

State of Hawaii

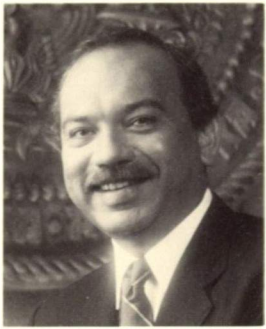
Department of Land  
and Natural Resources

Report To The

Governor 1986-87

Volume I





Honorable John Waihee  
Governor of Hawaii  
State Capitol  
Honolulu, Hawaii



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STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621  
HONOLULU, HAWAII 96809

August 15, 1988

WILLIAM W. PATY, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

LIBERT K. LANDGRAF  
MANABU TAGOMORI  
RUSSELL N. FUKUMOTO

AQUACULTURE DEVELOPMENT  
PROGRAM  
AQUATIC RESOURCES  
CONSERVATION AND  
ENVIRONMENTAL AFFAIRS  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

Honorable John Waihee  
Governor of Hawaii  
State Capitol  
Honolulu, Hawaii

Dear Governor Waihee:

As a reflection of your Administration's "New Beginning", our Annual Report for the Fiscal Year 1986-1987 is also new.

It is new in style, format, and content. Most noteworthy is the Two Volume approach. Volume I provides general interest information and highlights. Volume II is a more detailed reference document, including statistical data which is frequently requested of the department.

As the State's natural resources come under increasing usage pressure from residents and visitors alike, the need to enhance these resources and to provide for their long term management and protection becomes ever more important.

The accomplishments cited are the results of your guidance, legislative support, the members of the Board of Land and Natural Resources, and the employees of the department.

We have presented what we have done, but anticipate future reports to also include what we are going to do.

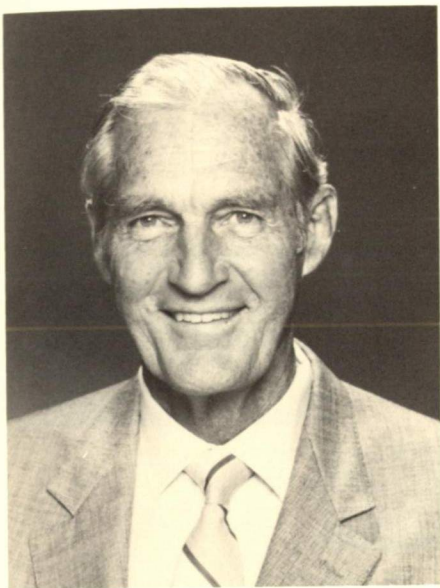
Respectfully,

WILLIAM W. PATY

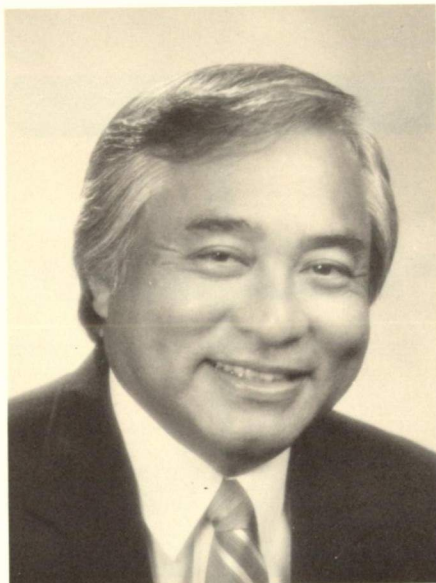
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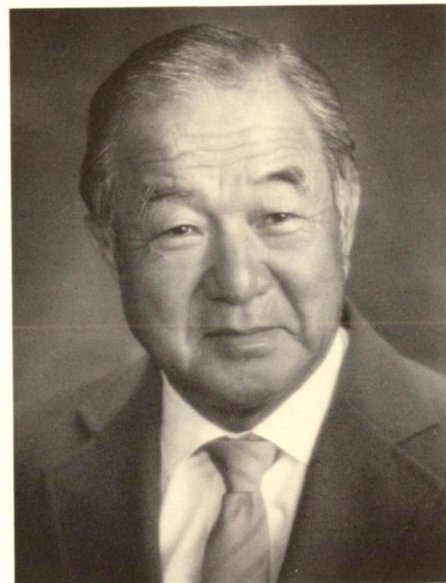
BOARD OF LAND AND NATURAL RESOURCES



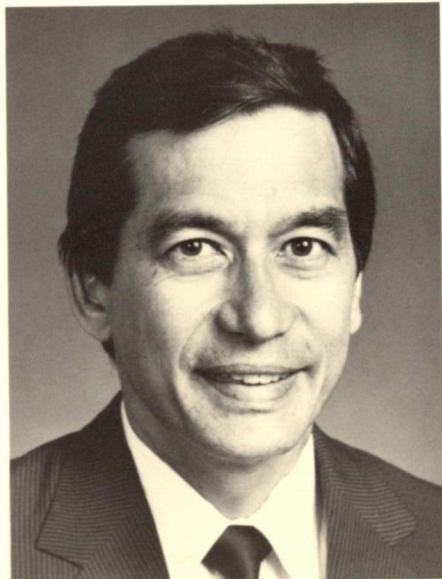
William W. Paty  
Member & Chairperson



Herbert Y. Arata  
Hawaii



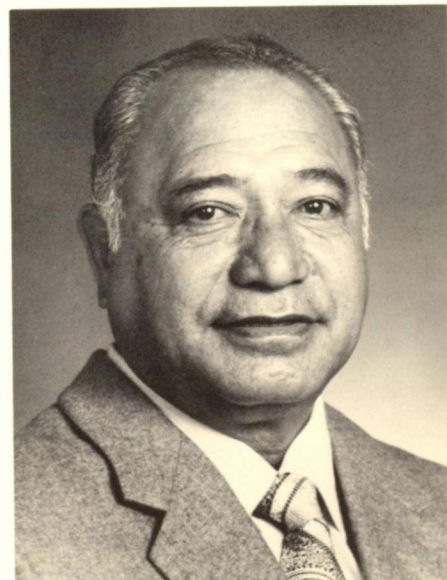
John Y. Arisumi  
Maui



J. Douglas Ing  
Oahu

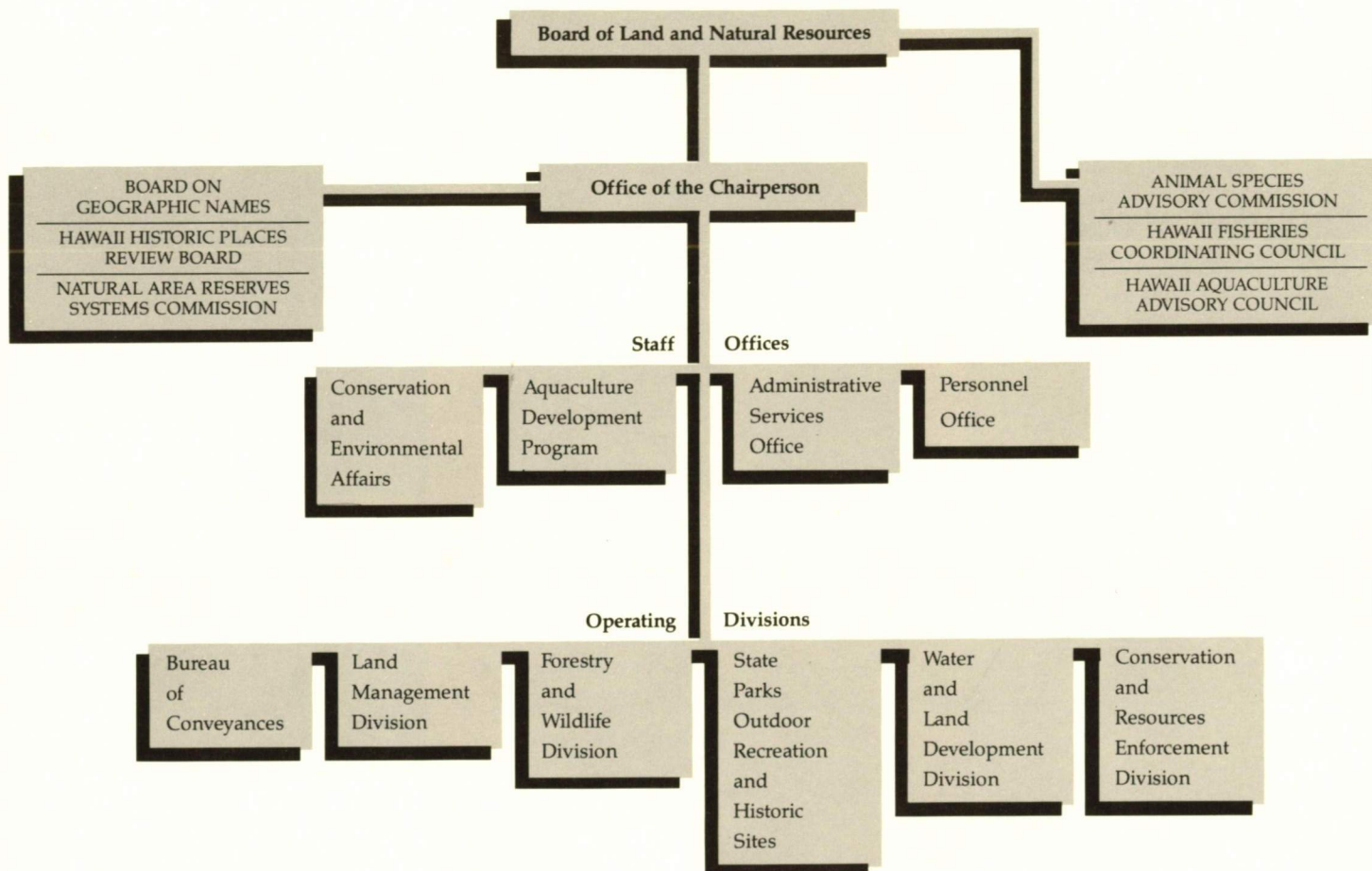


Leonard H. Zalopany  
Kauai



Moses W. Kealoha  
At Large

# DEPARTMENTAL ORGANIZATION CHART







## DEPARTMENT OF LAND AND NATURAL RESOURCES

Department  
Division  
Office and  
Program Heads

*Chairperson:*  
William W. Paty

*Deputy to the Chairperson:*  
Libert K. Landgraf

*Personnel Officer:*  
Melvin Young

*Fiscal Officer:*  
Anne Furuuchi

*Administrator, Conservation and Environment Affairs:*  
Roger C. Evans

*Manager, Aquaculture Development Program:*  
John S. Corbin

*Executive Secretary, Natural Area Reserve System Commission:*  
Robert Lee

*Registrar, Bureau of Conveyances:*  
Charles F. Neumann

*Administrator, Division of Land Management:*  
Mike K. Shimabukuro

*Administrator, Division of Forestry and Wildlife:*  
Ronald L. Walker

*Administrator, Division of Aquatic Resources:*  
Henry M. Sakuda

*Manager-Chief Engineer, Division of Water and  
Land Development:*  
Manabu Tagomori

*Administrator, Division of State Parks, Outdoor Recreation  
and Historic Sites:*  
Ralston Nagata

*Chief, Division of Conservation and Resources Enforcement:*  
Maurice M. Matsuzaki

## Division of Aquatic Resources

The Division of Aquatic Resources is responsible for the management, preservation and enhancement of both marine and fresh water living resources. The division's three branches administer the State's programs in commercial fisheries and aquaculture; aquatic resources and marine environment protection, including several endangered species and the State's eight marine life conservation districts; and fresh and salt water recreational fishing enhancement.

### *Supporting Commercial Aquaculture*

The division's Anuenue Fisheries Research Center (AFRC) on Sand Island, Oahu, assists the local fresh-water prawn industry by making available *Macrobrachium* larvae to commercial growers. A hatchery technique developed at the AFRC for producing large quantities of prawn larvae is used throughout the world. The AFRC also conducts larval culture studies on mahimahi and the common blue-pincher crab.

### *Making Fish At Home—Close To Shore*

Fish need shelter. Rocky outcroppings on the ocean floor, ledges and isolated coral reefs are favorite spots for fish to congregate because they offer protection from predators. Such areas are also favorite spots for sport fishers and scuba divers.



In May, 500 concrete-tire fish shelters were added to the Maunalua Bay Artificial Reef.



**Division of Aquatic Resources**

In Hawaii, unfortunately, much of our nearshore areas are poor fish habitats, made up of flat limestone bands and large sand patches.

In 1961, under the Federal Aid in Sport Fish Restoration Program, the division began to create and place artificial fish habitats or reefs in the waters off its major islands. The first was established at Maunalua Bay, off Kahala on Oahu. It was followed by additional artificial reefs off Waianae and Kualoa on Oahu, and Keawakapu off Maui.

Materials originally used for artificial reef construction were abandoned car bodies and damaged concrete pipes donated by private industry. But by the early 1970's, environmental concerns and increased value of metals had made car bodies unsuitable for further use.

Today, low-cost and environmentally-safe artificial reefs are being built from discarded car tires set in concrete. The fish habitat modules look like rows of huge doughnuts in a cement trough. The modules are stacked atop one another; their weight keeps them in place, and the spaces inside the tires provide a haven for fish. Seaweed and encrusting animals, including coral, grow on them and also provide food for the fish.

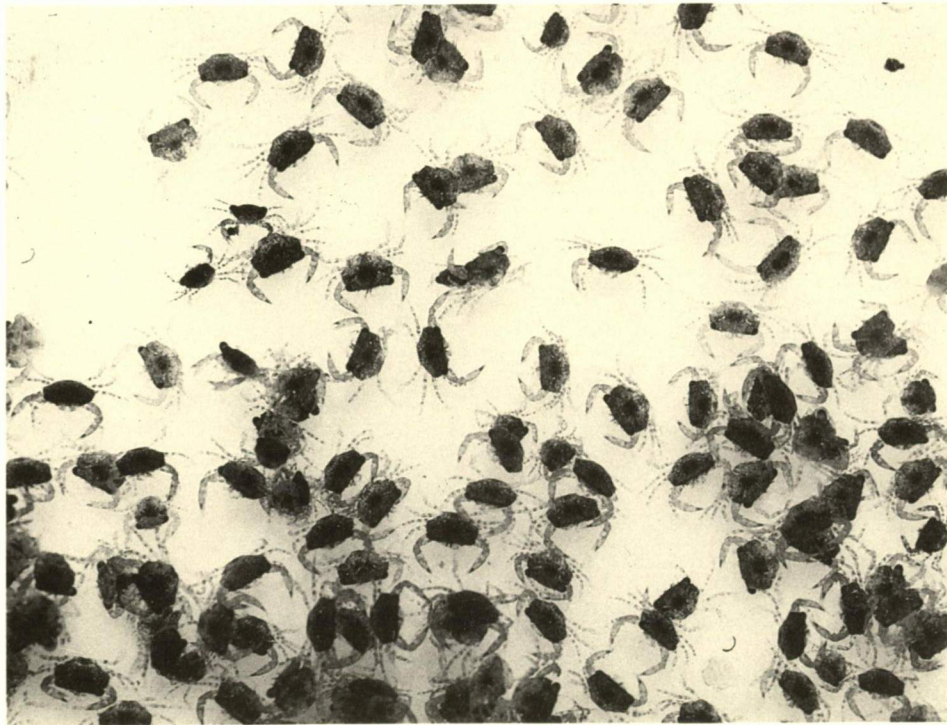


Consumers were given the opportunity to taste "Chinese-style steamed taape" at participating supermarkets.

## Division of Aquatic Resources

To date, the division has hauled 10,000 tires and has used 800 tons of cement to build more than 1,000 modules. About half of these have been placed at the State's artificial reef in Maunalua Bay, off Kahala. Surveys taken before and soon after the modules were installed reveal that the fish population in the areas increased to 35 times its former size—even taking into account the increased activity (and sizable catches) of spear fishers, handline fishers and trap fishers.

The first four artificial reefs are located in water less than 75 feet deep, safe for scuba diving. A pilot experimental reef in deeper water, about 200 fathoms (600 feet), is being constructed to determine whether a deep-water fish habitat can increase the abundance of such high-demand bottomfish as opakapaka and onaga. A suitable site for this deep water reef has been found off Ewa Beach, Oahu. For reef building materials, the construction industry is donating hundreds of tons of broken concrete slabs, pipes and large boulders, and the U.S. Navy is donating two large, surplus caissons from the Pearl Harbor Shipyard.



**Above**  
Post larval crabs were produced by mass culture experiments at the Anuenue Fisheries Research Center.

**Above Right**  
Shoreline surveys were conducted off Kipu Kai, Kauai, to evaluate the area's potential as a Marine Life Conservation District.



*Gathering Places In the Ocean*

Artificial reefs create shelter for fish living on or near the sea floor. The division also constructs and installs Fish Aggregating Devices (FADs) to help commercial and sport fishers catch open-ocean pelagic fish such as tuna (ahi and aku), mahimahi, wahoo (ono) and billfish (marlin and

harvest tuna. Yet no one knows why fish are attracted to floating objects. Perhaps they provide shelter and cover for small fish and larvae, which in turn attract larger predators that feed on the small fish, and perhaps the objects serve as a point of reference for the open-ocean travelers.

In 1979, the division began placing

made from discarded tires but from large metal sphere buoys five feet in diameter. Each FAD is attached by several thousand feet of synthetic rope and chain to large concrete anchors weighing several tons. Each FAD has a mast topped by a solar battery-powered blinking light to help fishers locate it as well as to



spearfish).

Fishers have known for many years that fish are attracted to, and gather around, objects floating in the ocean (such as driftwood, logs, rafts and flotsam). Purse seiners in the Philippines use anchored bamboo rafts called *payaos* to aggregate and

FADs in the waters around Hawaii.

The first ones were made of foam-filled discarded tires from sugar cane haul trucks. With the help of local fishers, 28 sites around the main Hawaiian Islands were selected for FAD installation. The sites ranged from 3 to 20 miles offshore.

Today, the division operates a system of 48 FADs around the main Hawaiian Islands. They are no longer

help prevent boats from colliding into it at night.

The life span of the FADs is approximately 18 to 20 months, although some have remained on station for several years. But due to stress and fatigue from wind, waves, currents and boats illegally tying

## Division of Aquatic Resources

onto them, the FADs eventually break loose and must be replaced.

Last year, local commercial fishers reported catching almost two million pounds of fish from around the FADs. However, the actual landings are considerably larger because catches from sportfishers using the FADs are not included in the commercial catch reports.

The division has been experimenting with midwater buoys, the next generation of FADs. A five-mile midwater "trolling alley" was created off the Waianae coast last year, and fishers are pleased with their catches around them. The division has also been investigating the idea of creating fish aggregating areas or "artificial fish ko'as" using clusters of submerged FADs. The possibilities are enormous for aggregating tuna, mahimahi, ono, billfish and other fish in Hawaiian waters.



"HH" off Pearl Harbor is one of Oahu's more productive Fish Aggregating Devices (FADs). In FY 1987, fishers reported making 434 trips to the FAD catching a total of 75,809 pounds of fish.



## Division of Conservation and Resources Enforcement

The Division of Conservation and Resources Enforcement (DOCARE) was established by the State Legislature in 1978 through Act 171. With full police powers, the division enforces all State laws and rules governing State lands, State parks and historic sites, Natural Area Reserves, forest reserves, aquatic life and wildlife areas, Conservation Districts under the jurisdiction of the Department of Land and Natural Resources, State shorewaters and shores, and County parks. The division also enforces laws relating to firearms, ammunition and dangerous weapons.

Prior to Act 171, enforcement powers were limited and were exercised by an enforcement branch in the Division of Fish and Game only in the areas of aquatic life and wildlife. The jurisdiction of the forest rangers in the Division of Forestry was limited to forestry areas. These limited capabilities were inadequate to meet the needs of the Department of Land and Natural Resources in enforcing the rules established to conserve and preserve Hawaii's limited natural resources. Act 171 placed the department's enforcement functions into a single division.



Firearms qualifications.

## Division of Conservation and Resources Enforcement

The division issues and sells commercial and recreational fishing and hunting licenses. It also administers two volunteer programs, the Volunteer Conservation and Resources Enforcement Officer program and the Volunteer Hunter Safety Education Instructor program.

### *Public Information and Education*

As part of its enforcement program, the division provides several information and education services. Posters identifying marine animals and closed-season periods, as well as a digest booklet of the State's fishing laws, are available at DOCARE's offices, fish markets, sporting goods stores and boat ramps.

The booklet lists restrictions on catch size and harvesting methods, the legal sizes of various nets and traps, and the location of fish aggregating devices and marine life conservation districts. It also covers freshwater fishing at the Wahiawa Public Fishing Area on Oahu, the Waiakea Public Fishing Area on Hawaii, and the Kokee Public Fishing Area on Kauai.

Through news releases, the division notifies newspaper agencies, radio stations and television stations regarding open and closed seasons on fish and wildlife, and schedules for hunter safety education classes. The hunter safety program is also promoted via information booths at gun shows.

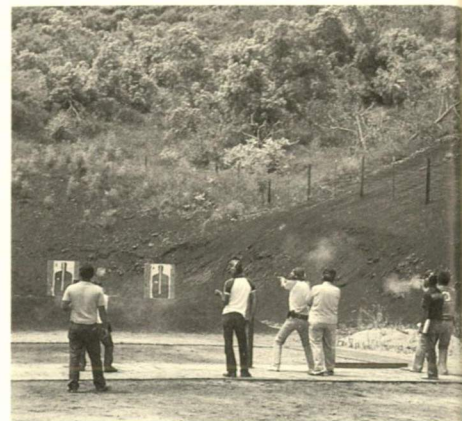
DOCARE officers make regular speaking appearances at schools and youth and community organizations. Last year an officer spoke to summer work crews on Lanai. At these appearances, the officers' presentations cover DOCARE's enforcement authority and responsibilities, and the identification and explanation of the laws and rules DOCARE enforces.

County police departments often ask DOCARE representatives to appear before their recruit training classes. Topics covered include coordination efforts among police and DOCARE officers.

### *Kauai Poachers Well Equipped*

Stories like this—and the one following—are not uncommon in the work of DOCARE personnel.

On a drizzly Wednesday in May, 1987, Kauai Conservation Enforcement Officer Milton Ching was patrolling the Wailua Forest Reserve when he observed a pickup truck parked on the side of the road.



Firearms qualifications  
(Kauai).





Canine training.

Approaching the truck, he saw an animal cage in back and noticed fresh prints (made by both shoes and paws) in the muddy ground. He decided to wait for the truck's occupants.

After staking out the truck for two hours, Officer Ching observed several dogs of mixed breed emerge from a nearby trailhead, followed by a man dressed in full military-style camouflage and wearing a backpack and webbed belt with a hunting knife and canteen attached. Officer Ching was about to leave his vehicle when he saw more dogs emerge from the trail, followed by another man also wearing camouflage clothing and a backpack. Ching called for assistance and was joined in ten minutes by Officer Nolan Rapozo.

The officers confronted the two men, informing them that they were violating the law by hunting on a non-hunting day. They asked the men to remove their backpacks and open them for inspection, a request to which the men refused to comply. Officer Ching then retained both packs as evidence and took them to the enforcement office for safekeeping.

On the next day, Officer Ching requested and obtained a search warrant from the Office of the Prosecuting Attorney and proceeded to open the packs in the presence of additional enforcement officers acting as witnesses. In the first pack, he found a .44 magnum pistol in a holster bearing the violator's initials, several rounds of live ammunition and some marijuana. In the second pack he found another .44 magnum, another initialed holster, a box of ammunition, a 9-inch dagger and more marijuana.

Officer Ching then contacted the Prosecuting Attorney's office, and additional firearm and drug charges were filed against the violators who had already been cited for hunting violations. After court proceedings, both were found guilty of the charges brought against them and now await sentencing.

*Wet, Cold, Hungry and Lost*

A phone call on a dark and rainy night awakened Officer Rufus Kuilipule from his sleep. On the line was a caller from the East Hawaii Citizens' Band network organization who had received a radio call for help from two teenaged boys lost in a

forest. Luckily, they had taken a portable CB radio along.

On his own CB radio, Officer Kuilipule made contact with the lost boys. From the information they offered, he concluded that they were somewhere in the Waiakea Forest Reserve. Contacting the parents of the boys and other CB club members, he organized a search operation.

The Officer instructed his volunteers to drive their cars to locations at specific intervals along the forest boundary, and to turn on their headlights and sound their horns. He told the lost boys to look for the lights and listen for the horns, and try to head in their direction. In the meantime, other volunteers were entering the forest trails and calling out for the boys.

The rain continued, and after two hours the boys were not located, although contact was maintained on their CB radio. The search continued.

Finally, about four hours after the search had commenced, the two boys emerged from the forest. They were wet, cold and very hungry, but they were safe and uninjured during their ordeal. After thanking the CB organization and Officer Kuilipule, the boys' parents bundled them up and took them home.



## Bureau of Conveyances

The conveyance of title to real property established a "chain" of title showing successive ownership, beginning with the original source, and proceeding to and including the present owner. In Hawaii, documents showing ownership, encumbrances and liens are recorded in the Bureau of Conveyances.

The mandate of Bureau of Conveyances is to protect the public by providing for an accurate, timely and permanent system of registering and recording land title and related documents and maps. The Bureau is responsible for maintaining accuracy in recordkeeping and for eliminating errors and confusion in land title registration.

The Bureau's activities include the examination, recordation, indexing and processing of all legal and land title documents and maps entitled to recordation, as well as the issuance of Land Court Certificates of Title, certified copies of matters of record and Uniform Commercial Code information requests.

The Bureau uses two different systems for the recordation of proof of ownership to real property—the Regular System and the Land Court System. The difference between the



An employee fills orders for certified copies of documents recorded in both the Land Court and Regular Systems. She prepares approximately 50,000 pages annually or approximately 198 pages daily.

## Bureau of Conveyances

two systems is that in the Regular System, only the evidence of title (e.g., the deed) is recorded. In the Land Court System, however, recordation is the operative act through which the land is conveyed or affected.

Documents recorded in the Regular System branch are not verified as to truth or genuineness; they are accepted if the document has the name of a grantor and grantee, a return address and notarized signatures, and if the appropriate fees have been paid. Recordation thereby establishes a system of priority of claims against the property by date. The chain of title is established, although there is no guarantee that a recorded document is valid.

In the Land Court System, the State guarantees title and provides for a recovery fund designed to compensate any person who sustains loss or damage, or is deprived of land by the registration of another person in consequence of an error in the registration book. The recovery fund is maintained by a fee paid upon the original registration of land equal to .1% of the assessed value of the land and improvements.



The microfilm section of the Bureau of Conveyances. These two employees microfilm approximately 290,054 documents annually of both the Land Court and Regular Systems. They microfilm daily approximately 7,000 pages of recorded documents.



## Bureau of Conveyances

If the land is registered in the Land Court System, interested buyers need only look at the original certificate of title to determine the entire legal status of the property. If the land is registered in the Regular System, interested buyers must look at records in the Bureau of Conveyances and other government offices.

There are shortcomings in both systems. In the Regular System there are often gaps in a chain of title, creating "clouds" on that title. In such instances, ownership must be determined by a court action called a suit to quiet title. In the Land Court System, registration of property in the Land Court can cost as much as \$5,000, and the recording process is time-consuming because each document must be treated with great attention to detail.

The use of two different recording systems was the subject of a study conducted last year by the State's Legislative Reference Bureau. Its subject was an examination of the purpose and cost-effectiveness of maintaining two systems for holding and recording land titles in Hawaii.

The study reported that twenty-one states in the U.S. have used a Land Court System, but that in eight



These employees are in the process of converting 180,000 transfer certificates of title into the Land Court Automated System computer. This conversion program will take approximately two years.

## Bureau of Conveyances

of them the system has either been repealed or fallen into disuse. In the thirteen remaining states, land registered in the system is generally urban property destined for development, because the clearance of title is both affordable and appealing to developers. In Hawaii, about 22% of the State's privately owned lands are registered in the Land Court System.

The study recommended that additional budgetary support be provided to the Bureau of Conveyances for speeding up the document processing backlog within the Land Court System. Additional personnel were recommended to assist the transfer of manual records to computer, a transition which was begun more than a year ago.

Because the two systems were considered to be mutually exclusive, it was determined unfeasible to consolidate them and recommended that neither system be abolished, because retention of both provides Hawaii landowners with a choice for clearing title.



The receiving counter for both the Land Court and Regular Systems. All documents affecting real property in the State of Hawaii or documents related to property are received by the document receiving clerks. We record a daily average of 373 documents in the Land Court System and 778 documents in the Regular System.

The Land Court also issues about 45 new Transfer Certificates of Title daily. The total number of documents recorded during Fiscal Year 1986-87; the Land Court and Regular Systems is 290,054, with a total of 14,693 Transfer Certificates of Title issued.



The indexing section of the Bureau of Conveyances. Five employees prepare the indexes for both the Land Court and Regular Systems. They input into the computers annually approximately 1,160,216 names of both grantors and grantees, the document numbers, certificate numbers, book and page, date of recording, the descrip-

tion of the property and other information connected with or related to land transactions. They prepare the general indexes which are the keys to locating records in the Bureau of Conveyances Land Court and Regular Systems.



## Division of Forestry and Wildlife

The Division of Forestry and Wildlife is responsible for the management of State-owned forests, public hunting areas, and plant and wildlife sanctuaries. Program areas cover commercial forestry, outdoor recreation, and environmental protection including threatened and endangered species of plants and wildlife.

In the Forestry program, traditional management activities in forest reserves or watersheds include preventing soil erosion, fighting and preventing fires, planting trees, and other activities which provide and maintain the habitat of wildlife and plants.

Mandated to promote the economy by providing opportunities for commercial forestry, the division issues permits, licenses and leases regulating the harvesting of forest products such as lumber, maile vines, and hapuu.

The division plays an active role in protecting and perpetuating native plants. Nineteen plants are listed as endangered, and 300 more have been proposed for listing. Designated areas are fenced off to protect certain plants from cattle, pigs and goats. The division assists in the propagation and dissemination of plants to private and public agencies such as nurseries and aboretums.



Temporary employee  
replanting area of  
Eucalyptus timber  
harvest, Waiakea Forest  
Reserve, Island of  
Hawaii.



## Division of Forestry and Wildlife

In cooperation with the University of Hawaii and the National Park Service, the Division of Forestry and Wildlife conducts biological control programs to rid forests of pests such as banana poka, clidemia, gorse and firebush. Activities include importing proven control agents (such as insects and diseases) from areas outside the State.

The division's wildlife program is divided into two categories: appropriative use (such as hunting) and non-appropriative use (such as birdwatching, nature study, and hiking). By issuing licenses to regulate hunting and by fencing off wildlife sanctuaries, the division preserves existing wildlife and protects endangered species.

For the regulation of hunting, the division conducts wildlife inventories and studies game species to establish hunting seasons which provide for the controlled removal of animal surpluses.

### *Giving Nature A Helping Hand*

The Division of Forestry and Wildlife is actively involved in the propagation of endangered species, specifically birds, via its endangered wildlife propagation program. Birds







Chipper in use by  
Hawaii Forest By-  
Products to prepare  
fuel from Eucalyptus,  
Waiakea Forest Reserve,

Island of Hawaii. Fuel  
is used by the Puna  
Sugar power plant.



## Division of Forestry and Wildlife

are captured, raised, and subsequently released to augment the wild stock. Three species currently at the Endangered Species Propagation Facilities at Pohakuloa on the Island of Hawaii are the Hawaiian goose (Nene), the Hawaiian duck (Koloa) and the Laysan duck.

In November, 1986, a new facility at Olinda, Maui was successfully occupied by nine Alala after their transfer from Pohakuloa. The new facility, which will eventually replace the older, less suitable one at Pohakuloa, includes two large pens designed to facilitate care and breeding of the crows. Construction of the pens was a joint effort of the State, the U.S. Fish and Wildlife Service, and the U.S. Army, Western Command.

Although each of four pairs of Alala initiated nesting in Spring, 1987, only one pair produced eggs. The first clutch of two eggs failed to develop, and tragedy struck a few weeks later when the female, Hiialo, died while attempting to lay a second clutch. A necropsy conducted by the National Wildlife Health Laboratory in Wisconsin revealed a polyp obstructing the bird's oviduct. Her mate has since been paired to another female.



Photos, stereoscopes, maps, compasses, intuition and teamwork all assist the foresters in finding their ground plots during multiresource inventories in forests.



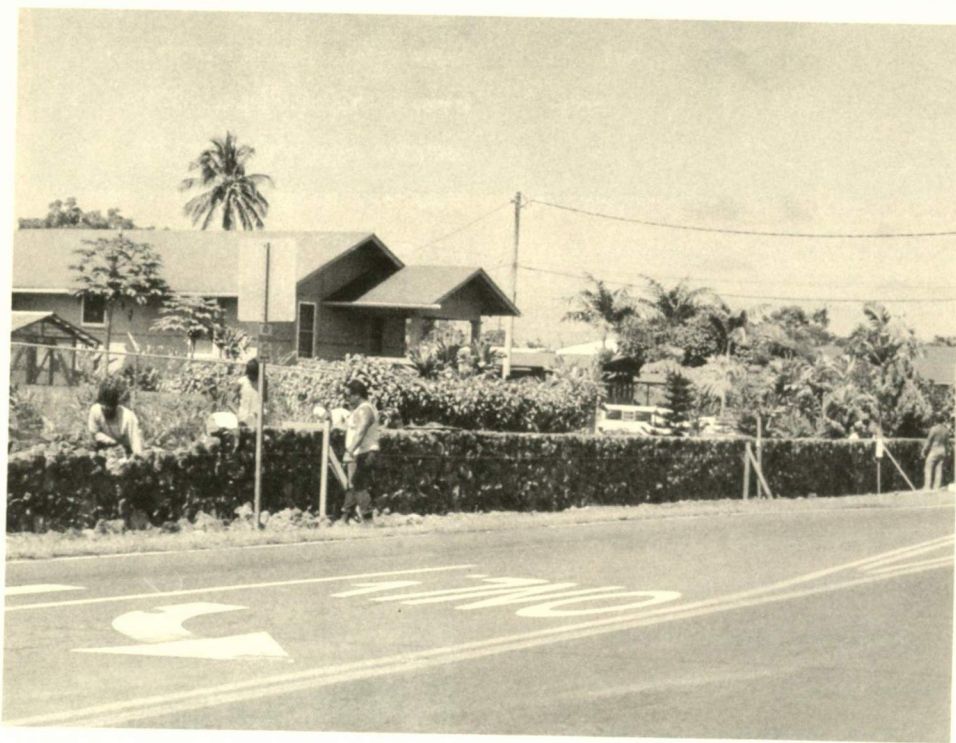
It is hoped that, with the experience of a full breeding season behind them, the four pairs of crows will be more successful next season. Since biologists estimate that there are less than 20 Alala alive in the wild, their survival as a species is in severe jeopardy.

Hawaii has engaged in the captive propagation of endangered birds for release to the wild since 1949, when the program began at Pohakuloa with efforts to propagate the State bird, the Nene. In recent years it became apparent that the Pohakuloa facility was less than ideal. Problems included inhospitable environmental factors, disturbance from increased military training activities, and inadequate facilities.

Future projects for the Olinda facility include building pens for endangered waterfowl not yet moved from Pohakuloa, renovating support facilities, and constructing a veterinary clinic. On completion, the Olinda center will allow full-scale production of endangered birds of several species to augment wild populations threatened with extinction.

Although the exact species of forest birds to be bred at Olinda have not been determined, several likely can-

didates are being considered. Forest birds present unique problems; finding, capturing and transporting them from their rugged, remote habitat to the facility will be difficult. Keeping and breeding them may be even more complicated. But, although success cannot be guaranteed, failure to make the effort may result in the



ultimate extinction of these rare species.

### *Assisting Forest Landowners*

Cooperative Forestry Assistance is a program developed to promote good stewardship and appropriate forestry practices on private land excluding that owned by forest and

Kulani Correctional Facility inmates reconstruct 1600 feet of stone wall at the Hilo office-arboretum. DOFAW provided logistical support and Kulani provided the labor and supervision, resulting in substantial savings to the department.

## Division of Forestry and Wildlife

paper product industries. Funding for the program is shared by the U.S. Forest Service and the State.

The program provides technical assistance to private landowners for forestry development on their lands, as well as to timber harvesters including wood processors who need assistance in finding wood resources for their operations.

During the year, the program assisted more than 200 forest landowners (including partnerships, corporations, and other government agencies). Cooperative forestry also provides jobs, income and a more satisfying life for rural area residents.

In cooperation with the University of Hawaii's College of Tropical Agriculture and Human Resources, the division conducted forestry training for County Extension Agents. A workshop clarified the roles of "extension agents" and "service foresters," instructed agriculturally-trained agents in the rudiments of forestry, and identified sources of technical support and opportunities for forestry practices on private, non-industrial lands.

In recent years, interest in forestry in our urban areas has increased. This year County agencies, business groups, civic organizations and indi-

viduals received assistance through the program. Many were involved in beautification projects and the maintenance of existing urban trees. For example, program staff worked with local Boy Scout troops in an urban reforestation project at a sanitary landfill site on Oahu.

Arbor Day is regularly celebrated in Hawaii, and all division districts reported successful distribution of trees to interested parties. Kauai was certified as a new "Tree City U.S.A." Maui was recognized for its participation in the program for ten years, and Oahu for nine years.

Carpetgrass planting for experimental game bird habitat improvement, Kekaha Game Management Area, Island of Kauai.





## Division of State Parks, Outdoor Recreation and Historic Sites

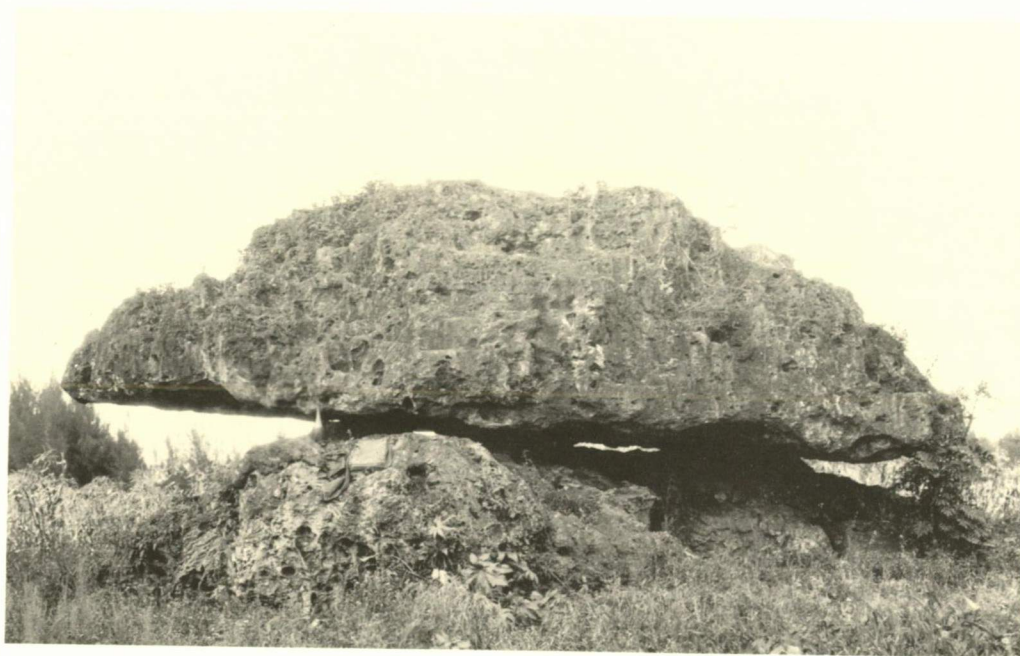
The Division of State Parks, Outdoor Recreation and Historic Sites administers the State Park System, which includes parks on Oahu, Maui, Molokai, Kauai and Hawaii. It also manages the State's historic preservation and recreation planning programs.

State funding for the division is allocated among three programs within the State budgeting system: Historic and Archaeological Places, Parks Recreation, and General Administration for Culture and Recreation.

The division's branches include planning, development, resources management (caring for the parks, the largest branch in terms of personnel), and staff and supportive services. The latter branch manages the division's historic preservation program.

The division receives federal assistance for the historic preservation program, and the federal Land and Water Conservation Fund program provides funds for the acquisition and development of outdoor recreational facilities.

Recreational planning managed by the division generally involves outdoor activities with a natural, scenic, cultural or historic emphasis rather



Pohaku Lanai, a large balancing stone at Kaiaka, Oahu, was placed on the Hawaii Register of Historic Places on November 26, 1986. The limestone is a unique geological feature which plays a significant role in Hawaiian legend, religion and culture.

## Division of State Parks, Outdoor Recreation and Historic Sites

than sports, and tend to be non-organized rather than scheduled.

The division is actively involved in managing (and, traditionally, minimizing) commercial activities within State Parks. It also prints interpretive and informational brochures and places interpretive signage.

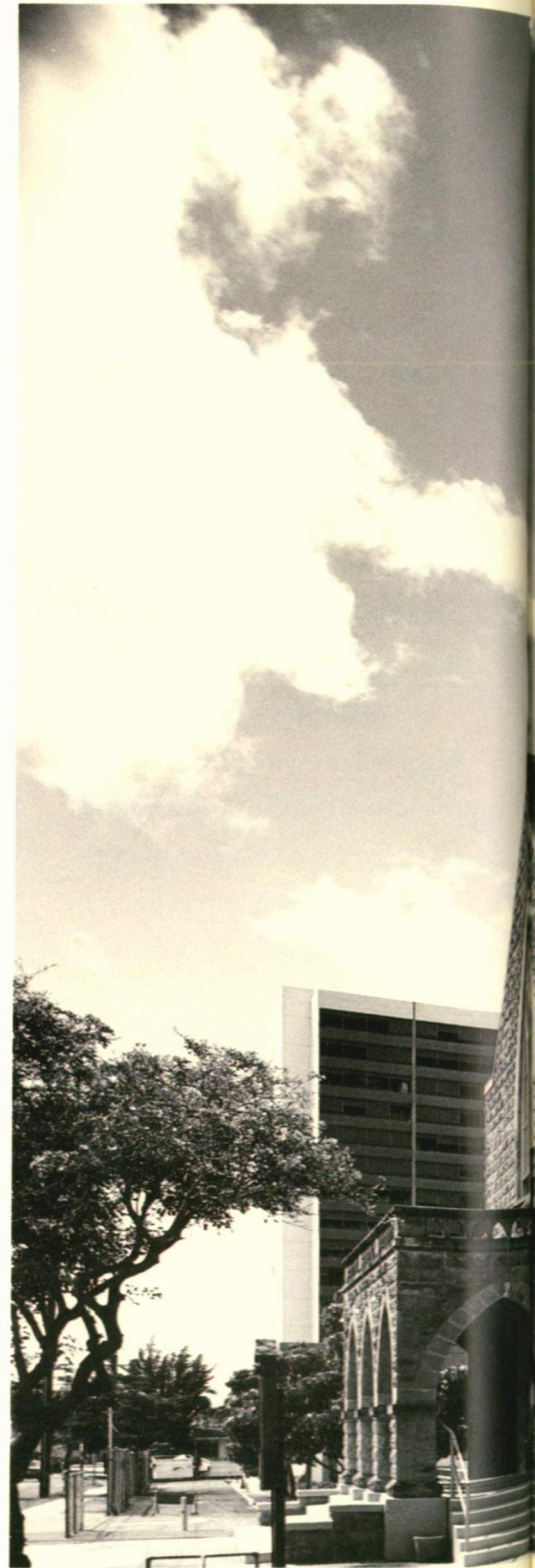
Two areas of interest within jurisdiction of the division are Iolani Palace and the Royal Mausoleum. In managing the former, the division receives assistance from a private group, the Friends of Iolani Palace.

Of the twelve functional plans mandated by the State Legislature for the current administration to accomplish, two are handled within the Division of State Parks: the State Historic Preservation Functional Plan and the State Recreation Functional Plan. The two plans broaden the division's usual responsibilities in these areas by including provisions for coordinating with other State and County agencies as well as the federal government and the private sector.

### *Park Permit Process Streamlined Via Computers*

Progress continues on the computerization of the State Parks Reservation and Visitor Information System (SPRVIS). The main objective of

The Sacred Heart Church in Honolulu was placed on the Hawaii Register of Historic Places on June 17, 1987. The building is a good example of a gothic revival style church building with its original stained glass windows. The building, which was completed on November 1, 1914, was designed by Edgar Allen Poe Newcomb.









## Division of State Parks, Outdoor Recreation and Historic Sites

SPRVIS is to make it easier and more convenient for the public to obtain various types of State Park permits, including camping and cabin usage permits.

Under the present system, a user can obtain a permit only from the State Parks office on the island where the park or facility to be used is

based consulting and computer service, to design the software, develop and test the system, train State Parks personnel, and assist in bringing the system online.

The consultant's study indicates that the proposed system will not only speed up the permit-issuing process and reduce the clerical staff



located. Under SPRVIS, a statewide computer network will enable the division to issue permits for the usage of facilities and accommodations at almost every State park in the islands from any of the four parks offices located on Oahu, Maui, Kauai and Hawaii.

Implementation of SPRVIS was started in April, 1986. The division contracted Data House, Inc., a Hawaii-

time required to process the permits. SPRVIS will also keep records and prepare reports (such as accurate and timely data on visitor usage), provide quick information to the public on the availability of park facilities, supply historical permit data for special uses, and determine the eligibility of applicants.

During the past fiscal year the consultant completed the design, programming, initial testing and training for the computerized permit

The Oahu Railway and Land Company Depot was placed on the Hawaii Register of Historic Places on June 17, 1987. It was built to service the sugar industry on the western side of Oahu. The building, which was designed by Honolulu architect Guy Rothwell, was built in 1927.



system. It will run on the State's Wang VS300 minicomputer (administered by the Department of Budget and Finance's Electronic Data Processing Division). The Administrative Services Office of the Department of Land and Natural Resources coordinated installation of the hardware in offices on the four

America Awards Program. Tamar Chotzen, Executive Director of the center, visited Washington, D.C., to accept the award from President Reagan at a ceremony in the Rose Garden. Prior to her visit to Washington, she was presented with a State award by Governor John Waihee during a special recognition ceremony held at the Hawaii Nature Center.

The Take Pride in America Program is a national public awareness campaign to reduce abuse and promote better care for the nation's public lands and cultural resources. It was established to recognize outstanding public resource stewardship projects and programs, and to provide incentive for others to become involved. The State Parks Division administers the program in Hawaii.

The Hawaii Nature Center is a nonprofit nature education organization concerned with fostering awareness, appreciation and understanding of the environment, and encouraging a wise and prudent use of public lands and resources. Annually more than ten thousand people, mostly young schoolchildren, come to the center to learn about the State's natural habitat.



A concession building for food and allied services was constructed at Hapuna Beach State Recreation Area on the Big Island.

islands, as well as the telecommunication linkages. The complete statewide switchover was accomplished on September 30, 1987.

#### *Local Nature Education Organization Gains National Recognition*

The Hawaii Nature Center, located in the State Department of Land and Natural Resources' recreation area at the base of Makiki Valley on Oahu, was honored as one of thirty-eight national winners in the Take Pride in

Twenty-five volunteers donate a morning each week to teach children about the care and preservation of the natural environment. They study stream life, take a wilderness walk, explore a bamboo forest and catch insects on an insect safari. For many of the children, it is their first experience with nature.

In addition to its school program, the center offers a Saturday program in Hawaiian culture, a hiking program for the public, and a summer fun program for 5- to 12-year-olds. The center has an agreement with the State Department of Land and Natural Resources to manage the environmental education program in the Makiki-Tantalus recreation area.

More than five hundred applicants in eleven different categories were nominated nationwide for consideration in the national awards program. Eighty-nine were selected as finalists, including nine from Hawaii: the center, the Hawaiian Telephone Systems + Division, Clean Air Team, the Kalihi-Palama Community Council, A Million Trees of Aloha, the Kilauea Point National Wildlife Refuge, and four individuals (Kula Mossman, Fred Trotter, George Holeso and Larry Costa).



**Top**

Tamar Chotzen, Executive Director of Hawaii Nature Center, expresses her appreciation after receiving a State award from Governor John Waihee (right) in a special awards ceremony. The Hawai'i Nature Center was also one of the national winners in the Take Pride in America Awards Program.

**Above**

A ten-campsite campground was developed and opened for public use at Waimanalo Bay State Recreation Area on Oahu.



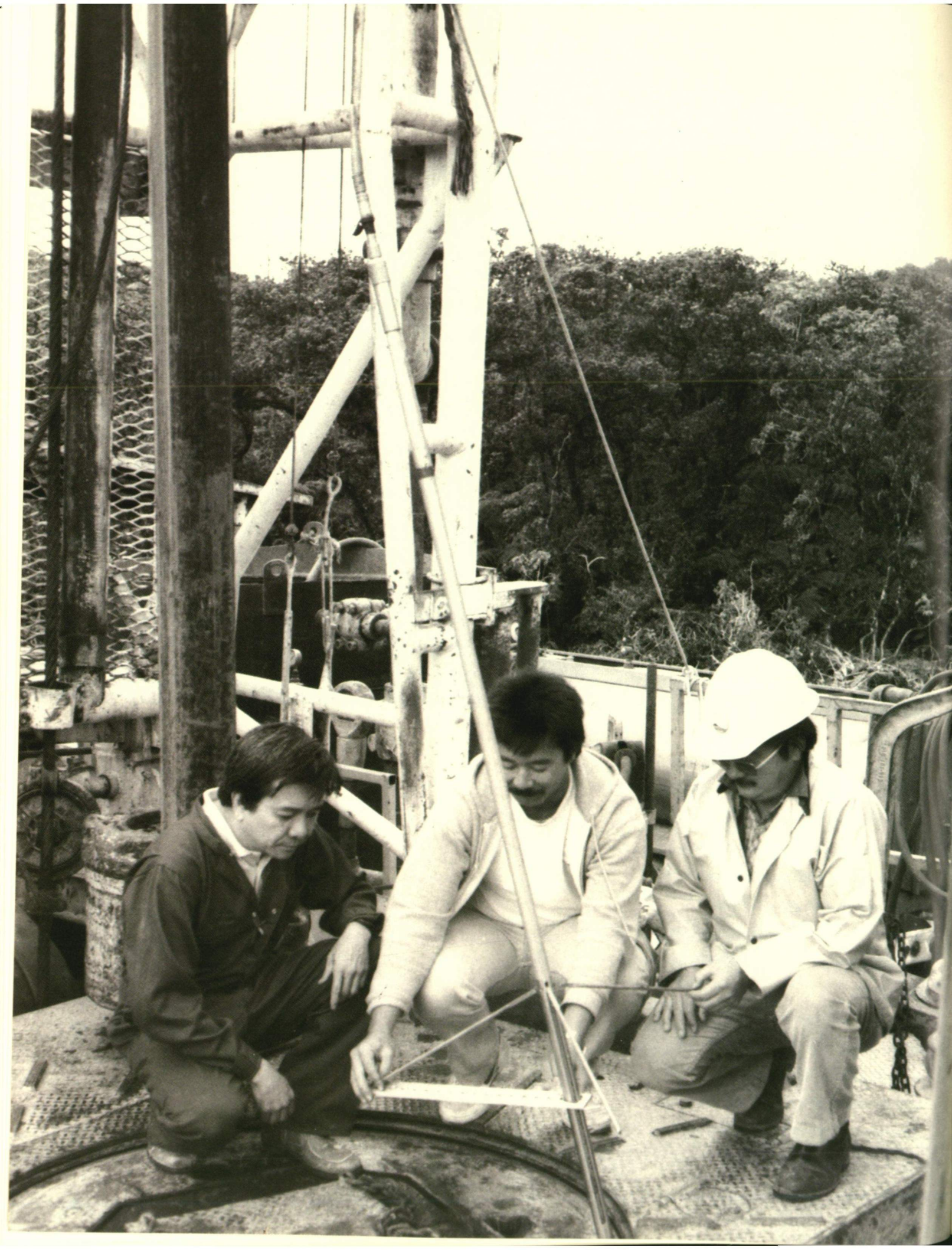


The Division of Water and Land Development administers the State's programs in water resources management, mineral resources assessment, flood prevention and control, water development, and irrigation services. The division also provides engineering services to other divisions of the Department of Land and Natural Resources.

Water resources management involves collecting climatological and hydrological data, appraising surface and ground water resources, planning long-term water usage, regulating

Appraisal of the State's water resources is a continuing effort of the Water and Land Development Division. Here a team explores the geology and hydrology of Waihee Stream and Valley, which drain a major part of West Maui's eastern slopes.







water development and use, protecting uses of stream water, and administering the Soil and Water Conservation District program.

The mineral resources program manages and conserves the State's supply of mineral resources. The program is currently establishing and regulating geothermal resources sub-zones in areas with potential for geothermal development, such as the Puna district of Hawaii and the southern slopes of Haleakala in East Maui.

The flood prevention and control program manages the use of flood plains and coordinates government actions in flood prevention and control, dam safety inspections and stream maintenance.

The water development program seeks to find and make use of new ground water resources throughout the State. Exploratory well drilling, begun in 1961, has played a major role in this effort. Desalting brackish ground water is another ongoing project within the program. Engineering plans and specifications are near completion for a one million gallon-per-day demonstration desalting plant in the Ewa coastal plain area on Oahu.



### Left

The Division's Exploratory Drilling Program involves a lot of field work, especially during the drilling and testing of a well. Staff geologist and logging crew confer with one another in preparing to run a caliper log of the 1750-foot deep Puukapu exploratory well in Waimea, Hawaii. Dike-confined ground water, yet to be tested, was discovered approximately 1300 feet below the surface.

### Above

The Hawaii Dam Safety Act passed by the 1987 Legislature makes the Department responsible for public safety in the operation and construction of dams. A conference on Dam Safety was organized during the year to familiarize government and private officials about the new law and give them first-hand knowledge about Kaneohe Dam in Hoomaluhia Park, windward Oahu.

## Division of Water and Land Development

The division operates irrigation systems on Oahu (Waimanalo), Hawaii (Waimea) and Molokai. On Oahu, the irrigation system served more than a hundred farmers as well as the University of Hawaii Agricultural Research Station. The Waimea system, in operation for 25 years, today serves 75 customers. The Molokai system supplies water for more than 4,000 acres of diversified crops and pineapple.

With the passage of the Water Code in 1987 by the State Legislature as Act 45, the Department of Land and Natural Resources, via its Commission on Water Resource Management, is embarking on a historic journey in managing the State's precious and finite water resources. While the commission is obligated to regulate water resources, it has a concomitant duty to resolve public demands for water.

In a busy 1987 session, the Legislature also passed the Hawaii Dam Safety Act, giving the department responsibility for public safety in the

construction and operation of dams. There are currently 124 dams (50' or higher) in the State, and others are being considered for flood control or hydro-electric uses.

The division is also involved with the mineral resources program, which includes establishing and regulating special subzones for the exploration and development of geothermal energy. The spectacular volcanic activity in the Puna district on the Big Island of Hawaii is evidence of its enormous energy potential.



## Division of Land Management

The Division of Land Management is responsible for managing State-owned lands. Lands not otherwise encumbered for use by other government agencies are within the jurisdiction of the division. These lands are made available to the public by sale, lease, month-to-month permit or exchange.

Where there is a public need for privately-owned land, the division acquires it by negotiation, land exchange, or condemnation (eminent domain). Acquisition is initiated when a user agency (such as the Department of Education, the Department of Agriculture, the Division of State Parks, or the Division of Forestry and Wildlife) submits a request to acquire property for public purposes such as a school site, agricultural park, State park, or natural area reserve. The request must be accompanied by an environmental impact statement, authorization by the Land Board, and legislative approval and funding.



Waianae Agricultural Park  
clearing and construction  
of roadway. January 1987.

## Division of Land Management

Being an office of record, the division maintains a central repository of all land documents dating back to the "Great Mahele" (land division) of 1848. It also maintains a comprehensive inventory of State lands.

During the past fiscal year, eighteen executive orders resulted in setting aside nearly 25,000 acres of State lands for such purposes as Kula Forest Reserve and Kamaole Beach Park additions, boat launching facilities, and the State's Natural Area Reserves System. Other acquisitions included some private lands for the Kealahou Bay State Park, mountain trails for public access, and federal surplus property for State use.

Windward farmers acquired fourteen favorable leases at Waimanalo Agricultural Park via a drawing rather than a public auction. The farm lots range in size from six to eleven acres, and will be used for diversified agriculture including truck crops, orchards and ornamentals.



## Natural Area Reserves System

After millions of years of development in an isolated mid-ocean environment, nearly all of Hawaii's native plants and animals live nowhere else in the world. If lost, these natural resources can never be regained. Hawaii's Natural Area Reserves exist to preserve and protect unique and representative samples of



Hawaii's natural environment.

Everything within a Natural Area Reserve is protected, including plants, animals, geological features and historic artifacts. Two exceptions are non-native birds and mammals (such as feral pigs and goats, which damage the land and plants). Both may be hunted, but only in accordance with the hunting regulations of the Department of Land and Natural Resources.

Mauna Kea Ice Age Natural Area Reserve, Hawaii. 3,894 acres, includes Lake Waiau and Ice Age geological features.

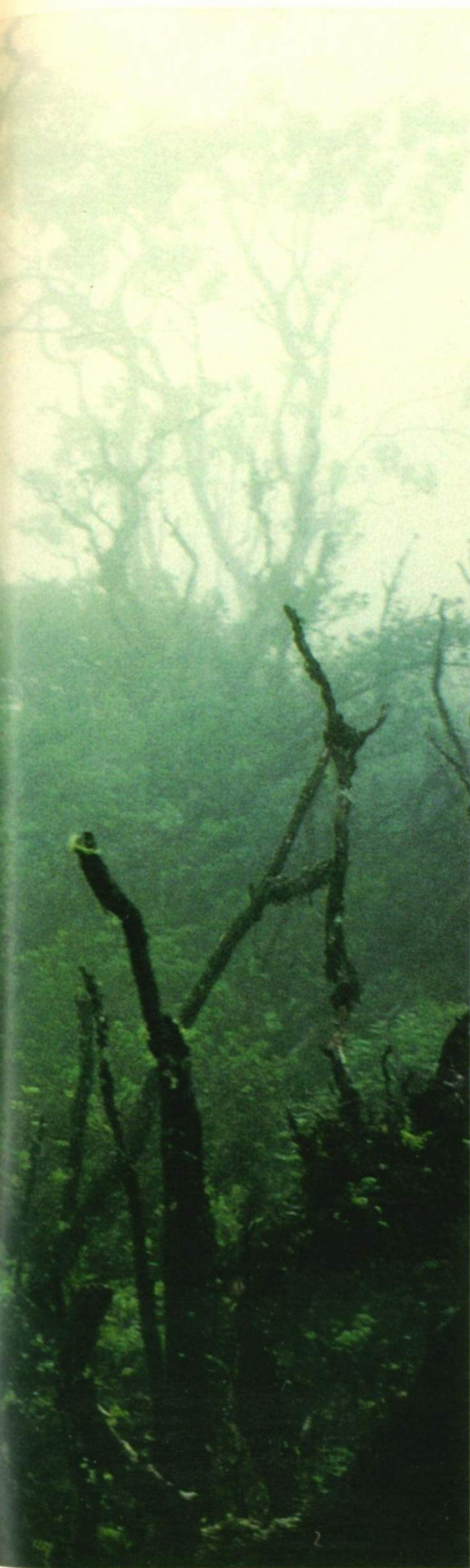


Kaena Point Natural Area Reserve, Oahu. 12,464 acres, coastal dune ecosystem.









Otherwise, public use of the reserves is restricted to non-destructive passive activities such as walking, photography and nature study. Other uses, some of which may be manipulative or consumptive, require special-use permits. These are usually limited to educational, scientific and management projects.

The Natural Area Reserves System was created in 1970 by the State Legislature. It is overseen by an eleven-member commission, six of whom are appointed and must be scientists in a biological or geological field. The remaining five are ex-officio members who head various state departments. The commission generally functions as an advisory body, but it also is responsible for issuing special-use permits for the Reserves.

Currently there are eighteen reserves statewide: eight on Hawaii, three on Maui, two on Molokai, three on Oahu and two on Kauai. The largest, Manuka on the Big Island, is over 25,000 acres; the smallest, Kaena Point on Oahu, is under 13 acres.

Since 1970, the main emphasis in the program has been to get areas established. Currently the emphasis is changing to management. The

Mt. Kaala Natural Area Reserve, Oahu, 1,100 acres, mesic and montane shrub forest.

## Natural Area Reserves System

1987 Legislature directed the Department of Land and Natural Resources to develop and carry out a comprehensive management plan for the reserves system, and appropriated \$500,000 for a two-year period for the job.



**Top**  
Hanawi Natural Area  
Reserve, Maui. 7,500  
acres, Ohia wet forest,  
cloud forest and alpine  
grassland.

**Above**  
Ahihi-Kinau Natural  
Area Reserve, Maui.  
2,055 acres (1,238 land,  
807 water), mostly  
anchialine pools, last  
lava flow on Maui,  
marine ecosystem.



## Aquaculture Development Program

The Aquaculture Development Program (ADP) was established in 1977 to stimulate the growth of Hawaii's aquaculture industry. The Program's initial plan, published in 1978 and entitled *Aquaculture Development for Hawaii*, was the nation's first state aquaculture plan.

Services of the Program originally focused on beginning aquaculturists, but since 1979, it has also assisted farmers, students and scientists.

As international interest in aquaculture has increased, the Program has also helped Hawaii-based consultants with business opportunities overseas. Hawaii's reputation as a leader in tropical aquaculture expertise continues to attract foreign visitors to the Program's offices. This year, on the 10th anniversary of the aquaculture plan, Hawaii hosted the 19th Annual Meeting of the World Aquaculture Society, the industry's premiere professional association.

### *Disney World Displays Hawaii Aquaculture*

Shrimp farming in Hawaii is now featured at Florida's Walt Disney World. Last December, Dr. Robert Winfree, a research scientist under contract to Disney's Epcot Center to provide information on marine dis-



Bo Alexander, manager of the University of Hawaii Mariculture Research and Training Center, inspects his harvest of red tilapia. The facility, at Hakipuu, Oahu, is also experimenting with shrimp and Chinese catfish.

## Aquaculture Development Program

plays, invited Aquaculture Development Program Information Specialist Richard Fassler to put together a presentation on aquaculture in Hawaii.

The Center's Mariculture Laboratory, part of the \$90 million Living Seas pavilion, features research projects in sea farming and displays of hatchery operations. In addition, the pavilion offers information on topics ranging from fish health and nutrition to careers in marine science.

Aware of Hawaii's reputation as a leader in marine aquaculture (mariculture), Dr. Winfree felt that a slide presentation on the State's commercial farms would be an interesting and exciting attraction. Since more than seven million people visit Walt Disney World every year, Hawaii would benefit from the exposure.

The presentation, entitled *Mariculture in the Island State of Hawaii*, begins with a description of ancient Hawaiian fishponds and moves to the modern period of aquaculture from 1965 on. Subjects covered include prawn farming, shrimp farming, tilapia and seaweeds, abalone, nori, microalgae, and lobster projects. Music and narration were added by the Disney staff.

Barbara Lee, a technician at the State Natural Energy Laboratory of Hawaii, pulls kelp from a tank. This coldwater seaweed is grown to feed abalone.



Becky Del Rosario of Aurea-Marine examines a harvest of ogo. The Kahuku farm produces over 1,000 pounds of the seaweed each week.







Harvest time at the Mariculture Research and Training Center. This University of Hawaii facility at Hakipuu, Oahu is experimenting with methods of raising saltwater shrimp.



Bob Cantrell shows off part of the shrimp harvest at the University of Hawaii's Mariculture Research and Training Center.

Disney World plans to use the show for both the general public and groups of scientists and educators who attend national conventions at Epcot Center. Recently, a delegation of Japanese scientists viewed the presentation. *Mariculture* made its Hawaii debut at the 19th Annual World Aquaculture Society meeting. *Natural Energy Lab Of Hawaii Needs Visitor Center*

The Natural Energy Laboratory of Hawaii (NELH) at Keahole Point on the Big Island is a showplace for coldwater aquaculture. Here a 6,000-foot pipe extends into the ocean to a depth of 2,000 feet to pump cold, nutrient-rich water to various commercial and experimental aquaculture projects.

Word of NELH's success has attracted more than 9,000 visitors to Keahole since 1983, far more than the facility had been expected to accommodate. During the first five months of 1987, nearly 2,000 people toured NELH—a 14% increase over the same period in 1986.

Most of the responsibility for accommodating visitors has fallen on the shoulders of Ms. Kelen Dunford. She conducts her tours through what is essentially an ongoing construction project; visitors are warned to be

## Aquaculture Development Program

careful when stepping over pipes and pumps on their way to viewing tanks and raceways containing a variety of plants and animals. Abalone, microalgae, nori (a seaweed), salmon, lobsters and opihi (a shellfish) are among the ongoing projects. In spite of precautions, an occasional

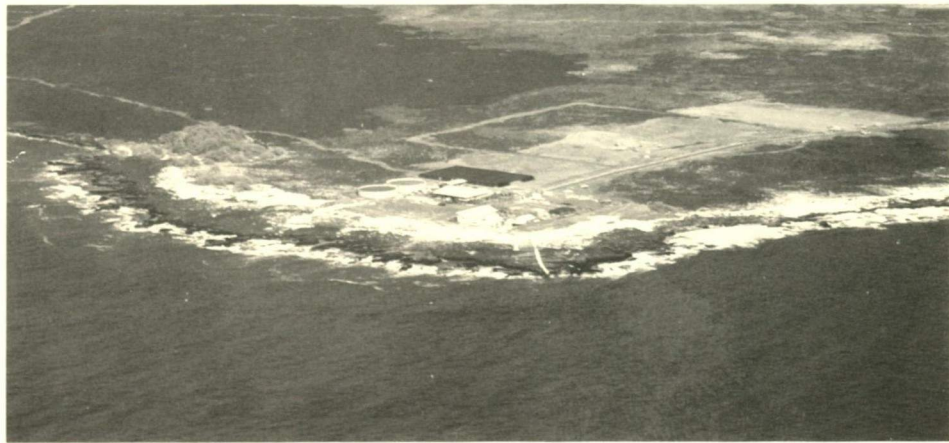


coffee cup has turned up in an otherwise carefully-controlled research tank.

The NELH board of directors, aware of the increase in visitor appearances and the resultant problems, authorized an Interim Visitor Center to accommodate the curious and attract aquaculturists. Aquaculture Development Program Manager John Corbin enlisted the aid of Steven Lee, who prepared a proposal. Lee, a marketing specialist, had constructed several displays for the Department of Land and Natural Resources, including its annual Hawaii State Farm Fair exhibit. With the advice of NELH Director Tom

Daniel, Ms. Dunford and technician Barbara Lee, he finalized the plans for the Visitor Center.

A covered area with benches to seat fifty people and a black shade cloth tent will be built. Tour guides will use portable microphones, amplifiers and audio-visual carts



displaying tour routes, projects, and Hawaii's aquaculture industry including the history of NELH.

This temporary Visitor Center is intended to serve NELH until the completion of the adjacent Hawaii Ocean Science Technology (HOST) Park, where a permanent Center will be established.

### Above Left

Kelen Dunford, an information specialist at the State Natural Energy Laboratory of Hawaii, leads a tour of the facility.

### Above Right

The Natural Energy Laboratory of Hawaii is a state-owned aquaculture facility near Kona on the Big Island. Projects there include abalone, microalgae, lobsters, opihi and nori.



## Office of Conservation and Environmental Affairs

The Office of Conservation and Environmental Affairs is responsible for the administration of land use within the State's Conservation District. It also coordinates the review of film permits, environmental impact statements, State land use district amendments, and environmental policy.

Two years ago, the Office was known as the Planning Office. With reorganization came new job descriptions and changes in responsibilities. The Office is now working with the Department's Personnel Office to complete the transition by recruiting and hiring additional staff.

Among the major new land uses approved are a special subzone at Honaunau on the Big Island to allow construction of educational facilities on private lands; water development on Oahu and the Big Island; support of the State's marijuana eradication efforts; and shoreline protection at Niumalu, Kauai.

In response to increased requests for commercial film permits, the Office streamlined the process to the point where a response can generally be expected within 24 hours (48 hours on the Neighbor Islands).

