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**The
commercial
fisheries of the
Hawaiian
Islands in 1903**

John Nathan Cobb

HARVARD UNIVERSITY.



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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

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Agent of the Bureau of Fisheries

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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. 1906.

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 1850, 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 taboos 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.
<i>Fishes.</i>			
A'alaihi .....	.....	10 to pound.....	Thalassoma duperrey.
A'awa	Wrasse-fish	11 ounces.....	Lepidaplois albotæniatus; L. strophodes.
Āhaāha	Needle-fish	5½ ounces.....	Athlennes hians; Tylosurus giganteus.
Ahi	Albacore	30 pounds	Germo germo.
Ahia	do .....	.....	.....
Ahōlehōle .....	.....	2 ounces	Kuhlia malo.
Akīlōlo .....	.....	.....	Gomphosus, Thalassoma, etc.
Aku	Ocean bonito.....	5 pounds	Gymnosarda pelamis.
Akule	Mackerel scad.....	10 ounces.....	Trachurops crumenoph- thalma.
Hahalalu (young).....	do	5 to pound.....	do.
Alaihi	Squirrel-fish .....	.....	Holocentrus (any species). Dascyllus; Pomacentrus.
Alélélé (a small fish found in little tide pools.) .....	.....	.....	.....
Ama-ama	Mullet.....	5 ounces	Mugil cephalus.
Anāe (adult)	do	2½ pounds	Mugil.
Anaehole	do .....	.....	do.
Puai'i (very young).....	do .....	.....	do.
Āpi .....	.....	.....	Chirurgus guttatus. Zebra soma hypselopteron.
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	½ 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. do.
Alalaua (young)	do .....	.....	do.
Carpa .....	.....	.....	Cyprinus carpio.
China-fish ^a .....	.....	½ pound (e).....	Ophiocephalus.
Gold-fish ^a .....	.....	10 to pound.....	Carassius auratus.
Hapū'u pū'u	Grouper	15 pounds	Epinephelus quernus.
Ha'ilūlū	Snake mackerel .....	.....	Lemnismosa serpens.
Hihimānu	Spotted sting-ray	25 pounds (e).....	Stoasodon narinari.
Hilu (generic name)	Wrasse-fish	3 pounds.....	Anampes cuvieri.
Hilu lauwilli	do .....	.....	Julis lepromis, 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.
<i>Fishes—Continued.</i>			
Hinaléa (generic name) ..	Wrasse-fish	4 ounces	Thalassoma ballieui.
Hinaléa Lauwili	do	do	Thalassoma duperrey.
Hinaléa niau	do	do	
Hinaléa pála-pála-úli ..	do	do	
Hinaléa Luahine	do	do	Thalassoma ballieui.
Hinaléa Lolo	do	do	Julis pulcherrima.
Hou (Hawaii)		1 weighed 4 pounds ..	Thalassoma purpurum.
Hímuhímu nukunuku	Trigger-fish	13 ounces	Balistapus rectangulus;
apu'a.			Hemiramphus depauperatus.
Ihehe	Half-beak	4 to pound (e)	Euleptorampus longrstris;
			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	Do.
Kálekále		12 ounces	
Káwakáwa	Bonito	3 pounds	Gymnosarda alletterata.
Kawelea	Lizard-fish	1½ pounds	Trachinocephalus myops.
Keke	Puffer	1 pound (e)	Tetraodon hispidus.
Kíhikíhi	Moorish idol and surgeon-fish.		Zanclus canescens; Zebra-
			soma veliferum.
Kíkakápu	Butterfly-fish		Cheilodactylus vittatus;
			Chatodon sphenospilus;
			Chatodon lunula, ornatis-
			simus, unimaculatus?
Koá'e		10 to pound (e)	Ctenochaetus 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.
Kupópou	Wrasse-fish	12 to pound (e)	Cheilio inermis.
Lae	Mackerel	1 pound	Scomberoides tolooparah.
Laeníhi		10 ounces	Hemipteronotus; Iniistius.
Lai pála	Surgeon-fish	6 to pound (e)	Zebрасoma flavescens.
Lao	Wrasse-fish		Halicheres lao.
Lauhau	Butterfly-fish	12 to pound (e)	Chatodon quadrimaculatus.
Lólohau	Flying gurnard	6 to pound (e)	Cephalacanthus orientalis.
Loulo			Alutera monoceros.
Loulu	Moorish idol		Zanclus canescens.
Máhimáhi	Dolphin	25 pounds	Coryphæna hippurus.
Mai'i	Surgeon-fish	6 to pound (e)	Hepatus elongatus.
Maíkoíko	do	9 ounces	Hepatus sandwichensis.
Maka'a	Cavallas	10 to pound (e)	Carangus pollius; Malacanthus parvipinnis.
Malámálama		6 to pound (e)	Coris rusea.
Malolo	Flying-fish	2 to pound (e)	Cypsilurus simus.
Puhiki'i	do	12 to pound (e)	Parexocetus brachypterus.
Mamáma	Demoiselle		Abudefduf abdominalis.
Mamámo	Rudder-fish	10 to pound (e)	Kyphosus fuscus.
Mamámu	Porgy		Monotaxis grandoculis.
Manéonéo			Zebрасoma hypselopurum.
Maníni	Surgeon-fish	6 ounces	Hepatus sandwichensis.
Mano (general name for sharks).	Shark		Carcharias, any species.
Mano-kíhikíhi	Hammer-headed shark.	2½ pounds	Sphyrna zygaena.
Mano-níhúí	Shark	40 pounds (e)	
Mano-mólemóle	do	do	
Manonóni (on Hawaii) ..		1 weighed 2 pounds ..	
Maumau		6 to pound (e)	
Mikáwa	Herring	3 to pound (e)	Etrumeus micropus.
Móa	Trunk-fish		Ostracion seabæ.
Moáno	Goat-fish	6 ounces	Pseudupeneus multifasciatus.
Moi	Threadfin	1½ pounds (e)	Polydactylus sexfilis.
Moiíhi (young)	do	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.
Nenu (sometimes spelled "Eneue").	Rudder-fish	2 pounds (e)	Kyphosus fuscus.
Nóhu	Mail-cheeked fishes.	3 pounds	Scorpaenopsis gibbosa, etc.
Nóhupináó	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.
<i>Fishes—Continued.</i>			
Ohua	Wrasse-fish		<i>Cantherines sandwichiensis</i> ; <i>Osbeckia scripta</i> .
O'ili			<i>Stephanolepis spiliosoma</i> .
O'ililepa	File-fish		<i>Osbeckia scripta</i> ; <i>Cantherines sandwichiensis</i> .
Oio	Bonefish	9 ounces	<i>Albula vulpes</i> .
Amoomoo	do		Do.
Okúhekúhe (fresh water)	Goby		<i>Eleotris fusca</i> ?
Olale		2 to pound (e)	<i>Thalassoma purpuratum</i> .
Omakaha	Herring	3 ounces	<i>Scorpenopsis gibbosa</i> ; <i>Etrumeus macropus</i> .
Omilu	Cavalla	6 pounds (e)	<i>Carangus melampygus</i> .
Ono	Bonito	60 pounds	<i>Acanthocybium solandri</i> .
Oópu	Goby	12 to pound (e)	<i>Eleotris sandwichiensis</i> , etc.
Hinana (young)	do		
Oópuhúe ^a	Puffer	1 pound (e)	<i>Tetraodon hispidus</i> ; <i>Chilomycterus affinis</i> .
Keke	do		
Maki-maki (deadly death)	do		<i>Tetraodon hispidus</i> .
Oópukáí		12 to pound (e)	<i>Cirrhitus vomeratus</i> .
Opakapaka	Snapper	5 pounds (e)	<i>Bowersia violascens</i> ; <i>Apsilus microdon</i> .
Opélu	Mackerel scad	6 ounces	<i>Decapterus sancte-helenee</i> .
Opule	Wrasse-fish	½ pound	<i>Anampes curvier</i> ; <i>Thalassoma purpureum</i> .
Páka	Eel	10 pounds (e)	
Pakí'i	Flounder	8 to pound (e)	<i>Platophrys mancus</i> .
Pakuikui			<i>Hepatus achilles</i> .
Paláni		8 to pound (e)	
Palúkalúka	Parrot-fish		<i>Callyodon paluca</i> .
Panuhūnuhū	do	1 weighed 4 pounds	<i>Callyodon gilberti</i> .
Paó'okaúila	Blenny		<i>Salaria brevis</i> .
Páopáo	Cavalla	12 to pound (e)	<i>Caranx speciosus</i> .
Pauú	Squirrel-fish	1 weighed 3 pounds	<i>Myripristis chryseres</i> .
Pihá		24 to pound (e)	
Pilikó'a		8 to pound (e)	<i>Paracirrhites forsteri</i> ; <i>P. arcatus</i> ; <i>P. cinctus</i> .
Póopá'a		7 ounces	<i>Dascyllus albisella</i> ; <i>Paracirrhites cinctus</i> .
Poóú	Wrasse-fish	1½ pounds	<i>Cheilinus hexagonatus</i> .
Poupou		12 to pound (e)	
Púakahála	Amber-fish		<i>Seriola purpurascens</i> .
Púalu	Surgeon-fish	2 pounds	<i>Hepatus dussumieri</i> , etc.
Puhí (generic name)	Moray	3 pounds	<i>Gymnothorax</i> , any species.
Puhí kápa			<i>Echidna nebulosa</i> .
Puhí kauila	Moray		<i>Muraena kailua</i> .
Puhí kumátone	do		
Puhí léihála	do		
Puhí laumili	do		<i>Echidna undulatus</i> .
Puhí móeóné	do		
Puhí páka	do		
Puhí úha	Conger eel		<i>Leptocephalus marginatus</i> .
Puhí wéla	Moray		<i>Echidna pictus</i> ?
Puúllí	Half-beak		
Úhu	Wrasse-fish	2½ pounds	<i>Julis lepomis</i> ; <i>Callyodon lineatus</i> .
Úhúla	Parrot-fish		<i>Scarus ahula</i> .
Úlú	Flounder		<i>Platophrys pantherinus</i> .
Úkíkiki	Snapper	3 ounces	<i>Platyinus microdon</i> .
Úku	do	5 pounds (e)	<i>Aprion virescens</i> .
Úláe	Lizard-fish	6 to pound (e)	<i>Synodus varius</i> ; <i>Saurida gracilis</i> .
Úlúla	Snapper	2½ pounds	<i>Etelis marshi</i> ; <i>Bowersia uluala</i> .
Úlúa	Cavalla	23 pounds	<i>Carangus latus</i> .
Pápiopto (young)	do	10 to pound (e)	Do.
Pa'upa'u	do	7 ounces	Do.
Úlúa kihikihí	Thread-fish		<i>Alectis ciliaris</i> .
Úlúa hálé		6 to pound (e)	
Úlúa	Mullet	½ pound	<i>Chenomugil chaptalii</i> .
Úlúa	Cardinal-fish	30 to pound (e)	<i>Amia menesemas</i> .
Úlúa	Squirrel-fish	4 ounces	<i>Myripristis murdjan</i> .
Úlúa		2 to pound (e)	
Úlúa	Surgeon-fish		<i>Stephanolepis spiliosoma</i> .
Úlúa	Surmullet	12 ounces	<i>Hepatus xanthopterus</i> .
Úlúa	Goat-fish		<i>Mulloides</i> .
Úlúa	do		<i>Upeneus arge</i> .
Úlúa	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.
<i>Fishes—Continued.</i>			
Welea	Lizard-fish	20 pounds (e)	Trachinocephalus myops.
Wolu .....	.....	.....	.....
<i>Crustacea.</i>			
Aloalo	Prawn?	4 ounces .....	.....
Opae	Shrimp	150 to pound (e) .....	.....
Papai	Crab	2½ ounces .....	.....
Aama	do .....	.....	.....
Alamihī	do .....	.....	.....
Ula	Crawfish	1½ pounds .....	.....
Ulaapapa	do	1½ pounds .....	.....
<i>Mollusca.</i>			
Conch	Conch .....	.....	Purpura aperta.
Haukenke .....	.....	.....	.....
Hee	Octopus	3 pounds .....	.....
Hee puloa	do .....	.....	.....
Puloa	do .....	.....	.....
Ina (with short spines)	Sea-urchin	10 to pound (e) .....	.....
Leho	Cowrie .....	.....	Cypræ carneola, etc.
Muhēe	Squid?	7½ pounds .....	.....
Olepe	Clam	8 to pound, including shell	Tellina rugosa.
Opihi	Limpet	60 to pound	Neritina granosa.
Oūnaūna alealee	A coiled shell	8 to pound (e) .....	.....
Pa	Pearl oyster	20 to pound, meats	Melina costellata.
Pupu	Sea-snail .....	.....	Ricinus horrida.
Wana (with long spines)	Sea-urchin	4 to pound (e) .....	.....
Wi	Limpet	60 to pound .....	.....
<i>Miscellaneous.</i>			
Frogs .....	.....	7 ounces .....	.....
Honu	Turtle	15 pounds (e) .....	.....
Ea (not edible)	do .....	.....	.....
Kohola	Whale .....	.....	.....
Palaoa	Sperm whale .....	.....	.....
Limu	Algae .....	.....	.....
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.	Kaboolawe.	Kauai.	Lanai.	Maul.	Molokai.	Niihau.	Oahu.	Total.
Americans	10	.....	4	.....	6	.....	.....	.....	14
Chinese	16	.....	19	.....	.....	6	.....	197	244
Hawaiian men	314	5	223	22	114	290	12	380	1,360
Hawaiian women	77	.....	14	.....	54	.....	.....	153	296
Italians .....	.....	.....	.....	.....	.....	.....	.....	3	3
Japanese men	406	4	54	.....	80	4	.....	684	1,283
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

COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. 443

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

Item.	Hawaii.		Kahoolawe.		Kauai.		Lanai.		Maui.	
	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	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 prop-erty		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								
Aha'aha	1,371	69					40	4
Ahi	58,205	2,386			2,750	\$175		
Ahólehóle	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
Hinaléa	889	45						
Húmuhúmu	9,338	278			1,035	100	2,178	109
Iheíhe	5,304	798			7,100	1,775	55	13
I'i								
I'iao	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								
Kálekéle	13,316	1,332					425	43
Kananío							100	5
Káwakáwa	56,037	2,932			5,255	419	4,100	523
Kawelen	5,406	892						
Kihikihi								
Kóle	209	20						
Kumu	3,033	399	500	50	2,900	280	300	49
Kupipi	67	6						
Kupoupou							50	13
Laenili	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
Mai'i	32	4					20	2
Maikoiko	143	11						
Maka'a								
Malámálama							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'ililepa								
Oío	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		

COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. 445

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	6,061	908	12,802	2,443
				300	30			300	30
1,280	64					4,609	369	7,300	506
1,30	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	31,064
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	64,833	4,649
						400	32	3,500	218
						1,090	323	1,090	323
5,443	272					8,042	659	13,485	981
				600	60			60	60
								1,200	116
5,372	716	600	80			64,245	8,352	72,248	9,442
1,355	168							13,155	1,118
								9,100	555
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	13,272	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	278
6,779	1,076	13,050	2,137			70,045	14,615	96,607	18,606
78	1					112	14	1,257	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
10,520	421	600	25			18,430	1,474	18,430	1,474
14,742	470					16,450	1,452	44,238	3,676
						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.		Kahecolawe.		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.....								
Pakfi.....	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
Úkíkiki.....							82	8
Úlæ.....	30	2					80	8
Úlæula, fresh.....	17,308	4,842			8,100	790	590	295
Úlæula, dried.....								
Úlua, fresh.....	151,051	12,277			23,477	2,197	15,786	1,054
Úlua, dried.....								
Úmaúmalei.....	42	12					190	38
Úouóa.....	588	59						
Úpapálu.....	1,196	179					20	2
Ú'u.....	19,944	1,033					258	23
Úwau.....	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.....								
Opæ.....	1,573	189			1,500	140		
Opihi.....	587	66			600	120		
Papai.....	3,971	238					100	12
Pupu.....								
Úla.....	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

COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. 447

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	.....	.....	10,375	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	34,389	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 Maui. 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'ililepa, pakai-kawale, poupou, conch, and pupu only in Maui; the lupe, ópuphue, pauú, uwau, and frogs only in Hawaii; the ea only in Niihau; the ehú only in Kauai, and the úkikfki 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	215,388	+ 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 (-).
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	
Hawaii.....	1,304,311	1,404,794	+100,483	+ 7.70
Kahoolawe.....		27,100	+ 27,100	+100.00
Kauai.....	408,521	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.....	376,255	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.....	89,998	34,738	- 55,255	- 61.40
Lanai.....	29,858	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, cuttlefish, 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.	
	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	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		1,980
Shells, unmanufactured		13				
Shell and mother-of-pearl, manufactures of.....						1,662
Total		3,676		2,201		3,592
British Columbia:						
Fish (except salmon)—						
Fresh		281		38		
Pickled		50		493		102
Herring, pickled or salted	760	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 years 1901, 1902, and 1903—Continued.

Country and product.	1901.		1902.		1903.	
	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	Value.
England:						
Anchovies and sardines		\$2,506				
Fish, cured and preserved		986		\$345		
Total		3,492		345		
Germany:						
Anchovies and sardines		3,937		2,249		\$2,214
Fish—						
Cured and preserved		21		476		81
Pickled		660				
Shell and mother-of-pearl, manufactures of						46
Total		4,618		2,725		2,341
Hongkong [China]:						
Anchovies and sardines		7		154		
Fish (except salmon), fresh		42		258		
Fish, cured and preserved		18,212		11,022		9,754
Herring, pickled	pounds.		150	3		
Oil, whale and fish	gallons.	27	8	24	4	
Shells, unmanufactured						1
Shrimp, other shellfish, and turtles				5,889		8,326
Total		18,269		17,330		18,081
Japan:						
Anchovies and sardines		2				15
Cod, haddock, hake, and pollock, salted, pounds			270	9		
Fish—						
Fresh		65				
Cured and preserved		53,528		48,693		43,797
Herring, smoked	pounds.				105	4
Mackerel, pickled	do.				765	21
Salmon, pickled	do.		606	28	1,760	70
Oil, whale and fish	gallons.		4	2		
Shells, unmanufactured		1		4		6
Shell and mother-of-pearl, manufactures of						3
Shrimp, other shellfish, and turtles				5,374		23,333
Total		53,596		54,110		67,249
Norway:						
Fish, pickled and preserved						45
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		4,600
Portugal:						
Anchovies and sardines				474		
Scotland:						
Fish, pickled and preserved						94
Samoa:						
Shells, unmanufactured		10				

The following table shows the fishery products imported into the islands during the calendar years 1901, 1902, and 1903, and indicates a progressive increase over former years for which data are available. In 1897, 1898, and 1899 the total foreign imports (exclusive of those from the United States) amounted to \$49,688, \$55,405, and \$74,528, respectively; in 1901 they were \$91,066, in 1902 \$86,690, and in 1903 \$97,305. Fish cured and preserved (mainly dried fish from Japan)

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.	
	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	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.	
	Num-ber.	Value.	Num-ber.	Value.	Num-ber.	Value.
British Australasia:						
Mackerel			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			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 $1\frac{1}{2}$ 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												
Abi	10	1				3	541	283	4	97	1,116	
Aho'e	847	1,116	989	783	3,034	1,841	1,280	91	56	91	1,430	368
Aho'e-hole					905	2,736	1,629	389	178	17		
Akua	15,003	3,790	2,180	22,142	32,595	70,915	66,865	7,919	943	3,513	1,774	667
Akahi							109	127				
Akai	912	1,326	1,618	400	2,523	2,112	609	2,566	1,152	4,016	2,213	721
Akai	1											
Akai	182	70	35	161	1,077		7	6		5	117	
Akai	426	83	16	322	1,023		211	569	151	176	628	198
Akai	17,598	6,209	1,074	11,027	35,437	44,641	35,321	61,113	74,873	65,746	129,682	41,764
Akai (Octopus)	34	6		12	10	3	33		39	3	32	29
Hilo							872		475	22		
Hinala							505	321	380	72	357	
Honu (turtle)	159	44		76	612	611	46	35	4	3		
Humbumu							85					
Hehe							46					
Kahala							12					33
Kaku	24						612					
Kala	563	52	36	465	1,454	637	12	8	8	919	36	181
Kakale							21	445	2,316	4,843	585	181
Kakakawa	92	25			240	406	157	162	643	166	182	163
Kawalea									2			
Kihikihi	200	9					144	20				
Ko'e	160	56	20	150	758	57	112	112	29	84	316	64
Kupu	16	7	2	22	271	2,108	42	60	1	8	267	87
Kupu	48	33			441	71	78	16	21		109	
Laenih												
Lupe												
Mabi												
Mahimahi	26	1					5		22	58	33	174
Maikoiko	249	113	171	155	236	837	196	867	108	164	1,773	243
Manana	241	116	184	301	686	652	9	12	3	3	420	412
Mano	18	9	23	40	45	43	117	1,236	152	156	305	223
Manononi									137	192		
Mano	1,276	684	100	100	1,933	848	3,125	2,061	3,053	693	971	319
Moi	453		136	480	2,839	1,744	1,367	372	483	28	2,007	92
Mu							7					
Muhee (squid)	70	3			32		70	76			195	17
Nenu		5	16	7								

	7	4	9		12		42	44	13	4	84	2
.....	140	276	296	1,372	471		128	79	82			16
.....	182	40	60	187			190	680	816	96	1,820	
.....	429	80	98				8,844	2,620	87	52	4,386	1,644
.....	567	400	8,469	1,400	4,000	4,981	662	453	87	136,201	49,192	1,541
.....	2,899	918	860	1,270	2,099	355	662	482	87	199	688	212
.....	178	46	13	735	456	386	177	586	41			
.....				18			11	28	8			
.....	391		60		1,469		2,694	1,448	2,063	1,125	2,876	95
.....	240	281	79	924	322	3,146	67		18,502	61		
.....	24	7	8	21	84	42	87	57	43	8		
.....	32		9	186	186	396	27	16	16	17	62	88
.....	96	86	54	50	96	14	14	95	16	48	70	9
.....	107	49	10	90	188	26	14	25	26	83	131	48
.....	363	129	41	452	922	430	489	164	658	253	91	78
.....		37	12	20	22	65	94	103	58	67	156	55
.....							89		291	321	186	544
.....	85	40	54	61	600	337	338	268	477	420	287	132
.....	191	341	90	965	1,388	1,968	177	614	80	171	870	126
.....	156	139	0	0	0	709	901	159	116	2,235	2,373	124

1903.

	17	2	11	19		3	29	47	11	10	9
A'aiahi.....	201	75	683	185	551	83	906	169	258	446	680
A'awa.....						8	317	285	1		11
Aha.....											
Apasaha.....	162	51	41	116	31	31	188	53	50	460	
Ahi.....	1,017	3,964	2,790	2,481	727	727	116	66	251	31	272
Ano'ehole.....					1	870	272	2	43	959	638
Aku.....	10,368	2,680	46,975	31,928	5,929	8,167	6,031	2,366	3,539	449	577
Akule.....										9,596	17,928
Ai'aiana.....	849	1,627	557	1,079	664	280	280	282	282	283	259
Ama-ama.....	3			1							
Au.....	79	4	119	6	54	3	7	2	1		
Awau.....	2	6	12	8	4						
Awawa.....											
Awela.....											
Aweco'o.....	150	36	185	389	1		106	78	242	286	167
China-fish.....											
Hahaione.....	3,521	6,469	6,613	2,663	4,013	2,578	36,607	21,407	88,461	5,464	3,583

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.
Hapu'upu'u			1	5	4	2		4	7	3	5	
Hee (octopus)	30	12	33	17	32	44	46	90	103	42	42	91
Hihimani		1		1				2	2	207		
Hiloa					10			1				
Hulu				3	599	354	182	483		114	230	119
Hunaia	138	16	183	394					63			
Honu				1								
Honu (turtle)												
Honohonuu	97	22	103	107	243	90	49	343	37	168	143	155
Honohonuu		156	156	200	228	25	25	4	1	11		
Kahala	3	25	99	86	43	24	14	4	5	5	2	8
Kaakawa		17										
Kaku	2	32	3	11	17	2	2	1	2			
Kala	472	215	992	1,438	2,446	954	1,142	2,047	586	1,837	1,231	2,095
Kalakale		9										
Kaokae	37			24	58	7	9	235	25	83		39
Kawakawa	196	32	331	36	140	47	219	224	43	637	296	570
Kavelea				2			2	1				
Kahikihii												
Kole												
Kole	34	30	71	117	77	46	32	121	338	223	263	259
Kumu		7	8	4		4			48			
Kupipi					1			1				
Kupoupu					6							
Lee	572	436	1,240	130	166	20	3	13	4	19	69	98
Laemi			11	26	39	17	21	88	19	66	20	186
Lape	1	1	1							2		
Mahimahi	138	51	20	7	9	5	27	50	70	65	33	23
Mafu				78	12	2			2	8		
Maiko	105	5	36	22	49	33	1	18	10	12		
Maikoko								17				
Malaiakala					6			3				
Malolo					2	5	4	3				
Malopiliiko				2	1							
Mamamo				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
Moano	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	1,178	55	49	145	176
Mu					2	1	1	1	2			
Muhee (squid)										81		26
Mukumuwhuanuu												
Nenuu	9	45	50	32	26	185	3	48	20	21	11	46
Nohu		7	5	18	23	16		11	8	127	22	26

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.
Alalahi			224	8	7	3	6	10	8	119	5	51
Awa	244	599	698	307	761	412	952	186	363	131	820	512
Aha							75	255	23	12		
Ahadia	6		98	114	433							
Ahi			27	98	114	222	104	160	49	17	17	23
Ahohohole	515	1,175	2,461	2,526	410	1,103	865	517	517	3,317	2,340	596
Akiihilo												
Aku	44				221	838	223	468	51	178	368	550
Akrie	981	8,559	14,922	6,956	45,298	8,020	3,130	3,595	1,230	29	90	473
Alalahou							3					
Alaleua			23									
Alalo (prawu?)												
Ama-ama	1,291	658	169	617	555	1,213	415	88	142	326	514	230
A'u			594		777	500						
Anae					4							
Anau			77	68	19	36	37	20	49	23		17
Arae		255		1,873			1,928	730	373	570	838	456
Awa			2									
Awa-awa			1	4	7	7	24	10	12	30	30	1
Awakalamoku						25	2					
Awowoo	40	253	174	74	134	81	43	92	154	68	256	442
Habalau	2,949	1,851	535	521	2,890	31,960	28,144	257,523	250,876	104,626	93,314	101,649
Hapi'u pa'u			6	2	7	4	22	19	18	33	8	5
Hanitu										12	20	57
Hee (octopus)	59	61	62	29	49	23	50	50	45	77	24	121
Hihimánu			2		195		1	4	1		1	
Hiloa			1	4								
Hilo			4	8	4	2	4		3		2	2
Hinalá			930	760	691	538	512	566	103	53	40	222
Honu (turtle)	80	210	16	1	2		1					6
Hímuhímú	83	124	366	136	212	164	316	76	141	48	46	219
Thebe			77	78	30	22	29	9		9	16	3
Kahála		2	77	15	6	6	2	9	7	3	3	12
Káku						3	1	2		1		2
Káku	4				10	7	20	4		9	21	6
Kálekále	554	278	703	528	1,123	740	646	837	1,748	3,705	1,353	661
Kaoo			4	54	46							
Kawakáwa	8	35	49	10	118	118	166	149	1,684	7,894	303	85
Kawalea	40	296	354	45	254	254	292	309	1,282	1,870	240	494
Kihikihi					6		2	7	8	1	16	2
Ko'o'o							33	58	34	28	30	20
Kole					24	27	2	2				
Kumu	35	137	54	129	51	49	28	60	47	20	34	131

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Kupipi	5	8	49	6	23	8	1	6	8	2	1
Lae	2	777	27								
Lai	17	85	47	45	46	70	8	56	82	76	115
Lae-nihi		120									255
Lar-hau				1	1		8	4		1	3
Lupe		1	1								
Māhimāhi	17	44	77	111	21	57	18	113	65	40	168
Māi'i	17	29	77	151	56	521	5	24	5	14	4
Māi'ko	61	45	39	100	100	177	2	2	12	19	150
Makāa		7	6	7			15	5	4		
Malaialena			1		2		7	6	18		
Malolo											
Manene	546	11	1	1	207	177	65	196	221	82	471
Manini	87	49	551	667	12	166	70	47	78	106	306
Māno	1,817	4,663	1,402	3,328	1,791	4,740	928	3,311	862	1,007	2,559
Mōno	241	681	375	1,687	965	130	348	97	52	166	264
Mōkumokuwahanui		6	2	3	1	1	1	2	4	3	3
Mu	2	3					22	39	44	2	6
Muhee (squid)							3	25	58	153	30
Nama											
Namu	19	254	34	20	46	50	50	68	29	29	72
Nenue	12	22	22	25	11	14	10	65	49	33	35
Nōhu											
Nukumomi	4	34	5	6	10	48	18	8	10	31	63
Nunu		5				2	862	16	31		
Oeoe											
Oi'ililepa				15							
Oio	182	696	259	857	281	490	761	533	1,107	391	690
Omakaha	1,644	844	289	149	1,479	259	1,162	482	864	91	725
Omakā			4	25	9	14	12	17	11	1	1
Ono											
Oopu	117	12									
Oopukāi		200	150	632	243	291	29	369	35	12	11
Opaē											
Opakapaka	87	46	26	48	80	67	982	108	49	18	37
Opēlu			214	86	228	230	1,481	749	47,577	361	624
Opue			1	6	6	26	2	2	2	1	7
Pāi'i			5								
Pakī'i											
Pakī'i-kui				1							
Pakani			17	18	4	16	145	62	28	13	94
Panui (tunohū)	90	2	4	3	1			2	4	0	3
Papai (crab)	907	1,302	1,140	775	1,624	2,836	2,663	1,145	492	927	578
Pāpōhō											
Pilikōhō	113	255	97	636	45	71	158	177	558	2,062	1,034
Pōhōhō					85						
Pōhōhō-a	35	814	170	295	113	576	71	75	50	4	16
Pōpō	40	109	26	91	23	71	18	23	33	6	23
Pūhū			4		5	3		3		4	4
Pūhi	26	94	29	83	24	93	64	23	85	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.
Puhiki	75	29	17	2	43	18	204	136	66	2	1	62
Uhu	17	18	38	6	18	22	35	29	17	4	2	7
Ua (crawfish)	83	51	235	123	136	132	179	121	68	156	23	118
Uasapaa	2	2	2	2	4	4	7	7	11	10	9	11
Uae	13	13	18	5	7	7	7	7	11	10	9	11
Uapapaa	495	619	1,484	1,023	531	266	355	331	1,013	976	764	553
Uaua	17	11	94	46	168	107	393	171	296	290	242	682
Uoua	17	99	580	69	152	31	236	107	208	207	144	93
Uapapa	17	99	468	69	152	31	236	40	394	324	154	405
Wai	122	260	589	46	121	90	71	243	45	87	288	6
Wau (sea urchin)	122	260	589	201	269	132	199	136	395	367	288	1,250
Waka	122	260	589	201	269	132	199	136	395	367	288	1,250
Fish condemned				303		681	521	2,010	1,007	860	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'aiathi.....	4,669	951	1,547	2,920	3,167	1,095	1,484	1,800	2,552	1,686	1,717	1,710
A'awa.....	1,261	862	1,100	619	385	767	288	327	855	616	616	582
Abasha.....	1,633	799	1,152	58	113	245	143	252	139	499	1,319	181
Abi.....	16	12	61	52	54	129	20	23	23	59	13	108
Abofehóie.....	8,562	5,613	8,188	5,909	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	1,586	2,263
Akula.....	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.....	84,787	66,652	90,462	59,323	56,467	58,623	36,652	56,411	49,844	47,133	85,662	84,600
Awa.....	11,213	14,031	17,076	13,790	22,108	28,071	25,080	20,898	16,432	17,714	18,026	7,245
Awaawa.....	3,158	1,234	2,524	2,095	5,061	7,297	4,179	5,036	15,987	4,799	4,589	1,601
Awa kalamoku.....	1											
Awela.....	10		29	8	18	4	9	11	16	17	23	20
Aweoweo.....	1,393	584	794	48	77	76	71	206	654	2,945	1,922	747
China-fish.....	35		10	94	26		6					1
Gold-fish.....	2,970	1,343	176	310	1,715	1,505	420	3,350	2,367	2,120	517	1,480
Hahala.....		595						5,627	84,071	111,249	98,463	33,859
Hapu'upu'u.....	52	50	56	99	114	129	34	25	23	13	20	79
Hadhuli.....	11											
Hee (octopus).....	1,270	867	1,186	971	760	1,398	1,202	2,483	3,468	2,412	2,216	1,580
Hihimánu.....	8	7	1	4	14	9	6					4
Hilu.....	62	85	78	46	27	34	14	18	64	52	85	56
Hinaléa.....	1,426	1,891	1,713	886	1,001	1,360	2,242	2,012	3,020	2,045	1,607	1,252
Honu (turtle).....	6	7	19	24	13	15	14	34	23	22	31	78
Húmuhúmu.....	138	179	239	105	77	64	460	970	521	355	283	242
Ihehe.....	2,422	2,597	734	20,452	497	2,176	1,113	3,131	1,317	382	288	282
Kahala.....	265	185	102	213	366	170	32	32	177	24	19	162
Káku.....	110	133	160	160	174	201	146	336	206	156	111	702
Kála.....	1,564	1,721	1,457	2,353	1,622	2,063	1,073	522	723	973	715	702
Káwakáwa.....	93	2,667	2,667	2,862	2,447	1,142	1,466	4,527	603	8,346	346	434
Kawelea.....	22	33	124	62	30	19		5	12	36	41	25
Kihikini.....	191	69		156	33	25						
Kóie.....	460	161										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.....												
Kupoupu.....	247	337	174	173	137	1,544	168	45	127	32	68	41
Lae.....	585	344	295	178	186	232	1,084	3,023	1,368	1,136	109	28
Laubau.....	170	89									857	458
Máhimáhi.....	12	11									7	9
Mai'i.....	1,957	918	302	27	173	190	174	418	398	125	140	902
Maiko.....	289	314	90	12	137	29			375	1,185	597	
Maikoko.....												
Maká'a.....	52	10										
						38	152	823	454	289	69	41

Malolo	565	7,477	9,025	9,942	2,758	1,874	28	165	523
Mamámó	26		6	71	49	100	585	3,345	3,984
Mamáhi	4,265	2,179	1,632	982	1,621	4,165	4,293	282	154
Mano	94	82	259	347	388	346	388	7,969	88
Mikiáwa	19	44						7,940	1
Móáno	5,873	4,943	7,877	9,230	10,778	12,533	10,199	4,861	3
Mol	1,881	3,766	3,684	1,164	3,761	2,872	4,361	1,318	26
Mu	19				36	331	1,318	454	43
Muhee (squid)								298	1
Naenae	77	139	303	146	76	309	454	6,310	5,070
Nenue	102	9	14	4	7	9	1	1,217	69
Nóhu	25	26	24	19	74	27	163	1,120	752
Nunu	44							34,384	28,898
Oama	8	13	16		13		5	170	402
Olo	1,504	3,773	4,381	1,787	2,194	3,226	3,237	115	57
Omaka	225	438	897	231	440	1,880	2,934	110	30
Omlu	39	96	574	63	96	44	74	304	203
Ono	2	13	14	14	29	21	12	1,120	752
Ópu	385	1,618	1,115	680	527	200	80	384	59
Ópákapaka	101	116	45	22	21	17	63	34,384	28,898
Ópélu	7,142	3,343	5,140	6,942	16,705	30,507	17,839	1,120	752
Ópule	840	291	181	44	23	59	172	304	203
Paki'i								170	402
Pakuikui	50	30	330	266	253	115	74	36	30
Paláni	172	439	717	228	149	300	449	110	57
Panuhóhúhú	135							7,788	5,736
Papai (crab)	8,043	3,185	3,320	2,832	8,510	12,296	7,316	5,134	698
Papiópio	1,945	1,89	849	13	2,690	9,700	10,074	2,899	5,856
Pauu	1,800	3,081	3,896	2,340	1,791	2,016	2,899	4,520	473
Poopáa	603	234	584	288	220	761	466	100	30
Pood								1,282	918
Puálu	633	1,650	1,849	986	1,174	1,052	1,282	328	273
Puáhi	248	389	177	153	249	241	264	273	
Puhiki'i								407	273
Uhu	625	1,347	1,920	2,366	28,629	5,225		320	177
Ukiki'i	48	177	163	2,611	1,352	866	1,316	145	235
Uku	460	116	135	294	292	221	254	1,503	1,062
Uia (crawfish)	944	784	4,291	3,404	3,421	1,820	1,219	1,219	1,062
Uige								14	25
Uiaapapa (crawfish)	28	87	40	179	152	53	48	5	30
Uiaula	35	21	113	25	15	15	65	68	68
Uia	297	576	422	612	486	514	700	418	347
Umaumale'i	389							50	30
Upapálu	1,092	359	161	3,188	851	887	1,999	1,455	1,244
Upu	6,062	1,321	1,083	5,074	6,890	7,101	8,919	7,215	10,994
Uwau								50	
Wálu	3							673	357
Wana (sea urchin)	297	139	1,712	2,420	737	717	4,665	4,144	3,846
Weke	6,791	7,246	4,559	2,829	4,122	4,308	4,665	4,144	3,846
Fish condemned	1,304	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	3,090	2,418	5,078	3,090	4,158	4,783	7,956	7,602	5,984	7,383	18,474	15,903
A'au	314	277	1,178	274	616	1,256	788	933	488	7,436	776	744
A'ua	190	256	639	211	1,911	1,780	562	1,238	887	1,182	1,182	696
Abi	190	256	639	211	1,911	1,780	562	1,238	887	1,182	1,182	696
Abulehóle	4,063	4,236	7,435	7,950	9,667	4,475	2,698	5,721	2,787	2,849	5,552	7,184
Aku	2,759	3,288	3,287	6,249	6,278	3,547	3,919	8,182	6,996	1,896	3,040	7,563
Akule	86,842	7,618	27,287	29,194	39,698	27,767	22,819	14,721	47,421	47,097	9,986	20,484
Arma-ama	10,842	7,507	5,453	41,491	56,709	38,022	41,983	16,476	13,327	47,097	65,118	64,189
Awa	1,194	1,110	1,570	1,794	2,371	2,640	2,811	10,472	2,792	2,841	10,236	5,696
Awa-awa	1	17	15	12	27	16	28	232	23	4	3,344	1,035
Awela	20	6	54	12	27	16	28	232	23	4	212	23
Aweoweo	910	308	1,098	715	677	172	257	779	2,777	5,230	15,560	9,653
China-fish	41	2	3	9	9	7	7	9	9	14	14	2
Gold-fish	3,191	1,565	2,639	1,858	4,306	2,855	2,708	3,839	3,445	2,508	3,369	261
Habalau	37,041	41,783	62,873	3,826	4,176	8	307	2,403	17,233	21,446	46,364	24,461
Hanó'upú'u	154	69	444	308	282	620	307	80	328	100	100	310
Hā'ilili												
Hee (octopus)	1,613	814	1,656	433	526	263	361	1,084	1,393	2,700	2,587	2,718
Himamānu	13	2	11	17	11	17	11	62	11	11	40	45
Hilu	69	41	101	17	60	132	78	36	10	10	40	45
Himalāea	1,329	1,068	2,262	601	1,373	2,061	2,217	2,627	1,520	1,882	2,561	2,754
Honu (turtle)	6	9	10	18	26	29	11	11	10	10	7	10
Hūmuhūmu	76	100	90	286	555	966	494	640	484	834	622	455
Ihehe	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
Kahāla	71	63	359	89	133	122	41	31	58	38	121	121
Kāku	141	179	179	185	186	227	254	381	41	41	272	185
Kāla	1,404	884	1,422	850	779	552	282	423	580	279	272	155
Kāwakāwa	89	433	529	1,329	2,852	747	1,503	1,842	1,693	3,678	1,385	2,376
Kawalea	37	20	87	285	41	18	8	7	4	4	3,440	642
Kihikihi	25	5	50	20	41	20	8	7	7	22	37	23
Kōle	20	45	340	4	20	20	8	7	7	22	282	121
Kumu	1,891	1,421	3,484	1,813	1,975	1,661	2,090	1,716	1,900	1,683	5,566	3,347
Kupipi												
Kupūpū	105	71	122	12	29	105	59	134	60	55	253	49
Lae	164	50	418	481	538	202	274	231	607	246	372	155
Laenihī	566	366	246	130	328	484	611	1,319	1,727	870	3,538	4,102
Lauban	15	58	58	7	182	202	7	55	7	6	6	150
Māhimāhi	57	40	49	107	271	126	342	289	216	88	285	71
Mai'i	282	554	1,313	10	19	19	20	19	155	767	3,756	2,267
Mai'koiko	27	112	258	12	14	5	8	3	53	53	483	441
Maka'a	121	53	80	10	67	161	34	354	510	92	295	292
Malolo			183	2,202	12,397	11,356	4,495	5,822	2,835	8	3,347	10

Mamámó	145	274	305	58	18	98	236	151	1,230	2,806	3,297
Manini	5,332	4,591	2,418	4,062	3,293	1,878	2,440	2,058	2,306	2,965	4,016
Mano	208	119	96	223	304	663	694	277	2,277	1,532	164
Mikáwa	4	148	439	11,584	1,320	221	180	10	950	2,556	255
Móano	5,155	9,915	7,170	3,047	12,421	11,215	14,770	6,874	7,425	15,589	15,589
Modó	4,412	6,104	2,942	3,047	2,346	1,847	2,701	2,342	1,672	4,690	7,051
Mu	19	12	10	10	10	66	24	17	18	31	16
Muhee (squid)	71	41	28	20	13	1	4	6	18	112	72
Nacnae	70	114	25	93	116	87	172	57	138	35	67
Nenue	4	19	32	87	42	33	1	23	4	679	234
Nóhu	274	116	199	216	115	100	122	146	559	3,883	1,229
Nunu	11,140	6,381	1,836	270	2	2	31,750	67,295	25,485	26,707	22,785
O'áililepa	2,026	770	2	1	2	1,708	2,431	2,039	14,367	1,240	2,259
Olo	912	3,241	1,716	1,820	1,750	516	1,118	424	305	200	149
Omaka	152	1,027	58	58	108	96	259	222	305	200	149
Omitu	17	40	30	39	31	21	30	19	30	32	35
Ono	2,019	204	150	377	545	383	182	408	865	1,951	596
Opakapaka	35	179	113	77	119	103	47	143	127	157	773
Opólu	20,588	29,788	44,096	37,667	12,875	10,755	27,809	30,395	55,710	25,355	13,239
Opule	58	195	17	20	44	20	30	38	30	1,100	427
Pakí'á	25	76	62	36	285	83	60	9	30	1,602	5,679
Pakúikui	45	91	55	89	4,380	87	204	44	261	884	262
Pakáni	463	106	99	89	1,86	87	204	142	261	884	262
Panuhunuhú	9,117	5,092	10,610	12,925	9,009	8,387	10,672	8,011	13,609	22,208	60
Papal (crab)	1,516	1,547	1,400	260	673	95	95	2,352	4,380	2,152	20,194
Papúpio	4,992	1,579	2,753	3,815	2,739	1,937	2,589	1,486	1,354	3,419	8,046
Panú	566	321	1,349	1,016	1,016	1,082	1,914	667	2,000	1,490	1,863
Póopó'á	50	55	28	68	48	15	55	15	55	18	18
Póolu	1,135	349	804	292	1,094	1,068	1,495	1,566	1,073	2,543	2,366
Puálu	226	100	140	437	237	163	368	229	295	412	1,425
Puhi	400	280	840	2,312	28,741	3,512	27,986	3,836	25	1,031	3,955
Puhiki'á	223	132	93	1,482	1,331	315	315	61	217	633	327
Uku	159	712	816	956	800	544	446	175	1,226	729	253
Uku (crawfish)	149	106	261	170	296	261	681	149	167	152	126
Uia (crawfish)	574	609	1,175	1,051	3,607	2,240	3,625	2,184	1,459	1,624	2,222
Uiaapapa (crawfish)	11	62	153	262	193	315	306	120	42	1,147	40
Uike	84	65	60	247	247	33	145	142	23	154	2,393
Uiaula	207	152	486	549	241	136	165	25	23	125	178
Uia	2	25	216	262	371	322	417	246	299	274	176
Umatualei	1,420	585	227	431	1,021	2,044	1,651	37	3,628	184	161
Upapálu	5,885	3,556	1,724	1,508	4,147	10,178	9,581	26,167	32,126	40,701	2,704
U'u	1	1	329	846	1,815	1,001	1,407	1,241	1,708	1,887	2,590
Wálu	556	8,953	9,538	11,297	6,933	6,434	7,844	5,640	7,151	27,660	18,663
Wana (sea urchin)	3,574	4,174	1,549	1,485	1,998	2,798	3,515	3,100	8,349	3,948	2,556
Weke	913	922	587	1,485	1,998	2,798	3,515	3,100	8,349	3,948	2,556
Fish condemned											

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	5,983
A'awa.....	692	259	621	665	612	244	496	1,394	822	1,893	1,268	866
Ahaha.....	246	562	1,117	512	647	428	425	516	357	3,186	5,132	4,104
Ahi.....	123	226	426	169	47	211	211	170	38	98	545	1,761
Aholehole.....	10,275	6,956	5,309	6,606	4,134	3,174	6,126	10,140	0,340	18,374	14,544	7,319
Aku.....	1,433	131	128	905	3,819	7,491	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	50				
Ama-ama.....	74,594	68,194	79,996	84,471	75,928	62,618	90,943	113,759	123,303	155,606	171,076	143,326
Ananalo.....	1			397	26							
Api.....	76	1	448	379		20	2					
Auu.....		24				8	40					
Auuu.....		1,410			49							
Auuu.....	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.....	1,236	668	2,265	1,740	2,973	2,059	9,702	19,551	13,461	44,888	62,188	56,849
Awa-awa.....	30	78	7	69	176	59	192	328	489	475	540	429
Awa kalamoku.....			32	18	15	4	2	2	7	161	603	451
Awela.....			2,685	1,009	998	1,154	4,073	16,103	107,926	83,844	17,219	27,242
Aweoweo.....	5,619	1,624	2,44	91	59	205			280	42	645	999
China-fish.....	2	372	244	6	43	10						
Ea.....	18	2	719	6	792	450	2,290	640	1,980	9,608	10,112	12,508
Gold-fish.....	793	885	2,961	2,999	216	16,834	5,359	14,992	151,875	26,179	118,198	37,970
Habalalu.....	11,741	3,978	2,461	1,596	152	233	254	413	464	344	759	564
Hapu'upu'u.....	119	125	408	139	182							
Haululi.....	7	37										
Haukeuke.....							80					
Hee (octopus).....	2,398	854	706	430	403	591	2,177	4,547	4,090	3,164	3,854	5,567
Hihimau.....	9		7	1			13	16	21	37	327	403
Hitu.....	52	66	368	60	30	28	40	3	39	164	323	443
Hinala.....	2,710	771	1,583	2,564	5,032	1,645	406	4,770	10,137	9,228	4,507	4,183
Honua (turtle).....			9	14	24				82	24	36	38
Hou.....												
Hou.....	546	93	169	756	517	194	959	503	845	1,104	1,498	1,578
Humuhumu.....	8,816	8,000	2,169	2,457	419	1,578	8,258	8,333	8,331	8,057	83,830	8,292
Ielhe.....	690	300					1,620		3,500	8,492	8,850	4,910
Iua (sea urchin).....	74	46	144	210	295	311	120	331	351	112	101	195
Kahala.....	185	141	173	286	140	252	972	487	655	732	1,997	2,023
Kaku.....	2,062	823	687	596	515	1,094	1,336	463	2,452	2,568	2,744	3,168
Kala.....	16	3	1,350	13	55		14					
Kalekale.....				1,523								
Kaula.....	1,786	518	465	3,675	3,675	3,502	2,914	4,601	6,206	914	549	1,690
Kawakawa.....	26	27	131	15	7	12	26	18	28	353	572	372
Kawela.....									15			
Kihikihi.....	10			15	3					32	688	344

Kólo	261	41	13	54	250	10	10	490	1,952	1,828	1,813
Kumu	1,516	1,298	2,246	2,745	3,248	1,879	2,544	8,202	32,217	59,020	36,020
Kupipi	14	10	46	5	3	3	35	32	1,482	2,011	1,011
Kupoupou	759	212	94	190	286	68	1,300	2,290	2,888	1,815	1,446
Lae	477	562	562	465	481	361	353	3,006	1,111	1,714	4,563
Laenihl	1,129	492	813	775	918	319	1,162	2,805	3,369	3,151	2,063
Launahu	47	17	185	56	185	56	3	61	823	1,375	1,116
Lehe	59	2	3	2	2	2	1				
Lotohan	1										
Lupe	44	109	40	92	190	120	617	1,542	234	757	274
Mámámáhi	2,608	519	237	391	686	347	225	1,014	5,115	4,224	1,498
Mai'i'a	167	104	64	238	294	27	61	1,375	1,211	2,323	
Maiko	137	70	150	118	3	95	22	539	1,026	875	401
Maka'a'a	5		12	8	2,566	6,568	1,525	60	356	777	387
Malámakama	11	121	9	2	1,114	166	442	493	148	54	
Malolo	1,121	169	63	58	4,213	2,512	1,238	1,817	6,650	1,404	1,887
Mamámó	5,503	3,960	7,794	6,478	4,213	2,512	2,354	3,821	3,780	3,780	4,587
Manini	107	58	99	99	149	426	906	472	609	1,436	1,114
Mikiáwa	6	2	238	939	727	408	349	1,299	1,541	2,102	1,621
Miomio											
Móano	8,495	2,155	6,633	3,903	6,056	4,818	6,333	17,529	12,852	8,715	4,531
Moelua	15	15	2	42	134	6	22	11,136	119,220	186,031	75,294
Mol	170	70	26	108	19	6	8	30	202	457	129
Mu	96	38	80	48	57	126	299	68	239	600	665
Muhee (squid)	114	3	8	13	14	7	13	837	570	937	752
Naenae	12	8	7	5	14	7	9	2	129	488	84
Nenue	602	121	188	132	218	31	316	174	2,175	3,789	3,144
Nóhu	11,378	3,050	6,818	2,281	150	140	500	515	201,569	874,840	182,120
Nukumomi	1,022	25	6	6	414			116,087	201,569	874,840	182,120
Nunu	1,072	509	2,105	1,654	3,521	2,649	1,825	309	133	226	163
Oana	300	317	500	789	1,443	788	880	1,317	5,100	5,586	5,174
Oha	402	89	85	86	232	886	1,702	1,730	3,311	3,811	3,090
O'hillepa	134	21	38	13	25	13	10	3,314	1,841	2,735	2,015
Olepe (clam)	21	26	38	7	13	13	7	27	27	4	20
Omaka	888	6,528	949	10,533	442	442	2	1,990	1,968	2,796	2,327
Omlu	898	255	965	628	2,067	1,387	2	6,674	4,969	4,963	2,622
Opu	13,583	624	3,341	10,183	14,446	6,695	11,176	36,650	96,269	40,583	31,864
Opakapaka	442	129	115	459	68	95	563	2,010	1,880	1,763	1,707
Opelu	6,609	2,807	4,543	397	2,874	1,317	2,721	2,023	9,239	5,584	4,816
Pak'u'i	180	3	1	3				80	252	418	122
Pakukui	467	27	286	228	69	175	142	1,031	1,001	1,187	596
Paikane	58	51	464	51	3,273	1,134		483	1,804	1,804	1,257
Pannuhuh	16,256	6,191	8,427	8,820	12,412	8,721	24,586	28,090	31,904	15,563	15,629
Papáso											
Papal (crab)											

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.
Papilio	2,563	1,024	4,776	620	481	302	1,617	1,818	6,389	4,206	4,357	1,390
Paua	3,577	1,199	1,313	1,184	1,584	1,485	2,956	6,363	22,958	144,501	189,973	61,737
Piao				380								
Poohā	1,575	521	319	967	29	389	642	1,424	4,459	8,485	2,966	1,558
Poohā	3	13	1	29	29	24				140	1,031	420
Puālu	2,426	1,386	1,380	1,694	1,278	1,080	2,247	2,924	7,307	16,842	9,000	3,873
Puhū	1,102	545	1,967	671	1,218	1,584	720	2,565	888	1,752	1,943	1,991
Puhiki'i	235			5	2,850	15,226	31,445	13,980	5,165	9,761	36,360	11,508
Pūloa	14	3	4	5	11	30	81	7				
Sword-fish				3								
Uhu	382	81	104	189	557	270	77	186	778	586	624	556
Ukiki	471	177	429	231	116	108	99	26	25	245	415	234
Uku	78	24	129	127	498	2,713	3,298	2,297	2,759	340	220	184
Uia (crawfish)	1,651	739	1,721	1,113	1,695	2,884	2,370	2,967	4,500	2,710	2,882	3,634
Uia	5,342	3,141	8,434		5,965	1,699	1,580	3,630	7,761	38,598	18,099	6,759
Uiaapapa (crawfish)	667	89	120	213	155	357	250	159	62	64	64	935
Uiaua	39	97	97	9,888	319	424	826	1,143	2,203	570	687	728
Uua	205	59	261	202	2,072	2,688	697	528	742	873	922	199
Uuaumalei	125	25				30				65	595	232
Uuouo	67		63	17		6						
Uupālu	1,045	357	580	771	390	686	897	4,284	10,518	5,801	8,209	6,039
U'u	13,302	3,037	2,209	3,416	4,072	2,760	12,325	27,023	207,847	72,003	39,943	26,782
U'ura			6		2							45
U'ura		4	6									
U'urū												
Waiu	1,336				369	562	648	516	1,817	1,149	1,271	1,115
Wana (sea urchin)	7,708	5,545	11,801	7,475	6,964	6,869	7,461	10,705	25,396	104,582	224,780	108,996
Weka												
Fish condemned	1,920	1,013	1,565	1,388	2,369	2,680	2,598	7,746	9,546	18,027	10,367	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.

	Hono- lulu.	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 Kauholanuimahu 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.

^aHawaiian 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.

COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. 477

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	\$4,050	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	160	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 *Tabula* 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, Kohala, 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, Napoo-poo and Kailua on the west, Kawaihae on the northwest, and Laupa-hoehoe 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 1½ 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 nationalities 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, mo'ano, káwakáwa, o'ó, opélu, and puihi.

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.	Num-ber.	Value.	Item.	Num-ber.	Value.
Boats	260	\$18,970	Apparatus—(continued):		
Apparatus:			Baskets (opai)	42	\$21
Seines	a 22	4,850	Spears	95	95
Gill nets	b 43	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	Total .....	.....	\$7,912
Lines .....	.....	1,226			

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.		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.
A'alaibi.....	200	\$2	1,086	\$144	15,411	\$154													15,611	\$156
A'awa.....	2,169	289			6,775	289			1,371	\$69									3,255	433
Ahaaha.....									52,430	2,097									1,371	2,889
Ahi.....	3,800	333							118,170	4,727									58,205	3,896
Aholehole.....									48,000	1,920									3,700	4,737
Aku, fresh.....	19,172	863	33,144	1,492	23,080	1,151			406,973	20,349									48,000	4,727
Akule, fresh.....									20,500	1,105									482,399	23,858
Akulé, dried.....	2,034	407			1,356	271													20,500	1,105
Ama-ama.....																			3,698	1,732
Anau.....																			1,068	272
Au'ku.....	756	84																	1,068	272
Awa.....	250	25																	1,000	\$40
Awa-awa.....																			756	84
Awela.....																			316	31
Awelae.....																			175	18
Aweoweo.....																			1,879	120
Hapu'upu'u.....																			1,879	120
Haululi, fresh.....																			781	127
Haululi, dried.....																			11,600	928
Hihimānu.....																			9,100	455
Hilu.....																			1,560	126
Hinalāea.....																			88	5
Hūmāhūmā.....																			889	45
Iinehe.....	5,100	765	328	8															9,338	278
I'āo.....	100	14	201	33															5,304	798
Kabala.....	100	5																	5,900	14
Kāku.....																			24,040	1,202
Kāka.....	33	3	300	25															33	3
Kāka.....																			333	28
Kātekie.....	1,300	195																	13,316	1,332
Kawakāwa.....	1,400	224	4,006	668															56,037	2,932
Kawelea.....																			5,406	832
Kōle.....																			209	20
Kumu.....	1,233	171	990	132															8,033	339
Kupipi.....																			67	6
Laenihī.....	100	1	1,731	104															543	4
Lae.....	150	9																	4,220	233
Lauhau.....																			1,785	89
Lupe.....																			5,350	821
Māhāmāhi.....																			18,599	1,488
Māli'i.....																			32	4

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

Species.	Seine.		Gill nets.		Bag nets.		Cast nets.		Dip nets.		Lines.		Baskets.		Spears.		Shares.		Hands.		Total.		
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	
Maikoko			68	\$5							75	\$6							143		143	\$11	
Malolo	600	\$150									18	6							618		618	159	
Manini	778	17	1,694	138							2,489	119							4,183		4,183	337	
Mikiawa	25	3									4,219	94							4,997		4,997	111	
Moano	333	40									65,947	7,914							63,280		63,280	7,953	
Moi			6,779	1,085															6,779		6,779	1,085	
Mui	200	2	24	2															24		24	2	
Nehu			496	79			830	\$14											1,030		1,030	16	
Nohu	200	3									1,644	164							1,496		1,496	79	
Nunu	200	3									45	6							1,644		1,644	164	
Olo	545	163	500	80							47,679	7,629							245		245	9	
Omakaha							833	\$50											48,179		48,179	7,709	
Ono											13,968	698			285	\$57			13,783		13,783	413	
Oopuhie	1,015	51									39	2							1,054		1,054	57	
Oopukahi	14,288	2,972	459	83					16,020	\$2,884	3,025	545							33,702		33,702	6,084	
Opelu, fresh	5,000	200																	5,000		5,000	200	
Opelu, dried																			349		349	35	
Opule											3,008	250							3,008		3,008	250	
Paka																			5,590		5,590	859	
Pak'i'i																			510		510	21	
Pakani	100	5	225	9							185	7							71		71	18	
Pamuhuhuhū	7	2									697	50							697		697	56	
Panū																			951		951	159	
Pōopō'ā			951	159							1,122	50							1,122		1,122	56	
Pōopū											23,981	1,914							26,497		26,497	2,119	
Puālu																			1,653		1,653	138	
Puhi																			8,475		8,475	695	
Uhu			1,653	138															30		30	2	
Uku											8,475	695							17,308		17,308	4,842	
Ukē			30	2															151,051		151,051	12,277	
Ulaula			7,000	1,750							10,308	3,092							42		42	19	
Ulu	290	30	9,364	925							141,897	11,822							588		588	52	
Umaimalei			42	12															19,231		19,231	962	
Uou'ā			588	59							1,196	179							1,944		1,944	1,033	
Uopālu																			53		53	11	
U'u			713	71															4,462		4,462	295	
Uwau	400	24	4,062	271																			

THE FISHERIES OF KAHOO LAWE.

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.....	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
Laen'hi	2,000	100			
Moáno.....	200	10	Total.....	27,100	1,456
Moi.....	6,100	183			

In January, 1904, Mr. Christian Conrads 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 Malaea 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 KAʻUAI.

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.	
Abi	2,750	\$175	680	\$54																	2,750	\$175	
Abolenole	533	50																				533	50
Aku		4,137			23,200	\$1,610						11,420	\$1,144									11,420	\$1,144
Akule	72,866		10,100	1,048	9,000	780	14,100	\$1,809				7,560	735									103,116	6,482
Ama-ama	89,898		860	77								300	29									123,058	11,982
Awa	5,200	308																				5,200	307
Awa-awa	2,850	207					3,100	186														2,850	207
Carp																						1,200	186
Loache (Puili)									7,100	\$1,775												7,100	116
Hihiau	210	15			50	4																210	15
Hihinuhinu																						1,035	100
Kaku	1,706	152	1,050	79																		1,050	79
Kawakawa	3,580	256			100	8																1,706	152
Kumu	440	22																				5,255	419
Mano					200	16																2,900	280
Mikawa	90	7			80	16																640	38
Moi	14,226	1,308	5,200	888	200	16	2,700	540														170	13
Nerue	2,225	190																				2,225	2,752
Ofo	12,870	1,120			1,300	128																2,225	190
Opaka																						25,570	2,872
Opakaopaka																						11,250	1,480
Opalu	650	44																				600	140
Opuku					200	16																850	60
Ukui																						625	55
Ulanu																						1,400	140
Ulanu																						8,100	710
Uluu	6,487	550	490	39	2,000	200																23,477	2,197
Weke																						440	44
Wee, fresh																						600	75
Wee, dried																						1,200	150
Honu	250	11			100	5																350	16
Opae																						1,710	212
Opahi																						400	40
Wi																						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.....	a 17	350
Gill nets.....	b 2	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
Aha'aha.....					40	4	40	4
Ahólehóle.....					50	5	50	5
Aku.....					1,366	55	1,366	55
Akule.....	41,000	\$1,128			488	13	41,488	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
Haulí'ulí.....					220	22	220	22
Híhimánu.....					120	6	120	6
Hílu.....	100	8					100	8
Hámuhámu.....					2,178	109	2,178	109
Ihehe.....	55	13					55	13
I'iao.....	3,750	60					3,750	60
Kahála.....					6,000	405	6,000	405
Káku.....					40	2	40	2
Kála.....	190	15					190	15
Kálekále.....	400	40			25	3	425	43
Kamano.....					100	5	100	5
Káwákáwa.....					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
Kupoupou.....					50	\$13	50	13
Laenih.....	5,000	500					5,000	500
Lae.....	100	3					100	3
Māhimāhi.....					1,476	81	1,476	81
Maii'i.....	20	2					20	2
Malāmālama.....					40	2	40	2
Mano.....					120	12	120	12
Moāno.....	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
Oio.....					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
Panuhuhuhū.....					144	22	144	22
Pāpāo.....	70	21					70	21
Piha.....	2,500	40					2,500	40
Pōopā'a.....					242	24	242	24
Poou.....					182	22	182	22
Puālu.....	110	14			60	8	170	22
Puhi.....					300	45	300	45
Ūkikiki.....					82	8	82	8
Ūku.....					7,000	1,505	7,000	1,505
Ulāe.....					80	8	80	8
Ulaula.....					590	295	590	295
Ūlua.....					15,786	1,054	15,786	1,054
Ūmaimalei.....	190	38					190	38
Upapālu.....					20	2	20	2
U'u.....					258	23	258	23
Wālu.....					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, oóo, 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 (opal).....	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.	

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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'alaibi.....																					3,346	\$261
A'awa.....					1,600	\$128	1,746	\$133													2,196	659
Aha.....					1,180	59															1,280	64
Ahi.....																					30	2
Ahoehole.....	7,100	\$124	600	\$10																	10,450	547
Aku.....	171,334	3,400																			57,978	2,174
Ama-ama.....	32,972	6,919	7,038	938																	267,882	6,000
Auan.....			272	20																	40,008	7,857
Au'ku.....															200	\$24					272	20
Awa.....	3,176	211	1,000	333																	8,200	24
Awa-awa.....	1,000	300	400	66																	1,722	1,888
Awowoo.....			7,500	500																	1,936	430
Awowoo.....	5,000	250					443	\$22													10,449	804
Hau'ihii.....																					5,443	272
Hau'upu'u.....																					1,335	168
Hihimau.....																					1,335	168
Hihii.....	63	5			2,180	145															5,343	390
Himala.....					3,360	168															10,407	681
Himala.....																					9,636	482
Himahuimu.....																					2,473	594
Ihehe.....	528	127																			600	60
I'i.....					600	60															6,730	107
I'igo.....	6,250	100			500	7															19,989	345
Kahala.....																					2,300	363
Kaku.....										2,900	\$33										3,466	227
Kala.....	120	10	800	11	2,246	186								300	20						223	17
Kalekale.....	150	15																			5,372	716
Kanalo.....																					1,835	168
Kawakawa.....	8,200	2,050																			3,600	\$240
Kaweiea.....	489	150																			5,300	336
Kole.....					28,000	224															10,407	681
Kunui.....	6,650	1,060			129	16															2,473	594
Kupipi.....																					600	60
Kupupou.....					875	219															6,730	107
Laenihii.....	4,797	108			2,100	110															19,989	345
Lae.....	6,132	388	5,000	500																	2,300	363
Laupia.....																					3,466	227
Laupau.....					1,730	311															223	17
Mahimahi.....					500	60	424	25													32,468	5,064
Mahii.....																					28,000	224
Malamalama.....					1,565	188															6,779	1,076
Malamalama.....																					1,527	882
Mamamio.....					175	8															6,897	348
Mamamio.....																					11,132	818
Mamamio.....																					1,720	341
Mamamio.....																					10,678	568
Mamamio.....																					1,565	188
Mamamio.....																					12	1
Mamamio.....																					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	800	\$24	600	\$12	1,480	\$118					25	\$5	150	\$9	40	\$1			2,280	\$139	
Mano					400	72													30	865	30
Maunau	300																		400	400	72
Mikikawa	853	14			12,600	1,880					9,959	1,574							300	300	80
Moano	4,282	514	2,900	290	1,541	247					592	148							28,412	8,478	148
Moelua	147	15																	8,723	1,051	147
Mu	12,500	225			79,400	1,491													98,650	1,817	15
Nehu	160	40	1,600	200	46,300	6,945	6,750	\$101											48,060	7,185	26
Nenue	600	48			202	16					520	26							802	64	64
Nunu					300	75													300	300	75
Ohua																					7
O'hillepa																					56
Olo			600	30	29,000	8,700	600	60			62,560	18,768							600	600	60
Olali																					421
Ono	3,400	102								96	\$31								10,520	470	470
Oopu																			11,246	837	8
Oopukáí																					105
Opakapaka																			9,484	2,858	8
Opélu					104,948	15,742													104,948	15,742	8
Opule	15	8			1,300	650													1,500	125	125
Páka																			1,000	200	200
Pakaikawale																			1,000	200	200
Pakí'í							1,610	644											1,785	1,109	1,109
Palani	1,600	105																	514	130	130
Panuhimuhú																					543
Páopáko	543	18																	200	200	200
Paupau	200	20																	5,600	88	88
Piba	5,000	80			600	8															50
Poopá'a																					545
Pood																					50
Poodu																					180
Puhí	56	7	120	6																	25
Uhu																					12,110
Uku					24	2															2,019
Uliá	750	8																			42
Ulaná																					3
Uluá	4,200	410	10,000	600	29,800	1,788															29,892
Umalamaí	80	8																			6,405
Upapálu					490	74															11
																					24
																					12,242
																					2,027
																					29,892
																					6,405
																					614
																					129
																					96,646
																					80
																					500
																					75

COMMERCIAL FISHERIES OF THE HAWAIIAN ISLANDS. 499

Ula	24	1	9,600	25	773	124																				8,297	150	
Ulu					280	28																				8,060	168	
Upe																										8,017	169	
Upeke			1,717	120	3,560	584																				9,760	1,504	
Upeke		880																			430	\$108				430	1,008	
Upeke																					6,124	857				17,018	2,407	
Upeke																					1,560	17				17,440	17	
Upeke																					440					1,100	110	
Upeke																										1,100	110	
Upeke																										900	225	
Upeke																					1,825	881				1,825	381	
Upeke																					300	75				300	75	
Upeke																					14	7				47	24	
Upeke																										2,700	324	
Upeke																					1,646	411				1,646	411	
Upeke																										526	67	
Upeke																										54	67	
Upeke																										175	35	
Upeke																										910	35	
Upeke																										3,573	1,070	
Upeke																										3,600	576	
Upeke																										8,600	576	
Total	296,475	17,228	42,852	4,397	359,142	39,852	11,208	964	8,702	1,032	441,291	49,724	22,223	1,117	11,678	1,004	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, oóo, 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	Total		17,154
Cast nets	52	520			
Lines		50			

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	\$525			900	\$525
Ahi.....									200	10			200	10
Aholehole.....									1,600	144			1,600	144
Aku.....	54,100	\$1,400			18,828	\$480			18,000	675			18,000	675
Ama-ama.....	15,061	3,765	36,900	\$9,225	400	100	5,300	1,325	400	10			73,328	1,950
Awa.....			3,800	308									57,661	14,415
Awa-awa.....	200	24											3,800	308
Aweoweo.....									900	104			900	104
Hapu'upu'u.....									600	80			600	80
Hilu.....	100	8											100	8
Himala'a.....									1,900	380			1,900	380
Humuhumu.....	1,700	268							8,100	405			8,100	405
Inehe.....	300	17			1,000	240			1,600	384			4,300	892
Kabala.....	100	8			6,100	488			900	52			1,200	69
Kala.....	75	8											6,200	496
Katekale.....	300	38											75	8
Kawakawa.....	80	40							6,000	765			6,300	803
Kawalea.....	6,550	1,075			6,500	1,062							80	40
Kumu.....	250	38							290	73			13,650	2,137
Kuponpon.....	1,100	38					1,200	72					290	73
Laenih.....													1,100	72
Lea.....													1,200	72
Lauhau.....									700	39			700	39
Mahmahi.....									100	6			100	6
Maikoko.....	500	25			150	8							650	33
Malo.....	300	60			4,700	376							4,700	376
Mano.....	300	72											300	60
Moano.....	195	23							4,400	1,056			4,700	1,128
Moi.....	25	6											195	23
Mu.....													25	6
Nehu.....							750	14					750	14
Nohu.....									500	125			500	125
Nunu.....			1,200	90	2,100	140							9,000	1,215
Olo.....									15,000	1,125			16,200	1,215
Ola'i.....							820	82					820	82
Oro.....									600	25			600	25
Oopukai.....					1,800	156							1,800	156
Opeta.....					150	75			150	20			150	20
Opote.....	600	300											1,300	156
Taka.....									555	46			750	875
													555	46

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
Qio	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 in the fisheries, the increase being \$14,794. The greater part of this is made up by the increased number of boats and lines used.

The total yield of the fisheries in 1903 was 3,515,850 pounds, which sold for \$373,819. So far as quantity is concerned, lines occupy first place in the fisheries, but in value of catch gill nets are first. Scoop and dip nets occupy third place, followed by bag nets, hands, seines, cast nets, fish baskets, spears, traps, opae baskets and pots, in the order named. The most noticeable feature is the enormous falling off in the catch of malolo. In 1900 this species was the most important, 571,002 pounds, valued at \$142,773, having been secured. In 1903 the catch amounted to only 34,907 pounds, valued at \$3,490, a decrease of 536,095 pounds in quantity and \$139,283 in value. This is accounted for largely by the fact that the natives, who prosecuted this fishery on a large scale for many years, have been gradually dropping out of the business, partly because of the rapidly increasing competition of the Japanese, and partly because of their own indifference. At present the leading species in the fisheries of Oahu is the aku, although the value of the catch of this species is exceeded by that of the ama-ama, 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 in 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	a 25	1,570	Spears	56	56
Gill nets	b 496	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	Total		215,338
Baskets (fish)	50	500			

a 1,810 yards.

b 26,980 yards.

Table showing by apparatus and species the yield of the fisheries of Oahu in 1908.

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								
Ahaha.....			6,009	49			130	10	4,000	\$320		
Ahi.....	5,500	440	6,770	532								
Ahohohole.....					88,376	7,376	65,201	5,216				
Aku.....			151,632	13,364	13,000	2,600						
Akule.....	40,813	8,163	295,232	53,050								
Ama-ama.....			162	16					158,130	31,626		
Awela.....			232	23								
Auau.....	33,048	3,305	162,681	16,473					86,382	8,638		
Awa-awa.....			41,358	12,407								
Awowoo.....			51,021	3,571								
Carp.....												
China-fish.....												
Gold-fish.....												
Hapū'upū'u.....									400	32		
Hihimānu.....									1,090	323		
Hilu.....			3,220	129					8,042	659		
Hinalāe.....												
Hūmuhūmu.....			1,606	48								
Ibelhe.....			10,239	1,229	20,478	2,457						
Kahāla.....												
Kāku.....			7,246	870								
Kāla.....	7,000	700	20,694	1,065								
Kālekāle.....												
Kāwakāwa.....												
Kawelea.....												
Kihikiki.....	92	5										
Kōle.....			73	29								
Kumu.....	15,745	3,149	20,000	4,400	20,000	4,400	4,000	800	5,000	1,100		
Kupipi.....			112	14								
Kupūpūu.....												
Laenhi.....	14,552	1,455	2,000	200								
Lae.....			2,464	197								
Laupau.....			74	7								
Māhimāhi.....									100	15		
Mai'i.....			4,060	365								
Maikōko.....			1,000	60								
Maka'a.....												
Malolo.....			800	80								
Mamāmo.....			100	10	34,107	3,410						
Mamni.....			8,000	640	6,000	488						

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

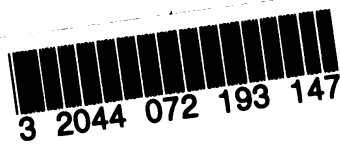
Species.	Seines.		Gill nets.		Bag nets.		Cast nets.		Scoop and dip nets.		Lines.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Mano			2,000	\$20	1,200	\$12					5,000	\$50
Mikiawa	1,000	\$10	1,188	96							36,860	3,317
Mokau	14,000	1,260	4,430	399								
Mol			98,996	1,770								
Mu			226	7								
Nenu			2,851	713								
Nohu											1,770	250
Nunu			105	5	9,000	450						
Olo			8,000	400	100	18					14,683	2,496
Omakaha	1,509	272										
Omlu												
Oro												
Opu			1,200	72					10,113	\$903		
Opakapaka			2,672	313								
Opelu	31,346	3,762	60,000	6,000	200	32						
Opule												
Paki'i	503	50					503	\$50				
Pakini			2,500	188								
Poopo'a			5,380	523								
Pood			600	24								
Pualu	6,030	450	7,000	525					4,600	345		
Puhl			200	10								
Puhu			8,000	1,280	12,884	2,060						
Uku			97	29								
Ude			541	32								
Ulania			2,000	1,000								
Ulua			65,000	3,900								
Uluia			458	36								
Umalmaief			10	1								
Uouoa					1,000	300		90				
Uspapalu			55,000	4,400								
U'i			60,000	4,200	45,000	3,600						
Weke												
Hee												
Honu			520	78								
Muheee			96	48								
Opape			550	83								
Opapal			2,300	138								
Uia			7,613	1,275					60,777	3,647		
									10,000	1,000		
Total	176,825	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 1908—Continued.

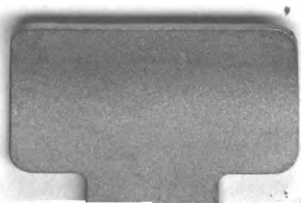
Species.	Baskets (fish).		Baskets (opau).		Traps (fish).		Pots.		Spears.		Hands.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
A'ala'ahi.....													10,661	\$855
A'awa.....													6,051	908
A'badha.....													4,009	369
Ahi.....													92,130	7,270
Ahofoho'e.....													16,944	1,346
Aku.....				\$50	620								501,914	20,077
Akute.....													404,051	33,862
Amu-ama.....													477,185	95,439
Awela.....													162	16
Auau.....													232	23
Aw.....													282,111	28,416
AWA-AWA.....													41,338	12,407
AWGOWEO.....													51,021	3,571
Chrp.....													400	32
China-fish.....													1,090	323
Gold-fish.....													8,042	659
Hapū'upū'ū.....													64,245	8,352
Hihimānu.....										225	\$0		3,725	149
Hihu.....													3,220	129
Hināleā.....													8,147	325
Honip-hūmu.....			3,147	\$125									8,080	241
Ka'e'e.....													30,717	3,686
Kahala.....													7,444	1,465
Kakū.....			3,347	385									7,246	570
Kāleka'e.....													31,051	2,070
Kawakawa.....													61,553	15,988
Kāka'a.....													1,165	175
Kāhiki.....													72	6
Kōle.....													70,045	14,615
Kūma.....			3,000	660						2,300	506		112	14
Kūpūpi.....													155	31
Kūpōu.....													18,190	1,819
Lāenihī.....													4,927	1,892
Lāuhā.....													4,174	22
Lāuhan.....													38,138	5,965
Māhīmāhī.....													4,060	865
Māhī'i.....													1,159	70
Mātikōko.....													34,907	8,490
Māka'a.....													34,907	8,490
Melolo.....			869	87									24,000	1,928
Mernāmo.....			10,000	800									24,000	1,928
Mānini.....					600					500			9,300	93
Mano.....														

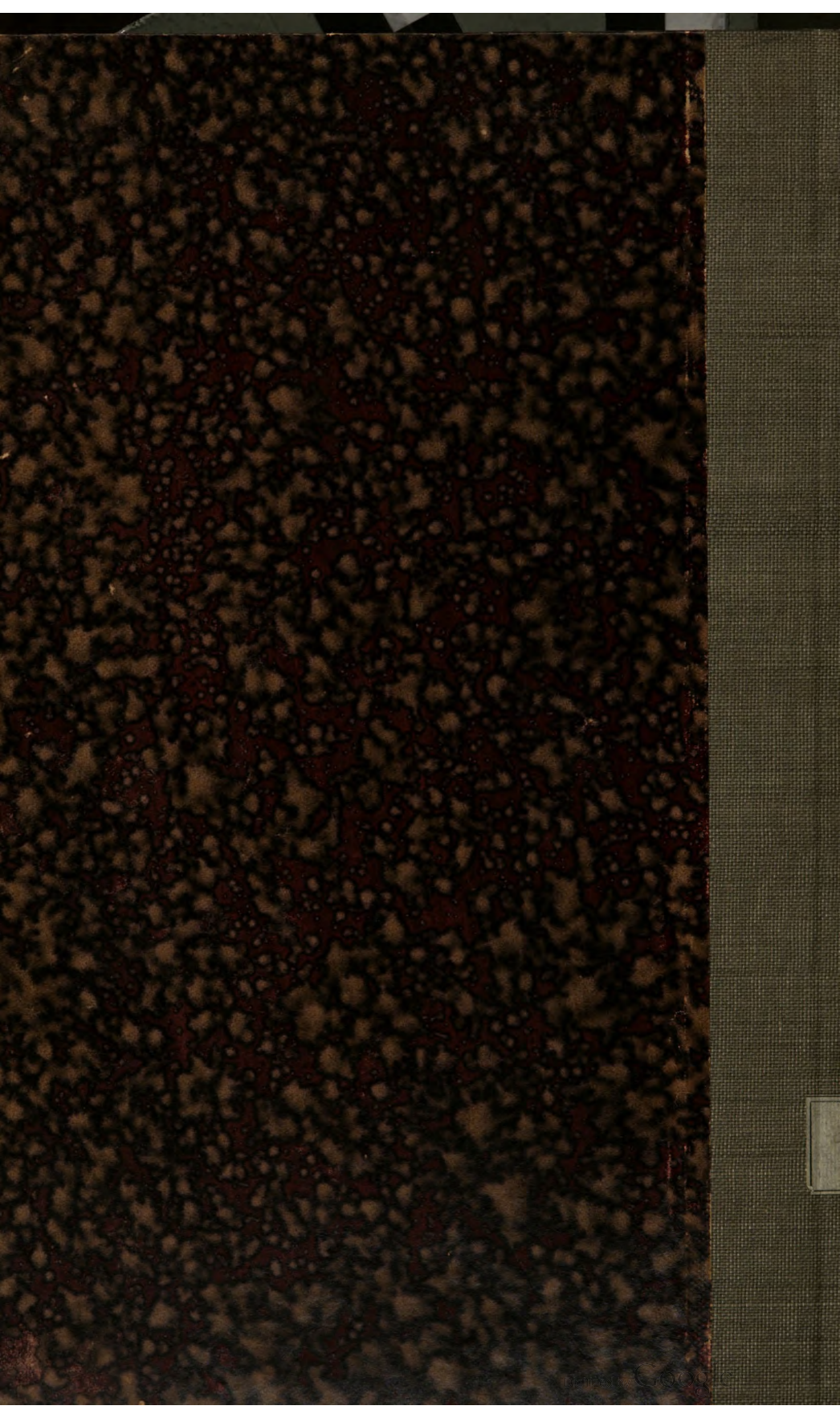
Table showing by apparatus and species the yield of the fisheries of Oahu in 1903—Continued.

Species.	Baskets (fish).		Baskets (opai).		Traps (fish).		Pots.		Spears.		Harms.		Total.		
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	
Mikiawa.....													2,188	\$106	
Moano.....													55,290	4,976	
Moi.....													58,996	1,770	
Mu.....													226	7	
Nemue.....													2,851	713	
Nohu.....													1,770	280	
Nunu.....													9,105	455	
Oio.....													22,683	2,896	
Omakaha.....													1,609	280	
Omitlu.....													18,430	1,474	
Ono.....													16,450	1,452	
Opu.....													11,313	975	
Opakapaka.....													7,612	813	
Opelu.....													131,846	15,822	
Opule.....													1,821	281	
Paki.....	800	\$128											1,006	100	
Paki'a.....	5,000	375											16,376	779	
Pakini.....									800	\$50			7,380	443	
Poopo'a.....													600	24	
Pood.....													38,600	2,895	
Pudlu.....	15,000	1,125							2,000	150			22,915	1,046	
Puh.....	8,000	400							2,000	100			24,884	3,980	
Uhu.....	4,000	640											8,997	2,699	
Uku.....													1,082	64	
Uke.....													7,951	3,975	
Ulaula.....													156,000	11,100	
Uua.....													458	86	
Umatimalei.....													10	1	
Uouoa.....													1,587	476	
Upapalu.....													98,000	7,840	
U'u.....					2,000	\$160							110,000	8,200	
Weke.....									20,000	1,200	17,681	\$1,061	56,322	3,321	
Hee.....									2,000	300			2,520	378	
Honu.....											3,000	300	3,000	300	
Ina.....											41,000	1,025	41,000	1,025	
Limu.....													36	48	
Muheo.....											300	24	300	24	
Olepa.....											1,800	270	6,825	1,248	
Opae.....											70,200	10,530	70,200	10,580	
Ophi.....											12,000	1,440	75,077	5,225	
Papai.....											30,000	3,000	71,115	7,475	
Uia.....									20,000	2,000			5,177	828	
Uia.....								3,500	\$200		5,177	828			
Wana.....															
Total.....	58,163	4,675			4,774	604	3,500	200	49,825	4,330	181,158	18,588	3,515,850	373,819	



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Small, illegible label on the spine.