

An aerial photograph of a coastal city, likely Honolulu, Hawaii, serves as the background. The image shows a dense urban area with a grid-like street pattern, a large stadium, and a harbor with several ships. In the foreground, white lines are drawn on the dark water, possibly indicating a navigational route or a specific area of interest. The top of the image shows rugged, forested mountains. A green rectangular box is overlaid on the upper right portion of the image, containing the title and department information.

# *Annual Report* **1962**

**DEPARTMENT OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII**



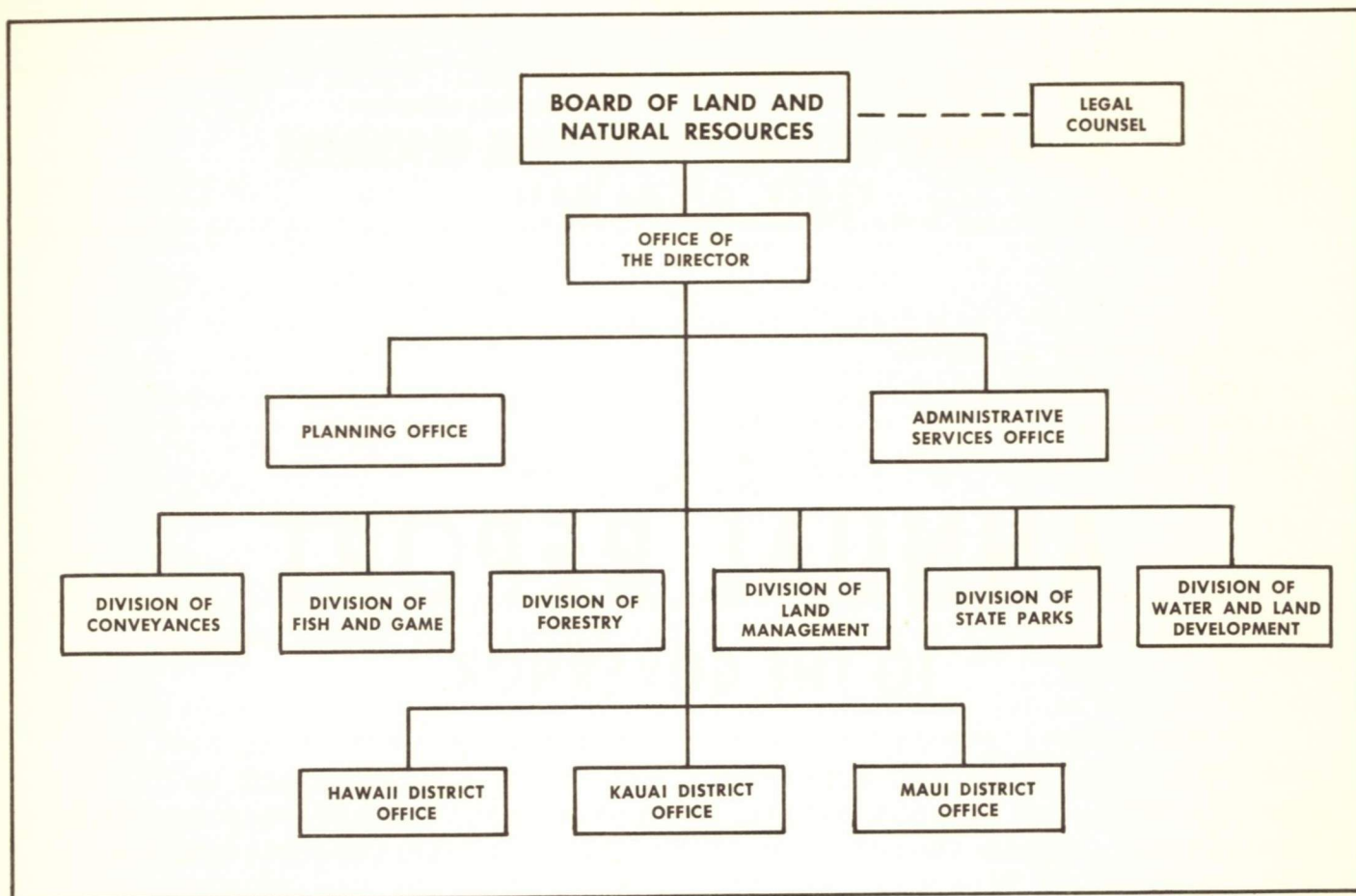
**DEPARTMENT OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII**

**ANNUAL REPORT  
TO THE GOVERNOR**

**July 1, 1961 to June 30, 1962**

**HONOLULU, HAWAII  
DECEMBER, 1962**

# ORGANIZATION CHART DEPARTMENT OF LAND AND NATURAL RESOURCES



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JOHN A. BURNS  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 621  
HONOLULU 9, HAWAII

DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

December 31, 1962

Honorable John A. Burns  
Governor of Hawaii  
Iolani Palace  
Honolulu, Hawaii

Sir:

We are pleased to submit herewith the report of the Department of Land and Natural Resources for the fiscal year ended June 30, 1962.

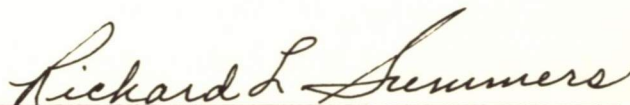
This annual report is the first for the Department as now constituted. Although the Department was initially organized on May 11, 1960, it did not attain its present form until July 1, 1961. The present report therefore contains brief historical statements and comparative financial and statistical data for previous periods.

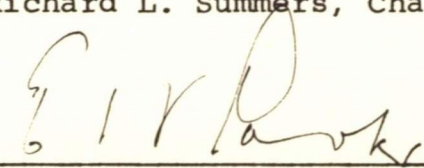
The accomplishments reviewed in this report would not have been possible without the contributions of our staff, other federal, state and county agencies, and private organizations and individuals too numerous to list.

The past fiscal year has been a period of significant achievement and growth for our Department. We look forward to continued progress in the years ahead.

Respectfully submitted,

BOARD OF LAND AND NATURAL RESOURCES

  
Richard L. Summers, Chairman

  
E. H. Cook, Director



"The Department of Land and Natural Resources shall be headed by an executive board to be known as the Board of Land and Natural Resources.

"The department shall manage, administer and exercise control over public lands, the water resources and minerals and all other interests therein and exercise such powers of dispositions thereof as may be authorized by law.

"The department shall also manage and administer the state parks, historical sites, forest, fish and game reserves of the state, the forest reserve and any other functions assigned to it by law.

"The Board shall appoint and may remove an executive officer to be known as the Director of Land and Natural Resources. . . ."

From Section 3, Act 32, Session  
Laws of Hawaii, 1962 (June 12, 1962)

**THE BOARD OF LAND AND NATURAL RESOURCES**  
(as of June 30, 1962)

<i>Chairman:</i>	Richard L. Summers, Oahu
<i>Vice-Chairman:</i>	William K. H. Mau, Oahu
	Anthony Brun, Kauai
	G. Alan Freeland, Maui
	Robert M. Fujimoto, Hawaii
	Frank G. Serrao, Oahu

	EXECUTIVE OFFICERS:
<i>Director:</i>	E. H. Cook
<i>Deputy Director:</i>	George P. Siu

## SECTION 1

# OFFICE OF THE DIRECTOR

The Department of Land and Natural Resources was formed, from a number of existing agencies and divisions, under the Hawaii State Government Reorganization Act of 1959. The Department was formally established May 11, 1960 by Executive Order No. 14. Additional changes by Act 132 of the 1961 Legislature transferred the Division of Fish and Game and the Division of Forestry to this Department. Act 34 of 1961 assigned functions of statewide flood control.

The first meeting of the Board of Land and Natural Resources was called to order in Governor William F. Quinn's office on May 11, 1960, shortly after the Governor signed the executive order creating the new department. This executive board consisted of Richard L. Summers (chairman), William K. H. Mau, and Frank G. Serrao, all from Oahu; Robert M. Fujimoto, Hawaii; G. Alan Freeland, Maui; Anthony Brun, Kauai; and two ex officio members, George I. Brown, chairman of the Board of Agriculture and Conservation, and Wayne L. Collins, director of the Department of Agriculture and Conservation. (A third ex officio member, the Director of the Department of

Land and Natural Resources, had not as yet been appointed.) All of the original appointive members were still serving as of June 30, 1962.

Amendments to the Reorganization Act removed the two Agriculture and Conservation officials from the Board in mid-1961. Act 32 of 1962, which provided for comprehensive revisions to Hawaii's Land Law, removed the Director of Land and Natural Resources as a member of the Board.

The Board appointed E. Hinano Cook as first Director of Land and Natural Resources, effective June 9, 1960. George P. Siu was named Deputy Director by the Board on September 22, 1961.

In addition to the Director and his Deputy, the Office of the Director is staffed by a Planning and Development Coordinator and two secretaries. The position of the Coordinator had not as yet been filled on June 30, 1962. Mrs. Joan K. Moriyama was private secretary to Mr. Cook, and Mrs. Hazel Blankenfeld was secretary to Mr. Siu.

Two staff units serve the Office of the Director: the Administrative Services Office and the Planning Office.

## SECTION 2

# ADMINISTRATIVE SERVICES OFFICE

### Historical Background

Immediately following the establishment of the Department of Land and Natural Resources on May 11, 1960, administrative services were being provided on a decentralized basis by the operating divisions. The organizational segments which, in accordance with the Hawaii State Government Reorganization Act of 1959, comprised the new Department of Land and Natural Resources were:

1. The former office of the Commissioner of Public Lands, consisting of the Division of Hydrography, the Bureau of Conveyances, and the Public Lands Office.
2. The former Hawaii Water Authority.
3. Employees associated with functions of managing state parks and historic sites, who were transferred from the then Department of Agriculture and Conservation on July 1, 1960.
4. The Fair Commission of Hawaii, which was placed within the department for administrative purposes and later abolished on September 1, 1960. Functions and authority of this commission relating to the Ala Wai Golf Course were transferred to the City and County of Honolulu.

Central administrative services for the new department were initiated following the appointment of the Director of Land and Natural Resources on June 9, 1960. Efforts were begun to pool the fiscal staffs of the Public Lands Office and the Hawaii Water Authority. In July, 1960 a temporary Personnel Officer was hired to provide staff assistance in the reorganization of the

new department and to provide personnel services.

The 1961 General Session of the First State Legislature, acting upon the manpower and organization recommendations of the Booz, Allen and Hamilton management consultants, authorized in the department an Administrative Services Officer position and an Accountant position to form a central unit for fiscal, personnel, internal management, and office services. Other positions comprising the Administrative Services Office were assigned from the Public Lands Office and the former Hawaii Water Authority. This consolidated administrative services unit was established with reference to a department of approximately 140 employees.

During this period of organizational transition, the department initiated and reviewed many organizational structures and staffing plans. The basic structure proposed was modified by the Booz, Allen and Hamilton plan, and later revised by gubernatorial action, so that on February 27, 1961, the department consisted of the following identifiable major parts:

**Administrative Unit:** Board of Land and Natural Resources  
Office of the Director  
Legal Counsel  
Planning Office  
Administrative Services Office

**Operating Unit:** Conveyances Division  
State Parks Division  
Land Management Division  
Resources Development Division



**District Offices:** Hawaii District Office  
Maui District Office  
Kauai District Office

The First State Legislature, by Act 132, S.L.H. 1961, transferred functions of managing forestry resources and fish and game resources from the Department of Agriculture and Conservation. By Act 34, S. L. H. 1961, functions of statewide flood control were also assigned to this department. Accordingly, the Division of Forestry and the Division of Fish and Game were transferred to the department on July 1, 1961 and three new positions authorized in the new Flood Control Program were assigned to the Division of Water and Land Development. 130 employees were added to the Department of Land and Natural Resources; the Administrative Services Office staff, however, remained the same in number.

With the enactment of Act 132 of 1961 it was again necessary to review the new organization plan. Staffing patterns were also re-evaluated in the light of newly authorized positions. At its August 11, 1961 meeting, the Board of Land and Natural Resources approved the submission of an organizational plan providing for inclusion of the Fish and Game Division, Forestry Division and flood control functions, and for retitling the Resources Development Division to Water and Land Development Division.

The departmental structure, as reflected on page two of this report, was approved by the Governor of Hawaii on November 28, 1961.

#### Functions and Responsibilities

Within the Administrative Services Office are the major components of a Fiscal Staff and a Personnel Staff. This office provides staff, auxiliary (or facilitating) and advisory services to the department in fiscal administration (including revenue accounting, budget preparation, expenditure control, accounts maintenance, purchasing, and fiscal reporting) and personnel administration (including internal management, manpower control and organizational review, personnel reporting and records maintenance, and processing of personnel actions). Also assigned to the Administrative Services Office for administrative purposes are three clerical positions of the Legal Counsel. As of the date of this report, fourteen positions, of which twelve are permanent, are assigned to the Administrative Services Office.

#### Activities during 1961-1962

Major activities involving the Administrative Services Office staff during this period of transition and growth included:

- Participation in departmental reorganization including data compilation and analysis; preparation of organization plans and staffing charts; departmental liaison with management consultants; conducting orientation sessions with supervisory personnel.
- Publication of the department's Program and Organization Manual, which defines programs,

functional responsibilities, staff allocations, and program activities.

- Publication of a comprehensive Manpower Report reflecting authorized positions and position data for the reorganized department. Total staff increased from 141 in July 1960 to 326 as of this report.
- Coordinating of preparation and submission of position descriptions affected by reorganization project.
- Publication of annual operating budget documents and participation in budget presentations. Budget programs increased from five in 1960-1961 to seventeen in 1961-1962.
- Participation in initial establishment of modified district offices.
- Processing transfer of functions involving 130 employees of the Forestry Division and Fish and Game Division (July 1, 1961) from the Department of Agriculture and Conservation to this department.
- Providing for initial staffing of the State's new Central Tree Nursery in Kamuela.
- Processing all regular employees for enrollment in the State's Public Employee Health Program, effective January 1, 1962.
- Processing revised pay rates for all employees to reflect pay increases effective July 1, 1962.
- Recruitment of 115 student helpers for the Forestry Division's 1962 summer work program.
- Initiation of mechanization of fiscal procedures.

#### Table 1. SUMMARY OF PERSONNEL TRANSACTIONS

July 1, 1961 to June 30 1962

<b>Accessions</b> .....	<b>209</b>
New hire — permanent	37
New hire — temporary	42
Transfer	130
<b>Separation</b> .....	<b>72</b>
Resignation and transfer	20
Termination of temporary service	45
Retirement	6
Death	1
<b>Other Personnel Actions</b> .....	<b>154</b>
<i>(Excludes pay increment changes)</i>	
Promotion	22
Reclassification	29
Repricing — change in salary range	10
Temporary assignment	5
Hazard pay	5
Reassignment	2
Leave Without Pay (Maternity)	7
Leave Without Pay	6
Extension of temporary service	68

**Table 2. PERSONNEL OF THE DEPARTMENT, BY DIVISION AND ISLAND: 1960 AND 1962**

Division	July 1, 1960 (the State)	June 30, 1962 <sup>1</sup>					
		The State	Oahu	Maui	Molokai <sup>2</sup>	Hawaii	Kauai
The Department.....	141	326	201	22	8	56	39
Office of Director.....	4	4	4	—	—	—	—
Administrative Services Office.....	—	14	14	—	—	—	—
Planning Office.....	—	2	2	—	—	—	—
Conveyances.....	41	39	39	—	—	—	—
Fish and Game <sup>3</sup> .....	—	58	34	3	4	12	5
Forestry <sup>3</sup> .....	—	74	18	14	2	27	13
Land Management <sup>4</sup> .....	33	28	22	2	—	3	1
State Parks.....	22	48	16	3	1	9	19
Water and Land Development.....	41	59	52	—	1	5	1

<sup>1</sup>Excludes student helpers employed June–August, 1962.

<sup>2</sup>Includes 2 on Lanai, both in Fish and Game.

<sup>3</sup>Data not available for 1960; transferred July 1, 1961.

<sup>4</sup>Data for 1960 include positions transferred to Administrative Services Office (9 from Land Management, 2 from Water and Land Development).

**Table 3. NET STATE APPROPRIATIONS FOR THE DEPARTMENT OF LAND AND NATURAL RESOURCES AND ITS ANTECEDENT AGENCIES: FISCAL YEARS 1960-1961 AND 1961- 1962**

(For periods ending June 30. From S. L. H. 1960, Acts 18 and 23, and S.L.H. 1961, Acts 125 and 195.)

Program	1960-1961 (dollars)	1961-1962 (dollars)
<b>OPERATING FUNDS</b> (State General Fund Only)		
All divisions.....	1,794,189	2,462,318
Land & Natural Resources.....	1,027,824	1,373,041
Agriculture & Conservation <sup>1</sup> .....	766,365	1,089,277
Administration and land management.....	319,700	386,603
Div. of Conveyances.....	235,974	247,213
Div. of Fish and Game <sup>2</sup> .....	224,260	327,714
Div. of Forestry <sup>2</sup> .....	542,105	761,563
Hawaii Water Authority.....	191,417	—
Div. of Hydrography.....	176,727	—
Div. of State Parks.....	104,006	200,604
Div. of Water & Land Development.....	—	538,621
<b>CAPITAL IMPROVEMENT FUNDS</b>		
All programs.....	2,106,945	11,778,242
Land & Natural Resources.....	2,038,445	11,688,242
Agriculture & Conservation <sup>1</sup> .....	68,500	90,000
Fish and Game projects <sup>2</sup> .....	15,000	—
Forestry projects <sup>2</sup> .....	53,500	90,000
Land projects.....	359,130	7,219,752
State parks projects.....	223,000	507,390
Water projects.....	1,456,315	3,961,100

<sup>1</sup>For Division of Fish and Game and Division of Forestry.

<sup>2</sup>Transferred from the Department of Agriculture and Conservation as of July 1, 1961, after passage of Acts 125 and 195.



## SECTION 3

# PLANNING OFFICE

### Historical Background

The Planning Office was established in 1961. As of January 1959, a report by the Public Administration Service had recommended creation of such an office within the proposed "Department of Public Lands and Resources." Two years later, the interim organization chart of the newly established Department of Land and Natural Resources showed a "Plans Office." Following the recommendations of the Booz, Allen & Hamilton report (February 1961), this unit was renamed "Planning Office." The first staff position in the new Office, that of Land Economist, was filled initially on February 6, 1961.

### Functions and Responsibilities

The Planning Office conducts comprehensive planning for the entire Department, with special emphasis on administrative planning. Its functions are outlined as follows:

Performs comprehensive central planning for the department in close cooperation with operating units. Maintains constant awareness of physical, economic, and social factors affecting the resources of the State and projects the department's responsibilities in relation to these factors.

- Recommends objectives, policies, and broad programs to fulfill the department's purposes.
- Provides a systematic evaluation of progress and accomplishment of authorized programs to meet established objectives.
- Coordinates planning for development and use of the State's resources with the Department of Planning and Research and other public and private organizations.
- Conducts long-range planning in coordination with operating and staff units.
- Maintains central library of books, publications, and published material dealing with natural resources and department's programs.

Conducts planning studies and formulates proposals for land development projects; conducts economic feasibility studies and market research for land development projects; presents planning concepts, design criteria, and development alternatives; advises on land development matters.

Conducts studies of land utilization and land values; reviews appraisal reports; coordinates land-use and

land appraisal studies with other public and private agencies.

Prepares public information releases, brochures, and public reports relating to departmental activities.

### Internal Organization and Staffing

The Planning Office is organized as a single unit, without specialized branches.

Six positions have been authorized for the Office, but four remained vacant as of June 30, 1962. The position of Land Economist, established in October 1960, was occupied four months later by Paul T. Tajima. Mrs. Janice Oto was employed as Stenographer III on May 1, 1962. Vacant positions included those of Natural Resources Program Planning Coordinator, Management Analyst I, Engineering Draftsman II, and Associate Planner.

### Activities during 1961-1962

The Planning Office participated in a number of projects during the year ended on June 30, 1962. Enumeration of these projects would in effect constitute a list of most of the work undertaken by the Department or its line divisions during the period. These assignments are described in detail in the divisional reports elsewhere in this annual summary. In other instances, however, the Office assumed primary responsibility for initiating or coordinating the project.

Specific activities included preparation of the department capital improvement program for consideration by the State Legislature, supervision of work on the 1961 State land inventory, and preliminary planning or administrative coordination of numerous development projects. Among the latter were the planned developments in Waimanalo Valley, Sand Island, and "Magic Island" on Oahu, University Heights, Lalamilo Houselots, and the Hilo industrial area on Hawaii, the old Puunene Airport site and Kihei resort area on Maui, and Kapaa industrial park, Hanapepe salt pond, and Wailua resort area on Kauai. Part of the Sand Island project included provisions for a transshipment study by the University of Hawaii.

Preliminary findings of the State land inventory appear on the following pages and on the accompanying maps. The inventory pertained to lands under State title as of June 30, 1961. The compilation was made by the Land Management Division under the guidance of the Planning Office. A more detailed report will be released during 1963.

**Table 1. GEOGRAPHIC STATISTICS FOR THE HAWAIIAN ARCHIPELAGO AND STATE OF HAWAII**

Island or group	Number of islands <sup>1</sup>	Area (square miles) <sup>1</sup>		Tidal shoreline (miles) <sup>2</sup>	Highest peak (feet) <sup>2</sup>
		Land	Water		
The Archipelago .....	124	6,417	9	(NA)	13,796
State of Hawaii .....	122	6,415	9	1,052	13,796
Midway Islands .....	2	2	-	(NA)	12
Hawaii Island .....	9	4,021	-	313	13,796
Maui Island .....	19	728	-	149	10,023
Kahoolawe Island .....	2	45	-	36	1,477
Lanai Island .....	11	141	-	52	3,370
Molokai Island .....	14	259	-	106	4,970
Oahu Island .....	35	595	7	209	4,040
Kauai Island .....	3	551	2	110	5,170
Niihau Island <sup>3</sup> .....	4	72	-	52	1,281
Leeward islands .....	27	5	-	(NA)	910
In State of Hawaii <sup>4</sup> .....	25	3	-	25	910
Midway Islands .....	2	2	-	(NA)	12

NA Not available.

<sup>1</sup>Median land area of the 124 islands is 3 acres. Data are from the Department of Land and Natural Resources, *Land Area of the Hawaiian Archipelago* (Memorandum B-5).

<sup>2</sup>From Department of Planning and Research, *Geographic Statistics for Hawaii* (Research Report 15, January 15, 1962).

<sup>3</sup>Includes Lehua and Kaula Islands.

<sup>4</sup>Includes Nihoa Island, Necker Island, French Frigate Shoal, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Reef, and Kure Island.

**Table 2. LAND OWNERSHIP OR TENURE, FOR HAWAII: 1961**

Ownership or tenure	Acres (estimated)	Percent
Total .....	4,105,600	100.0
Federal <sup>1</sup> .....	489,964	11.9
Armed forces .....	208,842	5.1
Owned .....	34,922	0.9
Public lands .....	173,920	4.2
National parks .....	246,748	6.0
Federal .....	196,411	4.8
Non-federal .....	50,337	1.2
Owned by other federal agencies .....	34,374	0.8
State <sup>2</sup> .....	1,524,726	37.1
Hawaiian Home Lands .....	100,485	2.4
Other agencies .....	1,417,682	34.5
Counties and water boards .....	6,559	0.2
Private <sup>3</sup> .....	2,090,910	50.9
Owners with 5,000 acres or more <sup>4</sup> .....	1,811,367	44.1
Owners with less than 5,000 acres <sup>4</sup> .....	279,543	6.8

<sup>1</sup>Includes all lands owned by the U. S. Government, plus ceded lands held by the Department of Defense or National Park Service under executive order of the president or governor. From Hawaii Department of Land and Natural Resources, *Statistics on Federal Land Tenure in Hawaii, 1960-1962*, Memorandum B-4.

<sup>2</sup>Excludes lands ceded to the U. S. Government under executive order of the president or governor and public rights of way.

<sup>3</sup>Includes county lands acquired by purchase or gift from private owners, and all public rights of way. Computed as residual.

<sup>4</sup>From Hawaii Department of Planning and Research, *Statistical Abstract of Hawaii, 1962*, p. 43.



# STATE LANDS

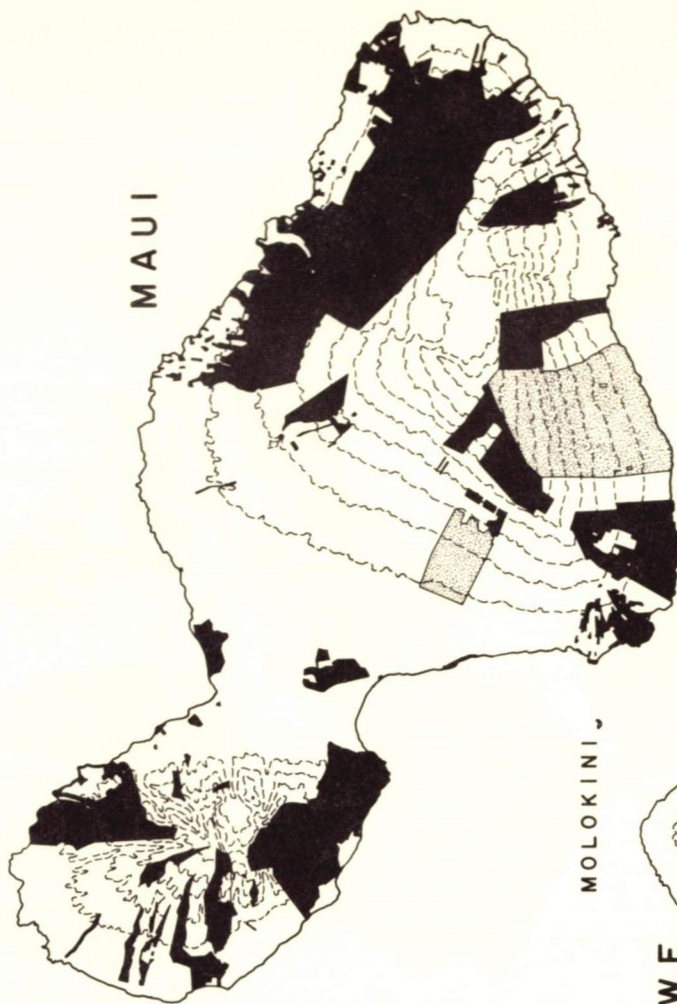
PLANNING OFFICE

DEPARTMENT OF LAND & NATURAL RESOURCES

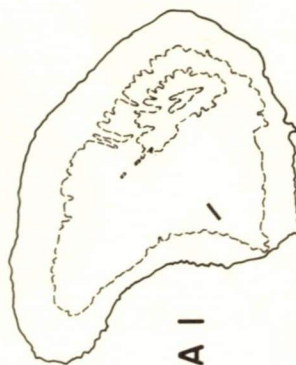
SOURCE: BASE MAP - USGS, 1:250,000  
LAND TENURE - DEPARTMENT OF TAXATION  
DECEMBER, 1962



MOLOKAI



MAUI



LANAI



MOLOKINI



KAHOOLAWE

STATE OF HAWAII  
HAWAIIAN HOMES LAND  
CONTOUR INTERVAL - 1,000 FT.

SECOND LAND DISTRICT

# STATE LANDS

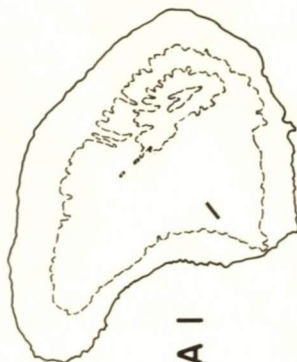
PLANNING OFFICE

DEPARTMENT OF LAND & NATURAL RESOURCES

SOURCE: BASE MAP - USGS, 1:250,000  
LAND TENURE - DEPARTMENT OF TAXATION  
DECEMBER, 1962



MOLOKAI



LANAI



MAUI



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- STATE OF HAWAII
- HAWAIIAN HOMES LAND
- CONTOUR INTERVAL - 1,000 FT.



KAHOOLAWE

MOLOKINI

SECOND LAND DISTRICT

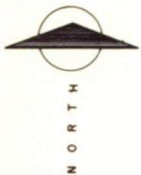
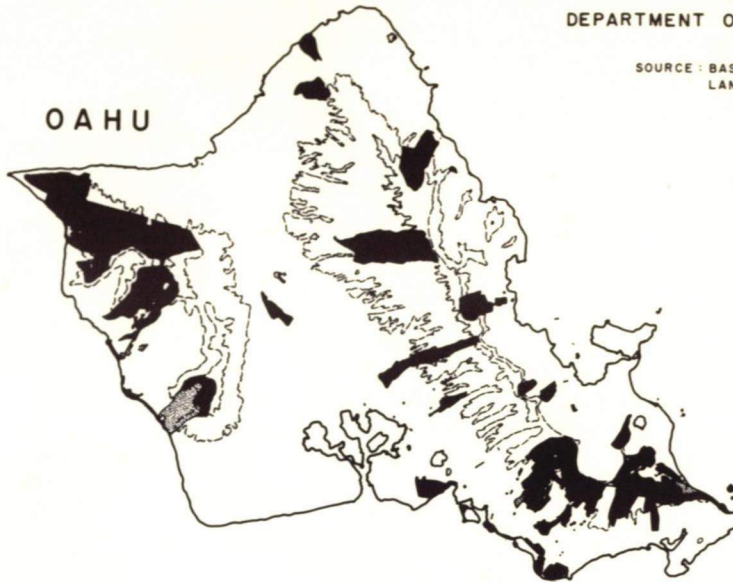


## STATE LANDS

PLANNING OFFICE  
DEPARTMENT OF LAND & NATURAL RESOURCES

SOURCE: BASE MAP - USGS, 1:250,000  
LAND TENURE - DEPARTMENT OF TAXATION  
DECEMBER, 1962

OAHU



STATE OF HAWAII  
HAWAIIAN HOMES LAND  
CONTOUR INTERVAL - 1,000 FT.

THIRD LAND DISTRICT

## STATE LANDS

PLANNING OFFICE  
DEPARTMENT OF LAND & NATURAL RESOURCES

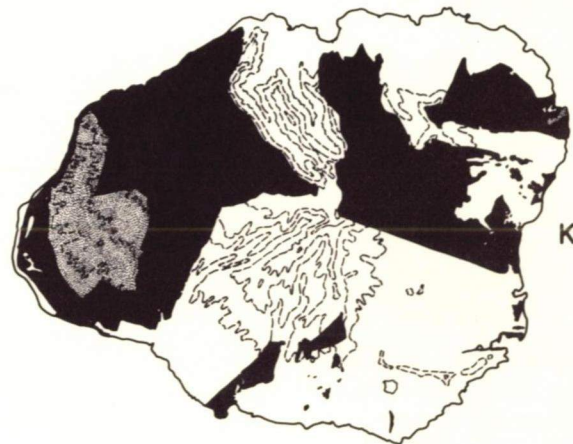
SOURCE: BASE MAP - USGS, 1:250,000  
LAND TENURE - DEPARTMENT OF TAXATION  
DECEMBER, 1962

LEHUA

NIIHAU



STATE OF HAWAII  
HAWAIIAN HOMES LAND  
CONTOUR INTERVAL - 1,000 FT.



KAUAI

FOURTH LAND DISTRICT

**Table 3. FEDERAL OWNED PROPERTY:  
JUNE 30, 1962**

Subject	Amount <sup>1</sup>
Number of installations .....	101
Land (acres), total .....	233,035
Urban .....	23,759
Rural .....	209,276
Number of buildings .....	13,707
Cost (\$1,000), total .....	969,549
Land .....	21,740
Buildings .....	454,597
Facilities .....	493,212

Footnote follows table 4.

**Table 4. MILITARY REAL PROPERTY  
CONTROLLED: JUNE 30, 1962**

Tenure	Acres <sup>1</sup>
Total controlled .....	252,367
Owned .....	33,901
Public land .....	174,556
Temporary use .....	32,230
Leased .....	11,027
Easements .....	653

<sup>1</sup>From Committee on Government Operations, U. S. House of Representatives, *Federal Real and Personal Property Inventory Report (Civilian and Military) of the United States Government Covering Its Properties Located in the United States, in the Territories, and Overseas as of June 30, 1962.*

**Table 5. AREA IN ACRES UNDER TERRITORIAL OR STATE  
OWNERSHIP: 1900 TO 1960**

Year <sup>1</sup>	Acres	Year <sup>1</sup>	Acres
1900 .....	1,772,713	1936 .....	1,588,430
1914 .....	1,631,818	1942 .....	1,505,526
1922 .....	1,604,395	1948 .....	1,529,476
1930 .....	1,590,500	1961 .....	1,524,726

<sup>1</sup>Unspecified date for 1900; December 31, 1922; June 30, 1914 and 1930-1961.

**Table 6. LAND UNDER STATE OR TERRITORIAL OWNERSHIP, BY COUNTY: 1948 AND 1961**

County	Total land area (acres)	State-owned land (acres)		Percent state- owned, 1961	State- owned parcels, 1961	Acres per State parcel, 1961
		1961	1948			
The State .....	4,105,600	1,524,726	1,529,476	37.1	9,460	161
Honolulu .....	382,720	55,566	48,953	14.5	3,162	18
Maui & Kalawao .....	750,720	255,818	249,075	34.1	1,619	158
Hawaii .....	2,573,440	1,061,393	1,093,036	41.2	3,308	321
Kauai .....	398,720	151,950	138,411	38.1	1,371	111

**Table 7. LANDS UNDER STATE OR TERRITORIAL OWNERSHIP, BY AGENCY: 1948 AND 1961**

Agency	State-owned area (acres)		State-owned parcels, 1961	Acres per parcel, 1961
	1961	1948		
All agencies .....	1,524,726	1,529,476	9,460	161
Departments:				
Agriculture .....	3,153	—	25	126
Defense <sup>1</sup> .....	1,571	1,605	30	52
Education <sup>2</sup> .....	1,182	1,190	244	5
Hawaiian Home Lands <sup>3</sup> .....	100,485	169,384	1,401	72
Institutions .....	—	7,589	—	—
Land and Natural Resources .....	1,395,333	—	6,849	204
Social Services .....	10,621	—	34	312
Transportation .....	3,814	—	244	16
Boards:				
Agriculture and Forestry .....	—	670,620	—	—
Hospitals and Settlement .....	—	8,248	—	—
Commissioner of Public Lands .....	—	663,340	—	—
Hawaii Aeronautics Commission .....	—	58	—	—
Supt. of Public Works .....	—	2,382	—	—
University of Hawaii .....	1,091	432	29	38
Counties and water boards .....	6,559	4,082	537	12
All other agencies .....	915	544	67	14

<sup>1</sup>Hawaii National Guard in 1948.

<sup>2</sup>Department of Public Instruction in 1948.

<sup>3</sup>Hawaiian Homes Commission in 1948.



**Table 8. NUMBER OF PARCELS AND AREA IN ACRES UNDER STATE OWNERSHIP, BY COUNTY AND JUDICIAL DISTRICT: JUNE 30, 1961**

County and judicial district	Number of parcels	Area in acres
State of Hawaii.....	9,460	1,524,725.947
City and County of Honolulu.....	3,162	55,566.158
Honolulu.....	1,613	11,915.079
Ewa of Nuuanu Avenue.....	401	3,160.442
Nuuanu Ave. to Kapahulu Ave.....	880	4,886.007
Koko Head of Kapahulu Ave.....	332	3,868.629
Koolaupoko.....	649	7,473.540
Koolauloa.....	167	4,124.196
Waialua.....	33	8,422.111
Wahiawa.....	28	4,675.226
Waianae.....	566	15,980.594
Ewa.....	106	2,975.411
Counties of Maui and Kalawao.....	1,619	255,817.562
Hana.....	306	87,706.498
Makawao.....	259	34,626.317
Wailuku.....	216	17,674.533
Lahaina and Lanai.....	155	20,211.938
Molokai.....	680	87,045.276
Kalawao.....	3	8,553.000
County of Hawaii.....	3,308	1,061,392.656
Puna.....	410	76,693.160
South Hilo.....	1,585	158,787.450
North Hilo.....	165	132,484.371
Hamakua.....	254	269,508.027
North Kohala.....	120	14,403.741
South Kohala.....	421	51,595.748
North Kona.....	87	149,492.448
South Kona.....	99	22,480.674
Kau.....	167	185,947.037
County of Kauai.....	1,371	151,949.571
Waimea.....	498	84,859.422
Koloa.....	65	2,266.942
Lihue.....	128	12,203.442
Kawaihau.....	610	26,109.978
Hanalei.....	70	26,509.787

**Table 9. NUMBER OF PARCELS UNDER STATE OWNERSHIP, BY AGENCY AND COUNTY: JUNE 30, 1961**

Agency	The State	City and County of Honolulu	Counties of Maui and Kalawao	County of Hawaii	County of Kauai
All agencies.....	9,460	3,162	1,619	3,308	1,371
Office of Governor.....	2	2	-	-	-
Acctg. & Gen. Serv.....	39	24	1	10	4
Agriculture.....	25	17	-	8	-
Budget & Review.....	1	1	-	-	-
Defense.....	30	3	12	9	6
Education.....	244	102	37	81	24
Haw'n Home Lands.....	1,401	787	180	368	66
Health.....	14	6	1	4	3
Land & Nat. Resources <sup>1</sup> .....	6,849	1,847	1,292	2,597	1,113
Social Services.....	34	27	2	5	-
Transportation.....	244	107	27	53	57
Univ. of Hawaii.....	29	20	1	8	-
Counties.....	504	189	65	158	92
Boards of Water Supply.....	33	19	1	7	6
House of Representatives.....	11	11	-	-	-

<sup>1</sup>Includes State lands for which no agency was specified.

**Table 10. AREA IN ACRES UNDER STATE OWNERSHIP, BY AGENCY AND COUNTY: JUNE 30, 1961**

Agency	The State	City and County of Honolulu	Counties of Maui and Kalawao	County of Hawaii	County of Kauai
All agencies .....	1,524,725.947	55,566.158	255,817.564	1,061,392.656	151,949.571
Office of Governor .....	0.824	0.824	—	—	—
Acctg. & Gen. Ser. ....	231.061	121.759	2,234	102.584	4.484
Agriculture .....	3,153.022	2,957.487	—	195.535	—
Budget & Review .....	1.000	1.000	—	—	—
Defense .....	1,571.354	166.749	212.948	965.851	225.805
Education .....	1,182.167	326.229	327.534	401.252	127.152
Haw'n Home Lands .....	100,485.464	4,913.901	25,772.751	61,956.922	7,841.890
Health .....	20.319	12.187	1.607	5.821	0.704
Land & Nat. Resources <sup>1</sup> .....	1,395,333.278	40,363.164	226,726.335	986,664.808	141,578.923
Social Ser. ....	10,620.899	1,004.005	1,213.000	8,403.894	—
Transportation .....	3,814.371	1,532.507	756.699	1,152.932	372.234
Univ. of Hawaii .....	1,091.062	591.913	38.300	460.849	—
Counties .....	6,313.752	2,775.227	766.040	1,032.146	1,740.339
Boards of Water Supply .....	245.697	137.481	0.115	50.060	58.041
House of Representatives .....	661.728	661.728	—	—	—

<sup>1</sup>Includes State lands for which no agency was specified.

**Table 11. DOCUMENTS ENCUMBERING STATE LANDS BY TYPE AND COUNTY: JUNE 30, 1962**

(Number of documents in force as of date specified. Most documents cover a single parcel, but some pertain to only part of a parcel, and others cover two or more parcels.)

Type of document	The State	City and County of Honolulu	Counties of Maui and Kalawao	County of Hawaii	County of Kauai
All documents .....	4,299	1,877	477	1,370	575
Haw'n Home Lands:					
Leases .....	1,045	641	42	361	1
Revocable license .....	5	5	—	—	—
General lease .....	877	103	181	409	184
Revocable permit .....	907	604	56	136	111
Homestead lease .....	110	34	49	5	22
Certificate of occupation .....	14	4	2	—	8
Special homestead agreement .....	2	2	—	—	—
Special sale agreement .....	344	134	7	141	62
Executive order .....	945	332	137	299	177
Not specified .....	50	18	3	19	10



## SECTION 4

# DIVISION OF CONVEYANCES

### Historical Background

Registration of documents relating to land ownership and titles to property was started over a hundred years ago in Hawaii with the creation of the Board of Commissioners to Quiet Land Titles in 1846. Since that time millions of pages of transactions have been recorded.

In 1903 the Territorial Legislature adopted a new method of dealing with land which it hoped would prove a solution to the problem of dealing with Hawaiian land titles safely and speedily. The new system, based on the Torrens land registration acts of the United States and Great Britain, is usually referred to as the Hawaiian Torrens System or the Land Court System.

Under the recording system a public office is created where documents affecting title to land are copied in their entirety in permanent volumes. The information relating to any particular piece of land or any particular title is scattered throughout a number of volumes, indexes and offices.

With the Torrens system, the register is absolute. In less time a person may know positively the state of the title in which he is interested. He runs no risk at all. He secures a title good against the world even if the register is incorrect.

### Functions and Responsibilities

The functions of the Division of Conveyances are briefly, to file, index and record deeds, mortgages, maps and all legal instruments entitled to recordation; to index original maps; to preserve, protect, and maintain an orderly reference to all the records in the division; and to issue certified copies of any matter of record.

Land transactions are recorded and filed in this bureau and the revenues are computed on the recording and filing fees.

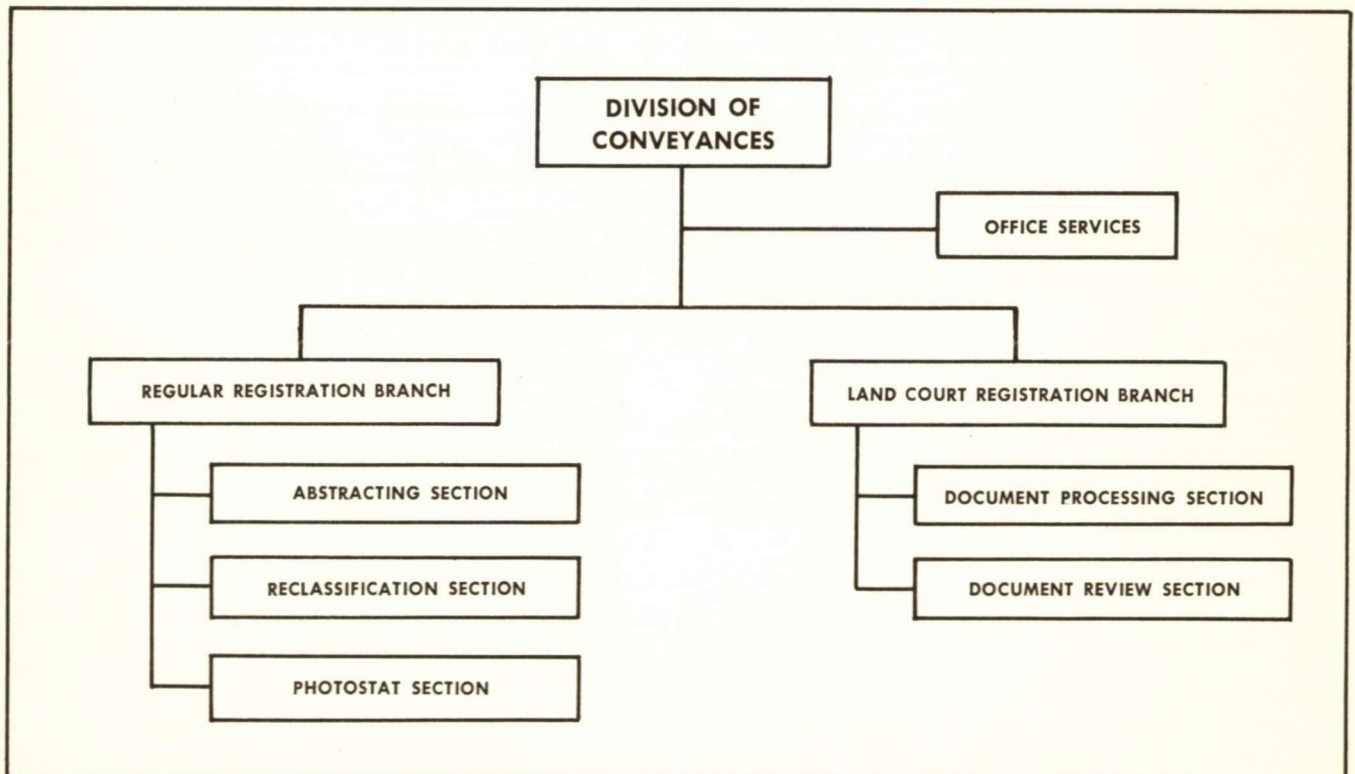
### Activities during 1961-1962

In many respects, the past year proved to be one of the most active in the history of the Division of Conveyances.

Total receipts in fiscal year 1961-1962 reached \$279,283.70, the second greatest annual total on record. (The all-time high, \$290,061.13 occurred two years earlier). Receipts from the land court system amounted to only \$77,104.65, considerably less than in previous years, but receipts from the regular system totalled \$202,179.05, well above previous levels.

A total of 56,530 documents were recorded and filed during the year ended December 31, 1962, compared with 48,640 during 1961 and 50,097 (the previous rec-

### ORGANIZATION CHART—DIVISION OF CONVEYANCES



ord) during 1960. The regular system accounted for 39,100 of the 1962 total, greatly surpassing earlier levels. Documents recorded and filed in the land court system numbered 17,430 for 1962, somewhat above the 1961 total but less than in 1960.

The Division issued 3,840 land court certificates of title in calendar 1962, compared with 3,597 for 1961 and 3,926 in 1960.

The number of deeds filed and recorded in the year ended December 31, 1962 was 9,936, well above the 1961 total and second highest in history. Total filing and recording fees received for the calendar year reached a record \$303,577.40, or 16.0 percent more than the previous year.

The approximate indicated value of land conveyed during the calendar year was \$110,097,500. The all-time high, attained in 1961, was \$131,952,500. About 82 percent of the 1962 total was on Oahu.

The three tables shown in this section indicate the work of this division by fiscal year and calendar year in comparison with previous years.

#### Microfilming and Data Processing

Pursuant to the recommendations contained in the Public Administration Service report of December 15, 1961, entitled "Land Records Management and Organization in the State of Hawaii" and to the Board of Land and Natural Resources favorable adoption in principle of microfilming as a method of recording and of data processing in the Conveyances Division, Jack A. Meek of the Land Management Division has been temporarily assigned to assist the Registrar, Mr. Oliver R. Aiu, in carrying on the division's work and plans for implementing recommended changes to the present recording methods and procedures.

Legislation was introduced in February 1962 to enable the Bureau to initiate installation of micro-

film records and automatic data processing card systems. The measures failed to pass. However, in accordance with the request of the Chairman of the House Judiciary Committee, Department of Land and Natural Resources, in cooperation with the Department of Budget and Review, is studying the feasibility of adopting a microfilming system for the recording and storing of land records in the Conveyances Division. The results of this study and investigation, together with our recommended plan to implement such a system is being prepared and will be presented to the 1963 State Legislature.

It is our aim to render the best available recording and data processing systems to the public and at the same time cut material and equipment costs drastically, triple the utility of existing storage space, speed up production and provide microfilm master copies, one of which is to be used as a permanent security copy.

**Table 1. RECEIPTS OF THE DIVISION OF CONVEYANCES: 1953 TO 1962**

Fiscal year ending June 30	Receipts (dollars)		
	Total	Regular system	Land court system
1953	145,019.10	106,941.30	38,077.80
1954	174,485.72	126,627.00	47,858.72
1955	190,669.60	141,501.65	49,167.95
1956	198,941.60	145,984.90	52,956.70
1957	188,617.10	139,349.70	49,367.40
1958	211,793.35	144,281.20	67,512.15
1959	267,143.20	170,809.65	96,333.55
1960	290,061.13	197,467.68	92,593.45
1961	270,033.35	190,339.80	79,693.55
1962	279,283.70	202,179.05	77,104.65
Ten year total	2,216,047.85	1,565,481.93	650,665.92

**Table 2. DOCUMENTS RECORDED AND FILED AND LAND COURT CERTIFICATES OF TITLE ISSUED BY THE DIVISION OF CONVEYANCES: 1953 TO 1962**

Calendar year	Documents recorded and filed			Land court certificates of title issued
	Total	Regular system	Land court system	
1953	35,818	24,502	11,316	2,927
1954	38,093	24,677	13,416	2,809
1955	38,838	24,798	14,040	3,814
1956	38,305	24,832	13,473	3,351
1957	39,608	25,795	13,813	3,398
1958	45,539	27,100	18,439	3,587
1959	42,123	21,119	21,004	4,611
1960	50,097	32,168	17,929	3,926
1961	48,640	32,606	16,034	3,597
1962	56,530	39,100	17,430	3,840



**Table 3. NUMBER OF DEEDS FILED AND RECORDED, APPROXIMATE VALUE OF LAND CONVEYED,  
AND TOTAL FILING AND RECORDING FEES RECEIVED BY THE DIVISION OF CONVEYANCES:  
1935 TO 1962**

Calendar year	Number of deeds filed and recorded	Approx. value of land conveyed (dollars)	Total filing and recording fees received (dollars)
1935	3,194	6,217,540	48,529.80
1936	4,328	10,916,055	62,965.90
1937	5,359	12,125,405	67,872.85
1938	5,169	11,000,270	71,147.90
1939	5,310	11,864,700	72,559.40
1940	5,753	14,017,700	79,832.70
1941	6,603	17,256,500	81,155.10
1942	4,156	14,885,500	55,392.50
1943	5,542	26,763,500	68,950.30
1944	6,103	35,141,000	76,319.35
1945	6,392	40,729,000	77,992.20
1946	7,832	59,201,800	109,642.80
1947	7,648	50,751,000	126,166.90
1948	8,212	52,577,500	144,305.90
1949	7,120	34,091,000	145,195.00
1950	8,215	45,125,000	154,846.45
1951	9,032	44,706,500	162,896.15
1952	7,709	44,732,000	158,252.15
1953	7,942	45,970,500	158,792.80
1954	7,770	47,737,000	181,491.70
1955	9,127	61,802,000	199,708.25
1956	8,652	59,058,000	186,454.40
1957	8,686	62,046,500	204,381.80
1958	8,502	76,868,000	235,791.50
1959	10,212	131,927,500	286,482.00
1960	9,810	107,826,500	281,096.64
1961	8,845	131,952,500	261,616.50
1962	9,936	110,097,500	303,577.40

## SECTION 5

# DIVISION OF FISH AND GAME

### Historical Background

The fish and game agency in Hawaii had its origin in 1919 with the establishment of the Fish and Game Commission. In 1927 the Commission was abolished and its powers and duties were vested in the Board of Commissioners of Agriculture and Forestry. On January 23, 1960 this Board was reorganized as the Board of Agriculture and Conservation and on July 1, 1961 the functions and authority relating to fish and game resources were transferred to the Department of Land and Natural Resources.

From its inception to the end of World War II, the fish and game agency's functions were almost entirely concerned with enforcement of fish and game laws, introduction of fish and game species, and operation of fish hatcheries and game farms. No studies were made to evaluate and determine the effectiveness of such laws or of the continued practice of importing, propagating and disseminating fish and game species throughout Hawaii.

It was only after World War II that scientific investigations were begun. With the accumulation of basic knowledge regarding the biology and ecology of fish and game species and the character and status of these resources, their management assumed a sounder and more scientific approach. Habitat improvements designed to increase fish and game populations, introduction of selected species and their release in suitable habitats, formulation of enforcement measures based on research findings, development of a commercial fish catch statistical system, and acqui-

sition of public fishing and hunting areas were some of the activities initiated and are being continued today.

### Functions and Responsibilities

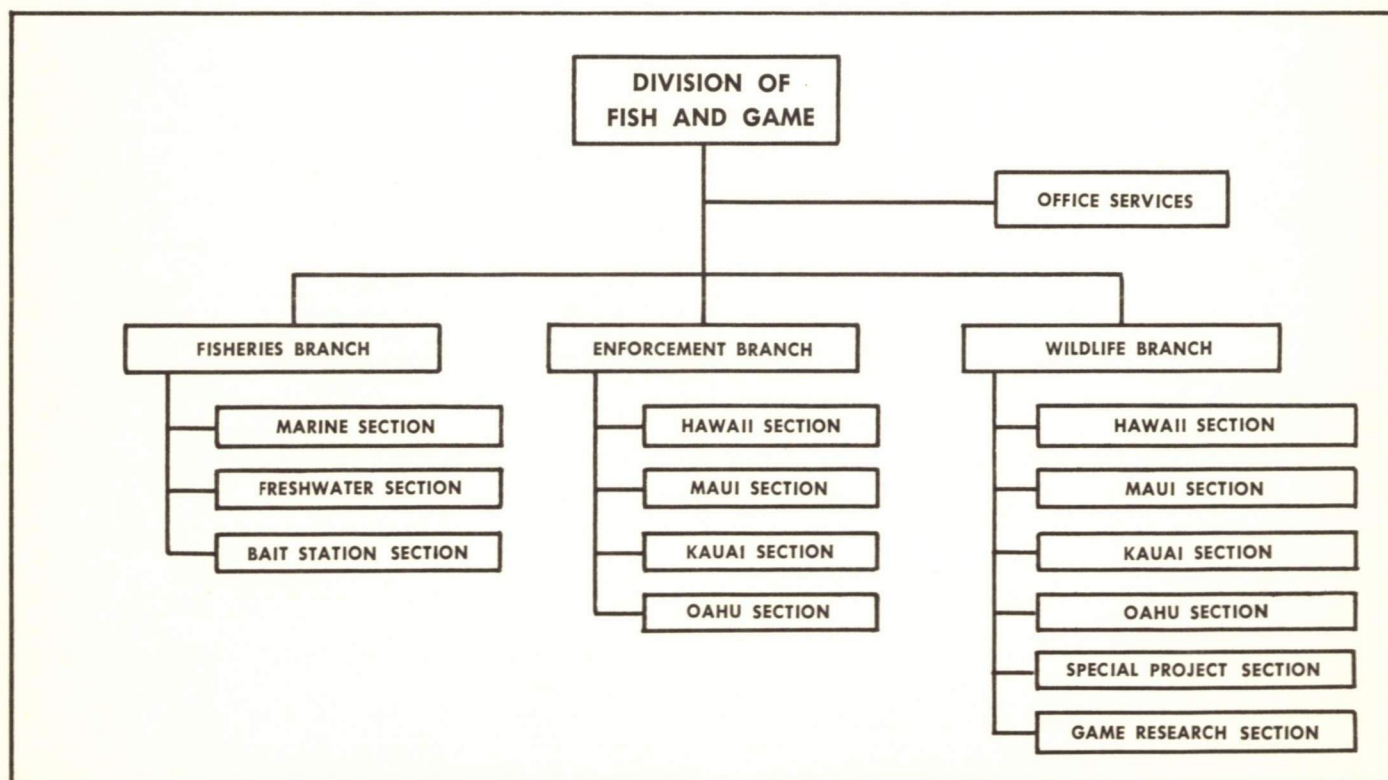
The functions of the Division of Fish and Game are to develop and manage the State's fish, game, and other wildlife resources for economic, recreational, aesthetic and other purposes for the present as well as the future. These functions are implied in Section 21-4, R.L.H. 1955 as amended, which reads in part as follows: "There shall be a territorial director, fish and game, of the Territory, who shall have charge, direction and control, subject to the direction and control of the board, of all matters relating to the preserving, protecting, propagating, importing and distributing of fish and marine life, and game birds and game animals within the Territory and the waters subject to its jurisdiction, and the enforcement of the laws relating to such work."

### Organization

The Division is organized into three operating branches with an office services section supporting them. The three branches and their internal composition and functions are as follows:

- (1) **Fisheries Branch.** This branch conducts research and develops and manages fish and other aquatic resources of the State. It is organized into three sections (Marine, Freshwater, and Bait Station).

### ORGANIZATION CHART—DIVISION OF FISH AND GAME





- (2) **Wildlife Branch.** This branch conducts research and develops and manages game and other wildlife resources of the State. It is organized into six sections, one for each county of the State, and two sections concerned with special assignments.
- (3) **Enforcement Branch.** The principal function of this branch is to enforce all fish, game, other wildlife, and related laws, regulations and rules. It is organized into four sections, one for each county.

#### Office Services during 1961-1962

The Office Services staff provides general administrative and clerical support to the three operating branches of the Division. These services include programming, clerical assistance, budgeting, purchasing, maintaining property inventory and issuing various

licenses and permits. Tables 1 through 8 show collections made by the division in 1961-62.

### FISHERY MANAGEMENT DURING 1961-1962

#### Freshwater Fishery Management

**Fish introduction and stocking.** Approximately 43,000 channel catfish fry and 339,000 eyed rainbow trout eggs were flown in from the mainland and stocked in selected streams and reservoirs. About 255,000 of the trout eggs were stocked in streams of the Kokee Public Fishing Area on Kauai and 84,000 in four streams of the Makawao-Hana District on Maui. A lot of 109 threadfin shad collected from brood areas on Oahu was stocked in the Waiakea Public Fishing Area, Hawaii. Tucunares being maintained in a brood pond in Nuuanu have achieved excellent growth and are expected to reproduce in the summer of 1963.

Table 1. FRESHWATER GAME FISHING LICENSE AND HUNTING LICENSE STATISTICS: 1951-52 TO 1961-62

Years ending June 30	Freshwater sport fishing		Hunting	
	Number issued	Collections (dollars)	Number issued	Collections (dollars)
1951-52	627	1,517.04	4,471	21,638.75
1952-53	2,617	6,268.11	4,695	22,636.00
1953-54	1,734	4,141.66	4,514	21,751.25
1954-55	1,950	4,595.41	4,522	21,634.35
1955-56	2,288	4,911.37	4,742	22,832.57
1956-57	2,595	5,402.41	5,179	24,942.25
1957-58	3,320	7,191.39	5,290	25,738.99
1958-59	2,383	4,885.61	5,222	25,094.23
1959-60	1,682	3,638.23	5,290	25,564.25
1960-61	3,014	6,339.94	6,214	30,202.25
1961-62	4,209	8,824.01	6,924	33,897.72

Table 2. LICENSE COLLECTIONS: 1957-58 TO 1961-62

Years ending June 30	All collections	Commercial fishing	Freshwater sport fishing	Hunting	Miscellaneous licenses and permits and other income
1961-62	\$57,158.54	\$12,761.51	\$8,824.01	\$33,897.72	\$1,675.30
1960-61	50,517.92	13,160.00	6,339.94	30,202.25	815.73
1959-60	43,520.02	13,414.04	3,638.23	25,564.25	903.50
1958-59	45,919.98	14,915.29	4,885.61	25,094.23	1,024.85
1957-58	50,282.60	16,212.50	7,191.39	25,738.99	1,139.72

Table 3. COMMERCIAL FISHING LICENSES: 1961-62

Kind of license	Number	Collections (dollars)
Total	1,435	12,761.51
Commercial fishing—resident	916	9,160.00
Commercial fishing—non-resident	24	480.00
Power boat permit	373	2,915.51
Row boat and sail boat permit	50	61.50
Boat plates (pair)	72	144.50

**Table 4. FRESHWATER GAME FISHING LICENSES: 1961-62**

County where issued	Total		Resident		Juvenile		Other <sup>1</sup>	
	No.	Amount (dollars)	No.	Amount (dollars)	No.	Amount (dollars)	No.	Amount (dollars)
The State.....	4,209	8,824.01	3,365	8,008.26	841	806.00	3	9.75
Hawaii.....	452	906.46	309	765.11	143	141.35	—	—
Honolulu.....	3,217	6,805.65	2,653	6,266.93	563	536.35	1	2.37
Kauai.....	540	1,111.90	403	976.22	135	128.30	2	7.38
Maui.....	—	—	—	—	—	—	—	—

<sup>1</sup>Includes 1 non-resident license (\$5.00) and 2 tourist licenses (\$4.75).

**Table 5. MISCELLANEOUS FISHING LICENSES, PERMITS AND SALES: 1961-62**

Type	Number	Amount
Total .....	217	582.01
Mullet license .....	113	487.50
Lobster license .....	9	13.00
Commercial bait permit .....	62	62.00
Clam license .....	1	5.00
Sale of confiscated legal fishing gear .....	2	.20
Duplicate commercial fishing license .....	1	.50
Duplicate sport fishing licenses .....	29	13.81

**Table 6. HUNTING LICENSES: 1961-62**

County where issued	Number of licenses			Collections (dollars)		
	Total	Resident	Non-resident	Total	Resident	Non-resident
The State.....	6,924	6,782	142	33,897.72	32,524.97	1,372.75
Hawaii.....	2,044	1,950	94	10,321.50	9,416.00	905.50
Honolulu.....	2,617	2,573	44	12,778.97	12,349.72	429.25
Kauai.....	863	860	3	4,068.75	4,040.25	28.50
Maui.....	1,400	1,399	1	6,728.50	6,719.00	9.50

**Table 7. MISCELLANEOUS GAME LICENSES AND SALES: 1961-62**

Type	Number	Amount (dollars)
Total .....	245	262.79
Game bird farm license .....	24	24.00
Sale of publication "Game Birds in Hawaii" .....	17	12.00
Duplicate hunting licenses .....	198	96.98
Sale of confiscated legal hunting gear .....	6	69.00
Donations .....		60.81



**Table 8. MISCELLANEOUS PERMITS AND REGISTRATIONS AND CABIN RENTAL INCOME: 1961-62**

Subject	Number
Miscellaneous permits and registrations (no charge)	155
Permits for the destruction of wild birds injurious to crops	4
Scientific collecting permit	11
Hunting field trial permit	7
Permits for entry on bird sanctuaries	9
Sport fishing nehu bait permit	69
Fishing and wildlife importation permit	47
Permits to keep birds in captivity	1
Aquarium fish permit	7
Rental of cabins, Hawaii (dollars)	830.00

**Aquatic invertebrate introduction.** The eggs of two species of mayflies (*Iron lagunitas* and *Heptagenia rubroventris*) were introduced into the Kokee Public Fishing Area in August, 1961 to enhance the food chain complex of the trout fishery. The results of follow-up checks have been negative as of this report.

**Limnological survey.** Limnological surveys of 32 streams (seven on Oahu and 25 on Maui) were completed. With few exceptions the streams showed good potential for development into public fishing areas.

**Management and operation of public fishing areas and fish refuges.** Posting of new signs and boundary markers and control of noxious vegetation were effected in fishing areas and refuges. Data collected at the checking station at the Kokee Public Fishing Area revealed that 337 fishermen fished a total of 1,300 hours, or 3.9 hours per fisherman, and caught 348 trout. The average trout caught weighed about 6.3 ounces and measured about 9.4 inches.

#### **Saltwater Fishery Management**

**Fish introduction.** Approximately 7,200 specimens consisting of four species of snappers and four species of groupers were collected at Moorea, French Polynesia, and live shipped to Oahu aboard the U. S. Fish and Wildlife Service research vessel, the *Charles H. Gilbert*. All fish were released at the artificial shoal site at Maunalua Bay, Oahu. 148 juvenile specimens of one species of snapper and two species of groupers were air shipped from Canton Island and released into Keehi Lagoon, Oahu. Two species of snappers and one species of grouper imported during previous years appear to have spawned in our waters.

**Artificial fish shelters.** An additional 280 old car bodies were placed at the artificial shoal site in Maunalua Bay, Oahu. The shoal now consists of 829 car bodies. Two additional areas, one along the lee coast of Oahu and the other off Maui, were surveyed as possible sites for the construction of artificial shoals.

**Life history studies of lobster and moi.** During the year 1,182 lobsters were tagged and released, bringing the total number of tagged lobsters to 1,660. Since inception of the project, 270 tagged lobsters have been recovered, giving a return of 22.8 percent. It is apparent that the two species of spiny lobsters are spawning at least twice a year with the fertilized eggs being carried by the female for a period of about one month prior to hatching. Preliminary data indicate that within a period of a year a one pound lobster is capable of molting three or four times and gains eight to twelve ounces in weight.

An extensive moi sampling program was established to gather information on spawning season, length-weight, and other pertinent data. 460 samples of moi stomachs and gonads were obtained from selected sportsfishermen, and approximately 600 additional samples of moi and moilii (juvenile moi) were obtained from the market, commercial fishermen, and field collections. Data collected indicate that the moi are carnivorous, with their diet composed of about 45 percent fish and 55 percent shrimp, crabs, and other crustacea. The spawning season of the moi begins in April and continues through August. Moilii first appear in inshore waters in August and remain in the shallow reef areas through November.

**Experimental gill net fishing for aku.** In an effort to develop a more efficient method of capturing aku than the relatively inefficient hook and line method currently used, studies were made to determine the feasibility of employing monofilament gill nets to capture aku. This project was financed by \$25,000 in Federal funds and \$45,000 in State funds. Furthermore, the State contracted the services of the Honolulu Biological Laboratory of the Bureau of Commercial Fisheries, U. S. Fish and Wildlife Service, to carry out the project. After two months of field work in the summer of 1961, operation were suspended due to the disappearance of aku in Hawaiian waters. Field work was not resumed until May 1962. Inconclusive results of the first period of testing indicated that the monofilament gill net will not supplant but may augment the pole and line method of catching commercial quantities of aku. Further testing of the gear with modifications is necessary for more conclusive results.

**Oyster.** A preliminary investigation to determine the feasibility of developing an oyster fishery in Hawaii for commercial and/or recreational purposes was carried out during the year. The State contracted for the services of Dr. Albert K. Sparks, an oyster authority and faculty member of the College of Fisheries, University of Washington to conduct the study. His work included but was not limited to the assessment of the extent and status of existing oyster beds; sampling to determine number, size and age composition of oysters in various beds; study of associated fauna with special reference to predators; study of condition index of the oysters for marketability; consideration of problems associated with fecal contamination; and evaluation of potential oyster growing areas on the major islands.

The findings of Dr. Sparks' studies revealed the



presence of a tremendous oyster resource in Pearl Harbor, conservatively estimated at 35,657,400 live oysters or the equivalent of 55,630 bushels, which he recommends be used as a seed stock. He believes that direct utilization of the resource as market oysters does not appear to be feasible due to the grossly polluted condition of the water over the oyster beds as indicated by the high fecal coliform level determinations obtained from water samples. Particularly noteworthy among his other recommendations were a course of investigation to provide data essential for the judicious management of the resource and a program of experimental transplantation and growing of oysters in suitable unpolluted areas.

**Statistics on fish landings by commercial fishermen.** As shown by Table 9 commercial fish landings in the State of Hawaii during the 1961-1962 fiscal year totalled 13,931,171 pounds, valued at \$2,873,274 to the fishermen. Compared with the previous fiscal year, the State catch showed a net increase of 200,259 pounds or 1.5 percent by weight, and a net decrease in income to the fishermen of \$25,106 or 0.9 percent in value. The net increase in weight is largely due to the aku (*Katsuwonus pelamis*) fishery, which showed an increased landing of 125,386 pounds or 1.2 percent. The net decrease in value is also primarily due to the aku fishery, in which the fishermen were paid an average of \$.003 less per pound. Table 10 compares fish landings by islands.

Another species that showed a major increase in landings was the bigeye tuna (*parathunnus sibi*). Here the increase was 200,016 pounds or 20.4 percent.

Two species that showed substantially decreased landings were the Pacific blue marlin (*Makaira*

*ampla*), reduced by 59,022 pounds or 18.7 percent, and akule (*Trachurops crumenophthalmus*), by 56,544 pounds or 18.8 percent. Table 11 tabulates 1961-1962 commercial fish catch by species.

#### Honolulu Bait Station

Construction of the Honolulu Bait Station was completed in March 1962 and the station was put into operation immediately thereafter. To June 1962, production at the station was an estimated 1,850,000 tilapia fry. Daily fry production increased from an estimated 350 per day in early April to an estimated 50,000 per day in late June.

The first sale of bait size tilapia was made to the aku sampan, the *Broadbill*, in late June. She caught 4,500 pounds or \$450 worth of aku with the use of 66 pounds or \$33 worth of tilapia bait.

Mortality of bait fish caused by a unicellular flagellated organism was controlled by injecting a controlled amount of copper sulphate into the fish rearing tanks.

Fresh water consumption at the station was substantially reduced by adopting a method of directly transferring very young fry into salt water for rearing.

#### WILDLIFE MANAGEMENT DURING 1961-1962

##### Public Shooting Ground Management

The Division operated 22 game management and public hunting areas totalling some 450,000 acres. Over 11,000 hunting trips were made on these areas by licensed hunters. The game-bird harvest was over 12,000 birds while the mammal kill totalled well over 4,100 animals.

The maintenance of water units and road systems

**Table 9. COMMERCIAL FISH LANDINGS: JULY 1961 TO JUNE 1962**

Month	Total		Sea Catch		Pond Catch	
	Pounds	Value	Pounds	Value	Pounds	Value
The year.....	13,931,171	\$2,873,274	13,869,921	\$2,825,490	61,250	\$47,784
July 1961.....	2,592,080	371,364	2,586,591	366,750	5,489	4,614
August.....	1,652,468	276,375	1,649,301	274,255	3,167	2,120
September.....	974,068	206,136	969,850	202,965	4,218	3,171
October.....	782,288	190,599	776,667	186,257	5,621	4,342
November.....	493,089	173,447	485,727	167,530	7,362	5,917
December.....	643,982	254,955	633,504	246,331	10,478	8,624
January 1962.....	637,192	162,111	627,717	153,541	9,475	8,570
February.....	649,584	177,392	645,328	174,039	4,256	3,353
March.....	502,183	190,025	497,612	186,747	4,571	3,278
April.....	813,230	196,178	810,166	194,470	3,064	1,708
May.....	1,533,292	284,796	1,531,429	283,701	1,863	1,095
June.....	2,657,715	389,896	2,656,029	388,904	1,686	992

**Table 10. COMMERCIAL FISH LANDINGS, BY ISLAND: 1961-62**

Island	Total		Sea Catch		Pond Catch	
	Pounds	Value	Pounds	Value	Pounds	Value
The State.....	13,931,171	\$2,873,274	13,869,921	\$2,825,490	61,250	\$47,784
Hawaii.....	1,975,524	409,358	1,975,524	409,358	—	—
Maui.....	1,332,359	200,411	1,332,359	200,411	—	—
Lanai.....	14,162	5,435	14,162	5,435	—	—
Molokai.....	5,980	4,128	5,169	3,529	811	599
Oahu.....	10,440,307	2,185,784	10,379,868	2,138,599	60,439	47,185
Kauai.....	162,839	68,158	162,839	68,158	—	—



Table 11. COMMERCIAL FISH CATCH, BY SPECIES: 1961-62

Species	Pounds	Value (dollars)	Species	Pounds	Value (dollars)
<b>Sea catch</b>					
Total.....	13,869,921	2,825,490	Nohu (Hogo).....	1,265	706
Aku.....	10,319,371	1,260,663	Oio.....	22,182	6,245
Ahi (Yellowfin).....	384,933	141,656	Opelu.....	221,244	88,548
Ahipalaha (Tonbo).....	16,308	4,779	Palani.....	4,059	806
Ahi (Bigeye).....	1,181,972	579,046	Pualu.....	22,545	4,697
Kawakawa.....	2,568	474	Puhi (Eel).....	2,244	193
Swordfishes (Misc.).....	127	25	Puhi (White Eel).....	5,422	892
Stripe Marlin.....	273,277	70,646	Uhu.....	5,602	2,126
Pacific Blue Marlin <sup>1</sup> .....	256,150	69,287	Ukikiki (Gindai).....	943	443
Broadbill.....	24,191	4,124	Uouoa.....	1,119	627
A'u lepe (Sailfish).....	4,578	659	Uu (Menpachi).....	9,091	6,665
Mahimahi.....	108,512	46,798	Weke.....	65,088	24,104
Ono.....	23,637	4,727	Black marlin <sup>2</sup> .....	20,858	5,713
Hapuupuu.....	23,673	12,055	Malu.....	3,444	2,030
Kahala.....	68,874	20,795	Saba.....	1,683	731
Kalekale.....	17,655	9,107	Crab (Papai-Misc.).....	3,654	1,095
Omilu.....	6,093	3,538	Crab (Kona).....	30,273	21,686
Opakapaka.....	104,986	50,171	Crab (Kuahonu).....	85	54
Uku.....	55,537	22,534	Opae (Shrimp).....	307	496
Ulaula (Ehu).....	16,715	14,500	Ula (Lobster).....	9,942	6,671
Ulaula Koae (Onaga).....	51,173	45,205	Ulapapapa.....	42	25
Ulua.....	70,120	29,091	Hee (Octopus).....	3,171	1,964
Weke-ula.....	14,623	10,030	Muhee (True Squid).....	8,609	3,543
Aawa.....	1,757	342	Opihi (Limpet).....	7,297	3,629
Aholehole.....	3,349	2,303	Honu (Turtle).....	727	88
Akule & Hahalalu.....	244,116	165,275	Miscellaneous.....	21,485	7,595
Amaama (Mullet).....	15,927	11,906	<b>Pond catch</b>		
Awa.....	13,631	4,883	Total.....	61,250	47,784
Aweoweo.....	2,093	864	Ulua.....	2,056	1,873
Humuhumu (Hage).....	863	257	Aholehole.....	3,931	1,202
Kaku (Barracuda).....	2,784	717	Amaama (Mullet).....	36,782	34,852
Kala.....	17,920	3,068	Awa.....	7,891	4,427
Kawelea.....	5,025	2,227	Awaawa.....	1,260	541
Kumu.....	14,209	15,082	Kaku.....	917	702
Laenihi (Nabeta).....	540	342	Moi.....	554	548
Lehi.....	1,730	621	Oio.....	213	105
Maomao (Mamo).....	4,024	1,406	Tilapia.....	28	7
Manini.....	7,373	3,596	Crab (Papai-Misc.).....	4,310	1,641
Moano.....	12,614	7,540	Crab (Kuahonu).....	1,765	1,202
Moi.....	11,018	7,791	Crab (Samoan).....	270	204
Moelua.....	3,772	2,085	Opae (Shrimp).....	28	88
Nenue.....	9,722	3,903	Clam (Olepe).....	145	51
			Miscellaneous.....	1,100	341

constituted a major phase of the Game Management Area program. Eight miles of jeep roads were added to the total of some 200 miles of hunter access roads in the Game Management areas. Five new combination big game—game bird water units were constructed bringing the total number of units being maintained to 216. Other management activities included the clearing and thinning of brush to improve game habitat and hunter access.

#### Game Introduction and Research

**Big game.** During the fiscal year 24 male and 16 female mouflon sheep were imported and added to the Mouflon-Mauna Kea Sheep hybridization project. This program, designed to up-grade the sporting qualities of sheep in the Mauna Kea areas, produced several hybrids and back-crosses.

The pure mouflon herd on Lanai continued to grow as evinced by the sightings of substantial numbers of

lambs. Forty-five mouflons have been released there to date.

The pronghorn antelope herd on Lanai produced another excellent crop of kids this spring. Over 75 antelope are now inhabiting the northern grassy slopes of the island compared with 40 last year.

Ten additional blacktailed deer were introduced to Kauai after undergoing intensive testing in Oregon for cattle diseases. A fawn crop of unknown size was produced during the spring.

The intensive research project on the ecology of the Hawaiian wild pig continued with many animals being collected and examined for breeding and disease studies. An efficient method of capturing pigs was developed and a tagging program started which should yield important information on populations and movements.

**Game birds.** The exotic game bird introduction program was especially active during this year. Over



1,400 grey francolins, 600 black francolins, 400 Indian sandgrouse, 140 Erckel's francolins, 540 Reeves pheasants, and 30 Barbary partridges were introduced and released on the various islands. Over 200 wild Rio-grande turkeys and 300 Gambel quail were imported. The sandgrouse and grey and black francolins were imported directly from India and were held in quarantine for 21 days before release. The other species were imported from the mainland and required no quarantine.

#### Nene Restoration Project

Great progress was made in this project during the year. Improvements were made to the rearing pens at the Pohakuloa propagation project and 44 additional young nene were produced.

Thirty-five nene produced at Pohakuloa were released in a new sanctuary area located between Hualalai and Mauna Loa on Hawaii. This brought the total number of nene released on Hawaii in the last three years to 86 birds. Observations on released birds indicate that they adapt well to wild conditions and mix well with the wild flock. As many as 37 wild nene were seen at one time flying across the Saddle Road on Hawaii during July of 1961.

#### Hawaiian Islands National Wildlife Refuge

The cooperative agreement between the Board of Land and Natural Resources and the U. S. Fish and Wildlife Service which provides for the management of this unique Refuge was renewed. Eight of the lee-

ward islands—Nihoa, Necker, French Frigate Shoal, Gardner Pinnacles, Maro Reef, Laysan, Lisianski, and Pearl and Hermes Reef—constitute the Refuge. Two inspection and study trips to these islands were made using Navy and Coast Guard transportation. Additional photographic stations were established and important ecological observations made on the plant, insect, and bird life of the islands.

#### LAW ENFORCEMENT DURING 1961-1962

Law enforcement activities during the year resulted in 122 persons arrested for committing 147 violations of fishing, hunting, and firearms laws and regulations. Tables 12 through 14 reviews law enforcement activities in the past year.

In addition to patrol duties, fish and game wardens made field contacts with 6,181 hunters and 28,595 marine and freshwater fishermen; issued 3,936 licenses and permits; inspected 2,375 commercial and sport fishing crafts; and inspected 3,741 fish markets, peddlers, and restaurants. These activities serve to disseminate information and detect fish and game violations.

Regular staff wardens were assisted by 100 deputy fish and game wardens throughout the State who volunteered an aggregate total of 9,333 hours. Refresher courses were offered as part of the Division's in-service training program for deputy wardens.

In addition to enforcement duties, Branch personnel assisted the professional staffs of the fisheries and wildlife branches in collecting field data.

Table 12. FISHING AND HUNTING VIOLATIONS: 1961-62

Kind of violation	Number
All fishing and hunting violations.....	147
All fishing violations.....	56
Fishing with and possession of fine mesh thrownet.....	2
Taking and possession of lobster with eggs, under the legal weight, and during closed season.....	9
Entering and fishing in freshwater public fishing areas without permit or license.....	14
Taking and possession of oysters during closed season.....	12
Spearing of lobster.....	1
Taking sea mullet during closed season.....	12
Fishing with illegal mesh nets (drag, gill, dip, etc.).....	4
Fishing for fresh water game fish with illegal gear.....	2
All hunting violations.....	91
Hunting and possession of game birds during closed season.....	9
Hunting without license.....	30
Unlawful possession, transfer, and carriage of firearms.....	15
Possession of loaded firearm on Public Highways.....	6
Hunting and possession of game mammal in public shooting grounds prior to an open season.....	1
Hunting on private property without permit.....	11
Failure to display hunting license while hunting.....	5
Shooting and possession of hen pheasants.....	2
Hunting in public shooting grounds without permit.....	4
Hunting in game refuge area.....	2
Hunting Axis deer at night.....	6



Table 13.—ARRESTS AND DISPOSITIONS: 1961-62

Subject	The State	Hawaii County	Honolulu County	Kauai County	Maui County
Arrests .....	122	15	60	10	37
Number of charges .....	147	21	60	17	49
Bail forfeitures .....	21	3	16	—	2
Released to juvenile authorities .....	40	2	8	12	18
Released to military authorities .....	11	—	9	2	—
Cases pending .....	11	—	—	—	11
Conviction .....	64	16	27	3	18
Fines .....	22	4	5	3	10
Suspended fines .....	17	1	16	—	—
Split fines (fines and suspended fines) .....	23	9	6	—	8
Suspended sentence .....	2	2	—	—	—
Jail sentence .....	1	1	—	—	—
Suspended jail sentence .....	9	9	—	—	—
Split sentence (jail and suspended jail sentence) .....	1	1	—	—	—

Table 14.—INCOME FROM ARRESTS: 1961-62

(Revenues credited to county in which arrest was made)

County	Fines (dollars)	Bail forfeitures (dollars)	Suspended fines (dollars)
The State .....	1,148	480	1,030
Hawaii County .....	605	45	345
Honolulu County .....	225	400	565
Kauai County .....	30	—	—
Maui County .....	288	35	120

## SECTION 6

# DIVISION OF FORESTRY

### Historical Background

Governmental interest in forestry in Hawaii goes back more than 145 years, when the sandalwood trade was near its peak. Historians report that King Kamehameha I proclaimed all sandalwood to be the property of the government and placed a kapu on the young and small trees to conserve this natural resource.

On January 4, 1893, the Bureau of Agriculture and Forestry was established with authority over forested and wildland areas. The Bureau was abolished in June 1900, and its functions assigned, under the Organic Act, to the newly created position of Commissioner of Agriculture and Forestry. On May 18, 1903, the Board of Agriculture and Forestry was established, supported by a comprehensive Forest Law to cover the creation, protection, and development of Forest Reserve areas. The first such area to be proclaimed was the Kaipapau Forest Reserve on Oahu, set aside on November 10, 1904.

Further organizational changes took place in 1960 and 1961. The Hawaii State Government Reorganization Act of 1959 transferred responsibility for forestry resources to the Department of Agriculture and Conservation, a move effectuated on January 23, 1960. On July 1, 1961, the Division of Forestry was assigned to the Department of Land and Natural Resources.

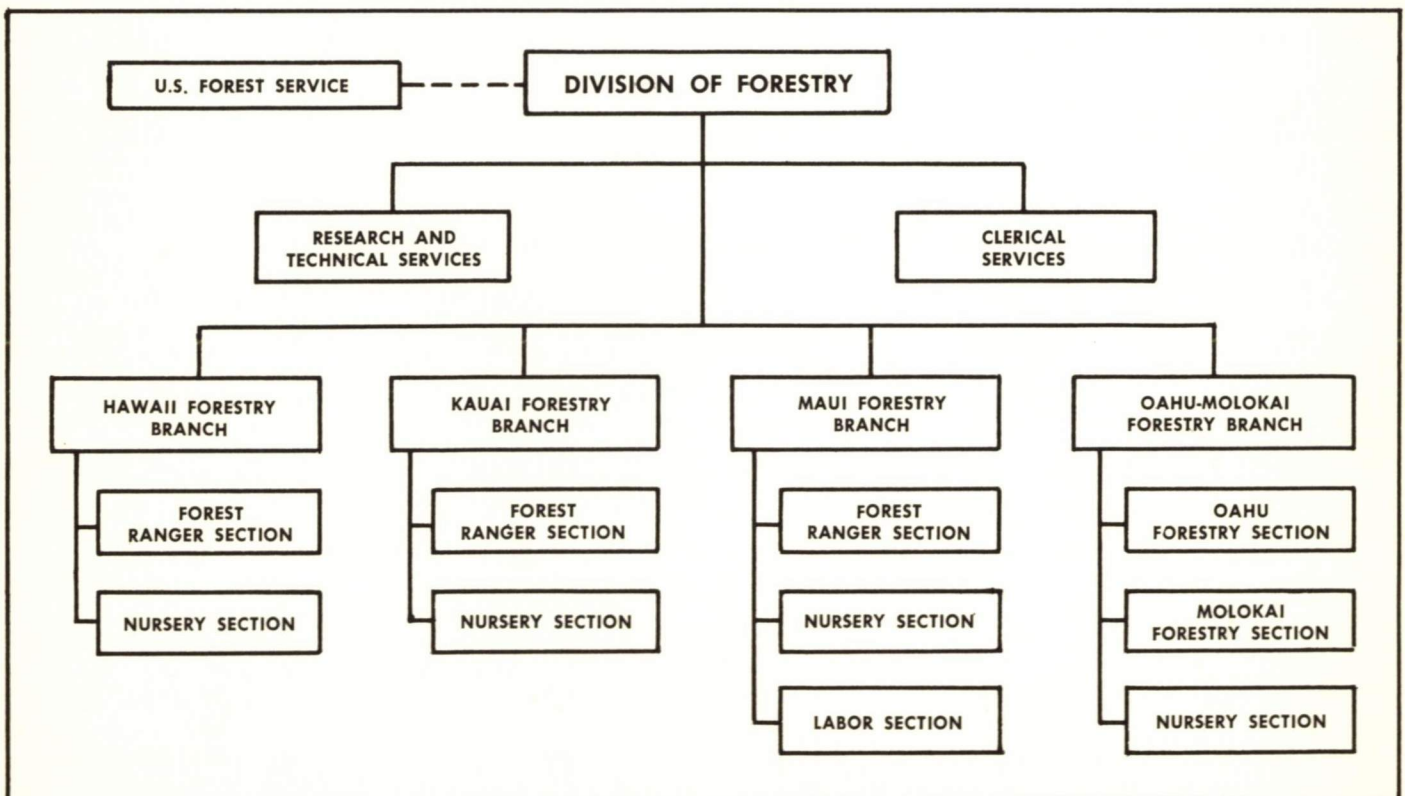
### Functions and Responsibilities

The specifics of legal authority for the forestry program are in Chapter 18, Sections 7 and 9; Chapters 19-1 to 19-26; 19-50 to 19-60; 19-70 to 19-72 and 99-11, R.L.H. 1955, as amended. These sections provide for establishing Forest Reserves; accepting the surrender of private lands, zoning for land use, protecting, managing, utilizing, developing, and carrying on research projects in the conservation districts.

Overall planning, management and operation of the Division of Forestry is under the direction of the State Forester. He is assisted by Staff Assistants in technical services and resource management. Four District Foresters administer and direct the work of the Division on all the islands as delegated to them. A clerical unit provides support to the division. Research is conducted in cooperation with the U.S. Forest Service.

Functions of the Division of Forestry are wide and varied and are found in all island units to some degree. These functions provide for the management and protection of forest reserves under a **Multiple Use Program** formalized in early 1962. Under this concept, the coordinated development of all resources and values, —whether water, timber, range, recreation or wildlife, that will be consistent with the basic soil resource,—is emphasized.

### ORGANIZATION CHART—DIVISION OF FORESTRY





1. **Water resource.** The division seeks protection of the watershed by stabilizing the soil, and thereby preventing floods and erosion and preserving and improving water quality correlating all uses of forest land with water yield and quality.

2. **Timber resource.** The long range timber goal is to stock all commercial or potentially commercial State forest lands with desirable species of timber trees and to manage them for the full allowable harvest of timber products on a sustained yield basis.

The division plans to implement as soon as possible an inventory and utilization program for the timber now mature. Another goal is production of high quality tree seedlings in sufficient numbers at the centralized tree nursery to meet needs for the expanded tree planting program on State forest lands, and anticipated needs for private lands.

The division thins, prunes and weeds young growth timber stands for improvement of growth and quality.

3. **Forage resource.** The history of destructive uncontrolled grazing points up the need for special care in administering the range resource. The division accordingly tries to make suitable lands

available for grazing use under conditions that will maintain soil stability and vegetative cover, and give due regard to other resources and uses. It also prepares policies, guidelines, and procedures for administering the range resource.

4. **Recreation resource.** The division prepares development plans for small camp grounds, picnic sites and scenic points that do not fall within the scope of the State Parks Division.

5. **Wildlife habitat resource.** The division manages State forest lands for game and fish in correlation with other uses. The Division of Forestry as manager of the State forest lands is also managing the wildlife habitat in conjunction with the Multiple Use Program. It cooperates with the Fish and Game Division on inventory, evaluation of habitat, revegetation and enforcement.

6. **Protection of resource.** The division plans standards of protection to forest, pasture, and brush lands adequate to meet worst conditions. It coordinates discovery and reporting of fires, and implements fire prevention programs; participates in and correlates fire protection and suppression activities with State Civil Defense program; administers the Clark-McNary cooperative fire protection and tree planting programs in cooperation with the U.S. Forest Service; ad-

**Table 1.—FOREST INCOME, BY SOURCE: 1961-62**  
(Year ending June 30)

Source	Dollars
All sources .....	54,077.91
Federal cooperative programs .....	37,436.78
Clarke-McNary, Section 2, Forest Fire Cooperation .....	28,681.57
Clarke-McNary, Section 4, Forest Planting Cooperation .....	4,200.00
Title IV Program .....	3,055.21
Agricultural Conservation Program .....	1,500.00
Non-federal sources .....	16,641.13

**Table 2.—FOREST INCOME FROM NON-FEDERAL SOURCES, BY ISLAND: 1961-62**

Source	Total	Kauai	Oahu	Molokai	Maui	Hawaii
All sources .....	16,641.13	1,342.30	4,583.70	85.00	3,274.85	7,355.28
Nursery sales .....	11,394.24	1,010.05	1,298.20	—	2,945.60	6,140.39
Sale of products .....	3,724.89	332.25	1,880.50	—	329.25	1,182.89
Property sales .....	85.00	—	—	85.00	—	—
Rentals .....	1,437.00	—	1,405.00	—	—	32.00
Sale of services .....	—	—	—	—	—	—

**Table 3.—TREE PLANTING AND CLEARING IN CONSERVATION DISTRICTS: 1961-62**

Island	Acres cleared	Acres planted
All islands .....	1,544	1,178
Kauai .....	180	100
Oahu .....	65	65
Molokai .....	315	315
Maui .....	602	314
Hawaii .....	382	384



ministers detection, reporting and control of insect and disease outbreaks; and cooperates with plant and quarantine inspectors on imports of incoming plants, trees and seeds.

7. **Development.** The division plans to improve accessibility of forest lands through construction and maintenance of good roads and trails, acquiring rights-of-way across private lands. It maintains comprehensive transportation, sign, building, and equipment procurement plans for coordination with the Capital Improvement program. It maintains existing roads, trails, buildings and equipment on a planned scheduled program.
8. **Research.** The division undertakes timber resource surveys to obtain data on forest land area, timber volumes and quality, growth and mortality. It studies mechanical and physical properties of Hawaii-grown timber trees for utilization in wood products market, local and export. It studies marketing and economics of wood products developed from local timber trees. It also studies wildland watershed problems, and deter-

mines methods of management to increase yield of usable water and reduce erosion of floods.

#### Division of Forestry Activities 1961-1962

**Administration.** Numerous applications requesting changes in land uses, and withdrawal of lands from the forest reserves for agriculture, grazing, and subdivision were received and processed.

Forest income for the past year is presented in Tables 1 and 2.

**Tree planting.** The division cleared 1,544 acres and planted 1,178 acres with trees suitable for eventual forest products use.

**Forest products sales.** Forest resources of hapuu and wood were put on the market by contract sales. A small pilot charcoal project was started on Kauai and contacts were made for the use of koa and monkey-pod in the manufacture of trays, bowls, and similar products.

Three emergency grazing permits were issued for the Hilo and Hamakua Forest Reserves.

**Data to aid use of Hawaii-grown wood.** The Forest Products Laboratory at Madison, Wisconsin, has published a study of the quality and yield of lumber from

Table 4. FOREST FIRES: 1961-62

Geographic area	Date	Acres burned
The State (35 fires).....	—	2,786.0
Oahu (22 fires).....	—	1,320.0
Area LL Schofield—East Range.....	7- 6-61	3.0
NE of Central Range House—Schofield.....	7- 7-61	Spot
SW of sanitary fill—Area X-Schofield.....	7-12-61	1.0
Range TR 1 & 2 & KR 6, 7, 8.....	7-12-61	150.0
NE of Wahiawa Naval Radio Station.....	7-15-61	100.0
Kawailoa Forest Reserve.....	7-15-61	125.0
Kolekole Range #1.....	7-20-61	1.0
Kaukonahua (between reservoir and road).....	7-30-61	Spot
K-2 Halemano Training Area.....	8- 4-61	5.0
Kolekole Pass (Trimble Range #1).....	8- 9-61	1.0
South Range #5—Schofield.....	8- 9-61	1.0
Schofield Range—MF-2.....	8-15-61	2.0
Gulch west of Wahiawa Naval Station.....	8-21-61	3.0
Poamoho, Wahiawa.....	8-21-61	1.5
East Range—Schofield.....	9- 7-61	40.0
Waiahole Forest Reserve.....	1- 4-62	10.0
Ewa Forest Reserve.....	2-10-62	800.0
Moanalua Ridge.....	5-13-62	3.5
Kahuku Forest Reserve.....	6-12-62	40.0
Kawailoa Forest Reserve.....	6-13-62	30.0
Kahuku Forest Reserve.....	6-13-62	2.0
Ewa Forest Reserve.....	6-22-62	1.0
Maui (3 fires).....	—	22.0
Makawao Forest Reserve.....	6- 8-62	Spot
Makawao Forest Reserve.....	6-26-62	Spot
Makawao Forest Reserve.....	6-30-62	22.0
Hawaii (10 fires).....	—	1,444.0
Mauna Loa Forest Reserve.....	7- 2-61	1.0
Halepiula 3 (Dillingham Ranch).....	7-29-61	20.0
Halepiula 3 (Dillingham Ranch).....	7-30-61	180.0
Mauna Kea Forest Reserve.....	7-30-61	1.0
Halepiula 3 (Dillingham Ranch).....	7-31-61	30.0
Mauna Kea Forest Reserve.....	8-31-61	512.0
Mauna Kea Forest Reserve.....	10-1-61	4.0
Hilo Forest Reserve.....	2-23-62	640.0
Mauna Kea Forest Reserve.....	6-11-62	1.0
Waiakea Uka (Camp #8).....	6-26-62	55.0



**Table 5. CONSERVATION DISTRICT AREA: JUNE 30, 1962**  
(In acres. Before July 10, 1961, these areas comprised the "Forest and Water Reserves.")

Island and reserve	All agencies	State lands	Hawaiian Home lands	City & County lands	Federal lands	Private lands
All islands.....	1,196,038.137	808,479.707	25,100.23	3,034.49	10,722.37	348,701.34
Kauai.....	163,128.38	83,133.27	9,870.00	1,158.50	—	68,966.61
Halealea.....	39,720.00	14,147.00	—	—	—	25,573.00
Haupu.....	3,230.00	—	—	—	—	3,230.00
Kalepa.....	901.41	715.91	—	—	—	185.50
Kealia.....	8,559.28	6,089.28	—	—	—	2,470.00
Lihue - Koloa.....	27,186.29	10,941.08	—	—	—	16,245.21
Molokaa.....	4,564.00	928.00	2,270.00	—	—	1,366.00
Na Pali - Kona.....	61,425.00	41,528.10	—	—	—	19,896.90
Nonou.....	818.00	818.00	—	—	—	—
Papahalahola.....	54.40	—	—	54.40	—	—
Puu Ka Pele.....	15,565.90	7,965.90	7,600.00	—	—	—
Puu Ka Pele Park.....	1,104.10	—	—	1,104.10	—	—
Oahu.....	123,027.75	30,630.95	188.00	1,725.42	10,722.37	79,761.01
Ewa.....	27,930.24	5,798.10	—	—	3,895.00	18,237.14
Hauula.....	9,493.76	1,443.76	—	—	—	8,050.00
Honolulu.....	20,448.78	7,497.97	—	1,725.42	335.92	10,889.47
Honouliuli.....	4,936.00	—	—	—	34.31	4,901.69
Kahuku.....	5,833.00	—	—	—	—	5,833.00
Kaipapau.....	1,173.00	897.00	—	—	—	276.00
Kaneohe.....	1,019.97	19.64	—	—	—	1,000.33
Kawailoa.....	18,696.00	—	—	—	—	18,696.00
Kuaokala.....	385.00	385.00	—	—	—	—
Kuliouou.....	214.00	214.00	—	—	—	—
Makua - Keaau.....	2,513.09	2,408.09	—	—	—	105.00
Mokuleia.....	5,215.00	5,215.00	—	—	—	—
Nanakuli.....	788.00	595.94	188.00	—	4.06	—
Pupukea.....	837.10	837.10	—	—	—	—
Round Top.....	186.12	186.12	—	—	—	—
Schofield Barracks.....	2,707.40	—	—	—	2,707.40	—
Lualualei <sup>1</sup> .....	3,710.00	—	—	—	3,710.00	—
Waiahole.....	8,633.72	1,683.12	—	—	28.80	6,921.80
Waianae-Kai.....	5,014.57	2,043.99	—	—	—	2,970.58
Waimanalo.....	3,293.00	1,406.12	—	—	6.88	1,880.00
Molokai: Molokai.....	46,444.928	20,222.588	610.00	5.34	—	25,607.00
Lanai: Lanai.....	6,150.00	—	—	—	—	6,150.00
Maui.....	158,766.18	93,321.67	8,717.0	145.23	—	56,582.28
Hana.....	15,670.90	13,672.70	—	—	—	1,998.20
Kahikinui.....	15,828.80	4,466.8	8,717.0	—	—	2,645.00
Kipahulu.....	11,767.62	7,232.60	—	—	—	4,535.02
Koolau.....	60,216.50	39,163.44	—	—	—	21,053.06
Kula.....	5,938.50	4,932.50	—	—	—	1,006.00
Makawao.....	2,093.00	2,093.00	—	—	—	—
Waihou Spring.....	84.00	74.00	—	—	—	10.00
West Maui.....	47,166.86	21,686.63	—	145.23	—	25,335.00
Hawaii.....	698,520.899	581,171.229	5,715.23	—	—	111,634.44
Hamakua.....	11,682.79	3,555.00	1,077.88	—	—	7,049.91
Hauola.....	10.10	10.10	—	—	—	—
Hilo.....	119,748.54	64,514.94	—	—	—	55,233.60
Holualoa.....	135.00	—	—	—	—	135.00
Honaunau.....	10,028.00	—	—	—	—	10,028.00
Honuaula.....	1,345.80	1,312.00	—	—	—	33.80
Kahuluu.....	3,827.00	—	—	—	—	3,827.00
Kapapala.....	37,416.00	37,416.00	—	—	—	—
Kau.....	61,389.80	56,805.80	—	—	—	4,584.00
Kaupulehu.....	7,284.00	—	—	—	—	7,284.00
Keauohana.....	271.60	271.60	—	—	—	—
Kilauea.....	5,070.00	—	—	—	—	5,070.00
Kohala.....	47,889.75	31,712.90	87.35	—	—	16,089.50
Malama-Ki.....	1,441.293	1,441.293	—	—	—	—
Manaowaialee.....	2,329.00	1,609.00	—	—	—	720.00
Mauna Kea.....	87,400.108	82,600.008	4,550.00	—	—	250.10
Mauna Loa.....	160,468.73	160,468.73	—	—	—	—
Nanawale.....	2,567.668	2,567.668	—	—	—	—
North Kona Watershed.....	491.93	452.70	—	—	—	39.53
Olaa.....	16,032.857	16,032.857	—	—	—	—
Olaa Forest Park Reserve.....	543,616	543,616	—	—	—	—
Upper Olaa.....	2,897.017	2,897.017	—	—	—	—
Panaewa.....	1,214.355	1,214.355	—	—	—	—
Puna.....	25,738.00	25,738.00	—	—	—	—
South Kona.....	24,612.333	23,322.333	—	—	—	1,290.00
Waiakea.....	11,197.282	11,197.282	—	—	—	—
Upper Waiakea.....	55,488.33	55,488.33	—	—	—	—

<sup>1</sup>Under control of U. S. Navy.

**Table 6.—SURRENDER AGREEMENTS FOR PRIVATE LANDS IN CONSERVATION DISTRICTS:  
JUNE 30, 1962**

Land	Forest Reserve	Owner	Date of expiration	Term	Area (acres) <sup>1</sup>
<b>Kauai:</b>					
Omao.....	Lihue - Koloa	McBryde Sugar Co.	12-31-1965	20	823.48
Wainiha.....	Halelea	McBryde Sugar Co.	2-10-1968	20	10,120.00
Kealia.....	Kealia	Lihue Plantation Co.	9- 5-1964	20	2,391.19
Kalepa.....	Kalepa	Lihue Plantation Co.	9- 5-1964	20	193.00
Hanamaulu.....	Lihue - Koloa	Lihue Plantation Co.	9- 5-1964	20	9,525.00
<b>Oahu:</b>					
Honouliuli.....	Honouliuli	Jas. Campbell Est.	2-15-1977	20	4,910.879
Laie.....	Kahuku	Zion Securities	12- 7-1963	20	2,528.00
Kaipapau.....	Kaipapau	Zion Securities	12- 7-1963	20	276.00
S. Halawa.....	Honolulu	Queen Emma Est.	8-14-1963	20	1,145.00
Pukaomaomao.....	Honolulu	Bishop Estate	6-12-1968	20	182.380
<b>Molokai:</b>					
Naiwa 3.....	Molokai	Molokai Ranch Co.	7- 3-2001	50	53.00
Manowainui.....	Molokai	Molokai Ranch Co.	7- 3-2001	50	50.00
Kaunakakai.....	Molokai	Molokai Ranch Co.	7- 3-2001	50	965.00
Makakupaia 2.....	Molokai	Molokai Ranch Co.	7- 3-2001	50	654.00
Kawela.....	Molokai	Molokai Ranch Co.	7- 3-2001	50	3,850.00
<b>Maui:</b>					
Honokohau.....	West Maui	Baldwin Packers, Ltd.	12-31-1963	20	5,778.98
Honokahua.....	West Maui	Baldwin Packers, Ltd.	12-31-1963	20	1,950.00
Mailepai.....	West Maui	Baldwin Packers, Ltd.	12-31-1963	20	92.00
Kahana.....	West Maui	Baldwin Packers, Ltd.	12-31-1963	20	334.00
Moomuku.....	West Maui	Baldwin Packers, Ltd.	12-31-1963	20	164.00
Kipahulu.....	Kipahulu	Ulupalakua Ranch Co.	12-31-1978	20	3,519.00
<b>Hawaii:</b>					
Hilo.....	Kukuau I	A. A. Richardson Est.	8-24-1978	30	2,979.00

<sup>1</sup>Total for State is 52,483.909 acres—23,052.67 on **Kauai**, 9,042.259 on **Oahu**, 5,572.00 on **Molokai**, 11,837.98 on **Maui**, and 2,979.00 on **Hawaii**.

*Eucalyptus robusta*. Results show that several Hawaii-grown woods readily accept preservative treatment by the non-pressure double-diffusion process. Studies of veneer cutting and drying were completed on Silk Oak and Tropical Ash.

**Survey plots of Hawaii's forest established.** The initial timber resources survey is nearing completion. Photo interpretation and field activity were completed and all plots put in volumetric data for Hawaiian hardwoods and tree fern. A preliminary cubic foot volume table for cruising tree fern was set up by regression analysis. Forest type-mapping will be continued.

**Fire prevention and control.** Cooperation with the county and military fire departments has helped prevent or control fires in forested lands and wildlands. Public education was undertaken by discussions and dissemination of published material. The fire warden system was maintained with the State Forester as Principal Fire Warden. Through the District Foresters, who serve as Chief Fire Wardens, the program was coordinated with that of State Civil Defense in the Rural Fire Defense plan. Table 4 shows forest fire incidence during the year.

**Kamuela Nursery.** Construction of the central tree nursery at Kamuela, Hawaii, was begun in November 1961 and completed in May 1962. The initial plan

included (1) the basic irrigation system and pump for eight acres; (2) work center building and nurseryman's residence; (3) farm tractor and minimum equipment needed to begin tree seedling production.

Sowing of tree seed for the first crop began in May 1962 concurrently with establishment of both temporary and permanent windbreaks. These proved only partially effective due to the lack of water immediately after planting. Better control will be obtained when the permanent windbreaks gain in height and become more resistant to the strong winds in the area.

The second increment at the nursery was authorized by the Legislature for the fiscal year 1962-1963. This will permit the enlargement of the seedbed area and equip the nursery with essential facilities and tools, and permit the production of five to seven million seedlings per year at a reasonable cost.

**Forest zoning.** The zoning of forest reserve lands moved at a good pace with the completion of maps and zoned areas on all islands, except Hawaii. Three public hearings on sub-zoning areas in the Hamakua and Hilo Forest Reserves were held. A public hearing was held on Maui to establish the zoning regulation for that island and set up a guide for the other islands. Tables 5 and 6 provide data on forest lands of the State.



## DIVISION OF LAND MANAGEMENT

In accordance with the Hawaii State Government Reorganization Act of 1959, the newly-created Department of Land and Natural Resources assumed among other functions the powers and duties of the former Commissioner of Public Lands. The discretionary powers of the Commissioner; the responsibility and authority for making final decisions with regard to the management, acquisition, disposition, planning and development of the public lands; policy-making and staff control are now the powers and duties of the Board of Land and Natural Resources.

The Division of Land Management is assigned functions of the old Office of the Commissioner of Public Lands as they related to the management, disposition and acquisition of the public lands of the State.

### Historical Background

Historically speaking, the Division of Land Management can be said to have had its origins in the early days of the Hawaiian Kingdom, when the King held the fee to all Hawaii's four-plus million acres and apportioned his lands among the high chiefs and they, in turn, parcelled their portions to lesser chiefs and they to lesser personages, down to the commoners who lived on and cultivated the lands.

In the early days of the unified kingdom, the high chiefs took a personal interest in the management of the lands entrusted to them. As foreign influence

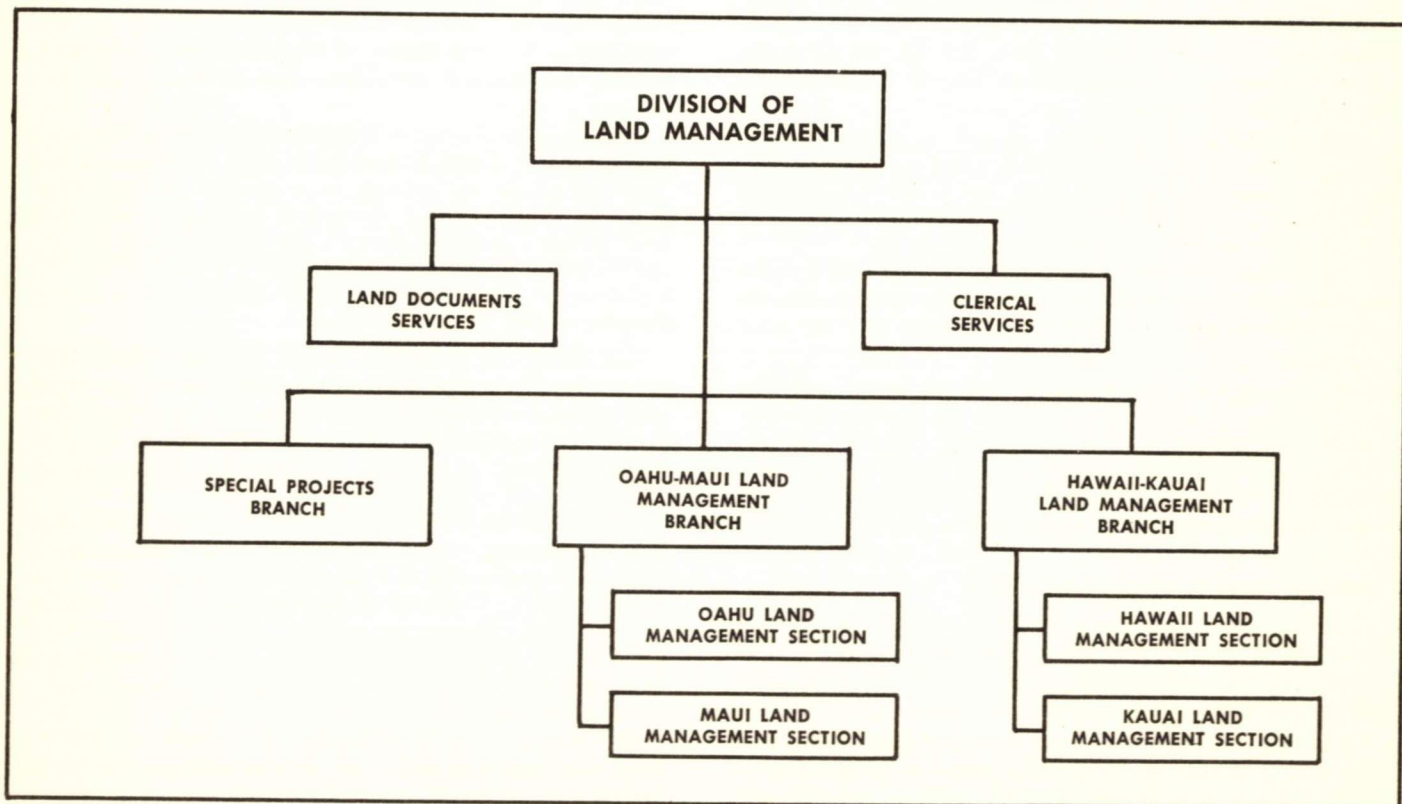
grew, however, and Court life increased in attractiveness, the chiefs assigned more and more of the management responsibilities to "konohikis" or land stewards.

Until the introduction of fee simple ownership of lands as a result of the "Kuleana Law" of 1846 and the Great Mahele of 1848, land management continued on the strictly feudal, landlord-and-tenant relationship. The Kuleana Law (more properly "An Act to Organize the Executive Departments" of the Hawaiian Government), however, provided for the appointment of a Board of Commissioners to Quiet Land Titles and they were assigned the prodigious task of hearing evidence of all those who claimed rights in lands. In the nine years of its existence, the Land Commission, as it was popularly known, heard evidence, weighed testimony and made awards of lands to more than 11,300 claimants.

Hawaii's first Land Office was created by the same 1846 "Act to Organize the Executive Departments" which created the Land Commission, though the two had little in common. The Land Office was a function of the Minister of the Interior and he was empowered to sell or lease government lands on vote of the Privy Council and approval of the King.

The Act of July 11, 1851 "to provide for the appointment of agents to sell government lands to the people" was designed to provide opportunities for

ORGANIZATION CHART—DIVISION OF LAND MANAGEMENT





residents of outlying districts who did not have any claim to land under the Kuleana Law to acquire fee title to government lands in lots of from one to fifty acres at a purchase price not less than fifty cents per acre.

The first serious attempt at a comprehensive compilation and codification of Hawaii's land laws was contained in the Land Act of 1895, setting up a whole new body of land laws and setting aside all former laws at variance with its intent. This law entrusted the public lands of Hawaii to a Board of Commissioners of Public Lands, to be comprised of three members, one to be the Minister of the Interior and two to be appointed by the President (of the then Republic of Hawaii) with the approval of the Cabinet. One of the appointive members was to be chosen the active business representative of the Commissioners and to be known as the Agent of Public Lands. This resulted in the land agents in the various land districts being called sub-agents of public lands, a designation continuing until the passage of Hawaii's second omnibus land law, Act 32 of the Session Laws of Hawaii 1962, by Hawaii's First State Legislature.

Annexation of Hawaii by the United States in 1898 was formalized by the Newlands Resolution which made no changes in Hawaii's land laws, but specified that the laws of the United States pertaining to the public lands of the United States should not apply to Hawaii.

The Act to Provide A Government for the Territory of Hawaii, passed by Congress in 1900 and commonly called the Hawaiian Organic Act, made only those changes in the Land Act of 1895 as were required to make the transition from independent Republic to territorial status. The Agent of Public Lands became the Commissioner of Public Lands and the basic principles of Hawaii's land law were incorporated in Section 73. The Organic Act stipulated that only Congress should have the power to make laws affecting the public lands of the Territory of Hawaii and that, except as changed by the Act and until repealed or amended by act of Congress, the Land Laws of Hawaii would remain in effect.

The Statehood Act of 1959 ended Federal control over Hawaii's public lands and turned the complicated land problem over to the State Legislature.

In keeping with the mandate of the State Constitution that "The Legislature shall vest in one or more executive boards or commissions powers for the management of natural resources . . ." (Article X, Section 2), the First State Legislature, in its Second Special Session of 1959, passed Act 1, the Hawaii Government Reorganization Act of 1959, creating among other departments a Department of Land and Natural Resources to be headed by an executive Board to be known as the Board of Land and Natural Resources.

### **Internal Organization and Staffing**

Management and control of the public lands under the Commissioner extended to planning and development and included responsibility for mineral resources. The Division of Land Management exercises the planning function only as to preliminary stages and in a consulting and advisory capacity, especially as such planning is related to later assumption of man-

agement. General and technical planning functions of the department are assigned to the new departmental staff-level Planning Office.

In like manner, development of lands after planning, in the professional levels of engineering, contracting and project supervision, are assigned to the Division of Water and Land Development, with Land Management involved only in the areas of advice and consultation.

The Division of Land Management is headed by the Land Management Program Administrator. Division staff services are performed by a Clerical Services unit and a Land Documents Services unit. Land management functions are handled by three branches: Oahu-Maui Land Management Branch, Hawaii-Kauai Land Management Branch, and Special Projects Branch. The two land management branches are headed by Supervising Land Agents and the Special Projects Branch by a Land Management Analyst.

The division is represented by a Land Agent in each of the four land districts: District No. 1, the Island of Hawaii; District No. 2, the Islands of Maui, Molokai, Lanai, Kahoolawe and Molokini; District No. 3, the Island of Oahu and all other islands in the State not included in the other districts; District No. 4, the Islands of Kauai, Niihau, Lehua and Kaula. Each district includes, also, "the reefs and reef lands off the shores of these islands."

In the main office in Honolulu, each Land Management Branch is assigned two Land Transactions Analysts to assist in processing land transactions initiated by requests and applications forwarded from the various agents or coming directly into the main office. All four of the present land transactions analysts are contract hires but the positions have been requested as permanent units in the division organization. The work assigned to these positions, as to the Land Agents, includes inspection, policing, recommendation as to manner of disposal, terms and conditions of disposal contracts, and investigation and report.

The Special Projects Branch differs from the two Land Management Branches in that its scope is not confined to specific islands or to specific types of land matters. This section furnishes technical assistance and makes recommendations for the solution of special land management problems.

### **Functions and Responsibilities**

Act 32 of the Session Laws of Hawaii 1962 details functions and responsibilities of the Board of Land and Natural Resources with regard to public lands. Land Management has the responsibility for the staff work required to enable the Board to carry out its functions and responsibilities.

Duties of the Division of Land Management range from reviewing requests for temporary uses of State land to negotiations for multi-million dollar development projects; from formulating simple letter replies to inquiries concerning public lands and State land policies, to complex negotiations to work out details of applicants' proposals and preparing recommendations to the Board.

In spite of the considerable disruption of routine land management activities occasioned by Statehood and the subsequent period of transition and reorgani-



zation, land law revision and policy changes, there has been a significant increase in land planning, development and management since the 1956-58 biennium when the Office of the Commissioner of Public Lands made 73 Land Board submittals, processed and sold seven general leases, sold in fee 202 houselots, 15 business and industrial lots, 61 homesteads, 18 remnant parcels, five easements and one school lot. Most of the houselot volume was accounted for by the Fort Ruger and Diamond Head house and view lots and the Lalamilo, Panaewa and Hanapepe houselots.

In contrast, during the 1961 calendar year, the division staff submitted 461 agenda items to the Board of Land and Natural Resources for action. This number included requests for authorization to sell and lease public lands, to issue revocable permits, to enter into exchanges, acquire private lands for public use, to prepare executive orders for the Governor's approval, and requests for consent to mortgages, transfers and assignments. Board action on these submittals resulted in the issuance of 401 revocable permits, 105 general leases, 80 special sales agreements and 506 consents.

#### Activities during 1960-1961

The division processed and the Board issued 200 revocable permits covering 3,654-plus acres at a monthly rental of \$38,546.77 during the 1960-61 fiscal year. In the same period 66 leases covering 127,115-plus acres were sold at an annual rental of \$113,728.19. Of this amount, \$51,710 is waived by law until January 16, 1963 as it represents the rental of 42 Kanoiehua business and industrial lots awarded directly to victims of the 1960 Tidal Wave in Hilo under the authority of Act 19, Regular Session Laws of Hawaii 1960 and Act 4, Special Session Laws of Hawaii 1960. The other 24 leases sold carry an annual rental of \$62,018.19.

Sales in fee in the 1960-61 fiscal year accounted for the issuance of 175 Special Sale Agreements covering

89.645 acres for a consideration of \$631,264.78. Of these, twenty-five lots were sold at public auction, including three church lots, one business lot, one industrial lot (14.5 acres in Hilo to Hilo Electric Light Company for \$240,000), and one clubhouse (to the ILWU Memorial Association). The other 19 were houselots. A hundred and fifty houselots were awarded directly, without auction, to victims of the Puna eruption and the tidal wave of 1960.

Relief of the volcano and tidal wave disaster victims was given top priority by the department and the dispatch with which the lands were made available to them is a highlight of the division's achievements for fiscal 1960-61.

#### Activities during 1961-1962

The Board issued 150 revocable permits, sold 37 leases and 69 parcels in fee during the 1961-62 fiscal year. The permits covered 1,978-plus acres with \$29,084.46 monthly rental. Thirty-five of the leases were sold at public auction and two were direct awards. They covered 10,277-plus acres with an annual rental of \$30,709. The 69 sales in fee were all at public auction and covered 22,783 acres at a consideration of \$596,798.58. Sixty-two of the lots were sold for residence purposes, two for church use, two for business, two industrial and one cemetery.

As of June 30, 1962, the division had 579 general leases in effect, covering 515,566.894 acres and bearing an annual rental of \$1,972,436.50. This covers public lands as well as Hawaiian Homes lands managed by the department. Revocable permits in force number 672 of which 382 are on Oahu and 230 are in Waimanalo alone.

A number of the leases expire each year and those with less than two years to run are being processed for re-lease or for other use as required by Act 32. There is still some unavoidable time-lag in carrying

**Table 1. GENERAL LEASES, REVOCABLE PERMITS, AND SPECIAL SALES AGREEMENTS ISSUED: JULY 1, 1960 TO DECEMBER 31, 1962**

Subject	Years ending June 30		Calendar 1962
	1961	1962	
General leases			
Number issued.....	66	37	42
Public auction.....	24	35	32
Direct award.....	42	2	10
Area (acres).....	127,115.239	10,277.36	10,241.429
Annual rental (dollars).....	*62,018.19	40,709.00	53,471.00
Revocable permits			
Number issued.....	200	150	146
Area (acres).....	3,654.102	1,978.263	3,019.391
Monthly rental (dollars).....	38,546.77	29,084.46	13,749.20
Special sale agreements			
Number issued.....	175	69	18
Public auction.....	25	69	15
Direct award.....	150	—	2
Public Law 639.....	—	—	1
Area (acres).....	89.645	22.783	7.992
Consideration (dollars).....	631,264.78	596,798.58	207,055.48

\*Amount effective immediately. Excludes rentals for leases to tsunami victims (42 lots, with annual rental of \$51,710.00), not effective until 1963. Total annual rental, including this group, is \$113,728.19 (for 66 lots).

Table 2. GENERAL LEASES IN EFFECT, BY LAND USE AND COUNTY: JUNE 30, 1962

County and land use	Number of leases	Area (acres)	Annual rental (dollars)
Total	582	415,625.959	1,376,236.60
By county:			
Hawaii	288	319,060.296	724,737.70
Maui and Kalawao	100	38,639.819	191,910.54
Honolulu	84	16,365.193	110,731.24
Kauai	110	41,560.651	348,857.12
By land use:			
Sugar cane	39	61,218.121	424,717.11
Pineapple	2	396.980	5,442.00
Diversified agriculture	76	5,579.994	48,663.25
Special livestock	7	312.633	1,084.00
Pasture	197	338,067.067	598,560.99
Residential	69	157.120	10,711.44
Commercial	89	214.168	100,236.78
Industrial	23	703.057	47,219.10
Eleemosynary	13	9.029	7,426.00
Rights of way	48	144.769	1,825.01
Waste lands	3	722.810	1,247.28
Federal lease	1	0.548	1.00
Fish ponds	3	92.533	771.38
Water license	9	8,001.000	128,276.26
Other water	3	6.130	55.00

Table 3. SALES AT PUBLIC AUCTION, BY TYPE AND COUNTY: FISCAL 1961-62 AND CALENDAR 1962

Subject	July 1, 1961 to June 30, 1962			January 1 to December 31, 1962		
	Number sold	Acres	Dollars <sup>1</sup>	Number sold	Acres	Dollars <sup>1</sup>
<b>General leases</b>						
The State	44	15,917.923	63,596.83	33	11,067.698	47,853.00
Hawaii County	11	5,733.328	28,849.83	8	881.829	6,430.00
Honolulu County	2	0.184	8,620.00	3	118.184	20,620.00
Kauai County	20	422.511	10,566.00	10	305.325	5,122.00
Maui County	11	9,761.900	15,561.00	12	9,762.360	15,681.00
<b>Special sale agreements</b>						
The State	66	22.783	548,233.34	16	8.145	141,138.32
Hawaii County	17	9.083	131,635.18	1	2.365	78,791.00
Honolulu County	13	2.920	334,100.00	3	0.451	29,050.00
Kauai County	34	10.262	81,707.16	12	5.329	33,298.32
Maui County	2	0.518	791.00	—	—	—
<b>Cash purchases</b>						
The State	16	4.813	63,887.00	5	0.202	28,450.00
Hawaii County	4	4.505	8,663.00	—	—	—
Honolulu County	11	0.308	54,849.00	5	0.202	28,450.00
Kauai County	—	—	—	—	—	—
Maui County	1	(2 <sup>2</sup> )	375.00	—	—	—

<sup>1</sup>Annual rental for general leases, consideration for special sale agreements and cash purchases.

<sup>2</sup>Right of way.



out this requirement as some of the former lease backlog still remains to be cleared up.

Considerable relief will be obtained by revocable permit holders on Oahu by completion of the Waimanalo first stage Core Development and disposition of the Agricultural Lots in the Waimanalo Agricultural Subdivision. Nearly 200 Waimanalo permittees will be affected and it is planned to put as many of them as possible on a more secure tenure as soon as these two developments can be made available.

Construction of improvements in the agricultural subdivision is progressing. The subdivision comprises 49 lots ranging in use from small animal husbandry to pasture and including dairying, poultry husbandry, diversified agriculture and special equestrian activities. A second increment is in the initial planning stage and will include some 30 additional lots for diversified agriculture and pasture.

The first stage of the Core Development in Waimanalo will offer about 150 lots of 6,000 square foot minimum area and may include at least 50 units of public housing. Hawaii Housing Authority is prepared to go ahead with this many units, and additional units if the need is demonstrated.

The whole of the first stage may be devoted to low income housing as contemplated in Act 32, Part III - A (Act 269 of the Thirtieth (and last) Territorial Legis-

lature - 1959 - updated and included in Act 32, S.L.H. 1962). A number of the lots will be required to satisfy preference rights established for some of the Waimanalo permittees by Public Law 639, 83rd Congress, August 1954. The extent to which the lots may be used for this purpose and how the law may be applied to as many of the permittees as possible is now being studied.

Other major Oahu developments which will come under the management of this division as soon as development construction is completed are the Magic Island complex, Sand Island and other developments including additional Diamond Head View Lots.

Additional Lalamilo, Waiakea, Panaewa, Puako and other Hawaii Island developments, as well as others on Maui and Kauai, will become the responsibility of the division as they emerge from the planning and development stage and become ready for disposition and management.

An area of land management assuming increasing importance since Statehood is the processing of land dispositions to agencies of the Federal Government. Prior to statehood the U.S. Government could acquire Hawaii's public lands for its uses by executive order. It must now apply to the State to satisfy its land needs. The division works closely with the Attorney General's office in developing documents of disposition acceptable to both the U.S. Government and the State.

## SECTION 8

# DIVISION OF STATE PARKS

### Historical Background

Hawaii State Parks encompass a total of 6,420 acres in 21 sites on each of the major islands except Lanai. These areas are developed in varying degree for the benefit of residents and visitors alike who take advantage of the opportunities to an ever increasing extent. Though there were an estimated 489,000 recreation visits this past fiscal year, parks on a territorial or state level are yet relatively new to Hawaii.

The State Parks are the outgrowth of efforts in Territorial days to facilitate recreational use of some selected areas of the Forest Reserve. Several of these areas have been receiving some such use for 45 years or more. For example, the first camp site permit for recreation-residence use was issued for Kokee Park, Kauai, in 1917. Though public use increased and some facilities constructed to accommodate it, there was no official sanction of territorial parks as such until the passage of Act 185 in 1949. This Act created a Division of Territorial Parks under the Board of Commissioners of Agriculture and Forestry. By this time, Akaka Falls Park, MacKenzie Park, Pohakuloa Camp and Hale Pohaku "guest house", all on Hawaii, in addition to Kokee Park on Kauai, were being operated for public recreational use by the Division of Forestry,

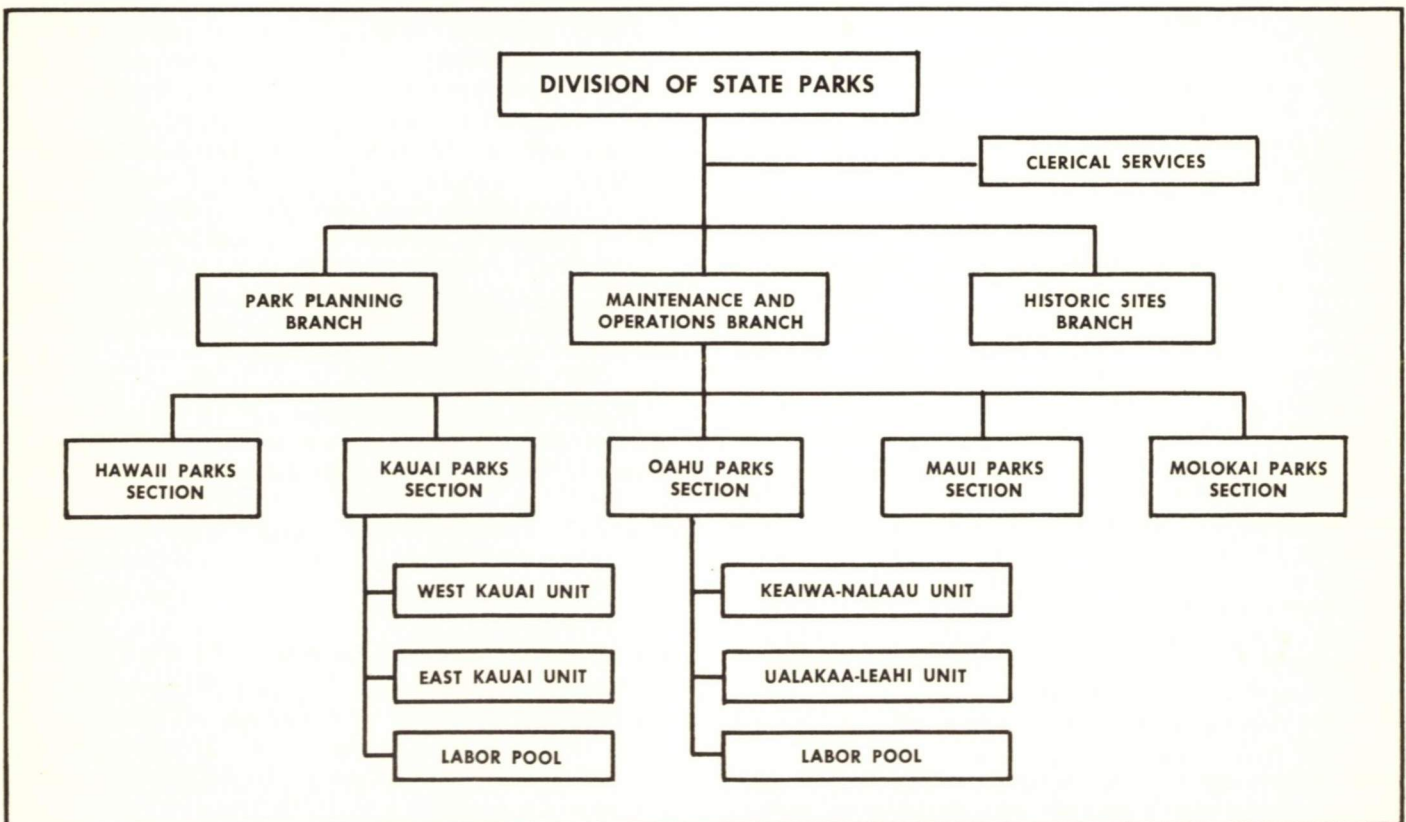
helped by a variety of territorial, federal and private efforts.

No funds were provided in 1949, however, and it was not until 1951 that the new division was able to undertake a parks program, utilizing a portion of a departmental appropriation, supplemented by income from rentals and services.

Act 185 stated that any area by reason of location, natural features, scenic beauty or legendary, historic or scientific interest which possesses distinctive physical, esthetic, intellectual, creative or social values, was eligible for consideration in the Territorial Parks System. In order to give a park official status, it was necessary for the Board of Commissioners of Agriculture and Forestry to declare these values of an area by resolution and to describe it by metes and bounds. If the park was on government land but not within a Forest Reserve, it was necessary to transfer jurisdiction to the Board by Governor's executive order. The first park thus formally established was Keanae Lookout, Maui, late in 1951. This was followed shortly by Kauhahina Park on Maui, Kokee and Waimea Canyon Parks on Kauai, and Manuka Park on Hawaii. These five parks aggregated 5,422 acres, with Kokee being by far the largest.

Major park development first began at Kokee, with

### ORGANIZATION CHART—DIVISION OF STATE PARKS





roads, two cabins, barracks facilities, and the Kalalau Lookout completed in 1947. The next six years saw the development of five more cabins, a country store (now Kokee Lodge), a museum from salvaged military buildings, and construction of the Waimea Canyon Lookout nearby. Major water system improvements followed. A new pavilion and restroom in August 1959 replaced an unsatisfactory structure built in 1931. This work was directed by Joseph M. Souza, Jr., who is now Operations and Maintenance Superintendent for the State Parks Division.

Between 1951 and 1960, 14 parks were officially established, totalling 754 acres and representing a 14 percent increase in area. Major additional developments in this period included shelters in MacKenzie, Lava Tree, and Manuka Parks on Hawaii, Keaiwa Heiau and Puu Ualakaa Parks on Oahu, and Palaau Park on Molokai. A major Hawaiian village development was almost completed in Wailoa River Park, Hawaii, only to be largely destroyed by the tsunami of 1960. Restrooms and water systems were installed in Lava Tree and Manuka Parks, restrooms were constructed in Fern Grotto and Waimea Canyon Parks, Kauai, and a road and parking area were built at Puu Ualakaa Park, Oahu. Materials were purchased for five cabins at Pohakuloa on the Big Island. A number of other park facilities such as barbecues, picnic tables, and trails were also built during this period.

The usage of parks increased roughly 300 percent during the period, from approximately 76,000 in 1952-53 to an estimated 267,000 visits in 1959-60. Correspondingly, operating expenses increased from \$12,458 in 1951-52 to \$80,558 in 1959-60, and operational personnel increased from three to sixteen.

The Hawaii State Government Reorganization Act of 1959 transferred the responsibility for state parks to the newly created Department of Land and Natural Resources along with the responsibilities and powers of the former Historical Sites Commission.

Official concern for historic matters in Hawaii began as early as 1889 with an effort to collect and catalogue government documents. Fourteen years later, in 1903, the Hawaiian Historical Society undertook a survey of the remaining important sites. However, it was not until the 1920's that a systematic program was initiated to locate and preserve Hawaiian cultural materials. The 1921 Legislature set up Commissions to gather information on various phases of Hawaiian culture, including music, folklore and historic sites, and appropriated funds to prepare a comprehensive history of Hawaii, an exhaustive work only now being completed. In 1925 an appropriation of \$2,500 provided funds for the Department of Public Works to mark several specific sites with official bronze markers. This session also authorized the Department of Public Works to condemn or otherwise acquire "ancient heiau and puuhonuas, or other places of historical interest, or the sites or remains thereof . . ."

The depression years halted expenditures in the area of Historic Sites, but 1931 saw the enactment of legislation whereby the Governor could declare and designate certain landmarks or structures or "other

objects of historic, scientific, scenic or botanic interest" to be Territorial monuments. With the consent of the owner, he could also so designate private lands. Regulations provided for a \$100 fine or 30 days in jail should any such monument be injured, destroyed, defaced or appropriated.

In 1932, as an economy measure, the functions of the Historic Commission set up by the 1921 Legislature were given over to the Board of Regents of the University of Hawaii, where the program remained for the next two decades, although the Department of Public Works still was empowered to acquire and regulate historic sites.

The historic sites program came to life again in 1951 when the Legislature established the Historical Sites Commission to "locate, identify, and preserve . . . information regarding heiaus, ancient burial places, and sites of historical interest." Subject to review by the Governor, commission members could pass judgment upon public works projects which might destroy historic sites and could halt work if necessary. In 1957 they were additionally required to note the location of the major historic sites on the tax maps. The fine for destruction or injury of such a site was set at \$500 or 90 days in jail. Although this commission suffered from an almost total lack of funds, it was able to provide bronze markers for several sites, and to survey the major sites on the island of Maui for recording on tax maps.

With statehood, the functions and duties of the Historical Sites Commission were assigned to the new Department of Land and Natural Resources, Division of State Parks. Under the State Constitution, Article VIII, Section 5, the State has power to "conserve and develop its natural beauty, objects and places of historic or cultural interest, sightliness and physical good order, and for that purpose private property shall be subject to reasonable regulation."

The fiscal year 1960-61 was a period of further change. Functions of the Division were transferred to the Department of Land and Natural Resources on July 1, 1960. This was followed by a gradual transfer of park facilities, materials, equipment and personnel. Mr. R. C. Dunlap was appointed the director of the new division in December 1960, and for the first time the State Parks Division functioned as a separate entity.

During this time, redevelopment of the tsunami-devastated Wailoa River Park was begun, and modern restrooms were constructed in the Kaumualii area of Wailua River Park, Kauai, and Keaiwa Heiau and Puu Ualakaa Parks, Oahu, together with water systems at the latter two parks. Parking areas and roadways were constructed at Lava Tree and Manuka Parks, Hawaii. A pipe guard rail was built at the Kalaupapa Lookout in Palaau Park, Molokai.

There was increased public usage with an estimated 297,000 visits in 1960-61. Operational costs increased to \$119,676 and efforts were begun to raise maintenance standards. An operating cost of 40¢ per recreation visit was noted.



## Activities during 1961-1962

The 1961-62 fiscal year brought considerable progress in park improvement as well as in operation and increased usage. Improvement projects completed during the year were many and varied.

On Kauai, trails were improved and 18 picnic tables and a safety railing were constructed at Kokee Park. In Waimea Canyon Park, another safety railing was constructed. Wailua River Park had a net gain of almost 95 acres as a result of transfers of land jurisdiction. This park now consists of the Fern Grotto, Wailua River Reserve, Wailua Boat Basin, Lydgate, Kau-mualii and Poliahu areas. Improvements here consisted of the construction of 13 picnic tables, a drinking fountain and parking guards, clearing and grading of 7 acres, improving trail and paving of walkway and 513 lineal feet of roadway.

On Oahu, 640 lineal feet of roadway and a parking area were paved and parking guards constructed at Puu Ualakaa Park. A water system, consisting of pump, tank and 1,400 feet of waterline was constructed in Na Laau Hawaii Arboretum, and a donated viewpoint plaza, with a memorial and fountain was dedicated in recognition of Mr. George C. Munro, pioneer in the fields of Hawaiian botany and ornithology. An addition of 136 acres resulted when Diamond Head State Monument was created by executive order, incorporating Na Laau. In Fort Ruger (Leahi) Park,  $3\frac{1}{4}$  acres were top soiled and fertilized. Puu O Mahuka Heiau (4 acres) was transferred to division jurisdiction as a historic site. Unwanted growth was controlled, and a 4,250 foot entrance roadway and parking area were constructed, with parking guards. A marker plaque and walkway were installed at Ulu Po Heiau historic site. At Keaiwa Heiau Park, 15 tables were constructed.

On Maui, a restroom was constructed in Iao Valley Park and the Hale Pai printshop was renovated at Lahainaluna, Lahaina. Halekii-Pihana historic site, with 10 acres, was added to the system. On Molokai, a restroom and pavilion were completely renovated for Moomomi Park and funds were transferred to the Department of Hawaiian Home Lands for construction of facilities in Kapuaiwa Park.

On Hawaii, the large luau house was restored as a pavilion in tsunami-damaged Wailoa River Park, and 2,120 lineal feet of roadway and three parking areas were graded and paved, 7 acres were cleared and graded, 18 acres planted to grass and a boat ramp, pipeline, 25 picnic tables, 2 drinking fountains and a sheltered barbecue were constructed. At Akaka Falls Park, a paved parking area, a restroom, a water system and drinking fountain, safety railing and paved walkway were constructed. Stone walls were re-erected and other improvements made to Hikiau Heiau, Kona. Work was begun on Puako petroglyph field with cleaning and trail clearing.

During the 1961-62 year, new entrance signs of an improved design were placed in the parks and historic sites, and maintenance standards were raised considerably, with all major improvements being repaired and painted. Maintenance crew schedules were so arranged that 7-day service was provided all major parks and there was improved control over public usage. At the same time, usage increased to an estimated 489,000 visits, a jump of 192,000 from the previous year, and operating costs increased to \$174,764, resulting in a drop in annual operating cost per recreation visit to 36¢. (See Tables 1 and 2.)

## Functions and Organization

The division's objectives consist of planning, developing and managing state parks; locating, identifying, and protecting sites of outstanding scenic, recreation and historic value; and, interpreting historic data and maintaining a system of historic sites and markers. Toward these ends, the division has been organized into three branches (Park Planning, Maintenance and Operations, and Historic Sites), each responsible to the Director, and served jointly by clerical services.

The Maintenance and Operations Branch has functioned from the beginning of the division. Its primary function is development, operation and maintenance of state parks and historic sites. The branch is further divided into parks sections for each of the five islands where parks are located, and these sections vary in size and composition according to the size and number of park and historic areas, the extent and type of park and historic site development, and the amount and character of use these facilities receive.

The Park Planning Branch has the responsibilities of initiating and coordinating plans for specific park and historic site projects, conducting feasibility studies for proposed parks and park facilities, long-range planning for the state parks system, land acquisition, public information, and related activities. These responsibilities had originally been assigned to a parks planner on the staff of the Territorial Planning Office. The latter agency published **A Territorial Parks System for Hawaii** in January 1959, but for various reasons this plan was not followed. The former Territorial Planning Office parks planner served with the State Parks Division until September 1960. A draftsman was added in November 1959. Staff efforts produced a capital improvement plan in February 1961 and **A Comprehensive Plan for Hawaii State Parks** in February 1962. Late in fiscal 1961-62, the Park Planning Branch was fully activated with the hiring of a Parks Planning and Development Specialist, who, with the draftsman employed earlier, comprised the branch.

At the end of fiscal 1961-62, plans were well advanced to hire a historian and activate the Historic Sites Branch.



Table 1.—STATE PARK AND HISTORIC SITE AREA, VISITORS, AND EXPENDITURES: 1952 TO 1962

Year	Number of parks, June 30	Area, June 30 (acres)	Est. no. of visitors <sup>1</sup>	Expenditures (dollars) <sup>1</sup>		
				Total	Operating	Other <sup>2</sup>
1952	5	5,422	(NA)	12,458	12,458	—
1953	7	5,500	76,000	19,469	19,469	—
1954	9	5,741	79,000	20,109	12,575	7,534
1955	14	5,831	148,000	28,914	13,102	15,812
1956	15	5,848	154,000	25,473	13,432	12,041
1957	16	6,148	164,000	16,134	14,134	2,000
1958	18	6,176	239,000	24,695	21,712	2,983
1959	18	6,176	243,000	49,445	37,549	11,896
1960	18	6,176	267,000	542,905	80,558	462,347
1961	18	6,176	297,000	482,150	119,676	362,474
1962	21	6,420	489,000	387,918	174,764	213,154

NA Not available.

<sup>1</sup>Year ended June 30.<sup>2</sup>Land acquisition and capital improvements.

Table 2.—STATE PARK AND HISTORIC SITE AREAS AND VISITORS, BY ISLAND AND PARK: 1952 TO 1962

Island and state park or historic site	Year estab.	Area in acres, June 30			Number of visitors <sup>1</sup>		
		1952	1961	1962	1953	1961	1962
All parks	—	5,422.4	6,176.4	6,419.8	75,610	296,628	488,685
Hawaii	—	13.2	175.3	175.3	35,610	81,213	115,850
Akaka Falls	1952	—	64.9	65.9	23,760	28,970	10,143
Lava Tree	1956	—	17.1	17.1	—	24,380	39,333
MacKenzie	1955	—	13.1	13.1	3,220	7,795	17,651
Manuka	1952	13.2	13.2	13.2	8,630	18,225	28,208
Wailoa River	1954	—	67.0	66.5	—	1,843	20,515
Maui	—	9.1	17.0	27.2	5,000	68,315	64,603
Halekii & Pihana <sup>2</sup>	1962	—	—	10.2	—	—	—
Iao Valley	1961	—	3.9	3.9	—	26,185	40,717
Kaunahine	1952	7.6	7.6	7.6	3,500	16,015	10,776
Keanae Lookout	1951	1.5	1.5	1.5	1,500	12,100	5,692
Poli Poli Spring	1957	—	2.0	2.0	—	—	523
Puaa Kaa	1954	—	2.0	2.0	—	14,015	6,895
Molokai: Palaau	1955	—	233.7	233.7	—	1,500	2,717
Oahu	—	—	26.3	167.6	—	45,600	115,859
Diamond Head <sup>3</sup>	1962	—	—	135.8	—	—	—
Keiwa Heiau	1955	—	7.2	7.2	—	24,000	50,423
Leahi (Ft. Ruger)	1957	—	3.2	3.2	—	—	—
Nalaa Arboretum	1958	—	9.5	9.5	—	—	—
Puu o Mahuka <sup>2</sup>	1962	—	—	4.0	—	—	—
Puu Ualakaa	1957	—	6.4	6.4	—	21,600	65,436
Ulu Po Heiau <sup>2</sup>	1954	—	1.4	1.4	—	—	—
Kauai	—	5,400.0	5,722.6	5,816.5	35,000	100,000	189,656
Kokee	1952	4,640.0	4,640.0	4,640.0	35,000	50,000	87,813
Waimea Canyon	1952	760.0	760.0	760.0			
Wailua River <sup>4</sup>	1956	—	322.6	416.5			

<sup>1</sup>For years ending June 30. Not available before 1953.<sup>2</sup>Historic site.<sup>3</sup>State monument.<sup>4</sup>Includes Wailua River Reserve Area (1956; 279.4 acres), Kaunualii area (1956; 4.3 acres), Fern Grotto area (1956; 4.8 acres), Coconut Grove area (1956; 16.2 acres in 1961, none in 1962), boat basin area (1962; 11.4 acres), Poliahu area (1962; 59.0 acres), and Lydgate area (1962; 39.2 acres).

## SECTION 9

# DIVISION OF WATER & LAND DEVELOPMENT

### Historical Background

The Division of Water and Land Development was formerly the Hawaii Water Authority, an agency abolished under the provisions of the Hawaii State Government Reorganization Act of 1959. Subsequent to reorganization, the Division's program was delineated to include the responsibilities of land and mineral development as well as the original program of water resource studies and development.

The latter program had its origin in the duties and functions of the Hawaii Irrigation Authority, which was established in 1953 to plan, design, and operate irrigation systems. In 1957, the agency's program was broadened to include surveying territory-wide water resources and master planning for water development. In keeping with this enlarged scope of responsibilities, the agency's name was changed to Hawaii Water Authority.

### Functions

Functions of the Division of Water and Land Development are outlined below:

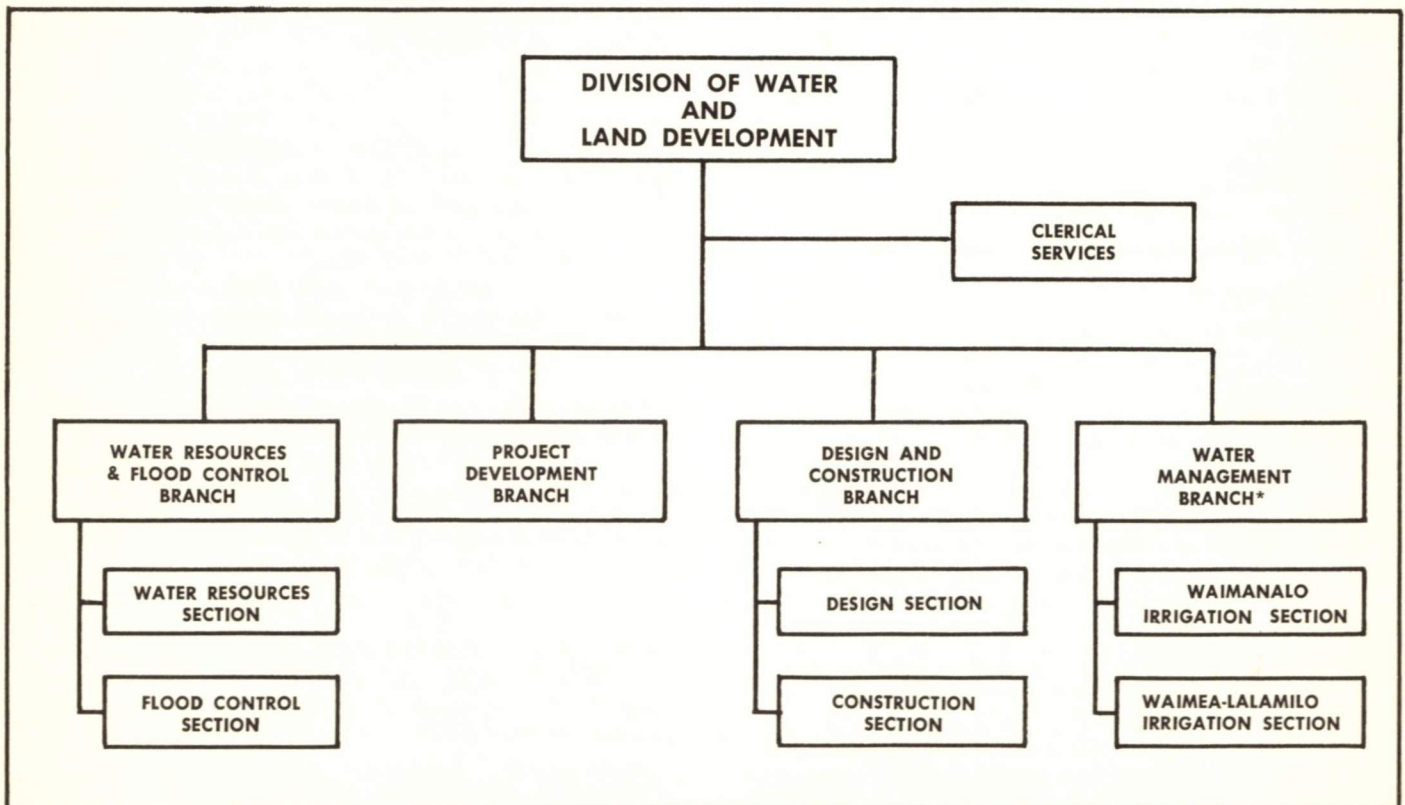
- 1) The division provides for development of State's water, land, and mineral resources, within established plans, to meet the needs of the State.
- 2) It facilitates development of private resources to the extent State assistance is appropriate.
- 3) It secures authorization and carries out development activity necessary to prepare water, land, and mineral resources for use in accordance with State objectives and programs.
- 4) It administers laws relating to the regulation and control of ground water.
- 5) It provides State participation in statewide flood control programs.
- 6) As requested, the division provides engineering services to other divisions and offices of the department.

The Division of Water and Land Development has four branches:

**Water Resources and Flood Control Branch**, which obtains information and conducts research about the status and availability of water and mineral resources. It administers cooperative agreements with U.S. Geological Survey and maintains contact with public and private research organizations.

This branch also prepares comprehensive water plan

### ORGANIZATION CHART DIVISION OF WATER & LAND DEVELOPMENT



\*Proposed change to Water Distribution and Maintenance Branch



for the State in close coordination with the Planning Office. It also conducts a program of exploratory well drilling and compiles data on wells. It administers laws relating to the regulation and control of ground water.

This branch also conducts and reports on flood control studies throughout the State and assembles basic data on storms and floods.

It reviews, recommends, and coordinates flood control projects; provides technical assistance to counties and other groups in flood control matters; and prepares State-wide general flood control plan.

It initiates and recommends legislation for flood water conservation and develops State policy for flood control projects.

**Project Development Branch**, which conducts feasibility studies for the development of land, irrigation or domestic water, and mineral resources. It also initiates and provides information on projects for inclusion in the Capital Improvements Program for water development and participates in the formulation of CIP for land development. This branch also provides technical engineering services to other offices and divisions of the department. It administers consultant contracts for planning and engineering of water and land development projects.

**Design and Construction Branch**, which provides for the design of facilities and improvements and for the preparation of working drawings and specifications. It also reviews shop drawings and designs submitted by consultant firms. It is responsible for advertising for bids and makes recommendations for the awarding of contracts. The branch also administers the construction contracts, interprets the terms of the contracts, plans and specifications for construction of facilities, and conducts site and final inspections of projects.

**Water Management Branch**, which performs services necessary to manage State irrigation water projects. The Waimanalo and the Waimea-Lalamilo Irrigation Sections operate and maintain their systems and advise farmers in the construction of private systems.

## ACTIVITIES DURING 1961-1962

### Water Resources

**State-wide program.** The territory-wide water resources program launched in 1957 by authority of Act 22 of the Territorial Legislature was further implemented during this period. The program consists of studies of all water resources in the State and includes a continuing inventory. Comprehensive data are compiled concerning the nature, location, quantity and other characteristics of these resources.

The purpose of these studies is to formulate a long-range master plan for logical and orderly development of Hawaii's water resources. Through proper planning and coordination, maximum benefits can be achieved from the multi-purpose development of water for domestic, agricultural, municipal, industrial, power, and recreational use.

**Molokai water plan.** An immediate objective of the state-wide water resources program is the formulation of a master plan for the development of Molokai's

water resources. The first step in this direction was accomplished in 1960 with the completion of **An Inventory of Basic Water Resources Data: Molokai**, published in 1961.

With the aid of the material contained in the publication, a comprehensive water plan for Molokai is being formulated.

**Pan evaporation report.** An important phase of the state-wide water resources study is the compilation of pan evaporation records. Such data are used to estimate water losses caused by evaporation and transpiration, two related components of the hydrologic cycle. All available records on pan evaporation in Hawaii were assembled and published in the report "Pan Evaporation Data—State of Hawaii."

**Rainfall records.** The U.S. Weather Bureau for many years has published records of its official rain gages in its series, **Climatological Data, Hawaii**. The large number of unpublished records of unofficial gages maintained by other government agencies, private companies, and individuals have been maintained in the open files of the Bureau.

These files were transferred to the Division, which now has the responsibility for collecting, collating, and maintaining rainfall records from all rain gages in Hawaii except official Weather Bureau gages. The Division's open files, which now include unpublished records from 1948 as well as the Bureau's published **Climatological Data**, are available to all agencies and individuals for reference.

**Exploratory well drilling.** The State Legislature appropriated \$90,000 in 1960 and another \$90,000 in 1961 to carry out an exploratory well-drilling program to obtain needed information on the ground-water resources in Hawaii. Primary consideration was given to wells that would support the State's economic development program, subject to favorable geological factors.

The initial exploratory well-drilling program saw the completion of the first well at Waikapu, Maui, in February, 1961; the second at Hanapepe, Kauai, in April, 1961; the third at Hanalei, Kauai, in October, 1961; and the fourth at Lihue, Kauai, in November 1961. Under the second increment of this program of exploratory well drilling, the Kamalo, Molokai, well was completed in January 1962 and the Kamiloloa, Molokai, well in May 1962. The contractor is at present drilling wells at Pohakuloa, Hawaii, and will be starting on a well in Malama-Ki, Hawaii.

**Ground-water use.** Under Act 274 of the 1959 Territorial Legislature, the Governor was authorized to appoint a five-man Commission on Ground-water Resources with responsibility to regulate the use of ground-water resources so as to minimize the threat of exhaustion, depletion, waste, pollution, or deterioration from salt encroachment.

The Division staff outlined suggested rules and regulations to implement Act 274 after making a preliminary study of similar regulations in other jurisdictions. Further study and revisions may be necessary before public hearings can be held and rules and regulations promulgated.

**Hydrography.** For many years, the Division of Hydrography, Department of Public Lands, was super-



vised by the District Engineer of the U.S. Geological Survey as chief hydrographer, under a cooperative program with the Federal Government. The Manager-Engineer of the Division of Water and Land Development now performs the duties of the former Chief Hydrographer. Under a cooperative agreement, the U.S. Geological Survey has maintained basic water resources data need to plan and implement a comprehensive water development and conservation program for Hawaii. The Geological Survey also includes in this agreement special investigations for specific planning or development purposes.

The Manager-Engineer of the Division became directly responsible for the administration of the State-U.S. Geological Survey cooperative program on January 1, 1961. Following several conferences with the U.S. Geological Survey officials at all levels a supplemental cooperative agreement was executed. Emphasis of this supplemental agreement is given primarily to the coordination of Geological Survey data collection with the needs of the State's water program, including analysis and interpretation of data to facilitate effective planning and development. A report on "Relationship of the State Water Program and the U.S. Geological Survey" was prepared by the Division for the Legislature in February 1962.

The hydrography program has been carried forward through June 1962 by the Water Resources and Flood Control Branch of the Division. State and private funds totalling \$206,550 were matched in an equal amount by the Federal Government for the investigation of water resources.

As of June 30, 1962, the U.S. Geological Survey operated and maintained 30 primary streams gaging stations, 19 secondary gaging stations and 56 partial-record gaging stations. Also, the Geological Survey operated and maintained 74 water management gaging stations. The gaging station network is now being re-evaluated; stations will be eliminated where sufficient data have been obtained and established where data are needed to augment the State's program.

Other investigations include hydrologic studies of low and dependable flows, an analysis of basic stream-flow data. About 1,000 stations years of records have been processed by mechanical computers for use by engineers and scientists in determining the reliability of streamflow. The Geological Survey is collecting flood data necessary for the determination of criteria to design drainage systems, bridges and land developments. The City and County of Honolulu under a separate cooperative agreement contributed funds to support this investigation.

Reports published during the past year include:

1. Bulletin 13, "Geology and Ground-Water Resources of the Island of Kauai, Hawaii" G. A. Macdonald, D. A. Davis and D. C. Cox, 1960.
2. "Preliminary Summary of Findings in Water Resources Studies of Windward Oahu, Hawaii" K. J. Takasaki, George Yamanaga and E. R. Lubke, March 1962.
3. "Surface Water Records of Hawaii and Other Pacific Areas." U.S. Geological Survey, 1961.

4. "An Investigation of Floods on Oahu, Hawaii" U.S. Geological Survey, Honolulu District, 1961.
5. USGS Water-Supply Paper 1719, "Surface Water Supply of Hawaii, 1959-1960."

## DEVELOPMENT PROGRAM

### Island of Oahu

**Magic Island, Phase I.** Early in January 1962, plans for the construction of Phase I of Magic Island project were sent to various agencies for review. Modification of plans resulted from study of surging in the Ala Wai Boat Harbor; this was resolved by the Corps of Engineers and the State Division of Harbors.

Bids were opened in June and the contract awarded for \$1,725,229. The first phase will add 25 acres of reclaimed land at the diamond head end of Ala Moana Beach. This phase should be completed in 1963.

The entire Magic Island project will be constructed in five phases. When completed, this undertaking will add 149 acres of reclaimed land for hotel, commercial, park, beach and parking uses to the existing facilities. Two thousand seven hundred and sixty five additional parking stalls and 3,450 lineal feet of much needed beach area are envisioned. The entire project is estimated to cost about \$25 million.

**Waimanalo Development.** The development of State lands at Waimanalo Valley, Oahu, moved ahead with the start of construction of water transmission and storage facilities in July 1960. A 20-inch, 5½-mile-long pipeline will extend the Honolulu Board of Water Supply's main trunk line from the Waimanalo-Kailua junction to the Valley, where a 2-million gallon reservoir will be used for storage. Financed by a legislative appropriation of \$950,000, the pipeline for the project was completed in June 1961, with completion of the reservoir scheduled soon thereafter. Until new sources are developed, the pipeline extension will alleviate shortages of domestic water during dry periods and will improve water pressures.

On June 14, 1962, construction of Phase I of Waimanalo Core Development got underway. General improvements such as roadways, water, sewer and drainage systems and street lights are to be installed in this residential subdivision located along Kalanianaʻole Highway adjacent to the Waimanalo Millsite lots. Upon the completion of construction, scheduled for 1963, the State will make these 6,000-square-foot minimum FHA-approved lots available to the public.

Phase I is the beginning of a development which will eventually encompass 365 acres of residential, business, apartment, school and beach park sites.

**Diamond Head View Lots, Unit II.** Negotiation is under way for an engineering consultant contract to subdivide State-owned lands on the slopes of Diamond Head crater. Bounded by the extension of 18th Avenue, Paikau Street and Diamond Head Road, the area consists of 37 acres planned for approximately 115 residential lots, each with a minimum area of 10,000 square feet. The estimated development cost is \$1,000,000.

**Waimanalo Agricultural Subdivision.** Tentative approval was granted by the Planning Director of the



City and County of Honolulu on June 1962 for the Waimanalo farm lots subdivision.

This 49-lot farm subdivision, with lots ranging from 1.0 to 20.4 acres, is planned for the mauka area of Waimanalo Valley. Lots are designed to accommodate vegetable and fruit farmers, poultrymen, nurserymen and dairy farmers. Irrigation will be provided with the installation of approximately 7,700 feet of pipelines. New roadways, domestic water system and utilities are also being planned in this subdivision to increase Waimanalo's agricultural production.

**Miscellaneous.** The Division has provided technical services to the Division of State Parks. The projects were Keaiwa Heiau Park, Aiea; Peacock Flats, Moku-leia; Waialea Beach, Waialea; Pupukea Forest Park, Waimea; Ualakaa Park, Makiki Round Top; and Pali Lookout, Nuuanu.

### Island of Molokai

The longest irrigation tunnel in the State was holed through on schedule in November 1960, when contractors reached Waikolu Valley after having bored 26,825 feet to link the wet windward area of Molokai with the fertile but dry leeward area. This tunnel is the major facility of the Molokai Irrigation and Water Utilization Project.

An exploratory well in Waikolu Valley was completed in March 1961, a second well in the tunnel in June, and another well in the Valley was due to be completed in July. Tests have indicated that the three wells will be capable of producing a total of at least 3 million gallons per day.

The contractor is now completing diversion works in Waikolu Valley (including dams, pipelines and a foot-bridge) and is casting the tunnel flume walls. The Waikolu Stream diversion and the drilled wells, coupled with storage facilities, assure an adequate water supply for the project.

The Division is now preparing construction plans and specifications for the remainder of the project, which will include 7 miles of transmission lines from the tunnel to the service area, a storage reservoir, and 20 miles of distribution lines in the service area. Construction of these facilities can be undertaken as soon as funds are available.

Total cost of the Molokai project is estimated at \$9.9 million. Of this amount, about \$5 million has been allotted, requiring an additional \$4.9 million for completion of facilities to serve water to 13,650 acres of crop land. A request for a federal loan under the Small Reclamation Projects Act has been submitted to the Bureau of Reclamation.

### Island of Hawaii

**Panaewa Farm and Houselots Subdivision.** The project to develop farm and houselots within the Panaewa area was initiated with the granting of preliminary approval by the Planning and Traffic Commission of the County of Hawaii on April 1962. The Division is preparing construction drawings for the first phase of this project which consists of twenty five 2½ to 3-acre lots.

When fully developed this subdivision will consist of 114 farm lots and 209 houselots. The cost of the entire development is estimated as \$1,840,000.

**Waiakea Houselots.** Plans for the Waiakea Houselots were revised and submitted to the County for subdivision approval. The plans call for subdividing this 20-acre parcel into 47 houselots with a minimum area of 15,000 square feet each.

**Kona Water Development.** With the cooperation of the Board of Water Supply of the County of Hawaii, the Division carried out the studies and exploratory well drilling at Kona, Hawaii.

Funds appropriated in 1957 resulted in the construction of three successful wells by the end of 1959. With a pumping capacity of a little over a half-million gallons a day each, these wells—two at Kahaluu and one at Keei—now provide Kona with a dependable ground-water source to supplement its gravity flow system supplied from surface water sources.

In January 1960, a 50,000-gallon storage tank and a 1.2 mile transmission line of 6-inch and 8-inch pipes connecting the Kahaluu wells with the Kailua-Keauhou pipeline were constructed at a cost of \$81,149.

The construction of 4.4 miles of 12-inch and 8-inch transmission pipelines and eight steel tanks extending from the Kahaluu Wells along Mamalahoa Highway to the County's Waiaha storage tank was completed in December 1961 at a cost of \$379,730.

The installation of eight booster pumps and controls to boost the water from the Kahaluu Wells to the Waiaha tank is nearing completion. Cost of these improvements is \$100,450.

Construction of another phase of the Kona Water Development Program extending from the Keei Well to Waipunaula continued. This \$379,730 project consisting of approximately 3.7 miles of 8-inch pipeline and five steel tanks ranging in capacity from 50,000 to 250,000 gallons was scheduled for completion in 1962. The installation of eight booster pumps and controls started in January 1962 at a cost of \$93,245.

Construction of the phase of the Kona Water Development Program extending from Kahaluu to Honalo started in February 1962. This phase is being constructed in two parts: (1) the construction of approximately 3.9 miles of 8-inch pipeline and four booster pumps at a cost of \$282,414 and (2) the construction of two 250,000-gallon concrete tanks at a cost of \$98,065. Both parts are scheduled for completion in 1963.

During the fiscal year ending June 30, 1962, the design of the Honalo-Waipunaula System and the second Keei Well started. With the completion of the Honalo-Waipunaula System including one 250,000-gallon concrete tank, approximately 4.8 miles of 8-inch pipeline and two booster pumps and the Keei Well and pump a complete interconnected water system extending from Waiaha in North Kona to Keei in South Kona will be in operation.

**Kawaihae Water study and development.** The First State Legislature appropriated funds in 1960 to conduct a study for a water system to serve the Kawaihae-Puako area of the Island of Hawaii. Accordingly, two exploratory wells were drilled and tested in that area: Well No. 1, along the Waimea-Kawaihae Road about 8,000 feet from the ocean, completed in February 1961, with salinity about 300 ppm; Well No. 2, about 6,000 feet south of the Waimea-Kawaihae Road and an



equal distance from the ocean, completed in June 1961, with salinity about 500 ppm.

Although water from Well No. 1 would be slightly too salty for domestic use, studies showed that it was a satisfactory source of supply when mixed with the fresh water in the existing system. As recommended by the Division, the 1961 State Legislature appropriated \$280,000 to improve the existing system.

Subsequent to the completion of well drilling in June 1961, the Division began preliminary design and cost estimates for the water development plan for the Kawaihae area. Preparations of plans and specifications are under way to construct a 250,000-gallon tank and connecting pipeline to the well and surface water source.

### **Island of Kauai**

**Wailua Resort Subdivision.** A contract in the amount of \$158,094 was awarded on March 16, 1962 for construction of roadways and water mains for the Wailua Resort Subdivision.

This subdivision consists of six lots, each containing 5 to 6 acres, to be made available for resort development sites following installation of an electrical power and a sewerage system.

**Wailua Houselots, 4th Series.** With the awarding of a contract for \$24,359, the construction of 1,025 lineal feet of roadways and 1,600 lineal feet of pipelines for the Wailua Houselots, 4th Series, got under way. When completed, 33 residential lots will be available to the public.

**Wailua Houselots, 5th Series.** The proposed preliminary layout for the Wailua Houselots, 5th Series, has been prepared. This subdivision of 43 lots will cost \$36,000.

**Waimea Heights Houselots.** Preliminary planning and cost estimates for a 131-lot residential subdivision in the Waimea Heights area were made. Permission to submit it to the Board of Supervisors of the County of Kauai for preliminary approval was given by the Board of Land and Natural Resources.

**Kauai Domestic Water Systems.** With the help and cooperation of the Board of Water Supply of the County of Kauai, an extensive program toward improvement of the Kauai Domestic Water System was initiated. These projects include:

**Lawai-Koloa-Poipu.** In April 1960 construction was started on improvements to the Koloa-Poipu water system which will allow limited hotel and apartment construction in the beach area. The facilities, completed in April 1961 under a \$156,000 contract, included a 250,000-gallon storage tank and approximately 8,500 feet of 12-inch and 8-inch pipelines.

Plans are being prepared by consultants for a pipeline along the proposed Poipu Beach Road. This project, an extension of the improvements started in 1960, calls for the installation of 7,400 lineal feet of 8-inch and 12-inch pipes at an approximate cost of \$125,000.

In June 1961, bids were opened for the drilling and casing of a deep well and the installation of a submersible pump, at a cost of \$59,260, to supplement the Lawai segment of the system.

**Lihue.** In July 1960, construction was started on a \$79,223 project to improve services to the hotel-resort area under development at Kalapaki Beach, site of the new Kauai Suri Hotel. Facilities completed in May 1961 included a 250,000-gallon storage tank in the vicinity of Kauai Inn and approximately 5,000 feet of 8-inch pipeline.

To provide the Lihue-Hanamaulu area with an adequate water system, construction of a 500,000-gallon concrete tank on Kalepa Ridge and installation of approximately 2,000 feet of 12-inch pipeline to connect with the existing main near Hanamaulu Store was started in October 1961. This project, estimated at \$103,580, was scheduled for completion in 1962.

Work for the installation of a deep-well submersible turbine pump was started in December 1961. This project, estimated at \$36,361 was scheduled for completion in 1962.

**Wailua-Kapaa.** In March 1960, the construction of an exploratory well for the Wailua-Kapaa water system was completed at a cost of \$7,700. The well subsequently was integrated into the Wailua-Kapaa system. In October 1960, a contract was awarded for well site improvements and connecting pipeline costing \$14,800; the following month a contract was let for \$11,800 to install control equipment. These projects were completed in May 1961.

In November 1960, a contract was awarded for \$33,900 to construct about 5,000 feet of 12-inch and 6-inch pipeline along Nonou and Haleilio Roads.

Two additional contracts were awarded on December 21, 1961. The first, for construction of 5,200 lineal feet of 12-inch pipe was in the amount of \$50,434. The second, for construction of a 120,000-gallon water tank, two booster pumping stations and approximately 20,000 lineal feet of pipeline was in the amount of \$219,863.

**Hanalei.** The Division completed its study and recommendations for improvements to the Hanalei water system and in December 1960 awarded a contract for \$107,900 for construction of the first phase. Improvements connecting with the existing County 4-inch line consisted of 9,000 feet of 8-inch pipeline along Kuhio Highway to Weke Road, continuing along the latter across the Hanalei River to the Hanalei well and to a 50,000-gallon storage tank. Construction was started in March 1961, and enough of the project had been completed by June 1 to provide water service to the new Hanalei Plantation Hotel.

Plans and specifications for the construction phase to improve the water system incorporating a deep-well pump in the Maka Ridge Well, a 250,000-gallon concrete tank and 6,500 feet of 8-inch pipeline from the tank to the existing pipeline on Kauai from the tank to the existing pipeline on Kauai Belt Road is being prepared by consultants. This phase is an extension of construction started in 1960. This project is estimated at \$145,572. Construction was scheduled to start in 1962.

**Hanapepe.** A construction phase in the over-all program to provide Hanapepe with an adequate water



system was started in December 1961. This phase, including the installation of approximately 4,700 feet of 12-inch pipeline and the construction of a 0.5 M.G. reservoir, was scheduled for completion in 1962 at a cost of \$133,484.

## IRRIGATION SYSTEMS

### Waimanalo Irrigation System

At the end of the fiscal period, 875 acres were being served by the Waimanalo Irrigation System. Of the total, 507 acres were privately owned by 59 farmers, 239 acres of State lands were farmed by 22 farmers and 119 acres of State lands were occupied by the Waimanalo Experimental Farm. An all-time high of almost 250 million gallons of water were used and a near record \$59,707 in revenues were received during the past 18 months.

### Lalamilo Irrigation System

Water from the Upper Hamakua Ditch-Waimea Reservoir system on Hawaii, developed over the years, is being used to irrigate farm lots on State lands at Lalamilo. Construction of the Lalamilo Irrigation Sys-

tem was begun in May 1960 under a contract which also included roadways for Lalamilo Farm Lots Unit I, the first increment of 26 lots containing about 600 acres. These improvements were completed in June 1961, enabling the State to make the farm lots available to qualified applicants.

As of June 30, 1962, 15 farmers who had purchased Lalamilo Farm Lots, Unit I, were using water from the system. From November 1961 to June 1962, 16,251,930 gallons of water were sold for irrigation on 53 acres of truck crops.

The Upper Hamakua Ditch in the Kohala Mountain Watershed supplies water for this project. In February of 1962, a contract for \$35,140 was awarded for repairs and modifications to the Upper Hamakua Ditch. The ditch was completed cleared of debris and overgrowth of weeds, flumes were rebuilt and badly damaged sections of the ditch walls and floors were repaired. The contract work was completed on June 8, 1962.

A Field Office-Warehouse building located at the entrance of the Lalamilo Farm Lots was constructed in May 1962.

Table 1. STATISTICAL SUMMARY FOR THE WAIMANALO IRRIGATION SYSTEM: JULY 1961 TO JUNE 1962

Month	Water sold (gallons)	Billings (dollars)					Rainfall (inches)
		Acres served	Total	Service charges	Water charges	Add'l billings	
The year.....	123,019,301	*816,404	34,396.03	24,493.13	9,841.46	61.44	42.66
July 1961.....	22,062,328	865,162	3,931.55	2,162.99	1,764.94	3.62	2.26
August.....	26,905,848	865,162	4,319.04	2,162.99	2,152.43	3.62	1.00
September.....	23,546,287	865,162	4,050.34	2,162.99	1,883.73	3.62	1.11
October.....	5,746,689	865,162	2,626.34	2,162.99	459.73	3.62	6.92
November.....	636,347	856,662	2,196.28	2,141.74	50.92	3.62	7.08
December.....	4,328,778	845,562	2,463.91	2,113.99	346.30	3.62	1.56
January 1962.....	2,904,639	779,462	2,187.72	1,948.74	232.36	6.62	4.68
February.....	2,084,210	779,462	2,122.08	1,948.74	166.72	6.62	4.77
March.....	1,222,929	768,762	2,026.45	1,921.99	97.84	6.62	7.26
April.....	5,959,709	768,762	2,405.39	1,921.99	476.78	6.62	2.97
May.....	8,141,069	768,762	2,579.91	1,921.99	651.30	6.62	2.68
June.....	19,480,468	768,762	3,487.02	1,921.99	1,558.41	6.62	.37

\*Average.

Table 2. STATISTICAL SUMMARY FOR THE WAIMEA IRRIGATION PROJECT, LALAMILO IRRIGATION SYSTEM: NOVEMBER 1961 TO JUNE 1962

(Operation begun in November 1961.)

Month	Water users	Water sold (gallons)	Acres served	Billings (dollars)		
				Total charges	Water charges	Service charges
Totals.....	15	16,251,930	*53.00	1,563.57	1,161.30	402.27
November.....	3	209,300	0.79	17.84	16.16	1.68
December.....	6	470,910	3.25	41.84	35.10	6.75
January.....	6	838,660	6.50	78.46	61.56	16.90
February.....	9	1,882,760	18.00	169.51	128.99	40.52
March.....	12	1,602,390	24.00	168.52	116.75	51.77
April.....	13	2,831,880	35.00	281.38	203.74	77.64
May.....	14	3,144,870	39.00	313.14	225.38	87.76
June.....	15	5,271,160	53.00	492.87	373.62	119.25

\*Maximum.



## SECTION 10

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(As of June 30, 1962)

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Hazel L. Blankenfeld

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