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LIST OF FISH AT A PROPOSED OTBC SITE OFF KAHE POINT, HAWAII, DERIVED FROM COMMERCIAL FISH RECORDS, 1959-1978

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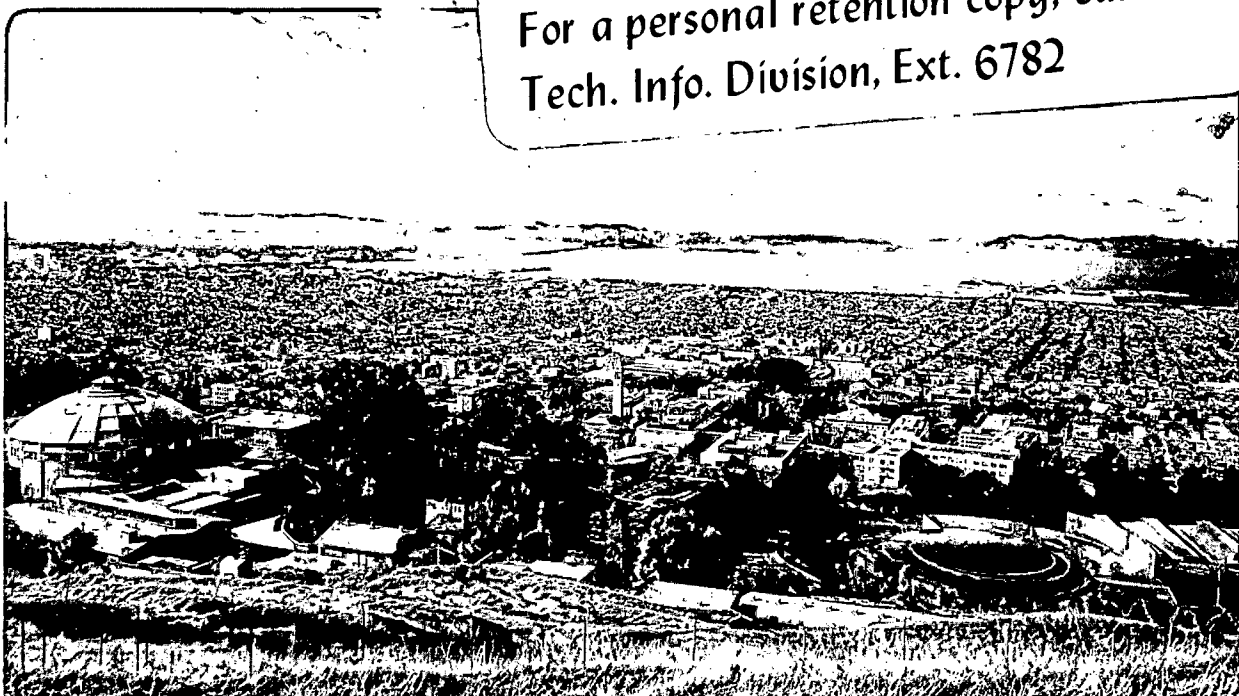
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June 1981

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LIST OF FISH AT A PROPOSED OTEC
SITE OFF KAHE POINT, HAWAII
DERIVED FROM COMMERCIAL FISH RECORDS, 1959 - 1978

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Prepared for the U.S. Department of Energy under Contract W-7405-ENG-48

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ABSTRACT

Fish species landed from an area encompassing a proposed Ocean Thermal Energy Conversion (OTEC) site off Kahe Point, Island of Oahu are presented. Over 50 species of fish representing 31 families recorded in twenty years of commercial fish landings are listed with their scientific local Hawaiian and common name.

INTRODUCTION

The fish species known to inhabit the offshore waters in the vicinity of a proposed Ocean Thermal Energy Conversion (OTEC) site are presented. The proposed Oahu site is located off the southwest coast of the Island of Oahu. The present environmental benchmark survey is at two stations located at $21^{\circ}19.5' N$, $158^{\circ}12.5' W$ (Station A) and $21^{\circ}23.5' N$, $158^{\circ}15.5' W$ (Station B). Station A is encompassed by the Hawaii Division of Fish and Game, Fishery Area 423 (Figure 1). Information on the occurrence of fish species in the area was derived from the commercial catch records of the Hawaii Division of Fish and Game from 1959 to 1978. A complete list of fish fauna from the Hawaiian Island Archipelago can be found in Gosline and Brock (1960) and in Tinker (1978).

COMMERCIAL FISH RECORD

A list of fish families and species landed from Area 423 appear phylogenetically in Table 1. In cases where the fish landings do not record the species, the family is listed in Table 1 with the number of species known from the Hawaiian Islands. For example, when Muraenids are landed, only the family is reported to the Fish and Game by the local fishermen, therefore, Table 1 lists the family with the number of species from Hawaii. Some synonymies are included to aid the reader.

The majority of reported fish landings are recorded by the local fishermen using the Hawaiian or colloquial names. Table 2 lists the common and local Hawaiian names of the fishes included in the faunal list (Table 1). Some Hawaiian names correspond to more than one specific taxa. In cases where the fish's local name is not specific an attempt has been made to list the possible corresponding species. Some fish have more than one Hawaiian name, which often refers to various life history stages. For example, young bigeye scad (Selar crumenophthalmus) are called hahalua and mature adults are called akule. The common names listed are those used by the Hawaiian Fish and Game.

All members of the subclass Elasmobranchii landed from Area 423 are recorded as mano, a local name applied to sharks. There are about twenty species of sharks reported from Hawaii (Gosline and Brock, 1960; Kato, Springer and Wagner, 1967; Tinker, 1978). Kato, Springer and Wagner (1967) provide a key to the sharks of Hawaii.

All species listed are native to Hawaii except the blue-lined snapper (Lutjanus kasmira). The blue-lined snapper was introduced into

Hawaiian waters in 1958 and again in 1961 (Tinker, 1978).

According to Gosline and Brock (1960) the occurrence of ocean moonfish, Lampris regius, is rare in the Hawaiian waters with only two records. The ocean moonfish closely resembles the Molids or ocean sunfishes which are frequently seen in Hawaii. The moonfish is recorded from the O'OTEC area in 14 of the 20 years examined.

CONCLUSION

From the area around the proposed O'OTEC site, over 50 species of fish from 31 families are represented in twenty years of commercial fish records examined. These species are listed with local Hawaiian and common names in Table 2.

ACKNOWLEDGMENT

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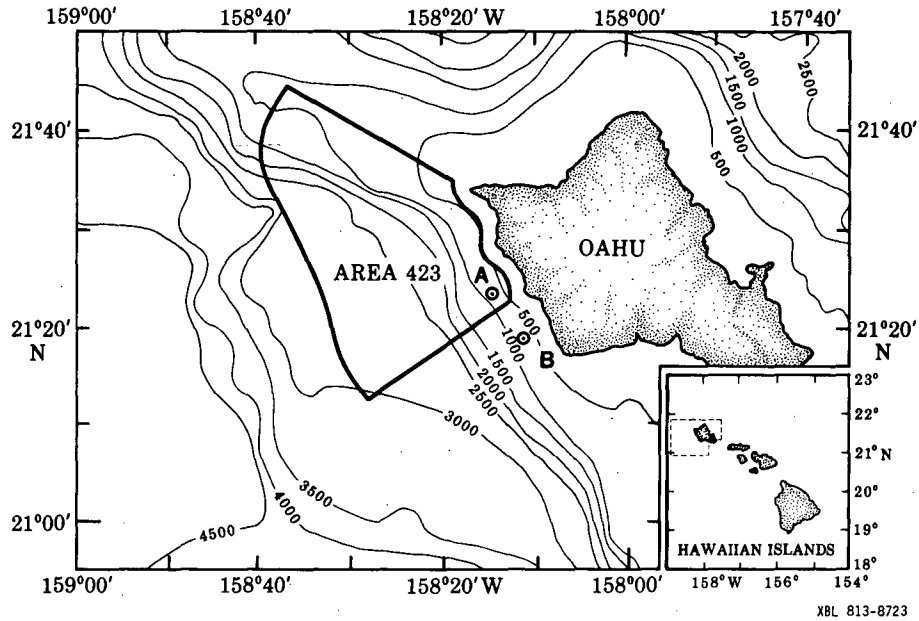


Figure 1. Location of Fishery Area 423 and O'ATEC station A (21°19.5'N 158°12.5'W) and station B (21°23.5'N 158°15.5'W) with 500 meter contour intervals (Adapted from Wilde *et al.*, 1980 and Hawaiian Division of Fish and Game, Fisheries Chart No. 2).

Table 1. List of the fish at the O'OTEC site as derived from Hawaiian Division of Fish and Game commercial fish records, 1959 - 1978.

<u>MAJOR TAXA</u>	<u>SPECIES</u>
ELASMOBRACHII [=CHONDRICHTHYES]	21 spp. ¹
ELOPIDAE	<u>Elops hawaiiensis</u>
ALBULIDAE	<u>Albula vulpes</u>
MURAENIDAE	34 spp. ¹
CONGRIDAE	<u>Conger cinereus</u> [= <u>C. marginatus</u>] ²
CLUPEIDAE [=DUSSUMIERIIDAE]	<u>Etrumeus micropus</u>
CHANIDAE	<u>Chanos chanos</u>
EXOCOETIDAE	13 spp.
BELONIDAE	3 spp
HOLOCENTRIDAE	15 spp. <u>Myripristis</u> spp.
LAMPRIDAE	<u>Lampris regius</u> ³ [= <u>L. guttatus</u>]
AULOSTOMIDAE	<u>Aulostomus chinensis</u>
SCORPAENIDAE	<u>Scorpanenopsis</u> spp.
SERRANIDAE	<u>Epinephelus quernus</u>
PRIACANTHIDAE	4 spp.
APOGONIDAE	<u>Apogon kallopterus</u> [= <u>A. synderi</u>]
CARANGIDAE	<u>Decapterus</u> spp. <u>Caranx melampygus</u> <u>Elagatis bipinnulatus</u> <u>Selar crumenophthalmus</u> [= <u>Trachrops crumenophthalmus</u>] <u>Seriola dumerili</u>

<u>MAJOR TAXA</u>	<u>SPECIES</u>
LUTJANIDAE	<u>Lutjanus kasmira</u> ⁴ <u>Pristipomoides sieboldii</u> <u>P. filamentosus</u> [= <u>P. microlepis</u>] <u>P. zonatus</u> [= <u>Rooseveltia brighami</u>] [= <u>Tropidinus zonatus</u> <u>Etelis carbunculus</u> [= <u>E. evurus</u>] <u>E. marshi</u> <u>Aprion virescens</u> <u>Aphareus rutilans</u>
SPARIDAE	<u>Monotaxis grandoculis</u>
MULLIDAE	<u>Parupeneus pleurostigma</u> <u>Mulloidichthys</u> spp. <u>P. porphyreus</u> <u>Mulloidichthys multifasciatus</u>
POMACENTRIDAE	<u>Abudefduf abdominalis</u>
SPHYRAENIDAE	<u>Sphyraena barracuda</u> <u>S. helleri</u>
POLYNEMIDAE	<u>Polydactylus sexfilis</u>
LABRIDAE	<u>Bodianus bilunulatus</u> [= <u>B. albotaeniatus</u>] <u>Xyrichthys pavo</u> [= <u>Iniistius pavoninus</u>] [= <u>Hemipteronotus pavoninus</u>]
SCARIDAE	12 spp.
ACANTHURIDAE	<u>Ctenochaetus strigosus</u> <u>Naso unicornis</u> <u>Acanthurus</u> spp. <u>A. dussumieri</u> <u>A. nigroris</u> <u>A. nigrofuscus</u> <u>A. leucopareius</u> <u>A. triostegus</u> [= <u>A. sandvicensis</u>] <u>A. olivaceus</u>
GEMPYLIDAE	<u>Ruvettus pretiosus</u>

<u>MAJOR TAXA</u>	<u>SPECIES</u>
SCOMBERIDAE	<u>Katsuwonus pelamis</u> [= <u>Euthynnus pelamiss</u>] <u>Thunnus albacares</u> [= <u>Neothunnus macropterus</u>] <u>T. obesus</u> [= <u>Parathunnus sibi</u>] <u>T. alalunga</u> <u>T. thynnus</u> [= <u>T. orientalis</u>] <u>Euthynnus affinis</u> [= <u>E. yaito</u>] [= <u>E. alletteratus</u>] <u>Acanthocybium solandri</u> <u>Scomber japonicus</u>
XIPHIDAE	<u>Xiphias gladius</u>
ISTIOPHORIDAE	5 spp. <u>Tetrapterus audax</u> [= <u>T. mitsukurii</u>] [= <u>Makaira audax</u>] <u>T. augustirostris</u> <u>Makaira nigricans</u> [= <u>M. ampla</u>] <u>Istiophorus platypterus</u> [= <u>I. orientalis</u>]
BALISTIDAE	19 spp.
MOLIDAE	3 spp.

¹The number of species known from Hawaii is cited when fish records do not differentiate between species in a taxa.

²Brackets enclose recent synonymies as an aid to the reader.

³This rare species closely resembles frequently seen Molids or ocean moonfishes.

⁴Introduced species, see text for dates and reference.

Table 2. List of local and common names of fish caught commercially at the O'OTEC site.

<u>MAJOR TAXA</u>	<u>SPECIES NAME</u>	<u>LOCAL NAME</u>	<u>COMMON NAME</u>
ELASMOBRACHII [=CHONDRICHTHYES]	21 spp. ¹	Mano	Shark
ELOPIDAE	<u>Elops hawaiiensis</u>	Awa'awa	Ten pounder
ALBULIDAE	<u>Albula vulpes</u>	'O'io	Bone fish
MURAENIDAE	34 spp. ¹	Puhi	Eel
CONGRIDAE	<u>Conger cinereus</u> [=C. <u>marginatus</u>] ²	Puhi	White eel
CLUPEIDAE [=DUSSUMIERIIDAE]	<u>Etrumeus micropus</u>	Makiawa	Sardine
CHANIDAE	<u>Chanos chanos</u>	Awa	Milk fish
EXOCOETIDAE	13 spp.	Malolo	Flying fish
BELONIDAE	3 spp.	'Aha'aha	Needle fish
HOLOCENTRIDAE	15 spp. 15 spp. <u>Myripristis amaenus</u> ³ [=M. <u>argyromus</u>] <u>M. berndti</u> ³ [=M. <u>murdjan</u>] <u>M. kuntee</u> ³ [=M. <u>chryseres</u>] [=M. <u>multiradiata</u>]	Alaihi Uukanipo 'Uu 'Uu 'Uu	Squirrel fish Squirrel fish Squirrel fish Squirrel fish Squirrel fish
LAMPRIDAE	<u>Lampris regius</u> ⁴ [=L. <u>guttatus</u>]	Opah	Ocean moonfish
AULOSTOMIDAE	<u>Aulostomus chinensis</u>	Nunu	Stick fish
SCORPAENIDAE	<u>Scorpanenopsis diabolus</u> ³ [=S. <u>gibbosa</u>] <u>S. cacopsis</u> ³	Nohu Nohu	Scorpion fish Scorpion fish
SERRANIDAE	<u>Epinephelus quernus</u>	Hapu'upu'u	Sea bass
PRIACANTHIDAE	4 spp.	Aweoweo	Red bigeye
APOGONIDAE	<u>Apogon kallopterus</u> [=A. <u>synderi</u>]	'Upa palu	Cardinal fish

Table 2 continued

<u>MAJOR TAXA</u>	<u>SPECIES NAME</u>	<u>LOCAL NAME</u>	<u>COMMON NAME</u>
CARANGIDAE	<u>Decapterus maruadsi</u> ³	'Opelu	Mackerel scad
	<u>D. macarellus</u> ³	'Opelu	Mackerel scad
	[= <u>D. pinnulatus</u>]		
	<u>Caranx melampygus</u>	Omilu	Blue crevally
	<u>Elagatis bipinnulatus</u>	Kamano	Rainbow runner
	<u>Selar crumenophthalmus</u>	Akule (hahalau)	Bigeye scad
	[= <u>Trachrops crumenophthalmus</u>]		
	<u>Seriola dumerili</u>	Kahala	Amberjack
LUTJANIDAE	<u>Lutjanus kasmira</u> ⁵	Taape	Snapper
	<u>Pristipomoides sieboldii</u>	Kalikali	Pink snapper
	<u>P. filamentosus</u>	Opakapaka	Pink snapper
	[= <u>P. microlepis</u>]		
	<u>P. zonatus</u>	Ukikiki	Snapper
	[= <u>Rooseveltia brighami</u>]		
	[= <u>Tropidinus zonitus</u>]		
	<u>Etelis carbunculus</u>	Ulaula koe (Onaga)	Red snapper
[= <u>E. evurus</u>]			
<u>E. marshi</u>	Ulaula, ehu	Red snapper	
<u>Aprion virescens</u>	Uku	Gray snapper	
<u>Aphareus rutilans</u>	Lehi	Snapper	
SPARIDAE	<u>Monotaxis grandoculis</u>	Mu	Porgy
MULLIDAE	<u>Parupeneus pleurostigma</u>	Malu	Goat fish
	<u>P. porphyreus</u>	Kumu	Red goat fish
	<u>Mulloidichthys</u> spp.	Weke	Goat fish
	<u>Mulloidichthys multifasciatus</u>	Moana	Goat fish
	<u>M. vanicolensis</u> ³	Weke ulua	Red goat fish
	[= <u>M. auriflamma</u>]		
	<u>M. pflugeri</u> ³	Weke ulua	Red goat fish
POMACENTRIDAE	<u>Abudefduf abdominalis</u>	Maomao	Damsel fish
SPHYRAENIDAE	<u>Sphyræna barracuda</u>	Kaku	Barracuda
	<u>S. helleri</u>	Kawelea	Japanese barracuda
POLYNEMIDAE	<u>Polydactylus sexfilis</u>	Moi	Thread-fin
LABRIDAE	<u>Bodianus bilunulatus</u>	Aawa	Spot wrasse
	[= <u>B. albotaeniatus</u>]		
	<u>Xyrichtys pavo</u>	Laenihi	Razor fish
	[= <u>Iniistius pavoninus</u>]		
	[= <u>Hemipteronotus pavoninus</u>]		
SCARIDAE	12 spp.	Panunu	Parrot fish
	12 spp.	Uhu	Parrot fish

Table 2 continued

<u>MAJOR TAXA</u>	<u>SPECIES NAME</u>	<u>LOCAL NAME</u>	<u>COMMON NAME</u>
ACANTHURIDAE	<u>Ctenochaetus strigosus</u>	Kole	Surgeon fish
	<u>Naso unicornis</u>	Kalu	Surgeon fish
	<u>Acanthurus xanthopterus</u> ³	Pualu	Surgeon fish
	<u>A. mata</u> ³	Pualu	Surgeon fish
	<u>A. dussumieri</u>	Palani	Surgeon fish
	<u>A. nigroris</u>	Maiko	Surgeon fish
	<u>A. nigrofuscus</u>	Maii	Surgeon fish
	<u>A. leucopareus</u>	Maikoiko	Surgeon fish
	<u>A. triostegus</u>	Manini	Convict tang
	[= <u>A. sandvicensis</u>]		
	<u>A. olivaceus</u>	Naenae	Olive surgeon
	GEMPYLIDAE	<u>Ruvettus pretiosus</u>	Walu
SCOMBERIDAE	<u>Katsuwonus pelamis</u>	Aku	Skipjack tuna
	[= <u>Euthynnus pelamis</u>]		
	<u>Thunnus albacares</u>	Ahi	Yellowfin tuna
	[= <u>Neothunnus macropterus</u>]		
	<u>T. obesus</u>	Ahi	Bigeye tuna
	[= <u>Parathunnus sibi</u>]		
	<u>T. alalunga</u>	Ahi pacala	Albacore
	<u>T. thynnus</u>	Ahi	Bluefin tuna
	[= <u>T. orientalis</u>]		
	<u>Euthynnus affinis</u>	Kawakawa	Little tuna
	[= <u>E. yaito</u>]		
[= <u>E. alletteratus</u>]			
<u>Acanthocybium solandri</u>	Ono	Wahoo	
<u>Scomber japonicus</u>	Saba	Japanese mackerel	

Table 2 continued

<u>MAJOR TAXA</u>	<u>SPECIES NAME</u>	<u>LOCAL NAME</u>	<u>COMMON NAME</u>
XIPHIDAE	<u>Xiphias gladius</u>	A'u	Broadbill
ISTIOPHORIDAE	<u>Tetrapterus audax</u> [=T. mitsukurii] [=Makaira audax]	A'u	Stripped marlin
	<u>T. augustirostris</u>	A'u	Short-nosed marlin
	<u>Makaira nigricans</u> [=M. ampla]	A'u	Pacific blue marlin
	<u>Istiophorus platypterus</u> [=I. orientalis]	A'u lepe	Sail fish
BALISTIDAE	19 spp.	Humuhumu	Trigger fish
MOLIDAE	3 spp.	Mola mola	Ocean sunfish

¹The number of species known from Hawaii is cited when fish records do not differentiate between species in a taxa.

²Brackets enclose recent synonymies as an aid to the reader.

³Closely related species with same local Hawaiian name.

⁴This rare species closely resembles frequently seen Molids or ocean sunfishes.

⁵Introduced species, see text for dates and reference.

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