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## Section 20

# FORESTRY, FISHERIES, AND MINING

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

Important sources of data on these subjects are *the United States Census of Mineral Industries* and *Mineral Industry Surveys*, U.S. Census Bureau, *2002 Economic Census, Geographic Area Series*, Mining, and reports and records of the Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources and Division of Forestry and Wildlife. *Historical Statistics of Hawaii*, Section 14, summarizes the data for earlier periods. Comparable national statistics are reported in the *Statistical Abstract of the United States: 2007*, Sections 18.

**Table 20.01-- FOREST AND NATURAL AREA ACREAGE, BY ISLAND:  
JUNE 30, 2006**

[Data have remained constant since 1996]

Island	Conservation district forest land		Natural areas 3/	
	Forest reserve land 1/	Private forest land 2/	Number of areas	Acres
State total	643,134	328,742	19	109,164
Hawaii	438,416	106,745	8	82,535
Maui	73,227	53,180	4	17,123
Kahoolawe	-	-	-	-
Lanai	-	6,150	-	-
Molokai	16,030	-	2	2,950
Oahu	32,462	88,817	3	1,770
Kauai	82,999	73,850	2	4,786
Niihau	-	-	-	-

1/ State-owned and privately-owned lands under surrender agreement in forest reserve system.

2/ Private forest land within conservation district. The majority of these lands were previously in the forest reserve system.

3/ Includes Waimanu Research Reserve (3,600 acres) and Alakai Wilderness Preserve (9,939 acres).

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

**Table 20.02-- WOODLAND ON FARMS, 1992, 1997, AND 2002, AND BY COUNTY, 2002**

[Acres]

Use	1992	1997	2002				
			State total	Hawaii	Honolulu	Kauai	Maui
Total	109,391	108,704	117,685	86,632	6,675	(D)	(D)
Pastured	40,909	31,844	41,467	(D)	787	(D)	461
Not pastured	68,482	76,860	76,218	(D)	5,888	(D)	(D)

D Withheld to avoid disclosing data for individual farms.

Source: U.S. Department of Agriculture, *1997 Census of Agriculture, Hawaii*, (March 1999), pp. 19 and 158. *2002 Census of Agriculture, Hawaii*, (June 2004), p. 195.

**Table 20.03-- FOREST AND BRUSHLAND FIRES, BY CAUSE OF FIRE:  
2004 TO 2006**

Cause of Fire	Number of Fires			Acres burned		
	2004	2005	2006	2004	2005	2006
State total	89	109	205	2,069.3	26,492.6	14,584.8
Lighting	2	3	7	2.0	4.1	3,596.3
Campfire	7	8	4	8.4	801.7	783.1
Smoking	5	-	-	70.4	-	-
Debris burning	4	5	12	12.7	1.6	37.9
Arson	16	12	27	48.6	218.2	3,104.3
Equipment	9	6	15	16.5	135.9	679.9
Railroads	-	-	-	-	-	-
Children	1	-	-	0.1	-	-
Miscellaneous	39	75	140	1,910.6	25,331.1	6,383.3

Source: Hawaii State Department of Land and Natural Resources, Division of Forestry and Wildlife, Fire Management Program, *Annual Wildfire Summary Report*, <<http://www.state.hi.us/dlnr/dofaw/fmp/firedata.htm>> accessed April 30, 2007.

**Table 20.04-- COMMERCIAL FISHING: 2003 TO 2006**

[Fiscal year ending June 30. Represents the total sea catches of all licensed commercial fishers.

Excludes pond catches, The Aquaculture and Development Program, Department of Agriculture surveys pond harvest market information]

Year	Number of commercial fishermen	Commercial fish catch		
		Pounds landed	Pounds sold	Value to primary producers (dollars)
2003	3,434	24,054,939	(1/)	(1/)
2004	2,971	2/ 22,230,489	(1/)	(1/)
2005	3,248	2/ 24,876,316	(1/)	(1/)
2006	3,137	24,384,136	(1/)	(1/)

1/ Due to revisions to the commercial fishing report forms in October 2002, licensed commercial fishers no longer report ex-vessel landing values. The latter information is collected from a fish dealer reporting system. The Division of Aquatic Resources is developing an application to integrate the fishing and fish dealer reporting systems to summarize landings with ex-vessel landing value information. Therefore, only total landings reported by commercial fishers are available at this time.

2/ Revised from previous *Data book*.

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

**Table 20.05-- COMMERCIAL FISH CATCH, BY SPECIES: 2004 TO 2006**

[Fiscal year ending June 30, pounds landed, excludes pond catches. Due to revisions to the commercial fishing report forms in 2002, data may not be comparable to previous years]

Species	2004 1/	2005 1/	2006
Total catch	22,230,489	24,876,316	24,384,136
Tunas	12,672,976	14,127,723	14,198,660
Aku (skipjack)	1,045,407	976,053	798,297
Tombo	483,855	1,180,458	748,465
Bigeye (ahi)	8,812,662	8,598,957	9,722,096
Yellowfin (ahi)	2,268,854	3,345,652	2,899,427
Billfishes	2,832,945	4,423,925	3,751,278
Blue marlin	958,485	794,487	754,084
Shortnose spearfish	412,601	451,238	347,012
Striped marlin	1,219,731	984,581	707,492
Swordfish	222,306	2,174,633	1,922,741
Miscellaneous pelagic species	4,636,445	4,143,336	4,439,525
Mahimahi	1,899,004	1,439,053	1,502,821
Monchong	599,690	653,858	572,668
Ono	858,576	889,423	904,113
Opah	925,773	777,401	1,058,108
Walu	329,629	345,851	376,150
Deep bottom fishes	520,686	608,260	489,246
Ehu	28,943	34,804	30,474
Hapuupuu	38,445	43,285	41,947
Opakapaka	108,342	138,563	92,284
Uku	144,976	158,220	162,640
Ulaula (onaga)	128,538	158,076	98,314
Akule/opelu	929,976	923,669	845,238
Akule	571,424	728,778	462,511
Opelu	339,651	188,284	294,073
Jacks	66,078	63,873	47,301
Inshore fishes	293,533	272,449	247,173
Sharks	185,249	155,749	175,955
Mako	102,652	100,428	137,173
Lobsters	7,373	10,434	10,144
Crabs	26,451	33,018	32,239
Shrimps	2/	54,379	103,857
Seaweeds	13,354	16,593	7,389
Miscellaneous	45,423	42,908	36,131

1/ Revised from previous year *Data Book* .

2/ Due to low level of fishermen reporting and to preserve confidentiality, data for these species are pooled under miscellaneous category.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Fish Landings, State of Hawaii--Fiscal Years 2004-2006* and records.

**Table 20.06-- COMMERCIAL SEA LANDINGS, BY ISLAND: 2004 TO 2006**

[Fiscal year ending June 30, pounds landed]

<b>Island</b>	<b>2004 1/</b>	<b>2005 1/</b>	<b>2006</b>
State total	22,230,489	24,876,316	24,384,136
Hawaii	2,656,407	3,023,111	3,511,979
Maui	682,425	601,311	502,016
Lanai	23,673	22,777	17,853
Molokai	27,417	38,007	28,815
Oahu	18,240,989	20,610,062	19,784,305
Kauai and Niihau	599,578	581,048	539,168

1/ Revised from previous *Data Book*.

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



**Table 20.07-- COMMERCIAL SEA LANDINGS, BY FISHING METHOD:  
2004 TO 2006**

[Fiscal year ending June 30, pounds landed]

<b>Fishing method</b>	<b>2004 1/</b>	<b>2005 1/</b>	<b>2006</b>
All methods	22,230,489	24,876,316	24,384,136
Aku pole and line	756,803	737,156	575,815
Longline	14,868,196	17,793,249	17,927,759
Handline	1,891,831	1,924,653	1,604,761
Trolling	3,089,001	2,570,436	2,518,381
Net	858,769	931,316	825,812
Trap	52,515	98,054	139,602
All other methods	713,374	821,452	792,006

1/ Revised from previous *Data Book*.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Fish Landings, State of Hawaii--Fiscal Years 2004-2006* and records.

**Table 20.08-- FISH POPULATIONS AROUND SELECTED SHORELINE  
AREAS: YEAR ENDING JUNE 30, 2001**

Location	Species	Fish per acre	Pounds per acre
Marine Life Conservation Districts:			
Hanauma Bay, Oahu:			
Inshore	59	3,067	1,473
Offshore	87	3,166	943
Pupukea, Oahu	89	8,123	1,717
Waikiki, Oahu	42	1,230	246
Molokini Shoal, Maui	58	4,234	623
Honolua-Mokuleia Bay, Maui	37	5,190	682
Manele-Hulopoe Bays, Lanai	62	7,462	1,368
Kealakekua Bay, Hawaii	43	2,138	274
Lapakahi, Hawaii	41	2,617	118
Wailea Bay, Hawaii	41	1,976	255
Old Kona Airport, Hawaii	19	2,003	208
Artificial reefs:			
Maunalua Bay Tire Reef, Oahu	32	5,056	810
Maunalua Bay "Cee Bee 24 Barge," Oahu	45	2,821	321
Maunalua Bay "Mud Scow Barge," Oahu	39	3,906	273
Maunalua Bay "Keehi Barge," Oahu	39	5,148	525
Maunalua Bay "Landing Craft," Oahu	25	833	82
Waianae "Z-Slabs," Oahu	34	1,368	155
Waianae "Landing Craft," Oahu	27	1,098	135
Waianae "Mahi," Oahu	42	7,227	881
Keawakapu Tire Reef, Maui	(NA)	3,814	540
Fisheries Management Areas:			
Waikiki-Diamond Head, Oahu 1/	44	461	56
Waikiki-Diamond Head, Oahu 2/	66	1,304	217
Puako Bay and Pualo Reef, Hawaii	34	1,973	336
Red Hill, Hawaii	29	5,017	184
Kiholo Bay, Hawaii	36	2,091	200
Papawai Bay, Hawaii	34	4,957	449
Other areas:			
Honaunau Bay	28	1,588	167

NA Not available.

1/ Survey taken on December 28, 2000, during the open fishing period.

2/ Survey taken on June 25, 2001, during the closed fishing period.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Statewide Marine Research and Surveys, Survey of Fish and Habitat, July 1, 2000 to June 30, 2001.*

**Table 20.09-- MOST ABUNDANT AND HEAVIEST FISH SPECIES AT SPECIFIED LOCATIONS: YEAR ENDING JUNE 30, 2001**

[Three leading species at each location, based on both individuals per acre and pounds per acre]

Location and species	Individuals per acre		Pounds per acre	
	Rank	Number	Rank	Number
Hanauma Bay MLCD (inshore):				
Manini ( <i>Acanthurus triostegus</i> )	1	958	3	137
Yellow-eye damsel ( <i>Eupomacentrus fasciolatus</i> )	2	221	(1/)	(NA)
Aholehole ( <i>Kuhlia sandvicensis</i> )	3	203	9	48
Redlipped parrot ( <i>Scarus rubroviolaceus</i> )	(1/)	(NA)	1	414
Clown tang ( <i>Naso lituratus</i> )	10	78	2	212
Honolua-Mokuleia Bay MLCD:				
Maiii/lavender tang ( <i>Acanthurus nigrofuscus</i> )	1	1,416	1	127
Saddle-back wrasse ( <i>Thalassoma duperrey</i> )	2	1,325	4	54
Kole ( <i>Ctenochaetus strigosus</i> )	3	647	3	92
Clown tang ( <i>Naso lituratus</i> )	(1/)	(NA)	2	102
Kealakekua Bay MLCD:				
Kole ( <i>Ctenochaetus strigosus</i> )	1	303	6	15
Agile damsel ( <i>Chromis agilis</i> )	2	283	3	30
Blackfin damsel ( <i>Chromis vanderbilti</i> )	3	277	(1/)	(NA)
Yellow tang ( <i>Zebrasoma flavescens</i> )	4	277	1	34
Parrotfishes (Family Scaridae)	(1/)	(NA)	2	33

NA Not available.

MLCD Marine Life Conservation District.

1/ Not in first 10.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Statewide Marine Research and Surveys, Survey of Fish and Habitat, July 1, 2000 to June 30, 2001.*

**Table 20.10-- MINERAL INDUSTRIES (NAICS 21): 1977 TO 2002**

[Includes establishments with payroll. Statistics based on the North American Industry Classification System (NAICS) which replaced the Standard Industrial Classification (SIC) system used in Economic Censuses prior to the 1997 Economic Census]

Subject	1977	1982	1987	1992	1997	2002
Number of establishments	7	12	9	7	7	8
With 20 employees or more	2	4	4	4	2	1
All employees:						
Number (1,000) 1/	.1	.2	.2	.2	.1	.1
Annual payroll (million dollars)	1.9	3.8	7.4	9.4	5.6	7.3
Production, development, and exploration workers:						
Number (1,000) 1/	.1	.1	.2	.2	.1	.1
Annual hours (millions)	.2	.2	.4	.4	.2	.2
Annual wages (million dollars)	1.5	2.6	5.7	8.1	4.7	5.1
Value added (million dollars)	8.1	9.7	23.5	27.3	22.0	20.7
Total cost of supplies (million dollars)	2.9	5.9	10.4	11.3	(D)	6.6
Total value of shipments and receipts for services (million dollars)	9.7	12.8	31.1	33.7	33.3	25.6
Capital expenditures (million dollars)	1.3	2.7	2.8	4.8	(D)	1.7

D Withheld to avoid disclosing data for individual companies.

1/ For pay period including March 12.

Source: U.S. Census Bureau, *1987 Census of Mineral Industries, Geographic Area Series, Pacific States*, MIC87-A-9 (October 1990), Hawaii table 1; *1992 Census of Mineral Industries, Geographic Area Series, Pacific States*, MIC92-A-9 (May 1996), Hawaii table 1; *1997 Economic Census, Mining, Geographic Area Series, Hawaii*, EC97N21A-HI (May 2000), table 1; *2002 Economic Census, Mining, Geographic Area Series, Hawaii*, EC02-21A-HI (April 2005), table 1.

**Table 20.11-- NONFUEL MINERAL PRODUCTION: 2003 TO 2005**

[Production as measured by mine shipments, sales, or marketable production (including consumption by producers), Data are rounded to no more than three significant digits; may not add to totals shown]

Minerals	2003	2004	2005
QUANTITY (1,000 METRIC TONS)			
Cement, masonry	(D)	-	-
Gemstones	(NA)	(NA)	(NA)
Sand and gravel (construction)	808	1,260	1,390
Stone (crushed)	5,620	1/ 5,470	6,170
VALUE (\$1,000)			
Total	75,100	1/ 73,700	100,000
Cement, masonry	1/ (D)	-	-
Gemstones	119	262	217
Sand and gravel (construction)	9,560	12,100	17,500
Stone (crushed)	65,400	1/ 61,300	82,300

NA Not available.

D Value withheld to avoid disclosing company proprietary data.

1/ Revised from previous *Data Book* .

Source: U.S. Geological Survey, Minerals Information, "*The Mineral Industry of Hawaii*," *Hawaii 2005*, <<http://minerals.er.usgs.gov/minerals/pubs/state/hi.html>> accessed June 19, 2007.