

Section 20

FORESTS, FISHERIES, AND MINING

This section presents data on forests and forest products, commercial fishing, and mining and mineral products.

The most recent available statistics show 1.2 million acres of forest and water reserve and 948,000 acres of commercial timberland in the State, most of it on the Big Island. Over 46,000 acres had been planted in eucalyptus and other species of trees by mid-1985. Forest products harvested in 1977 had a value of \$3.5 million, including \$2.3 million from logs for fiber. Forest and brushland fires burned 3,700 acres in fiscal 1985.

The commercial fish catch in fiscal year 1985 amounted to 9.4 million pounds and had a value of \$16 million. Ahi (yellowfin) and aku (skipjack) accounted for about 37 percent of the total value. Other important species are lobster, opakapaka, mahimahi, and ono. Commercial fishermen numbered 2,638. The charter fishing fleet made 16,700 passenger trips in 1983, chiefly serving visitors. Their average catch per full-day trip was 0.6 fish per patron.

The value of mineral production reached \$59 million in 1985, most of it in cement (\$20 million) and stone (\$34 million). The 1985 total was somewhat below the all-time high reached in 1979.

Important sources of data on these subjects are the United States Census of Mineral Industries and reports and records of the U.S. Bureau of Mines and Hawaii State Department of Land and Natural Resources, Aquatic Resources Division and Forestry and Wildlife Division. Historical Statistics of Hawaii, Section 14, summarizes the data for earlier periods. Comparable Mainland statistics are reported in the Statistical Abstract of the United States: 1986, Sections 25, 26 and 27.

Table 575.-- FOREST ACREAGE, BY ISLANDS: 1970-1985

Island	Forest and water reserve, 1985 ^{1/} (acres)	Forest land, 1970 (acres)			Planted forest, June 30, 1985 (acres)	
		Total	Commercial ^{2/}	Noncommercial ^{3/}	Planted in preceding year	Total standing
State total	1,169,922	1,986,400	947,800	1,038,600	136	46,661
Hawaii	691,745	1,152,500	569,400	583,100	82	18,119
Maui	146,500	239,800	67,500	172,300	41	11,630
Kahoolawe	-	15,800	-	15,800	-	-
Lanai	6,150	43,900	4,500	39,400	-	512
Molokai	45,831	78,100	34,000	44,100	-	3,205
Oahu	117,726	205,300	126,500	78,800	-	7,036
Kauai	161,970	219,900	145,900	74,000	13	6,159
Niihau	-	31,100	-	31,100	-	-
Other islands ..	-	-	-	-	-	-

^{1/} Forest and water reserve within conservation district, as of June 30.

^{2/} Includes federal military, state, miscellaneous corporate, and miscellaneous individual forest land.

^{3/} Unproductive or productive-reserved.

Source: Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife, records.

Table 576.-- COMMERCIAL TIMBERLAND OWNERSHIP AND VOLUME OF
SAWTIMBER AND GROWING STOCK: 1977

Subject	Amount
Commercial timberland (1,000 acres)	948
Federally owned or managed	12
State or county	442
Private	494
Sawtimber net volume (million board feet)	1,047
Softwood only	17
Growing stock, net volume (million cubic feet)	202
Softwood only	4

Source: U. S. Forest Service study cited in Statistical Abstract of the United States: 1986, p. 673.

Table 577.-- FOREST AND BRUSHLAND FIRES, BY COUNTIES: 1984 AND 1985

[Years ended June 30]

Subject	State total	Counties			
		Hawaii	Maui	Hono- lulu	Kauai
Number of fires:					
1984	172	38	82	35	17
1985	218	75	98	32	13
Acres burned:					
1984	8,137	2,079	4,010	1,997	53
1985	3,657	280	3,073	195	109

Source: Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife, data provided February 5, 1986.

Table 578.-- COMMERCIAL FISHING: 1962 TO 1985

[Years ended June 30]

Year	Number of commercial fishermen	Commercial fish catch ^{1/}		
		Pounds caught	Pounds sold	Value to primary producers (dollars)
1962	940	13,800,761	13,173,259	2,870,702
1963	808	10,685,604	10,629,701	2,539,189
1964	805	12,013,869	11,970,398	2,732,125
1965	717	17,105,515	17,053,925	3,340,651
1966	715	15,985,626	15,924,854	3,318,803
1967	801	12,344,555	12,274,531	3,146,177
1968	760	12,828,387	12,740,307	3,253,538
1969	1,028	10,065,623	9,974,455	2,798,424
1970	1,264	9,786,726	9,588,319	3,585,166
1971	1,373	15,176,525	14,945,539	4,633,875
1972	1,544	15,577,669	15,246,519	5,536,521
1973	1,677	14,029,491	13,719,284	5,676,783
1974	2,085	13,997,774	13,660,574	6,234,924
1975	1,991	10,801,441	10,404,019	6,242,614
1976	2,283	11,893,141	11,332,659	7,508,395
1977	2,368	15,298,515	14,763,816	9,433,781
1978	2,574	13,672,061	13,139,142	11,115,964
1979	2,447	12,310,524	11,890,241	12,673,328
1980	2,525	10,418,964	9,946,065	10,497,456
1981	2,577	10,890,468	10,465,731	11,828,575
1982	2,525	9,178,789	8,824,348	10,754,276
1983	2,480	7,841,959	7,529,178	10,506,860
1984	2,940	9,819,800	9,344,200	13,556,184
1985	2,638	9,436,591	9,077,357	15,901,656

^{1/} Represents the total catches of all licensed commercial fishers. Includes both sea and pond catch, but excludes coral harvests. Particularly for years since 1979, data may be incomplete due to unreported aku (skipjack tuna) boat and flagline boat catches. Data for 1984 revised from Data Book 1985, table 556.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, Commercial Fish Landings for Fiscal Year (annual), as revised, and records.

Table 579.-- COMMERCIAL FISH CATCH, BY SPECIES: 1985

[Year ended June 30, 1985]

Species ^{1/}	Pounds caught	Pounds sold	Value (dollars)
Total catch	9,443,289	9,081,015	15,908,174
Sea catch, all species ^{2/}	9,409,931	9,048,661	15,845,908
Aku (Skipjack)	3,202,283	3,147,438	2,802,959
Ahi (Yellowfin)	1,963,593	1,884,108	3,016,194
Ahipalaha	311,890	309,464	231,229
Ahi (Bigeye)	166,326	165,999	381,295
Pacific blue marlin	412,548	364,334	285,446
Mahimahi	291,658	276,207	891,088
Ono	305,853	289,506	703,180
Hapuupuu	87,842	86,722	140,946
Opakapaka	357,531	345,930	1,063,194
Uku	97,431	94,453	251,436
Ehu	50,220	46,965	126,878
Onaga	177,807	172,799	631,377
Akule	266,730	241,448	343,604
Opelu	213,921	204,794	319,203
Shrimp (laevigatus)	101,914	101,802	207,067
Lobster	310,974	308,813	2,308,921
Slipper lobster	193,160	189,638	882,066
Pond catch, all species	33,358	32,354	62,265

^{1/} Shown separately for all species over 100,000 lb. or \$100,000.

^{2/} Including species not shown separately.

Source follows next table.

Table 580.-- COMMERCIAL FISH LANDINGS, BY ISLANDS: 1985

[Year ended June 30, 1985]

Island	Pounds caught	Pounds sold	Value (dollars)
State total	9,443,289	9,081,015	15,908,174
Hawaii	2,476,840	2,377,538	3,536,934
Maui	805,488	762,215	1,039,521
Lanai	16,817	14,558	20,126
Molokai	40,028	33,826	80,931
Oahu	5,459,804	5,328,153	10,137,594
Kauai	644,312	564,725	1,093,067

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, Commercial Fish Landings for Fiscal Year -- July, 1984 through June, 1985.

Table 581.-- CHARTER FISHING PATRONS, FOR OAHU: 1983

Subject	Amount
Passenger trips by charter fishing fleet	16,700
Residence (percent): Hawaii	17
U.S. Mainland	61
Foreign	22
Average number of Hawaii charter fishing trips in past 5 years:	
By residents	3.5
By visitors	1.2
Average expenditure per passenger trip (dollars):	
By residents	89
By visitors	128
Average catch per full-day trip:	
Per patron	0.6
Per boat	2.5

Source: Karl C. Samples and Donald M. Schug, Charter Fishing Patrons in Hawaii: A Study of Their Demographics, Motivations, Expenditures and Fishing Values. Final Report (National Marine Fisheries Service, Honolulu Laboratory, Administrative Report H-85-8C, May 1985).

Table 582.-- FISH POPULATIONS AROUND SELECTED SHORELINE AREAS:
YEAR ENDED JUNE 30, 1985

Location	Species	Abundance (fish per acre)	Estimated standing crop (lb. per acre)
Marine Life Conservation Districts:			
Hanauma Bay, Oahu: Inshore	68	7,290	4,531
Offshore	75	3,415	733
Pupukea, Oahu	85	2,013	199
Molokini Shoals, Maui	90	3,150	1,016
Honolua-Mokuleia Bays, Maui	89	1,484	794
Lelewi, Hawaii 1/	40	2,212	320
Olowalu, Maui 1/	31	1,492	191
Artificial reefs:			
Waianae, Oahu: Car body/concrete pipes	36	2,296	164
Maunalua Bay, Oahu	45	1,477	122
Shoreline Fisheries Management Areas:			
Waikiki-Diamond Head, Oahu	(NA)	(NA)	366
Others:			
Barbers Point, Deep-Draft Harbor, Oahu	68	2,079	235
Puhi Bay, Hawaii	23	3,170	504
Makaiwa Bay, Hawaii	43	21,261	4,492

NA Not available.

1/ Candidate site for a Marine Life Conservation District.

Source follows next table.

Table 583.--MOST ABUNDANT FISH SPECIES AT HANAUMA BAY AND
MOLOKINI SHOAL: YEAR ENDED JUNE 30, 1985

[Three leading species in each area, based on both individuals
per acre and pounds per acre]

Location and species	Abundance		Standing crop	
	Rank	Fish per acre	Rank	Pounds per acre
Hanauma Bay, inshore:				
Manini	1	2,123.6	2	539.9
Surgeonfish, <u>Acanthurus</u> <u>nigrofuscus</u>	2	617.3	6	246.1
Hinalea lau wili	3	562.1	13	105.9
'Ama'ama	8	262.9	1	682.0
Pualu	16	104.6	3	410.3
Hanauma Bay, offshore:				
Kole	1	424.1	5	38.6
Surgeonfish, <u>A. nigrofuscus</u>	2	367.5	2	60.5
Hinalea lau wili	3	296.3	8	30.3
Humuhumu 'ele'ele	9	114.7	1	102.5
Mamo	5	239.6	3	41.4
Molokini Shoal:				
'O'ili lepa	1	865.2	9	45.4
Uhu	2	701.7	2	117.6
Hinalea lau wili	3	359.0	6	57.2
Nenue	7	74.0	1	148.1
Palani	16	17.0	3	111.6

Source: Hawaii State Department of Land and Natural Resources,
Division of Aquatic Resources, Job Progress Report, Statewide Marine
Research and Surveys, Survey of Fish and Habitat, July 1, 1984 to
June 30, 1985.

Table 584.-- MINERAL INDUSTRIES: 1958 TO 1982

[Excluding mines at manufactures]

Subject	1958	1963	1967	1972	1977	1982
Number of establishments ^{1/}	20	44	12	15	7	12
With 20 employees or more	8	4	3	5	2	4
All employees:						
Number (1,000) .....	.4	.3	.2	.3	.1	.2
Payroll (million dollars)	1.7	1.7	1.6	2.4	1.9	3.8
Production, development, and ex- ploration workers:						
Number (1,000) .....	.4	.2	.2	.2	.1	.1
Hours (millions) .....	.7	.6	.4	.4	.2	.2
Wages (million dollars)	1.4	1.5	1.3	1.8	1.5	2.6
Value added in mining (million dollars)	4.6	4.9	5.0	9.0	8.1	9.7
Cost of supplies used, purchased machinery installed, etc. (million dollars)	2.0	2.1	2.3	4.1	2.9	5.9
Value of shipments and receipts (million dollars)	5.8	6.5	5.5	11.0	9.7	12.8
Capital expenditures (million dollars) .....	.7	.5	1.8	2.0	1.3	2.7

^{1/} After 1963, data for single-unit establishments without paid employees were excluded from the census of mineral industries. Eight of the 12 establishments reported, including all 4 with 20 employees or more, were in SIC 142, crushed and broken stone, including riprap.

Source: U.S. Bureau of the Census, 1982 Census of Mineral Industries, Geographic Area Series, Pacific States, MIC82-A-9 (April 1985), tables 1 and 2a.

Table 585.-- NONFUEL MINERAL PRODUCTION SUMMARY: 1975 TO 1985

[Production as measured by mine shipments, sales, or marketable production, including consumption by producers]

Year	Quantity (1,000 short tons)		Value (\$1,000)			
	Cement	Stone	Total	Cement	Stone	Other minerals
1975	469	7,569	49,710	20,704	25,319	3,687
1976	339	6,092	42,252	18,410	21,193	2,649
1977	330	5,759	39,980	16,922	19,880	3,178
1978	452	6,027	52,743	26,454	23,840	2,449
1979	481	6,869	63,904	30,423	28,969	4,512
1980	371	6,341	59,676	24,682	30,645	4,349
1981	312	6,036	58,727	23,831	31,407	3,489
1982	233	4,500	46,889	18,676	26,604	1,609
1983	222	5,532	52,411	21,314	29,706	1,391
1984 1/ ..	191	5,400	51,247	19,074	29,700	2,473
1985 2/ ..	205	5,600	58,555	20,450	34,503	3,602

1/ Revised from Data Book 1985, table 565.

2/ Preliminary.

Source: U.S. Department of the Interior, Bureau of Mines,
"The Mineral Industry of Hawaii," Mineral Industry Surveys (annual).

Table 586.-- NONFUEL MINERAL PRODUCTION: 1984 AND 1985

[Production as measured by mine shipments, sales, or marketable production, including consumption by producers]

Mineral	Quantity (1,000 short tons)		Value (\$1,000)	
	1984 <u>1/</u>	1985 <u>2/</u>	1984 <u>1/</u>	1985 <u>2/</u>
Total	(X)	(X)	51,247	58,555
Cement:				
Masonry	5	5	792	250
Portland	186	200	18,282	20,200
Sand and gravel (construction)	436	500	2,031	2,300
Stone:				
Crushed	5,400	5,600	29,700	34,500
Dimension	-	(Z)	-	3
Other nonmetals <u>3/</u>	(X)	(X)	442	1,302

X Not applicable.

Z Less than 500 short tons.

1/ Revised from Data Book 1985, table 566.

2/ Preliminary.

3/ Gem stones, lime, and pumice.

Source: U.S. Bureau of Mines, "The Mineral Industry of Hawaii in 1985," Mineral Industry Surveys (January 17, 1986).