Highlights” programs presented.

—A bulletin on the pheasant in Massachusetts⁵³ and a updated wildlife management area guide were printed.

—The I&E Section reviewed the distribution process for the plastic license holders and found that a requirement for the town clerks to ask for a specific number of holders (rather than DFW making an estimate) resulted in a cost savings.

—The first full year of the Sport Fishing Awards program (1963) was completed and the winners of the top fish in each category (n=14) were presented gold pins.

—The Cooperative Wildlife Research Unit continued with the graduate work on the wild turkey restoration project with emphasis at Quabbin. Experimental winter feeding was begun and 60% of the known fall population survived the winter. A mourning



Photo © Bill Byrne (Banded Wood Duck)

dove banding and distribution study was completed. A new technique for live-capture of woodcock in mist nets was developed.

—The new Massachusetts Cooperative Fisheries Research Unit instituted in 1963 under James McCann was conducting studies on the life history of the white perch and rock bass, as well as a biological and physical survey of the Connecticut River.

—Legislation included a prohibition on the altering of licenses⁵⁴, provision for regulating the taking of shad in the Palmer River⁵⁵, an authorization for the issuance of permits for taking nuisance birds⁵⁶, and an authorization for the Director and his agents to control nuisance beavers⁵⁷. Legislative resolves provided for a special commission to study the inland conservation laws⁵⁸ and a study of the hunting of deer and the poisoning of feeder streams on the Quabbin⁵⁹.

1964-65⁶⁰: The Division celebrated its 100th anniversary, which was restricted to special events worked into existing activities and a series of articles in *Massachusetts Wildlife*⁶¹.

—Land acquisition included parcels in Groton, Northborough, Phillipston and Peter-sham, and Sunderland as well as addition to the Birch Hill and Northeast area. Transactions were completed for a 650-acre tract along the Quaboag River.

—The Quabbin Reservoir study continued into its 11th year. During the current year, there were 10,066 anglers interviewed, representing 53,498 angler trips, and 40,259 lbs. of fish harvested. The three most heavily harvested fish were brown bull-heads, white perch, and yellow perch. The lake trout fishery was established, thriving, and expanding. Lake trout eggs were again received from New York and incubated and 40,000 fingerlings were reared and stocked in Quabbin in 1964-65. Since the lake trout is now clearly established, there will be no further stockings at Quabbin. There is an ecological niche available for landlocked salmon and 14,420 fingerlings from a Maine hatchery were stocked in Quabbin in April 1965.

—The U.S. Department of Public Health gave the Division a 3-year \$20,000 grant to establish a statewide stream monitoring program for pesticide pollution.

—Three trout ponds totaling 178 acres and two warmwater ponds totaling 108 acres were reclaimed. The Harold Parker State Forest ponds and the Merrill Pond system continued to produce warm-water bass and pickerel for stocking. There were 2235 lbs. of largemouth bass, 550 lbs. of chain pickerel, and a small amount of smallmouth bass obtained from the rearing ponds and stocked.

—The Division will take over operation of the federal Hartsville hatchery in the Berk-shires on July 1, 1965.

—There were 1,005,240 brook trout, 679,040 brown trout, and 336,880 rainbow trout stocked from the Division's hatcheries.

—The statewide development program continued on its maintenance activities, with land clearing (634 man-days), plantings (371 man-days), and road maintenance (272 man-days) occupying the most time.

—The Game Research Section continued the postcard survey of hunters; deer harvest tallies, range surveys, and analyses of hunting pressure; winter waterfowl survey; and quail and dove call count censuses. Wood duck nesting success and brood sur-

vival continued and there still appears to be diminished recruitment of young birds into the resident breeding population.

—There were 60,735 pheasants (plus 7840 for the club program), 3020 quail, and 2500 white hare liberated.

—The Cooperative Wildlife Research Unit continued with the long-term evaluation of the wild turkey restoration at Quabbin with occasional transplants elsewhere. The summer to fall poult survival was the lowest ever, but the over-winter survival was the highest. The Unit also has begun a study of black duck productivity on beaver ponds. The manuscript from the long-term woodcock study was sent to a publisher.

—The Information & Education Section continued to refine the mailing list for *Massachusetts Wildlife*. There are more people desirous of the magazine than can be accommodated. A process will be instituted next year for persons to return a renewal coupon and those not returning it will be dropped from the list.

—There were 14 “Dateline Boston”, nine “Critter Corner” TV shows and five radio programs presented or participated in. There were 12 “Show Me” events for public groups and 10 press tours conducted.

—Legislation included a further authorization for fishing by means of archery⁶², an authorization for the Commonwealth to grant easements for electrical power in Groveland and Georgetown⁶³, and a provision that commercial shooting preserves may be licensed statewide⁶⁴. A legislative resolve revived and continued the special commission to investigate the inland conservation laws⁶⁵.

1965-66⁶⁶: There is still an increasing public demand for additional services, higher costs for existing services, and a narrowing financial base. The time has come, and is past due, for sizeable amounts of General Fund monies to be allocated to support the Division.

—The sportsmen accepted a \$1.00 license increase to support land acquisition with the understanding that there would be a matching appropriation from the General Fund. This has not happened. The Division will support its pledge to spend the \$1.00 increase only on land acquisition, necessarily subject to appropriation.

—The Division’s office moved to the new State Office building at 100 Cambridge Street.

—The Division now has about 675 acres of management area along the Quaboag River. Additional parcels were purchased or acquired in Huntington, Plymouth, Royalston, and Templeton as well as tracts adjoining the West Meadows area.

—The Fisheries Research Section continued with the long-term Quabbin study. There were 10,118 landlocked salmon released in [fall] 1964. Another 56,448 fry were received from Quebec and will be reared at Sutton and stocked in Quabbin in the fall of 1965.

—Eleven ponds comprising 225 acres were reclaimed for warm-water fish and one for trout.

—The Connecticut River studies focused on the segment between Turners Falls and Holyoke. Anglers were counted and interviewed once weekly, and fish populations were sampled by netting and electrofishing.

—Six thousand landlocked alewives were stocked in the Congamond Lakes to establish this forage species.

—The Division's two warm-water rearing pond systems produced 2085 lbs. of largemouth bass, 357 lbs. of smallmouth bass, and 290 lbs. of chain pickerel for stocking public waters.

—There were 643,025 brook trout, 357,490 brown trout, and 364,590 rainbow trout stocked.

—The Cooperative Fisheries Research Unit continued their aspect of the Connecticut River study as well as life history studies of white perch and rock bass at Quabbin. New studies included a study of feeding habits of game fish in the Connecticut River and an investigation of shad ecology.

—The statewide development project continued its normal maintenance duties and crews worked extensively on Myles Standish Forest during the winter months with the aid of game farm staff. Nearly 40,000 board feet of lumber was obtained from cuttings at Birch Hill.

—Mandatory deer checking was implemented in the 1966 season.

—Wood duck live-trapping and banding studies continued at Great Meadows. There was poor survival and stunted growth. A comparison area is being established in Carlisle. A monograph presenting results of the long-term wood duck study was completed⁶⁷.

—Winter banding of black ducks began at the request of the U.S. Fish and Wildlife Service. During 1965-66, there were 1658 black ducks, 97 mallards, and 69 mallard-black hybrids banded with walk-in traps and a cannon net.

—During the past two winters, 28 ruffed grouse were live-trapped and transferred to Martha's Vineyard.

—There were 57,960 pheasants (plus 9882 for the club program), 3324 quail, and 2500 white hare liberated.

—The Cooperative Wildlife Research Unit continued with the wild turkey study. The wild turkey restoration project continued slowly at Quabbin. There was high nesting success in 1965, but substantial poult mortality. The overwinter survival was ≥ 39 turkeys.

—The Unit developed a sex-linked stock of pheasants which produces hen chicks of a pale color, which will be used by the Division to prevent rearing of excess hen pheasants. There was also a preliminary study of pheasant movements and hunter success at Birch Hill using telemetry.

—The Information & Education Section has purged the mailing list of undeliverable subscriptions and will now add new names only on request. There were 21 "Dateline Boston" and four "Critter Corner" TV shows. There were five tours conducted for the press, legislators, and sportsmen. The Section received a first-place award from the American Association for Conservation Information for its program to promote fluorescent orange for deer hunting.

—Legislation included enactment of the coastal wetlands protection act⁶⁸, an increase in license fees⁶⁹, an extension of the allowable time period for hunting on Greylock Reservation⁷⁰, an authorization for the Division to acquire lands in Belchertown

and Ware^{71,72}, and a provision for a capital outlay program for land acquisition and for building a new hatchery in Belchertown⁷³. A legislative resolve provided for an investigation and study of the inland wetlands of the Commonwealth⁷⁴.

1966-67⁷⁵: The Board reemphasized the need for an alternative funding source to support its multiple-use programs.

—Construction of the Quabbin hatchery was delayed because all bids came in over the \$1.2 million allocated by the bond issue. A request for additional funds was submitted.

—In October, the Central District relocated from Rice Lane in Westborough to a 1.2-acre parcel in Boylston (mailing address in West Boylston) leased from the Metropolitan District Commission.

—The bond issue of \$800,000 for land acquisition was nearly expended by the purchase of parcels in Belchertown, Chester and Phillipston, and along the Little, Quaboag, Millers, Squannacook, and Westfield rivers. Two larger parcels in central Berkshire and Worcester counties were acquired or are nearing completion.

—The Quabbin creel census indicated that 64,802 anglers took 59,612 fish during the 1966 open season at Quabbin. An increase in the harvest of lake trout and landlocked salmon was noted, with 10,800 additional landlocks stocked during the year.

—Seven ponds totaling >480 acres were reclaimed for trout. The final segment of the three-year harvest and population study on the Connecticut River was completed.

—The Division's pesticide laboratory continued its analyses for the U.S. Public Health Service, as well as on 60 trout from the hatcheries and 120 lake trout from Quabbin.

—A cooperative effort was initiated between the Division, three other states, the U.S. Fish and Wildlife Service, the University of Massachusetts, and Northeast Utilities to increase the shad population (and hopefully, salmon) on the Connecticut River. Over 1 million shad eggs were transferred from Connecticut to just below the Vernon Dam.

—The Division's two warm-water pond systems yielded 2700 lbs. of largemouth bass, 339 lbs. of smallmouth bass, and 886 lbs. of chain pickerel for stocking in open waters. There were 1,348,710 brook, brown and rainbow hatchery trout stocked.

—The wild turkey appeared to be "firmly established" in the Quabbin area, while the success of transplants is not yet certain.

—Survival and recruitment of wood duck ducklings at Great Meadows remained poor. A special coastal black duck season was authorized for the current season. Black duck banding continued with 1578 black ducks banded.

—Nesting studies of Canada geese began and transplants to other areas are likely to begin soon.

—There were 91 sharptailed grouse from South Dakota liberated on Nantucket, and 97 ruffed grouse were transplanted from mainland Massachusetts to Martha's Vineyard.

—The sex-linked strain of pheasant chicks proved effective⁷⁶ and will be used at the game farms. Research is now underway to develop a strain of pheasant which will be adapted to submarginal and pole-stage woodlands.

—There were 63,890 pheasants (plus 4960 for the club program), 3532 quail, and 2153 white hare liberated.

—The Information & Education Section was cooperating with the Department of Commerce & Development to produce a comprehensive guide to outdoor recreation in Massachusetts. Staff also participated in 19 “Dateline Boston” television shows.

—Massachusetts participated in a New England-wide resolution of fish and game directors, giving their joint position on firearms laws which was published in the *Congressional Record*.

—Legislation included a designation of the new Quabbin-area hatchery as the “Charles L. McLaughlin” hatchery⁷⁷, an authorization for the Director to apply for federal grants to assist funding of the new hatchery⁷⁸, an authorization for the Director to acquire lands without the consent of town officials⁷⁹, and an authorization for the Director to allow outside agents to sell hunting <etc.> licenses⁸⁰.

1967-68⁸¹: The benefits from proper management of fish and wildlife resources accrue to the public as well as to sportsmen. Sportsmen now contribute \$110,000,000⁸² annually to the Massachusetts economy through direct purchases and via the state sales tax. License revenue alone cannot support the agency. It is logical that the sales tax should be a source of help. It is also logical that other funds be used as well, since the general public enjoys using wildlife management areas almost year-round.

—Chapter 131 of the General Laws was recodified with an effective date of December 21, 1967^{83,84,85}.

—During this first year of the Realty Section’s formal existence there were six new areas acquired in Berkshire and Worcester counties and additions were made to six others. A 70-acre potential warm-water hatchery was acquired in Rochester.

—The Quabbin creel census showed that 59,000 anglers harvested 49,680 fish. However, decreases in lake trout and landlocked salmon were noted and attributed to a scarcity of suitable forage fish. With the permission of the M.D.C., 100,000 gravid adult smelt and 50 million smelt eggs were planted in the reservoir and tributary streams. An additional stocking of 25,000 landlocked salmon was carried out.

—Four ponds in the Southeast District totaling 228 acres were reclaimed for trout. In addition, much of the Squannacook River and its tributaries and impoundments were treated with rotenone and restocked with trout.

—The landlocked alewives transplanted to the Congamond Lakes were successfully established.

—The cooperative venture on the Connecticut River continued and intensified. There were 5600 Atlantic salmon stocked below the Holyoke Dam. A shad tagging study was instituted on the Connecticut River and >2.8 million shad eggs were stocked above the Turners Falls Dam. There was a 70% hatch estimated from the 1967 stocking and juvenile shad up to seven inches in length have been collected.

—The two warm-water pond systems produced 1550 lbs. of largemouth bass, 248 lbs. of smallmouth bass, and 482 lbs. of chain pickerel for stocking. The fish hatcheries produced 1,676,995 brook, brown, and rainbow trout for stocking open waters.

—The game program developed an experimental strain of pheasants which may survive in marginal habitats and 100 such hybrids have been reared.

—The introduction of sharptailed grouse to Nantucket remained experimental. Limited reproduction has been noted.

—Major changes were made in the deer hunting regulations, including the provision that an “antlerless” permit was needed to harvest does or males with antlers less than three inches.

—Survival of wood duck ducklings at Great Meadows remained poor and the study area was expanded to nine other areas in central Massachusetts.

—There were 2217 black ducks banded during the winter banding program. An airboat was acquired to facilitate waterfowl capture during summer and 800 ducks of five species were captured and banded.

—Canada goose nesting studies were conducted on the Sudbury Reservoir system and 110 geese transplanted to central and western Massachusetts over the past two years.

—The Cooperative Wildlife Research Unit completed its long-term evaluation of the Quabbin turkey restoration⁸⁶ and turned the program over to the Division. Studies are underway on the ecology of Muskeget Island and its gull colony. Dr. Sheldon’s book on his long-term woodcock study was published⁸⁷. Dr. Joseph S. Larson joined the Unit as Assistant Leader.

—Subscriptions to *Massachusetts Wildlife* now stand at 38,554. An attempt to change subscriptions to a fee basis failed in the Legislature. There were 15 guest appearances on television and several press tours or public events.

—Legislation included a provision that persons may carry firearms for target shooting on Sunday⁸⁸, a statute protecting the inland wetlands of the Commonwealth⁸⁹, an authorization for the issuance of free fishing licenses or certificates to mentally retarded individuals⁹⁰ or groups⁹¹, an authorization for the sale of the Sutton Fish Hatchery⁹², a provision for the issuance of free licenses to persons in the military or naval service through 1970⁹³, a provision for a \$1 million bond issue for land acquisition⁹⁴, and an authorization for the Director to issue a so-called “rifle ban” in certain counties⁹⁵.

1968-69⁹⁶: New wildlife management areas were established in Conway, Lenox and Savoy. There were additions to six other areas and an option for 1700 acres in Middleborough is now being pursued.

—The Quabbin Reservoir investigations continued with the creel census. Decreases in lake trout harvest were again noted and attributed to a scarcity of suitable forage fish. The landlocked salmon harvest increased slightly and was attributed to influx from the 1967 stocking. There were 50,000 gravid smelt and 1 million viable smelt eggs planted or stocked, as well as 3200 landlocked salmon and 20,000 9-inch-plus rainbow trout.

—The cooperative Connecticut River venture continued and ~10,320 Atlantic salmon smolts were stocked below the Holyoke Dam. Shad tagging studies continued on the Connecticut River and ~3 million shad eggs obtained below Holyoke were planted in the Merrimack River and coastal streams.

—Ten ponds totaling 358 acres were reclaimed for trout and warm-water fisheries management.

—The Westborough pesticides laboratory found an increase in DDT residues in its 1968-69 samples over those from 1967-68.

—The Division's warm-water pond systems produced 1190 lbs. of largemouth bass, 290 lbs. of smallmouth bass, and 231 lbs. of chain pickerel.

—The McLaughlin trout hatchery was completed and is being brought on line. It is expected to produce ≈200,000 lbs. of trout annually. The Hartsville Hatchery will soon be returned to the U.S. Fish and Wildlife Service after brief use by the Division. The hatcheries produced 1,623,249 brook, brown and rainbow trout for stocking in open waters.

—The Game Research Section initiated a mourning dove banding project in conjunction with the Massachusetts Audubon Society. A total of 2101 doves were banded at 11 sites.

—The forest pheasant project continued and a large starter population is now available. Some of the chicks produced will be placed on an island test site.

—The Quabbin wild turkey restoration project continued and the bird is considered established there, although at a low level (n=50). A transplant from Quabbin to Douglas was undertaken.

—Canada goose studies in the Sudbury Reservoir system continued and goslings were transplanted to Berkshire, Franklin, and Worcester counties. Four tagged goslings transplanted to Templeton in 1967 returned there this year.

—There were 1558 ducks (1300 black ducks) banded in winter and 650 ducks of seven species banded pre-season with the airboat. There was a special scaup season during the 1968 hunting season, but no significant hunter participation.

—The Cooperative Wildlife Research Unit has a Canada goose study underway in Manitoba, a food utilization study by ruffed grouse, a black duck food habits study on Cape Cod, waterfowl investigations on the Connecticut River, and a sparrow hawk nesting study. Dr. Wetherbee prepared a manuscript on Muskeget Island, which will be published in book format⁹⁷. Dr. Larson developed a technique to sex beaver by examination of blood smears⁹⁸. A study on waterfowl usage of interstate highway impoundments was completed⁹⁹.

—The Information & Education Section continued with its usual activities regarding *Massachusetts Wildlife*, press releases, film loans, exhibits, and the Junior Conservation Camp.

—Legislation included a requirement for persons hunting deer with a firearm to wear 400 in² of hunter orange¹⁰⁰, an authorization for the Division to acquire land and construct a fishing pier¹⁰¹ and to provide a sport fishing program¹⁰² at Cook Pond in Fall River, and a provision exempting paraplegics from paying a fee for hunting <etc.> licenses¹⁰³.

1969-70¹⁰⁴: The Board emphasized that the greatest threat to wildlife is habitat destruction. Inland and coastal wetlands are, at present, the most valuable lands that we have. They are vital to wildlife and to water-based outdoor recreation. There

was pending legislation that would allow the Division to acquire valuable wetlands by eminent domain. The bill failed but has been amended and resubmitted.

—Every dollar from the 1966 license increase and more has gone into land acquisition. The largest acquisition of 1970 was the 1540-acre Rocky Gutter purchase. Long-range plans for the Swift River property were being developed. A major acquisition was the 90-acre “Robin Farms” campground in Belchertown. The existing lodge may be renovated for the headquarters of the anticipated new District. Additions were also made to properties in Berkshire, Bristol, Hampden, Hampshire, Middlesex, and Worcester counties.

—After 15 years, the Division has outgrown its Field Headquarters in Westborough. The Division has received a tract of land and two buildings adjoining the Westborough WMA¹⁰⁵. However, these buildings are decrepit and it is more feasible to tear them down and start anew. Initial plans have been drafted.

—The federal grant for pesticide monitoring expired in January 1970. However, the Division received a \$132,000 grant from the Division of Water Pollution Control to continue and expand the monitoring program on the major watersheds.

—The Quabbin Reservoir investigations tallied 373 landlocked salmon harvested but a satisfactory sport fishery has not yet been established. Most (77%) of the harvest derived from the 1967 stocking. Lake trout numbers continued to decline, with a creel of 1275 fish.

—Efforts to establish a cold-water fishery in Littleville Reservoir failed due to its apparent “contamination” by warm-water fish.

—The Kokanee salmon project at Onota Lake continued for the third year with the release of 101,000 fingerlings. Landlocked smelt are now firmly established in the Congamond Lakes.

—Ten walleye were taken in Lake Chauncey but there was no evidence of reproduction from the 1966-68 year classes. Northern pike appear to have become established in Cheshire Reservoir but not in Brimfield.

—There were 65,000 shad lifted over the Holyoke Dam¹⁰⁶. About 3 million shad eggs were stripped from shad taken below Holyoke Dam and planted in the Nemasket and Merrimack rivers.

—Salmon smolts (n=54,000) were stocked below the Holyoke Dam for the third year as part of the cooperative Connecticut River venture. The four affected New England states wrote to the Secretary of the Interior, requesting that he direct the Federal Power Commission to require fishways at the five power projects on the Connecticut River.

—The new McLaughlin Hatchery (Figure 47) was dedicated in April 1970 and attained its production goal of 200,000 lbs. The Palmer Hatchery will be converted into an experimental salmon hatching and rearing station.

—The two warm-water pond systems produced 830 lbs. of largemouth bass, 540 lbs. of smallmouth bass, and 205 lbs. of chain pickerel.

—There were 341,485 brook trout, 77,265 brown trout, and 835,990 rainbow trout stocked from the hatcheries.

—The deer herd rapidly expanded after two years under the antlerless permit sys-

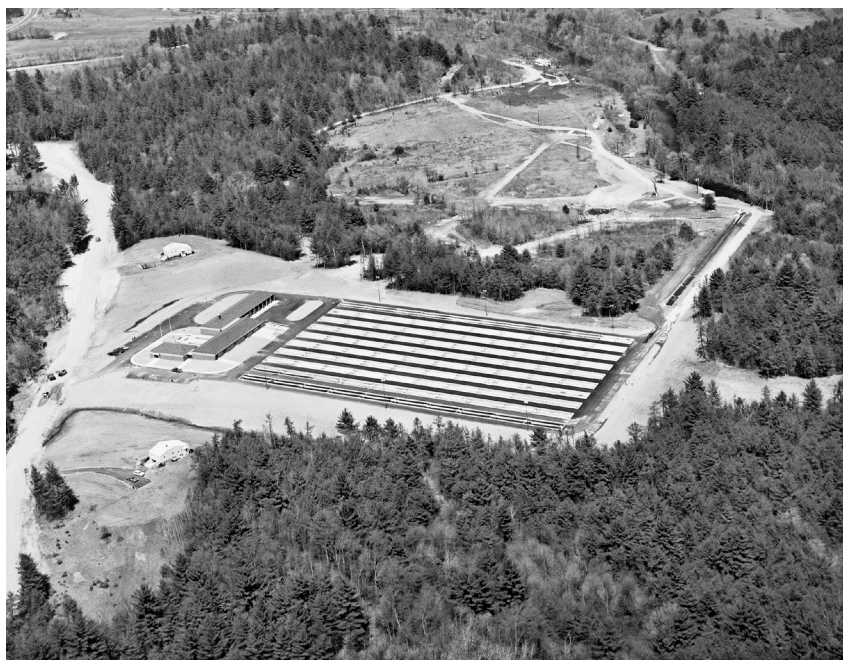


Figure 47. Aerial view of McLaughlin Trout Hatchery, Belchertown, 1969.

tem. The number of general permits increased from 2000 to 4000. Computers play a vital but simple role in the processing of the permits.

—Two black bears were found gamboling about in northern Berkshire County in October 1969¹⁰⁷. The consequent public attention drew attention to the alleged scarcity of the animal.

—The “forest pheasant” program continued and ~200 adult brooders were released in the Quabbin Reservation, on Martha’s Vineyard and in southern Berkshire County.

—The wild turkey restoration project at the Quabbin and elsewhere is still showing slow growth.

—Division staff conducted summer banding of woodcock broods, taking seven broods of 21 chicks. Over 1900 mourning doves were banded at seven sites.

—An evaluation of “starling-proof” wood duck nesting boxes has begun.

—Canada goose trapping operations resulted in two adults and 24 goslings which were transported to three sites. Fifty other geese were banded and released at the capture site.

—Winter banding yielded 2119 ducks (91% black ducks) while there were 491 ducks of eight species and 25 other birds of five species taken in pre-season banding.

—There were 57,250 pheasants (plus 5535 for the club program), 3635 quail, and 2500 white hare stocked.

—The Cooperative Wildlife Research Unit has studies underway on the growth and survival of wood ducks, black duck feeding in Nauset Marsh, ruffed grouse habitat and bobcat populations on the Connecticut River.

—The Information & Education Section continued to publish and promote *Massachusetts Wildlife*, sponsor the Junior Conservation Camp, issue press releases, staff exhibits, and hold speaking engagements. The Section also oversees the Division’s museum, begun in 1968.

—Legislation included a provision that the Division of Water Pollution Control is to investigate fish kills when requested by the Director¹⁰⁸, a change in the amount of hunter orange clothing required for deer hunting¹⁰⁹, a provision allowing certain fishing in Silver Lake¹¹⁰, a provision for reimbursement to the Division for the value of fish killed by pollution¹¹¹, and an authorization for paraplegics to hunt from non-moving motor vehicles and recreational vehicles¹¹².