

PACIFIC FISHERIES CONSULTANTS



45-626 Halekou Place • Kaneohe, Hawaii 96744 U.S.A. • (808) 599-5867 • FAX (808) 531-0867

NATIVE HAWAIIAN FISHING RIGHTS



PHASE 1

THE NORTHWESTERN HAWAIIAN ISLANDS

A Report Prepared For The
Western Pacific Regional Fishery
Management Council

by

Robert T. B. Iversen, B.S.

Tom Dye, Ph.D.

Linda M. Paul, M.S., J.D.

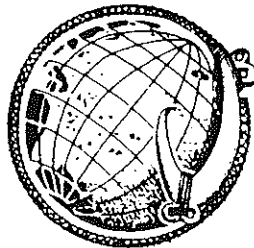
JULY 1990



COVER PHOTOGRAPHY CREDITS

Upper: Hawaiian fisherman eating a raw fish, probably a papio (trevally) at Hamoa, Hana, Maui, 1936. Used by permission of Bishop Museum (negative 77483).

Lower: Capt. Leo A. Ohai, native Hawaiian fisherman, is shown on the deck of his modern 58-foot, multi-purpose fishing vessel LIBRA in Honolulu Harbor, 1990. Shown in the background is the LIBRA's 20-foot skiff, which is used while fishing for akule (big eyed scad). (Pacific Fisheries Consultants photo by Robert T.B. Iversen.)



WESTERN
PACIFIC
REGIONAL
FISHERY
MANAGEMENT
COUNCIL

September 5, 1990

MEMORANDUM

TO: All Interested Parties

FROM: *Kitty Simonds*
Kitty Simonds
Executive Director

SUBJECT: Native Hawaiian Fishing Rights Reports

Under the Magnuson Act, a system of preferential access rights may be developed based upon historical fishing practices in, and dependence on, the fishery in question and the cultural and social framework relevant to that fishery. The Western Pacific Regional Fishery Management Council (WPRFMC) and the Office of Hawaiian Affairs (OHA) recently funded a study by Pacific Fisheries Consultants to investigate the evidence available to support development of a system of preferential rights for the indigenous people of Hawaii.

The contractor was asked to provide evidence, if any, to address the following questions:

- (1) Was there and is there a set of historical fishing practices within the Exclusive Economic Zone (EEZ)?
- (2) Was there and is there a dependence by indigenous people on such fish species?
- (3) Was there and is there a cultural and social framework relevant to such fishery?
- (4) Is there present participation by indigenous fishermen in such fishery?

The Native Hawaiian Fishing Rights Reports are presented in 2 volumes. The Phase I report addressed the potential of preferential rights for native Hawaiian fishermen with regard to the harvesting of certain species of deep-sea bottomfish in EEZ waters around certain of the Northwestern Hawaiian Islands where there is presently a federal limited entry program in place. The purpose of the Phase 2 study was to collect, catalog and authenticate evidence which could provide the necessary historical and legal grounds required for preferential treatment or privileged status of native Hawaiian fishermen in Fishery Management Plan (FMP) fisheries around the entire Hawaiian archipelago.

These documents were prepared as reference materials for the Council, OHA and other interested parties by independent contractors and the results do not necessarily represent the Council or OHA.

We hope that you find these reports informative and thought-provoking. Questions and comments are welcome and may be directed to Dorothy Lowman, staff economist, at the Council offices (808) 523-1368.



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS

1600 KAPIOLANI BLVD., SUITE 1500

HONOLULU, HAWAII 96814

(808) 548-8960

(808) 946-2642

TO: All Interested Parties
FROM: *Thomas Kaulukukui*
Thomas Kaulukukui, Sr., Chair
Board of Trustees

DATE: August 29, 1990

SUBJECT: Native Hawaiian Fishing Rights Report

The Office of Hawaiian Affairs is pleased to have had a part in the preparation and presentation of this report. The assertion and protection of Native Hawaiian Fishing Rights is considered crucial by this Office not only in the context of traditional usage but in recognition of modern pressures on the fishing industry as a whole.

As with any comprehensive report there are limitations in scope and presentation of the report. The following is intended to acquaint the reader with the limitations of this report from the perspective of the Office of Hawaiian Affairs.

This study presents the independent findings and conclusions of the contractor, Pacific Fisheries Consultants. Although the Office of Hawaiian Affairs reviewed this document, certain concerns were not incorporated into the final report. As a consequence, this report does not wholly represent the position of the Office. In particular, our concerns focus on:

1. A legal analysis which tended to ignore Native Hawaiian traditions and Kingdom precedents placing greater emphasis on western legal concepts.
2. Retrospective application of concepts from modern international law to nineteenth century situations.
3. Outstanding Native Hawaiian claims against the federal government which may afford significant opportunity to revise existing laws to address, recognize and restore traditional native rights.

We commend the Western Pacific Regional Fishery Management Council for undertaking this project and hope that this report will encourage others to continue research on the questions and conclusions presented in this material.

SUMMARY

This report provides the results and conclusions of Phase 1 of a two phase study undertaken by the Western Pacific Regional Fishery Management Council (WPRFMC), a quasi-Federal government Agency, to investigate whether, under the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA), Public Law 94-265, there are sufficient historical and legal grounds to give native Hawaiian fishermen preferential treatment in various fisheries that have now, and in the past, been undertaken in the U.S. Exclusive Economic Zone (EEZ). These fisheries include species of fish crustaceans, and precious corals over which the U.S. now claims jurisdiction as the result of the MFCMA.

The EEZ encompasses those waters from three to 200 miles offshore of the entire Hawaiian archipelago, and does not include State of Hawaii territorial waters, which extend from the shoreline out to the beginning of the EEZ three miles offshore.

The study covers the potential rights of native Hawaiian fishermen with regard to the harvesting of bottomfish in the EEZ around certain of the Northwestern Hawaiian Islands (NWHI) (Phase 1). It also covers the potential rights of native Hawaiian fishermen with the harvesting of bottomfish, crustaceans, precious corals, and open-ocean fish in the EEZ surrounding the entire Hawaiian Island chain, which is Phase 2 of the study and the subject of a separate report. The Phase 2 study also includes information on various species of tuna over which the U.S. does not claim jurisdiction.

New Federal regulations that went into effect on January 1, 1989 cover the harvesting of certain bottomfish in the EEZ around the NWHI. There is now limited access to fishermen who wish to bottomfish in EEZ waters west of 165°00'W., which is just west of Necker Island, to the extreme western end of the EEZ around Hawaii, which is not too far west of Midway Islands and Kure Island. The principal species of bottomfish covered by the new Federal regulations are snappers, uluas, and seabass.

This limited access area is the result of a Fishery Management Plan (FMP) prepared by the WPRFMC and covers two zones. One is known as the Ho'omalu Zone, and past and present bottomfishing in the Ho'omalu Zone is the principal subject of this Phase 1 report. The report also covers the Mau Zone around the NWHI, which is from 161°20'W. (near Nihoa Island) to the beginning of the Ho'omalu Zone at 165°00'W.

The purpose of the Phase 1 study is to collect, catalog, and authenticate evidence which could provide the basis for preferential treatment or privileged status of native Hawaiian fishermen in the NWHI bottomfish fishery provided certain criteria cited in the MFMCA are met. The research methodologies used in the study included a review and description of the present day NWHI bottomfish fishery, a search of the historical literature, interviews with fishermen and *kupuna*, a search of pertinent legal documents, a search of the archaeological literature, and of the computer data base and archaeological collections concerning the islands in the NWHI bottomfish fishery.

We here report the results of these investigations and the conclusions drawn from the research.

We have been unable to verify any bottomfishing for FMP species of bottomfish by native Hawaiians in the Ho'omalu Zone prior to the 1920's. We have learned of a tradition that residents of Ni'ihau Island went to Nihoa Island during summer months until the late 1800s, but it is unclear whether they continued on to Necker Island and fished in the waters of the Mau Zone, which surround Necker Island, or in EEZ waters of the Ho'omalu Zone, which begin 18 miles west of Necker Island. There is archaeological evidence that Necker Island was visited by native Hawaiians, but the lack of archaeological evidence for fishing does not imply that bottomfish resources in the Ho'omalu Zone or the Mau Zone near Necker were not used. We speculate that the Hawaiians who lived on Nihoa Island had the canoes and ability to have fished in EEZ waters three miles offshore of Necker Island. If they did journey to Necker Island, it is likely they did fish in these EEZ waters, but whether they actually did so is not known.

For all practical purposes, information about the Ho'omalu Zone fishery begins in the 1930's and late 1940's. There were some native Hawaiians aboard the fishing vessels of those years, but we do not know how many there were or very many of their names. As of September 25, 1989 there were eight fishing vessels licensed to fish in the Ho'omalu Zone and 10 in the Mau Zone. In 1988 these vessels caught an estimated 625,000 pounds of bottomfish with an ex-vessel value of \$1.5 million.

In the process of interviewing fishermen and *kupuna*, we could identify only two native Hawaiian fishermen that fished in the Ho'omalu Zone during 1988 and 1989, and two others who fished in the Ho'omalu Zone in the recent past. We obtained detailed fishing histories from these individuals. They are presented as affidavits in this report, because the terms of reference for this study state that the evidence must be able to withstand legal scrutiny. We know there were other native Hawaiians who fished these waters during the recent past. At the present time participation by native Hawaiian fishermen in

the NWHI bottomfish fishery appears minimal. They are outnumbered by non-native Hawaiian fishermen.

The maximum sustainable yield (MSY) of the bottomfish in this fishery is about 605,000 pounds per year. Fishery scientists studying these stocks believe that in general there is little evidence the NWHI stocks of bottomfish are stressed.

Dependence by native Hawaiians in the present and recent past on FMP species of bottomfish caught in Ho'omalulu Zone can take on several forms. One is dependence on their catches for use as food, and the other is a dependence on their catches for monetary income. We think present day native Hawaiian NWHI fishermen do not depend on their catches for food. They are harvesting fish to sell when they return to the Main Hawaiian Islands (MHI), and eating their catches would defeat this purpose. The native Hawaiians who fished in EEZ waters in the 1930's and 1940's have told us they did depend on their catches for food, since their main species sought were inshore species such as akule and lobsters.

Little is known of the cultural, religious, and traditional values related to the fishery for bottomfish in the Ho'omalulu Zone. While there are tantalizing bits of information that suggest that Hawaiians knew of the islands in the Ho'omalulu Zone, and there is abundant archaeological evidence that Hawaiians travelled repeatedly as far as Necker Island in the Mau Zone, there is currently no archaeological or historical data that may be used to investigate the nature and extent of Hawaiian activities in the Ho'omalulu Zone. Archaeologists once believed that low coral islands, such as those in the Ho'omalulu Zone, were devoid of archaeological remains, but recent research in the Pacific has shown that low islands are often quite rich archaeologically. A thorough survey of the islands of the Ho'omalulu Zone might yield important information on the nature and extent of Hawaiian activities there.

Concerning socioeconomic factors, present day native Hawaiian fishermen who bottom fish in either the Ho'omalulu or Mau Zones have an economic dependence on their catches. It is not unusual for a NWHI bottomfish vessel to return to port with a catch of 8,000 - 12,000 pounds of bottomfish to be sold through the Honolulu fish auction or through other channels. In 1988, the average ex-vessel value of NWHI bottomfish was \$2.40 per pound.

We suggest there is another category of native Hawaiian who has a socioeconomic interest in this fishery - that is the Hawaiian or part Hawaiian who is a consumer of NWHI bottomfish. As shown above, and elaborated on in the Phase 2 report, there has in the past been a strong cultural and religious connection between native Hawaiians and some FMP bottomfish snappers. Some present day native Hawaiian consumers of these bottomfish may still associate bottomfish

snappers with traditional beliefs and with their dependence upon snappers for food. Because of the high cost of some FMP bottomfish, they may be frustrated in maintaining such a traditional desire.

Residents of Hawaii eat almost twice the national U.S. average of seafood, and Hawaiians traditionally have been substantial consumers of seafood. However, industry sources tell us they believe that Hawaiians purchase proportionally less bottomfish than other ethnic groups, possibly because other species, such as tuna cost less, and if native Hawaiians have less disposable income to spend on fish, they would likely opt to purchase less costly species.

Concerning the legal review and analysis, we state it is an established fact that the Hawaiian people do not have a formal treaty with the U.S. which spells out their fishing rights. They did have, and arguably still have, laws which spelled out those rights, laws which survived the overthrow and annexation into territorial status and may have survived admission into the Union. With each transfer of sovereignty, the U.S. stated repeatedly that it would honor all those extant laws not in conflict with Federal law unless they were cancelled by specific Federal or State legislation.

Prior to the establishment of EEZs, coastal people could assert rights to high seas resources under two legal theories: (1) effective exercise of sovereign control, and (2) long and continuous usage. If both sovereign control and continuous usage were present, traditional fishermen could assert an exclusive right to the resource; if continuous usage only was established they could still assert a preferential right to the resource. The establishment of historic offshore fishing grounds still in use in Hawaiian archipelago opens the door to a claim for preferential native Hawaiian fishing rights in the EEZ. However, the fact that the exact boundaries of these grounds were never established argues against a claim for exclusive, vested fishing rights.

The usage rights of the common people to the fisheries beyond the three-mile territorial sea were not repudiated by either the provisional government or the Republic of Hawaii. Hawaii State law still recognizes "Hawaiian usage" as an exception and qualifier to the common law system of the State. U.S. Federal law recognizes the concept of usage in its direction to Fishery Management Councils to take "historical fishing practices" into consideration when drafting FMPs. Under international law, sovereign States have an obligation to honor preferential fishing rights established through usage and in the U.S. international law is part of Federal common law to the extent that it is not in conflict with any domestic law.

It is not clear, however, which people can be considered the inheritors of these rights. The laws of the U.S. define

the term "native Hawaiian" in at least two different ways. One definition means any descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Island prior to 1778. Another definition means any individual any of whose ancestors were natives of the area which consists of the Hawaiian Islands prior to 1778. The latter definition is the most recent.

ACKNOWLEDGMENT

The Western Pacific Regional Fishery Management Council Wishes
to Express its Deepest Appreciation

To the

OFFICE OF HAWAIIAN AFFAIRS

For Its Assistance Which Made It Possible For This Study To
Have Been Conducted On The Potential Of Preferential Fishing
Rights For Native Hawaiian Fishermen

TABLE OF CONTENTS

SUMMARY	I
ACKNOWLEDGMENT	VI
TABLE OF CONTENTS	VII
LIST OF TABLES	IX
INTRODUCTION	1
General	1
MFCMA criteria	1
Purpose	3
Terms of reference	4
RESEARCH METHODOLOGIES	4
Review and description of present day fishery	4
Historical literature search	5
Interviews with fishermen and kupuna	6
Legal document search	7
Archaeological literature search	7
RESULTS	8
Review and description of present day fishery	8
General	8
LOCATION AND AREA	8
HISTORY OF EXPLOITATION	9
SPECIES OF NWHI BOTTOMFISH	10
VESSELS	10
GEAR	11
HANDLING, PROCESSING, AND MARKETING	12
Fishery Management Plan and Regulations	12
FEDERAL REGULATIONS	12
FMP IMPLEMENTATION	13
AMENDMENTS	13
NATIVE HAWAIIAN RIGHTS	14
PERMITS	14
BOTTOMFISHING ZONES	17
ADVISORY REVIEW BOARD	17
Status of the fishery	17
SUMMARY	17
POUNDS LANDED	17
VALUE	18
COMPOSITION OF THE CATCH	19
EFFORT AND ECONOMIC FACTORS	20
CATCH PER UNIT EFFORT	21
MAXIMUM SUSTAINABLE YIELD	21
Management issues and administrative actions	21
Historical literature search	22
Interviews	23
Other interviews	24
Native Hawaiian fishermen and non-native fishermen	25
Legal analysis and review	26
Introduction	26
Jurisdiction Over the Living Marine Resources of the United States Exclusive Economic	

Zone (EEZ) Surrounding the Hawaiian Archipelago	27
Historic Rights to the Living Marine Resources of the Kingdom of Hawaii	29
The Transfer of Sovereignty from the Kingdom to the Republic of Hawaii	32
Preferential Rights to EEZ Resources Established by Peaceful and Continuous Usage by the Hawaiian People	33
The Fishery Conservation and Management Act and Native American Fishing Rights	36
Caselaw Supporting Preferential Fishing Rights for Native Americans	38
Archaeological literature search	41
CONCLUSIONS	42
Historical fishing practices	42
Present day participation	43
Dependence by native Hawaiians in the present and recent past	44
Cultural, religious, and traditional factors	44
Socioeconomic factors	44
Legal analysis	45
APPENDICES	47
A. Synonymy of common, Hawaiian, and scientific names of FMP species	47
B. Whaling ships that visited or operated in the vicinity of Kauai Is., Niihau Is., or the Northwestern Hawaiian Islands during the years 1791-1878	51
C. List of individuals who were interviewed concerning native Hawaiian fishing in the Ho'omalu Zone of the NWHI, and also around Kaua'i, Ni'ihau, and Ka'ula Islands	54
D. Affidavits	55
E. List of acronyms used and their meanings	71
F. Glossary of Hawaiian words and phrases	72
BIBLIOGRAPHY	73

LIST OF TABLES

1. Vessels permitted to fish in the Ho'omalau and Mau Zones of the NWHI as of September 25, 1989	10
2. Northwestern Hawaiian Islands bottom fleet participation, 1978-1988	11
3. NMFS estimate of Hawaii bottomfish market volume, by source, 1984-1988	18
4. Hawaii bottomfish market revenue, 1986-1988.	18
5. Price (per pound) distribution and product source for the Hawaii bottomfish market, 1986-1988	19
6. Landings of principal bottomfish species from the NWHI sampled at the Honolulu wholesale market, 1986-1988.	19
7. NWHI bottomfish landings, percent of total catch of five principal species, 1986-1988	20
8. Fishing and revenue producing activity of the bottomfish fleet in the NWHI during 1986-1988	20
9. Average catch per trip (pounds) for vessels bottomfishing in the NWHI during 1984-1988	21

INTRODUCTION

General

Fishing regulations that went into effect January 1, 1989 covering bottomfishing in the Federal Exclusive Economic Zone (EEZ) in certain waters around the Northwestern Hawaiian Islands (NWHI) now limit access to these bottomfish grounds to only those fishermen who have qualified under the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA). These new regulations do not give native Hawaiian fishermen any preferential fishing rights, an issue which has recently received renewed attention (Meller 1985, Anders 1987, Murakami and Freitas 1987). EEZ waters are those waters between the outer boundary of State of Hawaii territorial waters, which is three miles offshore and the outer limit of the EEZ, which is 200 miles offshore.

This was due to a lack of evidence at that time to support a determination under the MFCMA that native Hawaiian fishermen should receive preferential treatment in the NWHI fishery for bottomfish, part of the broader issue concerning native Hawaiian fishing rights in all fisheries in the EEZ around the Hawaiian archipelago.

The new limited access bottomfishing regulations are the result of an amendment to a Fishery Management Plan (FMP) prepared under the MFCMA by the Western Pacific Regional Fishery Management Council (WPRFMC), a quasi-governmental agency. The WPRFMC is responsible for developing plans for the management and conservation of fishing in the EEZ around the NWHI in particular and around the entire State of Hawaii in general.

The area of concern in this report is the Ho'omalulu Zone of the EEZ around the NWHI (figure 1), those waters west of 165°00'W, which is slightly west of Necker Island, to the western end of Hawaii's EEZ, west of Kure Island. The scientific, common, and Hawaiian names of these fishes are presented in Appendix A, which describes the naming conventions followed in the rest of this report. A list of acronyms used and their meanings is given in Appendix E. A glossary of Hawaiian words and phrases used is given in Appendix F.

MFCMA criteria

Under the MFCMA, limited entry to FMP regulated fisheries may be established for certain fishermen, including indigenous native American fishermen, providing certain criteria are

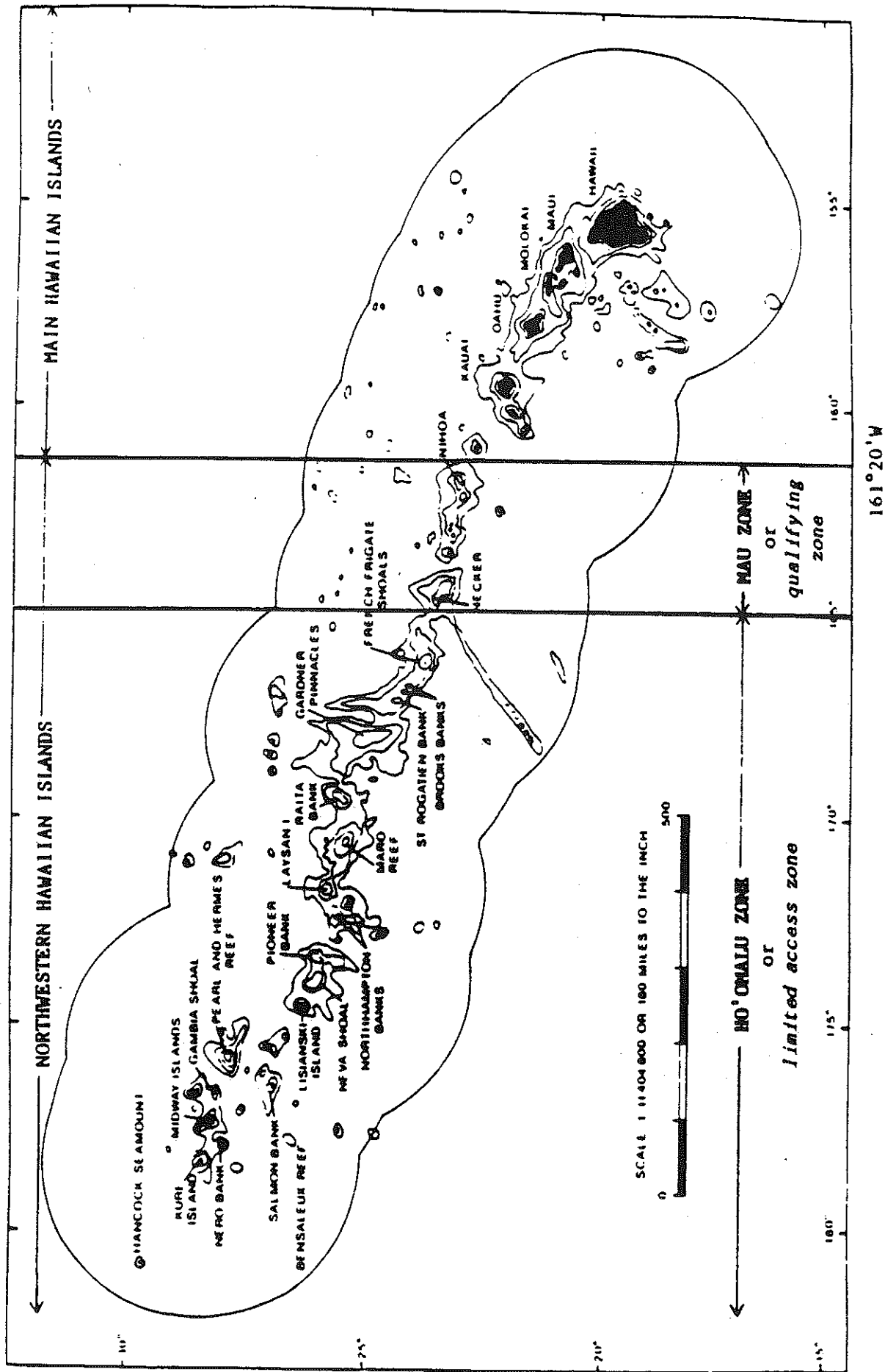


Figure 1. U.S. EEZ of the Northwestern Hawaiian Islands divided into two zones: the Ho'omalu Zone (limited access zone) and the Mau Zone (qualifying zone).

taken into account. Section 303 (b) (6) sets forth the criteria as follows:

"DISCRETIONARY PROVISIONS. Any fishery management plan which is prepared by any Council; or by the Secretary, with respect to any fishery, may --

(6) establish a system for limiting entry to the fishery in order to achieve optimum yield, if, in developing such system, the Council and the Secretary take into account --

(A) present participation in the fishery,

(B) historical fishing practices in, and dependence on the fishery,

(C) the economics of the fishery,

(D) the capability of fishing vessels used in the fishery to engage in other fisheries,

(E) the cultural and social framework relevant to the fishery, and

(F) any other relevant considerations;"

In addition, MFCMA section 303 (a) (2) specifies that any fishery management plan contain a description of "the nature and extent of . . . Indian treaty fishing rights . . ."

Purpose

In accordance with the MFCMA, the WPRFMC has undertaken a study to determine if there is sufficient evidence to support a legal basis for preferential rights which could become part of the limited entry system which is now in effect in the NWHI for bottomfish FMP species.

The study is entitled RIGHTS OF NATIVE HAWAIIAN FISHERMEN WITH SPECIFIC REGARD TO HARVESTING OF BOTTOMFISH IN THE NORTHWESTERN HAWAIIAN ISLANDS AND WITH REGARD TO HARVESTING OF BOTTOMFISH, CRUSTACEANS, PRECIOUS CORALS AND OPEN-OCEAN FISH IN OFFSHORE AREAS SURROUNDING THE ENTIRE HAWAIIAN ISLAND CHAIN (WPRFMC 1988).

This report gives results of phase 1 of the study, which concerns the potential rights of native Hawaiian fishermen with respect to fishing for bottomfish in Ho'omalu Zone EEZ waters of the NWHI. Phase 2 concerns the above fisheries in the EEZ around the entire Hawaiian island chain, and is the subject of a separate report.

Terms of reference

In order to meet the MFCMA criteria, the following are the types of archaeological, anthropological, and historical evidence as well as current information sought to support preferential treatment for native Hawaiian fishermen, according to the terms of reference, and which are given in the WPRFMC request for proposals dated June 7, 1988:

1. That there was and is a set of historical fishing practices for the bottomfish species (identified in appendix A) . . . encompassed by Federal waters in the NWHI. . .

2. That there was and is a dependence by native Hawaiians (or at least a significantly identifiable portion thereof) on the bottomfish species . . . in the NWHI.

3. That at least some dimension of Hawaiian society . . . has in the past reflected and still reflects cultural, social and religious values, traditions, and practices derived or based upon the fishery for bottomfish. . .

4. That there is present participation by native Hawaiian fishermen (together with non-native fishermen) in the fishery for bottomfish . . . in the NWHI.

The WPRFMC request for proposals noted that the evidence submitted must be of such quality and be presented in a manner so as to withstand legal scrutiny.

RESEARCH METHODOLOGIES

Review and description of present day fishery

Because Phase 1 is concerned with only the Ho'omalulu Zone bottomfishery of the NWHI, where regulations implementing the limited access program went into effect on January 1, 1989, it was deemed useful to provide information which covers the fishery in considerable detail. Its purpose is to document present-day fishing practices for WPRFMC FMP species as well as the beginning of the modern fishery, which occurred in the 1920s. This review was conducted by searching the available fisheries literature, primarily in the libraries of the National Marine Fisheries Service (NMFS), WPRFMC, the University of Hawai'i, and the project researchers. Present day native Hawaiian fishermen as well as some fishermen who fished the NWHI in the immediate past were identified and interviewed to determine the extent of their bottomfishing activities in the Ho'omalulu Zone of the NWHI.

Historical literature search

The primary sources on native Hawaiian fishing practices include Beckley (1883), Kahaulelio (1902), Kamakau (1976), and Malo (1951). Of these four, the only first-hand account of fishing practices appears to be A.D. Kahaulelio's. Born about 1837, Kahaulelio fished the waters between Maui, Moloka'i, Lana'i, and Kaho'olawe for 41 years, the first 16 as an apprentice to his father and grandparents and the final 25 as a master fisherman in his own right. The breadth of his knowledge is best illustrated by the 98 ko'a (fishing grounds) that he names and his detailed understanding of the relationships between winds, currents, and the probability of fishing success at each of the ko'a. His writings on fishing were published in 13 installments in *Ka Nupepa Kuokoa*; an English translation of this work by Mary Pukui is in the Bishop Museum Library.

Both David Malo and S.M. Kamakau studied at Lahainaluna Seminary on Maui in the early 1830s, Malo as a middle-aged man and Kamakau as a teen-ager. Both wrote as historians, their goal to preserve the wisdom of the old Hawaiian culture as it was remembered by knowledgeable elders. Neither Malo nor Kamakau is noted for fishing prowess and it is likely that most of the information on fishing that they present was abstracted from interviews with master fishermen. Their accounts lack the detail and precision evident in Kahaulelio's descriptions.

Emma Nakuina Beckley's writing on fishing is strongest in its description of inshore fishing techniques; as a woman it is unlikely that she would have had extensive first hand experience in offshore fishing. Her writings on offshore fishing, based on second-hand information collected at a relatively late date, are probably less representative of ancient Hawaiian practices than are the accounts of Kahaulelio, Malo, and Kamakau.

Minor primary sources, including miscellaneous Hawaiian language newspaper articles and ethnographic notes from various researchers, were consulted in the Hawaiian Ethnological Notes (HEN) at Bishop Museum Library. The HEN are largely the work of Mary Pukui, who for many years was in charge of Hawaiian language translations at Bishop Museum. These sources generally cover some specific topic, such as a fisherman's prayer or a list of ko'a in an ahupua'a, and make no attempt at the exhaustive treatment provided in the major primary sources. These sources provide less information than one might expect. Strict missionary attitudes toward the practices of the past appear to have inhibited the generational transmission of information on fishing. S.Z.E. Kalaaukumuole of Puahoowali, Lahaina wrote to *Ka Nupepa Kuokoa* on 6 November 1866 with an ancient Hawaiian fishing prayer so that "the new people dwelling on the surface of the earth from

Hawaii to Kauai will see it, that they may see the ignorant worshipping of the ancient people... [who] did not know that Jehovah made the fish and left them for the use of men" (Kalaaukumuole 1866). Kalaaukumuole's correspondence was followed by an editor's note stating that "we did not wish to print this paper to the aumakuas to teach the young people of the future the useless practices of our ancestors We are telling this without hypocrisy that all may know the evil of the prayers of our parents." Another factor was the reluctance of fishermen to reveal the locations of secret fishing grounds (ko'a huna). Kamakau claimed, in 1869, that "most of the fishing grounds of ka po'e kahiko are unknown to their descendants and their locations have been lost" (Kamakau 1976:78). He describes an elaborate routine for ensuring the secrecy of ko'a that involved baiting fish hooks on shore, setting out to sea under the cover of night, and towing hooked fish out of sight of the ko'a before pulling them into the canoe (Kamakau 1976:78-79).

Articles from the 1890s through the 1930s in *Paradise of the Pacific* and the *Hawaiian Almanac and Annual* were reviewed for pertinent information. These sources provided little of interest, perhaps because Japanese virtually monopolized deep sea line fishing by the turn of the century (Cobb 1905:745).

The primary sources are the basis for several recent works that deal directly or indirectly with native Hawaiian fishing. These include Hiroa's (1964) inventory of Hawaiian material culture, Titcomb's (1972, 1978) summaries of Hawaiian use of sea creatures, and Valeri's (1985) exploration of Hawaiian religion. The primary sources have also been used to develop models of Hawaiian fishing for the area in and around Kahalu'u Bay, North Kona, Hawai'i (Severance 1986), for the island of Hawai'i (Newman 1970), and for the Hawaiian Islands as a whole (Goto 1986).

Included in the literature search were the logs of American whalers who visited Kaua'i and Ni'ihau and the NWHI area from 1791 to 1878 and which are part of the Pacific Manuscripts Bureau collection of whalers logs on microfilm in the Hamilton Library, Univ. of Hawaii. We read the logs of whalers that made 113 visits to Kaua'i, Ni'ihau, and the NWHI. The purpose of searching these logs was to determine if any whalers operating in the Ho'omalu Zone encountered any Hawaiians bottomfishing or made statements in their logs about Hawaiians fishing in the NWHI. A list of whalers' logs read is given in Appendix B.

Interviews with fishermen and kupuna

Interviews with native Hawaiian fishermen were held on Kaua'i and O'ahu Islands in order to document the extent of their present fishing activities in EEZ waters of the Ho'omalu

Zone, as well as the Mau Zone and other EEZ waters near Kaua'i and Ni'ihau Islands. A special effort was made to locate *kupuna*, either fishermen or observers, from both Ni'ihau and Kaua'i Islands, in order to obtain *kama'aina* testimony that could serve as evidence to support preferential rights for native Hawaiian fishermen. Interviews with fishermen consisted of a number of core questions that brought out the salient facts concerning the fishermen (and one fisherwoman) including the percentage of his or her Hawaiian ancestry, and the informant's fishing history. Information was sought on all types of fishing undertaken by the informants, including fishing for other FMP species, as well as tunas. A summary of the informants' personal background and fishing history in the Ho'omalulu Zone was then prepared as an affidavit which was signed and notarized. The purpose of preparing affidavits was to produce a record which could withstand legal scrutiny. A list of native Hawaiian fishermen who have fished in the Ho'omalulu Zone and who were interviewed is given in Appendix B.

Legal document search

This search was made by reviewing Federal statutes, primarily the MFCMA, and their legislative histories, for information pertaining to preferential fishing rights for native Americans. The search also included the Hawaii Revised Statutes and their legislative histories for similar references. The status of the common law regarding Hawaiian fishing rights, which is found in Federal and State case law (results of judicial proceedings), was also reviewed. A special effort was made to review the extant literature on *konohiki* fishing rights.

Archaeological literature search

The archaeological remains of Nihoa and Necker Islands are well known through the work of Cartwright and Emory (Emory 1928), and Cleghorn (1988). Kirch (1985:89-98) summarizes these remains and theories about the people who produced them. The islands of the Ho'omalulu Zone are less well known archaeologically. In 1923, the Tanager Expedition sent Bishop Museum ethnologist Bruce Cartwright to survey islands in the Ho'omalulu Zone, and though Emory reported negative results "on the islands northwest of Necker" (Emory 1928:3), the field notes for the expedition held in Bishop Museum Library were reviewed. Apple (1973) made brief surveys of the NWHI for the U.S. Fish and Wildlife Service.

RESULTS

Review and description of present day fishery

General.

LOCATION AND AREA. The bottomfish fishery in the NWHI takes place in the EEZ west of 161°20'W. (figure 1). The area to the east of 161°20'W. is known as the Main Hawaiian Islands (MHI). While bottomfish fishing occurs in the MHI, it is not the subject of this report, which is only concerned with Phase 1 of the native Hawaiian fishing rights project, the NWHI bottomfish fishery in the Ho'omalulu Zone.

Bottomfish grounds in the NWHI are subdivided into two separate zones - the Mau Zone and the Ho'omalulu Zone. The Mau Zone is located between 161°20'W. and 165°00'W., while the Ho'omalulu Zone is located between 165°00'W. degrees and the western extremities of the EEZ around the Hawaiian archipelago, approximately 178°15'E.

The EEZ around the Hawaiian archipelago is approximately 695,000 nautical miles² in area (WPRFMC 1988a). The EEZ west of 161°20'W. comprises approximately two-thirds of the entire Hawaiian archipelago EEZ, or about 463,565 nautical miles². Of the 463,565 nautical miles² in the entire NWHI EEZ, the Ho'omalulu Zone is approximately 380,123 nautical miles² in area (82%), while the Mau Zone is approximately 83,442 nautical miles² in area (18%).

The bottomfish grounds of the NWHI are usually described per unit of bottomfish habitat (WPRFMC 1986, Polovina 1987). Because it is difficult to determine the area of bottomfish grounds around steep sloped Pacific islands, the length of the 200 meter (m.) isobath can be used to index bottomfish habitat. The length of the 200 m isobath in the NWHI, including both the Ho'omalulu and Mau Zones, has been calculated to be 1,231 nautical miles (2,280 km.) (Polovina 1987). The comparable figure for the MHI islands is 977 nautical miles (1,809 km.). (Note: the 200 m isobath is at a depth approximately equal to the 100 fathom isobath.)

How does the total area in the NWHI EEZ (in nautical miles²) relate to the amount of bottomfish habitat as described by the unit of bottomfish habitat (in miles of the 100 fathom isobath)? There is no exact way of comparing the two measurements, other than to say that the amount of bottomfish grounds, as indicated by the length of the 100 fathom isobath, is only a very small fraction of the area in the EEZ around the NWHI.

The total area from 0 to 100 fathoms in the NWHI is only 15,821 km², while the area from 10 to 100 is 13,779 km² and the area from 0 to 10 fathoms is 2,042 km² (WPRFMC 1981).

Thus fishing for bottomfish in the NWHI does not occur in a very large area compared to the total EEZ around the NWHI.

HISTORY OF EXPLOITATION. Commercial bottomfishing in waters of the NWHI has taken place since at least as early as the 1920s, when the DAIKOKU MARU was lost at sea while returning from a NWHI fishing expedition (Shinsato 1973). In the 1930s, and following World War II, a number of Honolulu based fishermen, such as Heisei "Bill" Shinsato and Louis "Buzzy" Agard, were involved in bottomfishing in NWHI waters. According to Shinsato (1973), vessels and individuals involved included the LANIKAI and ISLANDER (William Anderson); SIMBA (Jake Hoopai); RELIABLE (Arthur Rice); KATSUREN MARU; KOYO MARU (Richard Shiroma); KAKU (Kuni Sakamoto); SEA HAWK; OSPREY; TAIHEI MARU, and ELAINE (Bill Shinsato); and BROTHERS (Capt. Otness). However, besides bottomfishing, these vessels also fished for lobsters, reef fish and inshore species and turtles, many of which were caught inside the 3 mile limit. In 1950, fisherman Leo Ohai, who was the owner and captain of the vessel SEA QUEEN, disassembled and transported a small aircraft (Piper Cub) to French Frigate Shoals aboard the SEA QUEEN, where it was reassembled and used to support fishing operations in waters around French Frigate shoals for akule (big eyed scad: *Selar crumenophthalmus*) for about one year (Agard, pers. comm.). During the same period, Agard used a DC-3 cargo aircraft to fly catches from the airstrip at French Frigate Shoals to Honolulu for marketing. Agard also captained the vessel KOYO MARU to catch akule at Nihoa Island in 1950 (Agard, pers. comm.). Fishing by most of these vessels in NWHI waters continued until about 1956, when fishing started to decline, and in the 1970s and early 1980s there were only a few vessels, notably the TAIHEI MARU, bottomfishing along the NWHI.

Shinsato (1973) reported that the LANIKAI and ISLANDER fished around all the NWHI and had a fishing station at Pearl and Hermes Reef, where they fished for deepsea species such as onaga (long tailed snapper), opakapaka (pink snapper), uku (gray job fish), ehu (squirrel fish snapper) and hapu'upu'u (sea bass). He reported that the KAKU fished as far as Maro Reef for deepsea species. He said the SEA HAWK and OSPREY fished as far as Lisianski Island for deepsea species. In 1973, Shinsato reported that the TAIHEI MARU fished waters at Lisianski Island and Maro Reef for deepsea species such as onaga and opakapaka. Both Shinsato and Agard (pers. comm.) have confirmed that most of the deep sea fishing for FMP bottomfish species occurred in waters more than three miles offshore, that is, in waters now considered to be in the Ho'omalulu Zone. They said that a number of native Hawaiians served as fishermen aboard these vessels when deepsea fishing occurred, but that unfortunately there is no record of their numbers or their names.

Larger scale exploitation has continued since the mid 1980s, but since then the number of vessels bottomfishing in the NWHI has undergone a rapid buildup, and then a decline. In 1984, 19 vessels fished the NWHI. By 1987, there were 28 vessels, but by 1988, the number of vessels had dropped to 13 (Kawamoto and Pooley 1989). The number of permitted vessels fishing in FMP waters of the NWHI as of September 25, 1989 was as follows: Ho'omalu Zone-8; Mau Zone-10. There are a number of reasons for the decline in the number of vessels. They include difficulties in meeting permit requirements, a decrease in NWHI catches, the need to travel further for good fishing grounds, and the shifting by vessels to other Hawaii fisheries, notably the longline fishery for pelagic species such as tuna and marlin.

SPECIES OF NWHI BOTTOMFISH. Species listed by the WPRFMC's bottomfish FMP and the terms of reference for this report are shown in Appendix A.

While the terms of reference for this report include the black ulua (black trevally), *Caranx lugubris*, the compilation of bottomfish catches in both the NWHI and MHI by the NMFS and the Hawaii Division of Aquatic Resources (HDAR) do not show where black ulua catches were made. Thus the small black ulua landings are not given below. Further, there are a number of other species landed in the NWHI bottomfish fishes that are not included in the above list of bottomfish FMP species, including gindai (*Pristipomoides zonatus*) and nohu or hogo (*Pontinus macrocephala*). Data on landings of these species appear in the WPRFMC annual report on NWHI bottomfish and is covered below.

VESSELS. The 18 vessels presently permitted to fish in the Ho'omalu and Mau Zones are shown in table 1.

Table 1. Vessels permitted to fish in the Ho'omalu and Mau Zones of the NWHI as of September 25, 1989. Source: NMFS.

HO'OMALU ZONE/(VESSEL)	MAU ZONE/(VESSEL)
Fortuna	Nanbellis Jo
Four C's	Windwalker
Ipokai	Kia Hao
Kawamee	Lei Alana
Ohana Kai	Sea Eagle
Sailfisher	Wahine Kapaloa I
E.T	Wahine Kapaloa II
Anna Riley	Chris
	Maka Pueo
	Pi'i Ola

Not all of these are full time bottomfishing vessels. For example, the IPOKAI alternates between bottomfishing and tuna longlining, while the SAILFISHER did not bottomfish for a large part of 1988 and 1989, and the SEA EAGLE was inactive early in 1989.

Between 1978 and 1988 the number of vessels participating in the NWHI bottomfish fishery fluctuated from a low of 5 in 1978 to a high of 28 in 1987, as shown in the following table:

Table 2. Northwestern Hawaiian Islands bottom fleet participation, 1978-1988. Sources: Data combined from Meyer (1987), and Kawamoto and Pooley (1988, 1989).

YEAR	FULL TIME	OTHER	TOTAL
1988	Ca. 10	3	13
1987	12	16	28
1986	15	9	24
1985	15	8	23
1984	15	4	19
1983	?	?	12
1982	?	?	7
1981	?	?	7
1980	?	?	8
1979	?	?	5
1978	?	?	5

Size of the permitted vessels ranges from about 50 to 80 feet. Two of them, the KAWAMEE and the SAILFISHER use sails in addition to engines for propulsion. In 1988, an average NWHI trip was 15.3 days, of which 7.0 was spent fishing and 8.3 were spent traveling (Kawamoto and Pooley 1989). Factors limiting trip length include the shelf life of the catch, since catches are marketed in a fresh condition, and how far the vessels must go to find sufficient quantities of the target species. It is not unusual for a Ho'omalua Zone vessel to travel 850 miles one way to the fishing grounds, and trips to Kure Is. are 1,367 miles one way from Honolulu. Long distances to the grounds can reduce the days available for fishing because of the requirement to return the fresh catches in prime condition.

GEAR. Equipment used by the present day NWHI bottomfishing fleet utilizes the latest developments in electronics to locate the fishing area and determine if catchable quantities of the target species are present. Electronics include satellite and loran navigation aids, as well as depth sounders that present information on fish depths and species, and on bottom topography in color. These sounders are known as "chromoscopes".

A typical vessel uses between 4 and 6 power assisted reels (hydraulic or electric) to deploy individual weighted fishing lines in the vicinity of target species located by the chromoscope. Each line will have about 3 to 6 hooks which are typically baited with squid or cut fish. Depending on the target species, the hooks are fished at depths between about 300 and 800 feet. For example, the deeper swimming onaga are usually fished at about 720 feet, while the shallower opakapaka are found at about 400 feet and the even shallower uku are usually fished at about 150 feet.

HANDLING, PROCESSING, AND MARKETING. According to the Hawaii Seafood Buyers' Guide (1988), "The preferred method of maintaining good quality bottomfish is to place the fish in an ice-seawater brine slush immediately after landing to superchill it in a straight position before packing in ice. Fish which are bent in the brining procedure may have cracked fillets. To prevent fading of the attractive natural skin colors, the brine must be periodically replenished with seawater, and the fresh melted ice water must be drained.

"Properly chilled bottomfish stored in the round, however, will retain the desired firm texture longer than bottomfish that are processed immediately after capture.

"Most of the bottomfish catch is landed as whole, iced fish, so that buyers can assess fish quality by examining the clarity of the eyes, the color of the gills and body firmness.

"Bottomfish landed from the Northwestern Hawaiian Islands are marketed predominantly through the Honolulu fish auction. Small bottomfish (less than 5 pounds) are the preferred size for the household retail market and for certain types of restaurants, where fish are often served with the head on. Medium to large bottomfish (over 5 pounds) are preferred for the restaurant fillet market because the percent yield of edible material is high, handling costs per unit weight are lower, and more uniform portions can be cut from the larger fish."

According to industry sources, very little of the bottomfish entering normal commercial marketing channels is exported to either the U.S. mainland or to other out of state markets. What little bottomfish that is exported out of state usually is destined for markets on the U.S. mainland or in Japan.

Fishery Management Plan and Regulations.

FEDERAL REGULATIONS. Bottomfishing in the EEZ of the NWHI is governed by Federal regulations, which were adopted following approval of the WPRFMC's FMP for NWHI bottomfishing, and FMP amendments numbers 1 and 2. The bottomfishing FMP was approved on July 10, 1986, and became effective on August 27,

1986 (Federal Register 1986). Amendment number 1 was approved on September 21, 1987 and went into effect on November 11, 1987 (Federal Register 1987). Amendment number 2 was approved on July 15, 1988, and went into effect on January 1, 1989 (Federal Register 1988).

FMP IMPLEMENTATION. The FMP implemented the following rules concerning bottomfishing in the NWHI:

- o Established the framework for a monitoring scheme and authority for future management actions in the EEZ, including limiting access for bottomfishing.
- o Prohibited the use of bottom trawls and set gill nets in the EEZ without an experimental fishing permit.
- o Prohibited the use of poisons and explosives.
- o Established a Federal permit requirement for vessels fishing for bottomfish in the EEZ of the NWHI.

The FMP also provided management regulations for the seamount groundfish fisheries in the EEZ around Hawaii. (Note: only the portions of the FMP covering bottomfishing in the NWHI are the subject of this report.)

The following actions concerning bottomfishing in the NWHI were implemented upon approval of the FMP:

- o Established an administrative framework for future regulations for managing the bottomfish fishery in the EEZ around the NWHI. Options that could be considered in this framework included catch limits, size limits, area/season closures, access limitation, permit and reporting requirements, regulation requirements, and a regulation notification system.
- o Prohibited the use of bottom trawls and bottom set nets to harvest bottomfish in the NWHI.
- o Adopted certain State of Hawaii regulations in the EEZ waters of the NWHI pertaining to explosives, poisons, etc.
- o Required a general Federal permit to fish for bottomfish in the EEZ of the NWHI pending any further management regulations.
- o Established conditions for future experimental fishing permits if needed.

AMENDMENTS. Amendment number 1 implemented the following:

- o Provision for the use of limited access measures for controlling bottomfishing in the NWHI within the framework approach of the FMP.
- o Extended the due date of the *Annual Report for the Bottomfish Fisheries of the Western Pacific Region* from March 31 to June 30 of each year.

Amendment number 2 established a limited access program for the Ho'omalulu Zone portion of the bottomfish fishery in the NWHI. The intent of this limited access program is to balance the harvesting capacity of the fishery and the productive capacity of the stocks with a minimum of impact on the fishermen.

The limited access restrictions on new entry in the NWHI fishery for bottomfish from Amendment number 2 include the following:

- o A performance standard requiring continuing participation in the fishery to maintain permit eligibility.
- o A provision to allow persons initially eligible for permits to withdraw from the fishery in return for priority in the points system for future entry.
- o A provision allowing persons potentially eligible for permits up to five years to obtain their first permit.
- o A system for allowing new entry in the future when stock and economic conditions are suitable.

NATIVE HAWAIIAN RIGHTS. The rules and regulations of the FMP include one subsection (683.28) that is titled "NATIVE HAWAIIAN FISHING RIGHTS". Instead of operational language, this subsection 683.28 contains only the statement "[Reserved]", which means that the subject of NATIVE HAWAIIAN FISHING RIGHTS has yet to be resolved.

PERMITS. One critical aspect of the limited access system is how fishermen obtain permits to fish in either the Mau Zone or the Ho'omalulu Zone. Detailed mechanics of the limited access program are given in the rules and regulations of FMP amendments numbers 1 and 2 (Federal Register 1988), but two complementary schematic diagrams are given in figures 2 and 3 to help in visualizing how the process works.

ELIGIBLE GRANDFATHER APPLICANTS



Owner* of 1 vessel which landed NWHI bottomfish prior to 7 August 1985.



Owner of 2 or more vessels which fished NWHI prior to 7 August 1985. Permits may be received for each vessel which made landings ** of NWHI bottomfish in 1986 and 1987.



Owner presently bottom-fishing in the NWHI who served as captain in NWHI fishery prior to 7 August 1985.



Owner who can present proof of intent to own bottomfishing vessel prior to 7 August 1985.

ENTRY OF NEW BOATS

New applicants must own \geq 25% of a fishing vessel. Selection is based on eligibility points***. These points are received for :

1. \geq 6,000 lbs landed in MHI
2. \geq 3 bottomfish landings in NWHI.

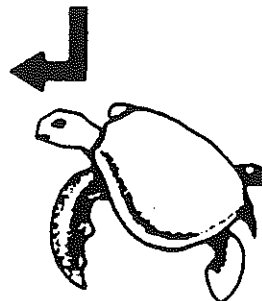


Opened when fishery conditions can sustain more vessels

Apply within 5 years

Applications and information are available at the Western Pacific Program Office (NMFS) 2570 Dole Street.

Captains of vessels must attend workshop on endangered species in the NWHI.



Annual review of fishing activities. Required to maintain \geq 3 landings of NWHI bottomfish annually.

If approved then continue fishing.

If not because of failure to comply then out of NWHI fishery.

If not because of voluntary withdrawal of Grandfather then receive preferential placement **** on waiting list to reenter fishery.

Figure 2. Ho'omalu Zone permit eligibility criteria.

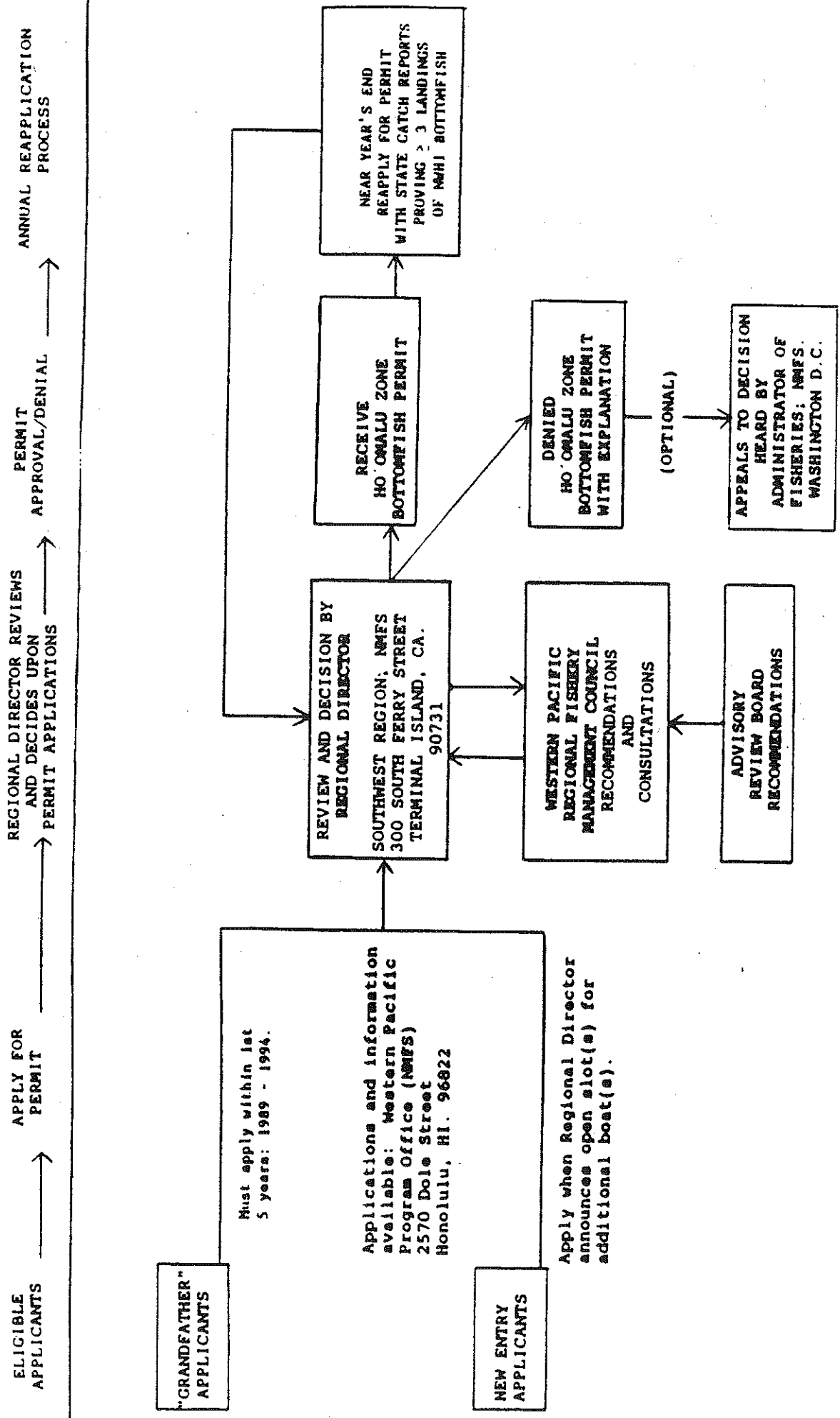


Figure 3. Ho'omalulu Zone permit applications and renewal process.

BOTTOMFISHING ZONES. The FMP divides the EEZ of the NWHI into the Ho'omalulu Zone and the Mau Zone. In the Hawaiian language, the word "Ho'omalulu" means "to take care of, to protect", and the word "Mau" means "the continuation". Access to the Ho'omalulu Zone, the area just west of Necker Island, is limited. Conversely, access to the Mau Zone is unrestricted (see figure 1), except that vessels permitted to fish in the Ho'omalulu Zone cannot fish in the Mau Zone. Permits under the limited access system are issued for both the limited access Ho'omalulu Zone and the open access Mau Zone with the Mau Zone being a qualifying zone for fishermen seeking permits to enter the Ho'omalulu Zone. The limited access system does not restrict entry into the Mau Zone.

ADVISORY REVIEW BOARD. Part of the limited access system is the establishment of an Advisory Review Board to assist the Council in making recommendations to the National Marine Fisheries Service (NMFS), which issues the permits (Federal Register 1988). The board consists of nine individuals, including four bottomfish fishermen and one person engaged in marketing or processing bottomfish. The remaining four members represent Federal and State agencies. The Council will undertake a special evaluation of the program after it has been in effect for five years. This should occur in 1994.

Status of the fishery

The following information on the status of the NWHI bottomfish fishery was taken from the 1987 and 1988 annual reports on the fishery (WPRFMC 1988b; Somerton, Kikkawa and Everson 1989; Kawamoto and Pooley 1989; Ralston and Kawamoto 1988).

SUMMARY. Total bottomfish landings in 1988 from the NWHI were 625,000 pounds worth \$1.5 million. Total Hawaii state bottomfish landings for 1988 were 2,276,000 pounds, of which 1,651,000 pounds were caught in the MHI with a value of \$4.5 million. There were 13 vessels that fished for bottomfish in the NWHI, but only about 10 were fishing full time. Opakapaka, hapu'upu'u, and butaguchi (pig lipped ulua) comprised the largest percentage of total NWHI landings and revenue. NWHI bottomfish landings in 1988 were significantly less than in 1987, while the MHI bottomfish landings in 1988 increased significantly compared to 1987 (table 3). In the NWHI there is little biological evidence that bottomfish stocks are being stressed, while in the MHI there is evidence that immature opakapaka, onaga, ehu and white ulua (giant trevally) are being consistently harvested (WPRFMC 1988b; Somerton, Kikkawa, and Everson 1989).

POUNDS LANDED. Based on its market monitoring program, the NMFS estimates total landings from the NWHI in 1988 were 625,000 pounds, down 39 percent from 1987, about the same as in 1984. The drop in 1988 NWHI landings reflects fewer

fishing trips, and the increase in MHI landings reflects a cyclical increase in uku. Trends from 1984-1988 are shown in table 3.

Table 3. NMFS estimate of Hawaii bottomfish market volume, by source, 1984-1988. Source: Kawamoto and Pooley (1989).

YEAR	NWHI	MHI	TOTAL
	(thousand pounds)		
1984	661	697	1,358
1985	922	727	1,649
1986	948	746	1,694
1987	1,017	852	1,869
1988	625	1,651	2,276

VALUE. Bottomfish caught in 1988 from the NWHI were worth \$1.5 million, down 35 percent from 1987, when catches were worth \$2.3 million. Market revenue for 1986-1988 from both the NWHI and MHI are given in table 4, and the price distribution by species and source are given in table 5. The ex-vessel prices of bottomfish caught in the NWHI in 1988 were not as high as bottomfish caught in the MHI. This is because MHI bottomfish are smaller than NWHI bottomfish and thus more desirable, and also because they are generally fresher than NWHI bottomfish due to the longer length fishing trips needed by vessels targeting bottomfish in the NWHI.

Table 4. Hawaii bottomfish market revenue, 1986-1988. Source: Kawamoto and Pooley (1989).

SOURCE	1986	1987	1988
	(in million \$)		
Northwestern Hawaiian Islands	\$1.9	\$2.3	\$1.5
Main Hawaiian Islands	2.6	3.0	4.5
Total	\$4.5	\$5.3	\$6.0

Table 5. Price (per pound) distribution and product source for the Hawaii bottomfish market, 1986-1988. Source: Kawamoto and Pooley (1989).

SPECIES	1986		1987		1988	
	NWHI	MHI	NWHI	MHI	NWHI	MHI
Opakapaka	\$3.20	\$3.78	\$3.27	\$3.97	\$3.54	\$3.55
Onaga	3.13	4.39	3.24	5.12	3.30	5.06
Ehu	2.14	2.32	2.36	3.75	2.01	3.80
Hapu'upu'u	1.56	2.23	1.87	2.74	1.84	2.99
Butaguchi	1.07	2.00	1.16	2.51	1.05	2.54
Other	2.39	2.26	2.11	2.55	2.23	1.91

COMPOSITION OF THE CATCH. Although there are a great many species of bottomfish taken in Hawaiian waters, the principal catches are from three groups: snappers (Lutjanidae), groupers (Serranidae), and jacks (Carangidae). Ralston and Kawamoto (1988), for example, list 42 species of bottomfish that are taken in Hawaiian waters. During 1986-1988 in the NWHI, there were 10 principal species that made up the bulk of the landings, including seven snappers, one grouper, and two jacks. Total catches of these 10 species came to 280.0 metric tons (MT) in 1988, down 37 percent from 1987, when catches were 441.6 MT. In 1988, opakapaka was the principal catch at 69.5 MT, followed by butaguchi at 50.0 MT and onaga at 36.3 MT. Decreased catches in 1988 reflected fewer fishing trips and decreases in catches per trip. The composition and quantity of the catches are given in table 6, and the percentage composition of the catch of five principal species is given in table 7.

Table 6. Landings of principal bottomfish species from the NWHI sampled at the Honolulu wholesale market, 1986-1988. Source: Somerton, Kikkawa, and Everson (1989).

SPECIES-NWHI	1986	1987 (metric tons)	1988
Lehi	-	-	0.03
Uku	3.1	1.6	3.5
Ehu	12.5	18.0	20.3
Onaga	43.6	28.9	36.3
Opakapaka	122.6	165.3	69.5
Kalekale	2.8	1.9	1.0
Gindai	3.4	3.8	1.6
Hapu'upu'u	86.6	99.8	70.3
White ulua	13.4	25.3	27.5
Butaguchi	66.1	97.0	50.0
Total	354.1	441.6	280.0

Table 7. NWHI bottomfish landings, percent of total catch of five principal species, 1986-1988. Source: Kawamoto and Pooley (1989).

SPECIES-NWHI	1986	1987	1988
Opakapaka	35	37	25
Hapu'upu'u	24	22	25
Onaga	12	8	13
Butaguchi	19	22	18
Ehu	4	4	7

EFFORT AND ECONOMIC FACTORS. While 28 vessels were active in the NWHI bottomfish fishery in 1987, only 13 were active in 1988. About 10 vessels fished full time in 1988, compared to 1987, when 12 out of the 28 fished full time. The non full time vessels that also landed some bottomfish were engaged in other fisheries as their primary target, including tuna longliners, albacore trollers, and lobster vessels. A summary of the fleet's fishing and revenue producing activity is given in table 8.

Table 8. Fishing and revenue producing activity of the bottomfish fleet in the NWHI during 1986-1988. Source: Kawamoto and Pooley (1989).

CATEGORY	1986	1987	1988
Vessels	24	28	13
Trips	163	134	93
Total days fished	978	938	651
Days fished per trip	6.0	7.0	7.0
Catch per trip (lbs.)	4,803	6,145	5,502
Revenue per trip	\$13,125	\$17,462	\$16,400
Trips per vessel	6.8	4.8	7.2
Revenue per vessel	\$87,500	\$83,571	\$117,324

Two of the main reasons that vessels have dropped out of the NWHI bottomfish fishery appear to be the difficulty in locating good concentrations of bottomfish and the attraction of other lucrative fisheries, such as tuna longlining and lobster trapping. Participation and operating rates were down sharply in 1988, compared to 1986 and 1987. While catches in 1988 were intermediate compared to 1986 and 1987, trips per vessel were up, and the total revenue per vessel was significantly higher. Another reason for the high number of vessels that fished in 1987 may have been a response to the WPRFMC's limited entry plan, which appears to have caused some part time fishermen to have made a few trips in order to satisfy the eligibility criteria proposed for future participation in the fishery.

CATCH PER UNIT EFFORT. Data for this section are taken from Somerton, Kikkawa, and Everson (1989), who calculated CPUE based on "effective" trips, those which landed 1,000 pounds or more. Kawamoto and Pooley's (1989) data is based on total trips, which provides a rougher estimate of CPUE.

The "effective" trip CPUE for all vessels declined to 6,000 pounds per trip in 1988 after reaching a four year high of 7,100 pounds per trip in 1987. To eliminate bias resulting from the changing composition of the fleet, Somerton, Kikkawa, and Everson (1989) calculated a time trend based on the five vessels that fished each year. This showed the average 1988 CPUE to be 4,900 pounds per trip, down somewhat from 1987, when the average CPUE for the five selected vessels was 6,000 pounds per trip.

A comparison of the CPUE's for all trips and for the trips of the five selected vessels during 1984-1988 is given in table 9.

Table 9. Average catch per trip (pounds) for vessels bottomfishing in the NWHI during 1984-1988. The five selected vessels were those active in the fishery for the entire period. Source: Somerton, Kikkawa, and Everson (1989).

CATEGORY	1984	1985	1986	1987	1988
All vessels	4,800	5,300	5,400	7,100	6,000
Five vessels	3,600	4,200	4,500	6,000	4,900

MAXIMUM SUSTAINABLE YIELD. The maximum sustainable yield for the NWHI has been estimated at 275 metric tons (605,000 pounds) by Ralston and Kawamoto (1987), who, after further analysis (Ralston and Kawamoto 1988) concluded that in general there is little evidence that NWHI stocks of bottomfish are stressed. Referring to the 1987 catch, the annual report for that year (WPRFMC 1988) said "Although the estimates of NWHI catch exceed the estimated MSY, the multi-species fishery is probably in a state of non-equilibrium and MSY estimates are somewhat ambiguous. It does not appear that immediate action to further manage NWHI stocks is necessary." The annual report for 1988 said that "In the NWHI, there is little to suggest the fishery is stressed", and also that "... it appears that equilibrium conditions will soon be achieved." (Somerton, Kikkawa, and Everson 1989).

Management issues and administrative actions.

The bottomfish FMP listed eight potential management issues concerning the NWHI (WPRFMC 1986). They included the potential for overfishing; insufficient catch, effort, and

economic data; transboundary distribution of stocks between Federal and State waters; potential use of destructive harvesting technology; imbalance in benefits among different fishery interests; possible disruption in the supply of bottomfish to the domestic market; possible overcapitalization of the NWHI fishing fleet; and potential environmental damage to the habitat from fishermen unfamiliar with the grounds. Experience has shown that the most significant of these were the potential for overfishing and the need for better data on the fishery.

Catch and effort data, as well as an expanded market sampling program, has shown that at present there appears to be no overfishing, including recruitment overfishing, for the bottomfish of the NWHI. Data acquisition has improved, including economic data. There are 14 indicator criteria that are used to monitor bottomfishing conditions, but none resulted in any specific recommendations in the 1987 annual report by the Bottomfish Plan Monitoring Team for WPRFMC action concerning the NWHI (WPRFMC 1988b).

Historical literature search

Traditional sources give only the scantiest mention of islands that may be in the Ho'omalū Zone. The major sources on traditional fishing do not mention islands in the Ho'omalū Zone. A preliminary study of primary sources, including chants, by Malcolm Naea Chun (1986), yielded references to Ni'ihau Island, in the Mau Zone, and to an island beyond Ni'ihau known to the residents of Kaua'i as Mokupapapa. The name Mokupapapa can be analyzed as *moku* (island) and *pāpapa* (low, flat, as a reef), which suggests that it refers not to Ka'ula, Nihoa, or Necker, which are all high volcanic islands, but to one or more of the islands in the Ho'omalū Zone, such as Kure Island. Burney, cited by Chun, reports that the island of Mokupapapa was uninhabited in 1779 and that it "abounds in Turtle." No mention is made of fishing practices around Mokupapapa.

Included in the literature search were the logs of American whalers who visited Kaua'i and Ni'ihau Islands, and the NWHI from 1791 to 1878. These logs are part of the Pacific Manuscripts Bureau Collection of over 2,000 whalers logs on microfilm in the Hamilton Library, University of Hawaii. Logs of 113 visits by whalers to Kaua'i, Ni'ihau, and the NWHI were read to determine if any whalers operating in those areas encountered any native Hawaiian fishermen engaged in fishing activities in present day EEZ waters. There was no reference to any type of fishing by native Hawaiian fishermen in any of the 113 logs examined. A list of the whalers' logs examined is found in Appendix A.

Interviews

Interviews were held with a number of present day native Hawaiian fishermen to document their participation in the bottomfish fishery in the Ho'omalulu Zone and are reported below. A list of persons interviewed is given in appendix C. In addition, a search was made to locate *kupuna*, elderly persons who might be able to provide authentic but previously unrecorded testimony on fishing by native Hawaiians in the Ho'omalulu Zone. Such oral testimony is known as *kama'aina* testimony and enjoys a special status under Hawaii's laws since it comes from a person who from experience and the oral record can testify that certain things have always known to have occurred. The search was centered on Kaua'i Island, but unfortunately the search for such *kupuna* was unsuccessful.

An interview was held with Mr. Bruce Robinson, whose family owns Ni'ihau Island, in order to locate *kupuna* who might be able to recount Ni'ihau bottomfishing practices before the modern fishery era, but Mr. Robinson reported that such *kupuna* do not exist today. Mr. Robinson reported that during the period from about 1915 to 1925, the oral tradition of past fishing practices carried on by Ni'ihau residents was broken, and that today's *kupuna* on Ni'ihau do not have a recollection of past fishing practices. He said that Ni'ihau residents did have the capability to travel to Ka'ula and Nihoa Islands via canoes, and that a tradition exists that some people from Ni'ihau would spend three months in the summer on Nihoa Island until the late 1800s. One Ni'ihau remembrance is that of a woman who waited on the beach for weeks awaiting her husband's return from a journey, he said.

There is evidence that Ni'ihau fishermen engaged in bottomfishing at considerable depths, according to Mr. Robinson. The Robinson family still owns a fishing line that is made of olona fibers and is 300 feet long. He estimated it to be about 150 to 200 years old, and said that several of these lines could be tied together to create one line of sufficient length to reach deep dwelling bottomfish at a depth of 600 feet. He indicated a 300 foot long line would be much longer than is needed to engage in surface trolling, and thus its most probable use would be for bottomfishing.

It can be assumed that, weather permitting, Ni'ihau residents who visited Nihoa Island in the summer would fish if at all possible, including bottomfishing if there were bottomfish grounds nearby. Nautical charts show that a relatively shallow bank extends northeast of Nihoa Island until it reaches a depth of 600 feet about ten miles offshore. Thus bottomfishing depths were within easy reach of any Ni'ihau fishermen who spent summers on Nihoa. The problem with this assumption is that landing on Nihoa Island is very difficult, and can be done at only a few places in Adam's Bay, where the landing spots are lava benches about four to eight

feet above sea level (Bryan 1942). There is a small sandy beach in the western end of Adam's Bay, but breaking waves make this an undesirable landing. Ocean going canoes large enough to make it to Nihoa are unlikely to have been hauled ashore, and would have been anchored offshore. Getting to and from the canoes would have been difficult. Further, there likely was an abundance of nearshore fish, so there may not have been a need for regular bottomfishing offshore. Bottomfishing, assuming it did occur, would probably have been intermittent. What is likely is that fishermen approaching and leaving Nihoa would fish the bottomfish grounds for food on which to subsist while on the island or en route back to Ni'ihau.

Since Nihoa is not in the Ho'omalulu Zone, is it possible that fishermen from Ni'ihau or Nihoa traveled west past Necker Island into the Ho'omalulu Zone? Archaeologist Kenneth Emory is quoted in Krauss (1988) as saying "It is believed the natives of Nihoa occasionally went to Necker to fish. . ." Whether they ventured past Necker to bottomfish in the Ho'omalulu Zone is unknown, although it appears they had the equipment to do so. Nautical charts show there are bottomfishing depths of about 600 feet on banks west and south of Necker Island about 5 to 10 miles offshore. There are however, much shallower bottomfishing grounds around Necker Island only a mile or two offshore.

Other interviews

There are very few native Hawaiian fishermen presently bottomfishing in EEZ waters of the Ho'omalulu Zone. We canvassed all bottomfishing vessels now permitted to fish in the Ho'omalulu Zone, either directly or indirectly, and found only one native Hawaiian fisherman who now fishes in the Ho'omalulu Zone on a regular basis and one other fisherman who had fished in the Ho'omalulu Zone in the recent past. We also interviewed two other native Hawaiian fishermen who bottomfished in the Ho'omalulu Zone prior to the adoption of the present limited entry regulations. There undoubtedly are other native Hawaiian fishermen who bottomfished in the Ho'omalulu Zone before limited entry, but we were unable to identify and locate any such fishermen.

The fishing history of each fisherman who was interviewed is given in their affidavits, which are shown in Appendix D. The affidavits include other types of fishing beside bottomfishing in the Ho'omalulu Zone, in order to show a dependence by native Hawaiian fishermen on a number of fisheries in EEZ waters around Hawaii, and for use in the Phase 2 report.

The following is a summary of the fishing done by these fishermen in the Ho'omalulu Zone.

Leo A. Ohai, a fisherman of 60 percent Hawaiian ancestry aged 66, who has been a commercial fisherman since 1941 in a variety of fisheries, including bottomfishing for FMP species, pole and line fishing for aku (skipjack tuna), longline fishing for tunas and other pelagic species, and net fishing for akule (bigeyed scad). In 1945, he purchased the F/V (Fishing Vessel) KAMOKILA, which engaged in bottomfishing for FMP species along the NWHI in EEZ waters at what is known as "middle bank", located about 80 miles northwest of Kaua'i Island. This fishing ground, however, is not in the Ho'omalu Zone. In 1975, he became the owner and captain of the F/V LIBRA, a 58 foot long multi-purpose fishing vessel. Since then he has fished aboard the LIBRA in EEZ waters of the Ho'omalu Zone for FMP bottomfish species along most of the islands and banks of the NWHI from Pearl and Hermes Reef to Ni'ihau Island.

Louis K. Agard, Jr., a fisherman of 25 percent Hawaiian ancestry aged 65, who has been a commercial fisherman, fishing vessel owner, airplane fish spotter, and fish marketer since the age of 11, when he sold his reef fish catch to plantation workers on Kaua'i. During the period 1948-1950, he was the captain of the 72 foot long F/V SEAHAWK, which engaged in fishing in EEZ waters of the Ho'omalu Zone for FMP bottomfish species near Gardner Pinnacles and French Frigate Shoals.

Garry D. Kaaihue, a fisherman of 100 percent Hawaiian ancestry aged 35, who has been a commercial fisherman since 1968 including bottomfishing, pole and line fishing for aku, and longlining for tunas and other pelagic species. During the period 1986 -1988, he was the captain of the F/V AIKANE 49 and F/V ST. PETER, bottomfishing vessels which fished in EEZ waters of the Ho'omalu Zone as far west as Gardner Pinnacles.

Dane A. Johnson, a fisherman of 25 percent Hawaiian ancestry aged 29, who has been a commercial fisherman since 1977, including bottomfishing, crustacean trapping, and trolling for tunas and other pelagic species. He has been a fisherman since 1977 aboard the F/V KAWAMEE, first as crew, and as captain since 1981. During that time, the KAWAMEE has fished for FMP bottomfish species in the EEZ of the Ho'omalu Zone from French Frigate Shoals to Pearl and Hermes Reef. Included in this area are Gardner Pinnacles, Brooks Bank, St. Rogatien Bank, Maro Reef, Raita Bank, Laysan Island, Pioneer Bank, Northhampton Bank, Neva Shoal, and Lisianski Island.

Native Hawaiian fishermen and non-native fishermen

One of the four categories of evidence to be provided is "that there present participation by native Hawaiian fishermen (together with non-native fishermen) [emphasis added] in the fishery for FMP bottomfish in the Ho'omalu Zone in the NWHI." We are unable to present any evidence or statistics that gives

a breakdown on native Hawaiian fishermen by their ethnic or racial background. It is quite likely there have been more native Hawaiian fishermen who bottomfished in the Ho'omalū Zone fishery for FMP species than the four who could be located to provide their affidavits, especially in recent past years. It is beyond the scope of this project to state or even speculate how many native Hawaiian fishermen are employed in fisheries throughout the entire Hawaiian Island chain. The State of Hawaii Data Book for 1987 (DBED 1987), shows there were 2,880 individuals with Hawaii commercial fishing licenses in 1986. It would be sheer speculation to estimate how many of these commercial fishermen are native Hawaiians, and further, how many may have fished for FMP bottomfish species in the Ho'omalū Zone. By the same token, it is beyond the scope of this project to speculate on how many non-native Hawaiian fishermen participate in the fishery for FMP bottomfish species in the Ho'omalū Zone of the NWHI, other than to say that there appears to be a large number of non-native fishermen so employed. A casual inspection of NWHI bottomfish vessels when they are berthed at Kewalo Basin will demonstrate that a very large percentage of the crews are non-native Hawaiian fishermen.

Legal analysis and review

Introduction

This section explores the issue of whether there is a legal basis for granting special consideration to fishermen of Hawaiian ancestry in the allocation of rights to harvest the living resources of the exclusive economic zone (EEZ) of the Hawaiian archipelago. Since this zone begins three miles from shore, this section does not delve into the issue of *konohiki* rights. It is well established that *konohiki* rights are limited to an inshore area bounded by the outer edge of coral reefs and where there are no reefs, by a distance of one geographical mile from the beach at low water (Session Laws of 1846, Art. 5(6); *Haalelea v. Montgomery*, 2 Haw. 62). (For a complete treatment of *konohiki* rights see Stanton and Clay 1980, Meller 1985, Anders 1987, and Murakami and Freitas 1987.)

In addition, this section does not address the issue of fishing rights based on the concept of archipelagic waters. At the present time the federal government does not recognize any Hawaii state claim to the channel waters between the islands beyond three miles from ordinary low water. According to the Submerged Lands Act, 43 U.S.C. §§ 1301-1343, the territorial prerogative of the state of Hawaii stops at three miles. The December 27, 1988, Presidential Proclamation of a 12-mile territorial sea did not expand state jurisdiction.

The President expressly stated that

[n]othing in the Proclamation: (a) extends or otherwise alters existing Federal or State law or any jurisdiction, rights, legal interests, or obligations derived therefrom. (Proclamation No. 5928, 54 Fed. Reg. 777 (January 9, 1989)).

Beyond three miles EEZ resources are exclusively under federal jurisdiction, subject only to those restrictions which may bind the sovereign United States collectively. Federal jurisdiction over these waters, however, is a recent phenomenon. In 1976 the United States unilaterally exerted a claim over the living resources of its coastal waters out to 200 miles, but it was not until the 1980s that coastal state sovereignty over the living resources of a 200 mile-wide exclusive economic zone became a principle of international law as accepted by a majority of states. Prior to this time the principle of freedom of the high seas predominated over this zone. That freedom included the freedom to fish and no nation was legally entitled to subject the living resources of the high seas beyond the range of a canon shot - three miles - to claims of national sovereignty (Brownlie 1979).

Jurisdiction Over the Living Marine Resources of the United States Exclusive Economic Zone (EEZ) Surrounding the Hawaiian Archipelago

In the Second Act of Kamehameha III (Statute Laws of 1846, Vol. I, Chap. VI, Art. 1, Sec. I) the King delineated the seaward boundaries of the Hawaiian Kingdom as follows:

The jurisdiction of the Hawaiian Islands shall extend and be exclusive for the distance of one marine league seaward, surrounding each of the islands The marine jurisdiction of the Hawaiian Islands shall also be exclusive in all the channels passing between the respective islands, and dividing them; which jurisdiction shall extend from island to island.

This claim of jurisdiction over channel waters was subsequently endorsed in a Resolution by the King's advisory Privy Council issued on August 29, 1850, and in a neutrality proclamation issued by the King on May 16, 1854. However, the Hawaiian Civil Code of 1859, Section 1491, expressly repealed the Second Act of 1846 and the Neutrality Proclamation of 1877 referred to "the full extent of our jurisdiction including not less than one marine league from the low water mark on the respective coasts of the islands," and did not claim the channels dividing the islands. Whether or not the channel waters were part of the territory of Hawaii at the time of annexation is debatable. Article 15 of the 1894 Constitution of the new Republic provided that

The Territory of the Republic of Hawaii shall be that heretofore constituting the Kingdom of the Hawaiian Islands, and the territory ruled over by the Provisional Government of Hawaii, or which may hereafter be added to the Republic.

The Admission Act of March 18, 1959, states that

The State of Hawaii shall consist of all the islands, together with their appurtenant reefs and territorial waters, included in the Territory of Hawaii on the date of enactment of this Act. . . (P.L. 86-3, 73 Stat. 4, Sec. 2).

Hawaii courts have refused to extend state jurisdiction beyond three miles. In *The King v. Parish*, 1 Haw. 58 (1849), the Hawaii Supreme Court limited criminal jurisdiction to a distance of one marine league (approximately three miles); in *Island Airlines v. Civil Aeronautics Board*, 352 F.2d 735 (9th Cir. 1965), the court held that Congress did not establish the channels between the islands as being within state boundaries. The 1978 Hawaii Constitution, however, includes archipelagic waters as being within the boundaries of the state (Art. XI, Sec. 6, and Art. XV, Sec. 1).

In 1976 the Congress of the United States passed the Magnuson Fishery Conservation and Management Act (MFCMA), referred to in this section as FCMA, under which it asserted exclusive jurisdiction over all fish, not including "highly migratory species", found within a 197-mile wide zone surrounding its coasts (P.L. 94-265, 90 Stat. 331, codified in 16 U.S.C. § 1801 et seq).

The inner boundary of the fishery conservation zone is a line coterminous with the seaward boundary of each of the coastal States, and the outer boundary of such zone is a line drawn in such a manner that each point on it is 200 miles from the baseline from which the territorial sea is measure. (P.L. 94-265, Section 101).

The concept of a 200-mile exclusive economic zone (EEZ) was developed during the Third United Nations Conference on the Law of the Sea in the 1970s. The final text of the 1982 Law of the Sea Convention (LOS Convention 1982) gives coastal States "sovereign rights" to explore, exploit, conserve and manage the natural resources of their EEZs (Art. 56). In 1983 President Reagan announced that the United States would not sign the 1982 LOS Convention, but would claim an Exclusive Economic Zone in which it would exercise sovereign rights over all marine resources within 200 nautical miles of its coasts (Proclamation No. 5030, 48 Fed. Reg. 10,605 (March 10, 1983)). In a companion statement the President added that the United States would also honor those provisions of the 1982

Convention which represented customary international law. Accordingly, Section 101 of the FCMA was amended to conform to the proclamation. To date the 1982 LOS Convention is not yet in force. However, by 1985 some 54 coastal states had declared 200 mile EEZs and exclusive state jurisdiction over the resources of this zone is becoming a customary norm.

Whether or not the territorial waters of the Hawaiian archipelago include the channel waters between the islands is an issue beyond the scope of this report. The current view of the federal government is that state jurisdiction over fisheries in the Hawaiian Archipelago is limited to three miles and that the resources of the EEZ are exclusively under federal jurisdiction. This fact, however, does not diminish any preferential rights that may be held by the Hawaiian people to the fish within their historic fishing grounds.

Historic Rights to the Living Marine Resources of the Kingdom of Hawaii

Prior to 1976 the waters of the Hawaiian Archipelago beyond three miles were part of the high seas and the living resources found there were *res communis omnium*, the common property of mankind (Historic Waters Study 1962, p. 46). Under *res communis* no State has exclusive jurisdiction over high seas resources unless it is acquired by adverse possession unchallenged by other States (Historic Waters Study 1962, p. 46). The Hawaiians, however, may have had rights to the resources of at least some of those waters under two legal theories: (1) effective exercise of sovereign control, and (2) peaceful and continuous usage.

In pre-contact Hawaii all the inhabitants were free to fish on the high seas

except as specifically directed by their *ali'i*, or as restricted by the king, or as prohibited by general religious tabus, or as prevented by physical force which denied access to ocean resources (Meller 1985).

In 1839 King Kamehameha III enacted a law that officially defined and apportioned the fishing grounds of his Kingdom. The Act to Regulate Taxes specified that

His majesty the King hereby takes the fishing grounds from those who now possess them, from Hawaii to Kaua'i, and gives one portion of them to the common people, another portion to the landlords, and a portion he reserves to himself. These are the fishing grounds which his Majesty the King takes and gives to the people; the fishing grounds without the coral reef, viz. the Kilohee grounds, the Luhee ground, the Malolo ground, together with the ocean

beyond (emphasis added). (Laws of 1842, Chap. 3, Sec. 8).

The fishing grounds within the reefs were given to the landlords (*konohikis*) and their tenants. The King retained a share of certain shoal fish and fish caught from certain grounds beyond the reef for the support of the government (Laws of 1842, Chap. 3, Sec. 8; see also Meller 1985, note 10). Many of the open sea fisheries were designated by named species, a convention still used by twentieth century fisheries managers. For example, bonito (*kawakawa*) in the waters off Lanai and albacore (*ahi*) in the waters off the Big Island of Hawaii are listed as fishing grounds subject to protection and taxation (Laws of 1842, Chap. 3, Sec. 8(2)). Other fisheries were designated by the commonly-known name of the fishing grounds, another convention still in use today.

According to the court in *Haalelea v. Montgomery*, 2 Haw. 62, 65 (1858), the Act of 1839 marked the time that ancient Hawaiian custom ceased to regulate fishing practices and written regulations took over.

His Majesty Kamehameha III., as Supreme Lord of the Islands, and having in himself the *allodium* [absolute ownership] of all the lands in the Kingdom, did at that time, with the concurrence of the Chiefs, resume the possession of all the fishing grounds within his dominions, for the purpose of making a new distribution thereof, and of regulating the respective rights of all parties interested therein, according to written laws.

The 1839 Act also delineated the tax burdens on the fisheries and the laws governing "taboo'd" fishing grounds. However, as codified in 1842, the laws expressly exempted the fisheries beyond the reef from any restrictions.

But no restrictions whatever shall by any means be laid on the sea without the reef even to the deepest ocean. (Laws of 1842, Chap. 3, Sec. 8 (2)).

In 1846, the Act to Organize the Executive Departments further defined the fishing grounds and delineated more precisely the line that separated the *konohiki* fishing grounds from those of the deep sea.

The fishing grounds from the reefs, and where there happen to be no reefs from the distance of one geographical mile from the beach at low water mark, shall in law be considered the private property of the landlords. (Session Laws of 1846, Art. 5, Chap. 6).

In *Haalelea v. Montgomery* the court interpreted the 1846 amendments, specifying that the boundary line separating the open sea from the *konohiki* fishing grounds ran along the outer edge of the coral reef.

In 1851, in an act passed by the House of Representatives and the House of Nobles and signed by King Kamehameha III, those fishing rights still retained by the King/Government were given to the people since they were "productive of little revenue" and were "a source of trouble and oppression to the people."

SECTION 1. [A]ll fish belonging to or especially set apart for the Government, shall belong to and be the common property of all the people, equally . . . " subject only to certain conservation restrictions by the Minister of the Interior.

SECTION 2. All fishing grounds appertaining to any government land, or otherwise belonging to the government, excepting only ponds, shall be, and are, hereby, forever granted to the people for the free and equal use of all persons: Provided, however, that, for the protection of such fishing grounds, the minister of the interior may taboo the taking of fish thereon, at certain seasons of the year.
(Session Laws of 1851, Act of July 11th, 1851.)

The July 11th act was passed shortly after the Act of May 24th, 1851, which refers in its preamble to a deprivation of the rights of the common people to fish those grounds given to them in the Laws of 1842.

. . . whereas the people in numerous instances, have been unjustly deprived of their rights to fish on the grounds long since made free to them by law, namely, on the fishing grounds commonly known as the *Kilohee Grounds*, the *Luhee Grounds*, the *Malolo Grounds*, and the fishing of the ocean from the reefs seaward, and whereas the present law affords no sufficient protection to the people in those rights;
(Preamble, Session Laws of 1851, Act of May 24th, 1851.)

With the Act of July 11th 1851, the ocean seaward of the *konohiki* fisheries was opened to the common people with respect to all fish (Meller 1985). The provisions of Section 2 were encoded again in the Civil Code of 1859, Sec. 384; the Hawaii Penal Code of 1869, Chap. 84, Sec. 1; and the Penal Laws of 1897, Chap. 84, Sec. 1449.

In addition to the named deep sea fishing grounds beyond the reef there were (and probably still are) deep sea *ko'a huna*, or secret fishing grounds. The locations of these

grounds were kept as family secrets. There is mention in the literature of one master fisherman who could name 100 ko'a on which he had fished: one reportedly five miles from land, but only 90 to 120 feet deep; another 1,200 feet deep (Kahaulelio 1902, cited by Meller 1985, note 9). "Even when out of sight of shore, reference was made to sightings on the high mountains of Hawaii to establish the location of fishing grounds." (Beckley 1883, cited by Meller 1985, note 9).

The existence of both the named offshore fishing grounds and the secret family offshore fishing grounds opens the door to a claim for preferential fishing rights in the EEZ. However, the fact that the exact boundaries of these grounds were never established argues against a claim for exclusive, vested fishing rights. The Hawaii supreme court has ruled that vested rights require known boundaries (*Bishop v. Mahiko*, 35 Haw. 608 (1940)). In addition, the effective exercise of sovereign control, the legal theory upon which an exclusive claim might be based, ended when sovereignty over the Hawaiian Islands passed to the United States in 1898.

The Transfer of Sovereignty from the Kingdom to the Republic of Hawaii

The Constitution of 1840 specified that the sovereignty of the people of the Hawaiian Islands rested with the king, then Kamehameha III.

[The King] is the sovereign of all the people and all the chiefs. The kingdom is his.

In 1852 a constitutional monarchy was established under a new Constitution. King Kamehameha III continued to serve as the "Supreme Executive Magistrate" (Article 24). The rules of succession were as follows:

The crown is hereby permanently confirmed to His Majesty Kamehameha III. during his life, and to his successors. The successor shall be the person whom the King and the House of Nobles shall appoint and publicly proclaim as such, during the King's life; but should there be no such appointment and proclamation, then the successor shall be chosen by the House of Nobles and the House of Representatives in joint ballot. (Article 25).

The Constitution of the Kingdom was amended again in 1864 and again in 1887. Each change saw a diminishment of the powers of the Hawaiian King and an increase in the powers of his western "advisors". However, the sovereignty of the Kingdom of Hawaii continued to rest with the monarchy until its unconstitutional overthrow in 1893. The legality of the method by which the provisional government succeeded the government of the Kingdom of Hawaii continues to be debated to

the present day. It is undisputed that the chosen sovereign and representative of the Hawaiian people was removed by coercion and force in direct contradiction of the method of succession provided for in the Kingdom of Hawaii's Constitution. However, constitutional or not, the sovereignty of the Kingdom of Hawaii passed from the monarchy to the oligarchy then in effective control of the provisional government on January 17, 1893. On September 9, 1897, the new Senate of the Republic of Hawaii passed a resolution assigning certain sovereign rights to the United States in the Treaty of Annexation. The formal transfer of sovereignty under the Joint Resolution of Annexation, 30 Stat. 750, (July 7, 1898) took place August 12, 1898.

Preferential Rights to EEZ Resources Established by Peaceful and Continuous Usage by the Hawaiian People

Although in Article I of the Treaty of Annexation the Republic of Hawaii expressly "cedes absolutely and without reserve to the United States of America all rights of sovereignty of whatsoever kind in and over the Hawaiian Islands", absolute sovereignty over the Hawaiian Islands was not actually accepted by Congress. In the Hawaiian Organic Act of April 30, 1900, 31 Stat. 141, the act of Congress that conferred powers of government upon the Territory of Hawaii, specifies

That the laws of Hawaii not inconsistent with the Constitution or laws of the United States or the provisions of this Act shall continue in force, subject to repeal or amendment by the legislature of Hawaii or the Congress of the United States. (Sec. 6).

Among those laws neither repudiated, condemned nor cancelled by either the provisional government or the Republic of Hawaii were the usage rights of the common people to the fisheries beyond the three-mile territorial sea (Murakami and Freitas 1987, p. 17). Since these waters were considered high seas by both the United States and nineteenth century customary international law, "the universal law of nations" (*The King v. Parish*, 1 Haw. 58 (1849)), this is understandable. Accordingly, those fisheries regulations encoded in the Organic Act of 1900, the Hawaii State Constitution, and the Hawaii Revised Statutes are applicable only to the territorial waters of the state.

The rights of indigenous people to historic high seas fishing grounds are not legally the same as property rights vested by deed and recorded boundaries. Traditional fishing rights may be established by continuous, habitual usage and as such are recognized by international law and most nation states. Hawaii state law recognizes "Hawaiian usage" as an exception and qualifier to the common law system of the state

(H.R.S. § 1-1). United States federal law recognizes the concept of usage in its direction to fishery management councils to take "historical fishing practices" into consideration when drafting management plans (16 U.S.C. § 1853(b)(6)(B)). International law has long recognized preferential claims to the resources of historic waters based on long and continuous usage (Institute of International Law 1894 as cited by the International Law Commission Historic Waters Study 1962, Norwegian Fisheries Case 1951, Iceland Fisheries Cases 1974, LOS Convention 1982).

It has for long been part of international law that, on a basis of long-continued use and treatment as part of the coastal domain, waters which would not otherwise have that character may be claimed as territorial or as internal waters. . . . (British Yearbook of International Law, Vol. 30 (1953), p 27-28).

In 1951 the International Court of Justice (ICJ) allowed Norway to claim as internal waters all waters within a baseline that connected a line of outer islands. All fishing resources found in those internal waters thus became exclusively Norway's. The ICJ held that a sovereign State could make a successful claim for sovereign rights over waters normally considered high seas if it had historically and continuously demonstrated effective sovereignty over the area claimed, including the forcible and unchallenged exclusion of all fishing by non-nationals. Norway's claim to its "historic waters" was based on long, continuous and peaceful usage coupled with an economic dependence on the fishing resources of those waters, the exclusion of non-Norwegian fishermen and the absence of protest by other States (ICJ Fisheries Case 1951).

In 1962 an international study determined that "usage" is required to establish a valid claim to historic waters (International Law Commission Historic Waters Study 1962, p. 44). "Usage" may mean a general pattern of behavior or repetition by the same persons of the same or similar activity (*Id.* at 44, 45). A State must exhibit repeated or continued usage over a period of time to give rise to historic title. (*Id.* at 45). A simple assertion of a "right for its citizens to fish in the area" would not be sufficient to establish a historic claim (*Id.* at 39). However, "usage", though sufficient for a claim of preferential rights to resources under customary international law, is not sufficient for a claim of an exclusive, territorial-type right. In order for a State to claim an exclusive right it must have effectively expressed sovereignty over the area (*Id.* at 43). Such expressions would include acts normally within the power of a sovereign, such as the forcible exclusion of foreign fishermen from the area claimed (*Id.* at 40).

In 1974 the ICJ, citing customary international law, "gave preferential fishing rights to Iceland in the high seas off Iceland's coast because of its special dependence on these fisheries and because the intensity of exploitation of the resources made it imperative to limit the catch" (Van Dyke and Heftel 1981). Iceland was not entitled, however, to unilaterally exclude United Kingdom vessels from fishing in the high seas beyond its 12-mile territorial sea since the United Kingdom had traditionally fished in those waters on a continuous basis since 1920 and the catch from those waters was important to the British economy (ICJ Fisheries Jurisdiction Case 1974, p. 27-28).

The rights of traditional fishing communities were also considered by the Third United Nations Law of the Sea Conference during its deliberations on the requirements of equitable fishing allocations within the EEZ. The informal working papers of the conference reveal a number of formulas which grappled with the problem of the economic dislocation of traditional fisheries, including:

PROVISION XVII

Formula A. Neighboring developing coastal States shall allow each other's nationals the right to fish in a specified area of their respective fishery zones on the basis of long and mutually recognized usage and economic dependence on exploitation of the resources of that area.

Formula B. Measures adopted by the coastal State shall take account of traditional subsistence fishing carried out in any part of the fisheries zone. (Second Committee, Informal Working Paper No. 4/Rev. 1, August 24, 1974).

The final draft of the 1982 LOS Convention confined itself to an admonition to coastal states to give access to the traditional fisheries of other states which had formerly fished in their EEZs and made no mention of traditional subsistence fishing. Since the resources of these zones were no longer *res communis*, having been placed under coastal state jurisdiction by the Convention, the internal allocation of EEZ resources had become a matter of sovereign prerogative.

In giving access to other States to its exclusive economic zone under this article, the coastal State shall take into account all relevant factors, including, *inter alia* . . . the need to minimize economic dislocation in States whose nationals have habitually fished in the zone Art. 62, Sec. 3.

However, as customary international law, sovereign States are still under an obligation to honor preferential fishing rights established by long and continuous usage of the

resource. In the United States customary international law is part of federal common law to the extent that it is not in conflict with any domestic law (*The Paquete Habana*, 175 U.S. 677, 20 S.Ct. 290 (1900)).

The Fishery Conservation and Management Act and Native American Fishing Rights

Congress passed the FCMA to protect and promote the United States fishing industry by limiting the access of foreign fishermen to the waters of the fishery conservation zone (now the EEZ) and by managing the fishery resources within that zone. According to Jarman (1986), the management standards set up by the act support the concept of fisheries as a common property resource and are consistent with public stewardship principles and the public trust doctrine. The legislative history of the act is consistent with this view. The House Report on the FCMA (H.R. No. 445, 1976) specifically acknowledges fisheries as a "common property resource in which there is no ownership of the resource."

In addition to conservation and management measures, the authors of fishery management plans under the FCMA are required to consider a number of other factors, including economic and recreational interests and the fishing rights of native Americans.

[a]ny fishery management plan which is prepared by any Council . . . shall (2) contain a description of the fishery, including, but not limited to, . . . Indian treaty fishing rights, if any. (16 U.S.C. § 1853(a)(2)).

The FCMA also sets out a number of discretionary provisions which are applicable to allocations of EEZ resources to native Americans (Sec. 303(b)(6)). The drafters of fishery management plan may

establish a system for limiting access to the fishery in order to achieve optimum yield if, in developing such system the Council and the Secretary take into account--

- (A) present participation in the fishery,
- (B) historical fishing practices in, and dependence on, the fishery,
- (E) the cultural and social framework relevant to the fishery, and
- (F) any other relevant considerations;

The legislative history of the FCMA, however, does not elaborate further on the native American rights. There is no indication one way or the other whether Congress meant to limit consideration only to "Indian treaty fishing rights" or whether that was just a generic reference to fishing rights held by native Americans. The House version of the bill did not include the phrase at all; the Senate version did, and when the two bills were combined into the act the clause was included. The report of the Senate Committee on Commerce to accompany Senate Bill 961, October 7, 1975, discusses seven standards as guidelines for fishery management plans.

Standard five states that management and conservation measures shall, where appropriate, promote efficiency in the utilization of fishery resources. Historically, fish stocks have been treated as common property natural resources. As no one has property or ownership rights in them, fishery resources are open to anyone who desires to invest in the requisite vessels and gear, and fish. (U.S. Congress Senate Rep. No. 416, 1975 p. 29-31).

The report goes on to address how the councils and Secretary of Commerce are to structure the management system, stating that they

should, among other considerations, recognize: present participation in the fishery; historical fishing practices; dependence on the fishery; . . . and the cultural and social framework in which the fishery is conducted. . . . [T]his provision should not be construed, in any way, to affect or change the treaty rights of Indians such as have been recognized in the decision of the United States Court of Appeals for the 9th circuit, in the case *The United States v. the State of Washington*, or any other applicable decision or treaty. (U.S. Congress Senate Rep. No. 416 at 36).

The seven Senate committee standards were later incorporated into the Code of Federal Regulations. Included in the discussion of the fourth national standard dealing with allocations is the following provision:

Where relevant, judicial guidance and government policy concerning the rights of treaty Indians and aboriginal Americans must be considered in determining whether an allocation is fair and equitable. (50 CFR § 602.14).

In the CFR appendix to that section it further states:

The guidelines link "fairness" with FMP objectives and OY [optimum yield] and acknowledge that fishing

rights of treaty Indians and aboriginal Americans should be factored into Council judgments. (50 CFR § 602 Subpt. B, App. A).

Caselaw Supporting Preferential Fishing Rights for Native Americans

Most of the adjudication that spells out the fishing rights of native Americans has arisen out of controversy over salmon allocations in the Northwestern United States. These cases focus on "Indian treaties", but the principles and issues involved go beyond the letter of any particular treaty and are applicable to all allocation controversies involving native Americans fishing rights. In *The United States v. Washington*, 520 F.2d 676 (9th Cir. 1975), the case mentioned in the Senate committee report, the court held that the treaties were "not a grant of rights to the Indians, but a grant of rights from them--a reservation of those not granted." (Citing *United States v. Winans*, 198 U.S. 371, 381, 25 S.Ct. 662, 664 (1905).) Furthermore

[t]he extent of that grant will be construed as understood by the Indians at that time, taking into consideration their lack of literacy and legal sophistication, and the limited nature of the jargon in which negotiations were conducted. (520 F.2d at 684).

In the Columbia River basin native American Indians had lived a nomadic existence, traveling from river to river to fish. In the Stevens treaties negotiated in the mid-nineteenth century, the tribes gave up their right to a nomadic existence and agreed to live on reservations, but they retained the right to continue to fish in their "usual and accustomed places" and the treaties "cloak[ed] the Indians with an extraterritoriality while fishing at these locations." (520 F.2d at 685). The court recalled that when the treaties were signed the United States regarded the tribes as independent and sovereign nations. The treaties reserved a communal property right that belonged to the tribe.

"The fact that, in general, Indians held property communally has led the courts to hold that property rights, vis-a-vis the United States, are vested in the tribe not the individual." (520 F.2d at 691).

Indian negotiators, by entering into treaties which reserve to the Indians the right to fish at usual and accustomed grounds in common with white settlers, did not intend to secure for each member of the tribe the right to compete for fish on equal terms with individual settlers (520 F.2d at 688). The court held that the Indians are entitled to an equitable apportionment of their opportunity to fish in order to safeguard their federal tribal treaty rights. (520 F.2d at

687). However, the court pointed out that this right to fish in certain areas did not define a property interest in the fish; "fish in their natural state remain free of attached property interest until reduced to possession." (520 F.2d at 687, citing *Geer v. Connecticut*, 161 U.S. 519, 529, 16 S.Ct. 600 (1896)). Furthermore, the state may interfere with Indians' treaty right to fish when necessary to prevent the destruction of the resource. In response to an argument that the present day fishing areas were not part of the "usual and accustomed areas", the court defined the term "grounds" to include distances from shore at which present Indian fishing occurs, even though fishing may not have been done at such distances at the time of the treaty (520 F.2d at 691, 692). Finally, nonrecognition of a tribe by the Federal government has no impact on vested treaty rights (520 F.2d at 693).

The principles delineated in *United States v. Washington* were upheld in a number of subsequent cases. In *Puget Sound Gillnetters Assoc. v. U.S. District Court*, 573 F.2d 1123 (9th Cir. 1978), the court noted that the Indian claim to sovereignty predates that of the United States and any of its states and that Indian tribes are still quasi-sovereign entities and not merely voluntary associations of private citizens. (573 F.2d at 1127). In answer to the argument that preferential fishing rights for Indians are a violation of basic equal protection principles, the court answered that the classification was not an impermissible racial classification but was based upon tribal sovereignty (573 F.2d at 1127-1128). In *Washington v. Washington State* 443 U.S. 658, 99 S.Ct. 3055 (1979) the Supreme Court upheld the Ninth circuit's interpretation of equal protection applied to preferential Indian treaty fishing rights, stating that the Court

has repeatedly held that the peculiar semisovereign and constitutionally recognized status of Indians justifies special treatment on their behalf when rationally related to the Government's 'unique obligation toward the Indians'." (443 U.S. at 673, note 20).

Furthermore,

A treaty, including one between the United States and an Indian tribe, is essentially a contract between two sovereign nations . . . When the signatory nations have not been at war and neither is the vanquished, it is reasonable to assume that they negotiated as equals at arm's length. (443 U.S. at 676).

[T]he central principle [in allocation] must be that Indian treaty rights to a natural resource that once was thoroughly and exclusively exploited by the Indians secures so much as, but no more than is

necessary to provide the Indians with a livelihood--that is to say, a moderate living. (443 U.S. at 687).

In addition,

Absent explicit statutory language, we have been extremely reluctant to find congressional abrogation of treaty rights. (443 U.S. at 691). . . . [T]he treaties are self-enforcing. (443 U.S. at 694, note 33).

In *Oregon Dept. of Fish v. Klamath Indian Tribe*, 473 U.S. 773, 766-767, 105 S.Ct. 3420, 3227-3228 (1985), the Supreme Court agreed with the Court of Appeals that "Indians may enjoy special hunting and fishing rights that are independent of any ownership of land," However, in this case the Court held that no off-reservation exclusive right to hunt and fish had survived as a special right free of state regulation after the 1901 Cession Agreement.

Rights in the FCMA fishery conservation zone were litigated in *Hoh Indian Tribe v. Baldrige*, 522 F.Supp. 683 (W.D. Wash. 1981). At issue was a management plan that required that sufficient fish be allowed to escape from the ocean fishery to meet both Indian treaty allocation requirements and the State's spawning escapement goals for coho salmon. The district court, citing *United States v. Washington*, held that the rights secured by the treaties to the plaintiff tribes is a reserved right which is linked to the areas where the Indians fished during treaty times and which exists in part to provide a volume of fish which is sufficient for the fair needs of the tribes. (522 F.Supp. at 686).

A 50-50 sharing of the total optimum yield of the resource was upheld and the court ordered the Secretary of Commerce to "attempt to develop practical and flexible rules for management of the fisheries in accordance with the Tribes' treaty rights and other applicable law." (522 F.Supp. at 689).

In *Washington State Charterboat Assoc. v. Baldrige*, 702 F.2d 820 (9th Cir. 1983) the court held that "Congress' intent to abrogate or modify an Indian treaty must be clear. . . . Such an intent may be found in the express provisions of an act or in its surrounding circumstances and legislative history." (702 F.2d at 823). Furthermore, the FCMA was not intended to abrogate treaties entered into in the 1850s concerning fishing rights. (702 F.2d at 823). The FCMA expressly provides that each fishery management plan approved by the Secretary shall be consistent with all provisions of the Act and "any other applicable law." (16 U.S.C. § 1853(a)(1)(C)). "The extension of the zone indicates that Congress was concerned about harvests by foreign fishers, not catches by treaty fishers." (703 F.2d at 824).

In *Muckleshoot Indian Tribe v. Hall*, 698 F.Supp. 1504 (W.D. Wash. 1988), the court held that

The United States has a fiduciary duty and "moral obligations of the highest responsibility and trust" to protect the Indians' treaty rights. . . . The right to take fish at all usual and accustomed fishing places may not be abrogated without specific and express Congressional authority. (698 F.Supp. at 1510-1511).

The burden was on the tribes, however, to give evidence that the grounds in question were the usual and accustomed ones. (698 F.Supp. at 1511).

In *Sohappy v. Smith*, 302 F.Supp. 899 (D. Ore. 1969), subseq. order aff'd 529 F.2d 570 (9th Cir. 1976), the court determined that the Indians were entitled to a "fair share" of certain Chinook salmon stocks on the Columbia River. While the subsequent implementation plan involved only the States of Oregon and Washington, the Pacific Fisheries Management Council was indirectly involved since it had to adjust the offshore catches of Chinook to allow adequate escapement into the river. By 1977 four Indian tribes were recognized as directly having treaty fishing rights within the area of Council jurisdiction: the Makah, Quinault, Quileute and Hoh Tribes (Isherwood 1977).

Archaeological literature search

The islands of the NWHI are virtually unknown archaeologically. The negative results of a survey "on the islands northwest of Necker" by members of the Tanager Expedition reported by Emory (1928:3) were based on the observations of untrained observers, who could not be expected to find the stratigraphic traces of prehistoric occupation on sand islets. A review of the field notes from the expedition reveals that the ethnologist, Bruce Cartwright, who would have been in charge of the archaeological survey, spent most of his time in the Ho'omalua Zone on board the research vessel working up notes of his survey and excavations on Nihoa and Necker Islands. The negative results of the Tanager Expedition are thus no reason to conclude that the islands of the Ho'omalua Zone were not known to and used by Hawaiians.

Apple, who made brief surveys of the NWHI for the U.S. Fish and Wildlife Service, found no definite traces of prehistoric occupation on the islands of the Ho'omalua Zone, but recommended that further survey work in these islands be carried out "to determine if any archaeological resource base exists" (Apple 1973:61).

The only archaeological evidence for fishing in the NWHI is a large rotating fishhook recovered during excavations on Nihoa Island (Emory 1928: Plate XV-C). This type of fishhook would have been used with a kaka rig while fishing the deep water kialoa fishing grounds for bottomfish. Based on the experience of modern archaeological excavations in the Hawaiian Islands it is likely that other evidence of fishing activities was unearthed during the Nihoa excavations, primarily fish bones. The excavation techniques used in the Nihoa excavations were extremely crude by modern standards. It is likely that fish bone was present but that it was not collected.

CONCLUSIONS

Historical fishing practices

There is verification of bottomfishing for FMP species by native Hawaiians in the Ho'omalu Zone since the 1920s, but not prior to the 1920s. The only piece of evidence that has come to light is a single large rotating fishhook (Emory 1928:Plate XV-C), the type most likely used in fishing the deep water kialoa fishing grounds with a kaka rig. This hook, whose shank measures 56 mm, is larger than any complete rotating fishhook in the fishhook database, a fact that bolsters its association with deep water fishing.

The lack of any other evidence is likely due to the poor state of our knowledge about the history of this portion of the Hawaiian chain, rather than a lack of human activity here in the past. Necker Island, for instance, is home to an impressive series of ancient Hawaiian religious temples, yet in 1928 Kenneth Emory was able to write that "the historic Hawaiians were apparently unaware of the existence of Necker Island" (Emory 1928:3). Islands in the Ho'omalu zone are virtually unknown archaeologically. The negative results of a survey "on the islands northwest of Necker" reported by Emory (1928:3), were based on the observations of untrained observers, who could not be expected to find the faint stratigraphic traces of prehistoric occupation on sand islets. A review of the field notes from the expedition reveals that the ethnologist, Bruce Cartwright, spent most of his time in the Ho'omalu Zone on board the research vessel working up notes of his survey and excavations on Nihoa and Necker Islands. Apple, who made brief surveys of the NWHI for the U.S. Fish and Wildlife Service, found no definite traces of prehistoric occupation on the islands of the Ho'omalu Zone, but recommended that further survey work in these islands be carried out "to determine if any archaeological resource base exists" (Apple 1973:61). The post-project plan proposed by Pacific Fisheries Consultants, or some similar project, would

likely yield evidence for prehistoric fishing practices in the NWHI.

There is no written record of the fishing practices of the Hawaiians who were aboard such vessels as the schooner MANUOKAWAI (Capt. John Paty), which made a voyage of discovery at the request of King Kamehameha IV for almost two months during April and May, 1857 along the NWHI visiting islands from Nihoa Island to Pearl and Hermes Reef. While fishing was likely done, this was not the purpose of the voyage. There are numerous references to the abundance of fish in the log of the MANUOKAWAI (Paty 1857), but all refer to fishes sighted in waters less than three miles from shore.

Examination of whalers' logs also produced no written evidence of native Hawaiian fishermen fishing in the Ho'omalu Zone. The tradition exists that Ni'ihau residents did visit Nihoa on a regular basis into the 1800s, and had the canoes and means to bottomfish on banks more than three miles offshore - which they likely carried out. Unfortunately, Nihoa Island is not in the Ho'omalu Zone. Lack of mention in the whalers' logs should not be taken as evidence for the absence of Hawaiian fishing in the EEZ waters along the NWHI. Archaeologist Kenneth Emory has been quoted (Krauss 1988) as stating that natives on Nihoa on occasion went to fish at Necker Island, but whether they went past Necker Island into the Ho'omalu Zone to bottomfish or conducted any other type of fishing is unknown. For all practical purposes, our knowledge of bottomfishing by native Hawaiian fishermen commences in the 1920s and 1930s (Shinsato 1973), when an unknown number of native Hawaiians conducted some bottomfishing in the Ho'omalu Zone (Agard, pers. comm.)

Present day participation

Commencing in 1978, the number of vessels fishing along the NWHI began to increase from five in 1978 to 28 in 1987. However, at the present time, only eight vessels have Federal permits to bottomfish in the Ho'omalu Zone and we could identify only two native Hawaiian fishermen who have fished in the Ho'omalu Zone during 1988 and 1989 (Johnson and Kaaihue), and two others (Ohai and Agard) who fished in the Ho'omalu Zone in the recent past (1950 - 1975). There undoubtedly have been other native Hawaiians who bottomfished in Ho'omalu Zone waters aboard various vessels during the post World War II period until 1988, but we do not know their numbers or their names. Ohai (pers. comm.) has told us that he usually had a crew largely made up of Hawaiians whenever he fished in Ho'omalu Zone waters in the past. Thus, present day participation by native Hawaiian in fishing for FMP bottomfish in the Ho'omalu Zone appears to be minimal. At the present time non-native Hawaiian fishermen who bottomfish in the

Ho'omalu Zone aboard permitted vessels outnumber native Hawaiian fishermen.

Dependence by native Hawaiians in the present and recent past

The dependence of native Hawaiian fishermen on FMP bottomfish from the Ho'omalu Zone can be thought of in several ways. One would be the actual consumption of bottomfish caught by native Hawaiian fishermen for use as food, and another can be thought of in monetary terms. It is unlikely that present day Hawaiians who bottomfish in the Ho'omalu Zone consume their bottomfish catches, as doing so would defeat the purpose of their fishing - which is to return the catch to Honolulu for sale (Johnson, pers. comm.). In the 1930s and 1940s however, when there was some bottomfishing going on in present day Ho'omalu Zone waters, the crews of the fishing vessels did consume their bottomfish catches, as it was needed as a source of food during their trips (Agard, pers. comm.).

Cultural, religious, and traditional factors

Lacking evidence for traditional Hawaiian fishing practices in the EEZ waters of the Ho'omalu Zone, it is impossible to reconstruct the significance of fisheries there to traditional Hawaiian religion. The nearest known cultural remains to the Ho'omalu Zone are the 33 shrines on Necker Island. These have been variously interpreted over the years as the works of lost voyagers (Carlquist 1980:387, Kirch 1985:97-98) or evidence of a bird cult, similar to that of Easter Island (Cleghorn 1988). It is just as likely that they are the shrines of fishermen who, facing a long sail to the rich fishing grounds of the Ho'omalu Zone, offered prayer and sacrifices to ensure a safe voyage and fishing success. Without further archaeological evidence, any reconstruction of traditional practices in the NWHI must remain pure speculation.

Socioeconomic factors

Present day native Hawaiian fishermen who bottomfish in the Ho'omalu Zone have an economic dependence on their catch. We have no information on the value of today's catches to specific Ho'omalu Zone fishermen, but catches from individual Ho'omalu Zone bottomfishing vessels can be high. It is not unusual for Ho'omalu Zone bottomfishing boats to return to port with catches of 8,000 - 12,000 pounds per trip, which are sold through the Honolulu fish auction at an average price often in the \$3 to \$4 per pound range, and sometimes much higher. In 1988, actual catches of NWHI bottomfish averaged \$2.40 per pound, based on NMFS statistics (Kawamoto and Pooley, 1989). Thus native Hawaiians bottomfishing in the Ho'omalu Zone have an economic dependence on their catches.

There is another category of native Hawaiians who also have an economic interest in bottomfish caught in the Ho'omalau Zone. That category is the consumer who is Hawaiian or part Hawaiian. As elaborated in the Phase 2 report, there has in the past been a strong cultural and religious connection between native Hawaiians and some FMP bottomfish snappers, such as uku. Some present day native Hawaiian consumers of these bottomfish may still associate bottomfish snappers with traditional beliefs and with their dependence upon snappers for food. Because of the high cost of some FMP bottomfish, they may be frustrated in maintaining such a traditional desire.

Such individuals will purchase bottomfish caught from Ho'omalau Zone waters, sometimes directly from a fishing boat, but usually through retail outlets. The value of their purchases of bottomfish, however, is unknown.

A recent study by the State of Hawaii, and reported by the Oceanic Institute (1988), estimated that in 1987, residents of the State of Hawaii consumed 26.8 pounds of seafood per capita. This is almost twice the U.S. national per capita consumption of seafood, which in 1987 was 15.4 pounds (NMFS 1988). How much of the 1987 Hawaii consumption of 26.8 pounds of seafood per resident was consumed by native Hawaiians is not known, but should be substantial, since Hawaiians traditionally like to eat seafood. However, several industry sources have told us it was their opinion that native Hawaiians purchase proportionally less bottomfish than other ethnic groups. One possible reason is that, in general, bottomfish prices tend to be higher than other types of fresh fish, such as aku (skipjack tuna) and ahi (yellowfin and bigeye tuna), and that native Hawaiians have less disposable income with which to purchase higher priced fish such as deepsea bottomfish.

Legal analysis

It is an established fact that the Hawaiian people do not have a formal treaty with the United States which spells out their fishing rights. They did have, and arguably still have, laws which spelled out those rights, laws which survived the overthrow and annexation into territorial status and may have survived admission into the Union. With each transfer of sovereignty the United States stated repeatedly that it would honor all those extant laws not in conflict with federal law unless they were cancelled by specific federal or state legislation. Any law that affected fishing rights on the high seas, however, could not be cancelled by the state of Hawaii at any time and could only be cancelled by the federal government after the FCMA was passed and the federal government assumed jurisdiction over the resources of the EEZ in 1976.

Prior to the establishment of exclusive economic zones coastal peoples could assert rights to high seas resources under two legal theories: (1) effective exercise of sovereign control, and (2) long and continuous usage. If both sovereign control and continuous usage were present, traditional fishermen could assert an exclusive right to the resource; if continuous usage only was established they could still assert a preferential right to the resource. The establishment of historic offshore fishing grounds still in use in the Hawaiian archipelago opens the door to a claim for preferential native Hawaiian fishing rights in the EEZ. However, the fact that the exact boundaries of these grounds were never established argues against a claim for exclusive, vested fishing rights. In addition, the effective exercise of sovereign control over the offshore grounds, the legal theory upon which an exclusive claim might be based, diminished after the passage of the Laws of 1842 and the Acts of 1851 and ended when sovereignty over the Hawaiian Islands passed to the United States in 1898.

However, the usage rights of the common people to the fisheries beyond the three-mile territorial sea were not repudiated by either the provisional government or the Republic of Hawaii. Hawaii state law still recognizes "Hawaiian usage" as an exception and qualifier to the common law system of the state. United States federal law recognizes the concept of usage in its direction to fishery management councils to take "historical fishing practices" into consideration when drafting management plans. International law has long recognized preferential claims to the resources of historic waters based on peaceful and continuous usage. Under international law, sovereign States have an obligation to honor preferential fishing rights established through usage and in the United States international law is part of federal common law to the extent that it is not in conflict with any domestic law.

It is not clear, however, which people can be considered the inheritors of these rights. The laws of the United States define the term "native Hawaiian" in at least two different ways. Under 16 U.S.C. § 396a(b) "native Hawaiian" means any descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Islands previous to 1778. In 42 U.S.C. § 2992c(3) "Native Hawaiian" means any individual any of whose ancestors were natives of the area which consists of the Hawaiian Islands prior to 1778. The latter definition is the most recent.

APPENDICES

Appendix A. Synonymy of common, Hawaiian, and scientific names of FMP species

This appendix contains a list of FMP bottomfish, pelagic fish, crustacea, precious corals, and tunas and their common and Hawaiian names organized by family or class. Each taxon (family, genus, or species) is referred to by its common English, Hawaiian, or Japanese-derived name in the body of the report; this name is given in boldface and is the first listed under the heading "Common names." The first time the name of one of the FMP or non-FMP species is used in the text, the common English, Hawaiian or Japanese name is followed by an alternate name in parentheses. An example is opakapaka (pink snapper). Subsequent references use only the common name.

The bibliography gives sources for the names and their spellings. Growth stage names are listed in order of increasing size.

BOTTOMFISH FMP SPECIES

Lutjanidae

Pristipomoides filamentosus

Common names: opakapaka, pink snapper.

P&E: 'ōpakapaka - blue snapper.

G&B: *Pristipimoides microlepis*, 'opakapaka.

T: Calls this fish a blue snapper. Gives ukikiki (under 12 inches), pakale, opakapaka, kalekale as growth stages. The Ka'u name is paka. Claims that Hawaiians lumped a number of species under these names (see *P. sieboldii* and *Aphareus rutilans* below).

Etelis coruscans

Common names: onaga, long tail snapper, ula'ula .

P&E: 'ula'ula - various red snappers. Varieties 'u. hiwa, 'u. koa'e, 'u. maoli, 'u. 'opulauoho.

G&B: *Etelis marshi*, 'ula'ula.

T: Calls this fish a red snapper. Alternative name ma'ula'ula. Claims Hawaiians lumped several species with

E. coruscans (see *E. carbunculus* below), but presents no evidence to support this assertion. Gives several specific names, one of which, 'ula'ula kōa'e (also given as 'ula'ula koa'e), is illustrated by a long-finned caudal and probably refers to this species.

Pristipimoides sieboldii

Common names: kalekale, snapper.

P&E: kalekale a growth stage of 'ōpakapaka.

T: see *P. filamentosus*.

G&B: kalikali.

Etelis carbunculus

Common names: ehu, squirrel fish snapper.

P&E: ehu, 'ehu not fish names.

G&B: onaga.

T: 'ehu, but gives no scientific name.

Aphareus rutilans

Common names: lehi, silver jaw job fish.

P&E: lehe - deep-sea fish resembling ulua.

G&B: no common name given.

T: see *Pristipimoides filamentosus*.

Aprion virescens

Common names: uku, gray job fish.

P&E: uku - *Aprion* sp.

G&B: *Aprion virescens*, uku.

T: *Aprion virescens* Valenciennes, uku, uku palu (descriptive or varietal name).

Carangidae

Caranx ignobilis

Common names: white ulua, giant trevally.

P&E: *ulua-aukea*, *ulua-kea*. *ulua* - certain species of jack.
Growth stages - *pāpio* or *pāpiopio*, *pā'u'u*, and *ulua*.

G&B: *pa'u'u*, *ulua*, *papio*.

T: *ulua aukea*. Gives growth stage names for Carangidae as *papiopio*, *pau u'u* or *pau'u*, and *ulua*.

Caranx lugubris

Common names: black *ulua*, black trevally.

G&B: *ulua*, *papio*.

T: *ulua lauli*.

Pseudocaranx dentex

Common names: *butaguchi*, pig-lipped *ulua*.

G&B: *Caranx cheilio*, thick-lipped *ulua*, pig *ulua*, *butaguchi*,
buta ulua.

Seriola dumerili

Common names: *kahala*, amberjack.

P&E: *kāhala*.

G&B: *Seriola dumerilii*, *kahala*, amberjack, yellowtail.

T: Gives possible growth stage names as *puakahala* or *amuka*,
kahala opio, and *kahala*.

Serranidae

Epinephelus quernus

Common names: *hapu'upu'u*, sea bass.

P&E: *hāpu'u*, *hāpu'upu'u*, *āpu'upu'u*

G&B: *hapu'upu'u*.

T: *hapu'u*, gives *hapu'upu'u* (or *apu'upu'u*) as a growth stage name.

REFERENCES

- Gosline, William A. and Vernon E. Brock. 1960. *Handbook of Hawaiian fishes*. Honolulu, The University Press of Hawaii. [G&B]
- Pukui, Mary Kawena and Samuel H. Elbert. 1971. *Hawaiian dictionary*. Honolulu, University of Hawaii Press. [P&E]
- Titcomb, Margaret. 1972. *Native use of fish in Hawaii*. Honolulu, The University Press of Hawaii. [T]

APPENDIX B. Whaling ships that visited or operated in the vicinity of Kauai Is., Niihau Is., or the Northwestern Hawaiian Islands during the years 1791 - 1878. Source: Langdon (1984). (Right column numbers refer to microfilms in the Pacific Manuscript Bureau collection, Hamilton Library, University of Hawaii.)

KAUAI IS. (port unspecified)

<u>DATE</u>	<u>SHIP</u>	<u>PMB FILM NO.</u>
1791, 28 May	Hope	774
1809, 2 - 6 Oct	Hamilton	202
1809, 7 - 10 Oct	Otter	774, 775
1811, 12 - 14 Oct	New Hazard	220
1811, 13 - 16 Oct	Hamilton	202
1822, 6 - 17 Feb	Paragon	202
1823, 2 Apr	Phoenix	863
1824, 20 Aug	China	216
1832, 13 Sep	Cadmus	803
1833, 16 Nov	Bengal	205, 576
1834, 27 Apr	Arabella	687
1839, 27 Apr	Charles Drew	736
1841, 10 - 12 May	Walter Scott	387
1845, betw. 17 - 20 Nov	Lucy Anne	688
1846, 14 - 17 Mar	Charleston	287
1846, 18 Apr	Orizimbo	886
1846, 28 Apr - 10 May	George Washington	287, 376
1847, 14 Feb	William & Eliza	837
1847, 6 - 7 Mar	Parachute	699
1847, 17 - 19 Dec	Samuel Robertson	327, 775
1848, 13 - 18 Feb	William Thompson	369
1848, 20 Mar	Charles Drew	792
1848, 31 May - 2 Apr	Erie	266
1848, 21 - 23 Oct	Erie	266
1848, 5 - 9 Nov	Liverpool 2nd	875
1848, 16 Nov	Atkins Adams	286
1848, 26 Nov	Jefferson	682
1849, 22 Feb - 2 Mar	Marengo	346
1849, 20 Mar	Champion	253
1849, 22 Mar	Charles Phelps	792
1849, 30 Sep - 25 Oct	Abraham Barker	671
1850, 6 - 9 Apr	Champion	253
1850, 30 Apr	Charles Drew	792
1851, 12 Apr	Charles Phelps	792
1851, 12 Apr	St. George	773
1851, 17 Apr	Abraham Barker	571
1851, 31 Oct - 1 Nov	St. George	773
1852, 8 Mar	Charles Phelps	792
1852, 9 - 10 Mar	Lancaster	267
1852, 14 - 19 Mar	Hillman	858
1852, 3 - 4 Apr	Abraham Barker	571
1852, 16 - 19 Apr	Milo	267

1852, 2 - 3 Nov	Levi Starbuck	681, 682
1852, 8 Nov	Sophia Thornton	893
1852, 28 - 30 Nov	Gratitude	330
1853, 23 - 29 Mar	Pioneer	772
1853, 2 Apr	Niger	736, 737
1853, 4 - 8 Apr	Benjamin Tucker	262, 312
1853, 4 - 8 Apr	Betsy Williams	698, 844
1853, 6 - 10 Apr	Nathaniel S. Perkins	543
1853, 11 - 12 Nov	California	772
1853, 17 Nov	Roman	836
1854, 27 Mar	Niger	736, 737
1854, 14 Apr	Europa	846
1854, 14 Oct	Martha	264
1854, 22 - 23 Nov	Lexington	378
1854, 25 - 27 Nov	Saratoga	892
1855, 12 - 13 Mar	Robert Morrison	734
1855, 22 - 23 Mar	Florida	301
1855, 28 - 30 Mar	Rebecca Sims	816
1855, 5 - 8 Mar	Saratoga	892
1855, 16 - 20 Nov	Lexington	378
1855, 13 - 14 Dec	Washington	369, 370
1856, 7 Apr	Benjamin Tucker	576
1857, 17 - 19 Feb	Fanny	326
1857, 23 - 26 Feb	Fanny	326
1857, 18 Mar	Fanny	326
1857, 28 Mar	Callao	579, 833
1857, 23 Apr	Cinninnati	794
1857, 13 - 15 Nov	Silver Cloud	361, 840
1858, 10 - 24 Mar	Lark	694
1858, 18 - 19 Mar	Silver Cloud	361, 840
1858, 31 Mar	Speedwell	894
1858, 13 - 22 Sep	Fabius	325
1858, 10 - 13 Nov	Benjamin Tucker	312
1859, 28 Feb	Cinninnati	794
1859, 30 - 31 Mar	Speedwell	894
1859, 31 Mar - 10 Apr	Fabius	325
1859, 1 - 3 Apr	Martha	678
1859, 19 - 21 Apr	Tamerlane	367
1859, 14 Dec	Lancaster	812
1861, 25 Mar	Josephine	812
1862, 30 Nov - 1 Dec	Barnstable	575
1864, 7 - 19 Apr	Governor Troup	729, 791
1865, 22 - 29 Apr	Governor Troup	729, 791
1855, 10 Apr	Cornelius Howland	796
1866, 28 Apr - 1 May	Governor Troup	729, 791
1867, 9 - 14 Apr	George Howland	241
1867, 15 Apr	Europa	259
1867, 16 Apr	Corinthian	796
1868, 14 - 18 Mar	Cornelius Howland	321, 796
1868, 30 Mar	Islander	811
1868, 3 - 4 Apr	Europa	259
1870, 29 Mar - 1 Apr	Cornelius Howland	321, 796
1870, 31 Mar - 26 Apr	Almira	573
1870, 21 Apr	Thomas Dickason	796

1870, 12 - 15 May	Navy	815
1877, 2 Mar	Mount Wallaston	910
1878, 15 - 17 Apr	Helen Mar	244

KAUA'I IS. - KILAUEA

1854, 3 - 13 Jan	Abigail	294
1854, 5 - 6 Feb	Abigail	294

KAUA'I IS. - WAIMEA

1869, 1 - 5 Apr	George Howland	241
-----------------	----------------	-----

NI'IHAU IS.

1809, 10 Oct	Otter	774
1823, 3 - 6 Apr	Phoenix	863
1848, 17 Nov	Atkins Adams	286
1850, 2 May	Charles Drew	792
1851, 12 Apr	Charles Phelps	792
1852, 25 - 26 Mar	Columbus	776
1854, 24 Mar	Mechanic	768
1854, 2 - 5 Aug	Mechanic	768
1859, 13 - 14 Apr	Oliver Crocker	815
1862, 15 - 23 Nov	Navy	281, 300, 814
1865, 8 May	Martha	348

APPENDIX C. List of individuals who were interviewed concerning native Hawaiian fishing in the Ho'omalu Zone of the NWHI, and also around Kaua'i, Ni'ihau, and Ka'ula Islands. A longer list of native Hawaiian fishermen who were interviewed for their fishing histories around the entire Hawaiian Island chain is found in the report on Phase 2 of the project.

<u>Date/place</u>	<u>Person interviewed</u>	<u>Persons present</u>
April 18, 1989 Honolulu, Hawaii	Dane A. Johnson	Johnson/R. Iversen
April 25, 1989 Honolulu, Hawaii	Louis K. Agard, Jr.	Agard/R. Iversen
June 15, 1989 Honolulu, Hawaii	Leo A. Ohai	Ohai/R. Iversen
October 3, 1989 Makaweli, Kauai	Bruce Robinson (no affidavit)	Robinson/R. Iversen
October 4, 1989 Hanapepe, Kauai	Garry D. Kaaihue	Kaaihue/R. Iversen

APPENDIX D. Affidavits.

AFFIDAVIT OF LEO A. OHAI

Leo A. Ohai, being first duly sworn upon oath deposes and says:

1. He is a resident of the State of Hawaii, and maintains his residence at 1255 Nuuanu Avenue (#1001), Honolulu, Hawaii 96817.

2. He is 66 years of age, and was born on February 24, 1923, at Waialua Homstead, Kauai Island, Hawaii, and is the natural son of Benjamin M. and Alice M. Ohai.

3. He is of part Hawaiian ancestry, being of approximately 60 percent Hawaiian ancestry, and of 40 percent Caucasian ancestry.

4. That his father, Benjamin M. Ohai, was of 75 percent Hawaiian ancestry and 25 percent Caucasian ancestry.

5. That his mother, Alice M. Ohai, was of 50 percent Hawaiian ancestry and 50 percent Caucasian ancestry.

6. That at the present time he is the owner and captain of the F/V LIBRA, which is berthed at pier 15, Honolulu Harbor, and that the following is an accurate representation of his career as a commercial fisherman, fishing vessel owner, and aircraft spotter for various species of fish that his vessels were attempting to catch.

7. He began his career as a commercial fisherman in 1941 when he was the captain and owner of the fishing sampan F/V GARDEN ISLAND, and which was engaged in fishing for akule (Selar crumenophthalmus) within three miles of Kauai Island and Kaula

Island. He also conducted bottom fishing on a regular basis for the following species of bottomfish in waters more than three miles offshore of Kauai Island and Kaula Island: opakapaka (pink snapper), onaga (long tail snapper), kalekale (snapper), ehu (squirrel fish snapper) lehi (silver jaw jobfish), uku (grey snapper) white ulua (giant travally), black ulua (black travally), hapuupuu (seabass), and kahala (amberjack). He was the owner and captain of the F/V GARDEN ISLAND until 1944, when he sold the vessel.

8. During 1944 and 1945, he was employed as a commercial fisherman aboard the F/V FUKUI MARU, which fished for akule and bottomfish within three miles of Niihau Island.

9. In 1945, he purchased the F/V KAMOKILA, which engaged in bottomfishing for the species listed in paragraph 7, above, along the Northwestern Hawaiian Islands at what is known as "middle bank", located about 80 miles northwest of Kauai Island. From 1945 until 1952, he fished the F/V KAMOKILA in waters around Kauai Island and Kaula Island primarily for akule. In 1952 he sold the F/V KAMOKILA.

10. In 1952 he built the skipjack fishing vessel F/V MOKU OHAI and was the owner and captain of the F/V MOKU OHAI while it was engaged in fishing for aku [skipjack tuna (Katsuwonus pelamis)] in waters more than three miles offshore of all the main Hawaiian Islands. He also operated the F/V MOKU OHAI until 1955 while fishing for akule in waters less than three miles off French Frigate Shoals, which is approximately 440 miles northwest of Honolulu.

11. In 1955 he sold the F/V MOKU OHAI and purchased the fishing vessels SHIRLY I and PANAY. These vessels fished for akule around the main Hawaiian Islands in waters less than three miles offshore, and he flew as an airplane spotter for both vessels in order to locate schools of akule. The F/V SHIRLEY I fished for akule until 1970 when it burned and was lost. The F/V PANAY fished for akule until it was wrecked in 1974.

12. In 1970 he purchased the F/V OLYMPIC and was the owner, captain, and occasional airplane spotter for schools of akule being fished by the F/V OLYMPIC. The F/V OLYMPIC was wrecked on Kauai in 1974.

13. In 1974 he purchased the F/V MALIHINI and F/V KAIMAMALA, both of which fished for akule in waters around the main Hawaiian islands less than three miles offshore. The F/V MALIHINI was sold in 1974 and at the present time the F/V KAIMAMALA is inactive and tied up at pier 15, Honolulu Harbor.

14. In 1975, he purchased and became the owner and captain of the 58 foot long multi-purpose fishing boat F/V LIBRA. Since 1975, the F/V LIBRA has been engaged in the following fisheries:

a. Fishing for akule around all the main Hawaiian Islands in waters less than three miles offshore.

b. Bottomfishing in waters more than three miles offshore for the species of bottomfish listed in paragraph 7, above, along most of the islands and banks of the Northwestern Hawaiian Islands from Pearl and Hermes Reef to the Island of Niihau.

c. Longline fishing for species of ahi [yellowfin tuna (Thunnus albacares) and bigeye tuna (Thunnus obesus)], and other

pelagic species such as marlin and wahoo (ono) in waters more than three miles offshore of the main Hawaiian Islands.

d. Trapping for crustaceans (spiny and slipper lobsters) on banks more than three miles offshore in the following locations: Pearl and Hermes Reef, Lisianski Island, Laysan Island, Maro Reef, Raita Bank, Gardner Pinnacles, St. Rogatien Bank, Brooks Bank, Necker Island, Middle Bank, and Nihoa Island.

e. Occasional trapping for bottomfish listed in paragraph seven, above, in waters more than three miles off Niihau, Molokai, and Kauai Islands.


LEO A. OHAI

Subscribed and sworn to before me
this 21 day of June, 1989



Notary Public, State of Hawaii

My commission expires: FEB 19 1997

OCEANIC LIBRA CORPORATION
P. O. BOX 28002
HONOLULU, HAWAII 96827

August 25, 1989

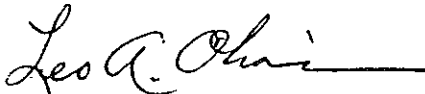
Mr. Robert T. B. Iversen
Pacific Fisheries Consultants
45-626 Halekou Place
Kaneohe, Hawaii 96744

Dear Mr. Iversen:


The purpose of this letter is to provide additional details of my past fishing activities as they concern fishing for the deepwater ono shrimp (Heterocarpus sp.). This information is provided as an addendum to paragraph 14(d) of my notarized affidavit dated June 21, 1989.

"Trapping for deepwater ono shrimp (Heterocarpus sp.) in Hawaiian waters more than three miles offshore of southwest Kauai Island, and in the Kaiwi channel between Oahu and Molokai Islands. I also trapped for ono shrimp in waters off Kaulapapa, Molokai Island, but this was in waters less than three miles offshore."

Sincerely,


Leo A. Ohai
President

Subscribed and sworn to before me
this 25th day of August, 1989.


Notary Public, State of Hawaii

My commission expires: 11/3/89

L.S.

AFFIDAVIT OF LOUIS K. AGARD, JR.

Louis K. Agard, Jr., being first duly sworn upon oath deposes and says:

1. He is a resident of the State of Hawaii, and maintains his residence at 55 South Kukui Street (Apt. D-404), Honolulu, Hawaii 96813.

2. He is 65 years of age and was born on February 25, 1924, in Honolulu, Hawaii, and is the natural son of Louis K. Agard, Sr., and Maria Prestige Agard.

3. He is of part Hawaiian ancestry, being of 25 percent Hawaiian ancestry, and 75 percent Caucasian ancestry.

4. That his mother, Maria Prestige Agard, was of 50 percent Hawaiian ancestry, and 50 percent Caucasian ancestry.

5. That his father, Louis K. Agard, Sr., was of 100 percent Caucasian ancestry.

6. That at the present time he is self employed, and that since 1946, he has been the owner of Marine Supply and Exchange, Inc., 1089A Ala Moana Blvd., Honolulu, Hawaii 96814, a firm that is engaged in the marketing of aku (skipjack tuna: Katsuwonus pelamis) and other pelagic species, and in the sale of equipment and supplies to commercial fishing vessels.

7. That the following is an accurate representation of his career as a commercial fisherman, fishing vessel owner, and a seller of various species of pelagic fish:

7.1 That his fishing career started in 1935, when at the age of 11, he caught fish on Kauai Island, and later sold his

catch at various plantation camps on Kauai. He was engaged in similar activities until approximately 1942.

7.2. That during 1943 and 1944 he was a fisherman aboard the F/V KIYO MARU, which fished for aku more than three miles offshore of Oahu, and which delivered its catch to the Hawaiian Tuna Packers cannery, Honolulu, Hawaii.

7.3. That during 1946 - 1948, he was the owner and captain of the F/V NAIA, a sampan 80 feet long, which fished primarily for reef fish and akule (big eyed scad: Selar crumenophthalmus), in waters around Oahu within three miles of shore and in the nearshore waters of French Frigate Shoals, Northwestern Hawaiian Islands. During 1946, he chartered a DC-3 cargo aircraft to fly akule caught near French Frigate Shoals to Honolulu for sale. During the period 1948 - 1950, he was the captain of the 72 foot long F/V SEAHAWK, which engaged in bottomfish fishing in the Northwestern Hawaiian Islands more than three miles offshore of Necker Island, French Frigate Shoals, "100 fathom bank" (located 10 miles east of French Frigate Shoals), and Gardner Pinnacles. While bottomfishing aboard the F/V SEAHAWK, the following species of bottomfish were caught on a regular basis: opakapaka (pink snapper), onaga (long tail snapper), kalekale (snapper), ehu (squirrel fish snapper), lehi (silver jaw jobfish), uku (grey snapper), white ulua (giant travally), black ulua (black travally), butaguchi (pig lipped ulua/travally), hapupuu (seabass), and kahala (amberjack). During the period 1947 - 1951, he was also the owner and captain of the support

vessel SILVER, which was used in connection with various fishing activities within three miles of shore at French Frigate Shoals.

7.4. That during the period 1950 - 1956, he owned and operated the F/V OCEANIC, which primarily fished for reef fish and akule in waters less than three miles offshore of French Frigate Shoals and the Main Hawaiian Islands, and that during this period he was the operations director of the DC-3 cargo aircraft which was used to fly the commercial fish catch from French Frigate Shoals to Honolulu for sale.

7.5 That during 1956 - 1958 he was the owner and captain of the F/V MANA, which caught reef fish in waters less than three miles offshore around all the main Hawaiian Islands, but which also engaged in trolling for pelagic species such as aku, other tunas, mahimahi, and marlin in waters more than three miles offshore while transiting between islands.

7.6 That during 1957 - 1958 he was the owner and captain of the F/V LELO, which caught reef fish around Oahu in waters less than three miles offshore.

7.7 That during 1958 - 1963, he was the owner and captain of the F/V MOMI, which fished in waters more than three miles offshore of all the main Hawaiian islands, and that while trolling during transit between islands, the F/V MOMI caught other tunas, mahimahi, and marlin.

7.8 That during 1963 - 1973, he was the owner and captain of the F/V ALIKA, which fished for reef fish in waters around Oahu Island.

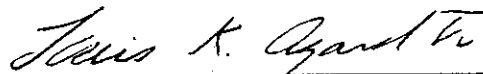
7.9. That during the years 1967 - 1973, he was engaged as a fish spotter, flying a Cessna 172 aircraft around all the Main Hawaiian Islands in search of akule and ulua (travally), and that from 1973 - 1977 he was engaged as a fish spotter searching for aku in waters more than three miles offshore of all the main Hawaiian Islands.

7.10. That during 1977 - 1979 he was the owner and captain of the F/V AHONUI, which fished for akule in waters less than three miles around the Oahu Island.

7.11. That during 1978 - 1979 he acted as a sales agent for the Tuna Boat Owners' Cooperative in order to sell aku.


7.12. That since 1979 he has been an independent fish dealer selling a variety of pelagic species, mainly aku, other tunas, mahimahi, and marlin, and;

7.13. That since 1986 he has been financing the operations of the F/V SEA QUEEN and F/V NEPTUNE, which are primarily engaged in the pole-and-line fishery for aku in waters more than three miles offshore around the islands of Oahu and Molokai.



LOUIS K. AGARD, JR.

Subscribed and sworn to before me
this 17th day of May, 1989


Notary Public, State of Hawaii

My commission expires: 4/03/92

AFFIDAVIT OF GARRY D. KAAIHUE

Garry D. Kaaihue, being first duly sworn upon oath deposes and says:

1. He is a resident of the State of Hawaii, and maintains his residence on Enoki Place, Hanapepe, Kauai, Hawaii, and that his mailing address is P. O. Box 675, Hanapepe, Hawaii 96716.

2 He is 35 years old, and was born on September 10, 1954 in Pahala, Hawaii, and is the natural son of Isaiah Kala Kaaihue and Laura Panila Keanu Kaaihue.

3. He is of 100 percent Hawaiian ancestry.

4. That his father, Isaiah Kala Kaaihue is of 100 percent Hawaiian ancestry.

5. That his mother, Laura Panila Keanu Kaaihue, was of 100 percent Hawaiian ancestry.

6. That his regular occupation is as a full time commercial fishermen, and that he occasionally works in the construction industry.

7. That his career as a commercial fisherman began in 1968, and during the years 1968 - 1971 he fished from a small boat in waters less than three miles offshore of South Point, Hawaii Island by trolling for aku (skipjack tuna), ahi (yellowfin tuna), kawakawa (little tuna), ono (wahoo), and kaku (barracuda), and by the palu ahi method (palu = chum or bait released at depth + a deepsea fishing line) for ahi (yellowfin tuna) and ahipalaha (albacore tuna).

8. That during 1972 - 1974 he was a commercial fisherman aboard the F/V ELECTA (Capt. Albert Grace) which fished for aku by

the pole and line method using live bait in Exclusive Economic Zone (EEZ) waters more than three miles offshore of Oahu, Molokai, Maui, and Kauai Islands.

9. That during 1975 -1979 he worked in construction on Hawaii Island.

10. That during 1980 - 1984 he was a commercial fisherman aboard the F/V TRADEWIND (Capt. Albert Grace) which fished for aku in the manner and locations given in paragraph 8, above.

11. That during 1984 - 1985 he was a commercial fisherman aboard the longliners F/V LIKELIKE, F/V VIKING, and F/V DRIFTWOOD which fished for ahi (yellowfin tuna), ahi (bigeye tuna), ahipalaha (albacore tuna), mahimahi (dolphinfish), a'u (marlin), a'u ku (broadbill swordfish), ono, and opah (moonfish) in EEZ waters more than three miles offshore of all the main Hawaiian Islands, including waters above the Cross Seamount south of Hawaii Island.

12. That during 1986 - 1988 he was the captain of the F/V AIKANE 49 and F/V ST. PETER, bottomfishing vessels which fished in EEZ waters of the Ho'omalu Zone of the Northwestern Hawaiian Islands as far west as Gardner Pinnacles and also in EEZ waters more than three miles offshore of Nihoa Island for the following bottomfish species: opakapaka (pink snapper), onaga (red snapper), ehu (squirrel fish snapper), kalekale (snapper), uku (grey snapper), butaguchi (thick lipped trevally), and hapupuu (seabass).

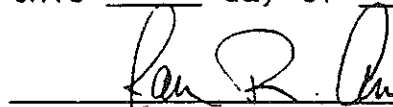
13. That during 1988 he also was a commercial fisherman aboard the F/V PATTY ANN (Capt. Bill Mustard) which fished for the bottomfish species listed in paragraph 12, above, in EEZ waters more than three miles offshore of Kaula Island and also at Middle

Bank, which is located approximately halfway between Kauai and Nihoa Islands.

14. That during 1989 he has worked in the construction industry, but intends to return to being a full time commercial fisherman fishing Hawaiian waters.


GARRY D. KAAIHUE

Subscribed and sworn to before me
this 31st day of October, 1989


Notary Public, State of Hawaii

My commission expires: 4-28-90

AFFIDAVIT OF DANE A. JOHNSON

Dane A. Johnson, being first duly sworn upon oath deposes and says:

1. He is a resident of the State of Hawaii, and maintains his residence at 95-170 Kipapa Drive (#47), Mililani, Hawaii 96789.

2. He is 29 years of age, and was born on July 12, 1959 in San Diego, California, and is the natural son of Rockne H. Johnson and Rubellite K. Johnson.

3. He is of part Hawaiian ancestry, being of 25 percent Hawaiian ancestry, and of 75 percent combined Caucasian and Chinese ancestry.

4. That his mother, Rubellite K. Johnson, is of 50 percent Hawaiian ancestry, and 50 percent combined Caucasian and Chinese ancestry.

5. That his father, Rockne H. Johnson, is of 100 percent Caucasian ancestry.

6. He is employed as a commercial fisherman and is the captain and master of the F/V KAWAMEE (official number 253-322); that he has been the captain of the F/V KAWAMEE since 1981, and that prior to becoming captain of the F/V KAWAMEE, he was employed as a commercial fisherman aboard the F/V KAWAMEE from 1977 to 1981.

7. That the F/V KAWAMEE has a Federal permit (number BH-89-007) which permits it to fish for bottomfish in the Ho'omalū Zone of the United States Exclusive Economic Zone (EEZ) in the waters around the Northwestern Hawaiian Islands (NWHI) and that the Ho'omalū Zone grounds usually fished by the F/V KAWAMEE extend from Middle Bank to Pearl and Hermes Reef.

8. That the species of bottomfish caught by the F/V KAWAMEE while fishing in the Ho'omalū Zone include the following: opakapaka (pink snapper), onaga (long tail snapper), kalekale (snapper), ehu (squirrel fish snapper), lehi (silver jaw jobfish), uku (grey snapper), white ulua (giant travally), black ulua (black travally), butaguchi (pig lipped ulua/travally), hapuupuu (seabass), and kahala (amberjack).

9. That the F/V KAWAMEE has also caught other pelagic species such as yellowfin tuna, mahimahi, ono (wahoo), and marlin while trolling in the Ho'omalū and Mau Zones of the NWHI while transiting to and from the bottomfishing grounds in the Ho'omalū Zone.

10. That while aboard the F/V KAWAMEE he has also engaged in the following fisheries in the EEZ around the Main Hawaiian Islands (MHI): trapping for shrimp (Heterocarpus sp.) in waters outside of Honolulu; bottom netting for Kona crab on Penguin Banks, a shallow area in the EEZ between Oahu and Molokai Islands; and using the ika-shibi technique (midwater handline) to catch pelagic tunas in waters off Hilo, Hawaii Island.

11. He has also been employed as a commercial fisherman aboard the following vessel: F/V KEAWE during part of 1977 (trapping Heterocarpus sp. shrimp and bottomfishing in EEZ waters off Honolulu); F/V FERESA during part of 1981 (bottomfishing and trolling in EEZ waters of the NWHI); F/V HAOLE QUEEN during part of 1982 (bottomfishing near Kaula Island); and the F/V E.T. during part of 1984 (bottomfishing in EEZ waters of the NWHI).

Dane A. Johnson
DANE A. JOHNSON

Subscribed and sworn to before me
this 16th day of June, 1989

LS Henry W. C. Lo
Notary Public, State of Hawaii

My commission expires: 12/16/82
AK

APPENDIX E. List of acronyms used and their meanings.

CFR — Code of Federal Regulations.

CPUE — Catch per unit effort.

DBED — Department of Business and Economic Development.

DLNR — Department of Land and Natural Resources.

EEZ — Exclusive economic zone.

FCMA — Fishery Conservation and Management Act of 1976.
Also known as the MFCMA (see below).

FMP — Fishery management plan.

HDAR — Hawaii Division of Aquatic Resources.

HEN — Hawaiian Ethnological Notes.

ICJ — International Court of Justice.

LOS — Law of the Sea.

MFCMA — Magnuson Fishery Conservation and Management Act of
1976. Also called FCMA.

MHI — Main Hawaiian Islands.

MSY — Maximum sustainable yield.

MT — Metric ton.

NMFS — National Marine Fisheries Service.

NWHI — Northwestern Hawaiian Islands.

OY — Optimum yield.

WPRFMC — Western Pacific Regional Fishery Management
Council.

Appendix F. Glossary of Hawaiian words and phrases.

Ahupua'a — Land division usually extending from the uplands to the sea

'Aumakua — Family or personal god.

Ho'omalu — To take care of, to protect.

Kaka — A deep water bottom fishing technique involving a single line with multiple baited hooks practiced from a drifting canoe.

Kama'aina testimony — Authentic, but unrecorded evidence from kupuna; not necessarily in written form.

Ka Nupepe Kuokoa — Kuokoa newspaper.

Ko'a — Fishing grounds.

Ko'a huna — Secret fishing grounds.

Kialoa — The deepest bottom fishing grounds; also pōhākialoa.

Kupuna — Elder.

Mau — The continuation.

Moku — Island.

Olonā — A native shrub (*Touchardia latifolia*), the fibers of which were used to make fishing lines.

Pāpapa — Low, flat, as a reef.

BIBLIOGRAPHY

- Anders, G. 1987. Native Hawaiian Rights in a Regulated Fishery: An Exploratory Analysis. Pacific Islands Development Program, East-West Center, Honolulu.
- Apple, R. 1973. Prehistoric and historic sites and structures in the Hawaiian Islands National Wildlife Refuge (The Northwest Hawaiian Islands): A survey. Ms. prepared for the U.S. Fish and Wildlife Service.
- Beckley, E.N. 1883. *Hawaiian fisheries and methods of fishing*. Advertiser Press, Honolulu.
- Broder, S. and J. Van Dyke. 1982. Ocean Boundaries in the South Pacific. *Univ. Haw. L. Rev.* 4:1
- Brownlie, Ian. 1979. *Principles of Public International Law*. Clarendon Press, Oxford.
- Bryan, E. H., Jr. 1942. *American Polynesia and the Hawaiian Chain*. Tongg Publishing Co., Honolulu.
- Carlquist, Sherwin. 1980. *Hawaii: A natural history* (2nd ed.). Pacific Tropical Botanical Garden, Honolulu.
- Chun, Malcolm Naea. 1986. A preliminary cultural study of primary sources concerning the islands of Nihoa, Necker, and the Leeward (Northwest) Chain. Typescript in WPRFMC.
- Cleghorn, P.L. 1988. The settlement and abandonment of two Hawaiian outposts: Nihoa and Necker Islands. *B.P. Bishop Mus. Occ. Pap.* 28:35-49.
- Cobb, J.N. 1905. *The Commercial Fisheries of the Hawaiian Islands*. Part III, Bull. U.S. Fish Commission, Vol. XXIII for 1903, Government Printing Office, Washington.
- Emory, K.P. 1928. *Archaeology of Nihoa and Necker Islands*. B.P. Bishop Mus. Bull. 53. Honolulu.
- Federal Register. 1986. Vol. 51, No. 147, July 31, 1986.
- Federal Register. 1987. Vol. 52, No. 198, November 11, 1987.
- Federal Register. 1988. Vol. 53, No. 153, August 9, 1988.
- Goto, Akira. 1986. Prehistoric ecology and economy of fishing in Hawaii: An ethnoarchaeological approach. Ph.D. dissertation, UHM.
- Hawaii Seafood Buyers Guide. 1988. The Hawaii Seafood Promotion Committee/Hawaii State Dept. of Planning and Economic Development, Honolulu.

- Hiroa, Te Rangi [Peter H. Buck]. 1964. *Arts and crafts of Hawaii*. B.P. Bishop Mus. Spec. Publ. 45. Bishop Museum Press. Honolulu.
- ICJ Fisheries Jurisdiction Cases. 1951. (United Kingdom v. Norway); (Judgement). I.C.J. Reports 116.
- ICJ Fisheries Jurisdiction Cases. 1951. (United Kingdom v. Norway); (Merits). I.C.J. Reports 116.
- ICJ Fisheries Jurisdiction Cases. 1974. (United Kingdom v. Iceland); (Merits). I.C.J. Reports 3.
- International Law Commission. 1962. Historic Waters Study. 14 U.N. GAOR, A/CN.4/143.
- Isherwood, J. 1977. Indian Fishing Rights in the Pacific Northwest: Impact of the Fishery Conservation and Management Act of 1976. *Env't'l Law*. 8:101.
- Jarman, C. 1986. The Public Trust Doctrine in the Exclusive Economic Zone. *Ore. L. Rev.* 65:1.
- Kahaulelio, A.D. 1902. Fishing lore. Ms. in Library, B.P. Bishop Mus., Honolulu. *Ka Nupepa Kuokoa*, 13 installments. Trans. M.K. Pukui.
- Kalaaukumuole, S.Z.E. 1866. Ho'omana i ka i'a. *Ka Nupepa Kuokoa*, 6 November. Trans. M.K. Pukui.
- Kamakau, Samuel Manaiakalani. 1976. *The works of the people of old: Na hana a ka po'e kahiko*. Trans. M.K. Pukui; Ed. D.B. Barrere. B.P. Bishop Mus. Spec. Publ. 61. Bishop Museum Press. Honolulu.
- Kawamoto, K. and S. Pooley. 1988. Update on Hawaii Bottom Fish Fishery. Report to the Bottomfish Advisory Board of the Western Pacific Regional Fishery Management Council. Honolulu Laboratory, National Marine Fisheries Service. November, 1988.
- Kawamoto, K. and S. Pooley. 1989. Status of Hawaii's Bottomfish Fishery in 1988. Prepared by the Honolulu Laboratory, National Marine Fisheries Service, for the 1988 Annual Report of the Western Pacific Regional Fishery Management Council on Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region.
- Keith, K. 1982. Laws Affecting the Development of Ocean Resources in Hawaii. *Univ. Haw. L. Rev.* 4:227.
- Kirch, P.V. 1985. *Feathered gods and fishhooks: An introduction to Hawaiian archaeology and prehistory*. University of Hawaii Press, Honolulu.

- Krauss, B. 1988. *Keneti, South Seas Adventures of Kenneth Emory*. Univ. of Hawaii Press, Honolulu.
- Langdon, R. (Editor). 1984. *Where the Whalers Went*. Pacific Manuscripts Bureau, The Australian National University, Canberra.
- LOS Convention. 1982. United Nations Convention on the Law of the Sea, Open for Signature December 10, 1982. Reprinted in International Legal Materials, vol. 21(1261).
- Malo, David. 1951. *Hawaiian antiquities (Mooolelo Hawaii)*, 2nd ed. Trans. N.B. Emerson. B.P. Bishop Mus. Spec. Publ. 2. Bishop Museum Press, Honolulu.
- Meller, N. 1985. *Indigenous Ocean Rights in Hawaii*. Sea Grant Marine Policy and Law Report. UNIHI-SEAGRANT-MP-86-01. Univ. of Hawaii, Honolulu.
- Meyer, P. 1987. Access Control for the Northwestern Hawaiian Islands Bottomfishery. Developed for the Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii 96813.
- Murakami, A. and B. Freitas. 1987. Native Hawaiian Claims Concerning Ocean Resources. Native Hawaiian Legal Corporation, Honolulu.
- Newman, T. Stell. 1970. *Hawaiian fishing and farming on the island of Hawaii in AD 1778*. DLNR, Division of State Parks. Honolulu.
- NMFS. 1988. Fisheries of the United States, 1987. Current Fisheries Statistics No. 8700, National Marine Fisheries Service, NOAA, U.S. Dept. of Commerce, Washington, D. C.
- Oceanic Institute. 1988. *Hawaiian Mahimahi: Current Market Analysis and Marketing Strategies for Increased Production*. The Oceanic Institute, P. O. Box 25280, Honolulu, Hawaii 96825.
- Paty, J. 1857. *Journal of a Voyage in the Schooner Manuokawai in April and May, 1857*. Archives of the State of Hawaii, Honolulu.
- Polovina, J. 1987. Assessment and Management of Deepwater Bottomfishes in Hawaii and the Marianas. (In) *Tropical Snappers and Groupers*. J. Polovina and S. Ralston, (Eds.), Westview Press, Boulder and London.
- Ralston, S. and K. Kawamoto. 1987. An Assessment and Description of the Status of Bottom Fish Stocks in Hawaii. Honolulu Laboratory, National Marine Fisheries Service, Honolulu, Hawaii. Adm. Rpt. H-87-7.

- Ralston, S. and K. Kawamoto. 1988. A Biological Assessment of Hawaiian Bottom Fish Stocks, 1984-87. Honolulu Laboratory, National Marine Fisheries Service, Honolulu, Hawaii. Adm. Rpt. H-88-8.
- Severance, C.J. 1986. Exploitation strategies. (In) Kahaluu Data Recovery Project: Excavations at site 50-10-37-7702, Kahaluu habitation cave, Land of Kahaluu, North Kona, Island of Hawaii, by D. Hay, A.E. Haun, and P.H. Rosendahl, Ch. 5, 5-16. PHRI 61-022084.
- Shinsato, H. 1973. Letter dated May 9, 1973 to the Regional Director, U.S. Bureau of Sport Fisheries and Wildlife, Portland, Oregon.
- Somerton, D., Kikkawa, B. and A. Everson. 1989. Biological Assessments of the Hawaii Bottomfish Stocks and the Southeast Hancock Seamount Armorhead Stock, 1988. Prepared by the Honolulu Laboratory, National Marine Fisheries Service, for the 1988 Annual Report of the Western Pacific Regional Fishery Management Council on Bottomfish and Seamount Groundfish Fisheries.
- Stanton, J. and G. Clay. 1980. Ocean Leasing Study (draft). Subsequently published as Chapter V(D)2 Entitled "Konohiki Fisheries/Native Hawaiian Rights". (In) Ocean Leasing for Hawaii. Dept. of Planning and Economic Development, January, 1981.
- Titcomb, M. (with D.B. Fellows, M.K. Pukui, and D.M. Devaney). 1978. Native use of marine invertebrates in Old Hawaii. *Pacific Science* 32:325-377.
- Titcomb, M. (with M.K. Pukui). 1972. Native use of fish in Hawaii. The University Press of Hawaii, Honolulu.
- U.S. Congress House Report No. 445. 1976. Reprinted in U.S. Cong. & Admin. News, p. 593 (1976).
- Valeri, V. 1985. *Kingship and sacrifice: Ritual and society in ancient Hawaii*. P. Wissing, trans. The University of Chicago Press, Chicago and London.
- Van Dyke, J. and S. Heftel. 1981. Tuna Management in the Pacific: An Analysis of the South Pacific Forum Fisheries Agency. *Univ. Haw. L. Rev.* 3:1.
- WPRFMC. 1981. Source Document for the Final Fishery Management Plan of the Spiny Lobster Fisheries of the Western Pacific Region. Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii 96813.

WPRFMC. 1986. Combined Fishery Management Plan, Environmental Assessment and Regulatory Impact Review for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii 96813.

WPRFMC. 1988. Request for Proposals Entitled "Rights of Native Hawaiian Fishermen with Specific Regard to Harvesting of Bottomfish in the Northwestern Hawaiian Islands and with Regard to Harvesting of Bottomfish, Crustaceans, Precious Corals and Open-Ocean Fish in Offshore Areas Surrounding the Entire Hawaiian Island Chain." Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii, 96813. Dated June 7, 1988.

WPRFMC. 1988a. Amendment 2 to the Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii 96813.

WPRFMC. 1988b. 1987 Annual Report for the Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. Western Pacific Regional Fishery Management Council, 1164 Bishop Street, Honolulu, Hawaii 96813.

Yamase, D. 1982. State-Federal Jurisdictional Conflict Over the Internal Waters and Submerged Lands of the Northwestern Hawaiian Islands. *Univ. Haw. L. Rev.* 4:139.

