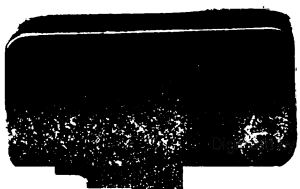

DEPARTMENT OF COMMERCE AND LABOR
BUREAU OF FISHERIES
GEORGE M. BOWERS, Commissioner

THE COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS IN 1903

BY

JOHN N. COBB
Agent of the Bureau of Fisheries

APPENDIX TO THE REPORT OF THE COMMISSIONER OF FISHERIES TO THE SECRETARY OF COMMERCE AND LABOR FOR THE YEAR ENDING JUNE 30, 1904

Pages 433 to 512

WASHINGTON
GOVERNMENT PRINTING OFFICE
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INTRODUCTION.

The first investigation of the commercial fisheries of the Hawaiian Islands ever undertaken was made by the writer in 1901, and the results were published in the early part of 1902.[a] In 1904, in order to supply data of comparative value, another investigation was conducted, the inquiry relating to the calendar year 1903. The canvass was greatly facilitated by the courtesy and assistance of the officials and various citizens of the islands. The statistical and other information gathered appears in the following pages.

The most diverse statements have appeared in both official and private reports as to the islands properly to be included in the Hawaiian group. The following list, which was published in the Hawaiian Almanac and Annual for 1904, was compiled for the purpose of clearing up the matter, and contains the date of annexation of the more recent additions to the group: Hawaii, Maui, Oahu, Kauai, Molokai, Lanai, Niihau, Kahoolawe, Lehua, Molokini, Nihoa or Bird Island (1822), Laysan (1857), Lysiansky (1857), Palmyra (1862), Ocean (1886), Necker (1894), French Frigate Shoal (1895), Gardener, Mara or Moro Reef, Pearl and Hermes Reef, Gambia Bank, and Johnston or Cornwallis Island. The first eight have a permanent population; the others are visited during certain seasons or only occasionally, by guano workers, roving fishermen, and hunters.

FISHERY LAWS.

Private ownership of the fishes found in the open sea and bays in the immediate vicinity of the shore was one of the peculiar features of the Hawaiian fisheries before the annexation of the islands by the United States. Such "fishery rights" (which are described in detail

[a] Commercial Fisheries of the Hawaiian Islands. By John N. Cobb. Report U. S. Fish Commission, 1901, pp. 353-499. 1902. Reprinted in Bulletin of the U. S. Fish Commission, 1903, Pt. II, pp. 715-765. 1905.

in the previous report) were, however, inconsistent with the laws of this country, and the act creating the Territory of Hawaii, which went into effect June 14, 1900, contained specific legislation regarding them. It was provided that all for which claim had not been made up to June 14, 1902, should be abolished and the privileges they carried should become common property; those which might be proved to be of the nature of vested rights should eventually be condemned and opened to common use, but the owners would be compensated therefor.

When the time for action came, on June 14, 1902, the territorial government set up the defense that a "fishery right" was not a vested right, but merely a license, and hence the Territory was not required to compensate the owners of such alleged rights for their extinguishment. Several of the parties entered suit in the lower territorial courts and were defeated. Two of the cases—those of the Bishop estate for the fishery of Waialae-iki and Samuel M. Damon for the fishery of Moanalua—were appealed to the supreme court of the Territory, with the same result as in the lower courts. Mr. Damon thereupon carried his case on appeal to the United States Supreme Court, where it was argued in March, 1904, and on April 25 of the same year the court handed down a decision upholding the contention of Mr. Damon, the plaintiff, that a "fishery right" was a vested right.

The present status of the claims is thus set forth in a paragraph of a letter from Mr. Lorrin Andrews, attorney-general of the Territory, dated October 8, 1904:

> The decision of the United States Supreme Court has practically precluded us from setting up the defense that the parties already suing had not vested rights in the property. We are therefore requiring each person suing to prove his title, as alleged in the complaint, upon which we consent that a judgment be entered against the Territory, and we will immediately bring condemnation proceedings against such established owners of fisheries, so as to obtain the title for the Territory. This will probably be done some time before the spring of next year, as there are a large number of cases, and of necessity we must proceed slowly.

The abolition of private fishery rights wiped out the greater part of the fishery laws previously in force on the islands, and at present the following seem to be all that are in effect:

> In 1850, under the heading of "Malicious injuries and mischiefs," the "destroying, cutting, injuring, or impairing the usefulness or value of any fish net," etc., and the "putting of auhuhu or other substance deleterious to fish into any lake, pond, stream, or reservoir for the purpose of destroying the fish," were made misdemeanors.
>
> "No person residing without the Kingdom shall take any fish within the harbors, streams, reefs, or other waters of the same for the purpose of carrying them for sale, or otherwise, to any place without the Kingdom, under penalty of a fine not exceeding two hundred dollars, in the discretion of the court." (Civil Code of 1859, Chap. VII, Art. V, sec. 386.)
>
> "SECTION 1. No person shall use giant powder or any other explosive substance in taking fish within or upon any harbors, streams, reefs, or waters within the jurisdiction of this Kingdom. The possession by fisherman, fish venders, or persons in

the habit of fishing, of fish killed by giant powder or other explosive substance shall be prima facie evidence that the person in whose possession such fish were found used giant powder or some other explosive substance in taking such fish, contrary to the provisions of this act.

"SEC. 2. Whoever violates the provisions of this act shall be punished by a fine not exceeding one hundred dollars and not less than twenty-five dollars, or by imprisonment at hard labor not exceeding six months, or both, in the discretion of the court.

"SEC. 3. The several district justices and police courts shall have concurrent jurisdiction in all cases under this act."

(Law was passed first in 1872 and has been amended frequently since.)

"SECTION 1. It shall not be lawful for any person to take, catch, or destroy the young of the fish known as the mullet and the awa under four inches in length in any of the bays, harbors, waters, or streams of this Kingdom: *Provided, however,* That nothing in this act shall prevent the taking of the fish herein above prohibited for the purpose of stocking ponds.

"SEC. 2. It shall not be lawful for any person to sell or offer for sale, or have in his possession, except alive, any of the young fish mentioned in section one of this act.

"SEC. 3. Any person violating the provisions of this act shall, upon conviction before any police or district magistrate, be punished by a fine of not less than twenty dollars nor more than two hundred dollars, or by imprisonment at hard labor for not less than ten nor more than ninety days, or by both such fine and imprisonment, in the discretion of the court: *Provided nevertheless.* That no such fine shall be imposed upon any person who, fishing for other fish, accidentally takes or catches no more than forty of the young fish mentioned in section one of this act.

"SEC. 4. This act shall take effect from and after the date of its approval."

(Law approved September 6, 1888.)

While in general the effect of the extinguishment of the "fishery rights" will be extremely beneficial to the fisheries, in some respects it will not be wholly advantageous unless the territorial government takes prompt action. A few of the more public-spirited owners of "fishery rights" made every possible effort to conserve and increase the supply of fish, and through the medium of the provision in the law allowing such owners "in lieu of setting apart some peculiar fish to their exclusive use * * * to prohibit during certain indicated months of the year all fishing of every description upon their fisheries," they placed tabooes on certain fish—notably the ama-ama—during their spawning seasons, and thus gave a measure of protection which is entirely lacking at present. The only species now protected are the young of the ama-ama and the awa, it being unlawful to take these fishes under 4 inches in length. So far as the ama-ama is concerned this law is disregarded in all but a few places. Thousands of young mullet, from 1 to 2 inches in length, and known as "pua," are taken by the fishermen of Molokai and Maui in fine-meshed nets and sold. Large quantities are taken in the fisheries of the other islands, also, particularly Oahu, and sold to the workmen on the sugar plantations. As the ama-ama is one of the most valuable elements in the fisheries, every effort should be made to conserve it, and if the law were rigidly

enforced its beneficial effects would be soon apparent. Under the present conditions the fishery, instead of increasing as a result of the greater efforts put forth in recent years, has slightly decreased since 1900.

The fine-meshed nets in such general use throughout the islands, and more especially in Pearl Harbor, destroy the young of other species, notably the akule and ulua, both of which are valuable food fishes. Thousands of these, from 2 inches in length up, are caught and sold, and, as the law does not protect them, nothing can be done to stop the slaughter. The data collected for the year 1903 show a decrease in the catch of ulua of 177,080 pounds since 1900. In the same period of time the catch of akule quite materially increased, but this was owing to the introduction by the Japanese of a method of catching them with hook and line.

Heretofore all efforts to prohibit the use of these fine-meshed nets have been blocked by the native members of the legislature, who claimed that it would deprive their native constituents of the opportunity to gratify their desire to eat little fishes raw. Of these the favorite species is the nehu, which never grows large. It, however, is an important food of larger and more valuable fishes, and for this if for no other reason should be protected. The fine-meshed nets are used almost entirely by the Japanese, who throw away probably one-fourth of the catch in some localities, notably in Pearl Harbor, in order to keep up the present high prices of fish.

THE COMMERCIAL SPECIES.

At the time of the 1901 investigation considerable difficulty was experienced in classifying the commercial species, owing to the lack of scientific data on Hawaiian fishery products, nearly all of which bore native names, and but few of which were to be found in other United States waters. To make confusion worse confounded, the fishermen, in many instances, call the same species by different names at various stages in its life, and also when there is a slight variation in its external appearance. The study of the large collections made under the auspices of the Bureau of Fisheries in 1901 and 1902 and by private collectors has greatly aided in identifying the various species and in straightening out the tangle of native common names. Even yet a few of the latter are unidentified, but these are species unimportant commercially. In order to prevent confusion and misapprehension among the fishermen and others, a list of the commercial species has been prepared, showing the names used in the statistical tables; and where two or more species have been included under one name, as in the case of the young of the species when it bears a different name from the adult, the other names are shown in the list immediately

below and are slightly indented. The common English name and the scientific name are also shown where possible, but as few of the Hawaiian fishes and other aquatic animals are found in the United States, or where there are English-speaking fishermen, only a few of them have received English names. The English names in the list are, in most instances, generic rather than specific, or such as are applied to all or several of the species of a genus.

An interesting feature of this list is the determination of the average weight of nearly all the species sold in the markets. As all fish are sold by the piece, except in the case of large species, which are cut up before being sold, it proved quite a serious undertaking to secure these data. As many of each species as possible were weighed, and only when this was impossible were estimates, furnished by responsible parties, used. The latter was the case more especially with the rarer species, which only occasionally find their way into the markets, and with those which were not in season at the time of the inquiry. When estimates are used they are designated thus (e). The list follows:

List of the species taken in the commercial fisheries of the Hawaiian Islands.

Native name.	Common English name.	Average weight.	Scientific name.
Fishes.			
A'alaihi		10 to pound	Thalassoma duperrey.
A'awa	Wrasse-fish	11 ounces	Lepidaplois albotæniatus; L. strophodes.
Áhaáha	Needle-fish	5½ ounces	Athlennes hians; Tylosurus giganteus.
Ahi	Albacore	30 pounds	Germo germo.
Ahia	do		
Áhólehóle		2 ounces	Kuhlia malo.
Akilólo			Gomphosus, Thalassoma, etc.
Aku	Ocean bonito	5 pounds	Gymnosarda pelamis.
Akule	Mackerel scad	10 ounces	Trachurops crumenophthalma.
Hahalalu (young)	do	5 to pound	Do.
Alaihi	Squirrel-fish		Holocentrus (any species).
Aléiléi (a small fish found in little tide pools.)			Dascyllus; Pomacentrus.
Ama-ama	Mullet	5 ounces	Mugil cephalus.
Anáe (adult)	do	2¼ pounds	Mugil.
Anaehole	do		Do.
Puai'i (very young)	do		Do.
Ápi			Chirurgus guttatus. Zebrasoma hypselopterum.
A'u	Sword-fish	1 weighed 160 pounds.	Xiphias gladius.
Auau	Needle-fish	4 pounds	Tylosurus giganteus.
Awa kalamoku (large adult).	Milk-fish	15 pounds (e)	Chanos chanos.
Awa (commercial size)	do	¼ pound	Do.
Awa-awa (medium sized)	do	3 pounds	Do.
Puawa (young)	do		Do.
Awela		10 ounces	Thalassoma purpureum.
Hou (large)		4 pounds	Do.
Palaea (very small)			Do.
Aweoweo (adult)	Catalufa	9 ounces	Priacanthus cruentatus.
Alalaua (young)	do		Do.
Carp[a]			Cyprinus carpio.
China-fish[a]		¼ pound (e)	Ophiocephalus.
Gold-fish[a]		10 to pound	Carassius auratus.
Hapú'u pú'u	Grouper	15 pounds	Epinephelus quernus.
Haúliúli	Snake mackerel		Lemnisoma serpens.
Hihimánu	Spotted sting-ray	25 pounds (e)	Stoasodon narinari.
Hilu (generic name)	Wrasse-fish	3 pounds	Anampses cuvieri.
Hilu lauwili	do		Julis lepomis, Thalassoma sp., etc.

[a] Introduced species.

List of the species taken in the commercial fisheries of the Hawaiian Islands—Continued.

Native name.	Common English name.	Average weight.	Scientific name.
Fishes—Continued.			
Hínaléa (generic name)	Wrasse-fish	4 ounces	Thalassoma ballieui.
Hínaléa Lauwili	do		Thalassoma duperrey.
Hínaléa niau	do		
Hínaléa pála-pála-úli	do		
Hínaléa Luahine	do		Thalassoma ballieui.
Hínaléa Lolo	do		Julis pulcherrima.
Hou (Hawaii)		1 weighed 4 pounds	Thalassoma purpureum.
Húmuhúmu nukunuku apua'a.	Trigger-fish	13 ounces	Balistapus rectangulus; Hemiramphus depauperatus.
Iheíhe	Half-beak	4 to pound (e)	Euleptoramphus longirostris; Hemiramphus depauperatus.
Kahála	Amber-fish	30 pounds	Seriola purpurascens.
Káku	Barracuda	2 pounds	Sphyræna.
Kála	Surgeon-fish	1 pound (e)	Acanthurus unicornis.
Pakálakála (young)	do		Do.
Kálekále		12 ounces	
Káwakáwa	Bonito	3 pounds	Gymnosarda alletterata.
Kawelea	Lizard-fish	1½ pounds	Trachinocephalus myops.
Keke	Puffer	1 pound (e)	Tetraodon hispidus.
Kihíkihi	Moorish idol and surgeon-fish.		Zanclus canescens; Zebrasoma veliferum.
Kíkakápu	Butterfly-fish		Cheilodactylus vittatus; Chætodon sphenospilus, Chætodon lunula, ornatissimus, unimaculatus.
Koá'e		10 to pound (e)	Ctenochætus strigosus?
Kóle	Snapper	1 weighed 4 pounds	Bowersia ulaula.
Kumu	Goat-fish	1½ pounds	Pseudupeneus porphyreus.
Ahuluhulu	do	10 to pound (e)	Do.
Kupipi			Abudefduf sordidus.
Kupóupóu	Wrasse-fish	12 to pound (e)	Cheilio inermis.
Lae	Mackerel	1 pound	Scomberoides tolooparah.
Laenihi		10 ounces	Hemipteronotus; Iniistius.
Laípála	Surgeon-fish	6 to pound (e)	Zebrasoma flavescens.
Lao	Wrasse-fish		Halichœres lao.
Lauhau	Butterfly-fish	12 to pound (e)	Chætodon quadrimaculatus.
Lólohau	Flying gurnard	6 to pound (e)	Cephalacanthus orientalis.
Loulo			Alutera monoceros.
Loulu	Moorish idol		Zanclus canescens.
Máhimáhi	Dolphin	25 pounds	Coryphæna hippurus.
Maii'i	Surgeon-fish	6 to pound (e)	Hepatus elongatus.
Maikoíko	do	9 ounces	Hepatus atramentatus.
Maka'a	Cavallas	10 to pound (e)	Carangus politus; Malacanthus parvipinnis.
Malámaláma		6 to pound (e)	Coris rusea.
Malolo	Flying-fish	2 to pound (e)	Cypsilurus simus.
Puhiki'i	do	12 to pound (e)	Parexocœtus brachypterus.
Mamáma	Demoiselle		Abudefduf abdominalis.
Mamámo	Rudder-fish	10 to pound (e)	Kyphosus fuscus.
Mamámu	Porgy		Monotaxis grandoculis.
Manéonéo			Zebrasoma hypselopurum.
Manini	Surgeon-fish	6 ounces	Hepatus sandwichensis.
Mano (general name for sharks).	Shark		Carcharias, any species.
Mano-kihíkihi	Hammer-headed shark.	2½ pounds	Sphyrna zygæna.
Mano-nihúi	Shark	40 pounds (e)	
Mano-mólemóle	do		
Manononi (on Hawaii)		1 weighed 2 pounds	
Maumau		6 to pound (e)	
Mikiáwa	Herring	3 to pound (e)	Etrumeus micropus.
Móa	Trunk-fish		Ostracion sebæ.
Moáno	Goat-fish	6 ounces	Pseudupeneus multifasciatus.
Moi	Threadfin	1½ pounds (e)	Polydactylus sexfilis.
Moilii (young)	do		Do.
Mu	Porgy	1 pound	Monotaxis grandoculis.
Munu	Goat-fish		Pseudupeneus bifasciatus.
Naenae	Surgeon-fish		Hepatus olivaceus.
Nehu	Anchovy	40 to pound (e)	Anchovia purpurea.
Nenue (sometimes spelled "Enenue").	Rudder-fish	2 pounds (e)	Kyphosus fuscus.
Nóhu	Mail-cheeked fishes.	3 pounds	Scorpænopsis gibbosa, etc.
Nóhupináo	Flying-fish	1 pound (e)	
Nukumomi		4 pounds	
Nunu	Trumpet-fish	3 to pound (e)	Aulostomus valentini.

List of the species taken in the commercial fisheries of the Hawaiian Islands—Continued.

Native name.	Common English name.	Average weight.	Scientific name.
Fishes—Continued.			
Ohua	Wrasse-fish		Cantherines sandwichiensis; Osbeckia scripta.
O'ili			Stephanolepis spilosoma.
O'ililepa	File-fish		Osbeckia scripta; Cantherines sandwichensis.
Ofo	Bonefish	9 ounces	Albula vulpes.
Amoomoo	do		Do.
Okúhekúhe (fresh water)	Goby		Eleotris fusca?
Olale		2 to pound (e)	Thalassoma purpureum.
Omakaha	Herring	3 ounces	Scorpænopsis gibbosa; Etrumeus macropus.
Omilu	Cavalla	6 pounds (e)	Carangus melampygus.
Ono	Bonito	60 pounds	Acanthocybium solandri.
Oópu	Goby	12 to pound (e)	Eleotris sandwicensis, etc.
Hinana (young)	do		
Oópuhúe[a]	Puffer	1 pound (e)	Tetraodon hispidus; Chilomycterus affinis.
Keke	do		
Maki-maki (deadly death).	do		Tetraodon hispidus.
Oópukái		12 to pound (e)	Cirrhitus marmoratus.
Opakapaka	Snapper	5 pounds (e)	Bowersia violescens; Apsilus microdon.
Opélu	Mackerel scad	6 ounces	Decapterus sanctæ-helenæ.
Opule	Wrasse-fish	½ pound	Anampses cuvier; Thalassoma purpureum.
Páka	Eel	10 pounds (e)	
Paki'i	Flounder	8 to pound (e)	Platophrys mancus.
Pakuikui			Hepatus achilles.
Paláni		8 to pound (e)	
Palúkalúka	Parrot-fish		Callyodon paluca.
Panuhúnuhú	do	1 weighed 4 pounds	Callyodon gilberti.
Paó'okauila	Blenny		Salarias brevis.
Páopáo	Cavalla	12 to pound (e)	Caranx speciosus.
Pauú	Squirrel-fish	1 weighed 3 pounds	Myripristis chryseres.
Pihá		24 to pound (e)	
Pilikó'a		8 to pound (e)	Paracirrhites forsteri; P. arcatus; P. cinctus.
Póopá'a		7 ounces	Dascyllus albisella; Paracirrhites cinctus.
Pooú	Wrasse-fish	1½ pounds	Cheilinus hexagonatus.
Poupou		12 to pound (e)	
Púakahála	Amber-fish		Seriola purpurascens.
Puálu	Surgeon-fish	2 pounds	Hepatus dussumieri, etc.
Puhi (generic name)	Moray	3 pounds	Gymnothorax, any species.
Puhi kápa			Echidna nebulosa.
Puhi kauila	Moray		Muræna kailuæ.
Puhi kumúone	do		
Puhi léihála	do		
Puhi laúmili	do		Echidna undulatus.
Puhi móeóné	do		
Puhi páka	do		
Puhi úha	Conger eel		Leptocephalus marginatus.
Puhi wéla	Moray		Echidna pictus?
Puuili	Half-beak		
Úhu	Wrasse-fish	2¼ pounds	Julis lepomis; Callyodon lineatus.
Úhuúla	Parrot-fish		Scarus ahula.
Uiúi	Flounder		Platophrys pantherinus.
Ukikíki	Snapper	3 ounces	Platyinius microdon.
Uku	do	5 pounds (e)	Aprion virescens.
Uláe	Lizard-fish	6 to pound (e)	Synodus varius; Saurida gracilis.
Ulaula	Snapper	2¼ pounds	Etelis marshi. Bowersia ulaula.
Ulua	Cavalla	23 pounds	Carangus latus.
Papiopio (young)	do	10 to pound (e)	Do.
Pa'upa'u	do	7 ounces	Do.
Ulua kihíkihi	Thread-fish		Alectis ciliaris.
Úmaúmalei		6 to pound (e)	
Uouóa	Mullet	½ pound	Chænomugil chaptalii.
Upapálu	Cardinal-fish	30 to pound (e)	Amia menesemas.
U'u	Squirrel-fish	4 ounces	Myripristis murdjan.
Uwau		2 to pound (e)	
Uwiwi			Stephanolepis spilosomus.
Wálu	Surgeon-fish		Hepatus xanthopterus.
Weke (generic name)	Surmullet	12 ounces	Mulloides.
Weke puéo	Goat-fish		Upeneus arge.
Weke pahúla (tail barred).	do		Do.

[a] Reputed to be very poisonous.

List of the species taken in the commercial fisheries of the Hawaiian Islands—Continued.

Native name.	Common English name.	Average weight.	Scientific name.
Fishes—Continued.			
Welea	Lizard-fish		Trachinocephalus myops.
Wolu		20 pounds (e)	
Crustacea.			
Aloalo	Prawn?	4 ounces	
Opae	Shrimp	150 to pound (e)	
Papai	Crab	2½ ounces	
Aama	do		
Alamihi	do		
Ula	Crawfish	1½ pounds	
Ulaapapa	do	1½ pounds	
Mollusca.			
Conch	Conch		Purpura aperta.
Haukeuke			
Hee	Octopus	3 pounds	
Hee puloa	do		
Puloa	do		
Ina (with short spines)	Sea-urchin	10 to pound (e)	
Leho	Cowrie		Cypræ carneola, etc.
Muhee	Squid?	7½ pounds	
Olepe	Clam	8 to pound, including shell.	Tellina rugosa.
Opihi	Limpet	60 to pound	Neritina granosa.
Oúnaúna alealee	A coiled shell	8 to pound (e)	
Pa	Pearl oyster	20 to pound, meats	Melina costellata.
Pupu	Sea-snail		Ricinula horrida.
Wana (with long spines)	Sea-urchin	4 to pound (e)	
Wi	Limpet	60 to pound	
Miscellaneous.			
Frogs		7 ounces	
Honu	Turtle	15 pounds (e)	
Ea (not edible)	do		
Kohola	Whale		
Palaoa	Sperm whale		
Limu	Algæ		
Loli	Bêche-de-mer		
Naia	Porpoise	60 pounds (e)	

GENERAL STATISTICS.

The three tables below show in a condensed form, by islands, the persons employed and nationality of same, the boats, apparatus, fish ponds, and shore and accessory property used in the fisheries, and the catch by species, together with the value of same.

Table showing by islands and nationalities the number of persons engaged in the fisheries in 1903.

Nationality.	Hawaii.	Kahoolawe.	Kauai.	Lanai.	Maui.	Molokai.	Niihau.	Oahu.	Total.
Americans	10		4						14
Chinese	16		19		6	6		197	244
Hawaiian men	314	5	223	22	114	290	12	380	1,360
Hawaiian women	77		14		54			153	298
Italians								3	3
Japanese men	406	4	54		80	4		684	1,232
Japanese women								23	23
Portuguese	4							3	7
South Sea Islanders					25			35	60
Total	827	9	314	22	279	300	12	1,478	3,241

Table showing by islands the boats, apparatus, fish ponds, and property used in 1903.

Item.	Hawaii.		Kahoolawe.		Kauai.		Lanai.		Maui.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Boats	260	$18,970	3	$225	71	$4,880	20	$2,500	94	$8,985
Apparatus:										
Seines	22	4,850	2	250	21	5,585	17	350	30	1,290
Gill nets	43	1,460	.....	.....	35	324	2	16	30	750
Bag nets	22	715	.....	.....	2	300	.....	.....	49	1,865
Cast nets	124	620	.....	.....	20	200	.....	.....	25	200
Dip and scoop nets	22	110	.....	.....	12	24	.....	.....	25	55
Lines	.....	1,226	.....	.....	.....	133	.....	50	.....	272
Baskets (fish)	.....	.....	.....	.....	.....	.....	.....	.....	38	380
Baskets (opai)	42	21	.....	.....	16	12	.....	.....	15	15
Traps or pens	.....	.....	.....	.....	13	185	.....	.....	.....	.....
Spears	95	95	.....	.....	4	8	.....	.....	31	41
Snares	4	3	.....	.....	.....	.....	.....	.....	.....	.....
Fish ponds	3	1,500	.....	.....	2	1,900	1	700	1	2,500
Shore and accessory property	.....	8,342	.....	150	.....	1,550	.....	90	.....	2,158
Total	.....	37,912	.....	625	.....	15,101	.....	3,706	.....	18,511

Item.	Molokai.		Niihau.		Oahu.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Boats	78	$6,165	10	$750	431	$38,325	967	$80,800
Apparatus:								
Seines	57	2,355	.....	.....	25	1,570	[a] 174	16,250
Gill nets	84	1,440	.....	.....	496	10,350	[b] 690	14,340
Bag nets	11	1,450	.....	.....	29	1,930	113	6,260
Cast nets	52	520	7	70	80	800	308	2,410
Dip and scoop nets	.....	.....	.....	.....	133	349	192	538
Lines	.....	50	.....	30	.....	1,182	.....	2,943
Baskets (fish)	.....	.....	.....	.....	50	500	88	880
Baskets (opai)	.....	.....	.....	.....	47	21	120	69
Traps or pens	.....	.....	.....	.....	3	1,500	16	1,685
Spears	24	24	.....	.....	56	56	210	224
Snares	.....	.....	.....	.....	.....	.....	4	3
Pots	.....	.....	.....	.....	2	20	2	20
Fish ponds	12	4,050	.....	.....	67	154,900	86	165,550
Shore and accessory property	.....	1,100	.....	20	.....	3,835	.....	17,245
Total	.....	17,154	.....	870	.....	215,338	.....	309,217

[a] 15,859 yards. [b] 44,467 yards.

Table showing by islands and species

Species.	Hawaii.		Kahoolawe.		Kauai.		Lanai.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'alaihi	15,611	$156						
A'awa, fresh	3,255	433					300	$108
A'awa, dried								
Ahaáha	1,371	69					40	4
Ahi	58,205	2,386			2,750	$175		
Aholehóle	3,900	342			1,013	104	50	5
Aku, fresh	118,170	4,727			11,420	1,144	1,366	55
Aku, dried	48,000	1,920						
Akule, fresh	482,369	23,858	18,000	$1,080	103,116	6,482	41,483	1,141
Akule, dried	20,500	1,105						
Ama-ama	3,608	732			123,058	11,982	10,075	1,612
Auau	1,068	22						
A'uku	1,000	40						
Awa	756	84			6,360	464	500	40
Awa-awa	316	31			2,390	207	212	25
Awela	175	18						
Aweoweo	1,879	120					90	10
Carp					3,100	186		
China-fish								
Gold-fish								
Ea, dried								
Ehu					1,200	116		
Hapú'upú'u	781	127					1,250	167
Haúliúli, fresh	11,600	928					220	22
Haúliúli, dried	9,100	455						
Hihimánu	1,560	126			260	19	120	6
Hilu	88	5					100	8
Hínaléa	889	45						
Húmuhúmu	9,338	278			1,035	100	2,178	109
Iheihe	5,304	798			7,100	1,775	55	13
I'i								
I'iáo	900	14					3,750	60
Kahála	24,040	1,202					6,000	405
Káku	36	3			1,050	79	40	2
Kála, fresh	333	28			1,706	152	190	15
Kála, dried								
Kálekále	13,316	1,332					425	43
Kananio							100	5
Káwakáwa	56,037	2,932			5,255	419	4,100	523
Kawelea	5,406	892						
Kihikihi								
Kóle	209	20						
Kumu	3,033	399	500	50	2,900	280	300	49
Kupipi	67	6						
Kupóupóu							50	13
Laenihi	543	4	2,000	100			5,000	500
Laè	4,220	253					100	3
Laipála								
Lauhu	1,785	89						
Lupe	5,350	321						
Máhimáhi	18,599	1,488					1,476	81
Maii'i	32	4					20	2
Maíkoíko	143	11						
Maka'a								
Malámaláma							40	2
Malolo	618	155						
Mamámo								
Manini	4,183	337						
Mano	4,997	111			640	38	120	12
Maumau								
Mikiáwa	25	3			170	13		
Moáno	66,280	7,954	200	10			2,088	501
Moelua							164	16
Moi	6,779	1,085	6,100	183	22,326	2,752	5,600	660
Mu	24	2	200	28			125	30
Nehu	1,030	16					8,750	158
Nenue	496	79			2,225	190		
Nóhu	1,644	164						
Nunu	245	9						
Ohua								
O'lilepa								
Olo	48,179	7,709			25,570	2,372	420	32
Olali								
Omakaha	1,378	413						
Omilu								
Ono	13,968	698					2,700	1,080
Oópu					11,250	1,430		
Oópuhúe	285	57						
Oópukái	1,054	53						
Opakapaka					600	140	2,908	291
Opélu, fresh	33,792	6,084			850	60		

the yield of the fisheries in 1903.

Maui.		Molokai.		Niihau.		Oahu.		Total.	
Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
3,346	$261	2,200	$176	.....	.....	10,661	$855	31,818	$1,448
2,196	659	900	325	100	$10	6,051	908	12,802	2,443
.....	.....	.....	.....	300	30	.....	.....	300	30
1,280	64	.....	.....	.....	.....	4,609	369	7,300	506
30	2	200	10	.....	.....	92,130	7,270	153,315	9,843
10,450	547	1,600	144	.....	.....	16,944	1,346	33,957	2,488
57,978	2,174	18,000	675	3,600	360	501,914	20,077	712,448	29,212
.....	.....	.....	.....	1,000	100	.....	.....	49,000	2,020
267,882	6,000	73,328	1,930	.....	.....	404,051	33,862	1,390,229	74,353
.....	.....	.....	.....	.....	.....	.....	.....	20,500	1,105
40,008	7,857	57,661	14,415	3,100	310	477,195	95,439	714,705	132,347
272	20	.....	.....	.....	.....	232	23	1,572	65
200	24	.....	.....	.....	.....	.....	.....	1,200	64
8,888	1,722	3,800	308	.....	.....	282,111	28,416	302,415	31,034
1,936	430	200	24	.....	.....	41,358	12,407	46,412	13,124
.....	.....	.....	.....	.....	.....	162	16	337	34
10,449	801	900	104	.....	.....	51,021	3,571	64,339	4,609
.....	.....	.....	.....	.....	.....	400	32	3,500	218
.....	.....	.....	.....	.....	.....	1,090	323	1,090	323
5,443	272	.....	.....	.....	.....	8,042	659	13,485	931
.....	.....	.....	.....	600	60	.....	.....	600	60
.....	.....	.....	.....	.....	.....	.....	.....	1,200	116
5,372	716	600	80	.....	.....	64,245	8,352	72,248	9,442
1,335	168	.....	.....	.....	.....	.....	.....	13,155	1,118
.....	.....	.....	.....	.....	.....	.....	.....	9,100	455
835	209	.....	.....	.....	.....	3,725	149	6,500	509
5,843	390	100	8	.....	.....	3,220	129	9,351	540
10,407	591	1,900	380	.....	.....	8,147	325	21,343	1,341
9,636	482	8,100	405	.....	.....	8,030	241	38,317	1,615
2,473	594	4,300	892	.....	.....	30,717	3,686	49,949	7,758
600	60	.....	.....	.....	.....	.....	.....	600	60
6,750	107	.....	.....	.....	.....	.....	.....	11,400	181
19,989	345	1,200	69	.....	.....	34,144	1,405	85,373	3,426
2,900	363	.....	.....	.....	.....	7,246	870	11,272	1,317
3,466	227	6,200	496	200	20	31,041	2,070	43,136	3,008
.....	.....	.....	.....	400	40	.....	.....	400	40
223	17	75	8	.....	.....	155	8	14,194	1,408
212	21	.....	.....	.....	.....	.....	.....	312	26
32,468	5,084	6,300	803	.....	.....	61,554	15,388	165,714	25,149
489	150	80	40	.....	.....	1,185	178	7,160	1,260
.....	.....	.....	.....	.....	.....	92	5	92	5
28,000	224	.....	.....	.....	.....	73	29	28,282	273
6,779	1,076	13,050	2,137	.....	.....	70,045	14,615	96,607	18,606
78	1	.....	.....	.....	.....	112	14	257	21
1,527	382	290	73	.....	.....	155	31	2,022	499
6,897	218	250	25	.....	.....	18,190	1,819	32,880	2,666
11,132	888	1,100	38	.....	.....	4,927	392	21,479	1,574
1,730	311	.....	.....	.....	.....	.....	.....	1,730	311
724	85	1,200	72	.....	.....	174	22	3,883	268
.....	.....	.....	.....	.....	.....	.....	.....	5,350	321
10,678	508	700	39	.....	.....	33,138	5,965	64,591	8,081
1,565	188	.....	.....	.....	.....	4,060	365	5,677	559
.....	.....	100	6	.....	.....	1,159	70	1,402	87
.....	.....	.....	.....	.....	.....	301	120	301	120
12	1	.....	.....	.....	.....	.....	.....	52	3
.....	.....	650	33	.....	.....	34,907	3,490	36,175	3,678
175	8	.....	.....	.....	.....	969	97	1,144	105
2,230	139	4,700	376	.....	.....	24,000	1,928	35,113	2,780
865	30	300	60	.....	.....	9,300	93	16,222	344
400	72	.....	.....	.....	.....	.....	.....	400	72
300	30	.....	.....	.....	.....	2,188	106	2,683	152
23,412	3,478	4,700	1,128	.....	.....	55,290	4,976	151,970	18,047
592	148	.....	.....	.....	.....	.....	.....	756	164
8,723	1,051	195	23	1,000	150	58,996	1,770	109,719	7,674
147	15	25	6	.....	.....	226	7	747	88
98,650	1,817	750	14	.....	.....	.....	.....	109,180	2,005
48,060	7,185	.....	.....	.....	.....	2,851	713	53,632	8,167
520	26	500	125	.....	.....	1,770	230	4,434	545
802	64	2,100	140	.....	.....	9,105	455	12,252	668
300	75	.....	.....	.....	.....	.....	.....	300	75
56	7	.....	.....	.....	.....	.....	.....	56	7
92,160	27,498	16,200	1,215	5,000	500	22,683	2,896	210,212	42,222
600	60	820	82	.....	.....	.....	.....	1,420	142
.....	.....	.....	.....	.....	.....	1,609	290	2,987	703
.....	.....	.....	.....	.....	.....	18,430	1,474	18,430	1,474
10,520	421	600	25	.....	.....	16,450	1,452	44,238	3,676
14,742	470	.....	.....	.....	.....	11,313	975	37,305	2,875
.....	.....	.....	.....	.....	.....	.....	.....	285	57
105	8	150	20	.....	.....	.....	.....	1,309	81
9,434	2,358	.....	.....	.....	.....	7,612	813	20,554	3,602
104,948	15,742	1,300	156	.....	.....	131,846	15,822	272,736	37,864

Table showing by islands and species

Species.	Hawaii.		Kahoolawe.		Kauai.		Lanai.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Opélu, dried	5,000	$200						
Opule	349	35					80	$40
Páka	3,008	250						
Pakaikawale								
Pakii	8,590	859						
Paláni	510	21						
Panuhúnuhú	71	18					144	22
Páopáo							70	21
Pauú	7	2						
Pihá							2,500	40
Póopá'a	697	56					242	24
Pooú	951	159					182	22
Poupou								
Puálu	1,122	56	100	$5			170	22
Puhi	26,497	2,119			625	$55	300	45
Úhu	1,653	138						
Úku	3,475	695			1,400	140	7,000	1,505
Ukikiki							82	8
Ulae	30	2					80	8
Ulaula, fresh	17,308	4,842			8,100	790	590	295
Ulaula, dried								
Ulua, fresh	151,051	12,277			23,477	2,197	15,786	1,054
Ulua, dried								
Úmaúmalei	42	12					190	38
Uouóa	588	59						
Upapálu	1,196	179					20	2
U'u	19,944	1,033					258	23
Uwau	53	11						
Wálu							300	45
Weke	4,462	295			440	44		
Welea								
Conch								
Frogs	2,400	500						
Hee, fresh	14,836	2,195			600	75		
Hee, dried	7,000	914			1,200	150		
Honu	475	24			350	16		
Ina								
Leho	50	3						
Limu	1,425	156			1,710	212		
Loli	200	20						
Muhee							70	35
Olepe								
Opae	1,573	189			1,500	140		
Opihi	587	66			600	120		
Papai	3,971	238					100	12
Pupu								
Ula	6,326	646						
Wana	1,458	146						
Wi	20	2			600	120		
Total	1,404,794	101,149	27,100	1,456	377,946	34,738	130,669	11,069

the yield of the fisheries in 1903—Continued.

Maui.		Molokai.		Niihau.		Oahu.		Total.	
Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
								5,000	$200
1,315	$658	750	$375			1,821	$291	4,315	1,399
1,500	125	555	46					5,063	421
1,000	200							1,000	200
3,618	1,345	2,250	1,050			1,006	100	15,464	3,354
1,785	109	5,500	315			10,376	779	18,171	1,224
514	130							729	170
543	18	800	240					1,413	279
								7	2
5,600	88							8,100	128
727	18					7,380	443	9,046	541
545	50					600	24	2,278	255
200	20							200	20
356	38	200	25			38,600	2,895	40,548	3,041
12,242	2,027	3,700	577			22,915	1,046	66,279	5,869
24	2	4,200	700			24,884	3,980	30,761	4,820
29,892	6,405	1,000	215	2,900	$290	8,997	2,699	54,664	11,949
								82	8
991	11					1,082	64	2,183	85
614	129	1,100	550	800	80	7,951	3,975	36,463	10,661
				1,000	100			1,000	100
96,646	6,046	10,600	636	3,000	300	155,000	11,100	455,560	33,610
				6,200	620			6,200	620
80	8	100	20			458	36	870	114
						10	1	598	60
500	75	113	11			1,587	476	3,416	743
3,297	150	444	36			98,000	7,840	121,943	9,082
								53	11
3,080	168							3,380	213
3,017	169	1,930	120	400	40	110,000	8,200	120,249	8,868
9,760	1,504	510	128					10,270	1,632
430	108							430	108
								2,400	500
17,018	2,407	2,300	150			56,522	3,321	91,276	8,148
								8,200	1,064
440	17	250	8			2,520	378	4,035	443
1,100	110					3,000	360	4,100	470
900	225							950	228
1,525	381					41,000	1,025	45,660	1,774
300	75							500	95
47	24	105	13			96	48	318	120
						300	24	300	24
2,700	324					6,825	1,248	12,598	1,901
1,646	411					70,200	10,530	73,033	11,127
926	67	200	24			75,077	5,225	80,274	5,566
175	35							175	35
3,573	1,070	400	65			71,115	7,475	81,414	9,256
3,600	576					5,177	828	10,235	1,550
								620	122
1,212,445	120,267	274,331	32,389	29,600	3,010	3,515,850	373,819	6,972,735	677,897

Hawaiians are in the lead in the industry, 1,658 being so engaged. The Japanese are second with 1,255, followed by the Chinese with 244. South Sea Islanders, Americans, Portuguese, and Italians follow in the order named. The island of Oahu leads in the number of fishermen, with 1,478, Hawaii is second with 827, followed by Kauai, Molokai, Maui, Lanai, Niihau, and Kahoolawe, respectively.

The total investment in the fisheries amounted to $309,217. Of this Oahu has $215,338, or more than two-thirds of the total investment. Hawaii is second with $37,912. Oahu leads in the number of gill nets, dip and scoop nets, baskets, and fish ponds operated; Hawaii in the number of cast nets, spears, and in the value of lines; Kauai in the number of traps or pens; Maui in the number of bag nets, and Molokai in the number of seines.

The total catch in the islands was 6,972,735 pounds, valued at $677,897. Of this Oahu furnished 3,515,850 pounds, worth $373,819, or more than one-half of the grand total. Hawaii was second so far as quantity is concerned, but was exceeded in value of catch by Maiu. Kauai was third, followed by Molokai, Lanai, Niihau, and Kahoolawe.

So far as quantity is concerned, the akule was the most important species, 1,410,729 pounds, valued at $75,458, having been secured. The ama-ama had the greater value, however, the 714,705 pounds of that fish being worth $132,347. Aku was second in quantity and sixth in value of catch, with 761,448 pounds, worth $31,232. Other important species were ulua, awa, opélu, oío, káwakáwa, ahi, kumu, moi, awaawa, hapú'upú'u, u'u, weke, opihi, hee, papai, and ula.

The only species occurring in the commercial fisheries of all the islands is the moi. The ama-ama, kála, oío, úku, ulaula, and ulua occur in all but Kahoolawe, while the akule and kumu occur in all but Niihau. The china fish, kihikihi, maka'a, omilu, and olepe occur only in the fisheries of Oahu; the i'i, laípala, maumau, ohua, o'ílilepa, pakaikawale, poupou, conch, and pupu only in Maui; the lupe, oópuhue, pauú, uwau, and frogs only in Hawaii; the ea only in Niihau; the ehu only in Kauai, and the úkikíki only in Lanai.

COMPARISONS WITH 1900.

The table below presents a comparison of the extent of the fisheries in 1900 and in 1903. All of the islands except Lanai and Maui show increases in the number of persons employed, the gain in Molokai alone being 134 per cent. The net increase in persons employed on all the islands is 896, a gain of 38 per cent. In the matter of capital invested every island shows an increase, that of Niihau alone being 170 per cent. The net increase of capital is $36,626, or 13 per cent. All the islands but Kauai, Lanai, and Molokai show increases in quantity of products taken; the decreases in Lanai and Molokai are quite heavy, being 38 per cent in Lanai and 27 per cent in Molokai; Oahu

shows an increase of 28 per cent. The net increase in quantity is 750,280 pounds, or 12 per cent. In value of products secured there is a decrease reported from every island. (As Kahoolawe had no commercial fisheries in 1900, there are not figures for comparison.) These decreases are considerable in each case, the lowest being in Hawaii, 26 per cent. The net decrease in value amounted to $405,749, or 37 per cent. For some years preceding 1901 the islands had been enjoying a boom, owing to the high prices realized for sugar, the dominant crop, and as a result the prices of everything else, fish included, rose exceedingly high. From 1900 to 1904, however, the price of sugar steadily declined, causing financial distress in every quarter, and curtailing very materially the purchasing power of the people. As a result the prices of the necessaries of life, particularly fish, have fallen to a point more nearly consonant with those prevailing on the mainland.

The prices of fishery products in 1900 were extremely high, and are still much above the normal. In the New England States in 1898 the average price per pound received by the fishermen for all kinds of fishery products was about 2.5 cents; in the Middle Atlantic States in the year 1901, about 2.1 cents; in the Gulf States in the year 1902 about 3 cents; in the Pacific Coast States in the year 1899 about 3 cents; and in the Hawaiian Islands in the year 1900 about 17.5 cents. In 1903 the average price had dropped to about 10 cents per pound. If the prices are not sustained by monopolistic combinations, as is the case at present in certain markets of the islands, they will drop even lower and thus bring fish into more general use as an article of diet.

Comparative table showing the extent of the fisheries of the Hawaiian Islands in 1900 and 1903.

PERSONS ENGAGED

Island.	1900.	1903.	Increase (+) or decrease (−).	Percentage of increase (+) or decrease (−).
Hawaii	549	827	+278	+ 50.64
Kahoolawe	.....	9	+ 9	+100.00
Kauai	207	314	+107	+ 51.69
Lanai	46	22	− 24	− 52.17
Maui	297	279	− 18	− 6.40
Molokai	128	300	+172	+134.38
Niihau	12	12	.....	.....
Oahu	1,106	1,478	+372	+ 33.63
Total	2,345	3,241	+896	+ 38.21

CAPITAL INVESTED.

Hawaii	$25,172	$37,912	+$12,740	+ 50.61
Kahoolawe	.....	625	+ 625	+100.00
Kauai	10,764	15,101	+ 4,337	+ 40.29
Lanai	3,478	3,706	+ 228	+ 65.55
Maui	15,171	18,511	+ 3,340	+ 22.02
Molokai	17,140	17,154	+ 14	+ .08
Niihau	322	870	+ 548	+170.19
Oahu	200,544	215,338	+ 14,794	+ 7.38
Total	272,591	309,217	+ 36,626	+ 13.44

Comparative table showing the extent of the fisheries of the Hawaiian Islands in 1900 and 1903—Continued.

PRODUCTS.

Island.	1900.	1903.	Increase (+) or decrease (−).	Percentage of increase (+) or decrease (−).
	Pounds.	*Pounds.*	*Pounds.*	
Hawaii	1,304,311	1,404,794	+100,483	+ 7.70
Kahoolawe	.....	27,100	+ 27,100	+100.00
Kauai	403,521	377,946	− 25,575	− 6.34
Lanai	212,628	130,669	− 81,959	− 38.55
Maui	1,159,117	1,212,445	+ 53,328	+ 4.61
Molokai	376,256	274,331	−101,924	− 27.19
Niihau	29,525	29,600	+ 75	+ .03
Oahu	2,737,198	3,515,850	+778,652	+ 28.45
Total	6,222,455	6,972,735	+750,280	+ 12.05

VALUE OF PRODUCTS.

Hawaii	$137,734	$101,149	−$36,585	− 26.56
Kahoolawe	.....	1,456	+ 1,456	+100.00
Kauai	89,993	34,738	− 55,255	− 61.40
Lanai	29,853	11,069	− 18,784	− 62.92
Maui	190,929	120,267	− 70,662	− 37.01
Molokai	67,599	32,389	− 35,210	− 52.09
Niihau	5,623	3,010	− 2,613	− 46.47
Oahu	561,915	373,819	−188,096	− 33.47
Total	1,083,646	677,897	−405,749	− 37.44

IMPORTATION OF FISHERY PRODUCTS.

With the exception of a small portion of the white population, the inhabitants of the Hawaiian Islands are great consumers of fishery products. The domestic fisheries at present are totally inadequate to the demand, and as a result enormous quantities of fresh, canned, salted, smoked, dried, and pickled fishery products are imported each year. Owing to the unusual admixture of races, the imports are very diverse. Dried abalone, cuttlefish, oysters, seaweed, and shrimp are consumed by the Japanese and Chinese; dried and salted cod, haddock, hake, and pollock by the Portuguese and Porto Ricans, and salmon by the whites and natives.

The United States has always furnished more goods than any other country, but since the annexation of the islands, June 14, 1900, this has become domestic traffic, and, no records having been kept at the custom-house of the receipts from the mainland, it is impossible to show in figures the immense preponderance of this part of the trade. According to official data, during 1897, 1898, and 1899 the United States furnished almost two-thirds of the imports, and, judging from the statements of importers and others well informed, this proportion has been very radically increased since the annexation. As the United States tariff law replaced that of the late Hawaiian Republic, and was higher than the latter, foreign products were under a greater disadvantage in competing with goods from the mainland than was the case under the provisions of the reciprocity treaty.

The table below shows, by countries, the importation of fishery products during the calendar years 1901, 1902, and 1903. Japan has been rapidly forging to the front in this trade, which is not surprising when one considers the rapid increase in the number of Japanese on the islands during recent years. In 1897 the total importations from Japan amounted to $11,242; in 1898, to $14,382; in 1899, to $30,862; in 1901, to $53,596; in 1902, to $54,110, and in 1903, to $67,249. In the latter year the Japanese trade amounted to more than one-half that of all foreign countries. China is now in second place, although for a long time its trade exceeded that of Japan. In 1897 the total imports from China amounted to $24,674, while in 1903 they amounted to $18,081. A considerable part of this Japanese and Chinese trade could be secured by the islands and on the Pacific coast if efforts were made to prepare the peculiar products of which these two nationalities are especially fond, such as dried abalone, bêche-de-mer, oysters, cuttle-fish, shrimp, and seaweed. A beginning has already been made in this direction in both sections, and it is very probable that the industry will soon be materially extended. Nova Scotia, British Australasia, Germany, Belgium, British Oceania, England, Portugal, Scotland, and Norway, in the order named, follow in importance of their fishery trade.

Table showing by countries the imports of fishery products during the calendar years 1901, 1902, and 1903.

Country and product.	1901.		1902.		1903.	
	Number.	Value.	Number.	Value.	Number.	Value.
Belgium:						
Anchovies and sardines	.....	.....	.....	$1,351	.....	$647
Fish, pickled and preserved	.....	.....	.....	51	.....	.....
Total	.....	.....	.....	1,402	.....	647
British Australasia:						
Fish, cured and preserved	.....	$3,663	.....	2,201	.....	1,930
Shells, unmanufactured	.....	13	.....	.....	.....	.....
Shell and mother-of-pearl, manufactures of	.....	.....	.....	.....	.....	1,662
Tolal	.....	3,676	.....	2,201	.....	3,592
British Columbia:						
Fish (except salmon)—						
Fresh	.....	281	.....	38	.....	.....
Pickled	.....	50	.....	493	.....	102
Herring, pickled or salted.....pounds..	750	20	2,400	114	.....	.....
Salmon—						
Fresh.....do....	4,453	227	427	20	.....	.....
Pickled.....do....	1,600	59	3,100	186	.....	.....
Total	.....	637	.....	851	.....	102
British East Indies:						
Shrimp and other shellfish and turtles	.....	.....	.....	909	.....	.....
British Oceania:						
Shells, unmanufactured	.....	3	.....	.....	.....	20
Shell and mother-of-pearl, manufactures of	.....	.....	.....	.....	.....	534
Total	.....	3	.....	.....	.....	554

Table showing by countries the imports of fishery products during the calendar yea
1901, 1902, and 1903—Continued.

Country and product.	1901.		1902.		1903.	
	Number.	Value.	Number.	Value.	Number.	V
England:						
Anchovies and sardines		$2,506				
Fish, cured and preserved		986		$345		
Total		3,492		345		
Germany:						
Anchovies and sardines		3,937		2,249		
Fish—						
Cured and preserved		21		476		
Pickled		660				
Shell and mother-of-pearl, manufactures of						
Total		4,618		2,725		
Hongkong [China]:						
Anchovies and sardines		7		154		
Fish (except salmon), fresh		42		258		
Fish, cured and preserved		18,212		11,022		
Herring, pickled ....pounds..			150	3		
Oil, whale and fish....gallons..	27	8	24	4		
Shells, unmanufactured						
Shrimp, other shellfish, and turtles				5,889		
Total		18,269		17,330		
Japan:						
Anchovies and sardines		2				
Cod, haddock, hake, and pollock, salted, pounds			270	9		
Fish—						
Fresh		65				
Cured and preserved		53,528		48,693		
Herring, smoked....pounds..					105	
Mackerel, pickled....do....					765	
Salmon, pickled....do....			606	28	1,760	
Oil, whale and fish....gallons..			4	2		
Shells, unmanufactured		1		4		
Shell and mother-of-pearl, manufactures of						
Shrimp, other shellfish, and turtles				5,374		
Total		53,596		54,110		
Norway:						
Fish, pickled and preserved						
Nova Scotia:						
Anchovies and sardines		3				
Cod, haddock, hake, and pollock, dried, salted, smoked, and pickled....pounds..	156,800	6,630	156,800	6,343	112,000	
Herring, pickled or salted....do....	300	16				
Mackerel, pickled or salted ....do....	850	68				
Salmon, pickled or salted ....do....	570	48				
Total		6,765		6,343		
Portugal:						
Anchovies and sardines				474		
Scotland:						
Fish, pickled and preserved						
Samoa:						
Shells, unmanufactued		10				

The following table shows the fishery products imported int
islands during the calendar years 1901, 1902, and 1903, and ind
a progressive increase over former years for which data are avai
In 1897, 1898, and 1899 the total foreign imports (exclusive of
from the United States) amounted to $49,688, $55,405, and $7
respectively; in 1901 they were $91,066, in 1902 $86,690, and i
$97,305. Fish cured and preserved (mainly dried fish from J

forms more than one-half of the total. Shrimp and other shellfish (mainly dried shrimp, oysters, and abalone from Japan and China), and turtles occupy second place, while cured cod, haddock, hake, and pollock are third. There has been considerable falling off in the imports of anchovies and sardines, while imports of canned mullets have ceased altogether, the latter not being able to compete with the cheaper grades of canned salmon from the United States since the annexation of the islands:

Table showing the imports of fishery products during the calendar years 1901, 1902, and 1903.

Product.	1901.		1902.		1903.	
	Number.	Value.	Number.	Value.	Number.	Value.
Anchovies and sardines	.....	$6,455	.....	$4,228	.....	$2,876
Cod, haddock, hake, and pollock, dried, salted, smoked, and pickled ....pounds..	156,800	6,630	157,070	6,352	112,000	4,600
Fish, cured and preserved	.....	76,410	.....	62,737	.....	55,562
Fish, (except salmon):						
Fresh	.....	388	.....	296	.....	.....
Pickled and preserved	.....	710	.....	544	.....	241
Herring:						
Pickled or salted ....pounds..	1,050	36	2,550	117	.....	.....
Smoked ....do....	.....	.....	.....	.....	105	4
Mackerel:						
Pickled or salted ....do....	850	68	.....	.....	765	21
Salmon:						
Fresh ....do....	4,453	227	427	20	.....	.....
Pickled or salted ....do....	2,170	107	3,706	214	1,760	70
Oil, whale and fish ....gallons..	27	8	28	6	.....	.....
Shell and mother-of-pearl, manufacturers of	.....	.....	.....	.....	.....	2,245
Shells, unmanufactured	.....	27	.....	4	.....	27
Shrimp, other shellfish, and turtles	.....	.....	.....	12,172	.....	31,659
Total	.....	91,066	.....	86,690	.....	97,305

EXPORTATION OF FISHERY PRODUCTS.

Owing to the immense domestic demand the islands have exported but little. Occasional lots of bêche-de-mer, sharks' fins, and gold-fish (for ornamental purposes) have been exported in the past, but not during the last few years. The table below shows the exports by countries for the calendar years 1901, 1902, and 1903. A record was kept at the custom-house of the exports to the mainland, and these have been included. Little, if any, of these exports were of domestic origin, but consisted mainly of transshipments and goods reshipped to the country of origin.

Table showing by countries the exports of fishery products during the calendar years 1901, 1902, and 1903.

Country and product.	1901.		1902.		1903.	
	Number.	Value.	Number.	Value.	Number.	Value.
British Australasia:						
Mackerel ..... pounds..	.....	.....	10	$3	.....	.....
Shells	.....	.....	.....	.....	.....	$56
Total	.....	.....	10	3	.....	56
British Columbia:						
Shellfish	.....	.....	.....	13	.....	.....
British Oceania:						
Salmon, canned	.....	.....	.....	.....	48	7
Hongkong:						
Fish	.....	.....	.....	.....	.....	80
Japan:						
Fish	.....	.....	.....	.....	.....	36
Shellfish	.....	.....	.....	.....	.....	42
Total	.....	.....	.....	.....	.....	78
United States (mainland):						
Caviar	.....	.....	.....	30	.....	65
Fish, dried, etc ..... pounds..	710	$74	.....	201	.....	78
Herring ..... do....	.....	.....	2,900	171	.....	.....
Salmon, canned	.....	.....	23,120	1,218	.....	3,714
Salmon	.....	44	.....	.....	.....	18
Shellfish	.....	75	.....	28	.....	188
Shells	.....	27	.....	.....	.....	45
Total	.....	220	.....	1,648	.....	4,208

THE FISH MARKETS AND THE FISH TRADE.

During 1903 there were 7 fish markets in operation on the various islands, 2 each at Honolulu (Oahu) and Hilo (Hawaii) and 3 at Lahaina (Maui). Since then several new markets have been opened in Honolulu, and the latter city is rapidly becoming one of the important fishery centers of the country. In the sections not accessible to the markets the people are supplied by peddlers, who carry their fish in small carts or on the backs of asses. Despite the rapid extension of this branch of the business during the last four years there is still great room for improvement, as many sections are without the opportunity of purchasing fresh fish, while others but rarely receive visits from the peddlers. A more strict supervision should be exercised over these peddlers, for they undoubtedly often sell stale and tainted fish.

HILO, HAWAII.

The retail market house at this place was quite fully described in a previous report. In August, 1901, an official fish inspector was appointed, a want which had long been felt because of the large quantities of tainted fish which the dealers had foisted upon the people. During the year 1903 there were employed in and around this market 23 Japanese and 4 Chinese.

Owing to the heavy surf in the vicinity of the market house, fishing-boats find it impossible to land here with their catch, and for some

years they made a landing on the beach at Waiakea, a suburb of Hilo and about 1½ miles from the center of the town. The dealers would gather on the beach at this place, and as fast as the boats arrived buy the fish and carry them to the market house. The conduct of this important part of the business in the open air was very trying at times, and eventually Messrs. Guard & Lucas, of Hilo, secured the necessary permit from the board of health and erected a small market house just inside the mouth of Waiakea River. This market house, with the land upon which it is located, cost $6,500, and was opened in August, 1902. The same people operate here and at the other market, as the principal part of the business is the buying of fish from the fishermen. As soon as a fishing-boat lands at the small wharf in front of the market the fish are brought in and dumped into one of the numerous bins scattered around the room. After being inspected they are looked over by the buyers, and when purchased are at once removed to make way for the next lot. A small commission on each sale is collected by the market owners. This market is also allowed to sell at retail, but this part of the business is insignificant, the town market proving the best retail selling place.

An inspector is in charge of both markets, and he has also an assistant at the Waiakea market. These men are supposed to inspect all fish before they are sold, and have the power to condemn any which they may consider unfit for food.

In order that the plantations along the railroad may be supplied with fish, the inspector permits a few of the more responsible dealers to carry fish from the Waiakea market and peddle them out to the people living on such plantations, who otherwise would be unable to get fish without making a special trip to Hilo for the purpose.

The tables given below show by months the number of each species of fish inspected in the markets of Hilo during the calendar years 1902, 1903, and 1904, inclusive. These are taken from the reports of the government inspector. One of the most interesting features of these tables is the possibility they afford of tracing the waxing and waning of the seasons of the migratory fishes, and the radical changes which sometimes occur among those apparently living permanently in Hawaiian waters. The figures on the mollusca, crustacea, etc., are far from complete, but the few data obtained have been shown in the tables.

Fish inspected in the Hilo market in 1902, 1903, and 1904.

1902.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
A'awa							541	283	4	97	1,116	
Ahi	16	1				3	7	91	56	91		
Ahólehóle	847	1,116	939	753	3,034	1,341	1,280	350	236	17	1,430	368
Aku					303	2,795	1,629	589	178	1		
Akule	15,003	3,790	2,150	22,142	32,595	70,915	66,865	7,919	943	3,513	1,779	667
Alaihi							159	127			561	
Anae	912	1,326	1,618	400	2,523	2,112	609	2,956	1,152	4,016	2,215	721
A'u	1											
Auau										5		
Awa	182	70	35	161	1,077		7	6			117	
Awela	7											
Aweoweo	426	83	16	322	1,023		211	569	151	176	628	198
Hahalalu	17,598	6,209	1,074	11,027	35,437	44,641	35,321	61,115	74,873	65,746	129,662	41,764
Hee (octopus)	34	6		12	10	3	33		39	3	32	29
Hilu							11					
Hinaléa							872		478	22		
Honu (turtle)		1							1			
Húmuhúmu	159	44		76	612	611	595	321	386	72	357	
Iheihe							85					
Kahála							46		4	3		
Káku												33
Kála	24						12	8	8		36	
Kalekale	563	52	36	465	1,454	637	641	445	2,316	919	585	181
Káwakáwa							21		2,605	4,343		
Kawelea	92	25			240	406	157	162	643	166	182	163
Kihikihi									2			
Koá'e	200	9						20				
Kumu	160	56	20	150	758	57	144	112	29	84	316	64
Kupipi						45			1			
Lae	16	7	2	22	271	2,108	42	60		8	267	87
Laenihi	48	33			441	71	78	16	21		109	
Lupe									1			
Mahi										2		174
Máhimáhi	26	1					5			58	33	
Maikoiko	249	113	171	155	236	337	196	867	22	164	1,778	243
Manena							9	12	108			
Manini	241	116	184	301	686	552	777	1,236	3	156	420	412
Mano	18	9	23	40	45	43	117	126	152	137	192	223
Manononi				100					137		305	
Moano	1,276	684	100	2,588	1,933	848	3,125	2,061	3,053	693	971	319
Moi	453		136	480	2,939	1,744	1,367	372	483	28	2,007	92
Mu							7					
Muhee (squid)												
Nenue	70	3										
		5	16	7	32		70					

Nóhu	7	4	9		12	12	42	44	13	4	34	2
Nukumomi	140	279	295	1,372	471		123	79	82			16
Nunu				16				6				
Oio	132	45	60	187			190	650	816	95	1,320	
Ono							6		3			
Omakaha	429	30	93							52		
Oópu	567	400	3,469	1,400	4,000	4,931	3,344	2,620	87	192	4,386	1,644
Oópukái		13		32	41							
Opélu	2,389	918	360	1,270	2,099	355	662	458	847	136,201	49,192	1,541
Opule	9							432	1		232	
Páka	178	46	13	735	456	336	177	586	41	199	683	212
Paláni				18			11	28				
Panuhúnuhú									3			
Papai (crab)	391			60	1,469	3,146	2,694	1,448	2,063	1,125	2,876	95
Papiopioulua	240	231	79	924	392				18,502	61		
Pooú		6					67		43	8		
Puhi	24	7	3	21	34	42	37	57	39	43	62	88
Úhu				9	186	386	27	16	16	17	70	9
Uku	32				96	14	18	95		83	131	48
Ula (crawfish)	96	36	54	50			14	25	26	253	91	78
Uláe	107	49	10	90	138		90	164		67	156	82
Ulaula	363	129	41	452	922	430	439	635	658	163		55
Ulua		37	12	20	22	65	94	103	58	321	186	544
Uouoa							39		291	67		
Uu	85	40	54	61	600	337	338	268	477	420	287	
Wana (sea urchin)							177		80	16		132
Weke	191	341	90	965	1,388	1,968	828	614	242	171	870	126
Fish condemned	156	139	0	0	0	709	901	159	116	2,235	2,373	124

1903.

A'alaihi	17	2	11			19	3	29	47	11	10	9
A'awa	201	75	633	213	551	185	83	906	159	258	446	630
Aha							3	317	265	1		
Ahaáha			41								460	11
Ahi	162	51	75	35	116	78	31	188	53	50	31	272
Ahólehóle	1,017	3,964	2,790	5,415	2,481	999	727	116	66	251	959	633
Aku	5				1	418	870	272	2	43	449	577
Akule	10,368	2,630	46,975	20,280	31,928	5,929	8,167	6,031	2,356	3,539	9,596	17,928
Alalaua											268	
Ama-ama	849	1,627	557	2,205	1,078	1,256	664	250		292	1,134	259
Au	3			1	1	3						
Auau	79	4	119	6	54	5						
Awa	2	6		12	4	8		7	2	1		
Awa-awa										22		
Awela				1								
Aweoweo	150	36	185	441	339	100	19	106	78	242	286	167
China-fish										1		
Hahalalu	3,521	6,469	6,613	2,653	4,013	206	2,578	36,607	21,407	88,481	5,464	3,533

Fish inspected in the Hilo market in 1902, 1903, and 1904—Continued.

1903—Continued.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Hapú'upú'u			1		4	2		4	7	3	5	
Hee (octopus)	30	12	33	17	32	44	46	90	103	42	42	91
Hihimanu				1			1	2	2	207		
Hiloa		1										
Hilu				5	10	4	5	1				
Hínaléa	138	16	183	394	599	354	182	453	63	114	230	119
Holu				1								
Honu (turtle)						1						
Húmuhúmu	97	22	193	107	243	90	49	343	37	168	143	155
Iheihe		125	156	260	228	25	6	4	1	11		
Kahála	3	25	99	86	43	24	14	4	5	5	2	8
Kaioakawa			17									
Káku					1	2	1	1	2	2		
Kála	2	32	3	11	17	5	3	21	7	10		4
Kalekale	472	215	992	1,438	2,446	954	1,142	2,047	586	1,837	1,231	2,095
Kaoe		9										
Káwakáwa	37			24	58	7	9	235	25	83		39
Kawelea	196	32	331	36	140	47	219	224	43	537	296	570
Kihikihi				2		1	2	1				
Kóle										336		
Kumu	34	30	71	117	77	46	32	121	48	223	263	259
Kupipi		7	8	4	1	4	2					
Kupóupóu					6		1	1				
Lae	572	436	1,240	130	166	20	3	13	4	19	69	98
Laenihi			11	26	39	17	21	88	19	66	20	186
Lupe	1	1	1	1	1					2		
Máhimáhi	138	51	20	7	9	5	27	50	70	65	33	23
Maii'i				73	12	2			2	8		
Maiko	105	5	36					18	10	12		
Maikoiko				22	49	33	1	17				
Malaialena					6			3				
Malolo				4	2	5	4	3				
Malolopiliko				2	1							
Mamámo				7	6							
Manene				1					81			
Manini	323	254	299	766	465	275	271	145	80	121	57	292
Mano	141	138	99	57	75	48	110	72	148	221	111	559
Moáno	1,725	495	2,587	1,297	3,419	794	432	6,873	1,348	3,139	2,405	2,784
Moi	2,521	406	1,218	657	773	496	105	178	55	49	145	176
Mu					2		1	1	2			
Muhee (squid)										81		26
Mukumuhuwuahanui				1								
Nenue	9	45	50	32	26	185	3	48	20	21	11	46
Nóhu		7	5	18	23	16		11	8	127	22	26

Nukumomi	38	10	17	296	308	2		3	26			
Nunu		3	3	1	23	1	1	6	3	10		8
Oama	80									2		
Oío	230	111	472	962	1,331	1,324	401	1,364	501	1,250	1,017	653
Omakaha	615		611	917	24	24	242	689	320	3,157	915	755
Ono	2	1		9	17	17	5	8	1	10		9
Oópu	820	57	247	1,078	688	556	478	679	400	520	100	80
Oópukái			179	201	515	420						
Opélu	591	13	800	453	93	520	86	184	116	1,836	1,157	287
Opule			200	14	136	5		10	4	2		
Paeaea				1								
Páka	48	7	46	44	44						17	195
Paki'i							13	42	18			
Pakuikui									1			
Paláni	2	6	11	9	1	40	4	19	12	4		2
Panuhúnuhú				34	9	4	6	7	2	5		4
Papaí (crab)	280	1,178	3,144	8,711	2,933	700	1,428	1,418	714	567	1,719	1,040
Papiopio							23	1	99	42	32	439
Papiopioulua	148			388	171							
Pauú									96	1		
Pauulua	177	65	24									
Póopáa							118	582	126	78	111	102
Pooú	24	5	84	95	180	52	15	58	39	28	54	
Pualu				6			2			4		
Puhi	9	119	58	60	67	44	23	88	39	105	158	36
Ùhu	32			9	7	2	47	88	159			207
Ùku	8		5	13	20	18	8	59	13	14		8
Ula (crawfish)	39	17	43	122	54	69	46	62	35	58	104	6
Ulaapapa (crawfish)				2								
Ulae	7									66		17
Ulaula	174	375	829	1,003	702	335	33	259	476	530	1,157	1,285
Ulua	509	279	341	47	65	85	45	185	40	66	225	317
Umaúmaleí				3	21			13		25		
Uouóa		44	208	386	211							
Upapalu			5	2				7		78		
Ùu	10		64	302	172	64	56	295	1,203	1,038	541	530
Uwau							171	117	93	40		
Wana (sea urchin)				135	181	108	64	42	166	134		200
Weke	113	39	196	249	205	179	120	500	130	220	528	2,937
Fish condemned	341		214	354	281	292	130	123		120		

618 pounds of ophihi examined during the period.

Fish inspected in the Hilo market in 1902, 1903, and 1904—Continued.

1904.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Áalaihi		1	224	8	7	3	6	10	8	119	5	51
Á'awa	244	599	698	307	761	412	352	186	353	131	320	512
Áha							75	255	23	12		
Áhaáha	6		98	174	433							
Ahi		1	27	28	114	222	104	160	49	17	17	23
Ahólehóle	515	1,175	2,461	2,526	410	1,103	865	517	517	3,317	2,340	596
Akilolo					3							
Aku	44				221	838	223	468	51	178	368	559
Akule	981	8,559	14,922	6,956	45,298	8,620	3,130	3,595	1,230	29	90	473
Alalaihou							3					
Alalaua			23									
Aloalo (prawn?)		6										
Ama-ama	1,291	658	169	617	555	1,213	415	88	142	326	514	230
Anae			594		777	500						
A'u					4							
Auau			77	68	19	36	37	20	49	23		17
Auae		255		1,873			1,928	730	373	570	938	456
Awa			2									
Awa-awa			1	4	7	7	24	10	12	30	3	1
Awakalamoku						25	2					
Aweoweo	49	253	171	74	134	81	43	92	154	68	256	442
Hahalalu	2,949	1,351	535	521	2,890	31,960	28,144	257,523	250,876	104,626	93,314	101,649
Hapú'u pú'u			6	2	7	4	22	19	18	33	8	5
Hauliuli								14	1	12	20	57
Hee (octopus)	59	61	62	29	49	23	50	50	45	77	24	121
Hihimánu			2	1	195		1	4	1		1	
Hiloa			1	4	1		1					
Hilu		1	4	8	4	2	4		3	1	2	2
Hinaléa	80	210	930	760	691	538	512	566	103	53	40	222
Honu (turtle)			16	1	2	2	1					6
Húmuhúmu	83	124	366	136	212	164	316	76	141	48	46	219
Iheihe		7	64	78	30	22	29	1		9	16	77
Kahála		2	77	15	27	6	2	9	7	3	3	12
Káku					1	3	1	2		1	2	2
Kála	4	3	14	4	10	7	20	4		9	21	6
Kálekále	554	278	703	528	1,123	740	546	837	1,748	3,705	1,353	661
Kaoe			4	54	46							
Káwakáwa	8	35	49	10	66	118	166	149	1,684	7,894	303	85
Kawelea	40	296	354	45	85	254	292	309	1,282	1,870	240	494
Kihikihi			4		6		2	7	3	1	16	2
Koá'e							33	58	34	28	30	20
Kole					24	27	2					
Kumu	35	137	54	129	51	49	28	60	47	26	34	131

Kupipi	5		8	49	9		3	1	6	8	2	1
Lae	2	121	777	27		23						
Lai							11	8	3	14	76	115
Laenihi	17	120	85	47	45	46	70	20	55	82	49	255
Larhau								8				
Lupe			1		1	1		2	4		1	3
Máhimáhi		7	44	1		21	57	18	113	65	40	168
Mali'i	17	29		77	111	56	521			5	14	4
Maiko	61		45	39	151	100	177	2	24	12	19	150
Makáa										4		
Malaialena			7	6	7		1	15	5		14	2
Malolo				1		2		7	6	18		
Manene			11		1							
Manini	546	680	636	551	667	207	177	65	196	221	82	471
Mano	87	39	49	9	20	12	166	70	47	73	105	306
Moáno	1,817	3,746	4,663	1,402	3,328	1,791	4,740	928	3,311	862	1,007	2,559
Moi	241	684	693	375	1,687	965	130	348	97	52	166	264
Mokumokuwahanui		2	5				1			4		
Mu			3	2	3	1	1		2	5	3	3
Muhee (squid)	2	2					9	22	39	44	2	6
Nama							5	3	25	58	153	30
Namu				9	20	2						
Nenue	19	47	254	34	248	46	46	50	68		29	72
Nóhu	12	11	22	22	25	11	14	10	65	49	33	35
Nukumomi			34		32							
Nunu	4	10	5	5	6	10	48	18	8	10	31	63
Oeoe							2	582	16	31		
Oililepa					15							
Oio	182	696	789	259	857	281	490	761	533	1,107	391	690
Omakaha	1,644	844	59	299	149	1,479						
Omaka							259	1,162	482	864	91	725
Ono				4	25	9	14	12	17	11	1	1
Oópu	117	12										
Oópukái		200	229	150	652	243	291	29	369	35	12	11
Opae								5				
Opakapaka				26	48	80	67	282	108	49	18	37
Opélu	87	46	201	214	86	228	230	1,481	749	47,577	361	624
Opule		11	10	1	6	6	26	2	2	2	1	7
Páka			30	5								
Paki'i					1							4
Pakuikui					1		4					2
Paláni			3	17	18	4	18	145	62	28	13	24
Panuhúnuhú	20	2	12	4	3	1	9	2	4	4	6	3
Papai (crab)	907	1,302	979	1,140	775	1,624	2,936	2,663	1,145	492	927	578
Papaohe		6	15									
Papiopio	113	255	438	97	636	45	71	158	177	558	2,062	1,034
Pilikó'a						35						
Pohopoho							113	71	75	50		
Póopá'a	35	212	814	170	295	256	576	2	148	21	4	16
Pooú	40	53	109	26	91	23	71	18	23	33	6	23
Puálu			4				5		3	4	5	4
Puhi	26	33	94	29	83	24	93	64	23	35	53	91

Fish inspected in the Hilo market in 1902, 1903, and 1904—Continued.

1904—Continued.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Puhikii										2		
Úhu	75	29	17	2	43	18	204	135	66	4	1	62
Úku		2	18	6	18	22	38	29	17	7	2	7
Ula (crawfish)	83	51	235	123	188	132	179	121	68	156	23	118
Ulaapapa				2	4	4						
Uláe		13	18	5	7		7		11	10	9	11
Ulapapapa									7			
Ulaulá	495	618	1,484	1,023	531	293	355	331	1,013	975	764	558
Ulua	17	11	94	45	168	107	398	311	296	290	242	682
Uouóa							236	107	203	207	144	53
Upapálu			580					40	8	1		23
U'u	17	99	468	69	152	31	236	416	394	324	154	405
Wálu												5
Wana (sea urchin)				45	121	20	71	249	45			
Weke	122	260	589	201	269	152	199	136	395	857	288	1,250
Fish condemned				308		681	521	2,010	1,007	850	1,089	616

LIHUE, KAUAI.

There is no regular fish market on the island of Kauai, but at Lihue the meat dealer handles fish whenever they are to be obtained. Other sections of the island are supplied by peddlers with small carts, who make occasional trips when the fisheries are being operated. Most of the fishermen are natives and, with their usual shiftlessness, refuse to resume fishing after a good haul until the proceeds have been expended, and often by that time the school of fish has worked off the coast and disappeared.

LAHAINA, MAUI.

The territorial government owns the principal market house at this place. It is a long one-story row, with its back overhanging the ocean, and, including the land, is valued at about $6,000. It contains six stalls, all of which are leased to natives and whites, but nearly all of these sublet to Japanese dealers. In 1903 there were 1 American, 2 natives, and 6 Japanese employed in this market.

Close by is a private market containing two stalls, the whole, including land, being valued at $700. Four Japanese operated this market in 1903.

Since the last investigation (1901) a new private market, composed of 4 small buildings, has come into use. It is valued at $400, including land, and is operated by 8 Japanese.

One of the worst features of the industry at Lahaina is the lack of inspection of the products sold in these markets. An inspector was put in charge in August, 1903, but owing to lack of money the board of health was compelled to dispense with his services in January, 1904, and at present the markets are as much without inspection as in the old days. This is a very unfortunate condition of affairs, as Lahaina is one of the most important fish-distributing centers of the islands. The greater part of the surplus fish from Molokai and Lanai is landed here, and by means of peddlers is distributed to the various sugar plantations of the island. Owing to the lack of proper inspection, large quantities of tainted fish are sold in these markets, or peddled throughout the surrounding country.

The Japanese have established a virtual monopoly of the handling of fish in this section of Maui. Nearly every stall in the various markets is operated by Japanese, who have formed an association or trust, by means of which they are enabled to force the fishermen to dispose of their catch to the association at whatever price the latter may see fit to offer. Many of the dealers are also financially interested in the boats and fishing gear of their fellow-countrymen, and as a result of this the native fishermen complain that they are grossly discriminated against, and are compelled to sell their catch for much less than is paid to their Japanese competitors. Should the native fisherman refuse to

sell to the association he is compelled to rent a stall in the market, should that be possible, and retail his catch. As the Japanese are the largest part of the fish-eating population and none of them will patronize other than his fellow-countrymen if it is possible to avoid it, the native finds it difficult, if not impossible, to sell more than a fraction of his catch at his own price, and is compelled eventually to sell what is left to the Japanese at a still lower figure than was offered in the first place, or else have it spoil on his hands.

The association regulates the prices at which fish are retailed in the markets, and even in times of a glut the low price does not benefit the consumer, although the fishermen receive less. Should there be an oversupply, the surplus is peddled around to the different plantations by Japanese with small carts.

There are serious inconveniences arising from these conditions other than the opportunity afforded for extorting exorbitant prices from the consumer. For three or four months of 1903 it was almost impossible for the people of Lahaina to buy any fish, because the association sent nearly all over to Sprecklesville, where they were sold to the Japanese at that place, presumably because better prices could be had there. This is likely to happen again at almost any time, and the people are thus at the mercy of an irresponsible association of alien dealers.

WAILUKU, MAUI.

At the time of the previous investigation there was a small market house here, owned by a private individual. It had only five stalls and was run principally by natives. Even this poor apology for a market ceased to exist in 1902, when it was transformed into stores, and since then the only means of securing fish has been from the peddlers who go from house to house on certain days in the week, or when there is a supply of fish landed from Molokai, or an extra large catch made at the Kahului fishery, a few miles away. It was not until the middle of 1903 that this section had a government inspector of fish, which it sorely needed, and even this boon was withdrawn January 1, 1904, owing to the low condition of the finances of the Territory.

HONOLULU, OAHU.

At the time of the first investigation there was but one fish market in Honolulu—the government market in the square bounded by Allen, Richards, Alakea, and Halekauwila streets. This building was erected in 1890 at a cost, including the value of the land, of $155,000, and is one of the handsomest and most conveniently arranged fish markets in the United States. During 1903 20 Chinese, 2 Japanese, 3 native men, and 3 native women were engaged in selling fishery products, while 1 superintendent (who acted also as fish inspector), 1 market

keeper, 1 assistant market keeper, 1 assistant fish inspector, and 1 laborer, were employed.

A serious competitor of the government market appeared on November 5, 1903, when a private market which had been constructed on Kekaulike street, between King and Queen streets, a former site of the government market, was opened for business. This market was constructed at an expense, including the value of the land, of $60,000. Like the government market, the greater part of it is devoted to the sale of fish, and the building is very conveniently arranged for this purpose. Many of the dealers in the government market left that place and took stalls in the new market as soon as it was opened, owing to the fact that it is more conveniently situated for catering to the Chinese and Japanese, who are the principal consumers of fish. During the short time the market was open in 1903 there were 96 persons—80 Chinese, 7 Japanese, and 9 natives—employed in and around it in marketing the fishery products. The government fish inspector has charge of the inspection of fish in this market also, and is assisted by a native man, the latter being paid by the owner of the market.

On February 6, 1904, a small market, containing six stalls, was opened at the corner of Beretania and King streets. An assistant fish inspector, paid by the owner of the market, is in charge, and works under the supervision of the government inspector.

A most comprehensive scheme for the marketing of fishery products was being worked out at the time of the present inquiry. A company was organized under the name of "The Inter-Island Live Fish and Cold Storage Company," and proposed to establish markets at convenient places within the city limits from which fish could be distributed expeditiously and without danger of loss from death and other causes incident to a tropical climate. Special means of water supply and refrigeration were provided, and every effort directed toward the preservation of the fish in fresh and wholesome condition as it reached the consumer.

Cold storage is undoubtedly necessary in such a climate as prevails in the islands. As the law stands at present all fish brought to the market up to noon must be sold before evening or else thrown away. Fish arriving at the market after noon and remaining unsold when the market closes can be placed in cold storage for the night and again offered for sale, but must then bear the printed legend "Iced fish."

The tables given below show, by months, the number of each species of fish inspected in the markets of Honolulu during the years 1902, 1903, and 1904, and, as in the case of the Hilo market reports, are taken from the official report of the inspector. Here, also, the figures for mollusks and crustaceans are incomplete.

Fish inspected in the Honolulu market in 1902, 1903, and 1904.

1902.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
A'alaihi	4,609	951	1,547	2,920	3,167	1,095	1,484	1,800	2,552	1,666	1,717	1,710
Á'awa	1,261	862	1,100	619	385	767	288	327	855	669	616	582
Ahaáha	1,633	799	252	53	113	245	143	252	139	499	1,319	181
Ahi	16	12	61	62	54	129	20	29	23	59	13	108
Ahólehóle	8,562	5,613	8,188	5,509	8,027	11,473	1,102	661	1,837	818	1,780	3,570
Aku	1,094	1,528	2,802	3,549	5,495	15,714	6,820	4,358	4,071	11,492	1,556	2,263
Akule	24,380	16,029	17,880	22,809	16,716	25,853	6,302	6,410	1,511	2,420	5,359	2,144
Ama-ama	84,737	76,652	90,462	59,323	55,467	58,623	36,652	56,411	49,844	47,133	85,662	84,030
Awa	11,213	14,031	17,076	13,790	22,108	28,071	25,080	20,898	15,432	17,714	18,026	7,245
Awaawa	3,158	1,234	2,524	2,095	5,061	7,297	4,179	5,036	6,659	4,997	4,539	1,601
Awa kalamoku									16	17	23	20
Awela	1	10	29	8	18	4	9	11	30	17	15	39
Aweoweo	1,393	584	794	48	77	76	71	206	654	2,945	1,992	747
China-fish	35		10	94	26		6			3		1
Gold-fish	2,970	1,343	176	310	1,715	1,505	420	3,350	2,367	2,120	517	1,490
Hahalalu		595						5,627	84,071	111,249	98,483	33,859
Hapú'upú'u	52	50	56	99	114	129	34	25	28	13	20	79
Haúliuli			11									
Hee (octopus)	1,270	867	1,186	971	760	1,398	1,202	2,433	3,468	2,412	2,216	1,530
Híhimánu	8	7	1	4	14	9	6	7	7	7	8	4
Hilu	62	85	78	46	27	34	14	18	64	52	35	56
Hínaléa	1,426	1,891	1,713	886	1,001	1,360	2,242	2,012	3,020	2,043	1,607	1,252
Honu (turtle)	6	7	19	24	13	15	14	34	23	22	11	6
Húmuhúmu	138	179	239	105	77	64	460	970	521	355	86	73
Iheíhe	2,422	2,597	734	20,452	997	2,176	1,113	3,131	1,517	453	283	242
Kahala	265	135	102	213	366	170	59	32	17	24	15	42
Káku	165	110	133	160	174	201	146	236	206	153	141	102
Kála	1,564	1,721	1,457	2,353	1,622	2,083	1,073	522	725	929	715	745
Káwakáwa	93	2,667	2,667	2,862	2,447	1,142	1,466	4,527	603	3,413	346	424
Kawelea	22	33	124	62	30	19	9	5	12	26	41	25
Kihikíhi		59		155						40		
Kóle	460	151			33	25				65	21	145
Kumu	1,502	1,318	1,318	1,143	1,069	848	1,122	947	1,628	1,151	1,382	1,366
Kupipi			12		5							
Kupóupóu			5					45		32	68	41
Lae	247	137	174	173	137	1,544	168	127	127	68	109	28
Laenihi	585	344	295	178	185	252	1,084	3,025	1,368	1,136	857	458
Lauhau	170	85								46	7	7
Máhimáhi	12	11	12	22	173	190	174	418	398	125	140	96
Mali'i	1,957	918	302	27	383				375	1,185	597	902
Maiko	289	314	90	12	137	29						
Maikoiko							10	6	83	71	69	565
Maka'a	52	10				38	152	823	454	289	47	41

Malolo				656	7,477	9,025	9,942	2,758	1,374	28		
Mamámo	377	266	95	26	280	6	71	49	100	585	155	523
Manini	7,177	7,038	4,087	4,265	2,179	1,632	982	1,621	4,165	4,293	3,345	8,984
Mano	76	62	56	94	82	259	347	388	346	282	154	132
Mikiáwa	74			19	44							88
Moáno	5,340	5,485	8,232	5,878	4,943	7,877	9,230	10,778	12,533	10,199	7,969	5,959
Moi	1,172	1,340	2,674	1,881	3,766	3,684	1,164	3,761	2,372	4,361	7,940	4,599
Mu									13	37	3	1
Muhee (squid)	13	31	19					36	331	1,318	134	26
Naenae											2	
Nenue	96	66	102	77	139	303	146	76	309	454	298	43
Nóhu	25	7	8	5	9	14	4	7	9	1	1	11
Nunu	116	44	86	42	26	24	19	74	27	163	222	116
Oama									1,850	12,940	6,310	5,070
Ólilepa	5	8	8		13	16		13	4	5	5	
Oio	1,504	1,378	1,092	1,193	3,773	4,381	1,787	2,194	3,226	3,237	1,699	1,217
Omaka	260	437	3,421	225	438	397	231	440	1,680	294	228	36
Omilu	190	55	39	182	96	574	63	96	44	74	304	203
Ono	2		2	13	34	14	14	29	21	12	11	2
Oópu	385	614	1,438	1,618	1,115	680	527	200	80	360	1,120	752
Opakapaka	101	163	116	101	45	22	21	21	17	63	59	63
Opélu	7,142	3,343	5,946	9,051	8,758	5,140	6,942	16,705	30,507	17,339	34,384	28,898
Opule	340	291	165	38	181	44	23	24	59	172	170	402
Paki'i			66		30	330	266	258	115	74	36	30
Pakuikui	75	50							30			
Paláni	322	172	427	321	439	717	228	149	200	449	110	57
Panuhúnuhú		135										
Papai (crab)	8,043	5,013	3,043	2,356	3,185	3,320	2,832	8,510	12,296	7,316	7,788	5,736
Papíopio	1,945	1,100	1,059	189	197	849	13	2,690	9,700	10,074	5,134	698
Pauú	1,800	2,398	1,947	4,164	3,081	3,896	2,340	1,791	2,016	2,399	4,186	5,356
Póopáa	603	795	603	234	152	584	288	220	761	456	520	473
Pooú								51	10	31	100	30
Puálu	1,523	861	633	1,650	1,820	1,849	936	1,174	1,052	1,282	918	328
Puhí	248	260	248	389	177	175	153	249	241	264	328	273
Puhiki'i				4,631	13,015	1,920	23,366	28,629	5,225			
Úhu	526	625	231	1,347	1,872	1,454	287	109	220	407	273	251
Úkikíki			45	177	130	163	2,611	1,352	856	1,316	320	177
Uku	460	246	116	135	384	321	294	292	221	254	145	235
Ula (crawfish)	944	784	1,091	1,858	2,255	4,291	3,404	3,421	1,520	1,219	1,503	1,062
Uláe						195	140	100		14	25	
Ulaapapa (crawfish)		28	70	165	87	40	179	152	53	48	5	30
Ulaula	35	73	21	22	115	113	25	4	32	15	65	63
Ulua	297	576	305	422	612	861	831	486	514	700	418	347
Umaumaléi	389	257							20	50		30
Upapálu	1,697	1,092	211	359	254	161	3,188	851	687	1,999	1,455	1,244
U'u	6,062	3,376	1,321	1,731	605	1,083	5,074	6,890	7,101	8,919	7,215	10,994
Uwau										50		
Wálu	3	2	3	2		2		1		2		
Wana (sea urchin)	297	67	177	208	139	1,712	2,420	757	717	673	357	158
Weke	6,791	6,190	1,896	8,185	7,246	4,559	2,829	4,122	4,308	4,665	4,144	3,345
Fish condemned	1,304	3,054	3,883	2,190	912	3,295	1,409	1,148	7,627	5,293	4,988	1,726

Fish inspected in the Honolulu market in 1902, 1903, and 1904—Continued.

1903.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
A'alaihi	3,060	2,418	5,078	3,090	4,158	4,783	7,956	7,602	5,384	7,383	18,474	15,903
A'awa	314	277	1,178	274	616	1,256	788	953	458	436	776	744
Ahaáha	790	227	639	211	1,911	750	562	1,238	837	285	1,132	636
Ahi	199	293	456	402	212	168	92	52	13	5	65	114
Ahólehóle	4,003	4,039	7,693	7,950	9,667	4,475	2,698	5,721	2,787	2,849	5,552	7,184
Aku	1,944	3,268	3,791	6,249	6,276	3,547	3,919	8,182	2,027	1,896	3,040	7,563
Akule	2,759	2,268	12,287	29,154	39,638	27,767	22,819	14,721	6,996	5,726	9,986	20,484
Ama-ama	86,842	75,618	77,123	41,491	56,759	53,102	41,985	59,047	47,421	47,097	65,118	64,189
Awa	10,842	7,507	5,433	8,216	12,015	18,223	18,763	16,476	13,527	8,822	10,236	5,656
Awa-awa	1,194	1,110	1,570	1,794	2,371	2,640	2,811	4,072	2,792	2,841	3,344	1,035
Awa kalamoku	11	17	18	52	77	16	28	232	23	4	212	23
Awela	20	6	54	17	22	20	14	33	4	16	9	1
Aweoweo	910	308	1,008	712	671	172	257	779	2,777	5,230	15,550	9,653
China-fish	41	2	3	8	9	7			9		14	2
Gold-fish	3,191	1,565	2,639	1,858	4,306	2,855	2,703	3,839	3,445	2,508	3,369	261
Hahalalu	37,041	41,783	62,878	3,836	176	3		2,403	17,233	21,446	46,364	24,461
Hapú'upú'u	154	69	444	308	232	620	307	80	328	281	160	310
Haúliúli											1	8
Hee (octopus)	1,613	814	1,656	435	526	203	361	1,084	1,393	2,760	2,587	2,718
Hihimánu	13	2	11	11	11	17	1	2	8	11	10	2
Hilu	69	41	101	17	60	132	78	67	36	9	62	49
Hinaléa	1,329	1,068	2,262	601	1,373	2,061	2,217	2,932	1,529	1,882	2,581	2,754
Honu (turtle)	6	9	10	18	26	29	19	11	10	13	7	10
Húmuhúmu	76	100	90	286	555	966	494	640	484	324	622	455
Iheihe	19,460	9,418	2,631	467	1,306	1,706	6,328	3,211	3,549	2,288	15,701	6,814
Ina (sea urchin)											1,520	350
Kahála	71	63	359	89	133	122	41	31	58	38	41	121
Káku	141	89	179	185	186	227	254	381	245	279	272	185
Kála	1,404	884	1,422	850	779	552	282	423	580	757	1,385	2,376
Káwakáwa	89	433	529	1,329	2,852	747	1,503	1,842	1,693	3,678	3,440	642
Kawelea	37	20	87	285	41	18	8	8	4	22	37	23
Kihikihi	25	5	50			20		7			232	121
Kóle	20	45	340	4		25		10	26	221	132	55
Kumu	1,891	1,421	3,484	1,813	1,975	1,661	2,090	1,716	1,900	1,633	5,566	3,347
Kupipi											7	49
Kupóupóu	105	71	122	12	29	105	59	134	60	55	253	51
Lae	164	50	418	481	538	202	274	231	607	246	372	155
Laenihi	566	366	246	130	328	434	611	1,319	1,727	870	3,553	4,102
Lauhau	15		58	7	132		7	55		6	6	150
Máhimáhi	57	40	49	107	271	126	342	239	216	88	235	71
Mali'i	282	554	1,313	10	19	19	20	19	155	767	3,756	2,267
Maikoiko	27	112	258	12	14	5	3	23	53	483	487	441
Maka'a	121	53	80	10	67	161	34	354	510	92	235	292
Malolo			183	2,202	12,897	11,356	4,495	5,822	2,835	8	10	3

Mamámo	74	145	274	305	58	18	98	236	151	1,230	2,806	3,297
Manini	5,332	2,677	4,591	2,418	4,062	3,293	1,878	2,440	2,058	2,306	2,965	4,016
Mano	208	70	119	96	223	304	663	694	264	277	132	164
Mikiáwa	4	148	480		439	1,320	221	180	10	950	2,556	255
Moáno	5,155	4,992	9,915	7,170	11,534	12,421	11,215	14,770	6,874	7,425	18,820	15,599
Moi	4,412	5,842	6,104	2,942	3,047	2,346	1,847	2,701	2,342	1,672	4,690	7,051
Mu	19	12	3		10	10	66	24	17	18	31	16
Muhee (squid)	71	95	41	28	20	13	1	4	6	18	112	72
Naenae											35	67
Nenue	70	66	114	25	93	116	87	172	57	138	679	234
Nóhu	4	3	19	32	87	42	33	1	23	4	1	5
Nunu	274	146	116	199	216	115	100	122	146	559	3,883	1,229
Oama	11,140	4,068	6,381	1,336	270			31,750	67,295	25,485	26,707	22,735
O'ililepa	2		1	2	1	2	2	1	3		1	
Oio	2,026	770	3,241	1,716	1,820	1,750	1,708	2,431	2,039	14,367	1,240	2,259
Omaka	912	194	226	1,308	1,023	491	516	1,118	424	163	23	659
Omilu	152	53	1,027	57	58	108	96	259	222	305	200	149
Ono	17	5	40	30	39	31	21	30	19	30	32	35
Oópu	2,019	625	204	150	377	545	383	182	408	865	1,951	596
Opakapaka	35	30	179	113	77	119	103	47	143	127	157	773
Opélu	20,588	5,755	29,788	44,096	37,667	12,875	10,755	27,809	30,395	55,710	25,355	13,239
Opule	58	195	281	17	20	44	20	30	38	413	1,100	427
Paki'i	25	76	62	57	36	235	83	60	90	30	1,602	5,679
Pakuikui	45	91	5			4,390			44		13	57
Paláni	463	106	99	55	89	186	87	204	142	261	834	262
Panuhúnuhú											56	60
Papai (crab)	9,117	5,092	9,651	10,610	12,925	9,009	8,397	10,672	8,011	13,609	22,208	20,194
Papíopio	1,516	1,547	1,868	1,400	260	673	95	95	2,352	4,390	1,835	2,152
Pauú	4,992	1,579	2,815	2,753	3,815	2,739	1,937	2,589	1,486	1,354	3,419	8,046
Póopá'a	566	321	1,192	190	349	1,016	1,082	1,914	667	2,000	1,490	1,863
Pooú	50	55	28		68	48	15	48	55	15	18	
Puálu	1,135	349	804	292	1,094	1,461	1,068	1,495	1,566	1,073	2,543	2,366
Puhi	226	100	301	140	437	237	163	368	229	295	412	1,425
Puhiki'i	400	230		840	2,312	28,741	3,512	27,986	3,836	25	1,031	3,355
Úhu	223	132	643	93	1,482	1,331	231	315	61	217	633	327
Ukikiki	159	54	712	816	956	800	544	446	175	1,226	729	253
Úku	149	106	261	81	170	296	261	681	149	167	152	126
Ula (crawfish)	574	609	1,175	1,051	2,787	3,607	2,240	3,625	2,184	1,459	1,624	2,222
Ulaapapa (crawfish)	11	62	153	213	262	193	315	306	120	42	147	40
Uláe		7	65	60		247	33	145	142		154	2,393
Ulaula	84	64	377	486	549	241	136	165	25	23	125	128
Ulua	207	152	451	216	262	371	322	417	246	299	274	176
Úmaúmaleí	2	25	41					8	37		184	161
Upapálu	1,420	599	585	227	431	1,021	2,044	1,651	2,346	3,628	5,195	2,704
U'u	5,885	3,793	3,556	1,724	1,508	4,147	10,178	9,581	26,167	32,126	40,701	17,657
Wálu	1		1			1			1			2
Wana (sea urchin)	574	359	952	329	846	1,815	1,001	1,407	1,241	1,708	1,887	2,590
Weke	3,556	4,174	8,953	9,538	11,297	6,993	6,434	7,844	5,640	7,151	27,660	18,663
Fish condemned	913	922	537	1,549	1,485	1,998	2,798	3,515	3,100	8,349	3,948	2,556

Fish inspected in the Honolulu market in 1902, 1903, and 1904—Continued.

1904.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
A'alaihi	4,772	2,019	6,128	6,267	4,010	2,755	3,983	5,274	18,443	17,364	10,312	5,993
A'awa	692	259	621	665	612	244	496	1,394	822	1,893	1,268	866
Ahaáha	246	562	1,117	512	647	428	425	516	357	3,186	5,132	4,104
Ahi	123	226	426	169	47	143	211	98	170	38	545	1,761
Ahólehóle	10,275	6,956	5,309	6,606	4,134	3,174	6,126	10,140	10,340	18,374	14,544	7,319
Aku	1,433	131	128	905	3,819	7,495	4,059	7,091	6,808	8,217	13,060	4,957
Akule	20,281	11,262	20,978	19,871	20,240	27,966	16,578	62,025	246,707	164,184	280,488	94,515
Aloalo (prawn)	234	25	13	111.	40	35	50					
Ama-ama	74,596	68,194	79,996	84,471	75,928	62,618	90,943	113,759	123,303	155,606	171,076	143,326
Ananalo				26	2							
Api	1			397								
Au	76	1	448	379		20	2					
Auau		24				8	40					
Auhu		1,410			49							
Awa	5,492	6,433	7,214	11,864	5,615	7,002	15,902	26,923	25,367	49,258	73,999	63,966
Awa-awa	1,236	668	2,265	1,740	2,973	2,059	9,702	19,551	13,461	44,888	62,188	56,849
Awa kalamoku	30	78	7	69	176	59	192	328	489	475	540	429
Awela			32	18	15	4	5	2	7	161	603	451
Aweoweo	5,619	1,624	2,685	1,009	998	1,154	4,073	16,103	107,926	33,844	17,219	27,242
China-fish	2	372	244	91	59	205			280	42	645	999
Ea	18	2	5	6	43	10						
Gold-fish	793	835	719	2,999	792	450	2,290	640	1,980	9,608	10,112	12,508
Hahalalu	11,741	3,978	2,561	1,596	216	16,834	5,359	14,992	151,875	26,179	118,198	37,970
Hapú'upú'u	119	125	408	139	182	233	254	413	464	344	759	554
Haúliúli	7	37								155	629	104
Haukeuke							80					
Hee (octopus)	2,398	854	706	430	403	591	2,177	4,547	4,090	3,164	3,854	5,597
Hihimánu	9		7	1	1	3	13	16	21	57	107	105
Hilu	52	66	368	60	30	28	40	3	39	164	323	443
Hínaléa	2,710	771	1,593	2,564	5,052	1,648	405	4,770	10,197	9,228	4,507	4,163
Honu (turtle)	9		9	14	24	11	8	4	82	24	35	38
Hou	4		1			10						
Húmuhúmu	546	93	169	756	517	194	259	593	845	1,104	1,428	1,578
Iheihe	8,816	8,600	2,169	2,437	419	1,578	3,258	3,335	3,331	8,057	35,830	8,252
Ina (sea urchin)	690	500					1,020		500	42	8,850	4,910
Kahála	74	46	144	210	295	314	120	331	351	112	102	125
Káku	185	141	173	286	140	252	272	487	655	732	1,997	2,023
Kála	2,062	823	687	556	515	1,094	1,336	463	2,452	2,568	2,744	3,168
Kálekále	16	3	1,350	13	55	94	14					
Kauleloa				1,525								
Káwakáwa	1,786	518	465	3,716	3,675	3,502	2,914	4,601	6,206	914	549	1,620
Kawelea	26	27	131	32	7	12	26	28	328	355	557	172
Kihikihi	10			15	3			18	15	32	688	344

Kóle	261	41	13	54	250	250	10	10	490	1,952	1,828	1,313
Kumu	1,516	1,298	2,246	2,745	3,248	1,879	2,173	2,544	8,202	32,217	59,020	36,020
Kupipi	14	10	46	5	3		32	35	321	1,482	2,011	1,011
Kupóupóu	759	212	94	190	286	68	47	1,300	2,290	2,888	1,815	1,446
Lae	477		552	465	481	361	192	353	306	1,111	1,714	4,563
Laenihi	1,129	492	813	775	918	319	1,162	3,662	2,805	3,369	3,151	2,063
Lauhau	93	47	17	72	185	56	59	3	61	823	1,375	1,116
Lehe							1					
Lolohan	59	2	3			2						
Lupe	1		1	1		3						
Máhimáhi	44	109	40	92	190	120	298	617	1,542	234	757	274
Maii'i	2,608	519	237	391	686	347		225	1,014	5,115	4,224	1,498
Maiko							61	244	1,375	1,211	2,323	756
Maikoiko	167	104	64	238	294	27						
Maka'a	137	70	150	118	3	95	22	36	539	1,026	875	401
Malámalama	5		12	8					60	356	777	387
Malolo	11	121	9	2	2,566	6,568	2,876	1,525	493	148	54	
Mamámo	1,121	169	63	58	114	166	442	195	1,817	6,650	1,404	1,887
Manini	5,503	3,960	7,794	6,478	4,213	2,512	2,354	1,238	3,638	5,321	3,780	4,867
Mano	107	58	99	360	149	426	906	823	472	609	1,436	1,114
Mikiáwa			238	939	727	408	349	223	1,299	1,541	2,102	1,621
Miomio	6		2		27	12	5					
Moáno			7,827	10,682	8,049	6,192	5,254	7,793	17,529	12,852	8,715	4,531
Moelua				1	6	11	22					
Moi	8,495	2,155	6,633	3,903	6,056	4,818	6,333	4,265	11,136	119,220	186,031	75,294
Mu	15	15	2	42	134	6	8	28	30	202	457	129
Muhee (squid)	170	70	26	108	19	6	8	11			574	665
Naenae	96					4			68	239	600	233
Nenue	114	38	80	48	57	126	299	195	837	570	987	752
Nóhu	12	3	7	13	14	7	13	9	2	129	488	84
Nukumomi			8	5	5	31						
Nunu	602	121	183	132	218	150	316	174	515	2,175	3,739	3,144
Oama	11,378	3,050	6,818	2,281	414	140	500	117,342	116,087	201,569	374,840	182,120
Ohua	1,022	25										
O'ililepa	2		6	6					309	133	226	163
Oio	1,072	509	2,105	1,654	3,521	2,649	1,825	2,388	3,656	5,100	5,536	5,174
Olepe (clam)	300											
Omaka	402	317	500	739	1,443	738	830	672	1,317	1,730	3,311	3,090
Omilu	134	69	85	86	232	886	1,702	2,158	3,314	1,841	2,735	2,015
Ono	21	26	38	13	25	13	7	10	9	27	4	20
Oópu	838	6,528	499	10,533	949	442	2	202	1,490	1,968	2,736	2,327
Opakapaka	398	255	965	628	2,067	1,387	2,014	4,457	6,674	4,969	4,963	2,622
Opélu	13,583	624	3,341	10,183	14,446	6,695	11,176	36,650	77,935	96,269	40,593	31,864
Opule	442	129	115	459	68	95	553	140	2,010	1,880	1,763	1,707
Paki'i	6,609	2,807	4,543	397	2,874	1,317	2,721	1,440	2,623	9,289	5,584	4,816
Pakuikui	180	54	6	3					80	252	418	122
Palaheana		3	1									
Paláni	467	27	286	228	69	175	142	688	1,031	1,001	1,187	596
Panuhúnuhú	58	51	464	51	3,273	1,134				483	1,804	1,257
Páopáo				351	157							
Papai (crab)	16,256	6,191	8,427	8,820	12,412	8,721	24,586	28,077	28,690	31,904	15,553	15,629

Fish inspected in the Honolulu market in 1902, 1903, and 1904—Continued.

1904—Continued.

Species.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Papiopio	2,563	1,024	4,776	620	481	302	1,617	1,818	6,389	4,206	4,357	1,390
Pauú	3,577	1,199	1,313	1,184	1,584	1,485	2,955	6,363	22,858	144,501	139,913	61,737
Piao				380								
Póopá'a	1,575	521	319	967		399	642	1,424	4,459	3,435	2,966	1,558
Pooú	3	13	1	29	29	24				140	1,031	420
Puálu	2,426	1,386	1,330	1,694	1,278	1,080	2,247	2,924	7,307	16,842	9,000	3,873
Puhi	1,102	515	967	671	1,218	584	720	565	888	1,752	1,943	1,981
Puhiki'i	235			5	2,850	15,226	31,445	13,930	5,165	9,761	36,360	11,508
Puloa	14	3	4	5	11	30	81	7				
Sword-fish				3								
Úhu	382	81	104	189	557	270	77	136	778	586	624	556
Ukikiki	471	177	429	231	116	108	99	26	25	285	415	234
Úku	78	24	129	127	498	2,713	3,298	2,297	2,759	340	220	184
Ula (crawfish)	1,651	739	1,721	1,113	1,695	2,884	2,370	2,967	4,500	2,710	2,882	3,634
Uláe	5,342	3,141	8,434		5,865	1,699	1,530	3,630	7,761	38,598	18,099	6,759
Ulaapapapa (crawfish)	667	89	120	213	155	237	250	59	62	64	686	935
Ulaula	99	34	97	9,888	319	424	826	1,143	2,203	570	687	728
Ulua	205	59	261	202	2,072	2,688	697	528	742	873	922	199
Umaúmaleí	125	25				30				65	595	232
Uouoa	67		63	17		6						
Upapálu	1,045	357	580	771	390	686	897	4,284	10,518	5,801	8,209	6,039
U'u	13,902	3,037	2,209	3,416	4,072	2,760	12,325	27,023	207,847	72,003	39,943	25,782
Uwau			6		2							45
Uwiwi		4	6							23	6	32
Wálu			1		2	1	1					
Wana (sea urchin)	1,338				369	562	648	516	1,817	1,149	1,271	1,115
Weke	7,708	5,545	11,801	7,475	6,964	6,889	7,461	10,705	25,396	104,582	224,730	103,996
Fish condemned	1,920	1,013	1,565	1,388	2,369	2,680	2,598	7,746	9,546	18,027	10,357	7,925

THE WHOLESALE TRADE.

But two cities—Honolulu and Hilo—are engaged in the sale of fishery products by wholesale. The greater part of this trade is in canned goods and pickled salmon, large quantities of which are sold to the sugar plantations scattered over the islands. In 1903 none of the firms engaged exclusively in the sale of fishery products, but sold such in connection with other goods. A few of the sugar plantations purchased their supplies direct and are not included in the table below. A small quantity of fresh fish, brought from San Francisco in the cold-storage rooms of the regular steamers, is also sold in Honolulu.

Honolulu leads in this trade in every particular. The total investment in the business in 1903 was $520,350, a gain of $10,225 over 1900, when the investment amounted to $510,125. No effort was made to gather data on the quantity of products handled.

Table showing the wholesale fishery trade of the Hawaiian Islands in 1903.

	Honolulu.	Hilo.	Total.
Number of firms	9	4	13
Number of employees	71	23	94
Property	$219,850	$106,000	$325,850
Wages	32,300	15,000	47,300
Cash capital	112,500	34,700	147,200
Total	364,650	155,700	520,350

FISH PONDS.

The manner of construction and method of operation of fish ponds has been extensively discussed in the previous report. But little authentic data regarding their history have come to light since that time, although earnest efforts have been made to secure information from oral traditions and early printed chronicles. David Malo in his Hawaiian Antiquities[a] states that—

> On the death of Kahoukapu the Kingdom [Hawaii] passed into the hands of Kauholanuimahu. After reigning for a few years Kauholaniumahu sailed over to Maui and made his residence at Honua-ula. He it was that constructed that fish pond at Keoneoio.

Dr. N. B. Emerson, the translator, in a note on page 267 of the work just quoted, ascribes the building of several fish ponds on the western side of Hawaii, at the coast of Hilea, at Honuapo, and Ninole, in the district of Kau, to Kiohala, who was King or Chief of Kau during the early years of the nineteenth century. He (the King) is said to have made himself exceedingly unpopular among his subjects by his exactions in the building of these ponds. The ponds are not in existence at present.

[a] Hawaiian Antiquities, by David Malo; translated from the Hawaiian by Dr. N. B. Emerson; p. 333. 8°. Honolulu, 1903.

According to Mr. A. F. Judd, in an article on "Rock carvings of Hawaii," published in Thrum's Annual for 1904—

> Archæological investigations have brought to light several monuments of which the Hawaiians have always disclaimed the making. The fish pond in the land of Apua, at Kualoa on the island of Oahu, is a notable example, and others might be mentioned.

A typical example of fish ponds in embryo is to be observed in the neighborhood of Mana, on the island of Kauai. There are several hundred acres of overflowed land here belonging to the territory, which certain natives have leased for a nominal sum. Ditches have been dug in order that the sea water may enter, and in the ponds so improvised ama-ama are raised. It is probable that in the course of a few years the banks will be raised higher and made permanent, thus turning the swamp into a regular interior fish pond.

The Kanaha fish pond at Wailuku, on the island of Maui, is being much enlarged and improved this year (1904). There were formerly several ponds here, but the others have been filled in. Considerable trouble has been experienced with this fish pond owing to the lack of proper direct connection with salt water. A heavy freshet made an opening toward the sea about four years ago, but it was not deep enough to allow a sufficient quantity of sea water to enter, and since the rainwater forced the salt water out, the ama-ama were killed in large numbers. In 1903 this was especially noticeable, and in the latter part of the year many of the fish were given away or else sold very cheap, inasmuch as they would have died had they been allowed to remain in the pond. Awa, ahólehóle, gold-fish, and oópue are also found in this pond.

If the various schemes for the development of the bank fisheries off the south and east coasts of Molokai are successful there will probably be a considerable increase in the number of fish ponds used commercially in this section. Many ponds on this side of Molokai are not in use at the present time, owing to a lack of convenient markets. The new enterprises contemplate repairing and putting into operation some of these ponds, and using them either to raise ama-ama for the Honolulu markets, or as temporary storage places for the line-caught fish until the transporting vessels can carry them away

Considerable fishing is carried on in the numerous sugar-plantation reservoirs, notably in those on Maui, some of which are quite extensive. Carp and gold-fish are the principal species taken. This fishery has not yet attained commercial importance, nearly all of the fish taken being consumed by the workers on the various plantations, who catch them.

A number of the ponds are used as private preserves by their owners and do not appear in the commercial tables given herewith.

In the Lihue district, on Kauai, there are 7 of these private fish ponds.

Owners of fish ponds operated commercially rarely manage them directly, but lease them to others, usually Chinese. Nearly all of the Oahu ponds are controlled by a combination of Chinese, and are so operated as not to overstock the markets, thus keeping up the prices. This policy works to the disadvantage of the white population mainly, as they are the principal consumers of the ama-ama. Owing to the high prices received for this fish some of these ponds are very valuable, one located on Oahu being assessed by the Territory on a valuation of $25,000 (the lessee of this pond pays a yearly rental of $2,500), while two others in the immediate vicinity are assessed at $16,000 and $12,450, respectively. One on Koolau Bay, Oahu, is assessed at $12,000; another in Waipio, Oahu, at $6,400, and one in Kalihi, Oahu, at $4,000. Aside from those located on Oahu, fish ponds are not very valuable, largely owing to the lack of a steady and sufficient demand for ama-ama. If the fish could be marketed, the Molokai fish ponds would produce almost unlimited quantities of amaama.

The tables below show, by islands, the number and nationality of the persons employed, the number and value of the fish ponds and boats, the number, kind, and value of apparatus operated, the catch by species, and the catch by species and apparatus, together with the values of same, in the pond fisheries during 1903. The data in these tables appear also in the general statistical tables given elsewhere.

The island of Oahu leads in every particular, with 67 fish ponds valued at $154,900, 138 persons employed, and a total investment, including value of ponds and boats, of $156,990. Molokai is second, with 12 ponds valued at $4,050, 30 persons employed, and a total investment of $5,310. Kauai, Hawaii, Maui, and Lanai follow in the order enumerated. As compared with the data for 1900 there has been a decrease of 13 in the number of fish ponds operated, but in every other regard there have been slight increases. Since 1900 the fish pond on Lanai and the one at Kahului, Maui, have been repaired and are now in use. In that year there were no fish ponds operated commercially on these two islands.

Chinese predominate in the pond fisheries, 132 being so employed, to 55 Hawaiians and 6 Americans. In 1900 there were 147 Chinese, 43 Hawaiians, and 1 American, showing a decrease in 1903 of 15 Chinese and an increase of 12 Hawaiians and 5 Americans.

The total catch for Oahu is 578,292 pounds, valued at $93,568. As the total catch for all the islands was 672,953 pounds, valued at $111,321, the great preponderance of Oahu is manifest. Molokai is second, with 43,361 pounds, valued at $10,279, followed by Maui,

Kauai, Lanai, and Hawaii, in the order named. The latter island almost dropped out altogether, securing but 218 pounds of amaama, worth $54. Amaama is the leading species, 430,115 pounds, worth $87,706, having been marketed. Awa is second, with 224,321 pounds, which sold for $22,662. The other species—ahólehóle, carp, gold-fish, oópu, and opae—form but an insignificant part of the total catch.

As compared with 1900, the catch of ama-ama shows a decrease in weight of 55,416 pounds, and $31,496 in value. During the same period the catch of awa increased in quantity 30,150 pounds, and decreased in value $24,864. The ahólehóle catch increased from 200 pounds, valued at $30, in 1900, to 7,100 pounds, valued at $373, in 1903; the catch of carp decreased from 1,500 pounds, valued at $150, in 1900, to 400 pounds, valued at $32, in 1903; the gold-fish catch increased from 80 pounds, valued at $10, in 1900, to 6,267 pounds, valued at $351, in 1903 (most of this increase was on Maui); the oópu catch increased from 492 pounds, valued at $74, in 1900, to 4,600 pounds, valued at $174, in 1903, and the catch of opae decreased from 310 pounds, valued at $31, in 1900, to 150 pounds, valued at $23, in 1903. In 1900, 180 pounds of okúhekúhe, valued at $18, were taken, but none was sold in 1903.

The gill net is the leading form of apparatus in use, 322,240 pounds, valued at $54,610, having been taken thus. Dip and scoop nets are second, with 246,179 pounds, worth $40,397, and seines third, with 104,534 pounds, valued at $16,314. Gill nets alone were used on Hawaii and Lanai, seines alone on Maui, seines and gill nets on Kauai and Molokai, and all forms on Oahu.

Table showing by islands the number of persons employed, and the number and value of fish ponds, boats, and apparatus used in the pond fisheries of the Hawaiian Islands in 1903.

Items.	Hawaii.		Kauai.		Lanai.		Maui.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Fish ponds	3	$1,500	2	$1,900	1	$700	1	$2,500
Fishermen:								
Americans	2	.....	4	.....	.....	.....	.....	.....
Chinese	8	.....	.....	.....	.....	.....	.....	.....
Hawaiians	2	.....	3	.....	2	.....	4	.....
Total	12	.....	7	.....	2	.....	4	.....
Boats	4	20	2	30	.....	.....	.....	.....
Apparatus:								
Seines	.....	.....	1	130	.....	.....	1	30
Gill nets	5	30	1	10	2	16	.....	.....
Shore and accessory property	.....	.....	.....	10	.....	10	.....	50
Grand total	.....	1,550	.....	2,080	.....	726	.....	2,580

Items.	Molokai.		Oahu.		Total.	
	Number.	Value.	Number.	Value.	Number.	Value.
Fish ponds	12	$1,050	67	$154,900	86	$165,550
Fishermen:						
Americans	.....	.....	.....	.....	6	.....
Chinese	6	.....	118	.....	132	.....
Hawaiians	24	.....	20	.....	55	.....
Total	30	.....	138	.....	193	.....
Boats	14	690	27	690	47	1,430
Apparatus:						
Seines	2	80	5	166	9	400
Gill nets	24	240	55	1,100	87	1,396
Dip and scoop nets	.....	.....	52	140	52	140
Shore and accessory property	.....	250	.....	.....	.....	320
Grand total	.....	5,310	.....	156,990	.....	169,236

Table showing by islands and species the yield of the pond fisheries of the Hawaiian Islands in 1903.

Species.	Hawaii.		Kauai.		Lanai.		Maui.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Ahólehóle	.....	.....	.....	.....	.....	.....	7,100	$373
Ama-ama	218	$54	9,000	$1,350	2,400	$600	20,306	4,061
Awa	.....	.....	700	70	.....	.....	3,176	614
Gold-fish	.....	.....	.....	.....	.....	.....	5,000	250
O ópu	.....	.....	.....	.....	.....	.....	3,400	102
Total	218	54	9,700	1,420	2,400	600	38,982	5,400

Species.	Molokai.		Oahu.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Ahólehóle	.....	.....	.....	.....	7,100	$373
Ama-ama	40,061	$10,015	358,130	$71,626	430,115	87,706
Awa	3,300	264	217,145	21,714	224,321	22,662
Carp	.....	.....	400	32	400	32
Gold-fish	.....	.....	1,267	101	6,267	351
O-ópu	.....	.....	1,200	72	4,600	174
Opae	.....	.....	150	23	150	23
Total	43,361	10,279	578,292	93,568	672,953	111,321

Table showing by islands, apparatus, and species the yield of the pond fisheries of the Hawaiian Islands in 1903.

Apparatus and species.	Hawaii.		Kauai.		Lanai.		Maui.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Seines:								
Ahóle-hóle							7,100	$373
Ama-ama			6,000	$900			20,306	4,061
Awa			300	30			3,176	614
Gold-fish							5,000	250
O-opu							3,400	102
Total			6,300	930			38,982	5,400
Gill nets:								
Ama-ama	218	$54	3,000	450	2,400	$600		
Awa			400	40				
Total	218	54	3,400	490	2,400	600		
Grand total	218	54	9,700	1,420	2,400	600	38,982	5,400

Apparatus and species.	Molokai.		Oahu.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Seines.						
Ahóle-hóle					7,100	$373
Ama-ama	7,061	$1,765	30,000	$6,000	63,367	12,726
Awa			22,191	2,219	25,667	2,863
Gold-fish					5,000	250
O-opu					3,400	102
Total	7,061	1,765	52,191	8,219	104,534	16,314
Gill nets:						
Ama-ama	33,000	8,250	170,000	34,000	208,618	43,354
Awa	3,300	264	108,572	10,857	112,272	11,161
O-opu			1,200	72	1,200	72
Opæ			150	23	150	23
Total	36,300	8,514	279,922	44,952	322,240	54,610
Dip and scoop nets:						
Ama-ama			158,130	31,626	158,130	31,626
Awa			86,382	8,638	86,382	8,638
Carp			400	32	400	32
Gold-fish			1,267	101	1,267	101
Total			246,179	40,397	246,179	40,397
Grand total	43,361	10,279	578,292	93,568	672,953	111,321

THE FISHERIES CONSIDERED BY ISLANDS.

During the year 1903 commercial fishing was prosecuted from the islands of Hawaii, Kahoolawe, Kauai, Lanai, Maui, Molokai, Niihau, and Oahu. This list shows an addition since 1900, for no commercial fishing was done by the few inhabitants of Kahoolawe at that time. The fishermen from these islands also frequent some of the smaller islands of the group, which are uninhabited the greater part of the year. In 1904 Mr. Max Schlemmer, of Honolulu, who is in charge of the guano work on Laysan Island, made an offer to the territorial government to lease Necker and Gardiner islands for a term of twenty-one years at a yearly rental of $25. It is his intention to engage in fishing from these islands during the rainy season (the equivalent of winter in the temperate region), when the guano work is not being

carried on, and he expects to dry sharks' fins, and also dry and salt fishes and other aquatic products. The steady demand for sharks' fins among the Chinese resident in the islands is at present supplied by importation.

When the magnificent area of the deep-sea fishing banks off the Hawaiian Islands is considered, the marvel is that the skillful fishermen have not visited them more extensively. The chief reason undoubtedly has been that the native, having few wants, could easily satisfy them, either inside the reefs which partially girt the islands within a mile from shore, or at the detached reefs nearby. Quite a change in the methods of fishing followed the advent of the Japanese, who, coming from an island country where ocean fishing had been practiced from time immemorial, naturally embarked in the same industry here. A few years' experience showed that the best fishing grounds were on the reefs off the west and south coasts of Molokai, and now these grounds are regularly visited by a fleet of 40 to 50 Japanese sampans from Honolulu. It is the custom to make trips on Monday, returning on Friday or Saturday of each week. This can not be called a vessel fishery, however, because the largest of the sampans is not more than about 4 tons net.

Owing to the rapid increase of the population of Oahu (especially Honolulu, the capital) during the last decade, the demand for fishery products has grown at a tremendous rate. Unfortunately the supply from the local fisheries has not kept pace with this demand, and as a result prices have increased enormously on some of the choicer species. Owing to the high traffic rates exacted by the interisland steamer lines, it has not been practicable to secure supplies from the adjacent islands, and thus for years the extensive resources of Kauai, Maui, and Molokai have been only partially worked, owing to the absence of a convenient market, while Oahu was absolutely suffering for the lack of these products, although willing and anxious to pay a good price for them.

Several attempts have been made (all by white men) to improve this condition, but for various reasons all have heretofore met with failure. The last serious attempt was in 1898, when a company was formed in Honolulu. At considerable expense, this company had the gasoline schooner *Malolo* constructed and fitted out to engage in the business, and a station was established at Palaau district, on Molokai. The idea was to leave fishing crews at this station and use the vessel in carrying the catch to Honolulu. Owing to the unreliability of the various crews, however, the project had to be abandoned the same year it was inaugurated. In February and April, 1904, when the last investigation was made, various schemes for establishing vessel fisheries were being worked out. A company, of which Mr. Lee Gilbert, of Honolulu, is the head, was formed early in the year and a small

schooner of about 7 tons burden was fitted up with a gasoline engine. Wells were built into the fore and aft holds of the vessel, and in these the fish were to be kept alive until the selling port should be reached. A fishing station had been established at Kaunakakai, on Molokai, and seine, gill net, and line crews were to go from there to the fishing banks near by, returning to the station when necessary with their catch, which would be retained alive in a fish pond until the schooner arrived. The first trip to Honolulu was on March 26th, and it was the intention to make about two trips a week after the enterprise was well started.

The Inter-Island Live Fish and Cold Storage Company, of Honolulu, formed in the spring of 1904, in addition to its comprehensive market scheme for Honolulu, proposes to embark in the deep-sea fishing. The small steamer *Talula* has been fitted up with wells for carrying the fish alive, and her motive power has been changed from steam to gasoline. It is the intention to use her in collecting fish from the fishermen on the Koolau side of the island of Oahu, from Kahana to Waimanalo, and this will prove a great boon to the fisheries of that section, for heretofore it has been impossible to reach a market except by a difficult 15-mile wagon trip across the island to Honolulu. The company has also the gasoline schooner *Brothers*, which was built in 1902, and has fitted her with wells and for use in transporting live fish from fishing stations to be established on Molokai, Maui, Lanai, and Kahoolawe, to Honolulu, the expectation being to make about three trips a week. Both vessels will carry ice for refrigerating purposes, and such fish as can not be kept alive will be placed in cold storage until marketed.

Feeling against the Japanese fish dealers and fishermen has been developing rapidly during the last few years. It is charged that native fishermen have been driven out of business by Japanese control of the fish markets and the refusal of the monopolists to pay the natives as much as they pay their own countrymen for their catch. Also that by securing a practical monopoly on certain islands the Japanese have been able to raise the price to the consumer and otherwise to regulate the markets to his disadvantage. The dealers at Hilo and Lahaina are specifically charged with these offenses, while those of Honolulu are thought to be rapidly advancing toward the same methods. The present investigation would seem to sustain these charges. The Japanese dealers, and also the Japanese fishermen, have mutual associations at Hilo, Lahaina, and Honolulu, and possibly at other places, and all their business affairs are managed through the officers of these associations. As the Japanese form almost one-half of the total population of the islands and are the principal consumers of fish, every effort is made by these associations to secure and hold the trade of their own people, and it has been charged that they even resort to the ostracism of a countryman who buys from an outside dealer or fisherman when

it is possible to secure the same thing from his own people. The same condition of affairs is said to prevail in other lines of business, and a feeling of antagonism has developed on the part of those who have been injured by the alleged unfair competition. The Japanese fishermen deserve great credit for developing and extending the deep-sea fisheries, which the native fishermen had allowed almost to die out; but, on the other hand, they do an immense amount of damage by destructive, and, in many instances, illegal methods of fishing with fine-meshed nets.

One of the results of the rapidly increasing prejudice against the Japanese fishermen was the effort in the summer of 1902 to prevent them, as aliens, from landing their catch without paying a customs duty of 1 cent per pound. The collector of customs at Honolulu supported this contention, but on appeal the Treasury Department refused to sustain the collector's action.

The Russian-Japanese war had the effect of considerably lightening Japanese competition, as large numbers of the fishermen of that nationality returned to Japan to enter the army. Over 90 of them left Honolulu for this purpose on one steamer in March, 1904.

THE FISHERIES OF HAWAII.

This, the largest island of the group, is 90 miles in length from north to south and 74 miles from east to west, with an area of 4,015 square miles, which is nearly double that of all the other islands combined. Geologists claim that this island is the youngest of the group, as its internal fires are still unextinguished. It is made up principally of three enormous volcanoes, two of which are still active, and both of which are larger than any other active volcanoes in the world. Mauna Kea, which is 13,825 feet above the sea, is the highest point on the island, and Mauna Loa is 13,675 feet in height. Both are snow capped throughout the year. The coast line of the island is regular, sometimes precipitous, and is badly handicapped for commerce by the lack of good harbors. Hilo Bay, on the eastern or windward side, is a rather open harbor, partly protected from the ocean by a sunken coral reef. There is no other harbor on the eastern side, but merely landings, which can be made only in fairly clear weather. On the westward side are the small open bays of Kailua and Kealakekua, which are safe so long as the winds prevail from the westward, which they do for nine months of the year. On the northwest is the open harbor called Kawaihae Bay, which is safe about half of the year. The lack of good harbors has always been a serious drawback to the fisheries of this island, as the fishermen are compelled to concentrate at a few places and dare not go far out in their small boats lest they be caught in storms or be blown off the coast.

The island is divided into the districts of Hamakua, Hilo, Kau, Kohála, Kona, and Puna. Hawaii for its size is not very densely inhabited, its population at the last census being 46,843, and the only places of importance are Hilo on the east, Pahala on the south, Napoopoo and Kailua on the west, Kawaihae on the northwest, and Laupahoehoe on the north. While there are a number of railroads projected for this island, but three are now in operation—the Hilo Railroad, from Hilo to Puna Plantation, 23 miles, and a branch from Olaa, on this road, to Mountain View, on the way toward the volcano of Kilauea; the Kohala Railroad, from Mahukona to Niulii, a distance of 20 miles, and the plantation railroad from Pahala to Punaluu. The two first-named railroads have been of considerable help to the fisheries, as they have made feasible the shipping of fish to plantations away from the coast and to those on the coast where it is not practicable to conduct fisheries. The islands have been undergoing a period of depression during the last three years, but as soon as this passes away—as it seems to be doing at present—there will undoubtedly be a large increase in the railroad mileage of Hawaii, and this can not fail to benefit the fisheries. At present there are many fine fishing sections where, owing to the lack of shipping facilities, practically no fishing is being carried on, or else merely enough is done to supply the wants of the people in the immediate vicinity. The Territorial government, by opening up new roads and repairing the old ones, is also incidentally helping the fisheries.

During the year 1903, 200 pounds of loli (bêche-de-mer) was gathered and sold to Chinese at Hilo, who prepared and shipped the product to San Francisco. In the curing process the loli after being split in half and having the entrails removed, are put in hot water in order to remove the slime, etc., and then placed in strong brine for twenty-four hours. On being removed from the brine they are dried in the sun, after which they are ready to ship. This is a new industry and gives promise of a considerable development in the near future, as the loli is quite abundant in the waters surrounding the island.

Another industry which gives promise of becoming quite important is the raising of frogs for market. In October, 1899, a shipment of 6 dozen frogs from Contra Costa County, Cal., was landed at Hilo and planted in favorable places around the city. Frogs soon became abundant, and in 1900 a few were taken for market, while in 1901 some were shipped to Honolulu. In the latter part of 1903 Lucas & Guard, of Hilo, leased the old Wailama canal, which formerly connected several of the fish ponds with the bay, but which had been cut off from the latter by the extension of the Hilo Railroad. This canal, or pond now, is about 200 feet in length by about 70 feet wide. It has been fenced around and a wire screen placed at the narrow opening

where the canal passes under the street, so that the frogs will be unable to get out and their enemies can not enter. At one side of the pond, where the water is shallow, a large section has been fenced off from the rest by a fine-meshed wire screen and divided into two compartments, in which are placed the eggs and the young tadpoles. In the larger section the young and full-grown frogs are allowed to roam at will. The pond contains many water hyacinths and pond lilies, which are quite necessary to the comfort and safety of the batrachians, screening them from the sun and from their chief enemies, the birds. The frogs are generally secured from the rivers and ponds near by, where they are caught by small boys armed with hook and line or scoop net. A uniform price of $1 per dozen is paid for these without regard to size. No attempt is made to feed them, and as they grow rapidly it is evident that natural food is quite abundant in the inclosure.

Only the medium-sized frogs are now shipped to market, the large ones being retained for breeding purposes. Shortly before shipment the frogs are removed from the pond to the wholesale market at Waiakea, near by, where they are placed in a tank built specially for the purpose. This tank, which is raised on supports, is about 15 feet long, about 5 feet wide, and about 4 feet deep, with the top slanting inward slightly in order to prevent the frogs from climbing up. The tank is divided by wire screens into four compartments, two of which are surrounded by a screen superimposed on the top of the tank, and reaching up about 6 feet, and the more active frogs are put into these compartments. Fresh water is supplied daily by means of a small electric pump. Although not introduced until 1899, the frogs have already attained a large size. Of three of the largest ones in the shipping tank on one occasion, two weighed 2 pounds each and the other 1¼ pounds. Thirty-six of all sizes, gathered from the tank and weighed together, averaged 5 ounces each.

Most of the frogs at present are shipped to the San Francisco markets via the regular line plying between Hilo and that port. They are sent in long, water-tight boxes with several inches of water at the bottom, this being changed every day during the eight to ten days required for the journey. The percentage of loss in transit is very small. A few frogs are also shipped via the interisland steamers to Honolulu and other towns, and all indications predict a rapid extension of the industry, as the animals are being introduced on the other islands, and efforts are being made to propagate them.

In 1900 Hawaiians predominated in the fisheries of this island, numbering 405 persons. At that time there were but 134 Japanese engaged in fishing. In 1903 this condition of affairs was reversed, and there were then 406 Japanese to 391 Hawaiians, an increase of

272 Japanese and a decrease of 14 Hawaiians. The other nationalties show small increases, but they occupy an insignificant proportion of the total, which, in 1903, was 827, as compared with 549 in 1900, a gain of 278.

The total investment in boats, apparatus, fish ponds, and shore and accessory property in 1903 was $37,912. As compared with 1900 there is a very material gain in the number of boats owned and the number of seines, bag nets, and cast nets operated, while the value of the lines used is more than doubled. There is a very material decrease, however, in the number of gill nets in use, and one less fish pond was operated.

The total catch was 1,404,794 pounds, valued at $101,149. The line fisheries furnished more than four-fifths of this. Gill nets, seines, cast nets, spears, dip nets, hands, baskets, bag nets, and snares follow in the order named. The akule is the principal species taken in the Hawaii fisheries, over one-third of the total catch being composed of this species alone. The other important species are aku, ulua, moáno, káwakáwa, oío, opélu, and puhi.

The following tables show the extent of the fisheries in 1903:

Table showing by nationalities the persons engaged in the fisheries of Hawaii in 1903.

	In shore fisheries.	Shoresmen.	Total.
Americans	6	4	10
Chinese	12	4	16
Hawaiian men	312	2	314
Hawaiian women	77	.....	77
Japanese	383	23	406
Portuguese	4	.....	4
Total	794	33	827

Table showing the boats, apparatus, fish ponds, and property used in the fisheries of Hawaii in 1903.

Item.	Number.	Value.	Item.	Number.	Value.
Boats	260	$18,970	Apparatus—(continued):		
Apparatus:			Baskets (opai)	42	$21
Seines	a22	4,850	Spears	95	95
Gill nets	b43	1,460	Snares	4	3
Bag nets	22	715	Fish ponds	3	1,500
Cast nets	124	620	Shore and accessory property	.....	8,342
Dip nets	22	110			
Lines	.....	1,226	Total	.....	37,912

a 1,153 yards. b 2,198 yards.

Table showing by apparatus and species the yield of the fisheries of Hawaii in 1903.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Dip nets.		Lines.		Baskets.		Spears.		Snares.		Hands.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
A'alaihi	200	$2					15,411	$154													15,611	$156
A'awa	2,169	289	1,086	$144																	3,255	433
Áhaáha											1,371	$69									1,371	69
Ahi							5,775	289			52,430	2,097									58,205	2,386
Ahólehóle	3,800	333									100	9									3,900	342
Aku, fresh											118,170	4,727									118,170	4,727
Aku, dried											48,000	1,920									48,000	1,920
Akule, fresh	19,172	863	33,144	1,492			23,080	1,154			406,973	20,349									482,369	23,858
Akule, dried											20,500	1,105									20,500	1,105
Ama-ama	2,034	407	218	54			1,356	271													3,608	732
Auau			1,068	22																	1,068	22
Au'ku															1,000	$40					1,000	40
Awa	756	84																			756	84
Awa-awa	250	25	66	6																	316	31
Awela											175	18									175	18
Aweoweo			1,879	120																	1,879	120
Hapú'upú'u											781	127									781	127
Haúliúli, fresh											11,600	928									11,600	928
Haúliúli, dried											9,100	455									9,100	455
Hihimánu											60	6			1,500	120					1,560	126
Hilu			88	5																	88	5
Hinaléa											889	45									889	45
Húmuhúmu			328	8							9,010	270									9,338	278
Iheihe	5,100	765	204	33																	5,304	798
I'iáo	900	14																			900	14
Kahála	100	5									23,940	1,197									24,040	1,202
Káku			36	3																	36	3
Kála	33	3	300	25																	333	28
Kálekále											13,316	1,332									13,316	1,332
Káwakáwa	1,300	195									54,737	2,737									56,037	2,932
Kawelea	1,400	224	4,006	668																	5,406	892
Kóle			84	17							125	3									209	20
Kumu	1,293	171	990	132							300	36			450	60					3,033	399
Kupipi							67	6													67	6
Laenihi	100	1	193	1							250	2									543	4
Lae	150	9	1,731	104							2,339	140									4,220	253
Lauhau							1,785	89													1,785	89
Lupe											5,350	321									5,350	321
Máhimáhi											18,599	1,488									18,599	1,488
Mai'i			32	4																	32	4

Table showing by apparatus and species the yield of the fisheries of Hawaii in 1903—Continued.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Dip nets.		Lines.		Baskets.		Spears.		Snares.		Hands.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Maikoiko			68	$5							75	$6									143	$11
Malolo	600	$150									18	5									618	155
Manini			1,694	138							2,489	199									4,183	337
Mano	778	17									4,219	94									4,997	111
Mikiáwa	25	3																			25	3
Moáno	333	40									65,947	7,914									66,280	7,954
Moi			6,779	1,085																	6,779	1,085
Mu			24	2																	24	2
Nehu	200	2					830	$14													1,030	16
Nenue			496	79																	496	79
Nóhu											1,644	164									1,644	164
Nunu	200	3									45	6									245	9
Oio			500	80							47,679	7,629									48,179	7,709
Omakaha	545	163			833	$.50															1,378	413
Ono											13,968	698									13,968	698
Oópuhúe													285	$57							285	57
Oópukái	1,015	51									39	2									1,054	53
Opélu, fresh	14,288	2,572	459	83					16,020	$2,884	3,025	545									33,792	6,084
Opélu, dried	5,000	200																			5,000	200
Opule											349	35									349	35
Páka											3,008	250									3,008	250
Paki'i							8,590	859													8,590	859
Paláni	100	5	225	9							185	7									510	21
Panuhúnuhú											71	18									71	18
Pauú	7	2																			7	2
Póopá'a											697	56									697	56
Pooú			951	159																	951	159
Puálu											1,122	56									1,122	56
Puhi											23,931	1,914			2,566	$205					26,497	2,119
Úhu			1,653	138																	1,653	138
Úku											3,475	695									3,475	695
Uláe			30	2																	30	2
Ulaula			7,000	1,750							10,308	3,092									17,308	4,842
Ulua	290	30	9,364	925							141,397	11,322									151,051	12,277
Umaumalei			42	12																	42	19
Uouóa			588	59																	588	52
Upapálu											1,196	179									1,196	179
U'u			713	71							19,231	962									19,944	1,033
Uwau			53	11																	53	11
Weke	400	24	4,062	271																	4,462	295

Frogs											2,400	500									2,400	500
Hee, fresh											3,950	593			9,549	1,411			1,337	$191	14,836	2,195
Hee, dried											2,950	374			4,050	540					7,000	914
Honu															475	24					475	24
Leho																			50	3	50	3
Limu																			1,425	156	1,425	156
Loli																			200	20	200	20
Opae													1,500	180					73	9	1,573	189
Opihi																			587	66	587	66
Papai	1,268	76																	2,703	162	3,971	238
Ula			150	25							2,000	200			1,350	140	700	$68	2,126	213	6,326	646
Wana																			1,458	146	1,458	146
Wi																			20	2	20	2
Total	63,806	6,728	80,304	7,742	833	250	56,894	2,836	16,020	2,884	1,153,533	76,896	1,785	237	20,940	2,540	700	68	9,979	968	1,404,794	101,149

THE FISHERIES OF KAHOOLAWE.

This island, which is 6 miles west of Maui, has an area of 69 square miles and, like all of the others, is quite mountainous, its highest elevation being 1,130 feet above the sea. It is devoted to sheep raising. In 1900 the sheep herders employed on the island possessed a seine, which they used in catching a supply of fish for their own consumption, but as they had no surplus none were sold. During the year 1903 five Hawaiians and four Japanese operated two seines and caught 27,100 pounds of fish, which they sold at Maui towns for $1,456.

The following tables show the extent of the fisheries in 1903:

Table showing the fishermen engaged, and the boats, apparatus, and shore property used in the fisheries of Kahoolawe in 1903.

Item.	Number.	Value.
Fishermen:		
Hawaiians	5	.....
Japanese	4	.....
Total	9	.....
Boats	3	$225
Apparatus:		
Seines	a 2	250
Shore and accessory property	.....	150
Total	.....	625

a 670 yards.

Table showing by apparatus and species the yield of the fisheries of Kahoolawe in 1903.

Species.	Seines.		Species.	Seines.	
	Pounds.	Value.		Pounds.	Value.
Akule	18,000	$1,080	Mu	200	$28
Kumu	500	50	Puálu	100	5
Laenihi	2,000	100			
Moáno	200	10	Total	27,100	1,456
Moi	6,100	183			

In January, 1904, Mr. Christian Conradt leased the island, and expects to devote a considerable part of his energy and capital to the development of its fisheries. It is a favorite resort of many schools of choice fishes, and only the lack of good harbors and the refusal of the former lessees to permit outside fishermen on the island, or even to fish in the adjacent waters previous to the abrogation of the fishery rights in the islands, had prevented its development into an excellent fishing station. The present lessee will operate several seines on the beach and will have a net pen anchored in the little bay near the settlement, in which the fish will be retained until it is convenient to send them to Malaaea Bay, on Maui, on a gasoline launch. Owing to the number of sharks in the waters surrounding the island, it has been found necessary to have a net constantly stretched across the mouth of the bay to keep them away from the pen.

THE FISHERIES OF KAUAI.

This island, which is the most northerly of the group, is about 63 miles from Oahu, the nearest large island, and has a length of 25 miles, a breadth of 22 miles, and an area of 547 square miles. It is mountainous, like the rest of the group, but, owing to its greater age, the lava which was vomited forth by its long extinct volcanoes has nearly all decomposed, and as a result the soil is very much more fertile than that of the other islands. It is supplied with numerous streams and cascades and has some superb valleys; it has been well named the "Garden Isle." The chief drawback is its lack of good harbors, all of the small bays around the island being wind-swept at some season of the year.

The island is divided into five districts: Hanalei, Kawaihu, Lihue, Koloa, and Waimea. The principal towns are Waimea, Lihue, and Hanalei, and at the time of the census of 1900 the population of the island was 20,562.

Although in the waters adjacent to this island fish are very abundant, only spasmodic efforts are made to catch them. The greater part of the fishing is carried on by native huis, or companies, which possess probably the best equipment to be found in the whole group, but lack the inclination to use it persistently. But few of the nets are operated more than once or twice a week, and if an exceptional catch is made the native fishermen will not go out again until they have spent all of its proceeds. This is especially true of that part of the coast lying between Nawiliwili and Hanalei. As a result there are gluts of fish for a few days near the fishery and then a period of scarcity, which varies in duration according to the inclination of the natives. The few seines owned by Chinese are operated consistently and well, and the Japanese, who devote their attention to the line fisheries principally, are steady workers. The inhabitants in the easily accessible portions of the interior of the island are served with fresh fish by a few peddlers who buy up the surplus catch of the fisheries and carry it around in small carts and wagons drawn by horses. Many of the inhabitants, however, find it impossible to secure fresh fish at any price during the greater part of the year and are forced to depend upon salted and canned products.

The products of the river fisheries of the island, which are insignificant, have been included with the shore fisheries. A little fishing was carried on in the Hanapepe, Hoale, Waiaula, and Waimea rivers, with cast and dip nets, traps and opae baskets. Ama-ama, oópu, and opae were the only species taken.

Carp are quite common in the irrigation ditches throughout the island, and with gold-fish and a Chinese species of cat-fish are quite numerous in the upper reaches of the River Haole and in private fish ponds in the Lihue district. But few are taken for market, however.

Frogs were introduced on this island about four years ago, and soon became fairly common in certain districts. In 1903 Mr. Francis Gay placed some near Makaweli, and Knudsen Brothers, of Kekaha, introduced them in their neighborhood early in 1904.

The pond fisheries are included in the tables below, but more detailed information in regard to them is shown elsewhere in this report.

In 1903 there were 314 persons engaged in the fisheries on Kauai, a gain of 107 over 1900. This gain is almost entirely among the natives, who increased from 120 to 237. There are not many Japanese employed as yet. The number of Chinese fell from 34 in 1900 to 19 in 1903.

The total investment in the fisheries is $15,101. Since 1900 the number of seines has increased from 1 to 21, and gill nets from 14 to 35. Bag nets and dip nets decreased in number, but the number of fish ponds decreased from 6 to 2. This does not mean that these fish ponds are abandoned, but that their owners obtained from them merely enough for their own wants, and consequently had no fish to sell, so that the ponds are removed from the commercial class for the time being.

The total catch was 377,946 pounds, valued at $34,738, a decrease as compared with 1900. More than one-half of the catch was made with seines.

The following tables show the condition of the Kauai fisheries in 1903:

Table showing by nationalities the number of persons engaged in the fisheries of Kauai in 1903.

	In shore fisheries.
Americans	4
Chinese	19
Hawaiian men	223
Hawaiian women	14
Japanese	54
Total	314

Table showing the boats, apparatus, fish ponds, and property used in the fisheries of Kauai in 1903.

Item.	Number.	Value.	Item.	Number.	Value.
Boats	71	$4,880	Apparatus—Continued:		
Apparatus:			Baskets (opae)	16	$12
Seines	[a] 21	5,585	Traps	13	185
Gill nets	[b] 35	324	Spears	4	8
Bag nets	2	300	Fish ponds	2	1,900
Cast nets	20	200	Shore and accessory property	.....	1,550
Dip nets	12	24			
Lines	.....	133	Total	.....	15,101

[a] 4,133 yards. [b] 1,009 yards.

Table showing by apparatus and species the yield of the fisheries of Kauai in 1903.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Dip nets.		Lines.		Baskets.		Traps.		Spears.		Hands.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Ahi	2,750	$175																			2,750	$175
Ahólehóle	333	50	680	$54																	1,013	104
Aku											11,420	$1,144									11,420	1,144
Akule	72,366	4,137			23,200	$1,610					7,550	735									103,116	6,482
Ama-ama	89,858	8,255	10,100	1,048	9,000	780	14,100	$1,899													123,058	11,982
Awa	5,200	358	860	77							300	29									6,360	464
Awa-awa	2,390	207																			2,390	207
Carp							3,100	186													3,100	186
Ehu											1,200	116									1,200	116
Iheihe (Puili)									7,100	$1,775											7,100	1,775
Híhimánu	210	15			50	4															260	19
Húiuhúiuu											1,035	100									1,035	100
Káku			1,050	79																	1,050	79
Kála	1,706	152																			1,706	152
Káwakáwa	3,580	256			100	8					1,575	155									5,255	419
Kumu											2,900	280									2,900	280
Mano	440	22			200	16															640	38
Mikiáwa	90	7			80	6															170	13
Moi	14,226	1,308	5,200	888	200	16	2,700	540													22,326	2,752
Nenue	2,225	190																			2,225	190
Oio	12,870	1,120			1,300	128					11,400	1,124									25,570	2,372
Oópu													3,050	$520	7,300	$730			900	$180	11,250	1,430
Opakapaka											600	140									600	140
Opélu	650	44			200	16															850	60
Puhi											625	55									625	55
Úku											1,400	140									1,400	140
Ulaula											8,100	790									8,100	790
Ulua	6,487	550	490	39	2,000	200					14,500	1,408									23,477	2,197
Weke											440	44									440	44
Hee, fresh																	600	$75			600	75
Hee, dried																	1,200	150			1,200	150
Honu	250	11			100	5															350	16
Linu																			1,710	212	1,710	212
Opae													1,100	100					400	40	1,500	140
Opihi																			600	120	600	120
Wi																			600	120	600	120
Total	215,631	16,857	18,380	2,185	36,430	2,789	19,900	2,625	7,100	1,775	63,045	6,260	4,150	620	7,300	730	1,800	225	4,210	672	377,946	34,738

THE FISHERIES OF LANAI.

This island lies about 9 miles west of Maui, is 21 miles in length and 8 in breadth, and has an area of 139 square miles. At the southeastern end there is a mountain 3,000 feet high. The island is the property of one person, Mr. Charles Gay, and its principal industry is sheep raising. According to the census of 1900 it had a population of 619. Schools of fish congregate around its shores, and it is the favorite resort of the fishermen from Lahaina and the eastern portion of Molokai. Since 1900 there has been a decrease of 24 in the number of persons engaged in the fisheries, and of 81,959 pounds in quantity and $18,884 in value of catch. This is largely due to Japanese competition, which has driven the native fishermen out of business. Seines and lines were used exclusively in the shore and sea fisheries, the two gill nets shown being used in the one fish pond operated.

The following tables show the extent of the industry in 1903:

Table showing the fishermen engaged, and the boats, apparatus, and shore property used in the fisheries of Lanai in 1903.

Item.	Number.	Value.
Fishermen:		
Hawaiians	22	.....
Boats	20	$2,500
Apparatus:		
Seines	a17	350
Gill nets	b2	16
Lines	.....	50
Fish ponds	1	700
Shore and accessory property	.....	90
Total	.....	3,706

a 650 yards. b 60 yards.

Table showing by apparatus and species the yield of fisheries of Lanai in 1903.

Species.	Seines.		Gill nets.		Lines.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'awa	.....	.....	.....	.....	300	$108	300	$108
Ahaáha	.....	.....	.....	.....	40	4	40	4
Ahólehóle	.....	.....	.....	.....	50	5	50	5
Aku	.....	.....	.....	.....	1,366	55	1,366	55
Akule	41,000	$1,128	.....	.....	483	13	41,483	1,141
Ama-ama	7,675	1,012	2,400	$600	.....	.....	10,075	1,612
Awa	.....	.....	.....	.....	500	40	500	40
Awa-awa	.....	.....	.....	.....	212	25	212	25
Aweoweo	.....	.....	.....	.....	90	10	90	10
Hapú'upú'u	.....	.....	.....	.....	1,250	167	1,250	167
Haúliúli	.....	.....	.....	.....	220	22	220	22
Hihimánu	.....	.....	.....	.....	120	6	120	6
Hilu	100	8	.....	.....	.....	.....	100	8
Húmuhúmu	.....	.....	.....	.....	2,178	109	2,178	109
Iheihe	55	13	.....	.....	.....	.....	55	13
I'iáo	3,750	60	.....	.....	.....	.....	3,750	60
Kahála	.....	.....	.....	.....	6,000	405	6,000	405
Káku	.....	.....	.....	.....	40	2	40	2
Kálu	190	15	.....	.....	.....	.....	190	15
Kálekále	400	40	.....	.....	25	3	425	43
Kananio	.....	.....	.....	.....	100	5	100	5
Káwakáwa	.....	.....	.....	.....	4,100	523	4,100	523

Table showing by apparatus and species the yield of fisheries of Lanai in 1903—Cont'd.

Species.	Seines.		Gill nets.		Lines.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Kumu	300	$49					300	$49
Kupóupóu					50	$13	50	13
Laeníhi	5,000	500					5,000	500
Lae	100	3					100	3
Máhimáhi					1,476	81	1,476	81
Maii'i	20	2					20	2
Malámaláma					40	2	40	2
Mano					120	12	120	12
Moáno	1,200	288			888	213	2,088	501
Moelua					164	16	164	16
Moi	5,600	660					5,600	660
Mu	125	30					125	30
Nehu	8,750	158					8,750	158
Oío					420	32	420	32
Ono					2,700	1,080	2,700	1,080
Opakapaka					2,908	291	2,908	291
Opule	80	40					80	40
Panuhúnuhú					144	22	144	22
Páopáo	70	21					70	21
Piha	2,500	40					2,500	40
Póopá'a					242	24	242	24
Pooú					182	22	182	22
Puálu	110	14			60	8	170	22
Puhi					300	45	300	45
Úkikíki					82	8	82	8
Úku					7,000	1,505	7,000	1,505
Uláe					80	8	80	8
Ulaula					590	295	590	295
Ulua					15,786	1,054	15,786	1,054
Úmaúmalei	190	38					190	38
Upapálu					20	2	20	2
U'u					258	23	258	23
Wálu					300	45	300	45
Muhee	30	15			40	20	70	35
Papai					100	12	100	12
Total	77,245	4,134	2,400	$600	51,024	6,335	130,669	11,069

THE FISHERIES OF MAUI.

This island, which is the second of the group in size, lies about midway between Hawaii and Molokai, and is 46 miles in length and 30 miles in width, with an area of 728 square miles. It is composed of two mountains—Haleakala to the northwest, with a height of 10,032 feet above sea level, and Eaka to the southeast, rising 5,820 feet in height. These two mountains are connected by a sandy isthmus 7 or 8 miles long by 6 miles across, which lies at such a slight elevation above the sea that the depression of a few feet would make Maui into two islands. There are no good harbors about the island. Kahului Bay and Maalaea Bay, on the north and south, respectively, of the neck of land joining the two parts of the island, are very open and wind-swept during the greater part of the year, while Lahaina is nothing but an open roadstead, though fairly safe as long as the wind blows from the westward, which it does nine months of the year. Kapueokahi Bay, at the western end, and Napili Bay, at the eastern end of the island, are small, open bays, not much used except for loading sugar. As a result of these conditions fishing on the island is largely confined to the vicinity of the two larger harbors.

The island is divided into five districts—Hana, Honuaula, Kaupo, Lahaina, and Wailuku. The population at the last census was 24,797. Lahaina, Wailuku, Kahului, Sprecklesville, and Hana are the principal towns and settlements. A railroad extends from Wailuku to Kahului, Sprecklesville, and Keia, and is used considerably in distributing fish landed at Kahului. Nine-tenths of the fishermen make their headquarters at either Lahaina or Kahului. At the latter place is located the Kahului fishery, owned by the Hawaiian Commercial and Sugar Company, which is one of the most important enterprises in the islands. The company leases the fishery for a rental of one-half the gross proceeds and furnishes everything but the labor required to operate it.

During the year covered by this investigation the Japanese line fishermen at Kahului were very successful. At this place Chinese buy the nehu and other very small fish taken in the nets, dry them in the sun on bags laid on the grass, and then peddle them throughout the surrounding country for about 25 cents per pound.

Owing to the large number of Japanese employed on the numerous sugar plantations of the island, there is a large demand for fresh fish, and this is supplied mainly by Japanese peddlers with horses and carts, who make periodical trips to the plantations from Lahaina and Kahului. The surplus from the fisheries of Kahoolawe, Lanai, and the western end of Molokai is marketed at either Lahaina or Kahului, and helps to supply the constantly increasing demands of the Maui fish consumers. There are at present no fish inspectors upon Maui, and as a result considerable old and tainted fish is sold. This is especially true at Lahaina.

One of the most interesting features of the fisheries of Lahaina disappeared in October, 1903, when the South Sea, or Gilbert, Islanders, who had a settlement in the upper part of the town, returned to their old home. These people had introduced and practiced a number of interesting and profitable methods of fishing, particularly that with baskets. They also did most of the spearing.

The Japanese fishermen at Lahaina and Kahului during the last two years have very much surprised the natives by catching akule with hook and line. Heretofore the natives used seines exclusively in this fishery, as they supposed it was impossible to catch akule on a hook. The Japanese are very secretive as to how they accomplish it, but the natives claim that the following method is pursued: The line has a chicken quill attached just above the hook, the lower part of the quill being broken out on all sides. The fishing is done at night, and the fishermen carry a flaring torch in the bow of the boat, to attract the fish. The line is dropped into the water and worked up and down, and it is supposed that the fish, seeing the reflection of the light on the

quill and thinking it a minnow, snap at it, and are thus caught on the hook. It is more probable, however, that when the fish have come up close to the light, the fishermen jerk the line up suddenly, catching the hook in the body of the fish, which may then be drawn quickly and easily into the boat.

Mr. Henry Williams, of Lahaina, purchased a gasoline launch in 1902 for use in line fishing, and also to cruise around among the fishing boats and buy their catches whenever possible, running into Lahaina to sell to the dealers at the markets. The boat was laid up about the middle of 1903 and has not been used in the fisheries since.

The irrigation dams and ditches on Maui contain many carp and gold-fish, but no commercial use is made of them as yet, although large numbers are taken for home use by the Japanese and Chinese employed on the plantations.

The streams of the island are few in number and are practically nothing but mountain rills. They contain gold-fish, oópu, uwau, and opae in large numbers, and while many of these are caught by the natives for home use, but few are sold.

Frogs are said to be quite numerous in the pools and taro patches of Wailuku and Makawao, having been introduced a few years ago, but no commercial use is made of them as yet.

The fisheries of the island have not varied much during the last three years. In 1900 there were 297 persons employed, while in 1903 there were 279, a decrease of 18. The principal change in the fishermen has been with the Japanese, who increased from 37 in 1900 to 80 in 1903, while during the same period the number of Hawaiians engaged decreased 63. There were 25 Gilbert Islanders (South Sea Islanders) engaged in the fisheries, but they left the islands in October, 1903.

The total investment in the fisheries was $18,511, an increase of $3,340 over 1900. This increase is accounted for largely by the cleaning out and putting to use of an old fish pond at Kahului.

The total yield of the fisheries was 1,212,445 pounds, which sold for $120,267. Lines are the most successful form of apparatus in use. Bag nets are second, and these are followed in the order named by seines, gill nets, baskets, spears, cast nets, and scoop and dip nets. Quite a number of native women and children also engaged in fishing with the hands alone. The principal species taken in the fisheries are akule, opélu, nehu, ulua, oío, aku, amaama, káwakáwa, and úku.

The following tables show the extent of the fisheries in 1903:

Table showing by nationalities the number of persons engaged in the fisheries of Maui in 1903.

	In shore fisheries.
Chinese	6
Hawaiian men	114
Hawaiian women	54
Japanese	80
South Sea Islanders	25
Total	279

Table showing the boats, apparatus, fish ponds, and property used in the fisheries of Maui in 1903.

Item.	Number.	Value.	Item.	Number.	Value.
Boats	94	$8,985	Apparatus—Continued:		
Apparatus:			Baskets (fish)	38	$380
Seines	a 30	1,290	Baskets (opai)	15	15
Gill nets	b 30	750	Spears	31	41
Bag nets	49	1,865	Fish ponds	1	2,500
Cast nets	25	200	Shore and accessory property		2,158
Scoop and dip nets	25	55			
Lines		272	Total		18,511

a 1,610 yards. b 1,500 yards.

Table showing by apparatus and species the yield of the fisheries of Maui in 1903.

Species.	Haul seines.		Gill nets.		Bag nets.		Cast nets.		Scoop and dip nets.		Lines.		Baskets.		Spears.		Hands.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
A'alaihi					1,600	$128	1,746	$133											3,346	$261
A'awa											2,196	$659							2,196	659
Aha					1,180	59					100	5							1,280	64
Ahi											30	2							30	2
Ahólehóle	7,100	$124	600	$10							2,750	413							10,450	547
Aku											57,978	2,174							57,978	2,174
Akule	171,334	3,400									96,548	2,600							267,882	6,000
Ama-ama	32,972	6,919	7,036	938															40,008	7,857
Auan			272	20															272	20
Au'ku															200	$24			200	24
Awa	3,176	211	1,000	333							4,712	1,178							8,888	1,722
Awa-awa	1,000	300	400	66							536	64							1,936	430
Aweoweo			7,500	500							2,949	304							10,449	804
Gold-fish	5,000	250							443	$22									5,443	272
Haúliúli											1,335	168							1,335	168
Hapú'upú'u											5,372	716							5,372	716
Hihimánu											835	209							835	209
Hilu	63	5			2,180	145							3,600	$240					5,843	390
Hinalea					3,360	168					1,747	87	5,300	336					10,407	591
Húmuhúmu											9,636	482							9,636	482
Iheihe	528	127									1,945	467							2,473	594
I'i					600	60													600	60
I'iáo	6,250	100			500	7													6,750	107
Kahála	713	44									19,276	301							19,989	345
Káku									2,900	$33									2,900	363
Kála	120	10	800	11	2,246	186							300	20					3,466	227
Kálekále	150	15									73	2							223	17
Kananio											212	21							212	21
Káwakáwa	8,200	2,050									24,268	3,034							32,468	5,084
Kawelea	489	150																	489	150
Kóle					28,000	224													28,000	224
Kumu	6,650	1,060			129	16													6,779	1,076
Kupipi							78	1											78	1
Kupóupóu					875	219					652	163							1,527	382
Laenihi	4,797	108			2,100	110													6,897	218
Lae	6,132	388	5,000	500															11,132	888
Laipála					1,730	311													1,730	311
Lauhau					300	60	424	25											724	85
Máhimáhi											10,678	508							10,678	508
Maii'i					1,565	188													1,565	188
Malámaláma											12	1							12	1
Mamámo					175	8													175	8

Table showing by apparatus and species the yield of the fisheries of Maui in 1903—Continued.

Species.	Haul seines.		Gill nets.		Bag nets.		Cast nets.		Scoop and dip nets.		Lines.		Baskets.		Spears.		Hands.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Manini			600	$12	1,480	$118							150	$9					2,230	$139
Mano	800	$24									25	$5			40	$1			865	30
Maumau					400	72													400	72
Mikiáwa	300	30																	300	30
Moáno	853	14			12,600	1,890					9,959	1,574							23,412	3,478
Moelua											592	148							592	148
Moi	4,282	514	2,900	290	1,541	247													8,723	1,051
Mu	147	15																	147	15
Nehu	12,500	225			79,400	1,491	6,750	$101											98,650	1,817
Nenue	160	40	1,600	200	46,300	6,945													48,060	7,185
Nóhu											520	26							520	26
Nunu	600	48			202	16													802	64
Ohua					300	75													300	75
O'ililepa											56	7							56	7
Oio			600	30	29,000	8,700					62,560	18,768							92,160	27,498
Olali							600	60											600	60
Ono											10,520	421							10,520	421
Opu	3,400	102							96	$31			11,246	337					14,742	470
Opukii											105	8							105	8
Opakapaka											9,434	2,358							9,434	2,358
Opelu					104,948	15,742													104,948	15,742
Opule	15	8			1,300	650													1,315	658
Paka											1,500	125							1,500	125
Pakaikawale									1,000	200									1,000	200
Paki'i							1,610	644	2,000	700	8	1							3,618	1,345
Palani	1,600	105											185	4					1,785	109
Panuhunuhu											514	130							514	130
Paopao	543	18																	543	18
Paupau	200	20																	200	20
Piha	5,000	80			600	8													5,600	88
Popa'a											727	18							727	18
Poou											545	50							545	50
Pualu	56	7	120	6							180	25							356	38
Puhi											12,110	2,019	42	3	90	5			12,242	2,027
Uhu					24	2													24	2
Uku											29,892	6,405							29,892	6,405
Ulae	750	8									241	3							991	11
Ulaula											614	129							614	129
Ulua	4,260	410	10,000	600	29,800	1,788					52,646	3,248							96,646	6,046
Umaumalei	80	8																	80	8
Upapalu					490	74					10	1							500	75

U'u			24	1	2,500	25					773	124							3,297	150
Wálu	2,800	140									280	28							3,080	168
Weke	1,300	49			1,717	120													3,017	169
Welea	1,800	90	4,400	880							3,560	534							9,760	1,504
Conch																	430	$108	430	108
Hee															10,894	1,550	6,124	857	17,018	2,407
Honu															440	17			440	17
Ina																	1,100	110	1,100	110
Leho																	900	225	900	225
Limu																	1,525	381	1,525	381
Loli																	300	75	300	75
Muhee	15	8									4	2			14	7	14	7	47	24
Opae									1,300	156			1,400	168					2,700	324
Opihi																	1,646	411	1,646	411
Pupai	400	4									76	9					450	54	926	67
Pupu																	175	35	175	35
Ula									963	160							2,610	910	3,573	1,070
Wana																	3,600	576	3,600	576
Total	296,475	17,228	42,852	4,397	359,142	39,852	11,208	964	8,702	1,632	441,291	49,724	22,223	1,117	11,678	1,604	18,874	3,749	1,212,445	120,267

THE FISHERIES OF MOLOKAI.

This island is located midway between Oahu and Maui, and in shape is long and narrow, being 40 miles in length and 9 miles in width, with an area of 261 square miles. The western half of the island is an elevated plain 1,000 feet above the sea, without running water, but covered with grass, while at the eastern end are several deep valleys, with streams of water during the wet season. The northern coast, which is the windward side of the island, is generally precipitous. Outside of the leper settlements on the northern side, nearly all of the population is located on the southern or leeward side of the island. Molokai must have supported a large population at one time, judging from the number of fish ponds still to be seen on the south side of the island. Many of these are abandoned now, owing to the inability of their owners to dispose of the fish to the very small population remaining there. There are no harbors anywhere along the coast; Pukoo and Kaunakakai, the principal settlements, are very small villages. The population of the island, according to the last census, was 2,504, of which over 800 were in the leper reservation.

It is probable that the near future will see a considerable development of the fishery resources of the southern and eastern sides of Molokai. The finest fishing banks of the group lie off this part of the island, and for some years past they have been much resorted to by the line fishermen from Honolulu and Lahaina. Several Honolulu concerns, which are now preparing to engage in fishing on these banks, will make their fishing headquarters on Molokai, where they will use some of the fish ponds for storing their fish until ready to ship. One company began operations this year (1904), with headquarters at Kaunakaki, where it has secured control of several fish ponds. It has several small boats engaged directly in fishing on the banks, and a small gasoline schooner employed in carrying to Honolulu or Lahaina the catch of these, and of such other fishing boats as may enter into satisfactory arrangements. The Inter-Island Live Fish and Cold Storage Company, of Honolulu, also expects to have an important fishing station on the south side of Molokai.

One of the worst features of the fisheries of Molokai is the tremendous destruction of young amaama (called by the natives "pua") in fine-meshed seines. These fish are only an inch or two in length, and are eaten by the natives raw or else slightly scorched over an open fire.

In the early part of 1903 Meyer Brothers secured a number of frogs from Hilo and placed them in a fresh-water mountain lake at Kalae. They also planted carp in this lake several years ago, but this fish has not proved popular as food.

The poisonous qualities of the oópuhúe, or maki maki (*Tetraodon hispidus*), have long been known to the Hawaiians, but as the fish

appears to be wholesome when properly prepared, it is sparingly eaten. The skin and gall bladder are thought to contain the poisonous properties, and if these are properly removed the flesh is said to resemble in flavor the white meat of chicken or turkey. In April, 1903, a powerfully built native of Kamalo, aged about 45 years, died within one hour after eating an oópuhúe. According to Dr. A. Mouritz, of Mapulehu, who treated the patient, the symptoms of oópuhúe poisoning, which manifest themselves very quickly, are as follows:

> Tightness and obstruction in breathing; giddiness, tingling, burning, and creeping sensations; nausea, vomiting, involuntary purging; rapid and irregular heart action; tendency to syncope; cold hands and feet; failing voice, vision, and hearing; body bathed in cold perspiration; pupils markedly dilated; face pale; great prostration; delirium; convulsive twitching of limbs and muscles of face and body. * * * The poison resembles aconite in large doses.

In 1900 there were 128 persons engaged in the Molokai fisheries, while in 1903 there were 300 so employed, a gain of 162. This gain is exclusively among the Hawaiians, the number of Chinese and Japanese having decreased. There is also a considerable increase in the number and value of boats and each form of apparatus used, but the number of fish ponds used commercially decreased by three.

The total yield of the fisheries was 274,331 pounds, valued at $32,389, a very material decrease since 1900. So far as quantity of catch is concerned seines lead, but in value of catch lines slightly exceed the seines. In value of catch gill nets are third, although they are preceded in quantity of catch by bag nets. Cast nets and spears follow in the order named. The principal species taken in the fisheries are akule, ama-ama, aku, oío, and ulua.

The following tables show the condition of the fisheries in 1903:

Table showing by nationalities the number of persons engaged in the fisheries of Molokai in 1903.

	In shore fisheries.
Chinese	6
Hawaiians	290
Japanese	4
Total	300

Table showing the boats, apparatus, fish ponds, etc., in the fisheries of Molokai in 1903.

Items.	Number.	Value.	Items.	Number.	Value.
Boats	78	$6,165	Apparatus—Continued:		
Apparatus:			Spears	24	$24
Seines	a 57	2,355	Fish ponds	12	4,050
Gill nets	b 84	1,440	Shore and accessory property	.....	1,100
Bag nets	11	1,450			
Cast nets	52	520	Total	.....	17,154
Lines	.....	60			

a 5,833 yards. b 12,720 yards.

Table showing by apparatus and species the yield of the fisheries of Molokai in 1903.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Lines.		Spears.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'alaihi							2,200	$176					2,200	$176
A'awa									900	$325			900	325
Ahi									200	10			200	10
Ahólehóle									1,600	144			1,600	144
Aku									18,000	675			18,000	675
Akule	54,100	$1,400			18,828	$480			400	10			73,328	1,930
Ama-ama	15,061	3,765	36,900	$9,225	400	100	5,300	1,325					57,661	14,415
Awa			3,800	308									3,800	308
Awa-awa	200	24											200	24
Aweoweo									900	104			900	104
Hapú'upú'u									600	80			600	80
Hilu	100	8											100	8
Hínaléa									1,900	380			1,900	380
Húmuhúmu									8,100	405			8,100	405
Iheíhe	1,700	268			1,000	240			1,600	384			4,300	892
Kahála	300	17							900	52			1,200	69
Kála	100	8			6,100	488							6,200	496
Kálekále	75	8											75	8
Káwakáwa	300	38							6,000	765			6,300	803
Kawelea	80	40											80	40
Kumu	6,550	1,075			6,500	1,062							13,050	2,137
Kupóupóu									290	73			290	73
Laenihi	250	25											250	25
Lea	1,100	38											1,100	38
Lauhau							1,200	72					1,200	72
Máhimáhi									700	39			700	39
Maíkoíko									100	6			100	6
Malolo	500	25			150	8							650	33
Manini					4,700	376							4,700	376
Mano	300	60											300	60
Moáno	300	72							4,400	1,056			4,700	1,128
Moi	195	23											195	23
Mu	25	6											25	6
Nehu							750	14					750	14
Nóhu									500	125			500	125
Nunu					2,100	140							2,100	140
Oío			1,200	90					15,000	1,125			16,200	1,215
Olali							820	82					820	82
Ono									600	25			600	25
Ópukái									150	20			150	20
Opélu					1,300	156							1,300	156
Opule	600	300			150	75							750	375
Páka									555	46			555	46

Paki'i							2,250	1,050					2,250	1,050
Paláni	3,500	65							2,000	250			5,500	315
Páopáo	800	240											800	240
Puálu	200	25											200	25
Puhi									2,300	345	1,400	232	3,700	577
Úhu					4,200	700							4,200	700
Úku									1,000	215			1,000	215
Ulaula									1,100	550			1,100	550
Ulua	600	36	2,000	120					8,000	480			10,600	636
Úmaúmaleí	100	20											100	20
Upapálu									113	11			113	11
U'u									444	36			444	36
Weke	330	20			1,600	100							1,930	120
Welea									510	128			510	128
Hee											2,300	150	2,300	150
Honu											250	8	250	8
Muhee	105	13											105	13
Papai	200	24											200	24
Ula	400	65											400	65
Total	88,071	7,748	43,900	9,743	47,028	3,925	12,520	2,719	78,862	7,864	3,950	390	274,331	32,389

The leper settlements.—Near the center of the northern coast of Molokai is a tongue of land about a mile broad and 10 miles long, projecting into the ocean. In 1865 this spit of land was purchased by the then Hawaiian Kingdom and set apart as a reservation for lepers. It is especially well located for this purpose, there being behind the point of land an almost impassable cliff 2,000 to 4,000 feet high. There are 6,348 acres in the tract, most of it fertile soil. On this reservation are two settlements, Kalaupapa and Kalawa, and all known lepers are compelled to reside at one or the other of them, or else leave the islands altogether. The territorial government provides quarters, clothing, and provisions for all its afflicted wards, and takes the greatest precautions to see that they are completely isolated from the rest of the islands and from the remainder of Molokai itself. The territorial board of health has full control of the two settlements and a nonleper can visit them only by its permission, which is exceedingly difficult to obtain. As the only vessel allowed to land at the settlements is the steamer chartered by the board, which makes a weekly trip thither from Honolulu, it is a very easy matter to control ingress to and egress from the settlements. A heavy penalty is provided for other vessels and boats touching or having communication with the settlements.

Some of the lepers were fishermen before being seized with the dread disease, and they have been allowed to continue the same occupation at the settlements. During 1903, 31 natives engaged in fishing and used 4 haul seines, 12 cast nets, 1 bag net, 1 corral net, and 9 spears. Should the fishermen secure more fish than they can dispose of themselves, the board will purchase the surplus at a uniform price of 5 cents per pound, and issue the same to the lepers in the settlements in lieu of their regular meat ration. During the year 1903 the board so purchased from the fishermen 15,028 pounds of fish. Some of the lepers have private means, while others, by working for the board, receive regular wages. These are in a position to purchase supplies for themselves in addition to those furnished by the board, and frequently the fishermen dispose of the choicer varieties in the catch at a higher price than the board pays. Being on the windward side of the island and exposed to the heavy surf caused by the trade winds, fishing is a rather difficult and oftentimes dangerous industry for a considerable part of the year, hence the number of days on which fishing is prosecuted is but few as compared with the southern, or leeward, side of the island. The season of 1903 was an especially poor one for the fishermen. In 1902 they sold to the board 25,191 pounds of fish, and in 1901, 20,085 pounds.

Absolutely none of the fish caught by the lepers is permitted to leave the reservation. Even if the fishermen were allowed to carry them

away there is no convenient market, for, with the exception of the settlements on the reservation, which contain about one-third of the total population of the island, there are very few people living on its northern side, the most of the inhabitants being on the southern, or leeward, side. To reach these by water would necessitate a long journey around one or the other end of the island, while to go overland to the nearest settlement would necessitate an 11-mile journey on foot after the cliff at the back of the reservation had been surmounted.

In 1903, in order to fill out the very small catch of their own fishermen, the board of health purchased 15,753 pounds of fresh fish from the fishermen of Halawa, a small nonleprous settlement some few miles to the westward of the reservation. Even with this addition the total amount to be distributed among an afflicted population of 855 was pitifully small, amounting virtually to 30.35 pounds per year to each person. There has been complaint by persons unacquainted with the circumstances that the board of health was making fresh fish too important an item in the diet of the lepers, but the above would certainly indicate that this contention was not well founded. Some salted and dried fish is also distributed among the lepers, but I am informed that the amount is quite small.

THE FISHERIES OF NIIHAU.

This, the most westerly of the inhabited islands of the group, is 15 miles from Kauai, and has an area of 97 square miles. The greater part of it is a low plain composed of an uplifted coral reef and substance washed down from the mountains, while the hilly portion is destitute of peaks and ridges. It has a population of 172, is used exclusively as a sheep ranch, and fishing is carried on in a very desultory manner by the employees of the ranch and their families. Should more fish be caught than they can consume the surplus is carried across the strait to Waimea, on Kauai, and sold there. A portion of the catch is dried and sold.

The following tables show the condition of the fisheries in 1903:

Table showing the fishermen engaged and the boats, apparatus, and shore property used in the fisheries of Niihau in 1903.

Item.	Number.	Value.
Fishermen:		
Hawaiians	12	.....
Boats	10	$750
Apparatus:		
Cast nets	7	70
Lines	.....	30
Shore and accessory property	.....	20
Total	.....	870

Table showing by apparatus and species the yield of the fisheries of Niihau in 1903.

Species.	Lines.		Cast nets.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'awa, fresh	100	$10			100	$10
A'awa, dried	300	30			300	30
Aku, fresh	3,600	360			3,600	360
Aku, dried	1,000	100			1,000	100
Ama-ama			3,100	$310	3,100	310
Ea, dried	600	60			600	60
Kála, fresh	200	20			200	20
Kála, dried	400	40			400	40
Moi			1,000	150	1,000	150
Oio	5,000	500			5,000	500
Úku	2,900	290			2,900	290
Ulaula, fresh	800	80			800	80
Ulaula, dried	1,000	100			1,000	100
Ulua, fresh	3,000	300			3,000	300
Ulua, dried	6,200	620			6,200	620
Weke	400	40			400	40
Total	25,500	2,550	4,100	460	29,600	3,010

THE FISHERIES OF OAHU.

Although but third in size, this island is the first in importance and population, Honolulu, the capital, being located upon it. It is 46 miles long by 25 miles broad, but has an irregular quadrangular form, with an area of 598 square miles. It is traversed from southeast to northwest by two parallel ranges of hills separated by a low plane, the highest point of the mountains being 4,030 feet above sea level. The greater part of the coast is bordered by a coral reef, often half a mile wide. This island has two fine harbors that are safe for large vessels at all seasons of the year—Honolulu Harbor and Pearl Harbor. The latter is very large and supports quite important fisheries within its bounds.

Oahu is divided into six districts: Kona (sometimes called Honolulu), Ewa, Waianae, Waialua, Koolauloa, and Koolaupoko. The principal city on the island is Honolulu, with a population of 39,306. Other important towns and settlements are Pearl City, Ewa, Waianae, Waialua, Kahuku, Heeia, and Waimanalo. According to the census of 1900 the total population of this island is 58,504.

An improvement which has done more than anything else to develop and foster the fisheries is the railway which skirts the water nearly all the way from Honolulu to Kahuku, a distance of 71 miles. By generous treatment of the fishermen along its line the railway company has developed a large carrying trade between the fishing grounds along its route and Honolulu, the chief market. Eventually the railroad will be extended completely around the island, making a belt line. Some very fine fishing grounds are located in the region not reached by the railway as yet, and the extension of the line to these will mean much to the fishermen of the island.

One of the most important features of the fisheries of Oahu is the fish ponds, more of these being used commercially on this island than on all the others combined. The fishery rights have also been of far greater importance and value than on any of the other islands. Both of these subjects have been treated in detail elsewhere in this report.

On October 17, 1903, the settlement of Gilbert Islanders (South Sea Islanders) near Honolulu, which formed one of the most picturesque features of the fisheries of Oahu, returned to their former home on Tarawa. They had been in the Hawaiian islands for a number of years, having been brought here by the royal government in the hope that enough could be introduced to offset the rapidly lessening number of natives, but the project was abandoned after several hundred had been introduced. In all 220 of them left, 85 from Lahaina and 135 from Honolulu, but 3 remaining on the islands. These people were quite skillful fishers and were the chief users of baskets, a most effective mode of fishing.

In many of the irrigation ditches for transporting water to the rice fields and taro patches, and in the trenches between the rows of Chinese bananas, are to be found china-fish, gold-fish and oópu. A few of these are sold, but the greater part are consumed by the workers in the fields and their families.

There are a few small fresh-water streams in the island, the principal ones being Kaneohe, Nuuanu, Piinaio, and Waiawa. During the rainy season these streams are raging torrents, but during the rest of the year they are almost dry or form numerous pools. Among the indigenous species found in them are the oópu and opae, and china-fish and gold-fish have been introduced. A considerable proportion of the catch from these streams is made by people living along the banks, who consume the most of it themselves. As the fishing in these waters is quite insignificant it has been included in the regular tables showing the shore fisheries.

In 1901 and 1902 some frogs from Hilo, Hawaii, were introduced in various places around Honolulu, as it was thought they might aid in ridding vegetation of the Japanese beetle, an insect which was rapidly becoming a pest.

The fisheries of Oahu show a most gratifying increase during the last few years. In 1900 there were 1,106 persons engaged in fishing, while in 1903 there were 1,478 so employed, a gain of 372. The most remarkable feature of this is the great increase of Japanese in recent years. In 1900 there were 259 Japanese fishing, but in 1903 they had increased to 707, a gain of 448. During the same period the number of natives so engaged dropped from 654 to 533, a loss of 121. The Chinese increased from 173 to 197, and the South Sea Islanders from 18 to 35.

Not much change is noted in the total value of investment i fisheries, the increase being $14,794. The greater part of this is up by the increased number of boats and lines used.

The total yield of the fisheries in 1903 was 3,515,850 pounds, v sold for $373,819. So far as quantity is concerned, lines occupy place in the fisheries, but in value of catch gill nets are first. S and dip nets occupy third place, followed by bag nets, hands, se cast nets, fish baskets, spears, traps, opae baskets and pots, in the o named. The most noticeable feature is the enormous falling o the catch of malolo. In 1900 this species was the most import 571,002 pounds, valued at $142,773, having been secured. In 1903 catch amounted to only 34,907 pounds, valued at $3,490, a decrease 536,095 pounds in quantity and $139,283 in value. This is accoun for largely by the fact that the natives, who prosecuted this fishe on a large scale for many years, have been gradually dropping out the business, partly because of the rapidly increasing competiti of the Japanese, and partly because of their own indifference. A present the leading species in the fisheries of Oahu is the aku, althoug the value of the catch of this species is exceeded by that of the ama-am akule and awa.

The following tables show the extent of the industry in 1903:

Table showing by nationalities the number of persons engaged in the fisheries of Oahu i 1903.

	In shore fisheries.		In shore fisheries.
Chinese	197	Japanese women	23
Hawaiian men	380	Portuguese	3
Hawaiian women	153	South Sea Islanders	35
Italians	3		
Japanese men	684	Total	1,478

Table showing the boats, apparatus, fish ponds, and property used in the fisheries of Oahu in 1903.

Item.	Number.	Value.	Item.	Number.	Value.
Boats	431	$38,325	Apparatus—continued.		
Apparatus:			Baskets (opae)	47	$21
Seines	a25	1,570	Spears	56	56
Gill nets	b496	10,350	Pots	2	20
Bag nets	29	1,930	Fish traps or pens	3	1,500
Cast nets	80	800	Fish ponds	67	154,900
Dip and scoop nets	133	349	Shore and accessory property	.....	3,835
Lines	.....	1,182			
Baskets (fish)	50	500	Total	.....	215,338

a1,810 yards. b26,980 yards.

Table showing by apparatus and species the yield of the fisheries of Oahu in 1903.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Scoop and dip nets.		Lines.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'alaihi	3,200	$256			2,908	$233	4,553	$366				
A'awa	2,017	303	4,034	$605								
Ahaáha			609	49					4,000	$320		
Ahi							130	10			92,000	$7,260
Ahólehóle	5,500	440	6,770	532							4,674	374
Aku											501,914	20,077
Akule			151,652	13,364	88,376	7,376	65,201	5,216			98,202	7,856
Ama-ama	40,813	8,163	265,252	53,050	13,000	2,600			158,130	31,626		
Awela			162	16								
Auau			232	23								
Awa	33,048	3,305	162,681	16,473					86,382	8,638		
Awa-awa			41,358	12,407								
Aweoweo			51,021	3,571								
Carp									400	32		
China-fish									1,090	323		
Gold-fish									8,042	659		
Hapú'upú'u											64,245	8,352
Hihimánu											3,500	140
Hilu			3,220	129								
Hinaléa											5,000	200
Húmuhúmu			1,606	48							6,424	193
Iheihe			10,239	1,229	20,478	2,457						
Kahála											34,144	1,405
Káku			7,246	870								
Kála	7,000	700	20,694	1,035								
Kálekále											155	8
Káwakáwa											60,000	15,000
Kawelea											1,185	178
Kihikiki	92	5										
Kóle			73	29								
Kumu	15,745	3,149	20,000	4,000	20,000	4,400	4,000	800	5,000	1,100		
Kupipi			112	14								
Kupóupóu											155	31
Laeníhi	14,552	1,455	2,000	200							1,638	164
Lae			2,464	197							2,463	195
Lauhau			74	7			100	15				
Máhimáhi											33,138	5,965
Maii'i			4,060	365								
Maíkoíko			1,000	60							159	10
Maka'a											301	120
Malolo			800	80	34,107	3,410						
Mamámo			100	10								
Manini			8,000	640	6,000	488						

Table showing by apparatus and species the yield of the fisheries of Oahu in 1903—Continued.

Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Scoop and dip nets.		Lines.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Mano			2,000	$20	1,200	$12					5,000	$50
Mikiáwa	1,000	$10	1,188	96								
Moáuo	14,000	1,260	4,430	399							36,860	3,317
Moi			58,996	1,770								
Mu			226	7								
Nenue			2,851	713								
Nóhu											1,770	230
Nunu			105	5	9,000	450						
Oio			8,000	400							14,683	2,496
Omakaha	1,509	272			100	18						
Omilu											18,430	1,474
Ono											16,450	1,452
Oópu			1,200	72					10,113	$903		
Opakapaka			2,612	313							5,000	500
Opélu	31,346	3,762	50,000	6,000							50,500	6,060
Opule					200	32					821	131
Paki'i	503	50					503	$50				
Paláni			2,500	188					1,500	113	576	43
Póopú'a			5,380	323							2,000	120
Pooú			600	24								
Puálu	6,030	450	7,000	525					4,600	345	4,000	300
Puhi			200	10							12,715	536
Úhu			8,000	1,280	12,884	2,060						
Úku			97	29							8,900	2,670
Uláe			541	32							541	32
Ulaula			2,000	1,000							5,951	2,975
Ulua			65,000	3,900							90,000	7,200
Úmaúmalei			458	36								
Uouóa			10	1								
Upapálu					1,000	300	300	90			287	86
U'u			55,000	4,400							43,000	3,440
Weke			60,000	4,200	45,000	3,600					3,000	240
Hee											18,841	1,060
Honu			520	78								
Muhee			96	48								
Opae			550	83								
Papai			2,300	138					60,777	3,647		
Ula			7,615	1,275					10,000	1,000		
Total	176,325	23,580	1,114,934	136,368	254,253	27,436	74,787	6,547	350,034	48,706	1,248,622	101,940

Table showing by apparatus and species the yield of the fisheries of Oahu in 1903—Continued.

Species.	Baskets (fish).		Baskets (opai).		Traps (fish).		Pots.		Spears.		Hands.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'alaihi													10,661	$855
A'awa													6,051	908
Ahaáha													4,609	369
Ahi													92,130	7,270
Ahólehóle													16,944	1,346
Aku													501,914	20,077
Akule					620	$50							404,051	33,862
Ama-ama													477,195	95,439
Awela													162	16
Auau													232	23
Awa													282,111	28,416
Awa-awa													41,358	12,407
Aweoweo													51,021	3,571
Carp													400	32
China-fish													1,090	323
Gold-fish													8,042	659
Hapú'upú'u													64,245	8,352
Hihimánu									225	$9			3,725	149
Hilu													3,220	129
Hinaléa	3,147	$125											8,147	325
Húmu-húmu													8,030	241
Iheihe													30,717	3,686
Kahála													34,144	1,405
Káku													7,246	870
Kála	3,347	335											31,041	2,070
Kálekále													155	8
Káwakáwa					1,554	388							61,554	15,388
Kawelea													1,185	178
Kihikiki													92	5
Kóle													73	29
Kunu	3,000	660							2,300	506			70,045	14,615
Kupipi													112	14
Kupóupóu													155	31
Laeníhi													18,190	1,819
Lae													4,927	392
Lauhau													174	22
Máhimáhi													33,138	5,965
Maii'i													4,060	365
Maíkoíko													1,159	70
Maka'a													301	120
Malolo													34,907	3,490
Mamámo	869	87											969	97
Manini	10,000	800											24,000	1,928
Mano					600	6			500	5			9,300	93

Table showing by apparatus and species the yield of the fisheries of Oahu in 1903—Continued.

Species.	Baskets (fish).		Baskets (opai).		Traps (fish).		Pots.		Spears.		Hands.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Mikiáwa													2,188	$106
Moáno													55,290	4,976
Moi													58,996	1,770
Mu													226	7
Nenue													2,851	713
Nóhu													1,770	230
Nunu													9,105	455
Oio													22,683	2,896
Omakaha													1,609	290
Omilu													18,430	1,474
Ono													16,450	1,452
Oópu													11,313	975
Opakapaka													7,612	813
Opélu													131,846	15,822
Opule	800	$128											1,821	291
Paki'i													1,006	100
Paláni	5,000	375							800	$60			10,376	779
Póopá'a													7,380	443
Pooú													600	24
Puálu	15,000	1,125							2,000	150			38,600	2,895
Puhi	8,000	400							2,000	100			22,915	1,046
Úhu	4,000	640											24,884	3,980
Úku													8,997	2,699
Uláe													1,082	64
Ulaula													7,951	3,975
Ulua													155,000	11,100
Umaúmalei													458	36
Uouóa													10	1
Upapálu													1,587	476
U'u													98,000	7,840
Weke					2,000	$160							110,000	8,200
Hee									20,000	1,200	17,681	$1,061	56,522	3,321
Honu									2,000	300			2,520	378
Ina											3,000	360	3,000	360
Limu											41,000	1,025	41,000	1,025
Muhee													96	48
Olepa											300	24	300	24
Opae			4,475	$895							1,800	270	6,825	1,248
Opihi											70,200	10,530	70,200	10,530
Papai											12,000	1,440	75,077	5,225
Ula							3,500	$200	20,000	2,000	30,000	3,000	71,115	7,475
Wana											5,177	828	5,177	828
Total	53,163	4,675	4,475	895	4,774	604	3,500	200	49,825	4,330	181,158	18,538	3,515,850	373,819