

DRAFT

PROPOSED INTERNAL GUIDANCE FOR OFFSHORE DEVELOPMENT ACTIVITIES

Purpose and Scope

The Pacific Fishery Management Council (Council) is responsible for managing Federal fisheries off the United States West Coast in a manner that is biologically sustainable, protective of sensitive habitats, and minimizes adverse effects to fishing-dependent coastal communities. Considering the potential impacts of human actions in the marine environment is complex and varies regionally and by fishery. While this document describes overarching considerations and expectations regarding offshore wind (OSW) energy development, it does not replace the need for focused study of the issues or direct and extended meaningful engagement of action agencies with the Council and its advisory bodies and stakeholders. Direct engagement is especially preferred for projects with the potential to cause adverse effects on fisheries, fishing-dependent communities, and essential fish habitat. The Council process is deliberative, science-based, open, and transparent. The ongoing dialogue between the Council, fisheries stakeholders, and the public strengthens the decision-making process.

This document is intended to support the Council, its Advisory Bodies, and staff in responses to comment opportunities or other communications with outside agencies or other organizations. It is not intended as a stand-alone statement of policy. Rather, the contents should be used to help formulate the Council's comments to action agencies or other correspondence as appropriate.

The scope of this document is primarily focused on the impacts of OSW energy development on ocean, coastal, and estuarine habitats, on fisheries, and on affected coastal communities. Many elements could be applied to aquaculture and other ocean development activities. This is intended as a 'living' document, to be updated or modified periodically as new information becomes available, or as otherwise appropriate.

Objectives

The primary objectives of this guidance are to:

- describe the potential effects of OSW on affected resources (including habitats, ecosystem, fisheries, and fishing-dependent coastal communities);
- identify analyses to assess these effects; and
- identify mitigation measures to avoid and minimize effects.

In support of these objectives, this document also describes the affected resources, including the habitats of fish species managed under the Council's fishery management plans, and describes some of the authorities that guide the Council's actions.

In the context of this guidance, "offshore" refers to any development project in the ocean environment, which could be anywhere in the waters of the U.S. West Coast Exclusive Economic Zone.

Federally permitted offshore development activities are required to follow the National Environmental Policy Act (NEPA) approach to first avoid impacts when practicable, then minimize impacts to the extent possible. For those impacts that cannot be avoided, appropriate mitigation measures should be implemented. When impacts are unavoidable and cannot be sufficiently mitigated by minimizing, rectifying, reducing, or eliminating the impact over time, compensatory mitigation should be considered. For social and economic impacts from offshore development that are unavoidable, the Council may recommend that financial compensation should be considered. The interests of the Council and the scope of potential impacts can extend beyond the structure of NEPA¹. It will always be important for agencies to consider the cumulative effects of offshore development activities on Council-managed species and their habitats, when siting and designing projects.

The Council will be interested in reviewing and commenting on offshore development activities that may affect the ability of the marine ecosystem to support, on an ongoing basis, sustainable fisheries that provide food and recreation to the nation's human population. The Council will have concerns about any non-fishing activities that could jeopardize the roles of fish, animals, and plants within the ecosystem, and their dynamic relationships to each other and to humans. Offshore development activities should be designed and managed to not jeopardize the Council's short- or long-term abilities to manage West Coast fisheries consistent with the rights of fishery participants to continue to have access to the seabed for fishing and to safely navigate offshore waters to provide food and recreation to this and future generations of Americans. In addition, the Council is responsible for ensuring that impacts to Tribal treaty rights, Tribal communities, and continued use of Usual and Accustomed Areas are addressed and accounted for in Council actions and recommendations.

Council authorities regarding non-fishing activities and impacts

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) defines the framework for conservation and management of fisheries in Federal waters. The Council (and the National Marine Fisheries Service (NMFS)), has responsibility to manage marine commercial and recreational fisheries in a manner that:

- Ensures a sustainable and safe domestic seafood supply and cultural benefits from fisheries, by achieving and maintaining, on a continuing basis, the optimum yield from each fishery;
- Protects ecosystem health and sustainability, including protection of essential fish habitat (EFH)² and ecosystem services; and

¹ 40 CFR § 1508.1(s)

(s) Mitigation means measures that avoid, minimize, or compensate for effects caused by a proposed action or alternatives as described in an environmental document or record of decision and that have a nexus to those effects. While NEPA requires consideration of mitigation, it does not mandate the form or adoption of any mitigation. Mitigation includes:

- (1) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- (4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- (5) Compensating for the impact by replacing or providing substitute resources or environments.

² Essential fish habitat means those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. For the purpose of interpreting this definition of essential fish habitat: "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas

- Minimizes long-term economic and social effects to fisheries and fishing-dependent communities, in part by improving the ability to adapt to climate change and competing ocean uses.

Essential Fish Habitat

The MSA EFH implementing regulations at 50 CFR §600.805 *et seq.*, address the effects of both fishing and non-fishing activities on EFH. However, this document addresses only the effects of non-fishing activities. Fishery Management Plans (FMPs) must describe and identify EFH, identify non-fishing activities that may adversely affect EFH, develop conservation measures to minimize impacts, analyze how the cumulative impacts of non-fishing activities influence the function of EFH on an ecosystem or watershed scale, and consider identifying Habitat Areas of Particular Concern (HAPC) for species under its authority.

HAPCs are specific types or areas of especially important habitat within EFH areas. Particular attention is given to potential impacts to HAPCs when 1) the Council provides comments or conservation recommendations related to activities that may adversely affect EFH, and 2) when NMFS conducts EFH consultations on Federal activities that may adversely affect EFH. Identification of HAPCs is based on consideration of:

1. The importance of the ecological function provided by the habitat;
2. The extent to which the habitat is sensitive to human-induced environmental degradation;
3. Whether, and to what extent, development activities are, or will be, stressing the habitat type; and,
4. The rarity of the habitat type.

The MSA authorizes the Council to comment on any Federal or state agency activity that may affect the habitat, including EFH, of a fishery resource under its authority, and requires the Council to comment on any action or activity that is likely to substantially affect EFH of an anadromous fishery resource, such as salmonids, under its authority. The Council places additional scrutiny on activities that may impact HAPC, as does NMFS during EFH consultation of Federal actions and activities that may adversely affect EFH.

National Standards

The MSA includes ten National Standards (NS) that must be considered and weighed in every conservation and management decision the Council makes and NMFS reviews. NMFS has developed regulatory guidance for the ten National Standards (50 CFR Part 600 Subpart D). Three NS highlighted here may be particularly relevant when considering the effects of offshore wind energy development:

- Optimum Yield (NS1): “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the U.S. fishing industry.” OY is defined as “...a decisional mechanism for resolving the Magnuson-Stevens Act's conservation and management objectives, achieving an FMP's

historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle.

objectives, and balancing the various interests that comprise the greatest overall benefits to the Nation.” (50 CFR § 600.310).

- Communities (NS8): “Conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that are based upon the best scientific information available in order to (1) Provide for the sustained participation of such communities; and (2) To the extent practicable, minimize adverse economic impacts on such communities.” (50 CFR § 600.310).
- Safety (NS10): “Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.” (50 CFR § 600.310).

Habitat, fishery, and fishing community resources potentially impacted by offshore development activities

This section describes habitats and fishery resources potentially affected by offshore development. Habitat resources include EFH, as well as any habitat or ecosystem functions on which fish and other marine species depend. Fishery resources include all stocks and species of fish, and their habitats. A fishing community³ includes fishermen, vessels, owners, processing plants, and other related business and community sectors that are dependent on commercial and recreational fishing activities.

In addressing impacts of offshore development activities, it is important to recognize several important factors intrinsic to the Pacific Coast ocean ecosystem, the fishing industry, and coastal communities:

- Council-managed species are likely to change their distributions over time, and fishing activities will also likely shift, to maintain access to those species.
- The California Current Ecosystem (CCE) is biologically extremely productive and contains a high level of biodiversity, typical of eastern boundary current systems. This can add to the complexity of analyses, impacts, and remedies.
- Nearshore, estuarine, and coastal habitats are important as nurseries and rearing grounds for many species and are likely to be impacted by offshore development activities because of port expansion, assembly, transportation, etc.
- State-managed fisheries such as Dungeness crab, pink shrimp, and California halibut are important to West Coast fishing communities, although these fisheries are not managed by the Council.
- Ex-vessel value does not accurately reflect downstream benefits and economic impact.

Pacific Coast Groundfish

The Pacific Coast Groundfish FMP includes over 100 species, including rockfish, flatfish, and roundfish such as Pacific hake and sablefish. Groundfish fishing effort occurs coastwide and mostly shallower than the 1300 m depth contour, although some fisheries such as Pacific hake and albacore tuna have a much broader spatial range than most other groundfish fisheries. Several groundfish stocks that were previously overfished have been rebuilt through stringent harvest

³ The MSA definition of ‘fishing community’ is one which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such community.’

management and habitat protections. The groundfish fishery is dependent on access to specific, highly productive areas for two reasons. First, many groundfish stocks exhibit some degree of site fidelity, meaning that the target fisheries have limited locations in which to find target stocks. Second, there are many areas where bottom trawling and/or all bottom contact fishing gear is prohibited, thus further limiting the areas open to groundfish fishing. In order to operate, groundfish fisheries must have access to and be able to use the seabed. Offshore development in areas that are currently open to groundfish fishing would substantially interfere with and curtail the ability of existing groundfish fishery participants to use the seabed and thus continue operating effectively.

The overall spatial extent of Pacific Coast Groundfish EFH is defined as:

- depths less than or equal to 3,500 m (1,914 fm) to mean higher high-water level or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow;
- Seamounts in depths greater than 3,500 m; and
- Areas designated as HAPCs not already identified by the above criteria.

Groundfish EFH is further defined by a Habitat Suitability Probability model that includes the HAPCs below as well as prey species, habitat use by life stage, and methane seeps, as described in Appendix B Part 2 of the Groundfish FMP. Groundfish HAPCs include estuaries, canopy kelp, seagrass, rocky reefs, and areas of interest. The Groundfish FMP also includes over 70 EFH Conservation Areas (EFHCAs) that prohibit groundfish bottom trawl gear and/or all bottom contact gear.

Pacific Salmon

The Pacific salmon fishery also operates coastwide, with multiple sectors targeting different stocks in the spring through fall time frame. Chinook and coho are the main salmon species caught in Council-managed ocean salmon fisheries, although catch of pink salmon can also be significant in odd-numbered years, primarily off Washington and Oregon. The ocean fishery is dominated by troll gear in vessels typically less than 18 meters (or 58 feet) in length. Offshore development is likely to negatively affect salmon fisheries, particularly the safe navigation of salmon fishing vessels, in times and areas where fishing vessels are preempted from access to fishing grounds.

The spatial extent of Pacific salmon EFH is defined as all water bodies currently or historically occupied by Council-managed salmon, except those areas blocked by impassible dams. In the estuarine and marine areas, salmon EFH extends from the extreme high tide line in nearshore and tidal submerged environments within state territorial waters out to the full extent of the Exclusive Economic Zone (EEZ) (200 nautical miles or 370.4 km) offshore of Washington, Oregon, and California north of Point Conception. Pacific Coast salmon EFH also includes the marine areas off Alaska designated as salmon EFH by the North Pacific Fishery Management Council (NPFMC). Appendix A to the Pacific Coast Salmon Fishery Management Plan contains the Council's complete identification and description of Pacific coast salmon EFH, along with a detailed assessment of adverse impacts and actions to encourage conservation and enhancement of EFH. A detailed description of salmon EFH is in [Appendix A](#) to the Pacific Salmon FMP.

The Pacific salmon FMP includes the following HAPCs:

- Complex channels and floodplain habitats
- Thermal refugia
- Spawning habitat
- Estuaries
- Marine and estuarine SAV

Highly migratory species

West Coast highly migratory species (HMS) vessels operate over a broad range of the EEZ, using a variety of gears including hook-and-line, troll, deep-set buoy gear, drift gillnets, and purse seines. While some trolling may be possible within wind energy installations or other offshore development structures, it is not guaranteed. The potential effects of OSW farms on the safe navigation of HMS vessels would preclude most gears listed above from operating within OSW farm areas. In addition, most HMS fishing would be prevented from accessing a de facto buffer zone around any offshore development infrastructure, to limit risks to navigation safety by preventing gear from drifting too close to an OSW facility.

EFH for most HMS, which is defined per species, is in U.S. EEZ waters, mostly south of the Oregon-California border. However, some species such as some sharks and albacore tuna, range from the U.S.-Mexico border to the U.S.-Canada border. Detailed descriptions and maps depicting HMS EFH can be found on the Council's [HMS FMP webpage](#).

Coastal pelagic species

The coastal pelagic species (CPS) fishery operates coastwide, with effort generally commensurate with stock abundance. Purse seine fishing is dominant for all CPS stocks and is not feasible to be operated in or near offshore infrastructure such as OSW installations. Therefore, the safe navigation of CPS fishing vessels would also be affected by OSW installations, and OSW development could interfere with CPS fishing in potentially productive fishing areas and could be forced to shift effort to possibly less productive areas.

The east-west geographic boundary of EFH for CPS is defined to be all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington offshore to the limits of the EEZ and above the thermocline where sea surface temperatures range between 10° C to 26° C. The southern boundary is the United States-Mexico maritime boundary. The northern boundary is more dynamic and is defined as the position of the 10° C isotherm, which varies seasonally and annually.

Other fisheries-related activities and resources likely to be impacted by offshore development

Scientific surveys and data collection

The Council's fishery conservation and management measures are based on a complex suite of scientific analyses, particularly fish stock assessments, and including habitat assessments and a variety of other science-based research activities and tools. These include activities conducted by Federal, state, university, and non-governmental entities. The data needed for fish stock assessments is collected both from fishing vessels and from fisheries-independent surveys. Offshore development that limits the access or timing survey vessels have to historic survey locations, or that otherwise interfere with the collection of data at sea, on or near the seabed, have

the potential to significantly compromise the Council's science-based fisheries conservation and management programs. Loss of long-standing survey locations or indices will increase scientific uncertainty in stock assessments and will interfere with the Council's ability to manage fisheries for the benefit of the nation, potentially necessitating overly precautionary or otherwise less informed harvest guidelines, causing harm to fishery participants and to fishing-dependent communities.

Fishing dependent businesses and communities

As described above, MSA National Standard 8 addresses community impacts and requires that FMPs *"take into account the importance of fishery resources to fishing communities by utilizing economic and social data...in order to (a) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities."* Impacts to fishing-dependent businesses and communities, port-side infrastructure, possible displacement of vessels, and disruptions related to increased vessel traffic, channel dredging, and other facilities/harbor improvements should be addressed. Many small businesses are directly or indirectly dependent on the fishing and seafood industries and should be considered in any impacts evaluation related to offshore development activities. Socio-economic information on fishing and coastal communities is available from the Council, from the NOAA NWFS, and other sources.

Potential impacts from offshore development activities

Several components of offshore development could interfere with or otherwise affect habitat, marine ecosystems, fishery resources, commercial or recreational fishing activities, or fishing-dependent communities. Existing marine and estuarine habitat features can be impacted by the physical presence of OSW structures and other facilities, by transmission and inter-array cables, by construction and pre-development site preparation, by equipment staging or assembly, and by regular operations and maintenance activities. The presence of offshore development installations will likely displace fishing activities by constricting access to fishing grounds, and by negatively affecting vessel navigation and transit. Unburied seafloor cables and mooring lines in the water column are likely to preclude fishing activity due to risk of gear entanglement or vessel safety. Pre-development surveys and site assessment or characterization activities have the potential to interfere with fishing vessels transiting to or from port or may interfere with fishing activities or interact with fishing gear.

Potential impacts to habitats and species from offshore development activities that should be analyzed under NEPA and other applicable laws include, but are not limited to:

- Physical alteration of habitat features resulting from anchors, anchor chain and cable movement on the seabed, and infrastructure placement and presence
- Effects of noise, light, and vibration on marine life
- Release of marine debris
- Effects on water quality as it affects marine fauna and flora, resulting from biofouling removal, oil and hazardous materials spills, or other water quality parameters; including thermal changes resulting from cooling structures
- Drilling, embedding, or trenching into the sea floor to install anchors or cables
- Disturbance of species during construction, installation, operation, and maintenance

- Aggregation of fishes and their predators, with consequent changes in trophic interactions and potential increases in natural mortality
- Scouring and sediment plume formation caused by seafloor trenching and transmission cables
- Cable installation, as well as the continued presence of physical structures left in place
- Geological and geophysical surveys, including seismic surveys, that may be conducted at greater frequency or spatial extent to inform project design

Potential impacts to fishing activities include, but are not limited to:

- Displacement from fishing grounds, resulting in reduced catch per unit effort, increased fuel costs, added time, fatigue, and associated increased safety risks
- Transit and navigation challenges resulting from physical infrastructure and concentration of vessel traffic into transit choke points
- Entanglement and gear loss
- Elevated risks related to safety at sea, from physical infrastructure and the potential for increased transit time
- Shoreside and port infrastructure

Other potential impacts:

- Disruption and direct obstruction of scientific surveys conducted by NOAA and other agencies and organizations, which are critically important to inform fishery management decision
- Socio-economic impacts such as lower tax base, docking fees, etc., associated with decreased fishing-related revenues, which may have a negative impact to fishing-dependent coastal communities
- Impacts to related industries (e.g., processing plants, transportation, retail businesses) and the seafood supply chain
- OSW as fish-aggregating devices or artificial reefs: There is concern that floating wind turbines could act as fish aggregating devices, which could result in some fish becoming inaccessible to the fishery, if they show site affinity to those turbine or other structures and fishery participants are excluded from accessing those areas.
- Electromagnetic field effects: Potential effects on fish and other marine species from altered electro-magnetic fields (EMF) associated with human development activities are a concern and should be addressed in analysis of impacts related to any offshore development.
- Wind wake effects: Offshore wind farms could decrease wind speed, diminish wind stress, or alter wind direction enough to disrupt local hydrodynamics, stratification, surface currents, upwelling, and localized circulation. Both wind speed and wind stress may be lessened for several tens of leeward of a turbine. Such disruptions could alter nutrient availability, primary productivity, and could affect larval and egg transport of marine species that depend on such passive transport as part of their life cycle.

Expectations for analysis, monitoring, and avoiding impacts to fisheries and habitats

Project siting and environmental review

1. Prioritize development (of non-fishing activities) outside known fishing areas, to minimize interference of those activities with fisheries and fishing vessel safety of navigation, which

can mean siting development in waters deeper than the 1300 m depth contour. Ensuring that offshore non-fishing activities occur outside of the most-used fishing areas will help minimize interference and interaction with Council-managed fisheries as well as minimize potential impacts to important habitats.

2. Avoid disturbance to important habitats, including EFHCA, HAPC, EFH, and habitats supporting structure-forming invertebrates such as deep-sea corals and sponges.
3. If negative impacts cannot be avoided, agencies and project developers should implement mitigation measures to minimize impacts, such as (but not limited to) the following:
 - a. Buffer zones of sufficient size surrounding important physical and oceanographic habitat features (e.g., rocky reefs, banks, canyons, methane seeps, localized eddies etc.), fishing activity, transit lanes, etc.;
 - b. Construction and operations timing windows to minimize impacts to spawning/rearing, migration, and important fishery seasons and locations;
 - c. Technologies and actions to minimize and mitigate impacts including, cable burial, noise reduction, and minimizing pollutants; and
 - d. Locate structures and cables to minimize overlap with important habitats and fisheries activities.
4. Analyze the duration, intensity, and magnitude of potential impacts to fishing activities as well as potential impacts to habitat or other resources resulting from displacement of fishing activities (including fishing effort compaction, which could result in localized stock depletion and/or a decline in catch per unit effort).
5. Analyze potential impacts to both commercial and recreational fishing sectors, using landings data, angler trips, revenues, downstream economic losses to fishing communities, reduction in value of permits and vessels, and associated costs incurred by fishery participants. Use logbooks, vessel monitoring, fish tickets, and other data to accurately characterize the fishery for at least the most recent 10 years.
6. Use a community vulnerability index or similar tool to assess impacts to fishing-dependent communities and to evaluate impacts related to Environmental Justice.
7. Evaluate potential impacts to the seafood supply chain.
8. Analyze potential impacts to fishery sectors and habitats resulting from the presence of offshore facilities, interarray and transmission cables, construction activities, and site characterization and survey activities.
9. Describe impacts in terms of lost revenues, increased costs, changes in required effort, and risks to non-target stocks.
10. Analyze the cumulative effects associated with past, present, or reasonably foreseeable future ocean development activities. Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis.

Research and Monitoring

11. Detailed research and monitoring plans should include baseline assessments 2-3 years prior to construction and continue throughout the life of the project, including the eventual decommissioning of the project.
12. Monitoring should include elements sufficient to inform short-term and cumulative effects on habitats, ecosystems, fishing activities and marine species.

13. Monitoring data and research conducted from that data should be shared with other government agencies and the public and should be provided in formats compatible with broad shared use.

Outreach and community engagement

14. Agencies and lessees should provide a detailed engagement plan that includes multiple opportunities for information exchange with a variety of stakeholders, especially in the commercial and recreational fishing sectors. Engagement should begin early in the process and occur often throughout the process. Outreach should not be limited to large group or online meetings. In some cases, individual engagement is a highly effective way to gain important local knowledge.
15. The local labor pool, fishing participants, and vessels should be given opportunities for construction and operations activities.
16. Lessees should employ a fishery liaison who has the trust and confidence of the local community.
17. Lessees should develop a long-term community benefits agreement to ensure that local communities have the lasting financial resources to offset negative impacts to the fishermen and the local community. Such agreements should utilize independent experts, e.g., Sea Grant or universities to establish severity of impacts and associated compensatory values.

Navigation, transit, and safety

18. OSW developers should identify a configuration that accommodates transit lanes for commercial and recreational fishing vessels, maritime commerce, and for safety and rescue activities.
19. Lessees should work with affected fishermen, port authorities, and the United States Coast Guard on optimum layout and configuration, including interarray and transmission cables.
20. Lessees should work with the United States Coast Guard on developing safety communication protocols that ensure that all mariners are adequately notified when and where offshore exploration and development activities are planned to occur.
21. Lessees should evaluate impacts to navigational radar and identify alternative/backup aids to navigation.