# DRAFT
# ENVIRONMENTAL ASSESSMENT FOR
# AMENDMENT 20
# TO THE
# PACIFIC COAST SALMON FISHERY MANAGEMENT PLAN:
# PROPOSED CHANGES TO THE PRESEASON SCHEDULE AND
# KLAMATH MANAGEMENT ZONE BOUNDARY
# (RTID 0648-XA603)

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# Contents

*List of Acronyms and Abbreviations*

| | |
|---|---|
| CCC coho | California Central California Coast coho |
| Council | Pacific Fishery Management Council, also PFMC |
| EEZ | Exclusive Economic Zone (3-200 NM offshore) |
| ESA | Endangered Species Act |
| FB | Fort Bragg management area in California |
| FMP | Fishery Management Plan |
| KC | California portion of the Klamath Management Zone |
| KMZ | Klamath Management Zone |
| KO | Oregon portion of the Klamath Management Zone |
| KOHM | Klamath Ocean Harvest Model |
| KRFC | Klamath River fall-run Chinook salmon |
| lat. | Latitude |
| MSST | Minimum Stock Size Threshold. |
| MSY | Maximum sustainable yield |
| nmi | Nautical miles |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| PFMC | Pacific Fishery Management Council, also Council |
| SHM | Sacramento Harvest Model |
| $S_{MSY}$ | Maximum sustainable yield (MSY) spawner abundance. The abundance of adult spawners that is expected, on average, to produce MSY |
| SONCC coho | Southern Oregon/Northern California Coast coho |
| Spp | Species |
| SRFC | Sacramento River Fall-run Chinook salmon |
| STT | Salmon Technical Team of the PFMC |

# 1.0 Introduction

Ocean salmon fisheries in the U.S. Exclusive Economic Zone (EEZ), 3-200 nautical miles (nmi) off the coasts of Washington, Oregon, and California, are managed by the Pacific Fishery Management Council (Council) and the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Pursuant to the MSA, these salmon fisheries are managed according to the Council's Pacific Coast Salmon Fishery Management Plan (FMP) (PFMC 2016). The FMP is amended periodically to address the changing needs of fishery management.

At its November 2019 meeting, the Council decided to consider developing Amendment 20 to the FMP to address two primary topics: 1) an adjustment to the annual preseason salmon schedule and 2) a modification to the southern boundary of the Klamath Management Zone (KMZ). In addition, the Council identified minor changes to update language in the FMP to include in the proposed amendment.

The Council adopted preliminary alternatives for public comment at its June 2020 meeting and adopted final preferred alternatives for the primary topics at its September 2020 meeting. The Council considered the information developed by the Salmon Technical Team (STT) (O'Farrell and Letvin 2019) and by the Amendment 20 Workgroup (PFMC and NMFS 2020) in making its decision.

This environmental assessment (EA) is being prepared using the 2020 Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute [85 Fed. Reg. at 43372-73 (§§ 1506.13, 1507.3(a))]. However, this EA began on July 1, 2020, while not required to comply, NMFS has prepared this document to be consistent with the under the 2020 CEQ regulations."

# 2.0 Background

## 2.1 KMZ Boundary Change

The Council uses management boundaries and zones to manage the ocean salmon harvest consistent with the objectives in the FMP. These boundaries or zones are specified in the annual management measures and may change from year to year. Others remain relatively constant and, as described in section 6.1 of the FMP, changes to these boundaries or zones may require special justification and documentation, the KMZ is one of these relatively constant zones. Since at least 1990, the KMZ has extended from Humbug Mountain, Oregon, to Horse Mountain, California. The area south of Horse Mountain to Point Arena is the Fort Bragg salmon management area (FB) (Figure 1-1). Representatives of the commercial salmon fishery first proposed moving the boundary line from Horse Mountain (lat. 40°05′ N) north to lat. 40°10′

N at the Council's March 2016 meeting (Helliwell 2016). This change would make the KMZ boundary consistent with a management boundary in the Council's Pacific Coast Groundfish FMP and would address additional concerns from fishery participants regarding navigational safety and fishery accessibility (Helliwell 2016). The proposal to move the boundary was presented at several Council meetings since 2016 and received support from the Council's Salmon Advisory Subpanel (SAS).

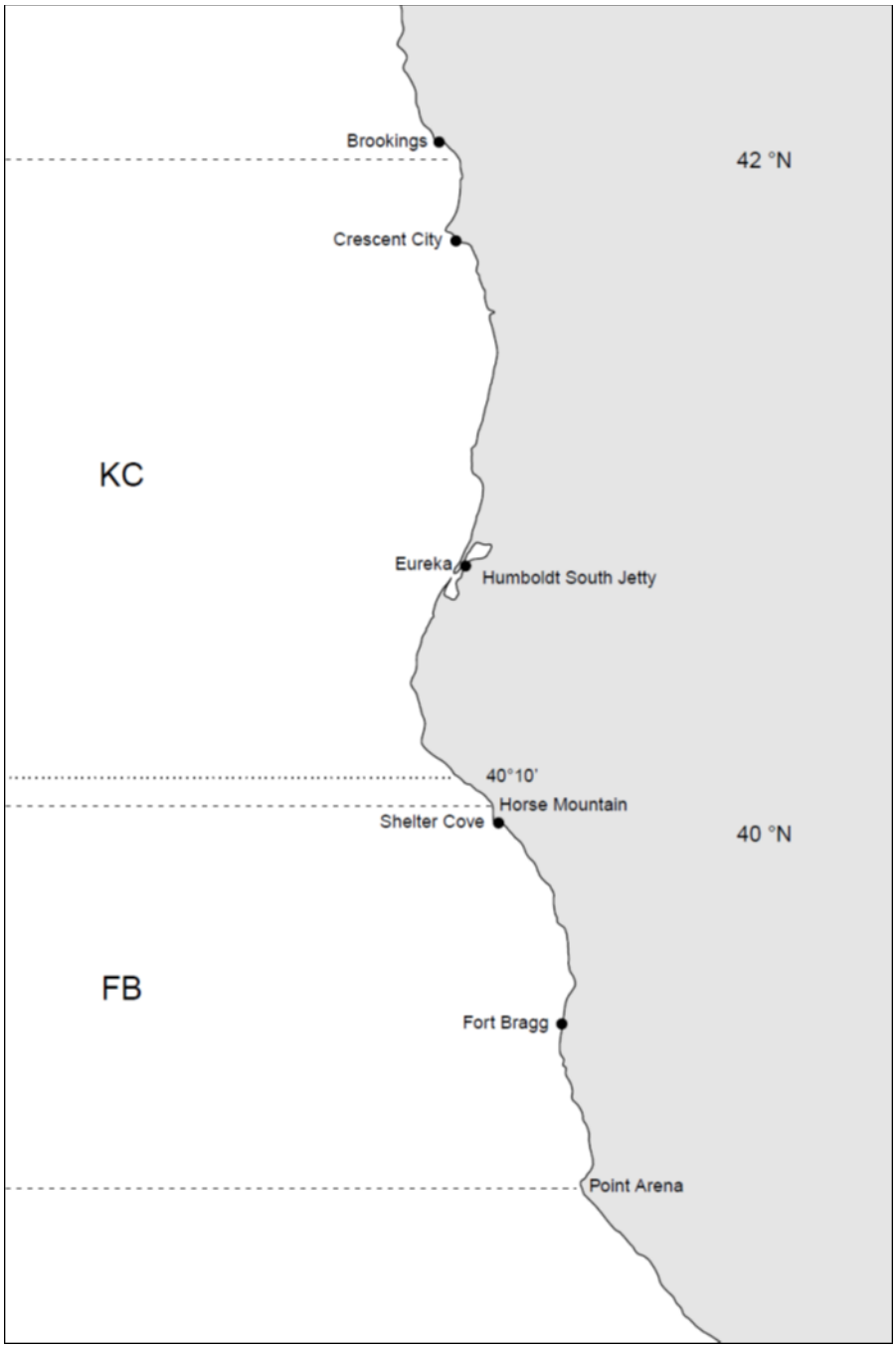


Figure 1-1. Map of the California Klamath Management Zone (KC) and Fort Bragg (FB) salmon management area showing the current boundary at Horse Mountain and the proposed boundary at lat. 40°10' N (Source: O'Farrell and Letvin 2019).

## 2.2 Preseason Schedule Change

Chapter 9 of the FMP contains the schedule and procedures for preseason modification of regulations (preseason schedule). The annual preseason schedule extends from March to May. The schedule in the FMP addresses the timing of announcement of meeting dates and locations, Council meetings at which the Council develops its recommended management measures, and availability of the STT's analytical documents (the annual Stock Assessment and Fishery Evaluation (SAFE) document and the STT's Preseason Reports). The current preseason schedule concludes with the publication of the annual management measures in the Federal Register by NMFS during the first week of May, which corresponds with the traditional May 1 start date for many ocean salmon fisheries. However, it has become increasingly challenging for the Council and NMFS to complete the necessary environmental and economic analyses and regulatory documentation in time for the Secretary of Commerce (Secretary) to approve and implement the Council's annual recommendation by May 1.

At its September 2020 meeting, the Council adopted a change to the schedule in the FMP such that NMFS would publish the annual management measures in the Federal Register in mid-May with an anticipated effective date of May 16 (see NMFS 2019). Early May salmon fisheries would be established in the previous year's Federal Register notice of annual management measures and modified as needed through inseason action in the spring, much as has been done for March and April salmon fisheries since at least 1994 (Federal Register Volume 59, Number 85, unknown page number, May 4, 1994, Federal Register document number 94-10722, https://www.govinfo.gov/content/pkg/FR-1994-05-04/html/94-10722.htm).

## 2.3 FMP Language Updates

In addition, as discussed above, the Council identified several items in the FMP that no longer reflect current information, and therefore recommended the following updates as part of this FMP amendment.

In 2015, NMFS approved changes to the management reference point values for three stocks of salmon managed under the FMP: Southern Oregon coastal Chinook salmon, Grays Harbor fall-run Chinook salmon, and Willapa Bay natural coho (80 FR 19564, April 13, 2015). The reference points included in that action have been used in fishery management since the final rule implementing them was promulgated. However, the text of the FMP includes the prior reference point values that the 2015 reference points superseded. They will be updated through Amendment 20.

Other minor housekeeping changes being made in Amendment 20 include: correcting spelling errors, updating document references, and updating language to reflect the merger of NMFS' Northwest and Southwest Regions, which occurred in 2013.

## 2.4 Purpose and Need

The purpose for the boundary change is to change the boundary between the KMZ and the Fort Bragg management area from lat. 40°05' N (Horse Mountain) to lat. 40°10' N to increase efficiency in fishery management. The purpose of the schedule change is to provide the Council and NMFS with sufficient time to complete the necessary environmental and economic analyses and regulatory documentation in time for the Secretary to approve and implement the Council's annual recommendation by the start date for the bulk of the annual salmon fisheries. The purpose of the language updates is to bring the FMP up to date with current information.

The need for the boundary change is to simplify management of the fishery by aligning the southern boundary of the KMZ with an existing management boundary used in the groundfish fishery and to address navigational safety and fishery accessibility concerns raised by the local commercial ocean salmon fishery participants. The need for the schedule change is to provide increased certainty that the annual management measures will be effective on the date anticipated by the Council, state and tribal fishery managers, and the public. The need for the language updates is to keep the FMP up to date with current information, including terminology, references, and management reference points.

# 3.0 Description of Alternatives

## 3.1 Proposed Action: Boundary Change

The KMZ has been used in managing ocean salmon fisheries since at least 1988, when it was described in the annual management measures as extending from Orford Reef, Oregon, to Horse Mountain (53 FR 16002, May 5, 1998). The KMZ has been included in the FMP since Amendment 14 (effective June 29, 2001) and is currently defined as extending from Humbug Mountain to Horse Mountain. In ocean salmon fishery management, Horse Mountain, at lat. 40°05' N, is the current boundary between the KMZ to the north and FB to the south. A portion of the KMZ, from Humboldt South Jetty (lat. 40°45′53″ N) to Horse Mountain, has been closed annually to commercial salmon fishing since at least 1996.

Since 2016, representatives of the commercial salmon fishery have periodically requested that the Council move the KMZ/FB boundary line from Horse Mountain (lat. 40°05′ N) north to lat. 40°10′ N. Proponents of the boundary move have cited the following reasons in support of the move: (1) concurrence with an existing management boundary for groundfish for "ease of management and enforcement," (2) expansion of commercial fishing opportunity north of Point Arena, (3) placing the fishery closer to the port of Eureka, California, with the potential to rebuild fishery infrastructure and market opportunities at that port, and (4) to improve navigational safety for the salmon fleet in the area (Helliwell 2016).

Section 6.1 of the FMP identifies a limited number of management boundaries or zones, including the KMZ, for which "changes to these boundaries or zones may require special justification and documentation" (PFMC 2016). Therefore, the Council and NMFS determined that moving the KMZ/FB boundary should be considered through the FMP amendment process. The Council considered the three alternatives described below.

### 3.1.1 Alternative 1.1 (no-action alternative) – KMZ/FB Status Quo

The FMP currently places the boundary between the KMZ and FB management zone at Horse Mountain (lat. 40°05′ N). Under the Status quo Alternative, there would be no change to this boundary in the FMP.

### 3.1.2 Alternative 1.2 (preferred alternative) – KMZ/FB Boundary Move

Under the KMZ/FB Boundary Move Alternative, the FMP would be amended to move the boundary between the KMZ and FB management zone from Horse Mountain (lat. 40°05′ N) to lat. 40°10′ N.

### 3.1.3 Alternative 1.3 – KMZ/FB Boundary Move with Conservation Zone

Under the KMZ Boundary Move with Conservation Zone Alternative, the FMP would be amended to move the boundary between the KMZ and FB management zone from Horse Mountain (lat. 40°05′ N) to lat. 40°10′ N, as under Alternative 1.2, and establish a conservation zone from lat. 40°05′ N five nautical miles north to lat. 40°10' N during years when the *de minimis* provisions of the Klamath River fall-run Chinook (KRFC) salmon control rule are implemented (see section 3.3.6 in PFMC 2016).

## 3.2 Proposed Action: Schedule Change

The annual preseason schedule for setting annual management measures for ocean salmon fisheries is detailed in Chapter 9 of the FMP. The Council adopts a range of management alternatives at its March meeting and provides for approximately one month to receive public comment on these alternatives. The final suite of annual management measures is adopted at the Council's April meeting and, under the current FMP, NMFS is expected to publish these measures in the Federal Register during the first week of May. A footnote in the FMP states that the intent in scheduling the Council meeting in April is that this should leave sufficient time for the Council's final recommendations to be promulgated into federal regulations by May 1, and the Council has developed the management measures such that the earliest fisheries start on or around May 1.

In recent years it has become increasingly difficult for the Council and NMFS to complete the necessary environmental and economic analyses and regulatory documentation in time for the Secretary to approve and implement the Council's annual recommendation by May 1. In 2019, the final rule that implemented the annual management measures published on May 6, and in 2020, the final rule published on May 8.

The proposed action would change the schedule to assume the annual management measures will be published as a rule in the second or third week of May, rather than the first week of May, and to structure the annual management measures so the earliest fisheries start May 16 instead of May 1. The Council considered three alternatives for the schedule change.

In addition to the schedule change, the Council considered a proposal to include a requirement that the annual management measures recommendation be transmitted to NMFS no fewer than 24 days before the measures were expected to take effect. The Council considered two alternatives for the transmittal deadline.

### 3.2.1 Alternative 2.1 (no-action alternative) – Schedule status quo

Under the status quo alternative, there would be no change to the preseason schedule in Chapter 9 of the FMP. The expectation would continue to be that NMFS would promulgate the annual management measures through publication in the Federal Register in the first week of May and the effective date would continue to be May 1.

### 3.2.2 Alternative 2.2 – Annual effective date May 15

Under Alternative 2.2., the preseason schedule in Chapter 9 of the FMP would be changed to anticipate NMFS' promulgation of the annual management measures through publication in the Federal Register in mid-May with an effective date of May 15.

### 3.2.3 Alternative 2.3 (preferred alternative) – Annual effective date May 16

Under Alternative 2.2., the preseason schedule in Chapter 9 of the FMP would be changed to anticipate NMFS' promulgation of the annual management measures through publication in the Federal Register in mid-May with an effective date of May 16.

### 3.2.4 Alternative 2.4 (preferred alternative) – No transmittal deadline

Alternative 2.4 would maintain the status quo of no deadline to the schedule in Chapter 9 of the FMP for Council transmittal of the annual management measures recommendation to NMFS.

### 3.2.5 Alternative 2.5 – 24-day transmittal deadline

Alternative 2.5 would include the addition of a deadline to the schedule in Chapter 9 of the FMP for Council transmittal of the annual management measures recommendation to NMFS that provides 24 days for NMFS to approve and implement the annual management measures.

## 3.3 Proposed Action: Language Updates

The Council considered a number of proposed language updates to the FMP in a mark-up of the FMP titled "Proposed Housekeeping Changes" (see Council briefing book for September 2020, Agenda Item

H.2).[1] These included updating information in the FMP to reflect rulemaking actions that had occurred previously, and updating references to the NMFS Northwest and Southwest Regional Administrators to reflect the 2013 merger into the West Coast Region.

### 3.3.1 Alternative 3.1 (no-action alternative) – Language status quo

The no-action alternative would not update language in the FMP as suggested in the proposed housekeeping changes document.

### 3.3.2 Alternative 3.2 (preferred alternative) – Adopt language changes

This alternative would update language in the FMP as suggested in the proposed housekeeping changes document. This was the Council's preferred alternative and includes all suggested changes in the referenced document.

## 4.0. Environmental Impact of Alternatives

The proposed change to the preseason schedule and updates to language in the FMP are administrative in nature and are not expected to have environmental effects. Therefore, there are no effects of those parts of the proposed action to amend the FMP to analyze in this chapter. The environmental impact of the alternatives for the proposed boundary change are analyzed below.

Council-managed salmon fisheries are divided into those that occur north of Cape Falcon, Oregon (U.S./Canada border to Cape Falcon) and south of Cape Falcon (Cape Falcon to U.S./Mexico border). The proposed action is in the area south of Cape Falcon. The analysis area for the proposed action is the KMZ from Humbug Mountain (lat. 42°40'30" N) to Horse Mountain (lat. 40°05′ N). The Council manages ocean salmon fisheries in the KMZ in two subareas: the Oregon KMZ (KO) from Humbug Mountain to the Oregon/California border, and the California KMZ (KC) from the Oregon/California border to Horse Mountain. The focus of the proposed action is in the KC management area (see section 8.1 in PFMC and NMFS 2020 for a description of the KC management area).

NMFS determined that the following resources could potentially be affected by the proposed action and are, therefore, the resources that are analyzed in this EA: species listed as endangered or threatened under the Endangered Species Act (ESA), marine mammals, managed fish species, and socioeconomics. Although the proponents of the boundary change cited positive impact on safety at sea, the Council's

[1] PFMC September 2020 Briefing Book, Agenda Item H.2, Supplemental Revised Attachment 2, Pacific Coast Salmon Fishery Management Plan: Amendment 20: Proposed Housekeeping Changes. Available: https://www.pcouncil.org/documents/2020/09/h-2-supplemental-revised-attachment-2-pacific-coast-salmon-fishery-management-plan-amendment-20-proposed-housekeeping-changes.pdf/ (website accessed December 2, 2020).

Enforcement Consultants testified that the boundary change would not impact safety or freedom of navigation (Enforcement Consultants 2020); therefore, safety at sea is not analyzed in this EA.

## 4.1 ESA-listed Species

The Council-managed salmon fisheries affect a number of ESA-listed species. NMFS has consulted under section 7 of the ESA on the impacts of the fisheries on several evolutionarily significant units (ESUs) of salmon (Waples 1991) and one distinct population segment (DPS) of killer whale. The biological opinions resulting from these consultations include any terms and conditions, reasonable and prudent measures (RPMs), and reasonable and prudent alternatives (RPAs) necessary for managing ocean salmon fisheries without jeopardizing the ESA-listed species. See Table 4-1 for a list of biological opinions issued by NMFS on the effects of ocean salmon fisheries on ESA-listed species. Several of these species occur south of Cape Falcon, including eight ESUs of ESA-listed salmon (see Table 4-2). ESA-listed species that are affected by ocean salmon fisheries in the analysis area are discussed below.

Table 4-1. NMFS ESA Biological Opinions regarding Evolutionarily Significant Units (ESUs) and Distinct Population Segments (DPSs) affected by PFMC Fisheries.

| Date | Duration | Species Considered |
|---|---|---|
| **Salmonid Species** | | |
| March 8, 1996 | until reinitiated | Snake River spring/summer and fall Chinook<br>Snake River sockeye |
| April 28, 1999 | until reinitiated | S. Oregon/N. California Coast (SONCC) coho<br>Central California Coast (CCC) coho<br>Oregon Coast natural coho |
| April 28, 2000 | until reinitiated | Central Valley Spring-run Chinook<br>California Coastal Chinook |
| April 27, 2001 | until withdrawn | Hood Canal summer-run chum |
| April 30, 2001 | until reinitiated | Upper Willamette River Chinook<br>Columbia River chum<br>Ozette Lake sockeye<br>Upper Columbia River spring-run Chinook<br>Ten listed steelhead DPSs |
| June 13, 2005 | until reinitiated | California Coastal Chinook |
| April 4, 2015 | until reinitiated | Lower Columbia River coho |
| March 3, 2018 | until reinitiated | Sacramento River winter-run Chinook |
| April 29, 2004 | until reinitiated | Puget Sound Chinook |
| April 26, 2012 | until reinitiated | Lower Columbia River Chinook |
| **Non-Salmonid Species** | | |
| May 5, 2009 | Reinitiated in 2019 | Southern Resident Killer Whales |

Table 4-2. ESA-listed salmon within the South of Cape Falcon management area.

| ESA-listed ESUs | Status |
|---|---|
| Chinook salmon (*O. tshawytscha*) | |
| Sacramento River Winter-run | Endangered |
| Lower Columbia River | Threatened |
| Central Valley Spring-run | Threatened |
| California Coastal | Threatened |
| Coho salmon (*O. kisutch*) | |
| Central California Coastal (CCC) | Endangered |
| Southern Oregon/Northern California Coastal (SONCC) | Threatened |
| Oregon Coastal | Threatened |
| Lower Columbia River | Threatened |

### 4.1.1 Affected environment

#### *4.1.1.1 ESA-listed salmon*

Several ESUs of Pacific salmon (*Oncorhynchus* spp.) that are ESA-listed as threatened or endangered occur in the ocean in the area south of Cape Falcon, Oregon (Table 4-2). Of the ESA-listed salmon listed in table 4-2, the ESUs that are known to be affected by ocean salmon fisheries in the analysis area are: California Coastal Chinook, Central California Coast coho (CCC coho), and Southern Oregon/Northern California Coast coho (SONCC coho) (O'Farrell and Letvin 2019). These ESA-listed species can be encountered in salmon fisheries targeting non-ESA-listed salmon stocks such as KRFC. Take of these ESA-listed species in the ocean salmon fishery can occur through incidental harvest (including misidentified harvest) or hooking mortality (including hook-and-release mortality and dropoff mortality) (OFarrell and Letvin 2019). NMFS has consulted under section 7 of the ESA on the impacts of Council-managed salmon fisheries on these ESA-listed salmon. Meeting the ESA biological opinion requirements for California Coastal Chinook salmon (threatened) and CCC coho salmon (endangered) often constrains ocean salmon fisheries in the KC area.

***California Coastal Chinook salmon ESU (threatened)***

The California Coastal Chinook salmon ESU includes naturally spawned Chinook salmon originating from rivers and streams south of the Klamath River to, and including, the Russian River (70 FR 37159, June 28, 2005); this distribution overlaps the analysis area, including the Mattole River which flows into the ocean at lat. 40°18' N, and is considered a critical component of the California Coastal Chinook ESU (O'Farrell and Letvin 2019). This ESU has been ESA-listed as threatened since 1999. NMFS's most recently completed review of this ESU (NMFS 2016) expressed concern about extremely low number of Chinook salmon in most populations in the "North-Central Coast and Central Coast strata" (NMFS 2016) which include most of the key populations in the California Coastal Chinook salmon ESU.

The biological opinion on impacts from the FMP on California Coastal Chinook salmon (NMFS 2000) includes an RPA that limits ocean salmon fishery impacts on non-ESA-listed KRFC as a surrogate for ocean salmon fishery impacts on ESA-listed California Coastal Chinook salmon.[2] These surrogate impacts are used because there is no methodology available to directly measure fishery impacts on the California Coastal Chinook salmon ESU, which has no hatchery component. NMFS has investigated alternative methods for assessing ocean salmon fishery impacts on California Coastal Chinook salmon (e.g., O'Farrell et al. 2012, O'Farrell et al. 2015) including a multi-agency workshop in 2014 (O'Farrell et al. 2015). At the 2014 workshop, Satterthwaite presented a study based on genetic stock identification (GSI) comparing distribution and catch per unit effort (CPUE) data between California Coastal Chinook salmon and KRFC (Satterthwaite et al. 2014). The limited GSI data suggest that California Coastal Chinook salmon and KRFC exhibit similar distributions in spring and early summer, but by August CPUE for California Coastal Chinook salmon increases in the FB area while KRFC CPUE shifts to the northern portion of California KMZ, near the Klamath River mouth (Satterthwaite et al. 2014). The divergence of these two stocks in late summer may reflect migration of these salmon to their natal streams (O'Farrell et al. 2015). The low sample size of California Coastal Chinook salmon in this study prohibited making strong inference about differences in spatial distributions (Satterthwaite et al. 2014, O'Farrell et al. 2015). The conclusion from the 2014 workshop was that alternative methods of managing ocean salmon fishery impacts on California Coastal Chinook salmon are technically difficult at this time. Lacking a new, reliable methodology, the existing RPA continues to represent the best available science for managing ocean salmon fishery impacts on ESA-listed California Coastal Chinook salmon.

***CCC coho (endangered)***

The CCC coho ESU includes naturally spawned coho salmon originating from rivers south of Punta Gorda, Humboldt County, California, to, and including, Aptos Creek, as well as such coho salmon originating from tributaries to San Francisco Bay; this distribution overlaps the analysis area. This ESU also includes coho salmon from two hatchery, or artificial propagation, programs: (1) Don Clausen Fish Hatchery Captive Broodstock Program and (2) Southern Coho Salmon Captive Broodstock Program. This ESU was originally ESA-listed as threatened in 1996, but was reclassified to endangered in 2005 (70

[2] This RPA was revised in 2005 to account for observed performance of the Klamath Ocean Harvest Model (McInnes 2005).

FR 37159, June 28, 2005). This ESU is currently considered critically endangered and is one of NMFS' Species in the Spotlight.[3]

The biological opinion for CCC coho and SONCC coho (NMFS 1999) includes an RPA for CCC coho that prohibits coho-directed fisheries and coho retention in Chinook-directed fisheries off California. This RPA continues a prohibition on coho retention that had been reiterated annually in the Council's recommended management measures since 1994. The purpose of this RPA is to limit salmon fishery impacts on CCC coho. As retention of coho salmon in ocean salmon fisheries is prohibited throughout California, any fishery mortality incurred by coho salmon, including the CCC coho ESU, in the California portion of the analysis area is limited to hook-and-release mortality, dropoff mortality, and misidentified harvest (PFMC and NMFS 2020).

***SONCC coho salmon ESU (threatened)***

This ESU includes naturally spawned coho salmon originating from coastal streams and rivers between Cape Blanco, Oregon, and Punta Gorda, Humboldt County, California; this distribution overlaps the analysis area. Coho salmon from three hatchery, or artificial propagation, programs are also included in the ESU: (1) Cole Rivers Hatchery Program (ODFW Stock #52), (2) Trinity River Hatchery Program, and (3) Iron Gate Hatchery Program. This ESU has been ESA-listed as threatened since 1997 (70 FR 37159, June 28, 2005).

Retention of coho has not been allowed in California ocean salmon fisheries since 1994. This prohibition was initially implemented through the Council's annual management measures, and in 1999 it was included as an RPA for CCC coho in NMFS' biological opinion (NMFS 1999). As retention of coho salmon in ocean salmon fisheries is prohibited throughout California, any fishery mortality incurred by coho, including SONCC coho, in the California portion of the analysis area is limited to hook-and-release mortality, dropoff mortality, and misidentified harvest (PFMC and NMFS 2020). The biological opinion (NMFS 1999) also includes an RPA that limits the exploitation rate on Rogue/Klamath hatchery coho stocks to 13 percent in Council-managed fisheries, to limit salmon fishery impacts on SONCC coho.

The Council develops annual management measures that are consistent with all applicable biological opinions. Ocean salmon fisheries in the KC management area are frequently constrained to meet conservation requirements for ESA-listed salmon, as detailed in the STT's annual Review of Ocean

[3] NMFS launched the "Species in the Spotlight" initiative in 2015 to bring greater attention and marshal resources to save highly at-risk species: https://www.fisheries.noaa.gov/topic/endangered-species-conservation#species-in-the-spotlight.

Salmon Fisheries (SAFE documents); these annual documents are available on the Council's website (https://www.pcouncil.org/safe-documents-3/).

#### *4.1.1.2 ESA-listed marine mammals*

Of the ESA-listed marine mammals that occur in the analysis area, only Southern Resident killer whales (SRKW), a DPS of *Orcinus orca*, are likely to be affected by salmon fisheries. The "resident" killer whale ecotype is dependent on fish as a prey item; the primary prey for the SRKW DPS is Chinook salmon (SRKW Workgroup 2020). The SRKW DPS occurs regularly throughout the coastal waters of the states of Washington, Oregon, and Vancouver Island, British Columbia, Canada; individuals are known to travel as far south as central California and as far north as Southeast Alaska (SRKW Workgroup 2020).

Salmon fisheries conducted under the FMP may directly affect SRKW through interactions with vessels and gear, and indirectly affect them by reducing prey availability. The risk assessment report, prepared by the Council's ad hoc workgroup on SRKW/salmon fishery interactions (SRKW Workgroup 2020), presented at the Council's March 2020 meeting, provides the most current information on SRKW and their predator-prey interaction with Pacific salmon. The report can be found online at: https://www.pcouncil.org/documents/2020/02/e-3-a-srkw-workgroup-report-1-electronic-only.pdf/.

NMFS completed a consultation on the effects of implementing the Council's 2020 ocean salmon management measures on SRKW and their current and proposed critical habitat. The biological opinion, dated April 29, 2020, considered interactions with vessels and gear, and effects on prey availability (NMFS 2020). The biological opinion concluded that effects from the Council's 2020 salmon fisheries were not likely to jeopardize the continued existence of the SRKW DPS or destroy or adversely modify its designated critical or proposed habitat.

At its November 2020 meeting, the Council adopted a final preferred alternative for a subsequent amendment to the FMP to include management provisions responsive to the needs of SRKW (if approved, this will be Amendment 21). NMFS is currently consulting on the effects on SRKW of Amendment 21. Amendment 21, if approved, would set a Chinook salmon annual abundance management threshold below which the Council and NMFS would implement specific steps to limit ocean salmon fishery impacts on Chinook salmon in order to increase salmon prey availability forSRKW.[4] These steps include time and area closures and temporal shifts in fishing. As mentioned

[4] For details of the Council's adopted provisions for Amendment 21, see the Council decision document for the November 2020 Council meeting at: https://www.pcouncil.org/november-2020-decision-summary-document/#Salmon.

above, the annual management measures for Council salmon fisheries are developed to be consistent with all ESA biological opinions.

### 4.1.2 Environmental Effects

The proposed action (under Alternatives 1.2 and 1.3) would move the boundary between the KMZ and FB management areas, that is used in the annual management measures that govern the fishery, 5 nmi north and would likely result in fishery management changes within that area under the annual management measures. Annual management measures are developed to be consistent with the requirements in NMFS' biological opinions for all affected ESA-listed species (i.e., ESA-listed salmon and SRKW), as described in section 4.1.1.

As mentioned above (section 3.1) part of the analysis area, Humboldt South Jetty (lat. 40°45′53″ N) to Horse Mountain, has been closed annually to commercial salmon fishing since at least 1996. The proposed action, under alternatives 1.2 and 1.3, would move the southern 5 nmi of this area from the KMZ to the FB management area and it is reasonable to assume that the commercial fishery will then have access to this area under the annual management measures for the FB area. Lacking any recent commercial fishery data for that area, there is a degree of uncertainty in estimating how the commercial fleet will respond to having access to this area for the first time in decades and how that might, or might not, affect fishery contacts with target and ESA-listed salmon. The STT attempted to gauge the potential fishery effort in this area through discussion with commercial fishery participants, and found that an appreciable fishery effort response to the proposed boundary change would be unlikely (O'Farrell and Letvin 2019).

The No-action Alternative (Alternative 1.1) would not change the KMZ/FB boundary. Therefore, salmon fishery impacts on ESA-listed species would be consistent with impacts in recent years, or less for SRKW if Amendment 21 is approved and implemented. The management area boundaries for the KMZ and FB management areas would remain as they have been for decades.

Alternatives 1.2 and 1.3 would move the KMZ/FB boundary 5 nmi north, effectively expanding the FB management area. The proposed boundary change under Alternatives 1.2 and 1.3, would extend the FB management area into waters that have been closed to commercial salmon fishing since at least 1996 (see section 3.1). This would create some amount of uncertainty about the effects of opening this area to commercial fishing on the salmon stocks encountered in the fisheries, because there is no recent data on factors such as contact rates and stock distribution. This uncertainty would be ameliorated to some extent by the ongoing monitoring of the fishery, and post-season reporting. Data will be gathered regarding the

effects of fishing in the newly opened area, and fishery management would respond to that information in order to be consistent with objectives and harvest control rules.

Expanding the commercial salmon fishery into this previously closed area could result in an uncertain increase in ocean salmon commercial fishery contacts with coho salmon in Chinook-directed fisheries, related to any increase in fishing effort in the area. Although commercial fishers indicate that an appreciable effort response to the boundary change is unlikely, it is possible that the realized effort response to access to an area that has been closed for thirty years could be greater than expected (O'Farrell and Letvin 2019). As described above, retention of coho salmon in ocean salmon fisheries off California is not allowed; therefore, any fishery mortality incurred by coho salmon (including ESA-listed SONCC and CCC coho) between Horse Mountain and lat. 40°10' N would be limited to hook-and-release mortality, dropoff mortality, and misidentified harvest (O'Farrell and Letvin 2019). The STT's report concluded that anticipated changes to total catch are small (O'Farrell and Letvin 2019), which suggests ocean salmon fishery impacts on coho salmon resulting from the boundary change will be small.

As described in section 4.1.1.1, fishery impacts on ESA-listed California Coastal Chinook salmon may diverge from impacts on the surrogate KRFC as summer progresses, resulting in differential fishery impacts on the two stocks in the KMZ and FB management areas (Satterthwaite et al. 2014). As there is currently no acceptable alternative for estimating impacts on ESA-listed California Coastal Chinook, the existing RPA, which is based on using fishery impacts on KRFC as a surrogate for California Coastal Chinook, represents the best available science at this time for managing ocean salmon fishery impacts on ESA-listed California Coastal Chinook salmon. The uncertainty around fishing effort with the boundary change and the effects on salmon stocks of any changes in fishing effort is added to the uncertainty around the extent to which California Coastal Chinook impacts track with KRFC impacts. However, the proposed action would move only a small area from the KMZ to the FB management area. This area includes 5 nmi of the 41 nmi coastline that has been closed to commercial salmon fishing. Most of the area that has been closed to commercial fishing for decades would remain in the KMZ and, presumably, continue to be closed to commercial salmon fishing.

Alternative 1.3 would, in addition to moving the KMZ/FB boundary, provide for a conservation zone in the expanded FB management area during years when the *de minimis* control rule for KRFC is in effect. This conservation zone could reduce the uncertainty around salmon fishery impacts on ESA-listed salmon in some years, compared with Alternative 1.2.

Under any of the alternatives, annual management measures would be developed based on salmon stock forecasts to meet the collective conservation objectives in the FMP and any terms and conditions in

NMFS biological opinions. Alternative 1.1 would provide the least amount of uncertainty in terms of salmon fishery impacts on Chinook salmon abundance as prey for SRKW. Alternative 1.2 would introduce some uncertainty in terms of change in fishing effort in the affected area and the resulting impacts to affected salmon stocks; however, the STT expects that any change will be small and, given that this small change would occur in a very limited geographical area, it is reasonable to expect that the proposed action would have no measurable effect on prey availability for SRKW. Alternative 1.3 would provide an additional buffer on salmon fishery impacts, compared with Alternative 1.2, on salmon that are prey for SRKW.

#### *4.1.2.1 Short- and long-term effects of the alternatives on ESA-listed species*

The short-term effects of the No-action Alternative would be somewhat beneficial to ESA-listed salmon species, compared with Alternatives 1.2 and 1.3, because the no-action alternative would not introduce additional uncertainty with respect to fishery impacts on ESA-listed salmon species. The short-term effects of Alternative 1.2 have the potential to be somewhat adverse, given the uncertainty of commercial salmon fishery impacts on ESA-listed salmon species in the area that would now be open to commercial salmon fishing. The short-term effects of Alternative 1.3 on ESA-listed salmon species would likely be less adverse than Alternative 1.2, due to the use of a conservation zone in some years. The long-term effects of all alternatives on ESA-listed salmon species are likely to be neither beneficial nor adverse as uncertainty around salmon fishery impacts diminishes through time as information about fishing impacts in the newly opened area is collected and fishery management responds to that information. As described above, the effects of the alternatives on SRKW are not expected to be measurable given the small numbers of salmon and small geographic area affected.

Any effects of the alternatives on ESA-listed species would be not be significant. The proposed action changes a management boundary, but does not implement ocean salmon fisheries. Ocean salmon fisheries are set each year to establish annual management measures that are consistent with current stock abundance forecasts and which meet ESA-requirements to limit salmon fishery impacts on ESA-listed species through the terms and conditions, RPMs, and RPAs detailed in NMFS' ESA Section 7 biological opinions, this will not change under the action alternatives. The potential effects of any additional uncertainty are limited, as the area affected by the proposed action is small with respect both to the KMZ as a whole and to the area that has been closed to commercial fishing for many years. The STT expects a small response in salmon fishing effort, if any, as a result of the proposed action.

## 4.2 Marine Mammals

### 4.2.1 Affected Environment

A number of non-ESA-listed marine mammal species occur in the analysis area. The non-ESA-listed marine mammal species that are known to interact with ocean salmon fisheries are California sea lion (*Zalophus californianus*) and harbor seals (*Phoca vitulina*), both species will feed on salmon, when available, and have been documented preying on hooked salmon in commercial and recreational fisheries (e.g., Weise and Harvey 1999, 2005). Other pinnipeds, including Steller sea lions (*Eumetopias jubatus*), also occur in the area and may also interact with the ocean salmon fisheries, but there is currently no available information on such interactions. Ocean salmon fisheries employ hook-and-line "troll" gear (net fishing is prohibited in these fisheries by regulation at 50 CFR 660.405(a)(1)) and are classified under NMFS' Marine Mammal Protection Act (MMPA) List of Fisheries as Category III (85 FR 21079, April 16, 2020), indicating there is no record of substantive impacts to marine mammals from these fisheries (MMPA 118(c)(1)). Of the ESA-listed marine mammals that occur in the analysis area, only SRKW are likely to be affected by Council-managed salmon fisheries (see section 4.1, above). SRKW is discussed specifically in section 4.1 as an ESA-listed species.

### 4.2.2 Environmental Effects

The proposed action (under Alternatives 1.2 and 1.3) would move the boundary between the KMZ and FB management areas 5 nmi north and would likely result in fishery management changes within that area under the annual management measures. However, the proposed action does not affect how salmon fisheries are conducted with respect to vessel operation and fishing gear and does not remove the prohibition of net fishing that is codified at 50 CFR 660.405(a)(1). Therefore, the proposed action would have no identified impact on marine mammals.

#### *4.2.2.1 Short- and long-term effects of the alternatives on marine mammals*

The short-and long-term effects of all alternatives on marine mammals would be neither beneficial nor adverse as the proposed action will not change how fisheries are conducted.

Any effects of the alternatives marine mammals would be not be significant. The proposed action changes a management boundary, but does not change how ocean salmon fisheries are conducted, e.g. allowable gear-types or vessel operation. Ocean salmon fisheries will continue to be evaluated on an annual basis under section 118 of the MMPA and categorized in terms of level of incidental mortality and serious injury of marine mammals. As stated in section 4.2.1, ocean salmon fisheries off the West Coast states are currently in Category III—i.e. remote likelihood of or no known incidental mortality and serious injury of marine mammals.

## 4.3 Managed Fish Species

### 4.3.1 Affected Environment

As described in the EA for 2020 Ocean Salmon Fisheries Management Measures (NMFS and PFMC 2020) ocean salmon fisheries target Chinook and coho salmon and have little impact on non-target species. Therefore, this EA will only analyze impacts to Chinook and coho salmon.

The primary stocks targeted in ocean salmon fisheries in the KC are Sacramento River fall-run Chinook salmon (SRFC) and KRFC. These stocks are harvested in commercial and recreational ocean salmon fisheries. NMFS determined in 2018 that these two Chinook salmon stocks met the criteria for being overfished under the MSA (83 FR 38292, August 6, 2018), based on spawning escapement for the period 2015 – 2017.[5] The Council adopted rebuilding plans for these stocks in 2019. Annual spawning escapement and fishery impact analyses for these and other salmon stocks managed under the FMP are available in the Council's annual Review of Ocean Salmon Fisheries (SAFE document), which are available on the Council's website (https://www.pcouncil.org/safe-documents-3/).

The SRFC stock is the largest contributing stock to ocean salmon fisheries off Oregon and California (O'Farrell et al. 2013), primarily between Cape Falcon and Point Conception, California. Salmon fishery impacts for SRFC are generally higher closer to San Francisco Bay, which connects the Sacramento River to the ocean. Ocean salmon fisheries south of Cape Falcon, including KC, have been constrained to meet conservation requirements for SRFC in four years of the 15-year period 2004-2018 (see the Council's SAFE and Preseason Reports for the years 2004-2018, available on the Council's website).

The KRFC stock is primarily contacted in ocean salmon fisheries between Cape Falcon and Point Sur, California. Salmon fishery impacts for KRFC are generally higher closer to the Klamath River mouth. KRFC are typically contacted at a higher rate by the commercial fleet than in the recreational fishery. For these reasons, commercial fisheries in areas closer to the Klamath River mouth (i.e., KO, KC, Central Oregon, and FB management areas) are the most constrained when KRFC abundance is projected to be low. Ocean salmon fisheries south of Cape Falcon, including KC, have been constrained to meet conservation requirements for KRFC in at least five years of the 15-year period 2004-2018, (see the Council's SAFE and Preseason Reports for the years 2004-2018, available on the Council's website).

[5] The FMP (PFMC 2016) defines overfished for salmon: a stock will be considered overfished if the three-year geometric mean of annual spawning escapements falls below the minimum stock size threshold (MSST).

Coho salmon have not been retained in California commercial and recreational ocean salmon fisheries since 1994 (see section 4.1.1.1.). This prohibition was included in an RPA in the biological opinion on the effects of the ocean salmon fisheries on endangered CCC coho (NMFS 1999).

### 4.3.2 Environmental Effects

The proposed action (under Alternatives 1.2 and 1.3) would move the boundary between the KMZ and FB management areas 5 nmi north and would likely result in fishery management changes within that area under the annual management measures. However, the proposed action does not change the conservation objectives, ACL control rules, and status determination criteria for salmon stocks managed under the FMP. The Council would continue to design annual management measures to keep their impacts within these parameters, and to prevent overfishing and provide optimum yield to the fisheries, as required under the MSA.

To assess the biological impacts of the proposed action, the STT provided a report to the Council in November 2019 (O'Farrell and Letvin 2019). The report focused on the implications of the boundary change to the models used to assess impacts to salmon stocks in the area – mainly KRFC and SRFC. Information in this section summarizes the findings of the STT report (O'Farrell and Letvin 2019), which is incorporated by reference.

The No-action Alternative (Alternative 1.1) would have no change to the KMZ/FB boundary. Therefore, salmon fishery impacts on managed fish species would be consistent with impacts in recent years. The management area boundaries for the KMZ and FB area would remain as they have been for decades.

Alternatives 1.2 and 1.3 would move the KMZ/FB boundary 5 nmi north, effectively expanding the FB management area. The STT analyzed the likely effects of this change on the outputs from the harvest models used to forecast fishery impacts on KRFC and SRFC: Klamath Ocean Harvest Model (KOHM) and Sacramento Harvest Model (SHM), respectively. The STT found that there are small anticipated effects on the KOHM and SHM imparted by the proposed management boundary change that are not substantial enough to make it necessary make changes to the existing harvest models under Alternatives 1.2 and 1.3 (O'Farrell and Letvin 2019). The STT report acknowledged that the response of the fishery to boundary change has the potential to result in changes in fishing effort (O'Farrell and Letvin 2019) which, when combined with uncertainty about fish distribution and other parameters in this long unfished area, could create uncertainty regarding fishery impacts on targeted salmon stocks. The STT's analysis concluded that "potential changes to harvest, harvest rates, and river return projections for KRFC and SRFC resulting from this management line adjustment suggested that effects could be small" (O'Farrell and Letvin 2019).

The STT did not conduct a separate analysis of Alternative 1.3. However, it is reasonable to expect that in years when the proposed conservation zone was not in effect, the effects of Alternative 1.3 on managed fish stocks would be the same as under Alternative 1.2. In years when the conservation zone was in effect, the effects of Alternative 1.3 on managed fish stocks would be more similar to the No-action Alternative.

#### *4.3.2.1 Short- and long-term effects of the alternatives on managed fish stocks*

The short-term effects of the No-action Alternative would be somewhat beneficial to managed fish stocks, compared with Alternatives 1.2 and 1.3, due to the lack of uncertainty. The short-term effects of Alternative 1.2 have the potential to be somewhat adverse, given the uncertainty of commercial salmon fishery impacts on managed fish stocks in the area that would now be open to commercial salmon fishing. The short-term effects of Alternative 1.3 on managed fish stocks would likely be less adverse than Alternative 1.2, due to the use of a conservation zone in some years. The short-term adverse effects of Alternatives 1.2 and 1.3 would likely be minimal as annual management measures are developed to meet the conservation objectives in the FMP on an annual basis. The long-term effects of all alternatives on managed fish stocks are likely to be neither beneficial nor adverse as uncertainty around salmon fishery impacts diminishes through time through observing the response of the fishery to the boundary change.

Any effects of the alternatives on managed fish species would be not be significant, based on the analysis in the STT report (O'Farrell and Letvin 2019), as described above. Ocean salmon fisheries are set each year through a separate action to establish annual management measures that are consistent with current stock abundance forecasts and which meet management criteria specified in the FMP for each managed salmon stock (e.g., conservation objectives, harvest control rules, annual catch limits, etc.). Any inaccuracy in the model predictions used to manage ocean salmon fisheries resulting from the boundary change would be expected to decrease through time as response of the fishery to the boundary change is observed.

## 4.4 Socioeconomics

### 4.4.1 Affected Environment

Information on the economic impacts of the ocean salmon fishery is provided in the Council's annual Review of Ocean Salmon Fisheries (SAFE documents), which are available on the Council's website (https://www.pcouncil.org/safe-documents-3/). The Amendment 20 Workgroup's document (PFMC and NMFS 2020) includes a socioeconomic analysis of the proposed action in section 9.2 of that document; that analysis is incorporated by reference into this EA and is summarized as follows.

The proposed movement of the management line alone is not likely to result in a noticeable increase or decrease in total commercial or recreational effort. At the same time, the commercial stakeholders'

interest in this boundary change indicates that industry expects some benefit. Under the action alternatives (Alternatives 1.2 and 1.3), this benefit could accrue through direct reduction of operating costs and/or increases in revenue or reduction in costs through a higher CPUE. Operating costs might be directly reduced in two ways. First, industry has indicated that when they are fishing along the current management line, the course they need to take to reverse direction is sometimes problematic from a safety perspective. Making the turn in a safe manner may require more time and fuel under the current management regime. Second, if there are vessels fishing in the area that leave from ports in Humboldt Bay, the five-nautical-mile northward move in the management line would reduce the travel distance, thereby reducing the one-way travel time by 40 minutes and saving about 4 gallons of fuel. After taking into account differences for steaming under load compared to steaming empty, this savings may be more than doubled for vessels that leave from and deliver back to Humboldt Bay. Efficiency may also be increased if there are times when the CPUE is higher in the newly opened area, reducing costs for a given amount of fish caught.

Salmon vessels most likely to be affected by the proposed action are those with landings in the Fort Bragg port area. Given that the primary economic impact of the action alternatives is expected to be on fishing costs rather than total catch or exvessel revenues, it is unlikely that fish buyers would be substantially affected by a move of the management line.

With respect to the recreational fishery, movement of the management line 5 nmi north would expand the extent of the FB management area by approximately 7 percent. Regarding angler trips for which an enlarged FB area might make a difference, that difference would likely relate to the quality of the trip, e.g., if there are times that higher angler success rates occur in areas north of the current management line. There are no substantial recreational launch points between the current management line at Horse Mountain and lat. 40º 10' N. Therefore, there do not appear to be opportunities for recreational vessels to substantially reduce travel time or distance.

Movement of the management line 5 nmi to the north would increase fishing area for vessels in the FB area during times when the FB area is open for recreational fishing but the KC area closed (i.e., non-overlapping days). The potential effect of this movement in the line can be considered in the context of past seasons and effort patterns. Since only those trips taken in the vicinity of the northern management line would likely be affected by the new opportunity, the number of trips potentially benefitting would likely have been substantially less than 20 to 28 percent.

For recreational vessels fishing in the KC area during times when the FB area is closed and the KC area is open, movement of the management line 5 nmi to the north might decrease the fishing area for these

vessels. However, the affected area is distant and relatively isolated from recreational launch points in the KC area, such as Humboldt Bay. While movement of the line 5 nmi to the north may diminish recreational fishing opportunity in the KC area in months when the KC area is open but the FB area is closed, recreational vessels launching from ports such as Shelter Cove would still be able to transit the additional 5 nmi north to participate in the KC area fishery.

Whatever economic benefits that are provided under Alternative 1.2 might not occur under Alternative 1.3 in years in which the option to close the 5 nmi area as a conservation zone is exercised due to low KRFC abundance. Alternative 1.3 would therefore likely function like the no-action alternative (Alternative 1.1) in those low abundance years since the KC area would likely be closed to commercial fishing. However, while this may be true for the commercial fishery, it is not necessarily true for the recreational fishery which has much lower contact rates for KRFC than the commercial fishery, allowing the sport fishery often to still occur in years of low KRFC abundance.

### 4.4.2 Environmental Effects

The proposed action (under Alternatives 1.2 and 1.3) would move the boundary between the KMZ and FB management areas 5 nmi north and would likely result in fishery management changes within that area under the annual management measures. The proposed action, in and of itself, does not have an identifiable economic impact, but could lead to economic impacts from the annual management measures that incorporate and account for the boundary change.

The socioeconomic analysis (section 9.2 in PFMC and NMFS 2020) found that, overall, impacts of the action alternatives (Alternatives 1.2 and 1.3), relative to the No-action Alternative, are not expected to affect the fishery to an extent or in a manner that it will be noticeable in the data and are not possible to estimate quantitatively due to the lack of information about stock composition and expected effort in the 5 nmi area that would be moved from being managed as part of the KC to the FB area. The report includes a qualitative analysis of: future fishing opportunities related to changing stock impacts, effects on commercial profits and CPUE, and effects on the recreational effort and experience.

The socioeconomic analysis suggests that the action alternatives might provide economic benefit from reduced operating costs, including fuel costs and improved CPUE. Alignment of the salmon and groundfish management lines at lat. 40°10' N may provide an operational benefit to the fishery. Table 4-3, taken from the Workgroup's report (PFMC and NMFS), summarizes the qualitative effects of the alternatives on the socioeconomic environment.

Table 4-3. Summary of socioeconomic impacts.

| Potential Impact Areas | Alternative 1.1 | Alternative 1.2 | Alternative 1.3 |
|---|---|---|---|
| Long Term Harvest Opportunity | Similar to baseline | Minimal chance of adverse impacts to stocks (not likely to be irretrievable).<br><br>Adverse impacts to stocks might result in reduced opportunity in future years. | Lower risk than Alternative 2 |
| Commercial Fishery | | Possibility of some reduction in operating costs and opportunity to fish at a higher CPUE. [a/]<br><br>Regulatory simplification by using same management line for groundfish and salmon. | Benefits anticipated under Alternative 2 would not occur in years that the 5 nmi conservation zone is closed. |
| Recreational Fishery | | Possibility of some opportunity to fish at a higher angler success rate.[a/]<br><br>Regulatory simplification by using same management line for groundfish and salmon. | Benefits anticipated under Alternative 2 would not occur in years that the 5 nmi conservation zone is closed. |

a/ The size of the Fort Bragg area fishing grounds would be increased by about 6 percent at the northern end. If a hotspot were to appear just north of the current boundary extending to the north, the proposed change would provide harvesters with increased opportunity to fish in that hotspot with the attendant socio-economic benefits associated with higher CPUE.

#### *4.4.2.1 Short- and long-term effects of the alternatives on socioeconomics*

The short- and long-term effects of the No-action Alternative would be similar to recent years, as there would be no change in fishery management areas and no anticipated change in how commercial and recreational fishery participants conduct their fishing activities. Alternative 1.2 would likely result in somewhat positive economic effects, in the short- and long-term, over Alternatives 1.1 and 1.3, due to the potential for reduced operating cost and increased CPUE. In years when the conservation zone is in effect, Alternative 1.3 would have short-term negative economic impact compared to Alternative 1.2 and neutral impact to Alternative 1.1.

Any effects of the alternatives on socioeconomics would be not be significant. The proposed action changes a management boundary, but does not implement ocean salmon fisheries. Ocean salmon fisheries are set each year through a separate action to establish annual management measures that are consistent with current stock abundance forecasts and which meet FMP and ESA-requirements to manage ocean salmon fishery impacts on salmon stocks. Socioeconomic impacts, therefore, are more strongly affected by salmon abundance than by the geography of management boundaries.

## 5.0 Agencies and Persons Consulted

The proposed action was considered at three Council meetings (November, 2019, June 2020, and September 2020). The Council includes representatives from:

State of California
State of Idaho
State of Oregon
State of Washington
Tribal representative
Alaska Department of Fish and Game
California Department of Fish and Wildlife
Idaho Department of Fish and Game
Oregon Department of Fish and Wildlife
Washington Department of Fish and Wildlife
National Marine Fisheries Service
Pacific States Marine Fisheries Commission
U.S. Coast Guard
U.S. Fish and Wildlife Service
U.S. Department of State

The following organizations were consulted and/or participated in preparation of supporting documents:

PFMC Salmon Technical Team
PFM Scientific and Statistical Committee
PFMC Salmon Advisory Subpanel

# 6.0 References

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