Finding of No Significant Impact (FONSI)

Authorization for

Fisheries and Ecosystem Research Conducted and Funded by the

Southwest Fisheries Science Center

National Marine Fisheries Service

November 2020

Background

Proposed Action

The federal action analyzed in the 2020 Final Supplemental Programmatic Environmental Assessment (SPEA) is the proposed continuation of Southwest Fisheries Science Center (SWFSC) fisheries and ecosystem research activities. The purpose of SWFSC fisheries and ecosystem research is to produce scientific information necessary for the management and conservation of living marine resources along the U.S. West Coast in the California Current Research Area (CCRA), throughout the Eastern Tropical Pacific Research Area (ETPRA), and in the Antarctic Research Area (ARA) located in the Southern Ocean off Antarctica. SWFSC's research is needed to promote both the long-term sustainability of the resource and the recovery of certain species, while generating social and economic opportunities and benefits from their use.

Alternatives Evaluated in the SPEA

After screening potential alternatives against criteria to meet the purpose of the action, the National Marine Fisheries Service (NMFS) identified two alternatives for analysis:

- Alternative 1 - The Status Quo/No Action Alternative, *Conduct Federal Fisheries and Ecosystem Research with Scope and Protocols Similar to 2015-2018 Effort* would allow only fisheries research activities that are currently conducted under existing permits valid through 2020. Under this alternative any new permits would have to mirror what was permitted for research conducted from 2015 through 2020. Therefore, research activities, equipment, gear, sample sizes, and objectives for future research conducted between 2020 – 2025 would not change from that previously permitted. These status quo federal research activities are considered necessary to fulfill NMFS' mission to provide science-based management, conservation, and protection of living marine resources in the areas covered by the SWFSC. Under Alternative 1, the SWFSC would conduct the same breadth and scope of research as in recent years including implementing the current mitigation measures for protected species.
- Alternative 2 - The Preferred Alternative, *Conduct Federal Fisheries and Ecosystem Research Beginning 2020 (New Suite of Research)* includes all of the studies described in Alternative 1 (Status Quo/No Action) plus additional studies and technologies including the use of unmanned systems to conduct some surveys (instead of research vessels) and underwater acoustic monitoring devices. For example, Ecosystem Based Fisheries Management and Stock Assessment studies using unmanned systems and the Collaborative Optical Acoustical Survey Technology (COAST) Survey are planned in future years under this alternative. The Antarctic Living Marine Resources glider program (FREEBYRD Program) proposes to allow broader temporal and spatial coverage than has been previously possible using ship-based at-sea surveys by using gliders that would "fly" programmed trajectories and collect data using attached sensors.

  Alternative 2 also includes modifications to surveys conducted under Status Quo/No Action. For example, the Coastal Pelagic Species (CPS) sardine survey proposes to sample nearshore areas

whereas under Alternative 1 only depths greater than 50 m have been surveyed. A commercial purse seine vessel (PSV) is proposed to perform acoustic and biological surveys that would contribute additional information on the biomass of CPS, provide a validation of acoustic data and the additional biological samples, which will enhance SWFSC's ability to improve its stock assessment for Pacific Sardine and other CPS.

Purse seines may also be used to conduct other surveys within the Action Area under Alternative 2. The Highly Migratory Species (HMS) survey program proposes to use hook and line gear rather than only longline gear (as under Status Quo/No Action) to target HMS species. The Juvenile Salmon Survey conducted in the California Current Ecosystem may also include the use of micro-trolling (hook and line) sampling in combination with unmanned aircraft to collect hydro-acoustic and physical oceanographic data. Under Status Quo/No Action, SWFSC collected life history and reproductive data on sablefish, whereas under Alternative 2 the SWFSC proposes to focus more on rockfish (*Sebastes*) species. Alternative 2 also includes additional U.S. participation in international Antarctic research directed toward gathering information to quantify relationships between finfish and krill; to develop an ecosystem approach to ensure sustained harvesting of krill, fish and crabs; and to protect predator populations of seals, penguins, and pelagic seabirds in the Southern Ocean. Alternative 2 also includes modified mitigation measures to reduce impacts to protected species.

Selected Alternative

Alternative 2 - *Conduct Federal Fisheries and Ecosystem Research Beginning 2020 (New Suite of Research)*, has been selected as the Preferred Alternative.

Measures to Reduce Impacts

The Preferred Alternative includes all of the mitigation measures currently in place, plus modifications to some surveys to reduce the risk of adverse interactions with protected species (see Section Table 2-3 of the final SPEA). Below is a brief overview of key mitigation and monitoring measures included under the Preferred Alternative.

- For surveys using trawl, longline, and hook and line gear, the SWFSC will implement the move-on rule upon observation of any protected species or marine mammal (other than baleen whales) within 1 nautical mile (nm) of the vessel. Protected species watches would begin no less than 15 minutes prior to arrival on station. If any marine mammals (with the exception of baleen whales) are sighted within 1 nm or protected species are sighted anywhere around the vessel in the 15 minutes before setting the gear, the crew would transit to a new location to maintain a distance of 1 nm from the mammal. If after moving, marine mammals remain within the 1nm exclusion zone or protected species are still at risk of interaction, the vessel may move on or skip the station. If five or fewer California sea lions are sighted within the 1 nm exclusion zone during the 15-minute pre-clearance period, longline gear may be deployed. If trawling is suspended due to the presence

of marine mammals or other protected species, trawling will resume only when the animal is believed to be beyond the 1 nm exclusion zone.

- Standard trawl durations would not exceed 45 minutes at a target depth for less than 3 nm. Chumming is prohibited during longline, including hook and line and rod and reel surveys.
- Nordic 264 trawl nets will be fitted with Marine Mammal Excluder Devices (MMEDs).
- During purse seine surveys, the crew would keep watch for marine mammals and other protected species before and during sets. If pinnipeds are in the immediate set area, the set would be delayed until the animals move out of the area or the station is abandoned. However, if small numbers of pinnipeds (generally less than five) are seen in the vicinity but do not appear likely to interact with gear, the net may be set. If any killer whales, dolphins, or porpoises are observed within approximately 500 m of the purse seine survey location, the set will be delayed. If any dolphins or porpoises are observed in the net, the net will be immediately opened to let the animals go.
- Use of Unmanned Aerial Systems (UAS) must comply with applicable Federal Aviation Administration (FAA) regulations. UAS are only to be flown by an experienced operator. Flights near Antarctic stations shall be coordinated in advance with the Operator of the station to reduce potential impacts on station operations. UAS altitudes may range up to 400 feet (ft) above ground level depending on the method of use (i.e., flying transects or targeting specific species) or species involved. UAS will not be flown directly over pinniped haulouts. UAS flights will be line of sight in accordance with FAA regulations and in accordance with applicable sections of NOAA's UAS Policy 220-1-5.

Public and Agency Comments Received on the Draft SPEA

A notice of availability (NOA) for the draft SPEA was published in the Federal Register on May 11, 2020 (85 FR 27719), and the SPEA was made available electronically. In response to a new MMPA LOA application for the future research period 2020-2025, the NOA of the proposed Marine Mammal Protection Act (MMPA) regulations was published in the Federal Register on May 8, 2020 (85 FR 27388).

There was only one public comment received by NMFS SWFSC on the draft SPEA during the comment period. Substantive comments included a request that NMFS consider the impacts of fishing gear entanglements, potential acoustic disturbance from echosounders on killer whale prey, and the potential for sea turtles to become entangled in research gear. These comments have resulted in revisions to the SPEA which are reflected in the final SPEA (see Sections 4.3.2 Effects of the Preferred Alternative and 5.2.3.2 Cumulative Effects).

NMFS provided a copy of the draft SPEA to appropriate state and federal cooperating agencies, coastal management agencies, tribal governments and the Office of Marine Sanctuaries (ONMS). No comments were received.

Consultations

The SWFSC consulted with the NMFS West Coast Regional Office and U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA) for species that are listed as threatened or endangered. An ESA consultation is required when an agency conducts or authorizes an action (such as through a permit or MMPA authorization) that may affect a listed species and/or designated critical habitat. These consultations resulted in the development of a NMFS Biological Opinion (BiOp) which was signed on August 31, 2015. Section 2.10.1 of the 2015 BiOp states that incidental takes of sea turtles (leatherback, North Pacific loggerhead, olive ridley and green) eulachon (Southern Pacific Distinct Population Segment [DPS]), scalloped hammerhead sharks (Eastern Pacific DPS), and ESA-listed salmon and steelhead ESUs through capture or entanglement would occur as a result of SWFSC research. Section 2.10.2 states: "In the biological opinion, we determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to any of these species or destruction or adverse modification of any designated critical habitats." A new BiOp has been completed and will be available at: https://repository.library.noaa.gov/gsearch?terms=ESA%20Section%207&sm_localcorpname=WCRO%20%28West%20Coast%20Region%29

On April 23, 2015 and January 22, 2016, the SWFSC sent letters requesting concurrence on the NMFS' "not likely to adversely affect (NLAA)" determinations regarding the potential effects of its fisheries and ecosystem research activities on ESA-listed species under the jurisdiction of USFWS. The USFWS responded to the initial request letters from SWFSC on March 10, 2016. The USFWS concurred with the SWFSC on NLAA determinations in a Letter of Concurrence that expires in 2027. The SWFSC will continue to implement a suite of measures in their fisheries and ecosystem research activities to mitigate potential adverse impacts on ESA-listed and other protected species.

On April 23, 2013, SWFSC sent a letter to the California State Historic Preservation Office (SHPO) initiating consultation under Section 106 of the National Historic Preservation Act. There was no response to the letter and the SWFSC concluded that the California SHPO was in agreement with the proposed fisheries and ecosystem research activities. In 2020, NMFS published the draft SPEA and did not receive comments from the California SHPO. In March of 2020, letters were also sent to 17 federally-recognized Native American Tribes in Washington, Oregon, and California requesting consultation if necessary. SWFSC did not receive responses from any recognized tribes on this matter.

During preparation of the SPEA, the SWFSC consulted with ONMS on February 20 and February 25, 2020, requesting guidance as to whether additional consultation under Section 304(d) of National Marine Sanctuaries Act (NMSA) was required for research planned for 2020-2025. On March 11, 2020, ONMS confirmed during a telephone conversation with a representative for the SWFSC that because there were no significant changes to research in the preferred alternative that would result in different conclusions from those presented in the 2015 Programmatic Environmental Assessment (PEA), additional consultation was not required.

Significance Review

The Council on Environmental Quality (CEQ) regulations state that the significance of an action should be analyzed both in terms of "context" and "intensity" and lists ten criteria for intensity. The Companion Manual for NOAA Administrative Order 216-6A requires consideration of CEQ's context and intensity criteria (40 CFR 1508.27(a) and 40 CFR 1508.27(b)) along with six additional factors for determining whether the impacts of a proposed action are significant. Each criterion is discussed below with respect to the proposed action and is considered individually as well as in combination with the others.

1) Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

No. The analysis provided in Chapter 4 of the final SPEA shows that the potential direct and indirect impacts on the physical and biological environments under the two research alternatives are similar and would have minor adverse effects. The Preferred Alternative 2 would have minor beneficial impacts on Essential Fish Habitat (EFH), closed areas, and National Marine Sanctuaries (NMS), because SWFSC research would be expected to contribute to a better understanding of the physical resources within research areas and the effects of recent conservation and management regimes as well as the expansion of sanctuary boundaries. In addition, the two alternatives would have minor beneficial effects on the social and economic environment of fishing communities by providing the scientific information needed for sustainable fisheries management and by providing funding, employment, and services. Specifically, the final SPEA determined that Alternative 2, the Preferred Alternative, would have minor beneficial effects on the physical environment, special resource areas, and socioeconomics, but would have minor adverse impacts on Pacific eulachon, all ESA-listed Pacific salmon Evolutionary Significant Units (ESUs), non-listed Chinook salmon ESUs, Pacific hake, Pacific sardines, and all ESA-listed and non-listed marine mammals and sea turtles in the Action Area. There have been no changes in the status or overall population assessment of seabirds and invertebrates in SWFSC research areas since the 2015 PEA. Therefore the original impact assessment of minor adverse effects on invertebrates and seabirds has not changed.

2) Can the proposed action reasonably be expected to significantly affect public health or safety?

The proposed SWFSC research activities are not expected to impact public health or safety. Fisheries and ecosystem research programs, including the removal of small amounts of fish, would pose no threats to humans.

3) Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

The research programs occur at sea, therefore park lands, prime farmlands, wetlands and wild and scenic rivers do not apply. However, benthic habitats and EFH can be considered ecologically critical.

Under the Preferred Alternative, EFH would experience a minor beneficial impact due to the contribution of research to better understanding EFH.

SWFSC research may occur in Marine Protected Areas (MPAs)[1] and NMSs. In March 2015, the National Marine Sanctuary Program published a final rule that expanded the Greater Farallones and Cordell Banks NMS. The SWFSC fisheries research activities would have no substantial impact on these changes in sanctuary boundaries. As part of the permit, if the SWFSC intends to enter a sanctuary to conduct research they must notify the Sanctuary Program. The larger extent of the expanded Cordell Banks NMS and Gulf of Farallones NMS boundaries increases the area that must be considered by SWFSC in terms of determining whether research would be located within or outside the sanctuaries (i.e., in terms of seeking permission to enter), but does not change the administrative or regulatory responsibilities of the SWFSC.

4) Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The effects of this action are not considered to be highly controversial. The impacts of the research methods are well known and not controversial.

5) Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The potential impacts associated with conducting SWFSC fisheries and ecosystem research activities are not unique or uncertain. Research techniques have been developed over many years, are well understood, and are similar to commercial fishing techniques employed to catch target species. Commercial fishing activities also impact non-target species through direct capture and through exposure to active acoustic systems that aid in navigation and finding fish species of interest. The impacts of these activities have been analyzed in the final SPEA. SWFSC fisheries and ecosystem research activities are much smaller in scale than commercial fishing efforts, and potential effects associated with conducting the research are relatively certain and do not pose unique or unknown risks.

6) Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

The SWFSC fisheries and ecosystem research program would not set a precedent for future actions with significant effects or represent a decision in principle about a future consideration. Future research will be evaluated on its own merits and impacts.

[1] Defined by Executive Order 13158 as "any area of the marine environment that has been reserved by federal, state, tribal, territorial, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."

7) Is the proposed action related to other actions that when considered together will have individually insignificant but cumulatively significant impacts?

The SWFSC fisheries and ecosystem research activities described in the final SPEA are not expected to result in cumulatively significant adverse impacts when considered in relation to other separate actions with individually insignificant effects. In addition to SWFSC research efforts, there are many current and reasonably foreseeable activities that may contribute to cumulative impacts on the marine environment, including: coastal construction projects; commercial fishing; geophysical/geotechnical studies; marine debris; sanctuaries and protected areas; military operation; natural events such as hurricanes, unusual mortality events (UMEs), and climate change; offshore oil and gas activities; research external to SWFSC and its partners; predation; recreational fishing; renewable energy projects such as offshore wind farms; tourism and recreation; undersea cables; and vessel traffic. These actions can produce both adverse and beneficial impacts that directly and indirectly affect ocean resources managed by NMFS and the social and economic environment of fishing communities that rely on them.

SWFSC research activities would have minor adverse effects on the various resource components of the physical and biological environments. Because SWFSC research activities involve a small number of vessels compared to other vessel traffic and collect relatively small amounts of biomass compared to commercial and recreational fisheries, the contribution of the Preferred Alternative to cumulative adverse effects on fish, marine mammals, sea turtles, and invertebrates would be small under normal conditions. The proposed SWFSC scientific research activities will also have minor beneficial contributions to the cumulative effects on EFH, MPAs and closed areas and on socioeconomic resources. The two alternatives contribute substantially to the science that authenticates federal fishery management measures aimed at rebuilding and managing fish stocks in a sustainable manner. It also contributes to understanding the nature of changes in the marine environment and adjusting resource management plans accordingly, and it helps meet international treaty research obligations.

8) Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The research programs take place at sea and would have no direct effect on terrestrial cultural or historic resources. However, SWFSC research does occur in two NMSs (Greater Farallones and Cordell Banks), which protect historical resources such as shipwrecks and other archeological objects There are over 400 reported ship and aircraft wrecks in the Greater Farallones[2]. Bottom-contact gear can disturb historical resources. The exact locations of any known historical properties and archeological resources are not made public in order to minimize the risk of unauthorized salvage efforts. However, prior to using bottom contact gear in either NMS, the SWFSC is required to notify the Sanctuary Program to compare planned sampling coordinates with the list of historical sites. If

[2] https://farallones.noaa.gov/heritage/shipwrecks.html

there is overlap, SWFSC chooses a new sampling site for that cruise. If potential archaeological sites are not identified, but the research gear incidentally brings aboard any artifacts, they must be photographed and Sanctuary staff immediately contacted for directions on the disposition of the artifacts. Due to these established protocols, the SWFSC determined the proposed activity would have "No Adverse Effect" on submerged historic or archaeological properties.

9) Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat, as defined under the Endangered Species Act of 1973?

SWFSC fisheries and ecosystem research activities are not likely to significantly impact threatened and endangered species listed under the ESA. ESA-listed marine mammals, fish, birds, turtles, and invertebrates are found in areas covered by SWFSC research. The final SPEA evaluates the affected environment and potential effects of SWFSC fisheries and ecosystem research that could result in injury and mortality to protected species incidental to research activities. Mitigation measures emphasized under the Preferred Alternative that should reduce incidental take of marine mammals and other protected species are summarized in Table 2-3 of the final SPEA. Critical habitat for ESA-listed salmonids and Pacific Eulachon, has not been designated in marine waters that overlap with the Action Area. Designated critical habitat for any other ESA-listed fish species would not be adversely modified by the Preferred Alternative.

ESA-Listed Fish

Ten marine fish species found in CCRA SWFSC research areas are listed as threatened or endangered under the ESA: green sturgeon; totoaba; bocaccio; yelloweye rockfish (Puget Sound DPS); canary rockfish (Puget Sound distinct population segment (DPS)); Pacific eulachon (Southern DPS); gulf grouper, giant manta ray, oceanic whitetip shark, and scalloped hammerhead shark (Eastern Pacific DPS). In addition, ESA-listed evolutionarily significant units (ESUs) of four Pacific salmon species (Chinook, chum, coho, and sockeye) and 11 steelhead trout DPS are found in CCRA SWFSC research areas. There are no ESA-listed fish species potentially impacted in the ETPRA and ARA.

For ESA-listed marine fish species, SWFSC research is expected to have no impact on green sturgeon, totoaba, bocaccio, yelloweye rockfish, canary rockfish, gulf grouper, giant manta rays, oceanic white tip sharks and hammerhead sharks. None of these species are likely to be caught incidentally in SWFSC research activities. The Southern DPS of Pacific eulachon have been incidentally caught during CPS surveys in 2016, 2017 and 2019 with SWFSC reporting 4, 28 and 58 takes, respectively. The juvenile rockfish survey in 2017 also incidentally caught one Pacific eulachon. No eulachon were taken in 2018. SWFSC is currently authorized to take 25 eulachon (or up to 1 kilogram) over the period 2015 – 2020. These takes are determined to have a minor adverse effect on the DPS.

ESA-listed Pacific salmonids are caught in SWFSC research surveys. The majority (94%) over 2015-2019 were caught north of the Oregon/California border, and 50% of all salmonids (listed and non-listed) were caught in Canada. The largest number of salmonids caught in California occurred in 2018

when 51 salmonids were caught, 30 were coho salmon, 3 were Chinook salmon and 12 were steelhead trout, the others were not positively identified.

Genetic analysis of salmon caught in several SWFSC surveys between 2016-2018 have demonstrated that the origin of ESA-listed salmon caught as bycatch in SWFSC surveys are largely from Washington and Oregon. In all cases the percentage of bycatch by ESU is significantly less than 0.01% of the estimated abundance for that ESU. While scientific research and monitoring activities have the potential to adversely affect individual survival as a result of bycatch, scientific research has never been identified as a factor that has impacted the population dynamics of an ESU or act as a threat preventing recovery of listed salmonids. Therefore, mortality from SWFSC surveys would have a minor adverse effect on ESA-listed chum, coho and sockeye ESUs, and steelhead DPS. SWFSC research exceeded anticipated incidental take levels for one or more ESUs of ESA-listed Chinook salmon during surveys conducted between 2016 – 2018. Therefore, overall, SWFSC research activities may have minor adverse effects on ESA-listed Chinook salmon.

ESA-Listed Marine Mammals

The threatened and endangered marine mammals that occur only in the CCRA and may interact with SWFSC research include: killer whales (Southern resident DPS); humpback whales (Central America and Mexico DPSs); sei whales; North pacific right whales; Steller sea lions (Eastern DPS); and Guadalupe fur seals. . ESA-listed marine mammals that occur in both the CCRA and ARA and might be impacted by SWFSC research surveys include: sperm whales; blue whales; and fin whales. The ESA-listed Southern right whale is found in the ARA only, and blue, sperm, and humpback whales (Coastal-Peru DPS) are found in the ETPRA.

As described in the final SPEA, and in the 2015 PEA where applicable, SWFSC fisheries research is expected to have minor adverse effects on killer, humpback, sperm, fin, sei, and gray whales and Guadalupe fur seals. These effects would be from disturbance due to exposure to underwater noise from echosounders used during research, or in the case of Guadalupe fur seals, due to physical disturbance from vessels. Historical annual Level B disturbance takes over the period August 31, 2015 to December 31, 2018 were well below authorized annual Level B takes for the 2015-2018.

The final SPEA determined that the effects of the Preferred Alternative on all marine mammal species would be minor in magnitude, dispersed over a large geographic area, and non-mortality impacts would be temporary or short-term in duration. Therefore, overall effects would not be considered significantly adverse.

ESA-Listed Birds

Eight bird species that occur in the CCRA and ETPRA SWFSC research areas are ESA-listed: short-tailed albatross, Hawaiian dark-rumped petrel, Newell's shearwater, Humboldt penguin, Galapagos penguin, Galapagos petrel California least tern, and the marbled murrelet. No ESA-listed bird species are likely to be encountered by SWFSC research activities in the ARA. The populations of these seabird species have not significantly changed and potential impacts from future fisheries and ecosystem research is not expected to result in different conclusions from those presented in the

original 2015 PEA impact assessment. The 2015 PEA found that the overall effects on seabirds from SWFSC research activities under the Preferred Alternative would likely be minor in magnitude, dispersed over a large geographic area, and temporary or short-term in duration. In consultation under ESA Section 7, the USFWS concluded in a 2016 letter of concurrence and a 2017 Biological Opinion, that SWFSC research would not jeopardize ESA-listed seabirds. In summary, effects on ESA-listed seabirds would not be considered significantly adverse.

ESA-Listed Sea Turtles

Five species of sea turtles can be found within the area of the proposed SWFSC research activities: leatherback, olive ridley, green, loggerhead, and hawksbill sea turtles. All of the sea turtles found in the area of the SWFSC research activities were listed as endangered at the time the 2015 PEA was published. Following a range-wide ESA status review on the green turtle, that species was listed under the ESA as 11 DPSs (81 FR 20057). Two of those DPSs are found in SWFSC research areas including the east and central North Pacific DPSs. These DPSs were re-classified as threatened under the ESA, when they had previously been listed as endangered.

Historically, SWFSC research activities rarely encounter sea turtles. One green sea turtle was taken in 2015 during a study that no longer is conducted (West Coast Juvenile Thresher Shark longline survey); the turtle was released alive. The low level of historical interactions with sea turtles (i.e., one entanglement over several years of research as well as proposed mitigation measures support the conclusion of no significant adverse effects on ESA-listed sea turtles.

ESA-Listed Invertebrates and Plants

Two invertebrate species found within the SWFSC region are listed as endangered under the ESA: the black abalone and the white abalone. The best available scientific information indicates that there have been no changes in these species' status since the 2015 PEA, and fisheries research-related impacts from most SWFSC research activities take place well beyond the relatively shallow waters where abalone occur. Abalone feed primarily on kelp and algae, which are not subject to any impacts from SWFSC research. Black abalone critical habitat includes certain rocky intertidal and shallow habitats along the California coasts, but none of the proposed SWFSC research surveys occur in these shallow water habitats.

Also, in a recent listing decision, NMFS listed 20 species of corals as threatened, including 15 in the Indo-Pacific (79 FR 53852). These species are known to occur in the western or central portions of the Pacific, but not in the Action Area for the proposed SWFSC research.

10) Can the proposed action reasonably be expected to threaten a violation of Federal, state, or local law or requirements imposed for environmental protection?

Conducting the SWFSC fisheries and ecosystem research activities would not violate any federal, state or local laws for environmental protection. SWFSC has consulted with appropriate federal, state, and local agencies as well as other entities during the development of the final SPEA to ensure that the fisheries and ecosystem research program is compliant with applicable statutes including the

MMPA, ESA, NEPA, and MSA. Applicable laws and consultation efforts are summarized in Table 1-1 of the final SPEA.

11) Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined under the Marine Mammal Protection Act?

Potential effects of fishery research vessels, survey gear, sonar and other active acoustic devices, and other associated equipment on marine mammals include:

- Changes in food availability due to research removal of prey and discards
- Contamination from discharges
- Disturbance and behavioral changes due to acoustic equipment
- Injury or mortality due to ship strikes
- Injury or mortality due to entanglement/hooking in gear.

Potential direct and indirect effects of SWFSC research activities on marine mammals have been considered for all gear used in research under the Preferred Alternative. Given the very small amounts of fish and invertebrates removed from the ecosystem during scientific sampling, the dispersal of those sampling efforts over large geographic areas, and the short duration of sampling efforts, there is no risk of causing changes in food availability for marine mammals and therefore SWFSC research activities are determined to have no effect on food availability for marine mammals. Also, given the crew training, required emergency equipment, and adherence to environmental safety protocols on NOAA research vessels and NOAA chartered vessels, the risk of altering marine mammal habitat through contamination from accidental discharges into the marine environment is considered to be negligible.

All marine mammal species may be exposed to sounds from active acoustic equipment used in SWFSC research, although several acoustic sources are not likely audible to many species. Those that are audible would likely cause temporary and minor changes in behavior for nearby animals as the ships pass through a given area. The potential for temporary threshold shifts in hearing is low for high frequency cetaceans (Dall's porpoise, harbor porpoise, pygmy sperm whales) and very low to zero for other species, particularly low frequency cetaceans (e.g., baleen whales such as sei, fin, blue, minke and humpback whales). The potential for hearing loss or injury to any marine mammal is essentially zero. Because of the minor magnitude of effects and temporary duration of acoustic disturbance, the overall effects of acoustic disturbance are not considered significantly adverse for any species throughout the SWFSC research areas.

Long beaked common dolphins, Pacific white sided dolphins, and California sea lions have been historically taken during SWFSC research activities. Ten Pacific white sided dolphins were taken in the CCRA by mortality and/or serious injury (M&SI) over the period Aug. 15, 2015 to Dec 31, 2016. Three Pacific white sided dolphins and a California sea lion were taken by M&SI during trawling in 2018; five Pacific white sided dolphins and one long-beaked common dolphin were taken in 2019. These takes did not exceed the M&SI take numbers for trawling of 35 for Pacific white-sided

dolphins, 20 California sea lions, and 11 long-beaked common dolphins which were authorized by the 2015 LOA and as described in the Final Rule for the period 2015-2020 (80 FR 58982). Potential Biological Removal (PBR) for white sided dolphins and long-beaked common dolphins is 193 and 610, respectively, and for California sea lions PBR is 9,200; therefore, these removals can be considered minor adverse No other species have suffered M&SI due to entanglement in gear or ship strikes during SWFSC research surveys,

The overall effects of the Preferred Alternative on marine mammals would be minor and dispersed over a large geographic area. Non-mortality impacts would be temporary or short-term in duration and would therefore not be considered significantly adverse according to the impact criteria in the final SPEA. M&SI impacts are expected to be within approved levels and not exceed PBR for the affected species and would therefore also not be considered significantly adverse.

12) Can the proposed action reasonably be expected to adversely affect managed fish species?

Most research activities conducted by the SWFSC are multi-species surveys that cover large areas, involve minimal sampling, and do not target overfished species. Research catches in these surveys are generally very small for uncommon species. None of the projects are focused on a particular species or group of fish so the impact of research on overfished stocks is not expected to interfere with rebuilding plans for those stocks. Overall, the impact of SWFSC research on target and bycatch fishes under the Preferred Alternative is not considered to be significantly adverse according to the impact criteria described in the final SPEA.

Research data is necessary for monitoring the status of overfished stocks and other stocks of conservation concern and to determine if management objectives for rebuilding those stocks are being met. Under the Preferred Alternative, proposals for scientific research projects must go through a rigorous process to get scientific research permits or experimental fishing permits. The potential impacts of those proposed projects are assessed for each stock, including overfished stocks, before those permits are issued. Fisheries managers typically consider the estimated amount of catch from all research projects along with other sources of mortality (e.g., bycatch in other fisheries and predation) before setting commercial fishing limits to prevent overfishing of stocks or to help overfished stocks rebuild. This type of annual review of research proposals would continue to occur in the future under the Preferred Alternative. Any future proposed projects targeting overfished stocks, or projects likely to have substantial bycatch of an overfished stock, would receive additional scrutiny on a stock by stock basis to ensure minimal impact on the stock before a research permit is issued. These permitting reviews would also determine whether the proposed projects were consistent with the NEPA analysis presented in this final SPEA or whether additional NEPA analysis is required. The final SPEA determined that while mortality to fish species is a direct effect of the SWFSC surveys, measurable population changes are not expected to occur as a result of these research activities because they represent such a small percentage of allowable quota in commercial and recreational fisheries, which in turn are fractions of the total populations for these species.

For all target species in the West Coast region, mortality from SWFSC research activities would be low in magnitude, dispersed over a wide geographic area, and therefore not considered to be significantly adverse for all target species with the exception of Pacific sardines. Sardines are coastal epipelagic fish that migrate along the coast in large schools. The addition of nearshore sampling locations would collect data on nearshore abundance of sardines. Because the fishery is currently closed and biomass is at historically low levels, the additional removals may rise to a moderate adverse effect.

In contrast to these adverse effects, SWFSC research also provides long-term beneficial effects on managed fish species throughout the West Coast region through its contribution to sustainable fisheries management. Data from SWFSC-affiliated research provides the scientific basis to reduce bycatch, establish optimal fishing levels, prevent overfishing, and recover overfished stocks. The beneficial effects of the time-series data provided by SWFSC research programs effects are especially valuable for long-term trend analysis for commercially harvested fish and, combined with other oceanographic data collected during fisheries and ecosystem research, provide the basis for monitoring changes to the marine environment important to fish populations.

13) Can the proposed action reasonably be expected to adversely affect essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act?

On June 11, 2019, the Pacific Fishery management Council (PFMC) proposed Amendment 28 to the Pacific Coast Groundfish FMP (84 FR 27072). Amendment 28 would re-open areas closed previously to bottom trawling to rebuild overfished groundfish stocks, and would establish new and revised areas closed to bottom trawling to conserve and protect Pacific coast groundfish EFH. Together, these two changes are expected to increase protections for groundfish EFH and provide additional flexibility to participants fishing with bottom trawl gear in the Groundfish Trawl Rationalization Program. Deep-water areas (>3,500 m) off the California coast would also close to the bottom contacting gear to protect deep-water habitats, including deep-sea corals (84 FR 27072). Little to no fishing with bottom gear occurs in this area at present; however, Amendment 28 would prevent future fishing with bottom-contacting gear in sensitive deepwater areas. The final SPEA determined that the combination of new and revised EFH conservation areas and the reopening of trawling in selected areas is anticipated to minimize adverse impacts to groundfish EFH from the effects of fishing. Any potential impacts due to this change are expected to be beneficial.

14) Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?

SWFSC research trawling activities utilize ‘pelagic’ trawls, which are designed to operate at various depths within the water column. For example, the Nordic 264 rope trawl used in the Coastal Pelagic Species (CPS) and juvenile salmons surveys is designed to fish at the surface and the modified-Cobb trawl used in the Rockfish Recruitment and Ecosystem Assessment surveys is typically fished at a 30 m headrope depth. Because pelagic trawl nets are not designed to contact the seafloor, they do not have bobbins or roller gear, which are often used to protect the foot rope of a ‘bottom’ trawl net as it

is dragged along the bottom and, therefore, are not expected to affect vulnerable benthic habitats or coastal ecosystems.

The California Current Deep Sea Coral and Sponge Assessment survey uses mobile towed cameras to study fishes, deep sea corals, and sponges in situ. Vertically deployed or towed imaging systems are considered to be no-impact gear types and would have no effect on deep coral ecosystems.

As described in the 2015 PEA, cold-water corals such as *Flabellum thouarsii* and *F. curvatum* are known to occur in the SWFSC ARA. However, bottom trawling in the ARA, which had occurred in the past is no longer planned under the Preferred Alternative, so impacts to these corals are not expected.

Therefore, the magnitude and geographic extent of potential physical damage to vulnerable marine and coral reef ecosystems due to SWFSC research activities would be considered to be negligible.

15) Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?

Actions associated with the Preferred Alternative are not expected to significantly adversely affect biodiversity or ecosystem function within the affected environment. The sampling and removal of species targeted by, and incidental to, research activities is limited in scope and duration, and occurs within large areas of open ocean. Studies focusing on ecosystem research are essential to the management of commercial fisheries. Long-term, predictable marine research provides information on changes to, and trends regarding, the marine ecosystem that must be considered by fisheries managers. Development of ecosystem management methods is beneficial to overall ecosystem function.

16) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

The proposed SWFSC research activities are not reasonably expected to result in the spread or introduction of non-indigenous species. The research involves movement of vessels between water bodies. However, ballast water management and other discharge processes for NOAA and charter vessel operations are bound by federal laws, regulations and Executive Orders (EO) that are in place in order to prevent or minimize the potential for spread or introduction of non-indigenous species, including the Clean Water Act, National Invasive Species Act, Nonindigenous Aquatic Nuisance Prevention and Control Act, and EO13112.

Determination

In view of the information presented in this document and the analysis contained in the supporting Final SPEA prepared for fisheries and ecosystem research conducted and funded by the Southwest Fisheries Science Center, it is hereby determined that continuation of the SWFSC fisheries and ecosystem research program as proposed will not significantly impact the quality of the human environment. In addition, all beneficial and adverse impacts of the SWFSC fisheries and ecosystem research program have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

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Kristen Koch
Director
Southwest Fisheries Science Center

Date