

A HISTORY OF THE DIVISION OF FISH AND GAME

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The "Division of Fish and Game" as an organization was established in 1927 but its roots extend back much further in the history of Hawaii. The "kapu" system of the early Hawaiians was a kind of conservation although it was primarily designed to reserve resources for the alii. With the coming of Eastern and Western man in the 1700's and 1800's the old Hawaiian customs were replaced with modern methods of harvesting both fish and game species. Many of these techniques were destructive and wasteful of these resources. Queen Liliuokalani in 1892 signed laws prohibiting the use of explosives for taking fish, killing certain birds beneficial to agriculture and raising the mongoose in captivity. Also in 1892 a Bureau of Agriculture and Forestry was established which was primarily concerned with animals as they related, for good or bad, to agriculture. A program to control or eliminate wild goats and cattle doing damage to forests began and several forest reserves were created. 1907 saw the beginning of a "hunting license" system to control hunting with firearms and a \$5.00 tax payable to the counties was levied. Thirty-five District foresters were commissioned as "Special Territorial Police Officers" to enforce laws concerning hunting and the protection of beneficial bird life. This was the precursor to our modern game warden system. Violations were subject to a \$10.00 fine for each offense plus \$50 for each bird killed or two weeks in jail. In 1908, Governor Frear appointed a "Territorial Conservation Commission of Hawaii" which was to investigate the natural resources of the Territory and recommend wise development and use--the beginning of a true conservation program in the Islands. Act 214 of 1917 protected bird, animal and vegetable life on several islands off Oahu and Molokai and gave the responsibility to the Division of Forestry. Thus began the system of wildlife sanctuaries and refuges we have today. In 1919 a "Fish and Game Commission" was established under the Board of Agriculture and Forestry and \$25,000 was appropriated to establish a mullet hatchery at Kawaihae on Hawaii. Hunting and fishing laws were almost non-existent with no seasons, bag limits or other restrictions. "Wild animal eradication" programs accelerated in the forest reserve areas using staff personnel, although a few permits were given to select hunters or to private landowners who had dedicated their land to forest reserve status. Massive goat drives were also carried out by the Board of Agriculture and Forestry using the general public. During calendar years 1921-1922, for instance, 7,000 goats were eradicated in the Puuanahulu and Puuwaawaa areas on Hawaii using this method. The early 1920s were also years which saw the first rainbow trout eggs imported from Oregon, the first time pheasant eggs were distributed by the government to the public, the hiring of the first "game warden" to assist in law enforcement, the first licensing of commercial fishermen and the establishment of a bounty (\$1.00) on Oahu for the control of feral goats. In 1925, the government began requiring fish catch reports from commercial fishermen which was part of a new code of fish and game laws enacted by the Territory. In 1925 a County Game Fishing license cost \$2.50. Hunting license fees were used to support the game farm established at Mokapu Peninsula on Oahu.

The Territorial legislature of 1927 abolished the Fish and Game Commission and on July 1, 1927 the Division of Fish and Game was established under the Board of Agriculture and Forestry. The mission then was to provide law enforcement, expand the importation program for shellfish and fish, develop the game farm to increase game bird distribution and experiment with mullet production at the Mokapu facility. In the late 1920s "hunting" on public lands was confined to the forest reserves where

animal eradication (including goats, pigs, sheep, cows, horses and donkeys) was the goal. This activity was carried out by the Division of Forestry using selected hunters as assistants or through large scale drives. The Department of Agriculture and Forestry upon advice of the Division of Fish and Game, imported several species of berries to benefit wild game birds. These plants are now considered pestiferous in such places as the Hawaii Volcanoes National Park and at Kokee. The introduction of new game birds began and several kinds of quail, pheasant and partridges were imported and released to benefit hunters. The first Nene Restoration project began in 1928 when State Senator Robert Hind donated a pair of nene from his private collection to the State to start a rearing program at Mokapu.

The 1930s was a period of expansion of the programs established in the 1920s, and in particular the re-emphasis of the game farm and fish hatchery approach to fish and game management. The four counties began donating money to the State for game farm work. Over 1,500 ring-necked pheasants were released in 1930 on Oahu, Kauai, Molokai, Maui and Hawaii and annual bags of 30 or 40 cocks per man were common. Migratory ducks and shorebirds were also hunted with few restrictions on the number taken. By 1937-1938, over 40,000 game birds were being raised and released throughout the State with continuing support from the Counties. Although pheasants were the primary bird being reared and released, quail, guinea fowl, coots, ducks, Hungarian partridge and chukars were also imported and "processed" through the Mokapu facility. By the mid-1930s the nene flock had increased to 42 birds, which were distributed to private owners for keeping. Mullet culture continued and salmon and trout eggs were imported, the fry hatched, and planted in streams throughout the State. In 1932, 33,000 young trout were stocked in streams on Hawaii, Maui, Oahu and Kauai. Experiments with clams and oysters received from the mainland and the Orient began with an eye to stocking them in marine waters. The Samoan crab was introduced into waters off Hilo and Molokai and by 1932-1934 management began with the establishment of 6 months open season.

During these years, a small number of Axis deer were transplanted from Molokai to Maui to attempt establishment there. The depression period of the early 1930s created a demand for meat and the animal eradication program in the forest reserves was liberalized to include the public by issuing special hunting permits. An average of 30,000 pigs, sheep, goats, horses, cows, donkeys and deer were killed each year during the ten-year period, under the supervision of the Division of Forestry.

The advent of World War II brought significant changes in fish and game management programs. The Japanese attack of December 7, 1941 resulted in the destruction of the Mokapu Game Farm and the birds which survived were gathered up and distributed as emergency food. The game farm area was immediately taken over by the U.S. Navy for the war effort and animal propagation came to an end. The reduction in the number of firearms in civilian possession resulted in animal eradication ("hunting") programs being severely curtailed. During the years 1943 and 1944 only a little over 4,000 sheep, pigs and goats were removed, Statewide. Public fishing and hunting as such was prohibited in 1941 with the result that fish and game law enforcement activities leading to arrests dropped markedly. As the war years progressed, however, certain restrictions on hunting and fishing were lifted to permit the control of feral animals in the forest areas. With the end of the war in 1945, emphasis on promoting the commercial fishing industry was revived, restrictions on public hunting and fishing were lifted, and increased law enforcement effort was brought to bear. Although the Pittman-Robertson Federal Aid to Wildlife Restoration program to assist the States was passed by Congress in 1939, it was not until 1945 that Hawaii took advantage of this grant-in-aid program. The Director of the Division of Fish and Game recommended that the game farm approach to game management be dropped and that the State adopt scientific methods instead. With this in mind ██████████ Mr. Charles Schwartz and Mrs. Elizabeth Reeder Schwartz, experienced wildlife biologists, were hired to do a

study of the game birds in Hawaii and recommend management practices. This 18 months study was completed in July, 1947. Habitat improvement for game birds began in earnest with the establishment of water units in key hunting areas on the island of Hawaii. Throughout the late 1940s, progress was made in establishing new game management areas and public shooting grounds on Kauai, Hawaii and Maui through Board action for State lands and cooperative agreements for private lands. Game mammal hunting was still supervised by the Division of Forestry as an "animal eradication" program using hunters with government guides and facilitated by the establishment of hunter camps at Kokee on Kauai and Pohakuloa on Hawaii. The Warden service was revamped and revitalized with new training programs and a reorganization was implemented to decentralize the unit. Wardens were first authorized to sell hunting licenses in 1946 and six new enforcement officers were added in 1948. New laws and regulations were established during the 1940s regulating the taking of fish in canals, controlling bait fish harvests, creating seabird sanctuaries off Oahu, and regulating the harvest of game birds. Fisheries research and management activities accelerated during the post-war period as well. Cooperative agreements between the University of Hawaii and the Board of Agriculture and Forestry were consummated which provided for joint investigations of fishery resources in the ocean. Fisheries research directed towards improving commercial fishing was carried out in cooperation with the Pacific Oceanic Fishery Investigations of the U. S. Fish and Wildlife Service with emphasis on the marlin, ahi and aku. The Division of Fish and Game purchased the research vessel "Makua" to assist in these studies. Freshwater game fish including the bluegill and tilapia were introduced in in response to public demand. A State-wide fresh-water fishing license system was initiated to provide income for freshwater fish introduction and management programs.

The 1950s was an era of great expansion for the Division of Fish and Game. Modern biological and law enforcement approaches to fish and wildlife management were brought to bear on problems; additional staff was added and more areas for public fishing and hunting were made available. Assistance to the commercial fishing industry was expanded. Through cooperative agreement with private landowners, and Board action on State lands, new public hunting areas were established throughout the State. Whereas in 1950 only three areas totaling 25,832 acres were under Division control for public hunting, by 1959 twenty-two areas encompassing 294,000 acres were given game management-public shooting ground status. In the late 1950s establishment of several new species of pheasant, quail, partridge and francolins was attempted on public areas on all islands for hunting purposes. European bighorn sheep (mouflon) were liberated on the Na Pali Coast on Kauai and on Lanai and a hybridization experiment to see whether this species could be crossed with the feral sheep began on Hawaii in 1957. Habitat improvement continued with the clearing of noxious brushlands, installation of game bird water units in dry areas and establishment of food plots for game birds. The nene restoration project at Pohakuloa (which began in 1949) was given additional support with the infusion of Federal monies through a contract with the U. S. Fish and Wildlife Service and by the end of 1959, over 50 nene were in captivity there. In an attempt to see whether public hunting for migratory waterfowl would be feasible in Hawaii, a project which included trapping and banding was begun on Maui. With the initiation of studies of the Axis deer by Dr. William Graf, attention was given to setting seasons and the management of this game mammal. The first controlled season for Axis deer on public hunting areas was held in 1954 on Molokai and Lanai and the feasibility of transplanting this species to the Island of Hawaii was considered. In 1959 Axis deer were successfully transplanted from Molokai to Maui.

Although the Division of Forestry continued to administer hunting within the forest reserves as "animal eradication" in the early 1950s, the Division of Fish and Game supervised game bird hunting on game management areas. But gradually the importance of feral mammals to hunters for recreational and subsistence purposes became recognized

and some forest reserve areas were actually closed to hunting to allow the animals to increase. By 1959 reports by the Division of Forestry on the removal of feral sheep, goats and pigs from the forest reserves was referred to as "wild animal harvest" and the administration of public hunting on some Forest Reserves (notably, Mauna Kea) was turned over to the Division of Fish and Game.

During the ten-year period 1950-1960, the Fisheries Branch engaged in studies of live baitfish potential and their recovery methods (nehu); pollution problems affecting fish productivity (Hilo Harbor and coastal Kauai); fishing techniques (bottom, trolling, gill netting, flagline); food and feeding habits of aku and ahi; aku, marlin, akule and opelu life histories; breeding cycle of the oopu; biology of the opihi; and reef fish populations. Many of these studies led to the formulation of regulations or management programs for specific marine species. The commercial fish catch reporting system was refined to permit accurate documentation of the amount and value of fish caught. Dr. Paul Needham of the University of California was contracted to perform freshwater fish studies with emphasis on food habits. Most of this work was funded with Federal monies through the Dingell-Johnson program which Hawaii took advantage of for the first time in 1951. Fish stocking accelerated with the importation and release of bluegill sunfish, large and smallmouth bass and channel catfish into freshwater impoundments, and various species of groupers and snappers from Tahiti into marine waters around the State. Threadfin shad were also introduced experimentally as a bait and forage fish. Public fishing areas were established through cooperative agreement with private landowners, most notably at Wahiawa (Lake Wilson) on Oahu and at Kohala on Hawaii. The Kokee Public Fishing Area on Kauai was also established where fishermen could harvest rainbow trout stocked there each year. At the Kokee fish hatchery eyed trout eggs were hatched to produce fry for release in streams.

A facility for marine fish studies was made available at Kewalo in Honolulu through the cooperation of the U. S. Pacific Oceanic Fishery Investigation. The R. V. Makua was used extensively for fish surveys and to experiment with tilapia as a bait species for the aku industry. Mass rearing of tilapia gave the Division the capability of providing bait to commercial fishermen and establishing this herbivorous species in private ponds to control noxious vegetation. As a result of a shark attack on a youth in the waters off Oahu, a shark control program was initiated using a leased vessel. Hundreds of sharks of several species were caught and destroyed before funding ran out.

To provide for public input to the fisheries program, a Fisheries Advisory Committee was formed pursuant to Act 192 of the 1955 Legislature. The mission of this body was to recommend a program for marine fish conservation and to recommend rules and regulations.

In addition to law enforcement responsibilities, the game warden staff participated in the wildlife and fisheries programs by assisting in the collection of biological and fishermen and hunter use data. Modernization of the warden service continued and standardized uniforms were used for the first time during this period. New regulations were passed regarding minimum size for fish nets and traps; the protection of newly imported sea life and game species; size limits on octopus; harvesting ulua, papio, omilu, moi-iii, oama, lobster and nehu and the protection of abalone. During the period, all Division of Fish and Game rules and regulations were brought up to date.

The period 1960 to 1970 saw an expansion of programs begun in the 1950s with the infusion of new personnel and Federal monies. On January 1960 the Board of Agriculture and Forestry became the Board of Agriculture and Conservation to reflect the natural resource management responsibilities of the Divisions of Fish and Game, Forestry and

Parks. With the reorganization of the State government in July of 1961, the Department of Land and Natural Resources was created transferring these Divisions and combining them with the Divisions of Land Management, Conveyances and Water and Land Development. With the designation of all State Forest Reserve lands as public hunting areas in July of 1964 the total acreage open to public hunting increased from 522,000 to almost 950,000 acres and for the first time the Division of Fish and Game had the responsibility of managing public hunting programs on all State lands. Introductions of game mammals and birds continued with the importation of several species of partridge, francolin and quail, blacktail deer for Kauai, pronghorn antelope for Lanai, and mouflon sheep for Lanai. A study of the Axis deer on Lanai and Molokai was completed and research into the life history of the feral pig was accelerated in order to develop a management plan for this species. Although a non-game program existed within the Wildlife Branch since the Nene Restoration Program began in 1949, it was not until 1965 that non-game and endangered species projects really took form and were recognized as integral parts of the Division's responsibilities. A grant from the World Wildlife Fund permitted a detailed survey of the Koloa on the Island of Kauai; an agreement with the U.S. Fish and Wildlife Service gave the Division responsibility for managing the Hawaiian Islands National Wildlife Refuge and annual survey and patrol trips were made to the Northwestern Hawaiian Islands. The Alakai Wilderness Preserve was established on Kauai and three Nene sanctuaries were established at Keauhou on Hualalai and at Kahuku on the Island of Hawaii through cooperative agreements with private landowners. Captive rearing of koloa began in a program paralleling the nene propagation efforts at Pohakuloa. Planning for endangered species programs of habitat acquisition, research and protection commenced. During the 1960-1970 period, releases of nene into the three sanctuaries on Hawaii and at Haleakala on Maui totaled 844 birds and 64 koloa raised at Pohakuloa were liberated in the Kohala mountains on Hawaii.

In the Fisheries area, the "Bait Station" constructed to produce tilapia for aku live-bait at Kapalama near Sand Island on Oahu was converted to comprehensive facilities for all kinds for fish and shellfish rearing including hahalalu, moi-llii, oyster, clam, lobster, trout, catfish and bass and was re-named the Keehi Fisheries Station.

Studies of exotic marine and freshwater fish introduced to improve sport fishing opportunities and provide a reliable bait species continued with emphasis on the groupers and snappers, catfish, bass, threadfin shad, tilapia and a new South American species, the tucunare. Clam, oyster and trochus introductions to Kaneohe Bay off Oahu were monitored and the giant Malaysian prawn production and introduction program went into high gear.

In addition to adding car bodies and concrete pipes to the Moanalua artificial reef, new man-made shoals were established at Waianae and off Keawakapu, Maui to create attractive fishing opportunities. During the 1967-1968 biennium the first Marine Life Conservation District was created at Hanauma Bay, Oahu which prohibited the taking of any kind of marine life. Other areas such as Kealakekua Bay off Hawaii Island were surveyed as possible sanctuary sites for marine life. In 1965 a new program, the Hawaii Fisheries New Vessel Construction Loan Program, was initiated to help the ailing commercial fishing industry. A revolving fund was established to help finance the construction of commercial fishing vessels and in 1969 the first unit purchased under the New Vessel Loan Program, the M.V. Kilauea, was launched. Efforts to improve freshwater fishing opportunities were extended to introducing aquatic insects as food for trout at Kokee, conducting limnological studies of fresh water streams on all major islands, stocking ponds with catfish and bass, and continuing the rearing and release of rainbow trout fry.

The 1960s saw the beginnings of a deputy warden training program to extend law enforcement coverage and efficiency, Statewide. During the period 1960-1961 98 deputies received formal training and were added to the enforcement staff. Act 265 of the 1967 session of the Legislature gave authority to the enforcement officers to issue citations for violations of the fishing and hunting laws which expedited law enforcement efforts considerably. A marine enforcement program was initiated which permitted the staff to cover offshore areas more adequately. Two new patrol boats including the "Malama Kai" were purchased and the marine unit personnel were given SCUBA training. Public information efforts were emphasized along with strict law enforcement activities with the hope that an educational approach would help minimize infractions of the laws and regulations.

In the 1970s with the institution of the State Program, Planning and Budgeting System (PPBS) the Division of Fish and Game was operating under three major programs: Culture and Outdoor Recreation, Environmental Protection and Economic Development (Commercial fisheries). New areas for hunting and fishing recreation were added including the Waianae Kai and Kahana public hunting areas on Oahu, Puuwaawaa Cooperative Game Management Area on Hawaii, and Nuuanu Public Fishing Area on Oahu. New game species such as the Rio Grande turkey and Erckel's francolin were opened to public hunting for the first time. Stocking streams with rainbow trout fry continued at Kokee on Kauai on an annual basis. Habitat improvement for game birds and mammals included the installation of water units, brush clearing, and food plantings on game management areas. For game fish, an aeration system was installed at the Wahiawa Public Fishing Area and artificial feeding began at Nuuanu to enhance catfish productivity. Under the environmental protection program, emphasis was on endangered species and in 1975, Hawaii amended its endangered species law to correspond to the Federal Endangered Species Act of 1973. In addition to accelerating the propagation and release of the endangered nene and koloa, field surveys began of the alala, palila and other forest birds on Hawaii, Maui and Kauai. Cooperative agreements were consummated with various military installations which included conservation programs for endangered waterbirds. Refuges were established for endangered birds at Paiko on Oahu and at Kipuka Ainahou on Hawaii. Endangered species recovery teams were formed in cooperation with the U. S. Fish and Wildlife Service to draw up plans for restoring the species. In the marine environment, underwater surveys to assess areas for potential conservation status were made and three new Marine Life Conservation Districts were established at Manele-Hulopoe off Lanai, Kealakekua Bay in Kona and Molokini off Maui. New laws and regulations were drawn up to protect both land and aquatic species including a concept of managing aquatic resources through a system of alternating open and closed areas of public use.

Promotion of aquaculture on private areas became an important part of the commercial fisheries program and improved culture techniques permitted mass rearing of Malaysian prawn for distribution to private pond owners. The Keehi Fisheries Station was moved to Sand Island and dedicated in March 1973 as the Anuenue Fisheries Research Center with many improvements in facilities. Other important projects to improve commercial fishing success included studies of aku purse seining techniques, the institution of aerial spotting of schools of skipjack tuna to assist fishermen, and the construction of the fishing vessels ANELA, MOKIHANA, BETTY N, LIBRA and ALAKA'I O MOANA through the vessel loan program. This latter program was transferred to the Department of Planning and Economic Development in 1975. With the inclusion of a representative of the Division of Fish and Game on the newly formed Western Pacific Regional Fisheries Management Council, Hawaii increased its involvement with commercial fisheries resource management on a national and international scale.

The future of the Division of Fish and Game will probably see increased emphasis on aquaculture, endangered species and intensely managed fishing and hunting recreation. With the increased pressures being brought to bear on natural resources due to human population increases, competition for the use of land and water areas and the need to make Hawaii more self-sustaining in food production, such programs will be essential.

