

Summary of the Alternatives in the Groundfish Essential Fish Habitat DEIS

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Description of the Alternatives

Alternatives to Identify and Describe EFH

Alternative 1: No Action

The no action alternative would maintain the current EFH identification and description, incorporated into the groundfish FMP by Amendment 11 in 1998. The more than 80 groundfish species in the management unit occupy diverse habitats at all stages in their life histories. As a consequence of the large number of groundfish fishery management unit (FMU) species and their diverse habitat associations, when all the individual EFHs are taken together, all waters from the mean higher high water line, and the upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon, and California to the seaward boundary to the U.S. EEZ become EFH.

The FMP groups the various EFH descriptions into seven units called composite EFHs. This approach focuses on ecological relationships among species and between the species and their habitat, reflecting an ecosystem approach in defining EFH. Seven major habitat types are proposed as the basis for such assemblages or composites. These major habitat types are readily recognizable by those who potentially may be required to consult about impacts to EFH, and their distributions are relatively stationary and measurable over time and space. The seven composite areas identified as EFH are as: Estuarine; Rocky Shelf; Nonrocky Shelf; Canyon; Continental Slope/Basin; Neritic Zone; and, Oceanic Zone. Because it designates the entire EEZ including areas shoreward to the mean higher high water line, this alternative encompasses the largest area, 317,690 square miles.

✓ **Alternative A.2: Depths less than 3,500 m (Preliminary Preferred Alternative)**

In this alternative, EFH would be identified as 100% of the area where Habitat Suitability Probability (HSP) is greater than zero for all species and any additional area in depths less than or equal to 3,500 m (1,914 fm). HSP refers to the probability that the habitat is suitable for a managed species. This alternative would designate 187,741 square miles in the EEZ, and to the mean higher high water line and upriver extent of salt water, as EFH. By including areas out to the 3500 m depth curve, this alternative includes all habitats where groundfish have been observed with the addition of 100 m depth as a precautionary adjustment in case of unobserved species.

✓ **Alternative A.3: 100% HSP Area (Preliminary Preferred Alternative)**

Designate 100% of the area where HSP is greater than zero for all species. HSP refers to the probability that the habitat is suitable for a managed species. This alternative would designate 87,160 square miles as EFH, all of it within the area that would be designated by Alternative A.2.

Alternative A.4: HSP Based on Management Status

Designate the upper 90% of the HSP area of overfished species HSP, upper 80% of the HSP area for precautionary zone species, and upper 60% of the HSP area for all other groundfish, and all seamounts. HSP refers to the probability that the habitat is suitable for a managed species. The alternative would designate 79,481 square miles as EFH, most of which falls within the area described by the previous alternatives, with the addition of some deeper areas around seamounts

Alternative A.5: 70% HSP Area

Designate the upper 70% of the area where HSP is greater than zero. HSP refers to the probability that the habitat is suitable for a managed species. The alternative would designate 78,569 square miles as EFH, all of which falls within the area described by alternatives A.1, A.2, and A.3.

Alternative A.6: 30% HSP Area

Designate the upper 30% of the area where HSP is greater than zero for all species. HSP refers to the probability that the habitat is suitable for a managed species. The alternative would designate 66,589 square miles as EFH, all of which falls within the area described by the previous alternatives.

Alternatives to Designate HAPC

Alternative B.1: No Action

No HAPCs are currently designated for groundfish. Choosing this alternative would maintain no HAPC designations.

✓ Alternative B.2: Estuaries (Preliminary Preferred Alternative)

Estuaries are protected nearshore areas such as bays, sounds, inlets, and river mouths, influenced by ocean and freshwater. GIS data on West Coast estuaries were derived primarily from the USFWS' National Wetlands Inventory (NWI). Where digital data for the NWI were unavailable, data from NOAA's Coastal Assessment Framework were used.

✓ Alternative B.3: Canopy Kelp (Preliminary Preferred Alternative)

Areas where kelp has been documented and mapped would be designated as HAOC. GIS data for the floating kelp species, *Macrocystis* spp. and *Nereocystis* sp., are available from state agencies in Washington, Oregon, and California. These data have been compiled into a comprehensive data layer delineating kelp beds along the West Coast. Because kelp abundance and distribution is highly variable, these data do not necessarily represent current conditions. However, data from multiple years were compiled together with the assumption that these data would indicate areas where kelp has been known to occur.

✓ Alternative B.4: Seagrass (Preliminary Preferred Alternative)

Seagrass species found on the West Coast of the U.S. include eelgrass (*Zostera* spp., *Ruppia* sp.) and surfgrass (*Phyllospadix* spp.). These grasses are vascular plants, not seaweeds, forming dense beds of leafy shoots year-round in the lower intertidal and subtidal areas. Eelgrass is found on soft-bottom substrates in intertidal and shallow subtidal areas of estuaries. Surfgrass is found on hard-bottom substrates along higher energy coasts.

Alternative B.5: Core Habitat

This alternative designates core areas, defined as the upper 10% of area with an HSP greater than 0%, for the juvenile and adult life history stages of overfished and precautionary zone groundfish species. HSP refers to the probability that the habitat is suitable for a managed species.

✓ **Alternative B.6: Rocky Reefs (Preliminary Preferred Alternative)**

This alternative designates all rocky reef areas. Rocky habitat may be composed of bedrock, boulders, or smaller rocks such as cobble and gravel.

Alternative B.7: Areas of Interest

This alternative would designate areas that are of special interest due to their unique geological and ecological characteristics. The areas are: the northern portion of the northwest Olympic Coast National Marine Sanctuary (NMS), Grays Canyon, Astoria Canyon, Thompson Seamount, Daisy Bank, Heceta Bank, President Jackson Seamount, Rogue Canyon, Eel River Canyon, Mendocino Canyon, Gorda Escarpment, Cordell Bank, Gumdrop Seamount, Pioneer Seamount, Guide Seamount, Monterey Canyon, Monterey Bay, Taney Seamount, Davidson Seamount, Morro Ridge, San Juan Seamount, and the Cowcod Conservation Area(s). The Council could choose any combination of these areas as part of a preferred alternative.

Alternative B.8: Oil Production Platforms

This alternative designates areas around oil production platforms in Southern California waters. According to a report submitted to the Council by the California Artificial Reef Enhancement Program (CARE 2004), currently there are 27 such platforms remaining out of the 34 constructed since the late 1950s. Twenty-three of these are in federal waters and four are in California state waters.

Alternative B.9: Process for New HAPC Designations

This alternative establishes a streamlined process for designating new HAPCs, based on proposals submitted to the Council. The process would allow organizations and individuals to petition the Council at any time to consider a new designation and ensures, provided they submit a complete package as described below, that the Council will consider their proposal.

Alternatives to Minimize Adverse Impacts to EFH

Alternative C.1: No Action

There is a broad range of regulatory measures in effect on the West Coast, including areas that are closed to fishing or non-fishing activities, fishing gear restrictions, and measures to reduce fishing effort that may have a beneficial effect on EFH.

Alternative C.2: Depth-based Gear-specific Restrictions

This alternative contains three options closing waters shoreward of specific depth contours to large footrope trawl gear and fixed gear. The footrope runs along the bottom of the net opening and its size is regulated to dictate the maximum size of rollers that can be affixed to the footrope. Without larger footrope gear, bottom trawl nets snag more easily on rough, irregular terrain; thus restrictions on footrope size discourage fishing in rocky areas.

This alternative has three options:

Option C.2.1: Large footrope prohibited inside 200 fm, fixed gear inside 100/150 fm

Prohibit the use of large footrope trawl gear shoreward of 200 fm and prohibit all fixed gear shoreward of 100 fm north of 40°10' N latitude and 150 fm south of 40°10' N latitude.

Option C.2.2: Large footrope prohibited in EEZ, fixed gear inside 100/150 fm

Prohibit the use of large footrope trawl gear throughout the EEZ and prohibit all fixed gear shoreward of 100 fm north of 40°10' N latitude and 150 fm south of 40°10' N latitude.

Option C.2.3: Large footrope prohibited inside 200 fm, fixed gear inside 60 fm

Prohibit the use of large footrope trawl gear shoreward of 200 fm and prohibit all fixed gear shoreward of 60 fm coastwide.

Alternative C.3: Close Sensitive Habitat

Area closures are defined using these gear and habitat specific sensitivity and recovery index values. Habitat areas above index value thresholds for any gear type, as specified in the following options, are closed to all fishing. This alternative has four options:

Option C.3.1: Close areas where $S \geq 2$ and $R \geq 1$ with trawl effort adjustment

For each gear type, those areas where the sensitivity index value is greater than or equal to two and the recovery index value is greater than one are identified. The combined area is then screened to include only the area where the cumulative number of hours trawled from 2000 through 2002 is less than 100 hours. The resulting areas are closed to all fishing (i.e., to all gear types).

Option C.3.2: Close areas where $S \geq 0.5$ and $R \geq 0.5$ with trawl effort adjustment

For each gear type, those areas where both the sensitivity and recovery index values are greater than or equal to 0.5 are identified. The combined area is then screened to include only the area where the cumulative number of hours trawled from 2000 through 2002 is less than 100 hours. The resulting areas are closed to all fishing (i.e., to all gear types).

Option C.3.3: Close areas where $S \geq 2$ and $R \geq 1$ without trawl effort adjustment

The same as Option 1 except no adjustment is made for trawl effort.

Option C.3.4: Close areas where $S \geq 0.5$ and $R \geq 0.5$ with trawl effort adjustment

The same as Option 2 except no adjustment is made for trawl effort.

✓ Alternative C.4: Prohibit the Geographic Expansion of Fishing (Preliminary Preferred Alternative)

Under this alternative, areas that have not been fished recently (2000-2002) would be closed to fishing to protect areas that are potentially pristine. This alternative has two options:

- ✓ Option C.4.1: Prohibit expansion of trawl fishing

Trawl fisheries would be prohibited from fishing in areas that were untrawled during 2000-2002.

- ✓ Option C.4.2: Prohibit expansion of all bottom-tending gear

Apply the expansion limit to all bottom-tending gear types. The closure would extend west from a line approximating the 2,000 m (1,094 fm) depth contour to the seaward margin of the EEZ.

Alternative C.5: Prohibit a Krill Fishery

This alternative would designate krill as a component of EFH as part of this EIS and prohibit fisheries that target it.

Alternative C.6: Close Hotspots

This alternative prohibits trawling in hotspot areas, where—in this case—hotspots are defined as habitat that has high probability of being EFH for a large number of groundfish. Areas that are associated with 50 or more species/lifestage combinations would be closed to bottom trawling.

Alternative C.7: Close Areas of Interest

This alternative closes any combination of the areas of interest HAPCs designated under Alternative B.7 to fishing by specified gear types. (The 21 areas of interest listed under Alternative B.7 are underwater features, such as seamounts and submarine areas, or are currently under some form of protection.) Closures affect the following activities:

Option C.7.1: Close areas of interest to bottom trawling.

Option C.7.2: Close areas of interest to all bottom-contacting fishing activities.

Alternative C.8: Zoning Fishing Activities

Under this alternative NMFS limits the use of bottom-tending fishing gear to specified zones where the agency determines that such activities can be conducted without altering or destroying a significant amount of habitat. First, all areas deeper than the 2,000 m (1,094 fm) contour along the continental slope extending to the maximum westward range of groundfish EFH are closed to certain bottom-tending fishing gear types, according to the options described below. Second, a five-year transition period to gear specific zones is established for the remaining area inside the 2,000 m contour, which remains open to these activities, subject to any other restrictions, for the five years from implementation (e.g., 2007-2011). Third, during this five-year period, NMFS conducts the research necessary to delineate zones where specified fishing activities would be permitted. At the end of the five-year transition period, the gear-specific zones come into effect and any remaining unzoned area is closed to affected gear types, according to the options described below. (Restrictions applied outside 2,000 m remain in effect.)

In identifying fishing zones, NMFS must demonstrate that any unavoidable adverse impacts would be minimal and temporary, based on the best scientific information available.

Option C.8.1: Zoning for mobile bottom-contacting gear

Fishing zones are established for bottom-contact trawls, dredges, and similar bottom-tending mobile fishing gear. Other bottom-contacting gear types are unaffected by the zoning system, including the prohibition outside 2,000 m.

Option C.8.2: Zoning for all bottom-contacting gear

Fishing zones are established for all bottom-contacting gear types, including bottom longlines, traps, and pots. The immediate closure outside of 2,000 m applies to all bottom-contacting gear types.

In addition to establishing the zoning system, NMFS will conduct a gear substitution and modification research program, intended to redesign bottom fishing gear to reduce damage to habitat. This program will have a significant cooperative research element by employing fishermen in the design and testing of new gear.

The zoning system will be regularly modified to incorporate new information about habitat sensitivity and recovery factors, gear impacts on habitat, and to accommodate use of newly developed or modified gear.

✓ **Alternative C.9: Gear Restrictions (Preliminary Preferred Alternative)**

This alternative includes specific gear modifications and prohibitions that are based on that interaction. Under this alternative the following gear restrictions would be implemented in areas identified as EFH for groundfish:

- ✓ C.9.1: Prohibit roller gear larger than 15 inches on bottom trawls.
- ✓ C.9.2: Prohibit the use of flat trawl doors (i.e., require cambered doors).
- ✓ C.9.3: Limit the length of a single longline groundline to 3 nm.
- ✓ C.9.4: Employ habitat-friendly anchoring system.
- ✓ C.9.5: Prohibit dredge gear.
- ✓ C.9.6: Prohibit beam-trawl gear.
- ✓ C.9.7: Prohibit set-gillnets in waters deeper than 60 fm.
- ✓ C.9.8: Prohibit dingle bar gear (troll groundfish gear).

✓ **Alternative C.10: Central California No-trawl Zones (Preliminary Preferred Alternative)**

This alternative is based on a project being undertaken by two environmental advocacy organizations, The Nature Conservancy (TNC) and Environmental Defense Fund (EDF). and involves a public-private partnership under which private funds are used to purchase groundfish limited entry trawl licenses and vessels in concert with the designation, through the Council and NMFS, of no-trawl zones off the central

California coast. The project area extends from Point Conception to Davenport, California, and includes adjacent offshore seamounts (Gumdrop, Guide, Pioneer, Davidson, and Rodriguez).

TNC/ED have identified 23 permit holders they believe regularly trawl inside the project area. Most home port in Morro Bay, Moss Landing, Monterey, or Half Moon Bay. TNC/EDF intend to purchase a significant majority of the bottom trawling permits and vessels in this region if the Council/NMFS designates a significant portion of the project area as no-bottom-trawl zones. TNC/ED will identify areas they think should be designated no-trawl zones using the GIS data developed as part of this EIS in combination with a participatory process involving trawl fishermen in the project area. If this alternative is adopted as an FMP and regulatory amendment, these areas will be closed to bottom trawling by NMFS once TNC/EDF have negotiated purchase contracts or options for at least half of the limited trawl permit holders they have identified as operating in the project area.

✓ **Alternative C.11: Relax Gear Endorsement Requirements (Preliminary Preferred Alternative)**

Vessels holding a groundfish limited entry permit account for a large portion of groundfish landings. Currently, limited entry permits include a gear endorsement specifying the type of gear the permit holder may use. These endorsements identify three gear categories: trawl, longline, and pot. In addition, longline and pot gear permit holders may also have a sablefish endorsement. Permit holders with this species-specific endorsement may participate in the high-value primary sablefish fishery and are allocated vessel-specific catch quotas, known as tier limits because the endorsements fall into one of several categories, or tiers, with different catch quotas. Under this alternative, gear endorsements are relaxed but the sablefish endorsement is not. This would allow permit holders to switch gear types, providing fishermen greater flexibility in changing strategies based on prevailing conditions in the fishery.

✓ **Alternative C.12: Close Ecologically Important Areas to Bottom Trawl (Preliminary Preferred Alternative)**

This alternative was proposed by the environmental group Oceana and adopted by the Council. The alternative would close a network of areas to bottom trawling; set a maximum footrope size of eight inches on bottom trawl gear within open area; require Vessel Monitoring Systems on all bottom trawl vessels with positions recorded every 5 minutes; increase onboard observer coverage on bottom trawl vessels to a level determined to be necessary by NOAA to estimate annual bycatch of habitat-forming invertebrates; establish a process for setting a limit on the bycatch of habitat-forming invertebrates; require ongoing research including comprehensive benthic mapping.

✓ **Alternative C.13: Close Ecologically Important Areas to Bottom-contacting Gear (Preliminary Preferred Alternative)**

Under this alternative, the areas identified in Alternative C.12 are closed to all bottom-contacting gear types, defined as both fixed gear (longlines, pots, and traps) and bottom trawl.

✓ **Alternative C.14: Close Ecologically Important Areas to Fishing (Preliminary Preferred Alternative)**

Under this alternative, the areas identified in Alternative C.12 are closed to all fishing.

Research and Monitoring Alternatives

Alternative D.1: No Action

NMFS conducts extensive fishery-related research relevant to groundfish and has a variety of methods to monitor these fisheries. Section 7.1 in the 2005-2006 groundfish harvest specifications FEIS (PFMC 2004) describes groundfish monitoring programs carried out by NMFS, the states, and tribes, and is hereby incorporated by reference. Current monitoring programs especially relevant to the alternatives described here include the limited entry trawl logbook program, the West Coast Groundfish Observer Program, and VMS covering limited entry trawl and fixed gear vessels. These programs are primarily intended to monitor discards and landings of groundfish and to enforce current harvest limits and area restrictions. There is no component specifically intended to monitor the effects of fishing on EFH.

Alternative D.2: Expanded Logbook Program

Under this alternative vessels in all commercial sectors, including recreational charter (for hire) boats, will participate in an expanded logbook program.

Option D.2.1: All fishing vessels maintain a logbook

All fishing vessels maintain a logbook, recording information on fishing time, location, and catch composition similar to the current trawl logbook program.

Option D.2.2: A sub-sample of fishing vessels maintain a logbook

A representative, random sample of all fishing vessels is required to maintain logbooks, gathering the information described above.

Alternative D.3: Expanded Vessel Monitoring System

This alternative will identify expansion of the Vessel Monitoring Program to cover all West Coast groundfish commercial and recreational charter vessels as an important program objective to be implemented through tiered actions.

Alternative D.4: Research Reserve System

This alternative will establish a system of areas that are closed to fishing to foster habitat-related research and comparison of fished areas with unfished areas.