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EFH/HAPC Designations for Fishery Management Units Covered Under the Bottomfish, Crustacean, Pelagic, Precious Corals and Coral Reef Ecosystem Fishery Management Plans

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Background

Essential Fish Habitat (EFH) is defined in the Magnuson Stevens Conservation and Management Act of 1976 (M-S Act) as "all waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." Based on the guidelines established by the Secretary of Commerce under section 305(b)(1)(A) of the M-S Act, Regional Fishery Management Councils are directed to describe and identify EFH for each federally managed species, minimize to the extent practicable adverse effects on such habitat caused by fishing and non-fishing activities, and identify other actions to encourage the conservation and enhancement of such habitat The M-S Act also requires that the designation of EFH be based on the best available scientific information.

Introduction

The National Marine Fisheries Service (NMFS) guidelines intended to assist Councils in implementing the EFH provision of the Magnuson-Stevens Act set forth the following four broad tasks:

- Identify and describe EFH for all species managed under an FMP;
- Describe adverse impacts to EFH from fishing activities;
- Describe adverse impacts to EFH from non-fishing activities; and
- Recommend conservation and enhancement measures to minimize and mitigate the adverse impacts to EFH resulting from fishing and non-fishing related activities

The guidelines suggest that each Council prepare a preliminary inventory of available environmental and fisheries information on managed species. Such an inventory is useful in describing and identifying EFH, as it also helps to identify missing information about the habitat utilization patterns of particular species. The guidelines note that a wide range of basic information is needed to identify EFH. This includes data on current and historic stock size, the geographic range of the managed species, the habitat requirements by life history stage and the distribution and characteristics of those habitats. Since EFH has to be identified for each major life history stage, information about a species' distribution, density, growth, mortality and production within all the habitats it occupies, or formerly occupied, is also necessary.

The guidelines state that the quality of available data used to identify EFH should be rated using the following four-level system:

Level 1:	All that is known is where a species occurs based on distribution data for all or part of the geographic range of the species.
Level 2:	Data on habitat-related densities or relative abundance of the species are available.
Level 3:	Data on growth, reproduction or survival rates within habitats are available.
Level 4:	Production rates by habitat are available.

Sustainable Fisheries Act Amendment

For western Pacific fisheries, the EFH requirement was done through the omnibus Sustainable Fisheries Act (SFA) amendment which amended all four of the Council's active FMPs. The amendment also included provisions regarding bycatch, fishing sectors, fishing communities and overfishing. The amendment compiled the best available scientific information for each of these new provisions and incorporated the information directly or by reference into the Western Pacific Regional Fishery Management Council's (Council) FMPs as:

(1) Amendment 6 to the Bottomfish and Seamount Groundfish Fisheries Management Plan;
(2) Amendment 8 to the Pelagic Fisheries Management Plan;
(3) Amendment 10 to the Crustaceans Fisheries Management Plan and;
(4) Amendment 4 to the Precious Corals Fisheries Management Plan

In designating EFH for management unit species (MUS), the Council considered four alternatives which included (1) no action, (2) narrow designation of EFH (3) broad designation of EFH (4) Designate EFH based on observed habitat utilization patterns in localized areas (*preferred alternative).*

The Council used the best available scientific information to describe EFH that provide information on the biological requirements for each life stage (egg, larvae, juvenile, adult) of all MUS . Careful judgement was used in determining the extent of the essential fish habitat that should be designated to ensure that sufficient habitat in good condition is available to maintain a sustainable fishery and the managed species' contribution to a healthy ecosystem.

This information was obtained through an iterative process consisting of a series of public meetings of the Council, SSC, FMP teams and fishing industry advisory panels. In addition, the Council worked in close cooperation with scientists in the NMFS Southwest Fisheries Service Center, Honolulu Laboratory, PIAO and Southwest Regional Office.

In addition to EFH, the Council identified habitat areas of particular concern (HAPCs) within EFH for all FMPs. In determining whether a type or area of EFH should be designated as a HAPC, the area had to meet one or more of the following criteria: ecological function provided by the habitat is important; habitat is sensitive to human-induced environmental degradation; development activities are or will be stressing the habitat type; or habitat type is rare.

The Council's omnibus SFA amendment was published in the Federal Register on November 5, 1998 and was approved by the Secretary on February 3, 1999. Due to the are large gaps in scientific knowledge about the life histories and habitat requirements of many MUS in the western Pacific region, the Council designated EFH based on observed habitat utilization patterns in localized areas. The Council also identified EFH research needs for each fishery in order to gather the data necessary to refine these EFH designations. As higher quality data becomes available, the Council will be able to identify those habitats most highly valued by a species, thus allowing for a more precise designation of EFH.

The following table summarizes the approved EFH designations for each life stage of federally managed species.

Table 1. EFH and HAPC Designations for Western Pacific Fishery Management Units

FMP	EFH	HAPC	Species Complexes
Bottomfish	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 400 m (200 fathoms). **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 400 m (200 fathoms)	**All slopes and escarpments between 40-280 m (20 and 140 fathoms**). **Three known areas of juvenile opakapaka habitat:** Two locations are off Oahu and one location is off Molokai in waters 40-73 m	**Bottomfish Complex** **Shallow water species (0-50 fm):** Uku (*Aprion virescens*), Thicklip trevally (*Pseudocaranx dentex*), Lunartail grouper (*Variola louti*), Blacktip grouper (*Epinephelus fasciatus*), Ambon emperor (*Lethrinus amboinensis*), Redgill emperor (*Lethrinus rubrioperculatus*), Giant trevally (*Caranx ignoblis*), Black trevally (*Caranx lugubris*), Amberjack (*Seriola dumerili*), Taape (*Lutjanus kasmira*) **Deep water species 50-200 fm):** Ehu (*Etelis carbunculus*), Onaga (*Etelis coruscans*), Opakapaka (*Pristipomoides filamentosus*), Yellowtail Kalekale (*P. auricilla*), Yelloweye opakapaka (*P. flavipinnis*), Kalekale (*P. sieboldii*), Gindai (*P. zonatus*), Hapupuu (*Epinephelus quernus*), Lehi (*Aphareus rutilans*)
Seamount Groundfish	**Eggs and larvae:** the (epipelagic zone) water column down to a depth of 200 m (100 fathoms) of all EEZ waters bounded by lattitude 29°-35° **Juvenile/adults:** all EEZ waters and bottom habitat bounded by latitude 29°-35° N and longitude 171° E-179° W between 200 and 600 m (100 and 300 fathoms		**Seamount Groundfish Complex** **Deep water species (50-200 fm):** Armorhead (*Pseudopentaceros richardsoni*), Ratfish/butterfish (*Hyperoglyphe japonica*), Alfonsin (*Beryx splendens*)

FMP	EFH	HAPC	Species Complexes
Pelagics	**Eggs and larvae:** the (epipelagic zone) water column down to a depth of 200 m (100 fathoms) from the shoreline to the outer limit of the EEZ. **Juvenile/adults:** the water column down to a depth of 1,000 m (500 fathoms) from the shoreline to the outer limit of the EEZ.	**The water column from the surface down to a depth of 1,000 m (500 fathoms) above all seamounts and banks with summits shallower than 2,000 m (1,000 fathoms) within the EEZ**.	**Temperate species** Striped Marlin (*Tetrapurus audax*); Bluefin Tuna (*Thunnus thynnus*); Swordfish (*Xiphias gladius*); Albacore (*Thunnus alalunga*); Mackeral (*Scomber* spp); Bigeye (*Thunnus obesus*); Pomfret (family Bramidae **Tropical species** Yellowfin (*Thunnus albacares*); Kawakawa (*Euthynnus affinis*); Skipjack (*Katsuwonus pelamis*); Frigate and bullet tunas (*Auxis thazard*, *A. rochei*); Blue marlin (*Makaira nigricans*); Slender tunas (*Allothunnus fallai*); Black marlin (*Makaira indica*); Dogtooth tuna (*Gymnosarda unicolor*); Spearfish (*Tetrapturus spp*); Sailfish (*Istiophorus platypterus*); Mahimahi (*Coryphaena hippurus, C. equiselas*); Ono (*Acanthocybium solandri*); Opah (*Lampris* sp) **Sharks** (non-coral reef associated sharks) Requiem sharks (family Carcharinidae); Thresher sharks (family Alopiidae); Mackeral sharks (family Lamnidae); Hammerheads sharks (family Sphyrnidae)

FMP	EFH	HAPC	Species Complexes
Crustaceans	**Eggs and larvae:** the water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (75 fathoms) **Juvenile/adults:** the all bottom habitat from the shoreline to a depth of 100 m (50 fathoms)	**All banks in the NWHI with summits less than or equal to 30 m (15 fathoms) from the surface.**	**Spiny and Slipper Lobster Complex** Hawaiian spiny lobster (*Panulirus marginatus*), Spiny lobster (*P. penicillatus*), Slipper lobster (family *Scyllaridae*) **Kona Crab** Kona crab (*Ranina ranina*)
Precious Corals	EFH for Precious Corals is confined to six known precious coral beds located off Keahole Point, Makapuu, Kaena Point, Wespac bed, Brooks Bank and 180 Fathom Bank. EFH has also been designated for three beds known for black corals in the Main Hawaiian Islands between Milolii and South Point on the Big Island, the Auau Channel and the southern border of Kauai	**Includes the Makapuu bed, Wespac bed, Brooks Banks bed.** **For Black Corals, the Auau Channel has been identified as a HAPC.**	**Deep-water Precious Corals (150-750 fm)** Pink coral (*Corallium secundum*), Red coral (*C. regale*), Pink coral (*C. laauense*), Midway deepsea coral (*C.* sp nov.), Gold coral (*Gerardia* sp), Gold coral (*Callogorgia gilberti*), Gold coral (*Narella* spp.), Gold coral (*Calyptrophora* spp.), Bamboo coral (*Lepidisis olapa*), Bamboo coral (*Acanella* spp.) **Shallow-water Precious Corals (10-50 fm)** Black coral (*Antipathes dichotoma*), Black coral (*Antipathis grandis*), Black coral (*Antipathes ulex*)
****Coral Reef Ecosystem***	EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 50 fathoms from the shoreline to the outer limit of the EEZ	**Includes all no-take MPAs identified in the CRE-FMP, all Pacific remote islands, as well as numerous existing MPAs, research sites and coral reef habitat throughout the western Pacific region.** *(See table below).*	*For a complete listing of all CRE-MUS and EFH/HAPC, see CRE FMP volume III: Description of Essential Fish Habitat for Coral Reef Ecosystem Management Unit Species* visit: www.wpcouncil.org/coralreef.htm

***** Coral Reef Ecosystem FMP Management Unit Species (MUS) include virtually all of the organisms that inhabit the coral reef ecosystem including bony fishes, rays, invertebrates, corals, algae and other sessile benthos.

Coral Reef Ecosystem Habitat Areas of Particular Concern

	Rarity of Habitat	Ecological function	Susceptibility to Human Impact	Likelihood of Developmental Impacts	Existing Protective Status
NWHI					
All substrate 0-10 fm	x	x	x		x
Laysan*:* All substrate 0-50 fm	x	x			
Midway*:* All substrate 0-50 fm	x	x	x		x
FFS*:* All substrate 0-50 fm	x	x	x	x	
Main Hawaiian Islands					
Kaula Rock (entire bank)		x	x		x
Niihau (Lehua Island)	x	x	x		
Kauai (Kaliu Point)		x	x		
Oahu					
Pupukea (MLCD)		x	x	x	x
Shark's Cove (MLCD)			x	x	x
Waikiki (MLCD)			x	x	x
Makapuu Head/Tide Pool Reef Area		x	x	x	
Kaneohe Bay	x	x	x	x	
Kaena Point		x	x		
Kahe Reef		x	x		
Maui					
Molokini	x	x	x	x	x
Olowalo Reef Area		x	x	x	
Honolua-Mokuleia Bay (MLCD)		x	x		x
Ahihiki Kinau Natural Area Reserve	x	x	x		x
Molokai (south shore reefs)		x	x		

Coral Reef Ecosystem Habitat Areas of Particular Concern (cont.).

	Rarity of Habitat	Ecological function	Susceptibility to Human Impact	Likelihood of Developmental Impacts	Existing Protective Status
Main Hawaiian Is. (cont.)					
Lanai					
Halope Bay		x	x		
Manele Bay		x	x	x	
Five Needles		x	x		
Hawaii					
Lapakahi Bay State Park (MLCD)		x	x		x
Pauko Bay and Reef (MLCD)		x	x		x
Kealakekua		x	x		x
Waialea Bay (MLCD)	x	x	x		x
Kawaihae Harbor-Old Kona Airport (MLCD)		x	x		x
Additional Areas					
All long-term research sites		x	x		
All CRAMP sites		x	x		
American Samoa					
Fagatele Bay	x	x			x
Larsen Bay		x	x	x	
Steps Point		x	x		
Pago Pago (North Coast of Tutuila), National Park of American Samoa	x	x	x		x
Aunuu Island	x	x	x	x	
Rose Atoll	x	x			x
South coast Ofu (marine areas)	x	x	x	x	
Aua Transect- Pago Pago harbor, oldest coral reef transect	x	x	x	x	
Tau Island	x	x	x		

Coral Reef Ecosystem Habitat Areas of Particular Concern (cont.).

	Rarity of Habitat	Ecological function	Susceptibility to Human Impact	Likelihood of Developmental Impacts	Existing Protective Status
Guam					
Cocos Lagoon	x	x	x		
Orote Point Ecological Reserve Area	x	x	x	x	x
Haputo Point Ecological Reserve Area	x	x			x
Ritidian Point	x	x			x
Jade Shoals	x	x	x		
CMNI					
Saipan (Saipan Lagoon)	x	x	x	x	
US Pacific Remote Islands					
Wake Atoll	x	x			x
Johnston Atoll	x	x		x	x
Palmyra Atoll	x	x	x		x
Kingman Reef	x	x	x		x
Howland Island	x	x			x
Baker Island	x	x			x
Jarvis Island	x	x			x