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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: 2008*, Sections 18.

**Table 20.01-- FOREST AND NATURAL AREA ACREAGE, BY ISLAND:  
JUNE 30, 2007**

Island	Conservation district forest land		Natural areas 3/	
	Forest reserve land 1/	Private forest land 2/	Number of areas	Acres
State total	637,000	328,742	19	109,164
Hawaii	448,000	106,745	8	82,535
Maui	4/ 83,000	53,180	4	17,123
Kahoolawe	-	-	-	-
Lanai	-	6,150	-	-
Molokai	(4/)	-	2	2,950
Oahu	31,000	88,817	3	1,770
Kauai	76,000	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).

4/ Includes both Maui and Molokai.

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 2007**

[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	22,230,489	(1/)	(1/)
2005	3,248	24,876,316	(1/)	(1/)
2006	3,137	2/ 24,636,892	(1/)	(1/)
2007	3,220	24,121,875	(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: 2005 TO 2007**

[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	2005	2006 1/	2007
Total catch	24,876,316	24,636,892	24,121,875
Tunas	14,127,723	14,361,338	13,549,850
Aku (skipjack)	976,053	811,535	1,203,700
Tombo	1,180,458	764,747	591,261
Bigeye (ahi)	8,598,957	9,805,946	9,160,496
Yellowfin (ahi)	3,345,652	2,950,509	2,567,524
Billfishes	4,423,925	3,763,115	4,466,445
Blue marlin	794,487	762,605	846,038
Shortnose spearfish	451,238	347,772	223,446
Striped marlin	984,581	708,898	1,048,471
Swordfish	2,174,633	1,923,964	2,319,023
Miscellaneous pelagic species	4,143,336	4,503,826	3,999,797
Mahimahi	1,439,053	1,544,162	1,129,293
Monchong	653,858	573,664	543,034
Ono	889,423	925,735	786,476
Opah	777,401	1,058,108	1,118,092
Walu	345,851	376,391	396,432
Deep bottom fishes	608,260	503,638	502,946
Ehu	34,804	29,821	24,939
Hapuupuu	43,285	42,047	29,628
Opakapaka	138,563	92,695	116,796
Uku	158,220	175,757	150,177
Ulaula (onaga)	158,076	99,814	120,416
Akule/opelu	923,669	843,567	999,564
Akule	728,778	462,485	649,017
Opelu	188,284	292,432	341,427
Jacks	63,873	46,285	49,610
Inshore fishes	272,449	248,436	265,082
Sharks	155,749	176,295	213,185
Mako	100,428	137,173	151,650
Lobsters	10,434	10,140	8,828
Crabs	33,018	32,227	31,235
Shrimps	54,379	103,857	(2/)
Seaweeds	16,593	7,521	4,979
Unclassified / miscellaneous	42,908	36,647	30,354

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.

Source: Hawaii State Department of Land and Natural Resources, Division of Aquatic Resources, *Commercial Fish Landings, State of Hawaii--Fiscal Years 2006-2007* and records.

**Table 20.06-- COMMERCIAL SEA LANDINGS, BY ISLAND: 2005 TO 2007**

[Fiscal year ending June 30, pounds landed]

<b>Island</b>	<b>2005</b>	<b>2006 1/</b>	<b>2007</b>
State total	24,876,316	24,636,892	24,121,875
Hawaii	3,023,111	3,582,672	3,033,397
Maui	601,311	503,888	509,283
Lanai	22,777	18,412	18,291
Molokai	38,007	28,764	18,000
Oahu	20,610,062	19,928,957	19,894,118
Kauai and Niihau	581,048	574,201	648,786

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:  
2005 TO 2007**

[Fiscal year ending June 30, pounds landed]

<b>Fishing method</b>	<b>2005</b>	<b>2006 1/</b>	<b>2007</b>
All methods	24,876,316	24,636,892	24,121,875
Aku pole and line	737,156	579,056	968,191
Longline	17,793,249	17,927,928	17,015,914
Handline	1,924,653	1,881,475	1,914,144
Trolling	2,570,436	2,604,873	2,682,806
Net	931,316	827,617	903,030
Trap	98,054	139,588	54,201
All other methods	821,452	676,356	583,589

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 2006-2007* 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.