



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1845 Wasp Blvd. Bldg. 176
Honolulu, Hawaii 96818
(808) 725-5000 • Fax (808) 725-5215

Annual Catch Limits and Accountability Measures for the Main Hawaiian Islands Deep 7 Bottomfish Fishery for Fishing Years 2021–22 through 2023–24

Final Supplemental Environmental Assessment including a Regulatory Impact Review

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- Responsible Agency:** National Oceanic and Atmospheric Administration (NOAA)
National Marine Fisheries Service (NMFS)
Pacific Islands Region Office (PIRO)
- Responsible Official:** Michael D. Tosatto
Regional Administrator, PIRO
1845 Wasp Blvd., Bldg. 176
Honolulu, HI 96818
Tel: (808) 725-5000
Fax: (808) 725-5215
- Responsible Council:** Western Pacific Fishery Management Council (WPFMC or Council)
1164 Bishop St. Suite 1400
Honolulu, HI 96813
Tel: (808) 522-8220
Fax: (808) 522-8226

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Abstract

The National Marine Fisheries Service (NMFS) proposes to implement an annual catch limit (ACL) of 492,000 lb of Deep 7 bottomfish in the main Hawaiian Islands (MHI) for each fishing year, 2021–22, 2022–23, and 2023–24. The fishing year begins September 1 and ends on August 31 the following year. In addition to the ACL, NMFS also proposes to implement in-season and post-season accountability measures (AM). Under the in-season AM, NMFS would close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in Federal waters if we project that catch will reach the ACL in any fishing year. Under the post-season AM, NMFS would reduce the Deep 7 bottomfish ACL for the following fishing year by the amount the catch exceeds the ACL in a fishing year. NMFS and the Council monitor catch based on commercial catch data collected by the State of Hawaii, Department of Land and Natural Resources. The proposed ACL and AMs are associated with a 39–40 percent risk of overfishing, and are informed by a stock assessment update completed in 2021. The ACL and AMs are the same as in the past 3 years.

This Supplemental Environmental Assessment (SEA) supplements the analysis in the May 22, 2019, environmental assessment (EA) entitled, “Annual Catch Limits and Accountability Measures for Main Hawaiian Islands Deep 7 Bottomfish Fisheries, Final Environmental Assessment” prepared by NMFS and the Council (2019 EA), which resulted in a finding of no significant impact. This SEA contains new information and an updated analysis of potential effects of the MHI Deep 7 bottomfish fishery on the biological resources, protected species, and socio-economic setting in light of new information with bearing on the environmental effects analysis of the 2019 EA. No new information was available for other aspects analyzed in the 2019 EA.

The management action is intended to prevent overfishing and provide for continued sustainable harvest of the MHI Deep 7 bottomfish resource. Our analysis in this SEA indicates that the proposed ACLs and AMs are unlikely to change the MHI Deep 7 bottomfish fishery in terms of gear types used, areas fished, level of catch or effort, or effects on target or non-target stocks or protected species relative to the baseline, and the new information does not change the findings of the 2019 EA. The fishery has landed an annual average of 192,805 lb of Deep 7 bottomfish in the past three years and has not attained nor been constrained by the previous ACL of 492,000 lb. NMFS expects the fishery to continue to operate at a similar level, so the fishery is unlikely to reach the ACL and trigger AMs and would continue to fish sustainably while allowing fishery participants to continue to benefit from their utilization.

On November 1, 2021, NMFS published in the *Federal Register* the proposed rule and request for public comments (86 FR 60194). The comment period ended on November 16, 2021. NMFS received 26 submissions, primarily from students from a policy class, and the remaining submissions were from interested public. NMFS did not receive any comments from fishery participants, fishery management agencies, or non-governmental organizations. All comments were considered in finalizing the EA. None of the comments resulted in a change to the alternatives or a substantive change to the environmental effects analysis.

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Abbreviations

ABC – Acceptable Biological Catch
ACL – Annual Catch Limit
AM – Accountability Measure
B – Biomass
 B_{MSY} – Biomass at Maximum Sustainable Yield
BMUS – Bottomfish Management Unit Species
BRFA – Bottomfish Restricted Fishing Area
BSIA – Best Scientific Information Available
Council – Western Pacific Fishery Management Council
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CPUE – Catch per Unit of Effort
CML - Commercial Marine License
DAR – Division of Aquatic Resources, State of Hawaii
DPS – Distinct Population Segment
EA – Environmental Assessment
EEZ – Exclusive Economic Zone
EFH – Essential Fish Habitat
ESA – Endangered Species Act
FEP – Fishery Ecosystem Plan for the Hawaii Archipelago
FR – Federal Register
FY – Fishing year
H – Harvest rate
 H_{MSY} – Harvest rate that produces catch equal to Maximum Sustainable Yield
HAPC – Habitat Areas of Particular Concern
HCD – Habitat Conservation Division
IFKW – Insular False Killer Whale
lb – pound, pounds
LOF – List of Fisheries
MHI – Main Hawaiian Islands
MMPA – Marine Mammal Protection Act
MSY – Maximum Sustainable Yield
NEPA – National Environmental Policy Act
nm – Nautical miles
NMFS – National Marine Fisheries Service
NOAA – National Oceanic and Atmospheric Administration
OFL – Overfishing Limit
P* - Probability or Risk of Overfishing
PIFSC – NMFS Pacific Islands Fisheries Science Center
PIRO – Pacific Islands Regional Office
PRD – Protected Resources Division
RIN – Regulatory Identifier Number
SAFE report - Stock Assessment and Fishery Evaluation report
SEA – Supplemental Information Report
SEEM – Social, Economic, Ecological, and Management Uncertainty
SSC – Scientific and Statistical Committee
WPFMC – Western Pacific Fishery Management Council or Council
WPSAR – Western Pacific Stock Assessment Review

1. Introduction

The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) prepared this supplemental environmental assessment (SEA) in accordance with the National Environmental Policy Act (NEPA; 42 U.S.C. 4321, et seq.) and related authorities, such as the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500 – 1508) and the National Oceanic and Atmospheric Administration (NOAA) "Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities Companion Manual for NOAA Administrative Order 216-6A - Effective Jan 13, 2017."

This SEA supplements a 2019 Environmental Assessment (EA) that was prepared using the 1978 CEQ NEPA Regulations because it was completed before the publication of the 2020 CEQ regulations. This SEA is being prepared using the 2020 CEQ 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 Federal Register (FR) 43372) (40 CFR §§ 1506.13, 1507.3(a)). This SEA began on July 17, 2021 and accordingly proceeds under the 2020 regulations.

1.1. Background

1.1.1. Fishery Description

The main Hawaiian Islands (MHI) Deep 7 bottomfish fishery targets six species of snapper and a grouper. The snappers are, lehi (*Aphareus rutilans*, silver jaw jobfish), ehu (*Etelis carbunculus*, squirrelfish snapper), onaga (*E. coruscans*, longtail snapper), opakapaka (*Pristipomoides filamentosus*, pink snapper), kalekale (*P. sieboldii*, pink snapper), and gindai (*P. zonatus*, oblique-banded snapper). The grouper is hapuupuu (*Hyporthodus quernus*, sea bass). The fishery is primarily a hook and line fishery in which weighted lines are deployed using electric reels in waters 80 m to 400 m deep. Near the end of the line, multiple branch lines with baited hooks are attached (WPFMC 2009). Syslo et al. (2021) report that 98 percent of fish weight summed over all records was caught using this "deep handline" method. The fishery includes approximately 580 non-commercial and commercial participants (86 FR 2028, January 14, 2021), and over the last ten years an average of 395 individuals have reported commercial catch (WPFMC 2021). Deep 7 bottomfish fishing occurs primarily in State (generally from the shoreline to 3 nm offshore) and Federal waters (generally from 3 nm to the extent of the U.S. EEZ) from the Island of Hawaii to Niihau Island (NMFS and WPFMC 2019, or 2019 EA). Because the stock occurs in State and Federal waters, NMFS, the Council and the State of Hawaii work together to implement consistent management approaches.

1.1.2. Management of the Fishery

As authorized by the Magnuson-Stevens Act, NMFS and the Council manage fisheries in Federal waters around the Hawaiian Islands. They manage these fisheries in accordance with the Fishery Ecosystem Plan for the Hawaii Archipelago (FEP) and implementing regulations at Title 50 Code of Federal Regulations, Part 665 (50 CFR 665). The seven species targeted in the MHI Deep 7 fishery are identified as bottomfish management unit species (BMUS) in the FEP and

implementing regulations (50 CFR 665.201). The only active fishery for Deep 7 bottomfish in Hawaii is in the MHI, which includes the islands of Niihau, Kauai, Oahu, Molokai, Lanai, Kahoolawe, Maui and Hawaii. Deep 7 bottomfish are managed as a multispecies stock complex, and their catch has been subject to annual catch limits (ACLs) and accountability measures (AMs) since 2011. Catch limits ensure the fishery is sustainable, while AMs prevent the fishery from exceeding the ACL and mitigate the effects of an overage if one occurs. In addition to ACLs and AMs, complementary State and Federal regulations limit non-commercial fishermen to a bag limit of five Deep 7 bottomfish per trip in State and Federal waters. State law also prohibits bottomfish fishing in eight [bottomfish restricted fishing areas](#) (BRFAs) for conservation purposes.

The State of Hawaii also regulates state-registered fishing vessels and requires the owners of commercial or non-commercial vessels used to fish for bottomfish to annually register their vessel with the Department of Land and Natural Resources, Division of Aquatic Resources (DAR). State regulations require all commercial fishermen to annually obtain a commercial marine license (CML) and report all catch of Deep 7 bottomfish within five days after the end of each fishing trip. A non-commercial Federal permit is required to fish non-commercially for Deep 7 in Federal waters, and non-commercial catch must be reported to NMFS on Federal logbooks within 72 hours of the end of each fishing trip. NMFS and the Council use commercial and non-commercial reports to track catch in the fishery against the ACL in near-real time. Catches from both local State waters, and Federal waters are counted towards ACLs. Although not part of the Federal action, during a Federal fishery closure, the State of Hawaii may implement a complementary closure in State waters, and prohibit any person from fishing for, possessing, or selling MHI Deep 7 bottomfish after the closure date.

1.2. Overview of the Proposed Management Action

The National Marine Fisheries Service (NMFS) proposes to implement an ACL of 492,000 lb of Deep 7 bottomfish in the MHI for each fishing year, 2021–22, 2022–23, and 2023–24. The fishing year begins September 1 and ends on August 31 the following year. This level of catch is associated with a 39–40 percent risk of overfishing, according to the 2021 stock assessment update (Syslo et al. 2021). The 492,000 lb ACL is the same as NMFS implemented for the previous three fishing years (84 FR 29394, June 24, 2019), which had a similar risk of overfishing of 40 percent based on a 2018 benchmark stock assessment (Langseth et al. 2018). Compared to the 2018 benchmark assessment, the 2021 assessment update added more years to the time series for catch, effort, and fishery independent biomass estimates for the Deep 7 bottomfish complex and for opakapaka as a single species, but used the same analytical model.

In addition to the ACL, NMFS also proposes to implement two AMs. As an in-season AM, if NMFS projects that the catch will reach the ACL in any fishing year, we would close the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in Federal waters for the remainder of that fishing year. As a post-season AM, if NMFS determines that the Deep 7 bottomfish catch exceeded the ACL in a fishing year, NMFS would reduce the Deep 7 bottomfish ACL for the following fishing year by the amount of the overage.

The proposed ACLs and AMs implement the requirements of the Magnuson-Stevens Act, in accordance with the procedures described in the FEP and implementing Federal regulations at 50

CFR 665, consistent with recommendations made by the Council at the 186th meeting in June 2021.

NMFS previously prepared an environmental assessment (EA), “Annual Catch Limits and Accountability Measures for Main Hawaiian Islands Deep 7 Bottomfish Fisheries, Final Environmental Assessment,” which analyzed the environmental effects of five alternatives for fishing years for 2018–19, 2019–20, and 2020–21 (NMFS and WPFMC 2019). Alternative 3, which includes a 492,000 lb ACL and in-season and post-season AMs, was selected and implemented by NMFS for each of these three fishing years. At its public meeting in June 2021 held virtually, the Council recommended the same ACL and AMs for 2021–22, 2022–23, and 2023–24 following its review of a stock assessment update for the MHI Deep 7 bottomfish fishery (Syslo et al. 2021), considering the recommendation from its Scientific and Statistical Committee (SSC) and public comments. The ACLs and AMs were developed in a manner that is consistent with the process described in the approved FEP (2019 EA, section 1.1.1 and section 2.1).

1.3. Supplementing the 2019 EA

Although the proposed action is virtually identical to the action analyzed in the 2019 EA, we have new information that has bearing on the proposed action or its impacts since completing the 2019 EA. This includes an updated scientific review of status of the Deep 7 bottomfish stock (Syslo et al 2021), performance of the fishery over the past few years, recent consultations under the Endangered Species Act (ESA), and other information to consider. This SEA allows NMFS to analyze effects of the proposed action while building on NMFS environmental analyses that have already been done and taking into consideration the new information available since publication of the 2019 EA.

The proposed action, as analyzed by the 2019 EA and this SEA, is NMFS’ implementation of the Council’s recommendations for fishing years 2021–22, 2022–23, and 2023–24. In 2019, NMFS and the Council prepared an EA to analyze the effects of implementing a 492,000 lb ACL and AMs for the MHI Deep 7 bottomfish fishery for fishing year (FY) 2018–19, 2019–20, and 2020–21 (NMFS and WPFMC 2019) and three other action alternatives compared to a no-action alternative and a baseline alternative with no change to management. The proposed action to implement the same ACL and AMs for FY 2021–22, 2022–23, and 2023–24 is part of the same ongoing management activity that was analyzed under Alternative 3 in the 2019 EA (see 2019 EA, section 4). The purpose and need for the action are also unchanged (2019 EA, section 1.3).

1.4. Preparers and Reviewers

Preparers:

- Marlowe Sabater – Marine Ecosystem Scientist, Western Pacific Fishery Management Council
- Brett Schumacher – Fishery Management Specialist, Pacific Islands Regional Office (PIRO) Sustainable Fisheries Division (SFD)

Reviewers:

- Phyllis Ha – Resource Management Specialist, PIRO SFD (*NEPA review*)

- Michelle McGregor – Economist, PIRO SFD (*Economic effects analysis/ regulatory impact review*)
- Jarad Makaiau – Fish and Wildlife Administrator, PIRO SFD
- Ron Dean – PIRO NEPA Coordinator, PIRO Directorate Division (*NEPA compliance review*)

1.5. Summary of the Proposed Action

The proposed action is the same as described in the 2019 EA in section 1.2, except for the years during which the ACL and AMs would be implemented. NMFS proposes to implement an ACL for FY 2021–22, 2022–23, and 2023–24, as recommended by the Council. The Council recommended the ACL based on the most recent stock assessment update for the MHI Deep 7 bottomfish complex (Syslo et al. 2021), consistent with the Magnuson-Stevens Act and in accordance with the ACL process set forth in the FEP. Each fishing year, NMFS and the Council would count Deep 7 bottomfish catches from both State waters and Federal waters around the MHI towards the ACL. As an AM to prevent the fishery from exceeding the ACL, if the ACL is projected to be reached, NMFS would restrict fishing in Federal waters around the MHI. This in-season accountability measure is possible because fishery managers have access to near real-time fishery catch data (2019 EA, section 1.1). As a second AM, after the end of each fishing year, if NMFS and the Council determine that the ACL was exceeded, NMFS would reduce the ACL in the subsequent fishing year by the amount of the overage.

Although not part of the Federal action, during a Federal fishery closure, the State of Hawaii may implement a complementary closure in State waters, and prohibit any person from fishing for, possessing, or selling MHI Deep 7 bottomfish after the closure date.

1.6. Purpose and Need for Action

The purpose and need for this action are the same as described in the 2019 EA, section 1.3, “The purpose of this action is to comply with the requirements of the Magnuson-Stevens Act and the FEP and regulations requiring the implementation of ACLs for the Deep 7 bottomfish stock complex and AMs for the fishery. The need for this action is to prevent overfishing and to provide for long-term sustainability of the fishery resources while allowing fishery participants to continue to benefit from their utilization. AMs are needed to reduce the potential of exceeding an ACL and are used to correct or mitigate overages of the ACL should they occur.” (NMFS and WPFMC 2019).

1.7. Geographic Extent and Scale of the Proposed Action

The geographic extent of the proposed action is the same as the action area described in the 2019 EA, section 1.4,

“The action area for this EA is waters where fishing for Deep 7 bottomfish occurs in State and Federal waters of the MHI. Bottomfish fishing occurs primarily in waters from 80 to 400 m deep from the Island of Hawaii to Niihau Island. Waters around islands northwest of Niihau are not part of the Action Area because

bottomfish fishing is prohibited in Papahānaumokuākea Marine National Monument” (NMFS and WPFMC 2019).

Overall, the extent of the proposed action is waters around the MHI, so the action is local to the MHI in its geographic extent. The scale of the action is limited because the proposed specification would be the same ACL and AMs as in the past 3 years, management of the MHI Deep 7 bottomfish fishery using ACLs and AMs is not new, the fishery is not expected to approach or exceed the proposed ACL, and bottomfish stocks are healthy. The scale of effects is also very limited because the proposed ACL is not expected to change the conduct of the fishery compared to the no-action alternative, compared to the recent specification baseline, or compared to recent fishing. The potential for the fishery to expand is low based on trends, but the ACL and AM under the action alternatives would limit effects of the fishery by constraining catches.

1.8. Approach to Analysis and Decision to be Made

We evaluate the potential environmental and fishery effects of implementing a 492,000 lb ACL and associated in-season and post-season AMs and alternatives compared with the effects of the no-management action baseline (Alt. 1). Although the 2019 EA included a no-management change baseline (Alt. 2), in the SEA we compare effects of the proposed action to the no-action baseline (Alt. 1) since the fishery does not currently have an ACL. We evaluated the effects of these measures in FY 2018–19, 2019–20, and 2020–21 in the EA, and evaluate the effects of the same management measures in FY 2021–22, 2022–23, and 2023–24 in the SEA. We consider effects of the proposed ACL and AMs on Deep 7 bottomfish in the MHI, other marine resources affected by the fishery, and fishery participants and affected fishing communities.

The analysis considers the geographic setting and scope of the proposed action and its effects, and the degree to which specific resources might be affected in relation to the baseline. We consider short-term, long-term effects, beneficial and adverse effects, and the potential for additive or synergistic effects.

On November 1, 2021, NMFS published a proposed rule to implement the ACL and AMs for the fishery, including a draft EA, regulatory impact review, and request for public comments (86 FR 60194). The comment period ended November 16, 2021. After considering public comments on the proposed action and alternatives considered (see section 1.10), NMFS will implement an ACL and AM for the MHI Deep 7 bottomfish for FY 2021–22, 2022–23, and 2023–24. NMFS used the information in this SEA and the 2019 EA to consider the impacts of the action and the alternatives considered. Finally, the Regional Administrator will also use the information in this SEA and 2019 EA to make a determination about whether implementing the ACL and AMs would be a major Federal action with the potential to have a significant environmental impact that would require the preparation of an environmental impact statement.

1.9. Scope of the Analysis

The scope of the analysis in the 2019 EA is an evaluation of the environmental and economic effects of a 492,000 lb ACL and AMs applicable to the MHI Deep 7 bottomfish fishery in FY 2018–19, 2019–20, and 2020–21. The proposed ACL and AMs being analyzed in this SEA are

the same as described in Alternative 3 in the 2019 EA (section 2.2.3). This SEA presents new information available since publication of the 2019 EA with bearing on effects of the proposed action of implementing the same ACL and AMs in FY 2021–22, 2022–23, and 2023–24. New information and circumstances include:

1. New information about the Deep 7 bottomfish stock status in Hawaii. The analysis in the 2021 stock assessment update (Syslo et al. 2021) evaluated effects on the environment of implementing various annual commercial harvest rates as ACLs through 2025. We note that even through the proposed ACL is the same as under Alternative 3 in the EA, under the stock assessment update this level of harvest is now associated with a slightly lower risk of overfishing. We update our 2019 environmental effects analysis with respect to effects on bottomfish stocks (target stocks) given the new stock status information.
2. Recent performance of the MHI Deep 7 bottomfish fishery based on data through fishing year 2020–21. We update our 2019 analysis in light of recent catch and socio-economic information. This information includes recent catch, effort, and effects of the global coronavirus pandemic that changed fishing and markets in 2020 and 2021. We discuss whether these changes affect the analysis of the potential effects of the alternatives on target and non-target stocks, protected species, or on fishing communities.
3. Species listed under the ESA. Prior to the publication of the 2019 EA, NMFS listed as threatened two new species (oceanic whitetip shark and giant manta ray) and designated critical habitat for the MHI insular false killer whale (IFKW) distinct population segment (DPS). On February 1, 2019, NMFS reinitiated consultation under the ESA to determine whether bottomfish fishing activities are likely to adversely modify critical habitat of the MHI IFKW DPS, and to determine whether these activities are likely to jeopardize the continued existence of the oceanic whitetip shark or giant manta ray, as required by 50 CFR 402.16. This information is contained in the 2019 EA (sections 3.2.2 and 4.2.2). We update our analysis in light of new information about the status of the ESA section 7 consultation, and new information about NMFS' review of whether to list the short-finned mako shark as an endangered species.
4. Marine mammals. Several non-ESA listed whales, dolphins and porpoises occur in waters around Hawaii. All marine mammal species are protected under provisions of the Marine Mammal Protection Act (MMPA). The 2019 EA (section 3.2.2.2 and 4.2.2) describes that the bottomfish fishery in the MHI is not known to have adverse effects on non-ESA listed marine mammals, and the fishery was classified as a Category III fishery (i.e., remote likelihood or no known incidental mortality and serious injury of marine mammals) in the 2019 NMFS List of Fisheries (LOF). On January 14, 2021, NMFS published a final LOF for 2021 under the MMPA (86 FR 3028). The information in the new listing does not change the information related to the MHI bottomfish fishery, which continues to be classified as a Category III fishery. The new LOF does not have bearing on the analysis in the 2019 EA in relation to the current proposed action and will not be discussed further.
5. Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC). We update our review of the potential effects of the alternatives on designated EFH and HAPC for Pelagic management unit species (MUS), precious corals, and crustaceans.

6. Connected Actions. The analysis in the 2019 EA found no past, present, or reasonably foreseeable actions that could combine or interact with the effects from the proposed action to result in cumulatively significant impacts on Deep 7 bottomfish (EA, section 4.6). We update our review of the potential effects taking into consideration all known sources of mortality affecting the Deep 7 bottomfish stock including past, present, and reasonably foreseeable future actions that may affect the fishery.

1.10. Public Involvement

Council meetings and the development of the 2018–2021 ACL and AMs and alternatives are described in section 1.7 of the 2019 EA, which is incorporated by reference. Briefly, the recommended ACL and AMs were coordinated with the public by the Council at a number of public meetings (e.g., 129th Scientific and Statistical Committee meeting, June 6–8, 2018; 173rd Council meeting, June 11–13, 2018). These meetings were open to the public and advertised in Hawaii media as well as through a notice in the *Federal Register* (83 FR 23640, May 22, 2018), and on the Council’s website. On March 12, 2019, NMFS published the proposed ACL and AMs for MHI Deep 7 bottomfish and draft EA, and requested public review and comments on the proposed rule and draft EA (84 FR 8835). NMFS received several comments on the proposed rule and on the draft EA, which generally supported the rule. NMFS considered public comments in finalizing the EA and in making its decision on the proposed action, and responded to comments in the final rule (84 FR 29394).

We provide the following updated information: At the 139th meeting of the SSC held virtually on March 16–18, 2021, the SSC reviewed the new 2021 stock assessment update for the MHI Deep 7 bottomfish. The 2021 assessment included data to 2020 for the fishery-independent survey and 2018 for catch and effort data (Syslo et al. 2021). The stock assessment update was subject to a tier-2 Western Pacific Stock Assessment Review (WPSAR) chaired by SSC member Erik Franklin. The SSC and WPSAR panel determined that the 2021 assessment update represents the best scientific information available (BSIA) and can be used to manage the MHI Deep 7 bottomfish fishery (Franklin 2021).

At the 185th meeting of the Council on March 23–25, 2021, the Council made an initial recommendation to maintain the same ACL and AMs currently in place for the fishery, specifically a 492,000 lb ACL, which corresponds to a risk of overfishing of 39–40 percent through fishing year 2023–24. Further, the Council recommended continuing with the current AMs: using an in-season closure based on the projected date of when the ACL will be reached for the MHI Deep 7 bottomfish fishery, and a post-season AM. For the post-season AM, if NMFS and the Council determine that the ACL has been exceeded, any overage adjustment will be applied to reduce the ACL in the subsequent fishing year. Council staff prepared a draft SEA to identify and analyze new information relating to this recommendation and presented the summary at the 186th Council meeting on June 22–24, 2021. The Council carried forward their recommendation to continue existing management measures under Alternative 3. There were no public comments in opposition to the recommendations at either Council meeting.

On November 1, 2021, NMFS published a proposed rule to implement the ACL and AMs for the fishery, including a draft SEA, regulatory impact review, and request for public comments (86 FR 60194). The comment period ended November 16, 2021. NMFS received 26 submissions,

primarily from university students from a policy class, and the remaining submissions were from other interested public. NMFS did not receive any comments from fishery participants, fishery management agencies, or non-governmental organizations. Most of the comments generally supported the action, including that the ACL and AMs would achieve the purpose and need of preventing overfishing and managing the fishery sustainably while maintaining opportunities for participation. Other comments dealt with social, economic or cultural considerations; concerns about underreporting of catch; equity and catch allocation among participants; that the fish population is decreasing as evidenced by decreasing catch, and the proportion of income participants earn from bottomfish fishing. NMFS considered public comments in finalizing the SEA, in making its decision on the selected management action, and prior to finalizing this FONSI. The comments we received did not change the alternatives considered, the expected fishery outcomes, or the analysis of environmental or fishery effects in the draft SEA. We respond to the comments in detail in the final rule.

2. Alternatives Considered and Expected Fishery Outcomes

The alternatives considered in this SEA are the same as the alternatives described in Section 2 of the 2019 EA. We incorporate Section 2 by reference and describe the content briefly below.

Section 2.1 of the 2019 EA, “Development of the Alternatives,” describes the Council’s process in developing alternatives. The stock assessment relied on by NMFS and the Council in the 2019 management action and EA (NMFS and WPFMC 2019) provided catch projections and the associated risk of overfishing, or P* for each of the ACLs in Alternatives 2 through 5. The level of catch associated with a 50 percent risk of overfishing is termed the overfishing limit, or OFL. After a stock assessment undergoes review by an independent panel of scientists, a working group evaluates scientific uncertainty associated with the assessment. This “P* analysis” produces a number that serves as a buffer against overfishing. If accepted by the SSC, the OFL is reduced by this amount, and the associated catch is the Acceptable Biological Catch (ABC). A second working group considers social, economic, ecological and management considerations, and this “SEEM analysis” provides a further risk reduction that the Council may use to recommend an ACL, and (optionally) an Annual Catch Target (ACT). For more detail, see “Scientific and Management Uncertainties” below.

Section 2.2, “Description of the Alternatives” is incorporated by reference in its entirety. The EA considered five management alternatives, including the proposed action and the No Action Alternative. These are the same five alternatives being considered at this time. Briefly, the alternatives in the 2019 EA were:

- Alternative 1. No action. Do not implement an ACL or AM.
- Alternative 2: Implement an ACL of 306,000 lb. (2019 Status quo/NEPA baseline)
- Alternative 3. Implement an ACL of 492,000 lb.
- Alternative 4. Implement an ACL of 420,000 lb.
- Alternative 5. Implement an ACL of 336,000 lb.

Alternatives 2 through 5 include an in-season AM where NMFS would close the fishery in Federal waters if we project that catch from State and Federal waters will reach the ACL, and a post-season AM where, if the fishery were to exceed an ACL in a given year, NMFS would apply

an overage adjustment to the ACL in the following year. Additionally, under the FEP if a fishery exceeds an ACL more than once in a four-year period, the Council is required to re-evaluate the ACL process, and adjust the system, as necessary, to improve its performance and effectiveness.

The Council developed the alternatives in accordance with the approved ACL mechanism established in the FEP and implementing Federal regulations at 50 CFR 665.4, and in consideration of the best available scientific, commercial, and other information about the fishery. Alternative 3 was the Preferred Alternative that the Council recommended and that NMFS implemented for each of the past three fishing years.

Alternative 3 remains the Preferred Alternative for the proposed action for FY 2021–22, 2022–23, and 2023–24. This alternative would be an extension of the management of the past three years. Overall, the 2019 EA shows that compared to the Status Quo Alternatives (Alternatives 1 and 2), Alternative 3 is not likely to result in changes in the conduct of the fishery, including gear types used, areas fished, or have large adverse effects on target or non-target stocks or bycatch species. Because none of the ACLs under consideration had been attained or exceeded, the ACLs were not constraining the fishery and none of the alternatives were expected to substantially change the fishery relative to either baseline (see fishery outcomes, 2019 EA section 2.2, Table 5). We incorporate by reference the fishery outcomes of each action alternative in this analysis. All of the action alternatives (Alternatives 2 through 5) would result in sustainable levels of catch of Deep 7 bottomfish (2019 EA, section 4.2.1). Also, the EA shows that no other aspects of the human environment would be affected by the status quo operations of the fishery, and none of the alternatives under consideration would change the operations of the fishery in a way that would cause an effect (2019 EA, section 4).

Next, we consider whether, in light of the ACL and AMs the Council recommended at the 186th meeting from June 22–24, 2021, the alternatives examined in the 2019 EA are a reasonable range of alternatives to meet the purpose and need of the action. Because the Council’s new recommendation does not change the amount of the ACL or the AMs, the current proposed action is consistent with one of four action alternatives considered in the 2019 EA. Other alternatives include ACLs that are lower than the ACL under Alternative 3.

Table 2, “Summary of ACL alternatives and associated probability of overfishing (P*) percentile for MHI Deep 7 bottomfish” on page 17 of the 2019 EA is incorporated by reference. New information from the 2021 stock assessment is included for comparison in

Table 1. The probability of overfishing associated with each alternative based on the 2021 stock assessment update is within one percent of the probability based on the 2018 stock assessment. All of these risks are less than 50 percent, which is the upper limit allowed under the FEP and the Magnuson Stevens Act. Overall, the features of the alternatives remain the same, and NMFS concludes that the Preferred Alternative is one of a reasonable range of alternatives and that there are no additional alternatives that the agency needs to consider.

Table 1. Probability of overfishing (P*) through three years of fishing at the same catch level. Values in 2018 P* are based on the 2018 benchmark stock assessment, and values in 2021 P* are based on the 2021 stock assessment update. Catch under the no action alternative is unconstrained, so the risk of overfishing is unknown.

Alternative	ACL (lb)	2018 P*	2021 P*
Alt. 1 – No action	None	Unknown	Unknown
Alt. 2 – 2019 Status quo	306,000	17	18
Alt. 3 – Preferred	492,000	40	39-40
Alt. 4	420,000	30	30-31
Alt. 5	336,000	20	21

3. Affected Environment and Effects Analysis

We incorporate by reference, the description of the affected environment in section 3 of the 2019 EA, which describes the baseline condition of resources and the Deep 7 bottomfish fishery in the MHI in the action area under recent fishery conditions. We summarize the information in the 2019 EA here and describe any new information and its relevance to the environmental effects analysis described in section 4 of the 2019 EA.

“Effects” or “impacts” mean changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives (40 CFR 1508.1(g)).

3.1. Physical Resources

Impacts on physical resources are described in sections 3.1 and 4.1, and are incorporated here by reference. Physical resources of the fishing areas have not changed since the 2019 EA was completed. Briefly, bottomfish fishing locations favored by fishermen in the MHI are primarily in waters 80 to 520 m deep due to the deepwater habitat of the target species. Given the small size of the vessels and the offshore nature of the fishery, bottomfish fishing is not known to affect air quality, noise, water quality, or viewplanes. Fishing behavior and effort are not expected to change under any alternative including the Preferred Alternative (Alternative 3) so there would be no effects on physical resources (2019 EA, sections 3.1 and 4.1; this SEA, sections 2 and 3.2.1.3). There is no new information relevant to physical resources since the completion of the 2019 EA.

3.2. Biological Resources

3.2.1. Effects on the Target Stock (Deep 7 Bottomfish)

Section 3.2.1 of the 2019 EA describes the stock and stock status of MHI Deep 7 bottomfish, and is incorporated here by reference. Information related to stock status is also discussed in section 4.2.1 of the EA. We incorporate stock status from the 2019 EA here and update it in the next subsection.

The MHI bottomfish fishery harvests an assemblage, or complex, of 14 species that includes nine snappers, four jacks (trevally), and a single species of grouper (2019 EA, Table 1). The target species of the fishery, and the species of primary management concern, are six deep-water snappers and one grouper, the “Deep 7 bottomfish.” The 2018 benchmark stock assessment for Deep 7 (Langseth, et al. 2018) indicated the stock is not overfished or experiencing overfishing, and found that biomass was higher than had been estimated in previous assessments. The 2019 EA also describes that catches had been well below the maximum sustainable yield (MSY) and OFL. At the time the 2019 was completed, that stock assessment was determined to be the BSIA for management by the Pacific Islands Fisheries Science Center (PIFSC) and the Council’s SSC. The low harvest rate and high biomass relative to reference points indicated that the Deep 7 bottomfish stock was being fished sustainably. Each of the action alternatives would have ensured that fishing remained sustainable (2019 EA, section 4.2.1).

NMFS does not have new information to indicate that the fishery has changed in this regard since the 2019 EA.

3.2.1.1. New Information: 2021 Deep 7 Bottomfish Stock Assessment Update

The 2021 stock assessment update (Syslo et al. 2021) used the same Bayesian surplus-production modeling approach as the 2018 benchmark assessment (Langseth et al. 2018). The model fit bottomfish catch and effort data from commercial catch reports and added 2016–2019 data and fishery-independent data from 2017–2020. The single species assessment for opakapaka was also updated with corresponding data. The stock assessment update provides us with additional years of catch projections with risks of overfishing for various catch levels from 2021 through 2025. The SSC and WPSAR panel determined that the 2021 assessment update represents the BSIA and can be used to manage the MHI Deep 7 bottomfish fishery (Franklin 2021). The 2021 assessment is therefore used to evaluate the effects of the proposed management alternatives.

Overall, the stock assessment update (Syslo et al. 2021) shows that the Deep 7 bottomfish stock was not overfished and not experiencing overfishing (

Table 2) in 2018, as was the case with the previous assessment (Langseth et al. 2018). The OFL is now estimated to be at 556–618 thousand lb of Deep7 bottomfish per year, depending on the number of future years under consideration. Similarly, the updated single-species assessment for opakapaka (Syslo et al. 2021) indicates that it was not overfished and not experiencing overfishing, as was the case with the 2018 benchmark assessment (Langseth et al. 2018).

Table 2 compares reference point values from the 2018 benchmark assessment and the 2021 assessment update. The estimate of MSY for Deep 7 bottomfish was lower in the 2021 update compared to the 2018 benchmark. The harvest rate (H) in the terminal year and the harvest rate at MSY (H_{MSY}) have nominally decreased. The H/H_{MSY} ratio and the probability that overfishing is occurring also decreased. The estimate of biomass (B) for the Deep 7 complex increased by 1.85 million lb. The biomass at MSY (B_{MSY}) and B/B_{MSY} ratio also increased. Thus the probability that the stock is overfished decreased. The OFL on the terminal year decreased slightly, by 2,000 lb. Overall, some of the estimates differed moderately between the 2018 and 2021 stock assessments,

but the updated assessment continues to indicate that the stock is healthy. The harvest rate is well below the overfishing threshold and biomass is well above the biomass threshold.

Table 2. Comparative table of the reference points between the 2018 benchmark stock assessment and the 2021 stock assessment update for MHI Deep 7 bottomfish.

Parameter	2018 Benchmark*	2021 Update**
MSY	509,000 ($\pm 233,000$) lb	473,000 ($\pm 225,000$) lb
H	In 2015 = 0.04	In 2018 = 0.03
H_{MSY}	0.069 (± 0.026)	0.68 (± 0.026)
H/H_{MSY}	In 2015 = 0.51	In 2018 = 0.37
Prob. H/H_{MSY}>1	0.17 (no overfishing)	0.11 (no overfishing)
B	20.03 million lb	21.88 million lb
B_{MSY}	15.4 million (± 4.9 million) lb	15.5 million (± 5 million) lb
B/B_{MSY}	1.31	1.43
Prob. B/B_{MSY}<0.844	0.16 (not overfished)	0.13 (not overfished)

Sources: *Langseth et al. 2018; **Syslo et al. 2021

Scientific and Management Uncertainties

Scientific Uncertainties

The current P* evaluation is the same as described in the 2019 EA (sections 1.7.1 and 2.1.2), but is being updated here using the most recent analysis presented to the SSC at the 139th meeting in March 2021 and Council at the 185th and 186th meetings in March and June 2021, respectively. We incorporate the previous information in the EA (sections 1.7.1 and 2.1.2) in its entirety and summarize the updated P* analysis that supplements the previous evaluation of the risk of overfishing associated with each alternative.

The Omnibus Amendment that established the ACL specification process requires the SSC to review the stock's scientific information and assign it a tier in the ABC control rule (WPFMC and NMFS 2011). The Deep 7 bottomfish stock is considered a tier 1 stock. Therefore a P* analysis is used to quantify the scientific uncertainty in determining the appropriate risk level to set the ABC. The SSC may recommend an ABC that differs from the result of the control rule calculation based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors determined relevant by the SSC, but must explain their rationale.

There are four primary factors that are considered in the P* analysis (see also Table 3, below):

1. **Assessment Information** – Scoring for this dimension incorporates several components of the stock assessment, such as whether the catch history is considered reliable, how catch per unit effort (CPUE) is standardized, if species-specific data is used in the assessment, and whether there is fishery independent data on stock abundance. These components are scored and then the combined score is scaled for an overall score for the assessment information dimension. Overall, the stock assessment update did not use new types of information that would result in a change to the score for the assessment information dimension. The update added three years of fishery-dependent and independent data, but these incremental additions do not affect the P* characterization of the assessment. Thus, the assessment information dimension remains as a reduction of 0.7.
2. **Uncertainty Characterization** – This score also did not change with the new update, because the 2021 did not differ in how it addressed statistical uncertainty relative to the 2018 assessment. The uncertainty surrounding the lack of process error in the projection of OFL remains the same. The uncertainty around the single point estimate of biomass in the 2018 P* analysis may have reduced due to the additional years of data, though the questions about the sampling radius of the baited camera system used for the fishery independent sampling have not been fully resolved, and the score for this dimension is maintained.
3. **Stock Status** – The score for this dimension did not change, as the new assessment continued to characterize the Deep 7 bottomfish stock as not overfished and not experiencing overfishing. A one percent reduction remains because the assessment continues to be done on a species complex.
4. **Productivity and susceptibility** – There was no new life history information incorporated in the assessment update, so this score did not change. The level of fishery also susceptibility remains the same.

Overall, there was no new information in the stock assessment update that would change the outcomes of the P* analysis, or the associated recommended reduction in risk of overfishing that was applied by the SSC and the Council to develop the ACLs considered in the 2019 EA.

Table 3. Comparison of P* scores for setting the 2018 and 2021 ABC, indicating no change. Details under 2018 highlight factors considered in determining the scores relative to the previous P* analysis. Bold font indicates a primary dimension for evaluation. Italicized font indicates a component of the primary dimension.

P* Dimensions and Criteria	2018 Assessment	2021 Assessment
1. Assessment Information	-0.7	No change
<i>a. Reliable catch history</i>	<i>0.1 : unreported catch</i>	<i>Updated to 2018; no change to score</i>

P* Dimensions and Criteria	2018 Assessment	2021 Assessment
<i>b. Standardized CPUE</i>	<i>0.0 : improved standardization vs. 2015 assessment</i>	<i>Updated to 2018; no change to score</i>
<i>c. Species specific data</i>	<i>0.5 : opakapaka assessment</i>	<i>No change</i>
<i>d. All sources of mortality accounted for</i>	<i>0.5 : bycatch unaccounted for</i>	<i>No change</i>
<i>e. Fishery independent data</i>	<i>0.0 : fishery independent data included</i>	<i>Updated to 2020; no change to score</i>
<i>f. Tagging data</i>	<i>1.0 : not included</i>	<i>No change</i>
<i>g. Spatial analysis</i>	<i>0.5 : improved spatial consideration vs. 2015 assessment</i>	<i>No change</i>
2. Uncertainty Characterization	-1.5 : narrowed to 2 uncertainties	No change
3. Stock Status	-1.0 : species complex	No change
4. Productivity/Susceptibility	-4.35	No change
TOTAL BUFFER	-7.59 ≈ 8.0	

In summary, the information in Table 3 shows the new data used in the 2021 stock assessment update did not merit a change to any of the dimensions in the P* analysis. The overall reduction in the risk of overfishing due to scientific uncertainties remained 8 percent, the same as for the 2018 benchmark stock assessment.

Social, Economic, Ecological, and Management (SEEM) Uncertainties

The SEEM considerations are the same as described in the 2019 EA (sections 1.7.1 and 2.1.2) and we incorporate by reference the information in its entirety into this SEA. As has been the case in the past, when developing ABC recommendations, there are four factors considered in the SEEM analysis:

1. Social – There was no new information presented at SSC or Council meetings that affected this factor.
2. Economic – There was no new information presented at SSC or Council meetings that affected this factor.

3. Ecological – The 2019 EA describes that the State of Hawaii also initiated the process to remove four of the twelve BRFA's. The State completed this change to their management, removing four of the BRFA's in 2019, so there are currently eight BRFA's in the MHI ([Hawaii Administrative Rules §13-94-8](#)). Neither we nor the Council or its SSC have new information that identifies any changes to the ecological setting of the fishery or new effects associated with the MHI Deep 7 bottomfish fishery, and the SSC did not recommend adjusting the score for Ecological factors.

4. Management – A two percent reduction in the risk of overfishing related to management uncertainty was incorporated due to ongoing uncertainty brought by the increase in State of Hawaii CML fees, a new method of fishing from a kayak, and reports of selling bottomfish catch through social media platforms. The 2020 Hawaii Annual Stock Assessment and Fishery Evaluation (SAFE) report was the most recent SAFE report available for the SEEM analysis, and it showed a decrease in the number of licenses reporting Deep 7 bottomfish over the last five years (WPFMC 2021). There is no new information on the kayak fishing for bottomfish and internet sale of bottomfish. The fishery and these circumstances are being monitored by the Council, and these changes are not substantial with respect to SEEM considerations or the analysis in the 2019 EA.

The SEEM working group did not recommend an ACT as an additional buffer below the ACL because there is trip reporting in the fishery, which allows for near real-time tracking of catch. Reporting requirements have not changed in the fishery. Overall, the new information did not substantially change the outcomes of the previous SEEM analysis, or result in a change in the associated recommended reduction in risk of overfishing (Table 4).

Table 4. Comparative table of the SEEM scores for the 2018 and 2021 ACL setting, indicating no change in the criteria scores.

SEEM Dimensions	2018 Assessment	2021 Assessment
Social	0.0 : no reduction	No change
Economic	0.0 : no reduction	No change
Ecological	0.0 : related to BRFA	4 BRFA's opened; no change to score
Management & Monitoring	-2.0 : increase in CML fee; new fishing method	Decrease in license reporting Deep 7; no change to score
TOTAL BUFFER	-2.0 :	

Table 5 shows the P* and catch associated with the ABC and ACL based on the 2018 and 2021 assessments. There are slight differences in the catch allowed at a given risk of overfishing in the 2021 assessment as compared to the 2018, reflected in two to four thousand lb differences in the OFL, and ABC and ACL at the same P* level. These differences are each less than one percent change relative to the 2018 values. Note that under the 2021 assessment, a 40 percent risk of

overfishing is associated with an ACL of up to 496,000 lb, and the Council recommended NMFS retain the same Deep 7 bottomfish ACL as was specified in the past 3 fishing years. According to Syslo et al. (2021), an ACL of 492,000 lb is associated with a P* of 39–40 percent if the catch is fully realized each year. This is a minor change in the effects on bottomfish and is a small conservation effect.

Table 5. Table of the harvest limits and the corresponding risk of overfishing associated with the recommended ABC and ACL.

Parameter	2018 Assessment	2021 Assessment	Percent change
OFL (terminal year)	In 2022 = 558,000 lb	In 2025 = 556,000 lb	-0.36 percent
P* ABC	42 percent	42 percent	No change
ABC	508,000 lb	510,000 lb	+0.39 percent
P* ACL	40 percent	40 percent	No change
ACL	492,000 lb	496,000 lb	+0.81 percent

Sources: Langseth et al. 2018; Syslo et al 2021; WPFMC 2018a, 2018b

In summary, the stock assessment update shows slight improvement in the ABC allowing a slight increase in the ACL associated with a P* of 40 percent compared with the previous benchmark stock assessment. Despite the slight improvement in stock status, the Council recommended NMFS continue to specify the ACL at the existing level, which is a continuation of Alternative 3, and is associated with a similar P* of 39–40 percent.

3.2.1.2. New Information: Deep 7 Bottomfish Fishery Performance

Table 6 shows the Deep 7 bottomfish catch in the recent six-year period from 2015–2021, which shows that catch is generally decreasing over time. The average catch of the last three years by the fishery operating under an ACL of 492,000 lb each fishing year from FY 2018–19 through FY 2020–21 was 167,980 lb/year. This corresponds to 34.1 percent of the current and proposed ACLs. From this information, we see that the fishery has not approached or attained the ACL recently, and catch has not been constrained by the ACLs.

Table 6. Total lb of Deep 7 bottomfish landed from 2016 to 2020 compared to ACLs.

Year	ACL (lb)	Total landed (lb)	Percent of ACL
2015–16	326,000	260,732	80.0
2016–17	318,000	237,879	74.8
2017–18	306,000	236,119	77.2
2018–19	492,000	180,859	36.8
2019–20	492,000	161,437	32.8
2020-21	492,000	161,644	32.9
Average_{FY18-20}		167,980	34.1

Source: WPFMC 2021

Table 7. Number of licenses, trips, Deep 7 fish and pounds reported for fishing years 2015–16 through 2019–20.

Fishing Year	No. License	Trips	No. Caught	Lb Caught	ACL (lb)
2015–16	372	2,348	74,536	260,732	326,000
2016–17	340	2,351	66,483	237,879	318,000
2017–18	341	2,169	59,332	236,119	306,000
2018–19	318	2,021	47,837	180,859	492,000
2019–20	334	1,841	45,860	161,437	492,000

Source: WPFMC 2021

As can be seen from information summarized in Table 6 and Table 7, the fishery did not attain or approach the catch limit under any of the recent ACLs. Also, the number of licenses, trips, and fish, and the total pounds of fish did not increase when the ACL was increased to 492,000 lb. Instead, fishing activity decreased slightly in the fishery. Changes to the fishery are not substantial and therefore, the analysis of expected fishery outcomes in the 2019 EA remain valid.

3.2.1.3. Supplemental Analysis of Effects on Deep 7 Bottomfish Using the New Fishery Information

Based on the 2021 stock assessment update (Syslo et al. 2021), the MSY for Deep 7 bottomfish is estimated to be 473,000 lb, which is less than the previous MSY estimate of 509,000 lb reported in the 2018 stock benchmark assessment (Langseth et al. 2018) (

Table 2). The 2021 stock assessment update estimated an OFL of 556,000 lb, which is slightly less than the OFL estimate in the 2018 benchmark stock assessment of 558,000 lb (Table 5).

Our use of the new 2021 stock assessment to inform proposed management measures conforms with National Standard 2 of the Magnuson-Stevens Act, which requires the use of the best scientific information available for management. The updated stock assessment and the positive findings of the independent scientific review about the usefulness of the updated stock assessment were presented to the SSC at the 139th meeting in March 2021, and the SSC recommended to the Council that the assessment is the BSIA to use for management.

The description of management alternatives and expected fishery outcomes are incorporated by reference in their entirety from the 2019 EA (section 2.2), with the exception of slight changes to the risk of overfishing associated with each alternative (

Table 1), years the ACL and AMs would be implemented, and additional updated information as described below. Briefly, the No Action Alternative of the 2019 EA was based on not implementing an ACL for Deep 7 bottomfish. This alternative would not be consistent with requirements of the Magnuson-Stevens Act or the FEP, and it was included to evaluate the fishery absent management action.

Alternative 2 was the Status Quo Alternative based on the ACL of 306,000 lb in place in FY 2017–18. Under the new stock assessment, this alternative is associated with a P* of 18 percent. This alternative would unnecessarily constrain the fishery and was not recommended by the

Council to be adopted in 2022 through 2024 fishing years. It also no longer serves as a meaningful status quo management alternative, since the MHI Deep 7 bottomfish fishery has been fishing under a 492,000 lb.

The Preferred Alternative in the EA, Alternative 3, is a proposed ACL of 492,000 lb. In this SEA, we utilize the information from the existing P* and SEEM working group meetings that accounts for the scientific and management uncertainties following the ACL implementation process described in the FEP. The SSC retained the risk of overfishing for the ABC at 42 percent because there was no new information or method in the update that would change the outcomes of the P* analysis. This ABC is associated with a catch of 510,000 lb through FY 2023–24. There was no change in the management uncertainty from the SEEM analysis, and the Council retained an additional two percent reduction to the risk of overfishing. The result was a combined 10 percent buffer from OFL in setting the ACL.

Compared to Alternative 3 in the 2019 EA, NMFS would implement the same ACL of 492,000 lb of MHI Deep 7 bottomfish for the 2021–22, 2022–23, and 2023–24 fishing years based on the Council’s recommendation at the 186th meeting in June 2021. Based on the probability of overfishing projections contained in the 2021 stock assessment update (Syslo et al. 2021, Table 18), an ACL of 492,000 lb is associated with a 39–40 percent probability of overfishing through FY 2023–24 (assumes three years of identical catch), so this alternative is slightly more precautionary than the same Alternative 3 in the 2019 EA. The probability of the stock being overfished in 2024 after three years of catch of 492,000 lb is 15 percent.

The 2019 EA describes that Alternative 4 (420,000 lb) and Alternative 5 (336,000 lb) were not related to a particular need identified in the SEEM analysis, but provided additional options for considering precautionary management at a lower risk of overfishing (

Table 1) or in the event that the fishery exceeded the ACL and an overage adjustment was necessary.

Expected Fishery Outcome with Respect to Deep 7 Bottomfish

According to the 2019 EA, not implementing an ACL or AM under Alternative 1 was not expected to result in changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. This continuity was expected because the fishery had not reached the ACL in recent years, so it has not been constrained by catch limits in recent years (2019 EA, section 2.2.1) and was therefore performing as it would in the absence of an ACL and AMs. NMFS anticipated the fishery could catch up to 311,179 lb, which was the highest recent catch from 2013–14. The fishery was expected to be sustainable at this level of catch (2019 EA, section 4.2.1.1) because the catch would be well below the OFL. This level of performance is still expected under the No-action Alternative.

In the 2019 EA, Alternative 2 was the Status Quo Alternative because the ACL for the previous fishing year (2017–18) was 306,000 lb. If catches were similar to 2013–14 when the fishery caught 311,179 lb, there would be a potential for the fishery to reach 306,000 lb and trigger an in-season closure as an AM. However, the recent five year average considered in 2019 was only 274,100 lb, so NMFS did not expect the fishery to reach or exceed an ACL of 306,000 lb (2019

EA, section 2.2.2). In fact the fishery has not reached this level in recent years (Table 7), and NMFS does not anticipate that catches in FY 2021–22, 2022–23, and 2023–24 would exceed 306,000 lb. As described in the 2019 EA, implementing an ACL of 306,000 lb under Alternative 2 is not expected to result in changes in the conduct of the fishery compared to recent years, including gear types used, areas fished, level of catch or effort, or effects on target or non-target stocks or protected species. However, this ACL would be substantially below the OFL and ABC, and could potentially be unduly restrictive in terms of allowing fishery participants to benefit from the harvest of sustainably managed Deep 7 bottomfish resources.

NMFS anticipates the Council’s recommended ACL of 492,000 lb under Alternative 3 would have a similar fishery outcome compared to Alternative 3 in the 2019 EA. The fishery could catch up to 492,000 lb of Deep 7 bottomfish, which is the same ACL analyzed as the Preferred Alternative in the 2019 EA. The OFL in the 2021 assessment update is within one percent of the OFL from the previous assessment, but the OFL is substantially more than the ACL and recent catch levels, so the risk of exceeding the OFL is negligible.

If the fishery were to attain the ACL of 492,000 lb in an individual fishing year, NMFS would implement a closure of the commercial and non-commercial fisheries for MHI Deep 7 bottomfish in Federal waters as an AM. If this occurs, the State of Hawaii has the authority to implement a complementary fishery closure in State waters, and is likely to, as it has done so in the past. The in-season AM of a fishery closure would keep total reported catch of MHI Deep 7 bottomfish well below the OFL of 556,000 lb and prevent overfishing.

Because State and Federal laws require fishermen to report on a per-trip basis, management uncertainty (i.e., late reporting) is unlikely to cause the fishery to exceed the ACL of 492,000 lb. Thus, it is unlikely that an overage adjustment under the post-season AM would be necessary. However, if the fishery were to exceed the ACL in any fishing year, NMFS would reduce the ACL in the next fishing year by the amount of the overage. Based on recent fishing performance over the last 3 years, it is not expected that the fishery would change such that the ACL under the Preferred Alternative would be exceeded.

The fishery is highly unlikely to reach the ACL of 492,000 lb if the fishery performance is similar to fishery performance over the past three years under an ACL of 492,000 lb. The average catch in the past three years was 167,980 lb (Table 6), which is 34.1 percent of the proposed ACL. Even the highest recent catch of 260,732 lb during the 2016–17 fishing year would be only 53 percent of the proposed ACL. Considering recent catch levels compared to the ACL, NMFS expects that the fishery would remain open throughout each of the next three years under the Preferred Alternative. The ACL would not constrain the fishery or result in a race to fish. Because the Deep 7 bottomfish fishery would remain open throughout the fishing year, fishing effort would not shift to other stocks in response to a fishery closure and there would not be regulatory discards. As described in the 2019 EA, Alternative 3 is not expected to result in changes in the conduct of the fishery compared to recent years, including gear types used, areas fished, level of catch or effort, or effects on target or non-target stocks or protected species because the fishery has not been constrained by catch limits in recent years and would not be constrained under the proposed ACL.

Based on recent catch history, the 2019 EA did not anticipate that the fishery would reach an ACL of 420,000 lb under Alternative 4 or 336,000 lb under Alternative 5. Neither alternative is

expected to result in changes in the conduct of the fishery over recent years, including gear types used, areas fished, level of catch or effort, or effects on target or non-target stocks or protected species because the fishery has not been constrained by catch limits in recent years. Both of these alternatives are more conservative than the Preferred Alternative and would permit fishing at a sustainable level. Like Alternative 2, these alternatives would limit catch to levels substantially below the OFL and ABC, and could potentially be unduly restrictive in terms of allowing fishery participants to benefit from the harvest of sustainably managed Deep 7 bottomfish resources.

Overall, management under any alternative is expected to have no effect on MHI Deep 7 Bottomfish stocks. Considering expected levels of catch, the stock would continue to be healthy, would not become overfished or experience overfishing, and the fishery would continue to provide sustainably managed fish to Hawaii.

Because the fishery is not expected to approach or exceed the ACL, based on recent performance, the fishery is not expected to change; however monitoring and controls on catch are limits that have the potential to have minor positive benefits to the MHI Deep 7 bottomfish stock should catches increase.

3.2.2. Effects on Non-target Stocks

The 2019 EA describes fishery interactions in sections 3.2.1.2, 3.2.1.3, and 4.2.1, which are incorporated by reference in their entirety and summarized here. The 2019 EA describes that the Deep 7 bottomfish fishery is target-specific, and the bycatch rate is relatively low. The majority of the MHI Deep 7 fishery's bycatch is composed of several jacks and snappers (2019 EA, sections 3.2.1.2 and 3.2.1.3). Most of these species were reclassified from MUS to ecosystem component species (ECS) on February 8, 2019 (84 FR 2767). Although catch of ECS is still recorded through the CML program and reported in annual SAFE reports, they are no longer subject to management under ACLs and AMs. One species that remained a BMUS is the grey snapper or uku (*Aprion virescens*), which may be incidentally caught when fishing for Deep 7 bottomfish. Uku can also be targeted separately from Deep 7 bottomfish, and the stock is managed under a separate, single-species ACL and AMs. The 2019 EA notes that uku harvests are sustainable (2019 EA, section 3.2.1.2), and the continued operation of the fishery under any alternative is not expected to adversely affect uku or other non-target stocks (2019 EA, section 4.2.1).

The 2019 EA also describes that under all alternatives under consideration, fishing activity in the Deep 7 bottomfish fishery is unlikely to change in a manner that would affect non-target stocks (2019 EA, section 4.2.1). Bycatch under the No-action Alternative was expected to continue at low levels. Bycatch consists primarily of fishes that are known to be ciguatoxic, have little or no market value, and are generally released alive. Expected impacts to target and non-target stocks would be minor and similar to levels in recent years. The fishery was not expected to reach the ACL under any alternative, so none of the action alternatives are expected to constrain the fishery or result in a change to fishing operations or impacts on non-target species (2019 EA, section 4.2.1).

Since the publication of the 2019 EA, a new, single-species ACL was implemented for uku (85 FR 26622, May 5, 2021) based on a new stock benchmark stock assessment (Nadon et al 2020). This new information about uku stocks and fishery shows that uku harvests remain subject to

appropriate management to ensure fishing around Hawaii is sustainably managed. This information is consistent with the analysis in the 2019 EA and no additional analysis is needed.

Overall, management under any action alternative is expected to have no effects on non-target stocks compared with the no-action alternative. Considering expected levels of catch which are regulated through an ACL and in-season management measure, the uku stock would continue to be healthy, would not become overfished or experience overfishing, and the uku fishery would continue to provide sustainably managed fish to Hawaii.

The alternatives under the proposed action are the same as those considered in the 2019 EA, which found that the fishery under any alternative under consideration would not affect non-target species. The new information does not change this analysis, so NMFS anticipates that none of the action alternatives have the potential to change effects on non-target stocks or bycatch and the fishery would continue to have sustainable levels of harvest of these species.

3.2.3. Effects of the Alternatives on Protected Species

Section 3.2.2 of the 2019 EA, “Protected Species,” describes the baseline with respect to recent and projected interactions between the MHI Deep 7 bottomfish fishery operating under the baseline. The fishery is known to have a low level of interactions with protected species incidental to fishing including with marine mammals, sea turtles, seabirds, sharks, and rays (2019 EA, section 4.2.2) and the information from the 2019 EA is incorporated by reference and summarized here.

Section 3.2.2 generally describes ESA requirements and consultations, ESA-listed species with the potential to interact with vessels in the fishery (2019 EA, Table 9), valid biological opinions (BiOps), and ongoing Section 7 consultations for fishery. The section continues with information about the MMPA including the potential for interactions with the fishery, as discussed above in section 1.9.

Following are highlights of other information incorporated by reference from the 2019 EA and updated information that supports this SEA:

- **Sea Turtles:** The 2019 EA provides basic information about ESA-listed sea turtles that the fishery may interact with and the determination of the 2008 BiOp, which concluded that the bottomfish fishery may affect green turtles through vessel collisions, but is not likely to jeopardize the survival or recovery of the green sea turtle (2019 EA, sections 3.2.2.1 and 4.2.2). We note that as discussed in the 2019 EA (section 4.2.2), the estimate of the number of vessels and trips was substantially larger than the actual fishery, and impacts are likely much smaller than estimated. As described in section 3.2.2.1, the 2008 BiOp determined that the MHI bottomfish fishery is not likely to adversely affect other sea turtle species. We have no new information to supplement the environmental effects analysis for any of the alternatives with respect to sea turtles.
- **MHI IFKW DPS and critical habitat:** In a modification to the 2008 BiOp dated August 7, 2013, NMFS determined that commercial and non-commercial bottomfish fisheries in the MHI may affect, but are not likely to adversely affect MHI insular false killer whales (NMFS 2013). On February 1, 2019, NMFS reinitiated consultation under ESA to determine whether

bottomfish fishing activities are likely to adversely modify critical habitat of the MHI IFKW DPS, as required by 50 CFR 402.16. The information in section 4.2.2 on MHI IFKW DPS is incorporated by reference in its entirety. Briefly, although some fish taken incidentally in the bottomfish fishery have been identified as IFKW prey, they represent an insignificant fraction of bottomfish harvests. Potential increases in fishing effort from the baseline under action alternatives would be expected to have only minor impacts on populations of these prey species relative to the No Action and Status Quo Alternatives. We have no new information to supplement the environmental effects analysis for any of the alternatives with respect to critical habitat of the MHI IFKW DPS.

- Hawaiian monk seal: As described in section 4.2.2 of the 2019 EA, the 2008 BiOp found that bottomfish fishing activities are not likely to adversely affect any other ESA-listed marine species that may be found in Federal waters of the MHI, including monk seals. On August 21, 2015, (80 FR 50925) NMFS published a final rule to designate areas in the MHI as monk seal critical habitat. As a result of the final rule designating monk seal critical habitat, NMFS initiated consultation on the continuation of the bottomfish fishery in the Hawaiian archipelago. In a memo dated March 1, 2016, the consultation concluded with NMFS concurring that the fishery is not likely to adversely affect the designated Hawaiian monk seal critical habitat because effects of the fishery are expected to be discountable or insignificant. We have no new information to supplement the environmental effects analysis for any of the alternatives with respect to monk seals of their critical habitat.
- Seabirds: Most of the seabirds found in Hawaii are not known to interact with the bottomfish fishery because of the methods used to deploy and retrieve fishing tackle. There have been no reports of interactions between the Hawaii bottomfish fishery and seabirds (EA, section 3.2.2.3) and no new reports since the EA was completed. The proposed action would not change the fishery including the potential for interactions with seabirds; therefore, the proposed action would not affect seabirds.
- Oceanic whitetip shark: On January 30, 2018, NMFS published a final rule listing oceanic whitetip sharks as threatened species under the ESA (83 FR 4153). NMFS determined that protective regulations under ESA section 4(d) are not necessary or appropriate for the conservation of the species at this time. Accordingly, incidental take of the oceanic whitetip is not prohibited under the ESA section 9. Logbooks and voluntary reports have documented rare interactions with this species by the fishery. On February 1, 2019, NMFS reinitiated consultation under ESA to determine whether fishing activities are likely to adversely affect this species, as required by 50 CFR 402.16. New information is summarized in below in section 3.2.3.1 of the SEA.
- Giant manta ray: On January 22, 2018, NMFS published a final rule listing giant manta rays as threatened species under the ESA (83 FR 2916). There are no recorded interactions with the fishery and giant manta rays, and NMFS expects the bottomfish fishery to have discountable or insignificant effects on the giant manta ray population. On February 1, 2019, NMFS reinitiated consultation under ESA to determine whether fishing activities are likely to adversely affect this species, as required by 50 CFR 402.16. New information is summarized in below in section 3.2.3.1 of the SEA.

3.2.3.1. New Information: Protected Species Interactions

The following is new information about protected species since the 2019 EA was completed.

On February 1, 2019, NMFS PIRO SFD requested reinitiation of formal consultation under section 7(a)(2) of the ESA for the MHI bottomfish fishery in response to the listing of the oceanic whitetip shark and giant manta ray as threatened, and the designation of critical habitat for the MHI IFKW DPS, and on June 5, 2019, NMFS PIRO Protected Resources Division (PRD) reinitiated consultation. Also, on February 1, 2019, and again on July 9, 2021, NMFS determined that the conduct of the Hawaii bottomfish fisheries during the period of consultation will not violate ESA Section 7(a)(2) and 7(d) with respect to these listings; that is, the operation of the fishery will not result in making irreversible or irretrievable commitments of resources during the period of consultation that would have the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative. Key factors in this determination include,

- Oceanic whitetip shark: Oceanic whitetip shark captures in the Hawaii bottomfish fisheries are rare, and equate to about one ten-thousandth of one percent of the oceanic whitetip sharks in the Western and Central Pacific Ocean.
- Giant manta ray: There is limited spatial overlap between the fishery and giant manta rays, and there are no records of giant manta ray incidental captures or entanglements. Collisions with manta rays are unlikely to occur, and are, therefore, discountable.
- Critical habitat of MHI IFKW DPS: Bottomfish are not known to be key prey of the MHI IFKW DPS, and bottomfish fishing would not result in a long-term reduction in quantity, quality, or availability of MHI IFKW prey species.

This memo describing the July 9, 2021 determination is an update to the ESA-consultation process which was in place as reported in the 2019 EA, but it does not change the effects analysis under each alternative summarized above and is incorporated by reference from the 2019 EA.

As of the drafting of this SEA, PIRO PRD is continuing to evaluate information relevant to the consultation. The proposed action would not change the manner in which the fishery operates with respect areas fished, gear used, or methods employed, so interactions with the protected species are not anticipated to change in frequency or intensity from those analyzed in the 2019 EA. Since the recommended action is virtually identical to Alternative 3 described in section 4.2.2, we conclude the Deep 7 bottomfish fishery is not likely to adversely affect oceanic whitetip sharks and giant manta rays, or critical habitat of the MHI IFKW DPS, as documented in the 2019/2021 7(a)(2) and 7(d) memos. Because of the low likelihood of interactions with oceanic whitetip sharks and giant manta rays, and the fact that none of the alternatives would change the fishery in any way that would increase interactions, we conclude that none of the action alternatives would be likely to adversely affect the oceanic whitetip shark giant manta ray, or critical habitat of the MHI IFKW DPS relative to the NEPA baseline.

On April 15, 2021 NMFS announced a 90-day finding on a petition to list the shortfin mako shark (*Isurus oxyrinchus*) as threatened or endangered under the ESA and to designate critical habitat concurrent with the listing, so NMFS is initiating a status review of the species to determine whether listing under the ESA is warranted (86 FR 19863). The shortfin mako is a large pelagic shark that occurs across all temperate and tropical ocean waters. Previously, NMFS determined that the shortfin mako shark in the North Pacific Ocean was not overfished or experiencing overfishing based on a 2018 stock assessment (ISC 2018). As a pelagic shark, the shortfin mako is not known to interact with the MHI Deep 7 bottomfish fishery, and it was not discussed in the 2019 EA. The alternatives under consideration are not expected to change the fishery in any way,

and would not be expected to change the level of interactions with the shortfin mako shark (86 FR 19863) in response to a petition. If the short fin mako shark is proposed for listing, PIRO SFD may request conference under the ESA with PIRO PRD. If the short fin mako shark is listed, NMFS would consult as required under section 7 of the ESA to determine the effects of the fishery on this species.

Overall, the MHI Deep 7 bottomfish fishery is not known to be having a large and adverse effect on protected resources (EA, sections 3.2.2 and 4.2.2). None of the alternatives under consideration are expected to change the fishery in a way that would result in new or additional effects, so we conclude the proposed action would not affect protected resources compared with the effects of the No-action Alternative (Alternative 1).

3.2.4. Habitats and Vulnerable Ecosystems

Information on habitats and vulnerable ecosystems is found in sections 3.2.3 and 4.2.3 of the 2019 EA, and is incorporated here by reference and summarized briefly. The FEP defines essential fish habitat (EFH) and habitat areas of particular concern (HAPC) for all MUS. Scientific surveys indicate that bottomfish fishing operations do not have adverse impacts to the habitat. To prevent and minimize adverse bottomfish fishing impacts to the environment, the FEP prohibits the use of explosives, poisons, bottom trawl, and other non-selective and destructive fishing gear. None of the alternatives under consideration would change these regulations. Considering the lack of adverse impacts to habitat from focused underwater surveys, the 2019 EA showed that alterations to bottomfish EFH and HAPC are not likely under any of the alternatives considered.

3.2.4.1 New information about EFH, HAPC, and Vulnerable Ecosystems

We update information in the 2019 EA to correct the descriptions of EFH and HAPC for bottomfish MUS in Hawaii in Table 14 and Table 15, because some of the details were not consistent with current definitions of EFH. Corrected information can be found below in Table 8 and Table 9 in this SEA. We also add information describing potentially affected EFH and HAPC for crustacean MUS (Kona Crab and Deepwater shrimp, Table 10), pelagic MUS (Table 11), and precious coral MUS (Table 12).

EFH is defined in the Magnuson-Stevens Act as those waters and substrate that are necessary for fish spawning, breeding, feeding, and growth to maturity for MUS. In addition to and as a subset of EFH, the Council described HAPCs for some fisheries. BMUS are classified into three groups that have different EFH requirements, as described in Table 13 of the 2019 EA. This table is incorporated by reference, and summarized briefly. The shallow BMUS assemblage includes one species, uku. The intermediate assemblage includes lehi, hapuupuu, and opakapaka. The deep assemblage includes ehu, onaga, kalekale, and gindai. New information is provided in Table 8 on the EFH of Hawaii bottomfish from the 2016 Amendment 4 to the FEP, which revised EFH and HAPC for bottomfish and seamount groundfish in Hawaii (WPFMC 2016). HAPC are the same for all complexes, as summarized in Table 9.

Table 8. EFH for all life stages of MHI bottomfish MUS

Species assemblage	EFH (egg)	EFH (post-hatch)	EFH (post-hatch settlement)	EFH (sub-adult/adult)
Shallow complex: Uku (<i>Aprion virescens</i>)	Water column extending from the baseline to 50 mi to a depth of 240 m	Water column extending from the baseline to the outer boundary of the EEZ to a depth of 240 m	Water column and bottom habitat extending from the baseline to the 240 m isobath from the surface to a depth of 240 m	Same as EFH for post-hatch settlement
Intermediate complex: Lehi (<i>Aphareus rutilans</i>), Opakapaka (<i>Pristipomoides filamentosus</i>), Hapuupuu (<i>Hyporthodus quernus</i>)	Water column extending from the baseline to 50 mi to a depth of 320 m	Water column extending from the baseline to the outer boundary of the EEZ to a depth of 320 m	Water column and bottom habitat extending from the 40 m to 320 m isobaths in depths of 40 to 320 m	Same as EFH for post-hatch settlement
Deep complex: Ehu (<i>Etelis carbunculus</i>), Onaga (<i>E. coruscans</i>), Kalekale (<i>P. sieboldii</i>), Gindai (<i>P. zonatus</i>)	Water column extending from the baseline to 50 mi to a depth of 400 m	Water column extending from the baseline to the outer boundary of the EEZ to a depth of 400 m	Water column and bottom habitat extending from the 80 m to 400 m isobaths in depths of 80 to 400 m	Same as EFH for post-hatch settlement

Table 9. HAPC for all life stages and all complexes of MHI bottomfish MUS

Island	Oahu	Molokai	Maui	Kahoolawe	Hawaii
Locations	Kaena Point, Kaneohe Bay, Makapuu	Penguin Bank	Pailolo Channel	North Kahoolawe	Hilo

The MHI Deep 7 bottomfish fishery operates in areas that have been designated as EFH and HAPC for other insular management unit species including Kona crab, deepwater shrimp, pelagic MUS, and precious corals. EFH and HAPC for these species are listed in Table 10 (Crustacean MUS), Table 11 (Pelagic MUS), and Table 12 (Precious coral MUS).

Table 10. EFH and HAPC for all life stages of crustacean MUS

Species/Species complex	EFH	HACP
Kona crab: <i>(Ranina ranina)</i>	Eggs and larvae: the water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (80 fm) Juvenile/adults: all of the bottom habitat from the shoreline to a depth of 100 m (55 fm)	All banks in the NWHI with summits less than or equal to 30 m (16 fm) from the surface
Deepwater shrimp (all FEP areas): <i>(Heterocarpus spp.)</i>	Eggs and larvae: the water column and associated outer reef slopes between 550 and 700 m (300 and 380 fm) Juvenile/adults: the outer reef slopes at depths between 300 and 700 m (165 and 380 fm)	No HACP designated for deepwater shrimp.

Table 11. EFH and HAPC for all life stages of Pelagic MUS

Species Complex	EFH	HAPC
Temperate species: Striped Marlin (<i>Tetrapturus audax</i>), Bluefin Tuna (<i>Thunnus thynnus</i>), Swordfish (<i>Xiphias gladius</i>), Albacore (<i>Thunnus alalunga</i>), Mackerel (<i>Scomber spp.</i>), Bigeye (<i>Thunnus obesus</i>), Pomfret (family Bramidae)	Eggs and larvae: the (epipelagic zone) water column down to a depth of 200 m (110 fm) from the shoreline to the outer limit of the EEZ Juvenile/adults: the water column down to a depth of 1,000 m (550 fm) from the shoreline to the outer limit of the EEZ	The water column from the surface down to a depth of 1,000 m (550 fm) above all seamounts and banks with summits shallower than 2,000 m (1,100 fm) within the EEZ

Species Complex	EFH	HAPC
<p>Tropical species: Yellowfin (<i>Thunnus albacares</i>), Kawakawa (<i>Euthynnus affinis</i>), Skipjack (<i>Katsuwonus pelamis</i>), Frigate and bullet tunas (<i>Auxis thazard</i>, <i>A. rochei</i>), Blue marlin (<i>Makaira nigricans</i>), Slender tunas (<i>Allothunnus fallai</i>), Black marlin (<i>Makaira indica</i>), Dogtooth tuna (<i>Gymnosarda unicolor</i>), Spearfish (<i>Tetrapturus</i> spp.), Sailfish (<i>Istiophorus platypterus</i>), Mahimahi (<i>Coryphaena hippurus</i>, <i>C. equiselas</i>), Ono (<i>Acanthocybium solandri</i>), Opah (<i>Lampris</i> spp.)</p>	<p>Same as EFH for temperate pelagic MUS</p>	<p>Same as HAPC for temperate pelagic MUS</p>
<p>Sharks: Pelagic thresher shark (<i>Alopias pelagicus</i>), Bigeye thresher shark (<i>Alopias superciliosus</i>), Common thresher shark (<i>Alopias vulpinus</i>), Silky shark (<i>Carcharhinus falciformis</i>), Oceanic whitetip shark (<i>Carcharhinus longimanus</i>), Blue shark (<i>Prionace glauca</i>), Shortfin mako shark (<i>Isurus oxyrinchus</i>), Longfin mako shark (<i>Isurus paucus</i>), Salmon shark (<i>Lamna ditropis</i>)</p>	<p>Same as EFH for temperate pelagic MUS</p>	<p>Same as HAPC for temperate pelagic MUS</p>
<p>Squid: Neon flying squid (<i>Ommastrephes bartamii</i>), Diamondback squid (<i>Thysanoteuthis rhombus</i>), Purple flying squid (<i>Sthenoteuthis oualaniensis</i>)</p>	<p>Same as EFH for temperate pelagic MUS</p>	<p>Same as HAPC for temperate pelagic MUS</p>

To prevent and minimize adverse bottomfish fishing impacts to the environment, the FEP prohibits the use of explosives, poisons, bottom trawl, and other non-selective and destructive fishing gear. Bottomfish fishing is prohibited by the State of Hawaii around Kahoolawe as part of the Kahoolawe Island Reserve. None of the alternatives under consideration would change these regulations. Additionally, research studies to date, including the use of a submersible to directly observe the bottom in low, medium, and high fishing activity areas, indicate that bottomfish fishing operations do not have adverse impacts to the habitat (Kelley and Ikehara 2006; Kelley and Moffit 2004).

Fishing activity by the bottomfish fishery is not known to be adversely affecting EFH or HAPC of BMUS or any other MUS under this alternative (EA, section 4.2.3). Because the proposed

management action would not change fishing under any of the action alternatives in a way that would affect habitats differently, we conclude that none of the action alternatives would affect EFH or HAPC of any bottomfish, crustacean, or pelagic MUS managed under the Hawaii FEP.

Vulnerable Ecosystems and Precious Coral EFH and HAPC

There are several species of precious corals found in Hawaii. These corals occur from relatively shallow water into the mesophotic zone, where light levels are too low to support growth of reef-building corals. Precious corals in the MHI are grouped into shallow (10–50 fm) and deep (150–750 fm) groups. Black corals in the *Antipathes* and *Myripathes* genera comprise the shallow group; while pink (*Corallium*), gold (*Callogorgia*, *Calyptrophora*, *Gerardia*, and *Narella*), and bamboo (*Acanella* and *Lepidisis*) corals make up the deep group. Studies have found that some of the deepwater species may live in the range of two to four thousand years (Roark et al. 2009), making them highly susceptible to effects from accidental damage or exploitation.

EFH and HAPC for MHI precious corals are summarized in Table 12, below. Precious coral beds in the action area are located off the southern shore of Kauai, Oahu (Makapuu and Kaena point), Maui (Auau Channel), Hawaii Island (Keahole point and between Milolii and South Point) (WPFMC 2021). Known beds of deepwater precious corals (pink, gold and bamboo) are found at Makapuu and Kaena point on Oahu and Keahole Point on Hawaii Island. The beds off southern Kauai and in the Auau channel are black coral beds, and generally shallower than the depth zone where fishing for Deep 7 bottomfish is conducted. The precious coral beds off Kaena Point and Makapuu are located within BRFA established by the State of Hawaii.

Table 12. EFH and HAPC for precious corals in the MHI

Coral Group	Island	Area	EFH	HAPC
Shallow water	Kauai	Southern border	Yes	No
	Maui	Auau Channel	Yes	Yes
	Hawaii	Milolii to South Point	Yes	No
Deep water	Oahu	Kaena Point	Yes	No
	Oahu	Makapuu	Yes	Yes
	Keahole Point	Hawaii	Yes	No

In addition to overlapping deepwater precious coral habitat, the Deep 7 bottomfish fishery operates in areas that include coral reef ecosystem habitat (e.g., areas shallower than 50 m or about 30 fm). However, this fishery is not known to adversely affect habitat, as described in the effects analysis for EFH (2019 EA, section 4.2.3), incorporated here by reference. Studies of habitat from submersibles have not found adverse impacts to habitat from bottomfish fishing activities (Kelley and Ikehara 2006; Kelley and Moffit 2004). None of the alternatives are expected to change the way in which this fishery is conducted or the magnitude of impacts on habitats. Also, the alternatives under consideration would not change regulations that are in place to prevent and minimize adverse effects from bottomfish fishing on fish habitat. For example, prohibitions on destructive fishing practices such as explosives and bottom trawls would remain

in place. Existing protected areas implemented by the State of Hawaii would continue to prohibit bottomfish fishing in both bottomfish and precious coral HAPCs. For these reasons, none of the alternatives considered are expected to lead to substantial physical, chemical, or biological alterations to ocean, coral or coastal habitats; or result in impacts to the marine habitat, including areas designated as EFH, HAPC, or unique areas such as marine protected areas or marine sanctuaries.

Overall, the MHI Deep 7 bottomfish fishery is not known to adversely affect habitats or vulnerable ecosystems. None of the alternatives under consideration are expected to change the fishery in a way that would result in new or additional effects, so none of the alternatives would affect habitats or vulnerable ecosystems compared with the effects of the No-action Alternative (Alternative 1).

3.3. Socio-economic setting

With respect to the fishing community, we incorporate that section by reference (EA, sections 3.3 and 4.3) and provide the following new information.

The 2019 EA describes the fishery under the baseline as a fishery with non-commercial and commercial sectors. The recent five-year average for the number of active fishermen in the fishery was approximately 400 from FY 2012–13 through FY 2016–17. The 2019 EA describes that there is little information available on the number of non-commercial participants in the fishery. The 2018 benchmark stock assessment (Langseth et al. 2018) and the 2021 stock assessment update (Syslo et al. 2021) assumed non-commercial catch is similar in magnitude to commercial catch.

Commercial and non-commercial participation.

The bottomfish fishery is a complex mix of subsistence, recreational, commercial participants, and most fishermen at times target other species depending on the season and weather. Hospital and Beavers report that for registered bottomfish fishermen, only 39 percent of trips were bottomfish trips. There are not distinct fishery sectors within the MHI Deep 7 bottomfish fishery by vessel size, place of origin, or motivation. Vessels in the fishery are predominantly small owner-operated boats, with little difference in size between non-commercial vessels (avg. 22 feet) and commercial vessels (avg. 28 feet; Hospital and Beavers 2012). Because of the small size of vessels in the fishery and Hawaii's geographic isolation, outside vessels from other states or countries do not participate in the fishery. Fishery participants encompass the range of ethnicities in Hawaii, identifying as Asian, Native Hawaiian or Pacific Islander, Caucasian, or multi-racial (Hospital and Beavers 2012). Across these demographic groups, there is a continuum from non-commercial to full-time commercial fishermen, though there are a relatively small proportion of "highliners" who bottomfish almost exclusively (approximately 10 percent of commercial fisherman). Among this subgroup, participants earn approximately 30 percent of their income from bottomfish fishing on average. Most other commercial fishermen report that they earn very little or no income from bottomfish (Hospital and Beavers 2012).

To describe the range of participants in the fishery, the 2019 EA summarized economic potential across this range (section 4.3.1, Fig. 4, and Table 19–23). More recent participation levels are

available from the 2020 SAFE Report (WPFMC 2021), which shows that the number of commercial fishermen reporting catch has declined. The five year average in the 2019 EA was 400 licensees reporting annually, though the number had dropped to approximately 340 in 2016–17 (2019 EA, Table 2; WPFMC 2021, Table 3). The 2020 SAFE report shows that the number of licenses stayed largely the same in 2017–18 (341 licensees), and then declined slightly in 2018–19 and 2019–20 under the 492,000 lb ACL when 318 and 334 licensees, respectively reported Deep 7 bottomfish catch (Table 7). The causes of the changes are not clear, but likely involve a combination of factors related to availability of other work for part-time fishermen, economic conditions, and the global coronavirus pandemic. It is clear is that participation did not increase in response to the higher ACL first implemented for the 2018–19 fishing year. NMFS expects the fishery participation would continue to be influenced by other factors under any of the alternatives under consideration.

Ex-vessel revenue.

The 2019 EA estimated ex-vessel revenue based on recent economic data for the fishery. This analysis used an average price of \$7.40/lb and assumed commercial fishermen would sell 95 percent of their catch (2019 EA, section 4.3.1). This information is incorporated here by reference, and summarized below (Table 13). We now have new information regarding recent price per lb of Deep 7 bottomfish from the 2020 SAFE report (WPFMC 2021). Compared to the 2019 EA, the average price per pound for the Deep 7 bottomfish is lower by \$0.17 and the average percent sold decreased to 91 percent, so revenues that are projected for the fishery are likely to be slightly lower than in the 2019 EA (Table 13). These differences change the expected revenue for each alternative, but the relationship between them stays the same since the differences are applied to all the alternatives. Expected revenue for each alternative decreases by 6.4 percent, but as in the 2019 EA, the economic potential for the Preferred Alternative remains the highest of all the alternatives under consideration.

Table 13. Expected revenue in the Deep 7 Fishery for management alternatives in the 2019 EA and 2020 SAFE report.

Alternative	Expected catch (lb)*	Expected lb sold*	Price per lb*	Expected revenue (\$)*	Expected lb sold**	Price per lb**	Expected revenue**
Alt. 1 (No Action)	311,179	295,620	\$7.40	\$2,187,588	283,173	\$7.23	\$2,047,340
Alt. 2 (Status quo)	306,000	290,700	\$7.40	\$2,151,180	278,460	\$7.23	\$2,013,266
Alt. 3 (Preferred)	492,000	467,400	\$7.40	\$3,458,760	447,720	\$7.23	\$3,237,016
Alt. 4	420,000	399,000	\$7.40	\$2,952,600	382,200	\$7.23	\$2,763,306
Alt. 5	336,000	319,200	\$7.40	\$2,362,080	305,760	\$7.23	\$2,210,645

Sources: *2019 EA (NMFS and WPFMC 2019), **2020 SAFE report (WPFMC 2021)

Alternative 1 (No action): The 2019 EA described that if total catch in 2018–19 was 311,179 lb, and assuming that fishermen sell 95 percent of the catch (i.e., 295,620 lb) at \$7.40 per lb, the expected fleet- wide revenue during 2018–19 under Alternative 1 would be \$2,187,588. Using

new information in the 2020 SAFE report (91 percent sold and \$7.23 per lb), the revenue expected under the no action alternative would be \$2,047,340.

Alternative 2 - 306,000 lb ACL (Status quo): The potential economic level for this option is marginally lower compared to Alternative 1 because Alternative 1 assumes a slightly higher catch level. Assuming that the full ACL was caught, fleet-wide revenue would be \$2,151,180 per year according to the 2019 EA. Using new information in the 2020 SAFE report, the revenue expected under the Status Quo Alternative would be \$2,013,266.

Alternative 3 - 492,000 lb ACL (Preferred): The economic potential for this alternative is the highest of all the alternatives. Assuming that the full ACL were caught, fleet-wide would be revenue \$3,458,760 per year according to the 2019 EA. Using new information in the 2020 SAFE report, the revenue expected under Preferred Alternative would be \$3,237,016.

Alternative 4 - 420,000 lb ACL: The potential economic level for this alternative is higher than the Status Quo Alternative, No Action Alternative, and Alternative 5. Assuming that the full ACL was caught fleet-wide revenue would be \$2,952,600 per year according to the 2019 EA. Using new information in the 2020 SAFE report, the revenue expected under Alternative 4 would be \$2,763,306.

Alternative 5 – 336,000 ACL: The potential economic level for this alternative is higher than the Status Quo Alternative and the No Action Alternative, but lower than the Preferred Alternative and Alternative 4. Assuming that the full ACL were to be caught fleet-wide revenue would be \$2,362,080 per year according to the 2019 EA. Using new information in the 2020 SAFE report, the revenue expected under the no action alternative would be \$2,10,645.

Overall, the 2019 EA showed that the economic potential of the alternatives followed the expected catch (section 4.3.1), where action alternatives with greater authorized catch also had potential to yield greater revenue. The potential revenue from all action alternatives under consideration is greater than the revenue generated by the fishery in recent years. The Preferred Alternative is the greatest among those under consideration, and remains so considering new information. Although this alternative provides the greatest economic opportunity to the fishery while maintaining a sustainable level of catch, if catches are similar to the recent average of 167,980 lb, the fishery would not reach the authorized catch under any of the action alternatives, and realized economic benefits would be similar across all alternatives including the no action and status quo. Under all alternatives under consideration, the fishery would continue to provide economic benefits to participants, and fish for local markets, and effects on the social and economic setting are expected to be minor.

3.4. Management setting

Regarding the management setting described in section 3.4 of the 2019 EA, there is no new information available and we incorporate this section by reference in its entirety. The section describes ongoing management of the fishery in recent years, which includes management of the Deep 7 catch using ACLs and AMs. This section accurately describes administrative processes used by NMFS and the Council that would continue under each alternative.

Section 4.4 in the 2019 EA describes that the recommended action is a continuation of ongoing and coordinated management efforts to maintain a sustainable bottomfish fishery in the MHI through implementation of ACLs and AMs based on the best scientific information available. The FEP plan team will continue to prepare an annual report on the performance of the commercial and non-commercial bottomfish fisheries in the MHI by June 30 of each year. Additionally, all other regulations implemented by other Federal agencies and the State of Hawaii would continue to apply to bottomfish fishing vessels operating in the EEZ. The State would continue to manage bottomfish catches by requiring a CML and reports, imposing a bag limit of five Deep 7 fish for non-commercial fishermen, registration of bottomfish vessels, maintaining restrictions with respect to prohibiting fishing in the BRFAs, and will continue to consider implementing complementary management should an in-season AM be implemented by NMFS due to the fishery attaining the ACL in a given year.

There are no changes to the management setting since the 2019 EA that affect the analysis of potential effects of the alternatives on the management setting in sections 3.4 and 4.4 of the 2019 EA. As was the case in the 2019 management setting, given the recent catch history (Table 6, above), the fishery is unlikely to reach the recommended ACL and trigger a fishery closure. In summary, we have no new information that would change the effects analysis in the 2019 EA and management for the upcoming three fishing years would be the same as was described in the 2019 EA for each alternative. Overall, no effects are expected on the management setting.

3.5. Other Potential Effects

Section 4.5 of the 2019 EA describes that the fishery is not known to affect scientific, historic, archaeological or cultural resources, or biodiversity and ecosystem function. None of the alternatives under consideration were expected to change the way the fishery is conducted and result in impacts to these environmental features. This section is incorporated by reference in its entirety. There is no new information to consider with respect to these considerations, and NMFS does not expect the fishery to affect these resources. We also note that there is no information that indicates the Deep 7 bottomfish fishery contributes to the introduction or spread of invasive species.

3.6. Cumulative Effects

Explicit consideration of cumulative effects or impacts was repealed in the 2020 CEQ regulations (40 CFR 1508.1(g)(3)). However, those considerations are still part of the effects of the action, and they were included in the 2019 EA which was prepared under the 1978 CEQ regulations. Accordingly, a discussion of cumulative effects is included in this SEA.

Because the proposed ACLs and AMs analyzed in the 2019 EA and this SEA would not change the fishery outcomes and the fishery would continue to be sustainably managed in terms of harvest of fishery resources, and because the fishery would continue to have very low effects on protected species and other marine resources, we have no new information with substantive bearing on the “Potential Cumulative Effects” as analyzed in section 4.6 of the 2019 EA, and we incorporate information in that section in its entirety. Information we incorporate from section 4.6 of the 2019 EA includes:

- Section 4.6.1 describes potential effects of the recommended action with respect to physical resources. Given the recommended action is virtually identical to the 2019 EA, an ACL of 492,000 lb would not change fishing operations and would continue to not have adverse effects on air, noise, water quality, view planes, or terrestrial resources, the analysis of Alternative 3 on physical resources remains valid for the current proposed action. There is no new information that would change the effects analysis, including cumulative effects for Alternatives 2, and 4 and 5.
- Section 4.6.2, describes the potential effects on the biological resources, both to target and non-target species. The Deep 7 and non-Deep 7 species (now solely comprising uku) continue to be not overfished and not subject to overfishing based on the most recent assessments (Syslo et al. 2021; Nadon et al. 2020). Continued management of the fishery using the recommended 492,000 lb ACL and AMs for 2021–22, 2022–23, and 2023–24 is still not expected to result in large and adverse effect to the stock. The probability of the Deep 7 stock to become overfished and the probability of the Deep 7 stock to be subject to overfishing remain low (13 and 11 percent, respectively) according to the analysis in Syslo et al. (2021). Annual Deep 7 catches (Table 6) in the last five years have been decreasing, further reducing the potential effects on biological resources.

The analysis of cumulative effects for other action alternatives (Alternatives 2, 4 and 5) with respect to Deep 7 bottomfish (2019 EA, section 4.6.2.1) also remains valid, based on the most recent information, which shows an improvement in the Deep 7 stock (

Table 2). The measures under these alternatives would not combine with continued fishing for bottomfish and environmental factors to result in large and adverse effects. The analysis in the stock assessment, 2019 EA, and this SEA consider effects of fishing over multiple years so cumulative effects are considered during the development of management recommendations. Information in Syslo et al. (2021) shows that the probabilities of overfishing and of the bottomfish stock becoming overfished are now lower than analyzed in the EA, and cumulative effects on MHI Deep 7 bottomfish are expected to be insignificant.

- As described in section 4.6.2.2. of the 2019 EA, implementing an ACL and AMs based on the presented alternatives for MHI Deep 7 bottomfish fisheries is not expected to result in cumulative effects to uku or other MHI non-Deep 7 bottomfish now classified as ECS. This section is incorporated by reference in its entirety and summarized briefly. Even if effort in the MHI Deep 7 bottomfish fishery were to increase (under Alternatives 3, 4 and 5), effects on non-target species caught by the fishery are not expected to result in cumulatively large adverse effects to those species. This is because non-target catch rates are relatively low; non-target species are generally discarded alive; and most commonly caught non-deep 7 species have healthy populations (Nadon 2017), and are managed under separate ACLs and AMs. For these reasons, the 2019 EA showed that continued management of the fishery under ACLs and AMs is not expected to result in cumulatively large and adverse effects to non-target species. New information (Nadon 2020; WPFMC 2021) continues to support that the MHI Deep 7 bottomfish fishery is not having cumulative effects on target or non-target stocks.
- The recommended action is not expected to change the nature of the Deep 7 fisheries as it relates to bycatch and protected species interactions. Bycatch would remain low, and

interactions with protected species would also remain very low. The fishery would continue to be authorized and conducted in accordance with Section 7 of the ESA and the MMPA as described in sections 3.2.2 and 4.2.2 of the 2019 EA and in sections 1.9 and 3.2.3 of this SEA. None of the alternatives, including the recommended action, would have large adverse effects on the survival or recovery of any listed species largely because the fishery is not likely to change under any ACL, compared with the No Action Alternative. The fishery has low levels of interactions with listed species, fishery participants release protected species that are caught on hooks, and vessel collisions with sea turtles are far below levels that would jeopardize survival and recovery. NMFS' analysis of effects on listed species took into consideration actions by others and NMFS that affect the same species. In general, continued management of the fishery under the full suite of management measures, including the proposed ACLs and AMs for the next three years, would not change the fishery in any way that is likely to have the potential for large and adverse cumulative effects on listed species.

- Section 4.6.3 in the 2019 EA describes the cumulative effects of the recommended action with respect to the socio-economic setting. This section is incorporated by reference in its entirety and summarized here. Management of the MHI commercial bottomfish fishery using ACLs and associated AMs has minor effects on the socio-economic setting. Because social and economic considerations have been incorporated into the setting of the ACLs (see section 1.1.1 of the 2019 EA and discussion above on SEEM analysis), the recommended ACL is expected to have no cumulative effects to the socio-economic setting. The ACL of 492,000 lb is virtually identical to the ACL analyzed in the 2019 EA, and provides the opportunity for the greatest catch and revenue of the alternatives under consideration (Table 13). This ACL will continue to provide the highest sustainable harvest, potential revenue, and continuous supply of Deep 7 bottomfish for the fishing communities, and there is no new information that indicates that the management of the fishery using ACLs and AMs would have cumulative impacts on the socio-economic setting.
- Section 4.6.4, describes the potential effects of the recommended action with respect to the management setting. This section is incorporated by reference in its entirety and summarized here. The proposed action is a continuation of ongoing management of the MHI Deep 7 bottomfish fishery. This fishery has been managed by NMFS and the Council through the specification of ACLs since 2011, in coordination with the State of Hawaii. The proposed action will not change the ongoing management environment, and will not add a cumulative effect to the management setting in a substantial way (2019 EA, section 4.4); and none of the proposed ACLs would result in substantial cumulative adverse effects on the cost of administering the fishery. Because of the lack of large changes in management, none of the alternatives has the potential to have cumulative effects to fishery participants in terms of complying with the fishery requirements. The alternatives under consideration for FY 2021–22, 2022–23, and 2023–24 are the same as in the previous EA. None of the alternatives will change the ongoing management environment, or add a cumulative effect to the management setting in a substantial way. Each alternative considered the effect of the ACL being implemented for three consecutive years, so there are no unaccounted for cumulative effects of the same ACL being specified repeatedly regardless of which alternative NMFS implements. Because of the lack of large changes in

management, none of the alternatives has the potential to have cumulative effects to fishery participants in terms of complying with fishery requirements, or managers in terms of administering requirements.

- Section 4.6.5 in the 2019 EA describes other considerations like climate change. This section is incorporated by reference in its entirety and summarized here. Section 4.6.5.1 describes climate change effects on the fishery, and is incorporated by reference in its entirety. Briefly, the ACLs and AMs under consideration were based on a stock assessment that included a long time series of data, and the efficacy of the proposed ACLs and AMs in providing for sustainable levels of fishing for bottomfish is not expected to be adversely affected by climate change. Appropriate fishing mortality controls, such as are proposed by the Council, are a way to mitigate climate impacts on fish stocks. The 2021 stock assessment update provides new information to evaluate fishery performance and sustainable catch levels, based on extended time series of fishery dependent and fishery independent data, which implicitly considers long-term climate change effects on stock productivity. These data streams continue to provide assurances that all management measures under evaluation are informed by the BSIA, and ongoing monitoring of the fishery provides data to adjust management provisions in the future if necessary. Recent catches relative to MSY and OFL estimates, and the 2021 stock assessment update that considered the condition of the stock relative to fishing over time, helped to inform the development of the ACLs and AMs described in the alternatives. Monitoring would continue, and if monitoring shows overfishing is occurring, ACLs and other fishery management provisions could be adjusted in the future. No new information indicates that changes are needed relative to cumulative effects analyzed in the 2019 EA. Consistent with the 2019 EA, climate change, considered in addition to all other factors affecting MHI Deep 7 bottomfish stocks, is not expected to result in a large and adverse cumulative impact on MHI Deep 7 bottomfish stocks in the short term or the long term. The proposed ACLs are intended to provide for long-term sustainability of the bottomfish fishery.

3.7. Other Actions Including Connected Actions

The proposed action is a standalone management action that is not connected to other fishery management actions. The effects analysis for the proposed action takes into consideration all known sources of mortality affecting the Deep 7 bottomfish stock including past, present, and reasonably foreseeable future actions that may affect the fishery. The analysis found no past, present, or reasonably foreseeable actions that could combine or interact with the effects from the proposed action to result in cumulatively significant impacts on Deep 7 bottomfish (EA, section 4.6; SEA, section 3.6).

We consider CEQ's NEPA regulations at 40 CFR 1501.9(e)(1) which provide guidance to agencies as to how to evaluate whether a project is connected to other projects, and consider:

- i. Whether the proposed action would automatically trigger other actions that may require an environmental impact statement. The proposed action is limited to a harvest limit and fishery management of a single fishery and would not automatically trigger other actions that would require an EIS.

- ii. Whether the proposed action could not proceed unless another action(s) is taken previously or simultaneously. The proposed measure is independent of other actions.
- iii. Whether the proposed action is an interdependent part of a larger action and whether it depends on the larger action for its justification. The proposed action has independent utility and is not connected to other projects.

We note that uku may be caught incidentally while fishing for Deep 7 bottomfish, and Deep 7 bottomfish fishermen may have switched to targeting uku when the MHI Deep 7 fishery closed in the past. However, these stocks are managed under separate ACLs and AMs, so any displacement from one fishery to another would be regulated. Similarly, NMFS has implemented an in-season management measure to prevent the uku fishery from exceeding its ACL. Therefore, although there is some relationship between the fisheries, they are not interconnected as provided in the CEQ Regulations and the environmental effects of the specifications may be considered separately.

None of the alternatives are connected to other actions by NMFS or others. We note that the State of Hawaii DLNR, may implement complementary management such as closing State waters to bottomfish fishing, and limiting subsequent sale of bottomfish, if NMFS closes Federal waters under the in-season AM as described in the 2019 EA. In the interest of ensuring bottomfish fishing sustainability, the State has implemented a complementary closure the four times NMFS projected that a Federally-established ACL was expected to be attained. We note that the current proposed management does not require action by others or combine with other actions in order to conclude that the effects of the proposed action on resources would not be large and adverse.

3.8. Mitigation and Monitoring

Mitigation and monitoring are an integral part of the proposed action as AMs, which are intended to prevent adverse effects of the MHI Deep 7 bottomfish fishery on bottomfish stocks. As described in the EA (section 1.2) and SEA (section 1.2), NMFS and the Council will continue to monitor Deep 7 bottomfish catches against the ACL in the MHI. When NMFS projects that the fishery will reach the limit, NMFS will close the fishery in Federal waters. Compliance with the in-season AMs is an enforceable requirement under section 50 CFR 665.211 of the regulations.

The action of NMFS reducing an ACL in a subsequent fishing year by the amount of an overage in a given year is also a feature of the proposed action that would mitigate the potential effect of an overage.

3.9. Summary Table of Effects of Alternatives

We incorporate Table 24 from the 2019 EA in its entirety. The table summarizes potential effects of the five alternatives, which have not changed substantially.

4. References

We incorporate section 6 (References) from the 2019 EA in its entirety and add the following citations:

- Franklin, E.C. 2021. Stock Assessment Update for the Main Hawaiian Islands Deep-7 Bottomfish Complex in 2021, with Catch Projections Through 2025. Panel Summary Report. Western Pacific Fishery Management Council. 6pp.
- Hospital, J., and C. Beavers. 2012. Economic and social characteristics of bottomfish fishing in the main Hawaiian Islands. NOAA PIFSC Administrative Report H-12-01, Honolulu: NOAA PIFSC. 43pp. + Appendix.
- ISC (International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean). 2018. Stock Assessment of Shortfin Mako Shark in the North Pacific Ocean Through 2016. Fourteenth Regular session of the Scientific Committee of the Western and Central Pacific Fisheries Commission. Busan, Republic of Korea, August, 8–16, 2018. WCPFC-SC14-2018/ SA-WP-11. 121pp.
- Kelley, C., and W. Ikehara. 2006. The impacts of bottomfishing on Raita and West St. Rogatien Banks in the Northwestern Hawaiian Islands. *Atoll Research Bulletin*, 543: 305–317.
- Kelley, C., and R. Moffit. 2004. The impacts of bottomfishing on the Raita and West St. Rogatien Reserve Preservation Areas in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. Unpublished report, Hawaii Undersea Research Laboratory, 49pp.
- Langseth, B. J., J. Syslo, A. Yau, M. Kapur, and J. Brodziak. 2018. Stock Assessment for the Main Hawaiian Islands Deep 7 Bottomfish Complex in 2018, with Catch Projections Through 2022. NOAA Technical Memorandum NMFS-PIFSC-69, Honolulu: NMFS-PIFSC. doi:10.7289/V5/TM-PIFSC-69.
- Nadon, M.O. 2017. Stock assessment of the coral reef fishes of Hawaii, 2016. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-60, 217pp. <http://doi.org/10.7289/V5/TM-PIFSC-60>.
- Nadon M.O., Sculley M., and F. Carvalho F. 2020. Stock assessment of uku (*Aprion virescens*) in Hawaii, 2020. U.S. Dept. of Commerce, NOAA Technical Memorandum NOAA-TM-NMFS-PIFSC-100, 120pp. doi:10.25923/57nb-8138.
- NMFS (National Marine Fisheries Service). 2013. Re-initiation of Endangered Species Act Consultation for Main Hawaiian Islands Bottomfish Fisheries. Honolulu: NOAA PIRO Protected Species Division. 12pp.
- NMFS and WPFMC (Western Pacific Fishery Management Council). 2019. Annual Catch Limits and Accountability Measures for Main Hawaiian Islands Deep 7 Bottomfish Fisheries, Final Environmental Assessment. Honolulu: NOAA PIRO. 114pp.
- Roark, E.B., Guilderson, T.P., Dunbar, R.B., Fallon, S.J., and D.A. Mucciarone. 2009. Extreme longevity in proteinaceous deep-sea corals. *Proceedings of the National Academy of Sciences*, 106(13): 5204–5208.
- Syslo J., Brodziak J., and F. Carvalho. 2021. Stock Assessment Update for the Main Hawaiian

Islands Deep-7 Bottomfish Complex in 2021, with Catch Projections through 2025. NOAA Technical Memorandum NMFS-PIFSC-118, Honolulu: NMFS-PIFSC. 212pp. doi:10.25923/mym1-w042.

WPFMC. 2021. Annual Stock Assessment and Fishery Evaluation Report for the Hawaii Archipelago Fishery Ecosystem Plan 2020. Remington, T., Sabater, M., Ishizaki, A. (Eds.) Western Pacific Fishery Management Council. Honolulu, Hawaii 96813 USA. 208pp. + Appendices.

WPFMC. 2018a. P* Working Group Meeting Report. Honolulu: Western Pacific Fishery Management Council, Honolulu, Hawaii. 6pp.

WPFMC. 2018b. SEEM Working Group Meeting Report. Honolulu: Western Pacific Fishery Management Council, Honolulu, Hawaii. 7pp.

WPFMC. 2016. Amendment 4 to the Fishery Ecosystem Plan for the Hawaii Archipelago, Revised Descriptions and Identification of Essential Fish Habitat and Habitat Areas of Particular Concern for Bottomfish and Seamount Groundfish of the Hawaiian Archipelago. Western Pacific Fishery Management Council, Honolulu, Hawaii. 66pp. + Appendices.

WPFMC and NMFS. 2011. Omnibus Amendment for the Western Pacific Region to Establish a Process for Specifying Annual Catch Limits and Accountability Measures Including an Environmental Assessment. Honolulu: Western Pacific Fishery Management Council. 123pp. + Appendices.

WPFMC. 2009. Fishery Ecosystem Plan for the Hawaiian Archipelago. Honolulu: Western Pacific Fishery Management Council. 286pp.

5. Draft Proposed Regulations

PART 665 – FISHERIES IN THE WESTERN PACIFIC

1. The authority citation for 50 CFR part 665 continues to read as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In § 665.211, revise paragraph (a), (e), and (f) to read as follows:

§ 665.211 Annual Catch Limit (ACL).

(a) In accordance with § 665.4, the ACLs for MHI bottomfish fisheries for each fishing year are as follows:

Fishery	2021-22 ACL (lb)	2022-23 ACL (lb)	2023-24 ACL (lb)
Deep 7 bottomfish	492,000	492,000	492,000

Fishery	2019 ACL (lb)	2020 ACL (lb)	2021 ACL (lb)
Uku	127,205	127,205	127,205

* * * * *

(e) If landings of MHI Deep 7 bottomfish exceed the specified ACL in a fishing year, the Regional Administrator will reduce the ACL for the subsequent year by the amount of the overage in a separate rulemaking.

(f) Fishing for, and the resultant possession or sale of, any bottomfish MUS by vessels legally registered to Mau Zone, Ho'omalu Zone, or PRIA bottomfish fishing permits and conducted in compliance with all other laws and regulations, is exempted from this section.

Appendix A. Regulatory Impact Review

A.1. Introduction

This Regulatory Impact Review provides an assessment of the costs and benefits of the proposed action and other alternatives in accordance with Executive Order 12866 (E.O. 12866) and its guidelines established in OMB Circular A-4. E.O. 12866 states the following:

Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but essential to consider, nevertheless. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages, distributive impacts, and equity), unless a statute requires another regulatory approach.

The RIR also serves as a basis for determining whether the regulations are a “significant regulatory action” under the criteria provided in Executive Order (E.O.) 12866.

A.2. Problem Statement and Management Objective

Annual Catch Limits (ACLs) and accountability measures (AMs) are needed to comply with the Magnuson-Stevens Act and the Hawaii Archipelago Fishery Ecosystem Plan. ACLs are needed to prevent overfishing of the Deep 7 bottomfish stock complex. AMs are needed to reduce the potential of exceeding an ACL and are used to correct or mitigate overages of the ACL should they occur. The management objective is to prevent overfishing and to provide for long-term sustainability of the fishery resources while allowing fishery participants to continue to benefit from their utilization.

A.3. Description of the Fisheries

Descriptions of the commercial and non-commercial MHI Deep 7 bottomfish fishery are provided in Sections 3.3.2, 3.3.3, and 3.3.4 of the 2019 Environmental Assessment (EA) and Section 3.2.1.2 and 3.3 of the Supplemental Environmental Assessment (SEA), which supplements the analyses in the 2019 EA and provides more recent information on MHI Deep 7 bottomfish catch, fishery performance, and revenue.

A.4. Description of the Alternatives

Alternatives 2–5 all include an in-season AM and a post-season AM in addition to the ACL. With the in-season AM, NMFS would close the fishery in Federal waters if catch from State and Federal waters is projected to reach the ACL. The post-season AM is such that if the fishery were to exceed an ACL in a given year, NMFS would apply an overage adjustment to the ACL in the

following year. Additionally, under the FEP if a fishery exceeds an ACL more than once in a four-year period, the Council is required to re-evaluate the ACL process, and adjust the system, as necessary, to improve its performance and effectiveness.

Alternative 1: No ACL and AM Management (No Action)

Under Alternative 1, NMFS would not implement an ACL for the MHI Deep 7 bottomfish fishery for fishing years 2021–22, 2022–23, and 2023–24.

Alternative 2: Implement the same ACL as in 2017–18 fishing year, which is 306,000 lb and associated now with a risk of overfishing (P*) = 18 percent (2019 Status Quo baseline)

Under Alternative 2, NMFS would implement an ACL of 306,000 lb of MHI Deep 7 bottomfish for the 2021–22, 2022–23, and 2023–24 fishing years. This ACL is the same ACL specified for this fishery in the 2017–18 fishing year. Based on the probability of overfishing projections contained in the 2021 stock assessment, this ACL is associated with an 18 percent probability of overfishing, whereas it had been associated with a 17 percent probability of overfishing under the 2018 stock assessment.

Alternative 3 (Preferred): Implement ACL of 492,000 lb, based on the updated 2021 benchmark stock assessment at P* level from the P* and SEEM working group analysis at P* = 39–40 percent

Under Alternative 3, NMFS would implement an ACL of 492,000 lb of MHI Deep 7 bottomfish for the 2021–22, 2022–23, and 2023–24 fishing years. This is the same ACL that had been in place for the past three fishing years. Based on the probability of overfishing projections contained in the 2021 stock assessment, this ACL is associated with a 39–40 percent risk of overfishing.

Alternative 4: Implement an ACL of 420,000 lb, based on the updated 2021 benchmark stock assessment at P* = 30–31 percent

Under Alternative 4, NMFS would implement an ACL of 420,000 lb of MHI Deep 7 bottomfish for the 2021–22, 2022–23, and 2023–24 fishing years. Based on the probability of overfishing projections contained in the 2021 stock assessment, this ACL is associated with a 30–31 percent risk of overfishing.

Alternative 5: Implement ACL of 336,000 lb, based on the updated 2021 benchmark stock assessment at P* = 21 percent

Under Alternative 5, NMFS would implement an ACL of 336,000 lb of MHI Deep 7 bottomfish for the 2021–22, 2022–23, and 2023–24 fishing years. Based on the probability of overfishing projections contained in the 2021 stock assessment, this ACL is associated with a 21 percent risk of overfishing.

A.5. Analysis of the Alternatives

Greater detail on the economic impacts of implementing each of the alternatives can be found in Section 4.3.1 of the 2019 EA and Section 3.3 of the SEA. Given the recent fishery performance, the economic impacts among all alternatives are expected to be similar to each other.

Alternative 1: No ACL and AM Management (No Action)

Under the No Action Alternative, the lack of an ACL or AM is not expected to result in large changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. This is because the MHI Deep 7 bottomfish fishery has not reached ACLs in recent years, so recent ACLs have not constrained fishing activity for this fishery.

Alternative 1 will likely result in lower administrative costs relative to the action alternatives. Without an ACL, NMFS would not need to monitor catch in near real time, as would be required for Alternatives 2–5. In addition, there would be no need to implement and enforce a fishery closure to prevent the ACL from being exceeded under the No Action Alternative.

Alternative 2: Implement the same ACL as in 2017–18 fishing year (306,000 lb), which is now associated with a P* = 18 percent (2019 Status Quo baseline)

Under Alternative 2, implementing an ACL of 306,000 lb for the 2021–22, 2022–23, and 2023–24 fishing years is not expected to result in large changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. This is the lowest ACL implemented for this fishery since the 2011–12 fishing season. Over the past twelve fishing seasons, total annual reported catch exceeded 306,000 lb twice. In the 2013–14 fishing season, total catch was reported as 311,179 lb and in 2014–15 fishing season, total catch was reported as 307,075 lb. While the ACL was not exceeded for those two years, had the ACL been set at 306,000 lb, the fishing season would have ended early for those two years. Accordingly, with an ACL set at 306,000 lb over the 2021–22, 2022–23, and 2023–24 fishing seasons, the potential exists for the fishery to reach 306,000 lb during one or more of those fishing seasons and trigger an in-season closure as an AM. In the event that the fishery does not close in time and the catch does exceed the ACL, the amount of the overage would be applied to the ACL for the following year.

The implementation of Alternative 2 would incur higher administrative costs with regard to real-time catch monitoring compared with the No Action Alternative. Alternative 2 also could result in catch reaching the ACL, causing an in-season fishery closure for 2021–22, 2022–23, and/or 2023–24, which would incur additional administrative and enforcement costs. These costs are more likely to occur under Alternative 2, with the lowest ACL among all alternatives.

Alternative 3 (Preferred): Implement ACL of 492,000 lb, based on the updated 2021 benchmark stock assessment at P* level from the P* and SEEM working group analysis at P* = 39–40 percent

Under Alternative 3, implementing an ACL of 492,000 lb for the 2021–22, 2022–23, and 2023–24 fishing years is not expected to result in large changes to the conduct of the fishery, including

gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. The fishery could catch up to 492,000 lb, but based on recent fishery performance, this is unlikely. With the ACL of 492,000 lb, the fishery is expected to remain open throughout each of these three fishing years.

With regard to administrative and enforcement costs, these would be similar to Alternative 2, if the fishery closed before the season ends, but with the higher ACL, this is less likely to occur compared to Alternative 2.

Alternative 4: Implement ACL of 420,000 lb, based on the updated 2021 benchmark stock assessment at P* = 30–31 percent

Under Alternative 4, implementing an ACL of 420,000 lb for the 2021–22, 2022–23, and 2023–24 fishing years is not expected to result in large changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. The fishery could catch up to 420,000 lb, but based on recent fishery performance, this is unlikely. With the ACL of 420,000 lb, the fishery is expected to remain open throughout each of these three fishing years. With regard to administrative and enforcement costs, these would be similar to Alternative 2, if the fishery closed before the season ends, but with the higher ACL, this is less likely to occur compared to Alternative 2. With a lower ACL compared to Alternative 3, fishery closure and associated fisheries impacts and administrative costs are more likely to occur under Alternative 4 compared to Alternative 3.

Alternative 5: Implement ACL of 336,000 lb, based on the updated 2021 benchmark stock assessment at P* = 21 percent

Under Alternative 5, implementing an ACL of 336,000 lb for the 2021–22, 2022–23, and 2023–24 fishing years is not expected to result in large changes to the conduct of the fishery, including gear types used, areas fished, level of catch or effort, target and non-target stocks, or protected species. The fishery could catch up to 336,000 lb, but based on recent fishery performance, this is unlikely. Over the past ten fishing seasons, the highest catch was reported to be 311,179 lb, which occurred during the 2013–14 fishing season. With the ACL of 336,000 lb, the fishery is expected to remain open throughout each of the three fishing years.

With regard to administrative and enforcement costs, these would be similar to Alternative 2, if the fishery closed before the season ends, but with the higher ACL, this is less likely to occur compared to Alternative 2. With a lower ACL compared to Alternatives 3 and 4, fishery closure and associated fisheries impacts and administrative costs are more likely to occur under Alternative 5, compared to Alternatives 3 and 4.

A.6. Significance under E.O. 12866

Pursuant to E.O. 12866, a regulation is considered a “significant regulatory action” if it is likely to:

- 1) Have an annual effect of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;

- 2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- 3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or
- 4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this E.O.

Based on the information provided above, this action has been determined to not be economically significant for the purposes of E.O. 12866.