WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

DRAFT Regulatory Amendment under the Fishery Ecosystem Plan for the Pelagic Fisheries of the Western Pacific Region: Catch Limits for Striped Marlin within the Western and Central Pacific Fisheries Commission Convention Area North of the Equator

Draft Environmental Assessment

RIN 0648-XXXX

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Abstract

Western and Central North Pacific Ocean (WCNPO) striped marlin, caught within the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area and north of the equator, is overfished and experiencing overfishing. The Western and Central Pacific Fishery Management Council (Council), at its 193rd meeting on December 6 to 8, 2022, is considering alternative management options for U.S. fisheries for this stock. This draft environmental assessment (EA) evaluates the potential environmental effects of the following alternatives:

Alternative 1, the no action or status quo alternative, would not set a retention limit for WCNPO striped marlin.

Alternative 2 would set a longline retention limit of 443 t and a catch limit of 457 t, consistent with WCPFC conservation and management measures.

Alternative 3 would set a longline retention limit of 397 t and a catch limit of 409 t, consistent with a reduction of the relative contribution of U.S. vessels to international overfishing of this stock.

Alternative 4 would prohibit retention of WCNPO striped marlin (a retention limit of 0 t).

ACRONYMS AND ABBREVIATIONS

B	Biomass
BE	Biological Evaluation
BiOp	Biological Opinion
CMM	Conservation and management measure
CNMI	Commonwealth of the Northern Mariana Islands
Convention	Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean
Council	Western Pacific Fishery Management Council
DSLL	deep-set longline
DPS	Distinct population segment
EA	Environmental assessment
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EPO	Eastern Pacific Ocean
ESA	Endangered Species Act
F	Fishing mortality
FEP	Fishery ecosystem plan
FMP	Fishery management plan
FR	Federal Register
HAPC	Habitat areas of particular concern
HI	Hawaii
HMS	highly migratory species
IATTC	Inter-American Tropical Tuna Commission
IFKW	insular false killer whale
ISC	International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean
ITS	Incidental take statement
lb	Pound(s)
LRP	Limit reference point
LVPA	large vessel prohibited area
M	Natural mortality rate
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MCP	Marine Conservation Plan
MHI	Main Hawaiian Islands
MFMT	Maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MPA	marine protected area
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
MUS	Management unit species
M&SI	Mortalities or serious injuries
NEPA	National Environmental Policy Act
NEPO	Northeast Pacific Ocean
nm	Nautical mile(s)
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS	National Standard
NWHI	Northwestern Hawaiian Islands
OLE	Office of Law Enforcement

PBR	Potential biological removal
PIFSC	Pacific Islands Fisheries Science Center
PIRO	Pacific Islands Regional Office
PRIA	Pacific Remote Island Areas
PT	Participating Territory
RA	Regional Administrator
SB	spawning biomass
SC	Scientific Committee of the WCPFC
SDC	status determination criteria
SEZ	southern exclusion zone
SIDS	Small Island Developing States
SPC	Secretariat of the Pacific Community
SSB	spawning stock biomass
t	Metric ton(s)
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
WCNPO	Western and central North Pacific Ocean
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and central Pacific Ocean
WP SFF	Western Pacific Sustainable Fisheries Fund
WPFMC	Western Pacific Fishery Management Council

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1 INTRODUCTION

1.1 Background Information

The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) manage fishing for pelagic management unit species (PMUS) in Federal waters (3-200 nautical miles (nm) from shore) around American Samoa, Guam, the Commonwealth of the Northern Mariana Islands (CNMI), and Hawaii and on the high seas (waters > 200 m from shore). The management of these PMUS is documented in the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region (Pelagic FEP) as authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. § 1801 et seq.). Striped marlin (*Kajikia audax*) is a PMUS under the Pelagic FEP, although it is an internationally managed stock under the Western and Central Pacific Fisheries Commission (WCPFC), to which the United States is a contributing member. The principal pelagic fisheries under NMFS and Council management that capture striped marlin are Hawaii deep-set and shallow-set longline fisheries. Striped marlin are captured incidentally in these fisheries.

Management of the stock by the WCPFC includes one stock-specific Conservation and Management Measure (CMM), and an interim rebuilding plan. In 2010, the WCPFC agreed to flag-based catch limits, based on a 20% reduction from average catches from 2003-2005. For the United States, the limit specified in CMM 2010-01 was 457 metric tons (t). This limit is specific to retained catch only, and does not specify limits in terms of discards. In response to stock assessment information, the WCPFC agreed to an interim rebuilding plan in 2019 with an objective of achieving a spawning stock biomass equal to 20% of the spawning stock biomass in the absence of fishing ($SSB_{F=0}$) by 2034, with at least 60% probability. The interim rebuilding plan cited the need to develop measures to achieve the rebuilding objective, but the WCFPC has not developed such a measure, and no catch limits beyond those defined in CMM 2010-01 have been adopted.

In 2019, the International Science Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC) conducted a stock assessment of Western and Central North Pacific (WCNPO) striped marlin, caught within the Western and Central Pacific Fisheries Commission (WCPFC) Convention Area west of 150°W longitude and north of the Equator (Figure 1). The assessment used 1975 to 2017 fisheries data from the United States, Japan, Taiwan, and other nations which reported catch of WCNPO striped marlin.

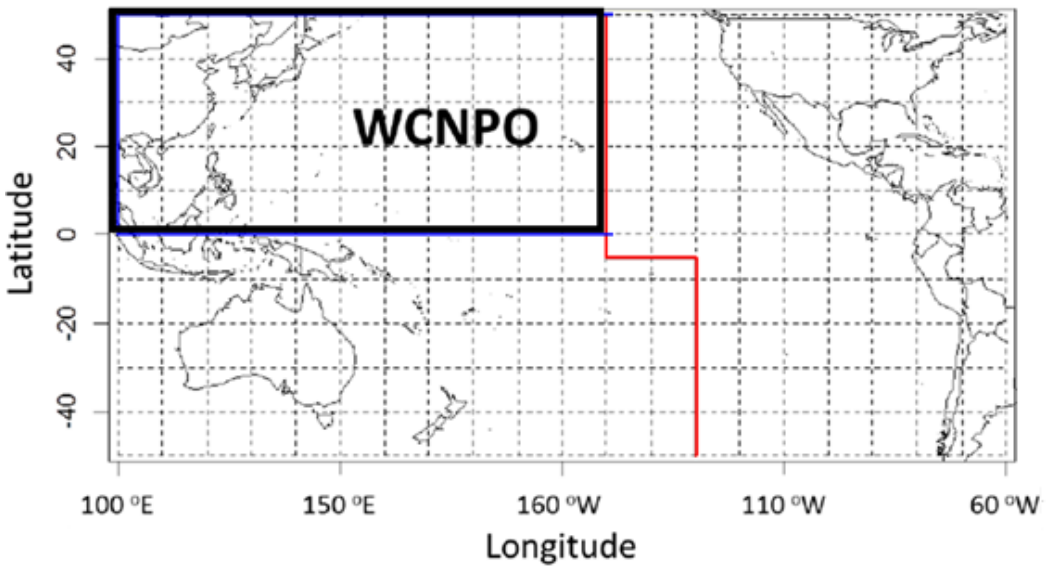

Figure 1. WCNPO striped marlin stock boundary (black rectangle) used in the 2019 ISC assessment. The red line marks the eastern boundary of the WCPFC Convention Area.

In February 2021, the stock assessment was updated by the Pacific Islands Fisheries Science Center (PIFSC 2021) based on new information on catch estimates from the United States fleet. Updated stock assessment results are summarized in Table 1 and Figures 2-4 and do not depart considerably from those in the 2019 assessment. Estimated spawning biomass (SSB) has been relatively stable in recent years, but significantly below the spawning biomass at maximum sustainable yield (SSB_{MSY}) of 2,543 metric tons (t) from 1994 onward (Figure 2). Terminal year spawning biomass in 2017 (SSB_{2017}) was 849 t which is 34% of SSB_{MSY}. Fishing mortality has exceeded fishing mortality at maximum sustainable yield (F_{MSY}) every year since 1994, with the exception of 2016 (Figure 3). However, fishing mortality has exhibited a declining trend since 2001. The estimate of fishing mortality for 2015-2017 ($F_{2015\text{-}2017}$) was 0.69, which is 1.13 times higher than the fishing mortality at maximum sustainable yield (F_{MSY}). Maximum sustainable yield (MSY) for the stock is 4,820 t. Catch biomass accounted for in the stock assessment in 2019 was 2409 t, with an average of 2100 t for the last five years in the stock assessment, 2013-2017 (Figure 4). The updated 2019 stock assessment indicated recruitment increases in the stock over the terminal years (PIFSC 2021). The 2019 Assessment is currently considered the best available scientific information available for the WCNPO striped marlin.

Table 1. Summary of the updated 2019 stock assessment of WCNPO striped marlin (PIFSC 2021).

Statistic	Value
$F_{2015\text{-}2017}$	0.69
F_{MSY}	0.61
$SPR_{2015\text{-}2017}$	0.16
SSB_{2017}/SSB_{MSY}	0.34
$F_{2015\text{-}2017}/F_{MSY}$	1.14
SSB_{2017}	849 mt
SSB_{MSY} or B_{MSY}	2534 mt
20% $SSB_{F=0}$	3493 mt

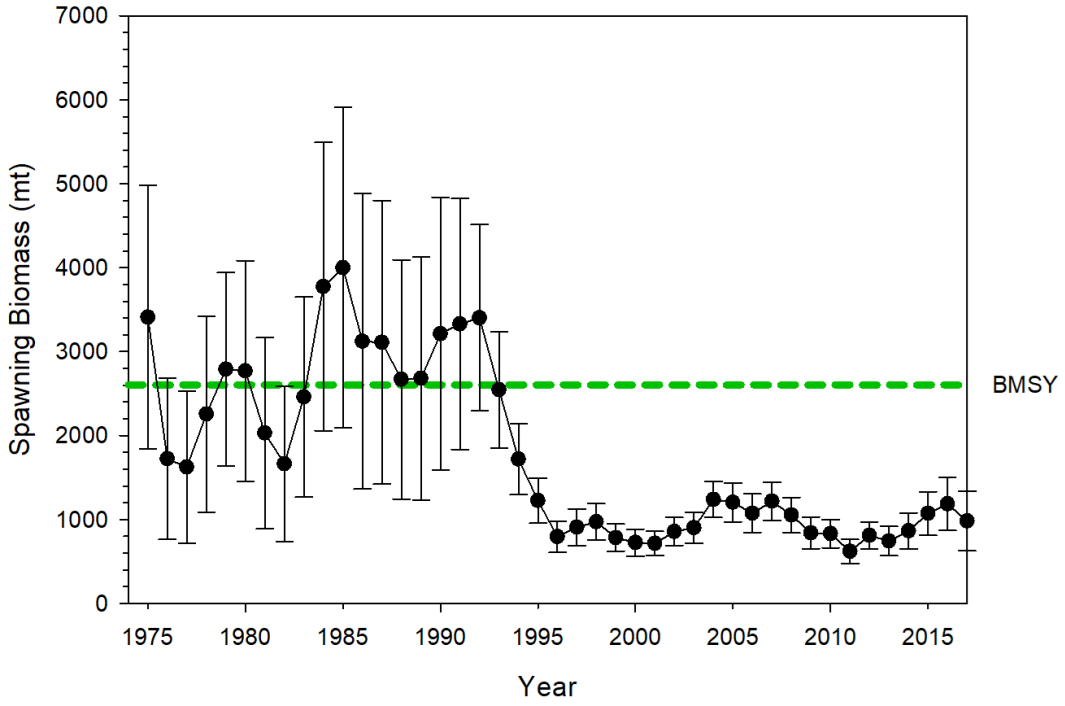

Figure 2. WCNPO striped marlin estimates of spawning biomass relative to B_{MSY}, 1975-2017.

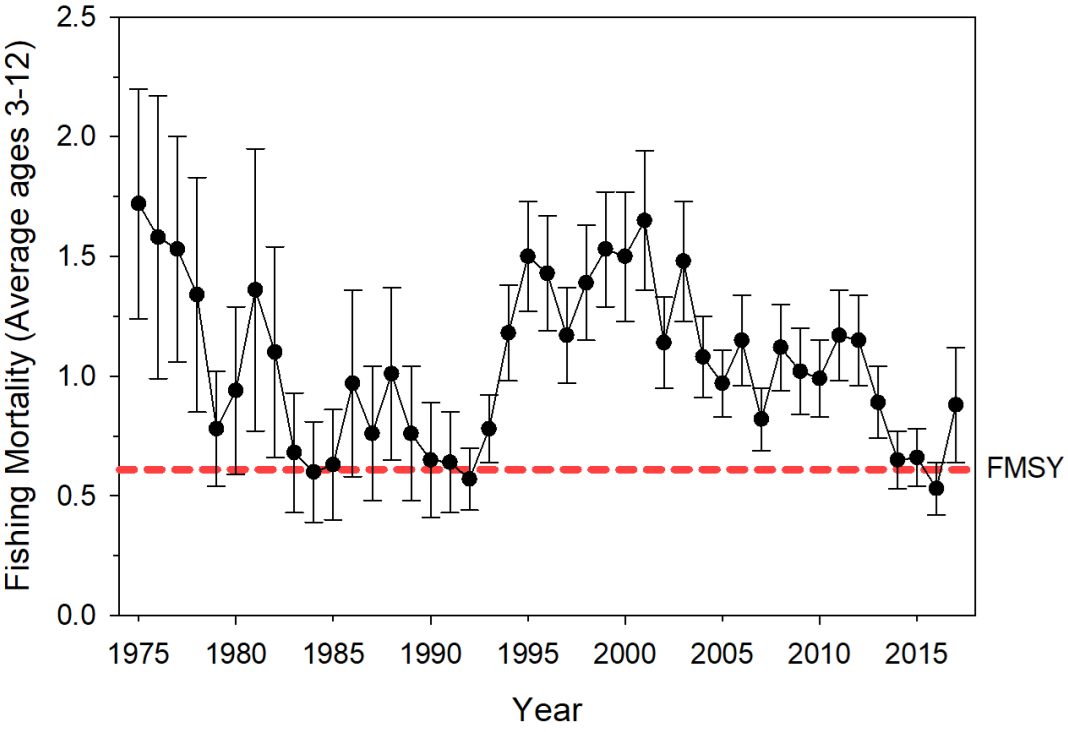

Figure 3. WCNPO striped marlin estimates of fishing mortality relative F_{MSY}, 1975-2017.

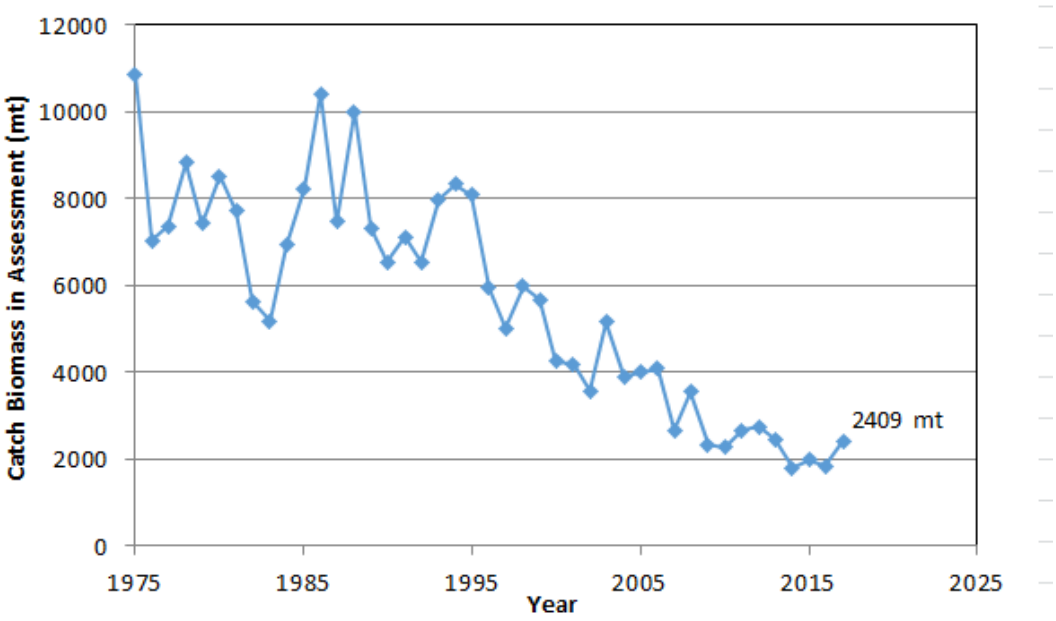

Figure 4. Catch biomass (t) of WCNPO striped marlin used in the 2021 update of the 2019 stock assessment

The regional fishery management organization (RFMO) responsible for management of the WCNPO striped marlin stock, the Western Central Pacific Fisheries Commission (WCPFC), does not have adopted limit reference points (LRP) for istiophorid billfishes, which includes striped marlin stocks. However, the stock is deemed overfished and experiencing overfishing per the 15th Regular Session of the WCPFC Scientific Committee based on commonly used LRPs for tuna and tuna-like species, such as 20% spawning biomass in absence of fishing (20% $SSB_{F=0}$) as a biological limit and fishing mortality at maximum sustainable yield (F_{MSY}). The condition was also corroborated per status determination in the Council's Pelagic FEP and indicated in a letter to the Council from the Regional Administrator on June 4, 2020.

The Council was notified of its obligation to act within one year of notification pursuant to Magnuson Stevens Act (Magnuson-Stevens Act) Section 304(i) to: 1) Develop and submit recommendations to the Secretary of Commerce for domestic regulations to address the relative impact of fishing vessels of the United States on the WCNPO striped marlin stock; and 2) Develop and submit recommendations to the Secretary of State and to Congress for international actions that will end overfishing and rebuild the North Pacific striped marlin stock, taking into account the relative impact of vessels of other nations and vessels of the United States on the stock. The Council had taken action at its 185th Meeting (March 2021), recommending to establish an initial catch limit of 457 t, as it had in 2014 and consistent with CMM 2010-01, then further reduce catches by adopting a phased approach beginning in 2023, contingent on anticipated new stock assessment and scientific information in 2022. This information was not provided, therefore the Council is considering final action at the 193rd Meeting to set catch limits to address the overfished condition of the WCNPO striped marlin stock and reducing fishing mortality considering the relative impact of US vessels on the stock.

1.2 Proposed Action

Striped marlin stocks are managed through the Inter-American Tropical Tuna Commission (IATTC) and WCPFC and are exempt from requirements of annual catch limits or rebuilding timelines. The Council is considering a regulatory amendment to implement catch limits to address the relative impact of U.S.

vessels on this stock. Stocks under international agreements are exempt from Section 303(a)(15) of the Magnuson-Stevens Act requiring implementation of annual catch limits, but Section 304(i) specifies Councils must address relative impacts of U.S. fisheries on a stock that is overfished due to international fishing pressure.

In the Pacific Ocean, RFMOs manage fisheries for highly migratory species (HMS), such as striped marlin, by adopting consensus resolutions or measures. Individual RFMO member states are responsible for implementing the requirements of resolutions or measures under domestic regulations for their fisheries and vessels flying their flag. The United States is a member of both the WCPFC and IATTC, which are two of the international RFMOs in the Pacific Ocean. The WCPFC is the responsible body for managing the WCNPO stripe marlin.

Congress implemented U.S. membership to the WCPFC through the WCPFC Implementation Act (WCPFCIA; P.L. 109-479). As a signatory to the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention), the United States is a member of WCPFC, along with over 40 other member countries, cooperating non-members, and participating territories. The primary responsibility of the WCPFC is to develop and agree upon conservation and management measures (CMMs) for highly migratory species (HMS) caught by fisheries in the WCPFC Convention Area, including striped marlin. The WCPFC Convention Area is generally the western Pacific Ocean to 150° W (Figure 1), while the Western and Central Pacific Ocean (WCPO) refers to the western Pacific Ocean to 150° W. For the purpose of WCPFC membership, the United States is a cooperating member while the U.S. territories of American Samoa, Guam and the Commonwealth of the Northern Mariana Islands (CNMI) are each considered a participating territory (PT).

Section 505 of the WCPFCIA (16 U.S.C. § 6901, et seq.) authorizes the Secretary of Commerce (Secretary) to implement regulations adopted by the WCPFC under the authority of the WCPFCIA. Specifically, the act authorizes the Secretary, in consultation with the Secretary of State and, with respect to enforcement measures, the secretary of the department in which the U.S. Coast Guard is operating, to promulgate such regulations as may be necessary to carry out the United States' international obligations under the WCPFC Convention, including recommendations and decisions adopted by the RFMO. In cases where the Secretary has discretion in the implementation of one or more measures adopted by the RFMO that would govern fisheries under the authority of a regional fishery management council, the Secretary may, to the extent practicable within the implementation schedule of the WCPFC Convention and any recommendations and decisions adopted by the RFMO, promulgate such measures in accordance with the procedures established by the Magnuson-Stevens Act.

The WCPFC has developed and agreed on several CMMs for fisheries in the WCPO since its 1st Regular Meeting in 2004. These CMMs include catch and effort limits, requirements for vessel monitoring systems, observer coverage, high seas boarding and inspection, and at-sea transshipment.

In 2010, the WCPFC adopted CMM 2010-01, which requires the U.S. to limit catches of western central North Pacific Ocean (WCNPO) striped marlin to 457 t of retained catch. The measure does not apply to fisheries of Small Island Developing States (SIDS) or Participating Territories (PT), which includes the U.S. participating territories. The IATTC does not have a management measure for WCNPO striped marlin, which only occurs in a small portion of its convention area.

At its 16th Regular Session in December 2019, in recognition of the status of the stock as reported by the ISC (2019), the WCPFC adopted the following interim rebuilding plan (WCPFC 2020) with the following terms:

- the rebuilding target is 20% of spawning biomass in absence of fishing (20% $SSB_{F=0}$),

- rebuilding should be complete within a 15 year horizon, by 2034, and
- catch and effort levels will be based on a 60% probability of reaching the target within the rebuilding period.

The plan contained no specific management strategies to achieve these rebuilding objectives, although the need for development and adoption of those specifics was noted for future WCPFC meetings. No specific catch or effort strategies have been adopted since the 2019 interim rebuilding plan was adopted. If the WCPFC management measures to achieve the rebuilding objectives, such as catch limits, are adopted in the future, they could be addressed in a future regulatory amendment. Since 2019, there have been no additional measures from the WCPFC for management of WCNPO striped marlin, and CMM 2010-01 remains the only international management measure relevant to U.S. fisheries.

1.3 Purpose and Need for Action

The purpose of this action is to manage the catch of WCNPO striped marlin under the Pelagic FEP while minimizing negative economic impacts to the affected fisheries. The action is needed to address the Magnuson-Stevens Act Section 304(i) requirement to develop recommendations for domestic regulations to address the relative impact of fishing vessels of the United States on the WCNPO striped marlin stock, which is overfished due to excessive international fishing pressure.

1.4 Action Area

The action area is the management area of the Pelagic FEP, or all areas of pelagic fishing operations in the U.S. EEZ or on the high seas for any domestic vessels, excluding vessels from U.S. participating territories, that fish for, possess, or transship PMUS within the EEZ waters of the western Pacific Region, or land PMUS within the states, territories, commonwealths, or unincorporated U.S. island possessions in the western Pacific Region (WPR).

The action area for domestic implementation of catch limits is the stock boundary of WCNPO striped marlin, or the Pacific Ocean north of the equator, east to 150° W (Figure 1).

1.5 Decision(s) to be Made

This document will support a decision by the Regional Administrator (RA) of the NMFS Pacific Island Region, on behalf of the Secretary of Commerce, whether to approve, disapprove, or partially approve the Council's recommendation. The RA will use the information in this EA to make a determination about whether the proposed action would constitute a major federal action that has the potential to significantly affect the quality of the environment. If NMFS determines the action would not significantly affect the quality of the environment, NMFS will prepare a Finding of No Significant Impact (FONSI). If NMFS determines the proposed action is a major federal action that would significantly affect the quality of the environment, NMFS would prepare an environmental impact statement (EIS) before taking action.

1.6 List of Preparers

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1.7 NEPA compliance

This Environmental Assessment (EA) is being prepared using the 2020 Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute. 85 Fed. Reg. at 43372-73 (§§ 1506.13, 1507.3(a)). This EA began after June 30, 2021 and accordingly proceeds under the 2020 regulations.

1.8 Public Involvement

The development of the proposed action occurred in meetings of the Council and its advisory bodies, which are open to the public and are noticed in the Federal Register, local newspapers and publications, and on the Council's website (www.wpcouncil.org). Meeting agendas provide scheduled opportunities for public comment.

The Council, at its 161st meeting in 2014 and in response to overfishing and an overfished status for WCNPO striped marlin, recommended the specification of annual WCNPO striped marlin catch limit of 457 t applicable to U.S. fisheries. The Council recommended the specification a retention limit of 434 t of striped marlin applicable to the Hawaii longline fishery (which is 95% of the 457 t limit). If the 434 t limit is reached, the Hawaii longline fishery prohibited from retaining striped marlin, whereas other fisheries would not be restricted. This recommendation was incorporated into draft Pelagic FEP Amendment 8, which provided a framework to incorporate conservation and management measures (CMMs) by RFMOs such as the WCPFC, into the Pelagic FEP with any subsequent catch/effort limits as internationally agreed upon by the RFMO. In addition to domestic recommendations of a catch limit, the Council also recommended a CMM be developed to limit all nations to catch and retention of no more than 500 t of striped marlin per year. Amendment 8 has not yet been finalized, and this action is a regulatory amendment to address only the purpose and need described previously.

At its 181st Meeting (March 2020), the Council *recommended that NMFS include any new projections with phased catch reductions in any proposal for North Pacific striped marlin to WCPFC17*. Previous projections in the stock assessment implemented constant catch levels over a ten year horizon and there was debate over recruitment scenarios, *therefore phased reductions were recommended to take advantage of the 15 year rebuilding horizon*. PIFSC staff provided those projections to Council staff prior to the 183rd Council Meeting.

At its 183rd Meeting (September 2020), the Council recommended that phased catch limits (developed by PIFSC) be used as a basis for the U.S. delegation to the WCPFC propose a CMM which would initiate a total allowable catch of striped marlin among all nations in the North Pacific, with a catch limit of striped marlin by U.S. vessels to be 457 t, consistent with previous Council actions.

At its 184th Meeting (December 2020) the Council considered a preferred option for catch and/or effort levels that demonstrably address relative impacts of US fisheries on international overfishing of the North Pacific striped marlin stock and/or recommend other options for consideration and analysis for final action in March 2021.

Also at the 184th Meeting, the Council reviewed a proposal by the Hawaii Longline Association (HLA) that proposed the phasing out of steel wire leaders in longline gear for Hawaii-based longline fisheries. HLA, representing more than 90% of Hawaii permitted longline vessels, made the proposal on behalf of the Hawaii-based fleet. The Council commended a comprehensive initiative to further reduce interactions and post-hooking mortality of oceanic whitetip sharks, leatherback turtles, billfishes, and other protected species while also addressing associated crew safety issues. The Council subsequently directed staff to prepare a regulatory amendment to the Pelagic FEP to evaluate options to prohibit the use of wire leaders in the Hawaii deep-set longline fishery for Council action at the March 2021 meeting.

At its 185th Meeting (March 2021) the Council recognized that there is substantial uncertainty with respect to the relative impact of U.S. vessels on the WCNPO striped marlin stock. This is due largely in part to uncertainties in foreign catch and discards on the stock, particularly among those fisheries that have been a leading source of fishing mortality. This is likely due to lack of monitoring and uncertainty in catch reporting among other WCPFC members. The U.S. acting unilaterally would not end overfishing of the stock and other WCPFC members have not demonstrated a commitment to reduce their impacts on the stock. The Council further noted uncertainty in best scientific information available (BSIA) information that is to be reconciled in 2022.

Taking into account BSIA and the associated uncertainties, the Council therefore recommended an FEP amendment to establish a management framework, using a phase-in approach, to accomplish the following: a) Establish an initial catch limit of 457 mt for 2022, in order to limit the relative impact of US vessels on the WCNPO striped marlin stock; b) beginning in 2023, recommend specified catch limits proportional to stock-wide catch reductions consistent with U.S. obligations in WCPFC that reduce fishing mortality to a rate approaching F_{MSY}, consistent with rebuilding the stock through a phased catch reduction approach ; c) establish an in-season accountability measure to cease retention and landing of WCNPO striped marlin by U.S. longline fisheries once U.S. fisheries have caught 95% of the catch limit.

Regarding the Council's obligations to address international overfishing, the Council requested the State Department and NMFS propose to the Western and Central Pacific Fisheries Commission (WCPFC): a) a measure requiring the use of circle hooks in all WCNPO longline fisheries; b) develop a standardized billfish catch and discards reporting mechanism for WCNPO longline fisheries; and c) that no member of the WCPFC land and retain more than 500 t of striped marlin per annum by 2025.

Also at the 185th Meeting, the Council recommended a regulatory amendment for the prohibition of wire leaders in the Hawaii deep-set longline fishery and develop a regulatory requirement to remove trailing gear from oceanic whitetip sharks. The Council took final action to develop this regulatory amendment at its 186th Meeting (June 2021). The prohibition of wire leaders in the Hawaii deep-set longline fishery began on May 31, 2022 (87 FR 25153). A study by Ward et al (2008) suggests striped marlin catchability in longline fisheries would be reduced by transitioning from the use of steel wire leaders to nylon monofilament leaders.

At the 193rd Council meeting (December 2022), the Council will revisit this action, in lieu of new information that had been anticipated from the ISC, and re-take final action on management of this stock. The Council is to revisit its Magnuson-Stevens Act Section 304(i) obligation to address the relative impact of U.S. fishing vessels on the overfishing of the WCNPO striped marlin stock, including its recommendation to set an initial catch limit of 457 t. Previous recommendations from the 185th Meeting anticipated new scientific information to inform specified catch limits. That information was never provided by the ISC.

2 DESCRIPTION OF THE ALTERNATIVES CONSIDERED

2.1 Development of the Alternatives

In developing the alternatives for this action, we considered three issues:

i. The 2019 striped marlin assessment (ISC 2019, Sculley 2021), considered the best scientific information available for WCNPO striped marlin, and scientific information published since that date;
ii. International and domestic management measures applicable to the stock; and
iii. The Magnuson-Stevens Act 304(i)(2)(a) requirement to develop recommendations for domestic regulations to address the relative impact of U.S. vessels on the stock.

As summarized in the introduction, the 2019 WCNPO striped marlin stock assessment (ISC 2019, Sculley 2021) concluded that spawning stock biomass is substantially below the spawning stock biomass at MSY, and fishing mortality is higher than F_{MSY}. A letter from NMFS to the Council on June 4, 2020, described how the information in the 2019 assessment supported our domestic determination that the stock is subject to overfishing because $F_{2015\text{-}2017}$ (0.64) is greater than the MFMT (0.6) and overfished because the ratio of SB_{2017} (981 t) compared to SB_{MSY} (2,604 t) = 0.38, which is less than all possible estimates of MSST (based on M for all age groups). However, because this stock is internationally managed, it is not subject to Magnuson-Stevens Act management requirements, like the specification of an Annual Catch Limit.

When this action was considered by Council previously (Section 1.8), PIFSC developed a phased rebuilding plan (Broadziak 2020a) for consideration at Council and at the WCPFC. The phased reduction plan was developed to achieve the rebuilding goals of the interim rebuilding plan adopted by the WCPFC in 2019 (WCPFC 2020), and consisted of three catch reduction phases bounded by planned stock assessments to allow updated assessment information to inform the plan in the future. The phased reduction plan called for a 13.4% reduction in total international catch for the first four year phase, starting in 2022, and was used to develop alternatives in earlier Council actions related to this stock. In the end, the phased rebuilding plan was not presented or adopted by the WCPFC. However, we considered the phased reduction plan as a valid starting point when developing appropriate management regulations for the stock.

The ISC drafted a new stock assessment for WCNPO striped marlin in 2022, and considered it at their meeting in July 2022, in Kona, Hawaii. The draft 2022 stock assessment did provide updated data for the stock, including all international catch data, through 2020, whereas the 2019 assessment only considered data to 2017. While changes and updates were made from the 2019 assessment, the billfish working group concluded that the draft 2022 stock assessment was a work in progress, not a benchmark assessment. The report described the choice of growth curve used in the model as a major effect in the perception of stock status, and, until this issue is resolved, the 2019 assessment remains the current benchmark assessment and best scientific information available. A new benchmark assessment for the stock is scheduled for 2023.

As described in the introduction, CMM 2010-01 (WCPFC 2010) represents the current international management requirement for the stock. This CMM requires the U.S. to limit catch of WCNPO striped marlin to 457 t of retained catch annually, which is consistent with previous Council recommendations including at its 185th meeting. The U.S. has not established the CMM 2010-01 catch limit in regulations. The striped marlin limit specified by CMM 2010-01 does not apply to American Samoa vessels both because of American Samoa's status as a participating territory, and they fish south of the equator and

catch a different striped marlin stock; however, the limit would apply to dual permitted American Samoa/Hawaii longline vessels. The limit also does not apply to longline vessels of CNMI or Guam, given their status as participating territories, but there are currently no longline vessels operating from these areas. For the Hawaii longline and troll fisheries to which the limit applies, it only applies to striped marlin caught and retained west of 150°W longitude and north of the Equator (Figure 1).

To be responsive to the Magnuson-Stevens requirement to address the relative impact of fishing vessels of the United States, we generated an estimate of the U.S. contribution to international catch of WCNPO striped marlin based on recent catch information. Total international striped marlin catch estimates were used from the draft 2022 stock assessment (ISC 2022). U.S. striped marlin catch information is presented in annual Stock Assessment and Fishery Evaluation reports (SAFE reports; WPFMC 2022). The striped marlin catch presented in SAFE report Table A-80 present total and by-fishery U.S. caught striped marlin, including retained and released catch as well as accounting for the striped marlin catch from reports of unidentified billfish. The SAFE report Table A-80 catch reports also include striped marlin caught outside of the stock boundary of the WCNPO striped marlin. The SAFE report also presents the total retained WCNPO striped marlin catch applicable to WCPFC management requirements in SAFE report Table 42 (WPFMC 2022). Because we required estimates of the retained catch by fishery for the stock applicable to the WCPFC limit, we assumed that the by-fishery proportions of total catch in SAFE report Table A-80 was representative of the by-fishery retained catch, and partitioned the retained catches from Safe report Table 42 using them (Table 2). We used the most recent five years (2016-2020) of consistent catch data from the draft 2022 stock assessment and the most recent SAFE report to estimate the recent U.S. contribution to the retained catch of WCNPO striped marlin applicable to the WCPFC limit. Using this approach, we found the average relative percentage of total international catch attributed to U.S. vessels was 14.8% (Table 2).

In considering alternatives for this action, we must also scale catches of striped marlin to ensure that we are only considering retained catch of WCNPO striped marlin. For evaluation of future catches relative to the alternatives described here, we specifically mean estimates of retained WCNPO striped marlin, either developed directly from the catch data obtained from the fishery using catch location information and whether the catch was retained or released, or by using average scaling factor described in the previous paragraph in the most recent three years.

Table 2. The total international catch (metric tons) of striped marlin and the catch of U.S. vessels, by fleet and the percent of total U.S. catch relative to the total international catch.

Year	Total international catch (t)[1]	Deep-set longline catch (t)[2,3]	Shallow - set longline catch (t) [2]	MHI troll and handline catch (t) [2]	MHI troll and handline catch (t) [4]	Total U.S. catch (t) [2]	% U.S. catch of total international catch
2014	2,743	335	11	10	2.9%	357	13.0%
2015	3,271	396	9	9	2.1%	414	12.7%
2016	2,460	307	11	10	3.2%	328	13.3%
2017	2,261	313	12	5	1.5%	330	14.6%
2018	2,180	364	1	9	2.5%	375	17.2%
2019	2,695	447	0	11	2.4%	458	17.0%
2020	2,413	278	1	8	2.7%	287	11.9%
2016-2020 Average	2,402	342	5	9	2.5%	356	14.8%

[1] ISC 2022

[2] WPFMC 2022; scaled to retained catch of WCNPO striped marlin only, see text for more details

[3] Includes catch of both Hawaii and dual-permitted vessels

In May 2022, a new regulation went into effect prohibiting the use of wire leaders in the Hawaii deep-set longline fishery (87 FR 25153). While this regulation was intended to increase the post-hooking survival of the threatened oceanic whitetip sharks, it will impact catch of many species that interact with longline gear. A study by Ward et al. (2008) estimated that the transition from wire to nylon monofilament leaders would lead to a decline in striped marlin catch in longline fisheries of up to 45%, based on experimental data from Australia. Although the regulation has applied in the Hawaii deep-set fishery since May 28, 2022, catch data for striped marlin in 2022 has yet to be analyzed. However, we expect reductions in the amount of striped marlin retained by U.S. fisheries based on this recent gear change, because the Hawaii deep-set longline fleet catches the majority of striped marlin in U.S. fisheries (Table 2). We consider the potential reduction in striped marlin catch from the prohibition of wire leaders in alternatives for this action. We recognize that this reduction will not be enough to address the total relative impact of U.S. fisheries on the striped marlin stock.

We have to account for differences in the timing of catch reporting across U.S. fisheries in our alternatives for this action. Since September 2021, vessel owners and captains submit electronic logs of fishing activity and catch in near-real time during fishing activity in the Hawaii longline fisheries (86 FR 42744), allowing for precise and timely in-season accounting of striped marlin catch. Currently, catch data from MHI troll and handline fisheries in Hawaii are not available until at least six months after the end of the fishing year. Due to these reporting lags, in-season catch monitoring of the pelagic MHI troll and handline fisheries is not possible. However, on average, in the most recent 5 years, about 97.5% of striped marlin catch comes from Hawaii longline fisheries whereas about 2.5% of the striped marlin landings are from the Hawaii troll and handline fisheries (Table 2). For this reason, to ensure the catch limits associated with the alternatives in this action are not exceeded, NMFS and the Council would specify a retention limit equivalent to 97% of the catch limit associated with each alternative. Thus the alternatives considered here are retention limits specific to only catches monitored in-season in the Hawaii longline fisheries; the combined deep-set and shallow-set retained catch of WCNPO striped

marlin – as estimated directly from the available data, or scaled from total striped marlin catch using the average scale factor from the most recent three years. This is retention limit is a larger proportion of the catch limit than suggested in previous actions for the stock (95%), but reflects the smaller proportion of total catch attributable to troll and handline fisheries in recent years.

Scientific advice for striped marlin from the ISC and WCPFC since 2011 has indicated that catches need to decrease. However, magnitudes of reductions needed to rebuild the stock have incrementally decreased with each assessment iteration, even when those previously recommended catch reductions were realized or nearly realized. In the 2011 stock assessment (Piner et al., 2011), projected stockwide catch biomass of 2,500 would rebuild the spawning stock biomass to 20% $SSB_{F=0}$ by 2017 and above spawning stock biomass associated with MSY. The 2015 updated stock assessment (Brodziak et al., 2015) indicated if projected future catches for 2016 to 2020 were on average 2,611 mt, that the stock would be fishing at levels commensurate with fishing mortality at MSY (F_{MSY}). Table 2 indicates that total catches from 2016 to 2020 averaged 2,402 t per year, yet the 2019 stock assessment indicated that recent spawning stock biomass and catch trajectories under this recent level of catch are still not be consistent with MSY levels. Each stock assessment also indicated a significant increase in fishing mortality relative to F_{MSY} in the years immediately following the prohibition of high seas drift net fishing that phased out high seas drift net fleets, primarily from Asia, by 1992 (NMFS, 2016; Huppert and Mittleman, 1993). Japanese drift net catches, the highest historical source of mortality on the stock declined precipitously to zero until 1993, but fishing mortality relative to F_{MSY} was estimated to have continued to increase. This pattern was noted by the ISC Billfish Working Group in 2020. Uncertainties associated with catch biomass by non-U.S. fisheries and metrics for catch needed to be consistent with MSY (or rebuilding criteria) are considered in analysis of appropriate catch limits for U.S. vessels.

Given these issues and considerations, four alternatives were considered to meet the purpose and need for this action. These alternatives range from a status quo alternative, with no retention limit for striped marlin, to allowing no retention of striped marlin at all. These alternatives were used to consider the effects across the full range of possible alternatives on the human environment, including explicit consideration of the effects of no U.S. catch of striped marlin. The alternatives are described in detail in the following section.

2.2 Description of the Alternatives

Regardless of which alternative is implemented, the U.S. longline fishery would continue to fish in accordance with regulations that limit participation through permits, require electronic report of fishing activity and catch, vessel monitoring systems, and observer placement; and monitor and respond to annual catch limits for bigeye tuna or any other PMUS. As part of current management, NMFS will continue its ongoing management that provides for catch by dual permitted vessels (vessels holding both a Hawaii limited entry longline fishing permit and an American Samoa limited entry longline fishing permit) to be attributed to American Samoa for reporting to the WCPFC, once the bigeye catch limit has been reached, and provided fishing under the American Samoa fishing permit in the North Pacific Ocean is done on the high seas.

However, catch limits of WCNPO striped marlin in each Alternative are applicable to all vessels holding a Hawaii limited entry longline fishing permit. These include those that are also dual-permitted with an American Samoa limited entry longline fishing permit. Landings of WCNPO striped marlin from these vessels fishing in the North Pacific Ocean high seas are not differentiated from U.S. landings of the stock in the Alternatives presented in the following sections.

None of the Alternatives considered are applicable to vessels operating solely under an American Samoa longline limited access permit. This is the permit required by CFR §665.801 to use a vessel shoreward of the outer boundary of the EEZ around American Samoa to fish for western Pacific PMUS using longline gear or to land or transship western Pacific PMUS that were caught in the EEZ around American Samoa using longline gear. Vessels operating under an American Samoa longline limited access permit without a Hawaii longline limited access permit are not known to land striped marlin from the WCNPO striped marlin stock.

None of the alternatives considered are applicable to vessels operating under a Western Pacific general longline permit. These permits are authorized under CFR §665.801 to use a vessel shoreward of the outer boundary of the EEZ around Guam, CNMI, Johnston or PRIA (Palmyra Atolls, Kingman Reef, Wake, Jarvis, Baker, or Howland Islands) to fish for western Pacific PMUS using longline gear or to land or transship western Pacific PMUS caught using longline gear. There have been no active permits since 2013 in the above mentioned regions, and, in total, 42 t of WCNPO striped marlin have ever been reported from vessels operating under this permit and only from the CNMI. If any of these permits became active in the future, catches under this permit would not count against the U.S. catch limit for WCNPO striped marlin.

For all alternatives, the following vessels would be affected:

- U.S. longline vessels possessing a valid Hawaii longline limited-entry fishing permit fishing within the WCNPO striped marlin stock boundary. This would include all U.S. shallow-set and deep-set longline vessels based in Hawaii and the U.S. West Coast.
- U.S. longline vessels possessing both a valid American Samoa longline permit and a valid Hawaii longline permit provided the vessel is fishing on the high seas seaward of the U.S. EEZ around Hawaii in the North Pacific.
- U.S. troll and handline vessels fishing in the WCNPO striped marlin stock boundary. This would include all troll and handline fishing vessels based in Hawaii and potentially troll and handline vessels operating out of ports in the West Coast of the United States.

The proposed action would not affect the following fishing vessels:

- U.S. longline vessels possessing a valid Western Pacific General Permit fishing on the high seas or in the U.S. EEZ around Guam, the Northern Mariana Islands and the PRIA.
- U.S. longline vessels only possessing a valid American Samoa longline fishing permit fishing on the high seas, or the U.S. EEZ around American Samoa.
- Any U.S. longline vessels operating under a specified fishing agreement that identifies WCNPO striped marlin as a PMUS to which the agreement applies.
- U.S. purse seine vessels fishing in the WCPO or EPO.

2.2.1 Alternative 1: No Action (Status Quo/Current Management)

Under Alternative 1, NMFS would not establish a catch limit for WCNPO striped marlin under the Magnuson-Stevens Act. This alternative would not meet the stated management objective of addressing the relative impact of U.S. fishing vessels on the stock under 304(i) of the Magnuson-Stevens Act. This Alternative allows for the consideration of an environmental baseline against which the impacts of the action alternatives may be compared.

Expected Fishery Outcomes

Under Alternative 1, U.S. fisheries would have no limits on the catch of the WCNPO stock of striped marlin, although the 457 t limit on retained catch would still apply to U.S. fisheries via the WCPFC. There would be no change in the operation of the Hawaii longline fisheries in terms of location, target and

non-target species, catch, effort, fishermen participation, gear composition, seasonality, intensity, or bycatch. Overfishing of the stock would likely persist, largely attributed to excessive international fishing pressure.

However, even by taking no action, future catches of striped marlin would likely decrease from recent averages due to the anticipated effects of the May 2022 prohibition of wire leaders in the Hawaii deep-set longline fishery as discussed in Section 2.1.

During the last five years in the 2019 stock assessment (2013-2017), U.S. landings of striped marlin from the stock averaged about 308 t of reported in the WCPFC statistical area (WCPFMC 2022). The most recent five year (2017-2021) average landings were 292 t (WPRFMC 2022).

The expected fishery outcome of this alternative is that the retained catch of WCNPO striped marlin from Hawaii longline and MHI troll fisheries would likely remain below 457 t and be compliant with CMM-2010-01, but may not fulfill the Magnuson-Stevens Act requirement to address the relative impact of U.S. fishing vessels on this internationally overfished stock as this alternative does not change catch or retention limits.

2.2.2 Alternative 2: Retention limit of 443 t.

Under Alternative 2, the Council would amend the Pelagic FEP by establishing a retention limit for the WCNPO stock of striped marlin of 443 t for Hawaii limited entry longline fisheries. This retention limit is 97% of the catch limit established by WCPFC CMM 2010-01 (457 t) and it is set at this level to ensure that total catch of this stock will remain below that catch limit, given the lack of in-season monitoring of catches in the MHI troll and handline fisheries discussed in Section 2.1. NMFS would prohibit retention and landing of WCNPO striped marlin for the remainder of the fishing year for both the Hawaii shallow-set and deep-set longline fisheries after the date on which the retention limit of 443 t was projected to be reached. Alternative 2 would ensure that U.S. catch of striped marlin would be compliant with WCPFC CMM 2010-01. However, this may not fulfill the Magnuson-Stevens Act requirement to address the relative impact of U.S. fishing vessels on this internationally overfished stock because this alternative does not include a catch reduction relative to U.S. fisheries contribution to excessive international fishing pressure.

If U.S. longline fisheries were projected to reach the retention limit under Alternative 2, NMFS would prohibit retention of striped marlin by the Hawaii deep-set and shallow-set longline fleet for the remainder of the fishing year. The retention prohibition would go into effect after the Regional Administrator determined, using longline landings, data submitted in logbooks, and other available information, that the retention limit had been reached, no earlier than seven days after filing of a no-retention date notice published in the Federal Register.

Expected Fishery Outcomes

Under Alternative 2, longline catches of striped marlin would not be retained or landed in Hawaii longline fisheries after the retention limit of 443 t was projected to be reached. As striped marlin are incidental non-target species in these fisheries, we expect there would be no change in the operation of the Hawaii longline fisheries in terms of location, target and non-target species, catch, effort, fishermen participation, gear composition, seasonality, intensity, or bycatch. With the potential for a significant drop in catchability with the switch to monofilament leaders in the Hawaii deep-set longline fishery, we anticipate that striped marlin catches will be lower than the retention limit under this alternative. The Hawaii troll and handline fishery (commercial troll and charter fishery combined) typically catch less than

3% of the commercial striped marlin compared to the longline catch. NMFS expects this level of MHI troll catch to continue.

If the retention limit was projected to be reached, and retention and landing of striped marlin prohibited in the longline fishery, there would be a loss of revenue and a reduction of supply of this fish to the market. Based on recent average catches of striped marlin, we expect that if this was to occur, the closure would be of short duration near the end of the season. Given recent average catches in the longline fishery, combined with the previously described anticipated drop in catch rates with the prohibition of wire leaders in the Hawaii deep-set fishery, we imagine that the retention limit would likely not be reached. However, under Alternative 2, the Magnuson-Stevens Act requirement to address the U.S. contribution to international overfishing may not be achieved because this alternative does not address the relative impact of U.S. fisheries on the stock to end overfishing. It is important to note that under Alternative 2, overfishing on the stock would continue primarily due to excessive international fishing pressure.

2.2.3 Alternative 3: Retention limit of 397 t.

Under Alternative 3, the Council would establish an annual retention limit of WCNPO stock of striped marlin of 397 t for the Hawaii deep-set and shallow-set longline fisheries combined. This retention limit was calculated considering issues described in Section 2.1: 1) determining a catch target that will reduce the U.S.'s relative impact on the stock that is equitable, and then 2) use 97% of the calculated catch target to account for catches in the MHI troll fisheries. Figure 5 provides a flowchart of the steps used to estimate the catch and retention limits associated with Alternative 3.

In the projections produced by Brodziak et al. (2020a), phased reductions in catch levels were proposed to allow the striped marlin stock to reach the rebuilding target with 60% probability over four phases. As discussed in Section 2.1, these projections provide a starting point to determine appropriate reductions to reduce international overfishing on the stock considering economic impact. The first phase of reductions called for a 13.4% reduction in catch biomass. We used this initial reduction for our calculations because this first phase would move towards rebuilding the stock within the international rebuilding timeline. We decided to apply the reduction to the most recent total international catch estimates to ensure we use the most current information available for the fishery.

A 13.4% reduction in total catch biomass from recent years (2016-2020) is 322 t. As our estimate of the U.S. contribution to overall catch of the stock was 14.8%, the U.S. component of this reduction in overall catch would be a reduction of 48 t, or 14.8% of 322 t.

In addition, to account for the reporting concerns with the MHI troll and handline fishery (see Section 2.1), the retention limit was set 3% lower. This results in a U.S. striped marlin retention limit of 397 t, or an overall 13.2% reduction from the 457 t limit specified in CMM 2010-01.

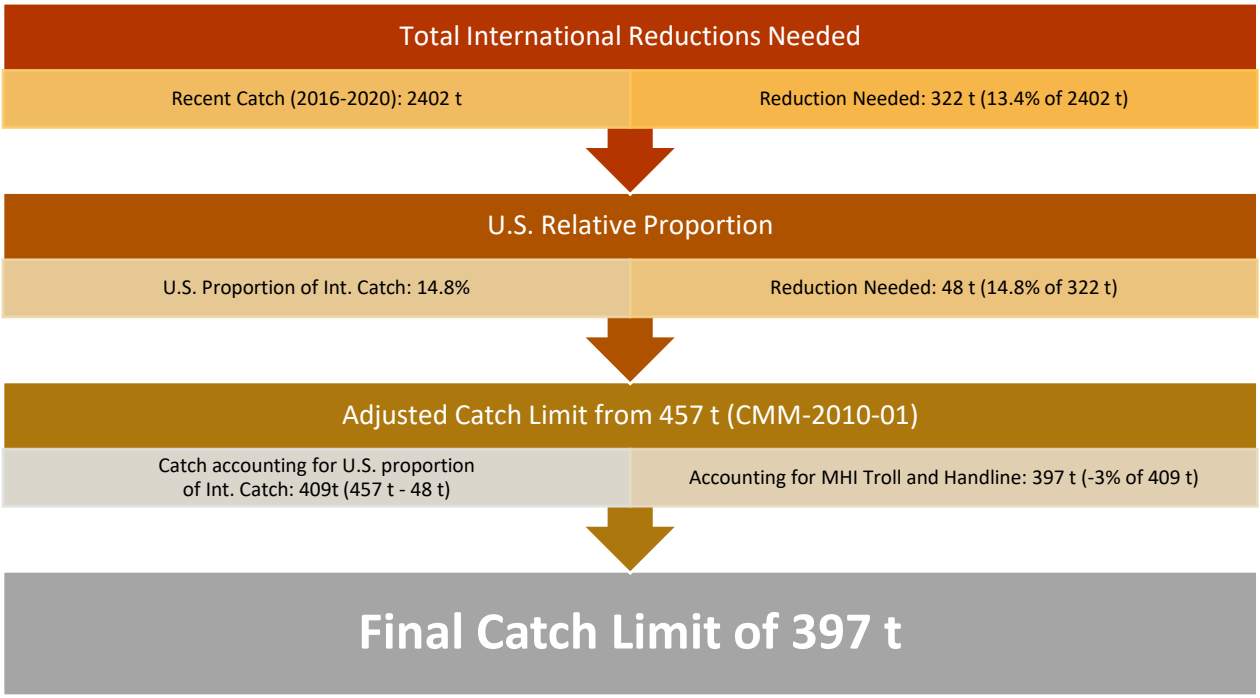


Figure 5. Description of the process used to get to the final catch limit of Alternative 3.

NMFS would prohibit retention and landing of WCNPO striped marlin for the remainder of the fishing year for both the Hawaii shallow-set and deep-set longline fisheries after the date on which the retention limit of 397 t was projected to be reached. Alternative 3 would ensure that U.S. catch of striped marlin not only be compliant with WCPFC CMM 2010-01, but also fulfill the Magnuson-Stevens Act 304(i) requirement to address the relative impact of U.S. fishing vessels on this internationally overfished stock.

If U.S. longline fisheries were projected to reach the retention limit under Alternative 3, NMFS would prohibit retention of striped marlin by the U.S. longline fleet for the remainder of the fishing year. The retention prohibition would go into effect after the Regional Administrator determined, using longline landings, data submitted in logbooks, and other available information, that the retention limit had been reached, no earlier than seven days after filing of a no-retention date notice published in the Federal Register.

NMFS would attribute catch of striped marlin by dual-permitted vessels to the Hawaii longline fleet and thus the non-retention provisions would apply to dual-permitted vessels. Striped marlin catch by dual-permitted vessels would not be attributed to American Samoa.

Expected Fishery Outcomes

Under this alternative, U.S. fisheries catch would be limited to 409 t of striped marlin from the 457 t catch limit specified under CMM 2010-01. As striped marlin are incidental non-target species in these fisheries, we expect there would be no change in the operation of the Hawaii longline fisheries in terms of location, target and non-target species, catch, effort, fishermen participation, gear composition, seasonality, intensity, or bycatch. In the most recent five years (2017-2021) U.S. landings of striped marlin from the WCNPO averaged 356 t (WPFMC 2022). The Hawaii troll fishery (commercial troll and charter fishery combined) typically catches less than 3% of the commercial striped marlin compared to the longline catch, and the most recent 5 year average is 2.5%. NMFS does not expect effort in this fishery to change.

If retention limit was exceeded and a retention prohibition enacted, as was the case for Alternative 2, there would be a market supply loss and loss of revenue for the longline fishery by reducing annual catch and sales of striped marlin. However, as was the case in previous alternatives, we imagine that the retention limit would likely not be reached because the limit proposed under this alternative has only been reached once in recent years, catches in subsequent years have declined, and we expect up to a 45% reduction in striped marlin retention with the prohibition of wire leaders in the Hawaii deep-set longline fisheries.

Under Alternative 3, the U.S. catch of striped marlin would be consistent with both WCPFC CMM 2010-01 as well as the Magnuson-Stevens requirement to address the relative impact of U.S. fishing vessels on this internationally overfished stock. Additionally, this unilateral action by the U.S. to address our relative contribution to overfishing of this stock could potentially promote new measures at the WCPFC to end international overfishing of WCNPO striped marlin.

2.2.4 Alternative 4: No retention of WCNPO striped marlin (retention limit = 0)

Under Alternative 4, the Council would prohibit retention of striped marlin in the Hawaii longline fisheries. This alternative exceeds the requirements of CMM 2010-01 and the Magnuson-Stevens Act, and serves to allow evaluation of the most extreme action the United States could take to address the status of the stock. This alternative would inappropriately also restrict the catch of striped marlin from stocks other than the WCNPO striped marlin stock.

Expected Fishery Outcomes

As striped marlin are incidental non-target species in these fisheries, we expect there would be no change in the operation of the Hawaii longline fisheries in terms of location, target and non-target species, catch, effort, fishermen participation, gear composition, seasonality, intensity, or bycatch. There would be no striped marlin available in the market and the fishery would experience a complete loss of revenue from sales of this species. At an average of $2.54/lb in 2021, a complete prohibition on retention would be a loss in revenue of approximately $2.0 million for the fisheries in 2021 (see Section 4.1.2 for expanded discussion). The fishery would continue to catch this stock, and have discard mortality, which is about 52% at haulback (see Section 2.4), would mean that even this extreme alternative will still have impacts on the recovery of the stock.

2.3 Comparison of the Alternatives

The proposed alternatives cover a wide range of catch limits, from no catch limit to a full retention prohibition on striped marlin. For Alternatives 2 and 3, the catch limits proposed are similar, but, based on recent catches, can have different impacts on the fishery overall. Figure 6 shows Alternatives 2 and 3, as well as the reported landings since 2014. Alternative 2 proposes a 443 t catch limit that is based on 97% of the 457 t catch limit outlined in CMM-2010-01. This is above the 5-year average (356 t), but is below reported landings from one recent year (2019). Alternative 3 proposes a 397 t retention limit for WCNPO striped marlin that is based on a reduction from the CMM-2010-01 catch limit.

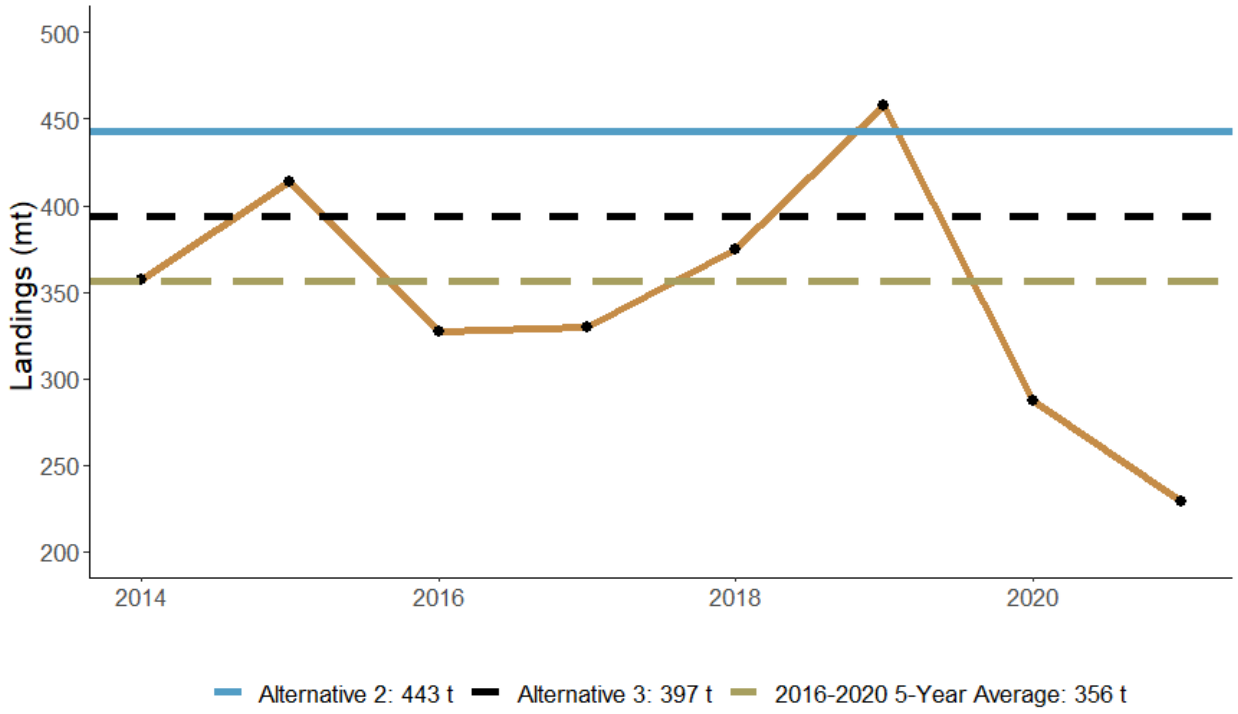


Figure 6. Retained WNCPO striped marlin catch estimates (metric tons) in U.S. fisheries, 2014-2021, with the catch limits under Alternatives 2 and 3, and the average catch from 2016-2020 for comparison.

2.4 Alternatives Considered, but Rejected from Further Analysis

Other alternatives considered focused on area-based management, effort limits, gear restrictions, and requiring releases of striped marlin were considered for this action. Area-based management is not appropriate because there is little evidence to show any current fishing area has a disproportionate impact on the stock. The Hawaii longline fishery has already been precluded from fishing in many areas of its traditional fishing areas, and additional area closures would cause unnecessary financial hardship to the fleet that is counter to the need for the action. Effort limits and gear restrictions were rejected from analyses because these would be applicable to the U.S. longline fishery only and may have deleterious impacts on target species catch and fishery economic performance. Such limits would outweigh conservation benefits and be counter to the need for the action.

Lastly, we considered live releases of striped marlin brought to longline vessels alive at haulback. Figure 6 (from Brodziak, 2020b) summarizes the impact of releasing live fish from longline vessels, using the U.S. Hawaii-based fleet as an indicator for all WCPFC fleets. Live releases alone do not reach WCPFC stock rebuilding targets even with 100% compliance across international fishing fleets. The 48% of striped marlin estimated to be alive at haulback for U.S. longline vessels may not reflect the percentage alive at haulback for non-U.S. longline vessels operating in the WCPFC Convention Area. Requiring releases of striped marlin alive at haulback for only U.S. vessels prior to a retention limit being reached was considered but rejected as estimates of post release mortality are not well defined, and thus the implications for catch limits and the level at catch where live releases should be considered were not defined. Under alternatives 2 through 4, once retention is prohibited then no striped marlin would be retained, regardless if they were alive or dead.

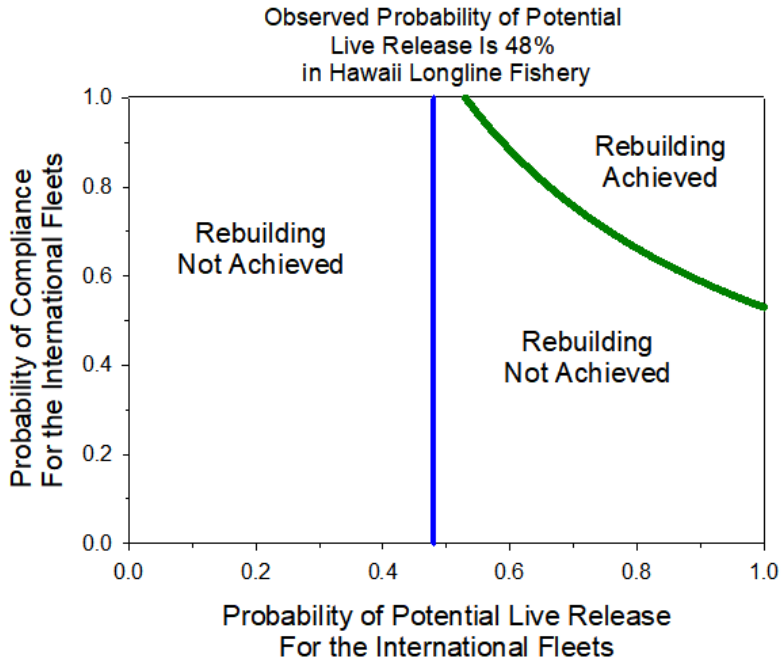


Figure 7. Impact of stock-wide requirements of live releases of WCNPO striped marlin, using estimated post-release mortality and proportion of striped marlin alive at haulback (48%, blue line), using the Hawaii-longline Pacific Island Regional Observer Program data (PIROP). The green line delineates stock recovery, with the zone above achieving rebuild and below not achieving rebuilding.
Source: Brodziak 2020b.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the baseline condition of resources in the action area. In identifying the potential effects of this fishery management action, NMFS asks whether and how the alternatives may change the operation of longline and troll fisheries authorized under the Pelagic FEP to which the action applies. Therefore, the recent operation of these fisheries and their effects on the physical, biological, and human environment form the baseline for comparison of the alternatives in the next chapter.

Environmental resources that are potentially affected include target species, non-target species, bycatch, protected resources and habitats, and other marine habitat. This chapter also describes fishery participants, fishing communities, and the management setting. NMFS derives the data in this chapter from fisher and observer reports, as required under the Pelagic FEP, and other available information is derived from regional fishery management organizations such as the WCPFC or IATTC.

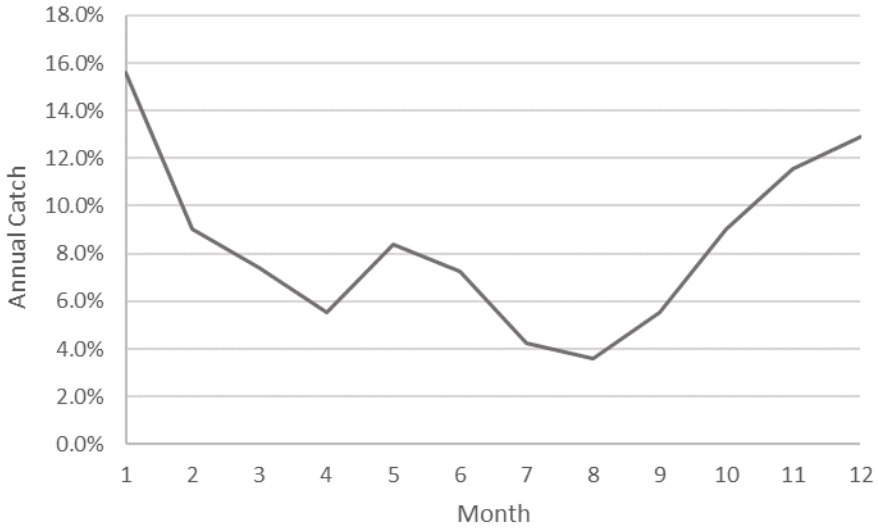
3.1 Target and Non-Target Stocks

3.1.1 Striped Marlin

Information about the striped marlin fishery in the Pacific Islands Region (PIR) is summarized in annual SAFE reports. Striped marlin in U.S. fisheries is most commonly taken by deep-set longline gear, but are also occasionally caught using shallow-set longlines and troll gear (Table 3; WPFMC 2022). U.S. longline vessels in the Western Pacific Region that report catches of striped marlin are based primarily in Hawaii and American Samoa. Of the total combined annual catch of striped marlin in the PIR, U.S.

fisheries generally land at least 85% of the landings; American Samoa comprises the reminder of the catch. The Hawaii fishery has over 140 active vessels that target swordfish with shallow longlines and bigeye tuna with deep longlines. Other catches by the Hawaii fleet include yellowfin tuna, mahimahi, wahoo, blue marlin, opah, and monchong. The American Samoa longline fleet fishes almost exclusively for albacore, which is landed at the cannery in American Samoa. Striped marlin do not make up a large proportion of catch in this fishery, and instead other pelagic species such as other tuna species, wahoo, blue marlin, and mahimahi comprise the majority of other landings. Striped marlin are incidental non-target species in both American Samoa and Hawaii longline fisheries.

Striped marlin are caught seasonally in the Hawaii longline fisheries, with peak catches from October through January (Figure 7). Catches of striped marlin in Hawaii deep-set & shallow set longline as well as MHI troll and MHI and offshore handline are presented in Table 3. Note that longline catches in Table 3 are the SAFE report values, include both retained and released catch, and do not match the catch information submitted to the WCPFC and used to draft alternatives for this action.



Source: NOAA Pacific Island Observer Program

Figure 8. Five year average (2016-2020) percent of annual catch of striped marlin taken by month in the Hawaii deep-set and shallow-set longline fisheries.

Table 3. The total catch of striped marlin for different gear types in the PIR for 2012-2021.

	Striped marlin catch (1,000 lbs)						
Year	Deep-set longline	Shallow-set longline	MHI troll	MHI handline	Offshore handline	Other gear	Total
2012	596	25	25	0	0	2	648
2013	843	35	18	0	0	1	898
2014	908	31	27	1	0	0	967
2015	1,064	24	23	0	0	1	1,112
2016	831	29	27	1	0	0	887
2017	861	34	14	0	0	0	910
2018	1,021	4	26	0	0	1	1,052
2019	1,200	1	29	0	0	1	1,231
2020	738	2	21	0	0	1	762
2021	538	13	19	0	0	1	571
Average	**860.1**	**19.8**	**22.8**	**0.2**	**0.2**	**0.8**	**903.8**
SD	**204.1**	**13.5**	**4.8**	**0.3**	**0.1**	**0.6**	**203.6**

Source: (WPFMC 2022)

Recent Management History

Genetic and tagging studies suggest that striped marlin in the Pacific is comprised of three stocks: southwest Pacific Ocean, WCNPO, and north east Pacific Ocean (NEPO). Stock assessments are available for the WCNPO stock (ISC 2019) and the NEPO stock (Hinton and Maunder 2011). This action is in response to an overfished determination for WCNPO striped marlin from the 2019 stock assessment.

WCNPO

The results of a 2019 stock assessment (ISC 2019) indicate the WCNPO stock of striped marlin continues to be subject to overfishing (F/F_{MSY} is =1.33) and overfished (SSB/SSB_{MSY} = 0.38) in the terminal year of the assessment (2017). Total WCNPO striped marlin (or striped marlin caught in the WCPO) landings in the WCPFC Statistical Area in 2021 by all U.S. and territory fisheries was 229 t, with the U.S. fisheries accounting for 199 t and the American Samoa longline fishery accounting for 30 t. (WPFMC 2022). Overall, the U.S. Fisheries comprise about 12.7% of total international striped marlin landings (Table 2). Overfishing of the stock is primarily due to excessive international fishing pressure.

The 2015 stock assessment also estimated that the North Pacific striped marlin stock was subject to fishing mortality above levels that are sustainable in the long term. The WCPFC adopted CMM 2010-01 for North Pacific striped marlin which required members and cooperating non-members to limit striped marlin landings by all gears from their highest catches from 2000-2003, and then further reduce catches by 10 percent in 2011, 15 percent in 2012, and 20 percent in 2013. Small Island Developing States and Participating Territories (including American Samoa, Guam, and CNMI) were exempt from catch limits under the measure. The highest striped marlin catch by U.S. fisheries between 2000 and 2003 was 571 t. Thus, a 20 percent reduction from 571 t is 457 t. The Hawaii longline fishery accounts for more than 95% of the total U.S. catch of this stock, with the remainder made by Hawaii small-scale troll fisheries.

NEPO

The results of the 2011 stock assessment (Hinton and Maunder 2011) indicate that the NEPO striped marlin stock is not overfished or experiencing overfishing. The stock biomass has increased from a low of about 2,600 t in 2003, and was estimated to be about 5,100 t in 2009. There has been an increasing trend in the estimated ratio of the observed annual spawning biomasses to the spawning biomass (SB) in the unexploited stock, which has doubled from about 0.19 in 2003 to about 0.38 in 2009. The estimated ratio of spawning biomass in 2009 to that expected to provide catch at the level of MSY, SB_{2009}/SB_{MSY}, was about 1.5, which indicates that the spawning biomass was above the level expected to support MSY. The estimated recent levels of fishing effort (average 2007-2009) were below those expected at MSY (Hinton and Maunder 2011). Between 2017 and 2021, Hawaii longline catches of NEPO striped marlin (or striped marlin caught in the EPO) ranged between 21 and 90 t annually, which is no greater than 3 percent of the stock's biomass (WPFMC 2022).

3.1.2 Other Pelagic Management Unit Species

This section identifies and summarizes the PMUS managed under the Pelagic FEP, other than striped marlin, that the longline and troll fisheries of American Samoa, Guam, the CNMI and Hawaii harvest. They include several species of tuna, billfish and sharks shown in **Error! Reference source not found.** 4.

For a comprehensive discussion of the biology, life history, and factors which affect distribution and abundance of PMUS, see the Pelagic FEP (WPFMC 2009). For detailed information on catch rates over time by species and historical catch information, please reference the 2021 Pelagic FEP SAFE Report.

The Pelagic FEP (WPFMC 2009) includes status determination criteria (SDC), also known as limit reference points (LRPs) for overfishing and overfished conditions. Specifically, overfishing occurs when the fishing mortality rate (F) for one or more years is greater than the maximum fishing mortality threshold (MFMT), which is the fishing mortality rate that produces maximum sustainable yield (F_{MSY}). Thus, if the F/F_{MSY} ratio is greater than 1.0, overfishing is occurring.

A stock is considered overfished when its biomass (B) has declined below the minimum stock size threshold (MSST), or the level that jeopardizes the capacity of the stock to produce MSY on a continuing basis (B_{MSY}). Specifically, the $B_{MSST} = (1\text{-}M)B_{MSY}$, where M is the natural mortality rate of the stock, or one half of B_{MSY}, whichever is greater. For example, if the natural mortality rate of a stock is 0.35, $B_{MSST} = 0.65*B_{MSY}$. Thus, if the B/B_{MSY} ratio for the stock falls below 0.65, the stock is overfished. If a stock has a natural mortality rate greater than 0.6, MSST is set at the default of $0.5*B_{MSY}$ (because 1- 0.6 = 0.4, and 0.5 is greater than 0.4). For such a stock, the stock is overfished when the B/B_{MSY} ratio falls below 0.5. It is important to note that NMFS National Standard 1 guidelines at 50 CFR 665.310(e)(1)(i)(C) defines B_{MSY} as the long-term average size of the stock measured in terms of spawning biomass (SB) or other appropriate measure of the stock's reproductive potential that would be achieved by fishing at B_{MSY}. Thus, whenever available, NMFS will use estimates of SB in determining the status of a stock. When estimates of SB are not available, NMFS may use estimates of total biomass (B), or other reasonable proxies for determining stock status.

Table 4 shows the stock status of PMUS measured against the SDCs of the Pelagic FEP, based on the most recent stock assessment for the stock at the time of this publication. Section 3.5 describes the NMFS stock status determination process. The current status of the stock represents the best scientific information available regarding the effects of past and present actions on the target and non-target stocks.

For some PMUS, the SDC specified in the FEP differs from the SDC or LRPs adopted by the WCPFC and IATTC. Additionally, in some cases, the LRPs adopted by the WCPFC for a particular stock of fish differs from the LRPs adopted by the IATTC. Finally, in other cases, no stock assessments are available and fishery management organizations must infer stock status from other indicators or not at all. For the purposes of stock status determinations, NMFS uses the SDCs specified in the Pelagic FEP. For a comprehensive discussion of the biology and life history of pelagic MUS, see the Pelagic FEP.

Table 4. Stock status of pelagic management unit species under the FEP.

Stock	Is overfishing occurring?	Is the stock overfished?	Assessment results
Skipjack Tuna (WCPO)	No	No	Castillo Jordan et al. (2022)
Skipjack Tuna (EPO)	No	No	Maunder (2018)
Yellowfin Tuna (WCPO)	No	No	Vincent, et al (2020)
Yellowfin Tuna (EPO)	No	No	Minte-Vera et al. (2020)
Albacore (S. Pacific)	No	No	Castillo Jordan et al. (2021)
Albacore (N. Pacific)	No	No	ISC (2020)

Bigeye Tuna (WCPO)	No	No	Ducharme-Barth et al. (2020)
Bigeye Tuna (EPO)	Yes	No	Xu et al. (2018)
Pacific Bluefin Tuna	Yes	Yes	ISC (2020)
Blue Marlin (Pacific)	No	No	ISC (2021)
Swordfish (WCNPO)	No	No	ISC (2018a)
Swordfish (EPO)	Yes	No	ISC (2022)*ongoing
Striped Marlin WC (N. Pacific)	Yes	Yes	ISC (2019)
Striped Marlin (NEPO)	No	No	Hinton and Maunder (2011)
Blue Shark (N. Pacific)	No	No	ISC (2022)
Oceanic white-tip shark (WCPO)	Yes	Yes	Tremblay-Boyer et al. (2019)
Silky shark (WCPO)	Yes	No	Clarke et al. (2018)
Silky Shark (EPO)	Yes	No	Lennert-Cody et al. (2018)
Shortfin mako shark (N. Pacific)	No	No	ISC (2018c)
Common thresher shark (N. Pacific)	No	No	Teo et al. (2018)
Other Billfishes[1]	Unknown	Unknown	--
Other Pelagic Sharks[2]	Unknown	Unknown	--
Other PMUS[3]	Unknown	Unknown	--

[1]Black Marlin (Pacific), Shortbill Spearfish (Pacific), Sailfish (Pacific)
[2]Longfin Mako Shark (N. Pacific), Bigeye Thresher Shark (N. Pacific), Pelagic Thresher Shark (N. Pacific), Salmon Shark (N. Pacific)
[3]Dolphinfish (Pacific), Wahoo (Pacific), Opah (Pacific), Pomfret (family *Bramidae*, W. Pacific), Kawakawa (Pacific), Oilfish (family *Gempylidae*, Pacific), other tuna relatives *(Auxis* spp., *Allothunnus* spp., and *Scomber* spp, Pacific), Squids (Pacific)

3.2 U.S. Fisheries in the WCPO, including Fisheries of the U.S. Territories

3.2.1 Hawaii and American Samoa Longline Fisheries Catch Statistics

Released catch, retained catch, and total catch for the Hawaii deep-set longline, Hawaii shallow-set longline, and American Samoa longline fisheries in 2021 are summarized in Tables 5, 6, and 7. These and other catch statistics for these three longline fisheries can be found in the 2021 SAFE report (WPFMC 2022).

Table 5. Released catch, retained catch, and total catch for Pelagic Management Unit Species in the Hawaii-permitted deep-set longline fishery, 2021.

	Deep-set longline fishery			
	Released catch	Percent released	Retained catch	Total Catch
Tuna				
Albacore	301	2.4	12,231	12,532
Bigeye tuna	3,462	1.9	183,600	187,062
Bluefin tuna	0	0.0	7	7
Skipjack tuna	177	1.0	17,825	18,002
Yellowfin tuna	2,512	3.1	78,774	81,286
Other tunas	0	0.0	1	1
Tuna PMUS Subtotal	**6,452**	**2.2**	**292,438**	**298,890**
Billfish				
Swordfish	79	1.9	4,034	4,113
Blue marlin	63	1.0	6,184	6,247
Striped marlin	109	1.1	9,538	9,647
Shortbill spearfish	260	2.2	11,313	11,573
Other billfishes	11	1.6	684	695
Billfish PMUS Subtotal	522	1.6	31,753	32,275
Other PMUS				
Mahimahi	250	0.8	29,575	29,825
Wahoo	125	0.4	32,615	32,740
Moonfish	27	0.3	8,305	8,332
Oilfish	2,149	22.2	7,552	9,701
Pomfret	429	1.3	33,686	34,115
Other PMUS Subtotal	**2,980**	**2.6**	**111,733**	**114,713**
Non-PMUS fish	**8,935**	**96.9**	**289**	**9,224**
Total non-shark	**18,889**	**4.2**	**436,213**	**455,102**
PMUS Sharks				
Blue shark	100,076	100.0	0	100,076
Mako sharks	3,192	98.9	37	3,229
Thresher sharks	9,959	99.7	28	9,987
Oceanic whitetip shark	478	100.0	0	478
Silky shark	270	100.0	0	270
Shark PMUS Subtotal	**113,975**	**99.9**	**65**	**114,040**
Non-PMUS sharks	**194**	**100.0**	**0**	**194**
Grand Total	**133,058**	**23.4**	**436,278**	**569,336**

Source: WPRFMC (2022).

Table 6. Released catch, retained catch, and total catch for Pelagic Management Unit Species in the Hawaii-permitted shallow-set longline fishery, 2021.

	Shallow-set longline fishery			
	Released catch	Percent released	Retained catch	Total Catch
Tuna				
Albacore	22	3.5	604	626
Bigeye tuna	39	4.0	934	973
Bluefin tuna	0	0.0	2	2
Skipjack tuna	1	2.1	46	47
Yellowfin tuna	30	2.6	1,131	1,161
Other tunas	0	0.0	0	0
Tuna PMUS Subtotal	**92**	**3.3**	**2,717**	**2,809**
Billfish				
Swordfish	213	3.3	6,285	6,498
Blue marlin	6	6.6	85	91
Striped marlin	7	3.6	185	192
Shortbill spearfish	2	1.9	101	103
Other billfishes	0	0.0	4	4
Billfish PMUS Subtotal	**228**	**3.3**	**6,660**	**6,888**
Other PMUS				
Mahimahi	9	0.7	1,243	1,252
Wahoo	0	0.0	61	61
Moonfish	1	4.2	23	24
Oilfish	50	27.0	135	185
Pomfret	4	10.8	33	37
Other PMUS Subtotal	**64**	**4.1**	**1,495**	**1,559**
Non-PMUS fish	**1**	**100.0**	**0**	**1**
Total non-shark	**385**	**3.4**	**10,872**	**11,257**
PMUS Sharks				
Blue shark	5,392	100.0	0	5,392
Mako sharks	761	96.7	26	787
Thresher sharks	22	91.7	2	24
Oceanic whitetip shark	9	100.0	0	9
Silky shark	3	100.0	0	3
Shark PMUS Subtotal	**6,187**	**99.5**	**28**	**6,215**
Non-PMUS sharks	**5**	**100.0**	**0**	**5**
Grand Total	**6,577**	**37.6**	**10,900**	**17,477**

Source: WPRFMC (2022).

Table 7. U.S. longline catch (t) by species in the WCPFC Statistical Area, 2017-2021.

	U.S. in North Pacific Ocean				
	2021	**2020**	**2019**	**2018**	**2017**
Vessels	137	135	138	136	136
Species					
Albacore, NPO	104	48	88	59	74
Albacore, SPO					
Bigeye tuna	3,750	3,550	3,460	3,393	2,948
Pacific bluefin tuna	1		1		1
Skipjack tuna	128	125	198	105	155
Yellowfin tuna	2,029	1,197	1,556	1,868	1,751
Other tuna					
TOTAL TUNA	**6,012**	**4,920**	**5,304**	**5,425**	**4,928**
Black marlin					
Blue marlin	332	440	747	529	485
Sailfish	9	5	12	9	9
Spearfish	110	94	154	171	205
Striped marlin, NPO	199	240	397	332	280
Striped marlin, SPO					
Other marlins	1	1		1	1
Swordfish, NPO	534	266	510	590	918
Swordfish, SPO					
TOTAL BILLFISH	**1,185**	**1,046**	**1,821**	**1,631**	**1,899**
Blue shark					
Mako shark	1	2	32	36	30
Thresher	1	1	4	2	2
Other sharks					
Oceanic whitetip shark					
Silky shark					
Hammerhead shark					
Tiger shark					
Porbeagle					
TOTAL SHARKS	**1**	**3**	**36**	**38**	**32**

Source: WPFMC (2022).

Table 8. Number of fish kept, released, and percent released for all American Samoa longline vessels in 2020.

Species	Number Kept	Number Released	Total Caught	Percent Released
Skipjack tuna	6,439	59	6,498	0.9
Albacore tuna	38,666	232	38,898	0.6
Yellowfin tuna	10,170	191	10,361	1.8
Kawakawa	0	0	0	0.0
Bigeye tuna	1,136	4	1,140	0.4
Bluefin tuna	1	0	1	0.0
Tunas (unknown)	0	0	0	0.0
TUNAS TOTAL	**56,412**	**486**	**56,898**	**0.9**
Mahimahi	85	0	85	0.0
Black marlin	0	0	0	0.0
Blue marlin	507	13	520	2.5
Striped marlin	99	1	100	1.0
Wahoo	1,399	14	1,413	1.0
Swordfish	50	14	64	21.9
Sailfish	22	4	26	15.4
Spearfish	36	44	80	55.0
Moonfish	29	4	33	12.1
Oilfish	26	792	818	96.8
Pomfret	20	361	381	94.8
Pelagic thresher shark	0	0	0	0.0
Thresher shark	0	135	135	100.0
Shark (unknown pelagic)	0	0	0	0.0
Snake mackerel	0	0	0	0.0
Bigeye thresher shark	0	0	0	0.0
Silky shark	0	508	508	100.0
White tip oceanic shark	0	545	545	100.0
Blue shark	0	1,262	1,262	100.0
Shortfin mako shark	0	65	65	100.0
Longfin mako shark	0	0	0	0.0
Billfishes (unknown)	0	0	0	0.0
NON-TUNA PMUS TOTAL	**2,273**	**3,762**	**6,035**	**62.3**
Pelagic fishes (unknown)	0	1	1	100.0
Double-lined mackerel	0	0	0	0.0
Mackerel	0	0	0	0.0
Long-jawed Mackerel	0	0	0	0.0
Barracudas	118	3	121	2.5
Great barracuda	0	0	0	0.0
Small barracudas	0	0	0	0.0
Rainbow runner	0	0	0	0.0
Dogtooth tuna	0	0	0	0.0
OTHER PELAGICS TOTAL	**118**	**4**	**122**	**3.3**
TOTAL PELAGICS	**58,803**	**4,252**	**63,055**	**6.7**

Source: WPRFMC (2021).

3.2.2 Hawaii Troll and Handline fisheries

Released catch, retained catch, and total catch for the Hawaii troll and handline fisheries in 2021 is summarized in Table 9. These and other catch statistics for this fishery can be found in the 2021 SAFE report (WPFMC 2022).

Table 9. Total catch for Pelagic Management Unit Species in Hawaii Troll and Handline Fisheries

	Tunas				Billfish			Other PMUS	
Year	Albacore	Bigeye tuna	Skipjack tuna	Yellowfin tuna	Blue marlin	Striped marlin	Swordfish	Mahimahi	Ono (wahoo)
2012	48.1	23.1	5.2	31.0	259.2	52.9	120.7	12.3	24.4
2013	46.1	23.9	8.6	35.2	257.3	64.7	101.2	12.4	23.9
2014	43.8	24.1	6.7	34.5	245.4	49.5	118.9	12.3	22.0
2015	44.1	21.5	8.1	33.9	170.5	72.9	96.4	13.2	21.7
2016	47.7	20.9	8.4	33.7	145.1	63.1	117.0	12.0	23.0
2017	53.0	24.1	9.1	42.9	175.1	73.7	121.4	11.0	23.1
2018	52.5	25.4	7.9	45.2	193.2	66.6	110.6	11.8	20.5
2019	54.5	22.8	8.9	33.0	150.8	62.2	129.8	12.7	21.0
2020	55.3	28.5	11.9	41.7	126.4	52.9	144.6	12.3	22.3
2021	58.2	26.1	10.1	31.7	151.0	79.2	107.9	12.7	22.1
Average	**50.3**	**24.0**	**8.5**	**36.3**	**187.4**	**63.8**	**116.9**	**12.3**	**22.4**
SD	**5.0**	**2.2**	**1.8**	**5.0**	**49.5**	**9.8**	**14.0**	**0.6**	**1.2**

3.3 Protected Species

3.3.1 Endangered Species Act

The purpose of the ESA (16 U.S.C. § 1531 et seq.) is to protect and recover imperiled species and the ecosystems upon which they depend. Section 7(a)(2) of the ESA requires each federal agency to insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. “Jeopardize” means to reduce appreciably the likelihood of survival and recovery of a species in the wild by reducing its numbers, reproduction, or distribution. When a federal agency’s action “may affect” an ESA-listed species, that agency is required to consult formally with NMFS for marine species, some anadromous species, and their designated critical habitats, or with the U.S. Fish and Wildlife Service (FWS) for terrestrial and freshwater species or their designated critical habitat. The product of formal consultation is the relevant service’s biological opinion (BiOp).

The ESA also prohibits the taking of listed species without a special exemption. Taking that is incidental to and not intended as part of a Federal action is not considered to be prohibited taking under the ESA, provided that such taking is in compliance with the reasonable and prudent measures and terms and conditions of an incidental take statement (ITS). The reasonable and prudent measures are nondiscretionary, and must be undertaken by the Federal agency for the take exemption to apply. For BiOps reaching a jeopardy or adverse modification conclusion, NMFS develops reasonable and prudent alternatives that would avoid the likelihood of jeopardy or adverse modification of critical habitat. Western Pacific fisheries authorized under the FEP operate in accordance with ITSs set by ESA consultations, including applicable reasonable and prudent measures, and their associated terms and conditions, intended to minimize the potential effects of incidental take.

The following list identifies the valid BiOps under which western Pacific longline fisheries currently operate. This section summarizes much of the information contained in these documents to describe baseline conditions. For further information, refer to the following documents on the NMFS website or by contacting NMFS using the contact information at the beginning of the document. **Error! Reference source not found.** includes all of the ESA-listed species in the PIR, along with additional information about the status of the species. For additional information, please see Section 3.4 of the annual Pelagic FEP SAFE Report.

NMFS. 2001. Biological Opinion on Authorization of Pelagic Fisheries under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region. This BiOp covers longline fisheries in Guam and the CNMI.

NMFS. 2010. Endangered Species Act Section 7 Consultation Biological Opinion on Measures to Reduce Interactions between Green Sea Turtles and the American Samoa-based Longline Fishery-Implementation of an Amendment to the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region.

USFWS 2012, Biological Opinion of the U.S. Fish and Wildlife Service for the Operation of Hawaii-based Pelagic Longline Fisheries, Shallow-Set and Deep-Set, Hawaii.

NMFS. 2014. Biological Opinion on Continued Operation of the Hawaii-based Deep-set Pelagic Longline Fishery.

NMFS. 2015. Biological Opinion and Conference Opinion on Continued Operation of the American Samoa Longline Fishery.

NMFS. 2017. Supplement to the 2014 Biological Opinion on Continued Operation of the Hawaii-based Deep-set Pelagic Longline Fishery.

NMFS. 2019. Biological Opinion on the Continued Authorization of the Hawaii Pelagic Shallow-set Longline Fishery.

NMFS. 2022. Supplement to the 2014 Biological Opinion on Continued Operation of the Hawaii-based Deep-set Pelagic Longline Fishery.

NMFS reinitiated consultation for the Hawaii deep-set fishery on October 4, 2018, due to reaching several reinitiation triggers. The fishery exceeded the ITS for east Pacific green sea turtle DPS in mid-2018. Listing of the oceanic whitetip shark (83 FR 4153) and giant manta ray (83 FR 2916) as threatened species, and designation of MHI insular false killer whale (IFKW) critical habitat (83 FR 35062) also triggered the requirement for reinitiated consultation. On October 4, 2018, NMFS determined that the conduct of the fishery during the period of consultation will not violate ESA Sections 7(a)(2) and 7(d) (updated April 15, 2020). On September 28, 2022, NMFS completed the Section 7 consultation and issued a new supplemental BiOp was completed on both oceanic whitetip shark and giant manta ray (PIRO-2022-02105).

NMFS reinitiated consultation for the American Samoa deep-set longline fishery on April 3, 2019, due to reaching several reinitiation triggers. The fishery exceeded the ITS for the east Indian west Pacific, southwest Pacific, central South Pacific, and east Pacific green sea turtle DPS; hawksbill; and olive ridley sea turtles in 2018. Listing of the oceanic whitetip shark (83 FR 4153), giant manta ray (83 FR 2916), and chambered nautilus (83 FR 48976) as threatened species also triggered the requirement for reinitiated consultation. On April 3, 2019, NMFS determined that the conduct of the fishery during the period of consultation will not violate ESA Sections 7(a)(2) and 7(d) (updated May 6, 2020). Until NMFS completes the consultation process and issues a new biological opinion, the 2015 BiOp remains valid for all species considered in the 2015 BiOp.

In addition to the BiOps listed above, more detailed information, including the range, abundance, status, and threats of the listed sea turtles, marine mammals, and seabirds can be found in the status reviews, 5-year reviews, and recovery plans for each species on the NMFS species pages found at the following website: https://www.fisheries.noaa.gov/pacific-islands/endangered-species-conservation/esa-consultations-pacific-islands.

NMFS monitors the effects of the fishery on non-ESA listed marine mammals through comparison of the average level of interactions which result in M&SI to a stock's potential biological removal (PBR). For most marine mammal stocks where the PBR is available, the number of observed takes of marine mammal species in the deep-set longline fishery inside the U.S. EEZ around Hawaii is well below the PBR in the time period covered by the most current stock assessment report. For more information on protected species, including current observed interactions by fishery, please see Section 3.4 of the annual Pelagic FEP SAFE Report.

3.3.2 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of marine mammals in the U.S. EEZ and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA authorizes the Secretary of Commerce to protect and conserve all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). The MMPA requires NMFS to prepare and periodically review marine mammal stock assessment reports (see 16 U.S.C. § 1361, *et seq*.). These reports categorize stocks as either strategic, or not strategic. Strategic stocks are either ESA-listed stocks, depleted stocks under the MMPA, or stocks with estimated human-caused mortality that exceeds its potential biological removal (PBR) level.

Pursuant to the MMPA, NMFS has promulgated specific regulations that govern the incidental take of marine mammals during fishing operations (50 CFR 229). Under Section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries that classifies U.S. commercial fisheries into three categories, based on relative frequency of incidental mortality and serious injury to marine mammals in each fishery:

Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing. Annual mortality and serious injury of a stock in a given fishery is by itself responsible for the annual removal of greater than or equal to 50 percent or more of any stock's PBR level (i.e., frequent incidental mortality and serious injuries of marine mammals).

Category II designates fisheries with occasional serious injuries and mortalities incidental to commercial fishing. Annual mortality and serious injury of a stock in a given fishery is, collectively with other fisheries, responsible for the annual removal of greater than 10 percent of any stock's PBR level, and is by itself responsible for the annual removal of between 1 and less than 50 percent, exclusive, of any stock's PBR level (i.e., occasional incidental mortality and serious injuries of marine mammals).

Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities. A Category III fishery is, collectively with other fisheries, responsible for the annual removal of 10 percent or less of any stock's PBR level; or collectively with other fisheries, more than 10 percent of any stock's PBR level, but is by itself responsible for the annual removal of 1 percent or less of PBR level (i.e., a remote likelihood or no known incidental mortality and serious injuries of marine mammals).

According to the 2022 List of Fisheries (87 FR 229, May 19, 2022), the Hawaii deep-set longline fishery is a Category I fishery, and the Hawaii shallow-set longline fishery, and the Hawaii Troll fishery and American Samoa longline fishery are Category II fisheries. Among other requirements, owners of vessels or gear engaging in a Category I or II fishery are required under 50 CFR 229.4 to obtain a marine

mammal authorization to lawfully take incidentally, non-ESA listed marine mammals by registering with NMFS' marine mammal authorization program. The CNMI and Guam longline fisheries are inactive and not designated at this time.

Section 118 of the MMPA requires NMFS to prepare a take reduction plan for each strategic marine mammal stock that interacts with a Category I or Category II fishery. NMFS established the False Killer Whale Take Reduction Team in 2010 (75 FR 2853) and implemented the False Killer Whale Take Reduction Plan (FKWTRP) in 2012 (72 FR 71260) to reduce mortalities and serious injuries (M&SI) of false killer whales in the Hawaii longline fishery.

Section 101(a)(5)(E) of the MMPA requires the Secretary of Commerce to allow the incidental, but not intentional, taking of individuals from marine mammal stocks that are designated as depleted because of a listing as threatened or endangered under the ESA in the course of commercial fishing operations if it is determined that three criteria are met:

1. Incidental mortality and serious injury will have a negligible impact on the affected species or stock;
2. A recovery plan has been developed or is being developed; and
3. Where required under Section 118 of the MMPA, a monitoring program has been established, vessels engaged in such fisheries are registered in accordance with Section 118 of the MMPA, and a take reduction plan has been developed or is being developed for such species or stock.

On May 6, 2021, NMFS issued a permit under the MMPA section 101(a)(5)(E), addressing the Hawaii deep-set fishery's interactions with ESA-listed species or depleted stocks of marine mammals (86 FR 24384). The permit authorizes the incidental, but not intentional, taking of ESA-listed humpback whales (Central North Pacific or CNP stock) and MHI insular false killer whales to vessels registered in the Hawaii deep-set fishery. In issuing the permit, NMFS determined that incidental taking by the deep-set fishery will have a negligible impact on the affected stocks of marine mammals. The humpback whale CNP stock delineation under the MMPA includes both ESA-listed and non-ESA-listed distinct population segments. However, any potential overlap of the deep-set fishery with humpback whales is with the Hawaii distinct population segment, which is no longer listed under the ESA (81 FR 62259, September 8, 2016).

Additional information on the marine mammals that interact with FEP fisheries are described in Section 3.4 of the annual Pelagic FEP SAFE Report.

3.3.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it illegal to intentionally take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid Federal permit. In 2012, the FWS issued a special permit for the shallow-set fishery under the MBTA authorizing incidental take of certain seabirds in the Hawaii shallow-set fishery over a period of three years (USFWS 2012). On December 27, 2017, the U.S. Ninth Circuit Court of Appeals issued a split decision that reversed a lower district court decision upholding the MBTA permit. *Turtle Island Restoration Network v. NMFS & FWS*, 13-17123 (9th Cir. 2017). The Ninth Circuit Court majority opinion found that FWS improperly relied upon the special use permit to authorize the incidental take of sea birds by a commercial fishery. The permit expired on its own terms in March 2018 and NMFS determined that it would not reapply for the permit. On January 7, 2021, the FWS published a final rule (effective February 8, 2021) defining the scope of the MBTA as it applies to conduct resulting in the injury or death of migratory birds protected by the MBTA (86 FR

1134). In that January 2021 rule, FWS determined that the MBTA's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same, apply only to actions directed at migratory birds, their nests, or their eggs. On October 4, 2021, FWS published a final rule (effective December 3, 2021) revoking the January 2021 rule, and returning the implementation of the MBTA as prohibiting incidental take and applying enforcement discretion consistent with judicial precedent and FWS practice prior to 2017 (86 FR 54642). NMFS and the Council continue to monitor interactions with seabirds and have implemented take mitigation measures.

Additional information on the seabirds that interact with FEP fisheries are described in in Section 3.4 of the annual Pelagic FEP SAFE Report.

3.3.4 Analysis and Monitoring Approach

Error! Reference source not found. Table 9 lists the species or populations of species protected under the ESA, MMPA, and MBTA or those under consideration for listing under the ESA that have the potential to interact with the active longline fisheries managed under the Pelagics FEP. For the purposes of illustrating which species are considered further in the evaluation of the effects of the alternatives on the listed species, the table includes the ocean zone in which the species are found, which can be coastal, pelagic, or both; and whether the operation of the longline fisheries is likely to have no effect, a discountable effect, or an adverse effect on the species or distinct population. Potential effects on protected species from the operation of fisheries stem from either vessel transiting activity or fishing activity. Because longline fishing activity is prohibited throughout the coastal zone of the action area, those species found exclusively within the coastal zone are only exposed to those effects associated with vessel transiting.

In Table 9, NMFS reserves the no effect descriptor (N) only for those species and populations which do not occur in the area of operation of the fishery under consideration. Because the Guam and CNMI longline fisheries are not currently active, these fisheries have no effect on protected species and are not included in Table 9. NMFS considers discountable effects (D) as those that are highly unlikely to occur, such as those effects from vessel transiting (noise, collisions, waste, discharge, or emissions). NMFS also considers that species which have not been observed as hooked, entangled, or depredating bait or catch, or species with observed interactions that are exceedingly rare, as discountable. Finally, if NMFS observers have recorded instances of hooking and entanglement with a species or population, and these interactions are reasonably expected to continue due to the vulnerability of the species or population to longline gear, NMFS considers that the species is adversely affected by the operation of the subject longline fishery (A).

In general, species or populations only found in the coastal zone are only exposed to potential effects from vessel transiting, and the effects are therefore discountable. Similarly, effects from vessel collisions which may occur during transiting or fishing are extremely unlikely to occur, and therefore discountable. In the rest of this section, we provide an analysis of the adverse effects of the operation of the fisheries on protected species. In chapter 4, we consider whether the alternatives have the potential to change the operation of the fisheries in such a way that the basis for the no effect or discountable effects descriptor has changed, or change the baseline levels of fishery interactions the protected species in such a way that the analysis of the effects of the operation of the fishery as a whole is altered.

NMFS monitors fishery interactions with protected species using at-sea observers, among other means. The NMFS Observer Program monitors interactions on 100 percent of shallow-set fishing trips and on approximately 20 percent of all Hawaii and American Samoa deep-set longline trips, although past coverage in the American Samoa was lower due to federal funding constraints. PIFSC generates fleet-wide estimates of interactions for the deep-set longline fisheries using methods described by McCracken

et al. (see WPFMC 2022), when available. When these data are not available, NMFS estimates fleet-wide interactions by expanding observed takes using an expansion factor based on the observer coverage rate. For example, because the Hawaii deep-set longline fishery was observed at a 20.4 percent coverage rate in 2017, NMFS multiplied each observed interaction by 4.9 to estimate interactions at a 100 percent coverage rate.

Any U.S. citizen may petition to list a species under the ESA. If the range of a newly listed species overlaps with the operation of the longline fisheries, NMFS re-initiates consultation on the operation of the fishery. Given the potential effects of the operation of the fisheries on currently listed species, we expect that the longline fisheries would not adversely affect any newly listed species whose ranges are limited to the coastal zone.

Table 10. ESA-listed and candidate species with the potential to interact with longline vessels permitted under the Pelagic FEP. The codes for fisheries effects are: A = adverse effects, N = no effect, and D = discountable impact.

Species or Distinct Population Segment (DPS) Common Name	**Scientific Name**	**Protection Status**	**Population Trend**	**Zone**	**HI DSLL**	**HI SSLL**	**ASLL**
Sea Turtles							
Green sea turtle, Central North Pacific	*Chelonia mydas*	Threatened	Increasing	Coastal / Pelagic	A	A	A
Green sea turtle, Eastern Pacific		Threatened		Coastal / Pelagic	A	A	A
Green sea turtle, Central South Pacific		Endangered		Coastal / Pelagic	A	A	A
Green sea turtle, Central West Pacific		Endangered		Coastal / Pelagic	A	A	A
Green sea turtle, East Indian-West Pacific		Threatened		Coastal / Pelagic	A	A	A
Green sea turtle, Southwest Pacific		Threatened		Coastal /	A	A	A

				Pelagic			
Hawksbill turtle	*Eretmochelys imbricata*	Endangered		Coastal / Pelagic	D	D	D
Leatherback turtle	*Dermochelys coriacea*	Endangered		Coastal / Pelagic	A	A	A
Loggerhead sea turtle, North Pacific	*Caretta caretta*	Endangered		Pelagic	A	A	N
Loggerhead sea turtle, South Pacific		Endangered		Pelagic	N	N	A
Olive ridley turtle	*Lepidochelys olivacea*	Threatened, except for Mexico's nesting population which is Endangered		Pelagic	A	A	A
Marine Mammals							
Blue whale	*Balaenoptera musculus*	Endangered		Pelagic	D	D	N
Fin whale	*Balaenoptera physalus*	Endangered		Pelagic	D	D	N
Hawaiian monk seal	*Neomonachus schauinslandi*	Endangered		Coastal	D	D	N
Main Hawaiian Islands insular false killer whale	*Pseudorca crassidens*	Endangered		Coastal	A	D	N
North Pacific right whale	*Eubalaena japonica*	Endangered		Pelagic	D	D	N

Sei whale	*Balaenoptera borealis*	Endangered		Pelagic	D	D	N
Sperm whale	*Physeter macrocephalus*	Endangered		Pelagic	A	D	D
Guadalupe fur seal	*Arctocephalus townsendi*	Threatened		Pelagic	D	A	N
Humpback whale, Mexico	*Megaptera novaeangliae*	Threatened		Pelagic	D	D	N
Killer whale, Southern Resident	*Orcinus orca*	Endangered		Coastal	D	D	N
Seabirds							
Hawaiian dark-rumped petrel	*Pterodroma phaeopygia sandwichensis*	Endangered					
Newell's shearwater	*Puffinus auricularis newelli*	Threatened					
Short-tailed albatross	*Phoebastria albatrus*	Endangered					
Band-rumped storm petrel Hawaii DPS	*Oceanodroma castro*	Endangered					
Fish							
Scalloped hammerhead shark, Indo-West Pacific	*Sphyrna lewini*	Threatened		Pelagic	A	N	A
Scalloped hammerhead shark, Eastern		Endangered		Pelagic	D	D	N

Pacific							
Oceanic white tip shark	*Carcharhinus longimanus*	Threatened		Pelagic	A	A	A
Giant manta ray	*Manta birostris*	Threatened		Coastal /Pelagic	A	A	A
Shortfin mako shark	*Isurus oxyrinchus*	Candidate		Pelagic	n/a	n/a	n/a
Marine Invertebrates							
Coral	*Acropora globiceps*	Threatened		Coastal	N	N	D
	Acropora jacquelineae	Threatened		Coastal	N	N	D
	Acropora retusa	Threatened		Coastal	N	N	D
	Acropora speciose	Threatened		Coastal	N	N	D
	Euphyllia paradivisa	Threatened		Coastal	N	N	D
	Isopora crateriformis	Threatened		Coastal	N	N	D
	Seriatopora aculeate	Threatened		Coastal	N	N	D
Chambered nautilus	*Nautilus pompilius*	Threatened		Coastal	N	N	D
Black abalone	*Haliotis cracherodii*	Endangered		Coastal	D	D	N
White abalone	*Haliotis sorenseni*	Endangered		Coastal	D	D	N

Cauliflower coral	*Pocillopora meandrina*	Candidate			D	D	D
Giant clam	*Tridacna derasa*	Candidate		Coastal	D	D	D
	Tridacna gigas	Candidate		Coastal	N	N	D
	Tridacna maxima	Candidate		Coastal	N	N	D
	Tridacna squamosa	Candidate		Coastal	D	D	D
	Hippopus hippopus	Candidate		Coastal	N	N	D

3.4 Marine Habitats, Critical Habitat, and Essential Fish Habitat

Under the baseline, FEP longline fisheries are not known to have adverse effects on marine habitats. Fishing does not occur in any area designated as critical habitat, besides MHI insular false killer whale (MHI IFKW) habitat (83 FR 35062, effective August 28, 2018). MHI IFKW critical habitat is defined in areas within the action area and their prey species are an essential characteristic of that critical habitat. Longline fishing does not occur in marine protected areas (MPA), marine sanctuaries, or marine monuments so marine protected areas would not be affected.

Longline fishing involves suspending baited hooks in the upper surface layers of the water column, which does not materially affect benthic marine habitat under typical operations. Derelict longline gear may impact marine benthic habitats, especially substrate such as corals if carried by currents to shallow depths. When fishing, all longliners occasionally lose hooks, mainline, floats, float lines, and branch lines, which include lead weights in the deep-set fishery.

3.4.1 Leatherback Sea Turtle Critical Habitat

On January 26, 2012, NMFS designated critical habitat for leatherback sea turtles off the west coast of the U.S., including areas off Washington, Oregon, and California (77 FR 4170). Because Hawaii longline vessels may occasionally transit through the U.S. EEZ to and from west coast ports, NMFS evaluated the fishery for potential effects to leatherback sea turtle critical habitat in the 2014 BiOp for the deep-set fishery (NMFS 2014). Because NMFS prohibits longline fishing within the EEZ off the west coast, NMFS determined that the deep-set longline fishery may affect, but is not likely to adversely modify designated critical habitat for leatherback sea turtles. NMFS came to a similar conclusion for the shallow-set longline fishery in its 2019 BiOp (NMFS 2019).

3.4.2 Monk Seal Critical Habitat

On August 21, 2015, NMFS published a final rule (80 FR 50926) designating critical habitat for the Hawaiian monk seal (*Neomonachus schauinslandi*) in the MHI and expanding monk seal critical habitat in the Northwestern Hawaiian Islands (NWHI). NMFS identified features that are essential for the conservation of monk seals, including areas preferred for pupping and nursing, areas that support adequate prey quality and quantity for foraging, and areas for hauling out, resting, or molting. Accordingly, NMFS identified critical habitat in certain areas in the MHI, and around designated islands in the NWHI, to include, generally, from the beach to the 200-m depth contour and the seafloor and the waters and habitat within 10 m of the seafloor. Specific critical habitat boundaries can be found in the final rule. Additionally, an ESA Section 7 consultation determined that the Hawaii deep-set and shallow-set longline fishery may affect, but are not likely to adversely modify monk seal critical habitat. NMFS documented its determinations in a memorandum of concurrence dated September 16, 2015.

3.4.3 Main Hawaiian Islands Insular False Killer Whale Critical Habitat

On July 24, 2018, NMFS designated critical habitat for the MHI IFKW DPS (83 FR 35062). The critical habitat area encompasses waters from 45 to 3,200 m deep around the MHI. Based on considerations of economic and national security impacts, NMFS excluded certain areas from designation because the benefits of exclusion outweigh the benefits of inclusion, and exclusion would not result in extinction of the species. Additional details are available in the Biological Report (NMFS 2018) and Economic Report (Cardno 2018) associated with the final rule.

Federal regulations prohibit longline fishing in the MHI longline prohibited area, which extends about 50 to 75 nm around the MHI, depending on the location, which closes the area the deep-set longline fishery in most of MHI IFKW range.

3.4.4 Essential Fish Habitat

Essential Fish Habitat (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. This includes marine areas and their chemical and biological properties that are utilized by inhabiting organisms. Substrate includes sediment, hard bottom, and other structural relief underlying the water column as well as their associated biological communities. EFH designations for all PMUS of the Western Pacific Pelagic FEP includes tropical and temperate waters. Pelagic EFH for egg/larval states is the water column down to a depth of 200 m (100 fm) from the shoreline to the outer limit of the EEZ. Juvenile/adult EFH is the water column down to a depth of 1,000 m (500 fm). Detailed descriptions of the EFH for the Pelagic FEP Species can be found in a Pelagic FEP Appendix.

In addition to and as a subset of EFH, the Council described Habitat Areas of Particular Concern (HAPC) based on the following criteria: ecological function of the habitat is important, habitat is sensitive to anthropogenic degradation, development activities are or will stress the habitat, and/or the habitat type is rare. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered.

In 1999, the Council developed and NMFS approved EFH and HAPC designations for PMUS of the Pelagic FMP (Amendment 8; 74 FR 19067, April 19, 1999). Ten years later, in 2009, the Council developed and NMFS approved five archipelagic-based fishery ecosystem plans (FEPs). The FEPs

incorporated and reorganized elements of the Councils' species-based FMPs into a spatially oriented management plan (75 FR 2198, January 14, 2010). EFH definitions and related provisions for all FMP fishery resources were subsequently carried forward into the respective FEPs.

NMFS considers all EFH in determining whether a proposed fishery management action may affect EFH. Table 10 provides the HAPC for Pelagic FEP PMUS by life stage. U.S. and U.S. participating territory longline fisheries are not known to adversely affect EFH or HAPC.

Table 11. EFH and HAPC for all life stages of PMUS.

Species Complex	EFH	HAPC
Temperate species: Striped Marlin (T*etrapurus audax*), Bluefin Tuna (*Thunnus thynnus*), Swordfish (*Xiphias gladius*), Albacore (Th*unnus alalunga*), Mackerel (S*comber* spp.), Bigeye (*Thunnus obesus*), Pomfret (family Bramidae)	**Eggs and larvae:** the (epipelagic zone) water column down to a depth of 200 m (100 fm) from the shoreline to the outer limit of the EEZ **Juvenile/adults:** the water column down to a depth of 1,000 m (500 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 (500 fm) above all seamounts and banks with summits shallower than 2,000 m (1,000 fm) within the EEZ
Tropical species: Yellowfin (*Thunnus albacares*), Kawakawa (*Euthynnus affinis*),Skipjack (*Katsuwonus pelamis*),Frigate and bullet tunas (*Auxis thazard, A. rochei*), Blue marlin (*Makaira nigricans*), Slender tunas (*Allothunnus fallai*), Black marlin (*Makaira indica*), Dogtooth tuna (*Gymnosarda unicolor*), Spearfish (*Tetrapturus* spp.), Sailfish *(Istiophorus platypterus*), Mahimahi (*Coryphaena hippurus, C. equiselas*), Ono (*Acanthocybium solandri*), Opah (*Lampris* spp.*)*	Same as EFH for temperate pelagic MUS	Same as HAPC for temperate pelagic MUS

Species Complex	EFH	HAPC
Sharks: Pelagic thresher shark (*Alopias pelagicus*), Bigeye thresher shark (*Alopias superciliousus)*, Common thresher shark (*Alopias vulpinus*), Silky shark (*Carcharhinus falciformis*), Oceanic whitetip shark (*Carcharhinus longimanus*), Blue shark (*Prionace glauca*), Shortfin mako shark (*Isurus oxyrinchus*), Longfin mako shark (*Isurus paucus*), Salmon shark (*Lamna ditropis*)	Same as EFH for temperate pelagic MUS	Same as HAPC for temperate pelagic MUS
Squid: Neon flying squid (*Ommastrephes bartamii*), Diamondback squid (*Thysanoteuthis rhombus*), Purple flying squid *(Sthenoteuthis oualaniensis)*	Same as EFH for temperate pelagic MUS	Same as HAPC for temperate pelagic MUS

3.5 Fishery and Socio-economic Setting

The socioeconomic setting for the Hawaii and American Samoa longline fisheries is described below. A more detailed description of the fishery and the latest socio-economic statistics, including revenue trends, can be found in the FEP Annual SAFE Reports at: http://www.wpcouncil.org/annual-reports/.

U.S. and territorial longline fisheries comprise the Hawaii deep-set tuna longline fleet (including several vessels based on the U.S. West Coast), the Hawaii shallow-set swordfish longline fleet, and the American Samoa albacore longline fleet. In the past, several deep-set tuna longline vessels were based in Guam and the CNMI, but there has been no longline fishing in these locations since 2011.

3.5.1 Hawaii Longline Fisheries

Domestic longline fishing around Hawaii consists of the shallow-set sector and the deep-set sector, subject to separate mitigation measures based on the characteristics of the fishing activity. The deep-set fishery targets bigeye tuna in the EEZ around Hawaii and on the high seas at an average target depth of 167 m (WPFMC 2009). The shallow-set fishery targets swordfish (*Xiphias gladius*) to the north of the Hawaiian Islands. NMFS and the Council manage the fisheries under a single limited-access permit program. Some Hawaii-permitted vessels also hold American Samoa longline permits. The number of dual-permitted vessels has ranged between 17 and 26 over the last five years (NMFS unpublished data). Dual-permitted vessels land their catch in Hawaii or American Samoa. For the most recent fishery performance information, please see the Pelagic FEP SAFE report.

Fishing locations may vary seasonally based on oceanographic conditions, catch rates of target species, and management measures, among others. The deep-set fishery operates in the deep, pelagic waters around the Hawaiian archipelago and on the high seas throughout the year, mostly within 300-400 nm (556-741 km) of the main Hawaiian Islands (MHI). However, federal regulations and other applicable laws prohibit longline fishing inside the 200 nm U.S. EEZ around the Northwestern Hawaiian Islands. Longline fishing within 50 to 75 nm from the shoreline in the MHI is prohibited to minimize the potential for gear conflicts with small boat fisheries and interactions with protected species.

Federal regulations may temporarily prohibit longline fishing in the Southern Exclusion Zone (SEZ), an area in the EEZ south of Hawaii (84 FR 5356, February 21, 2019). An SEZ closure is triggered under regulations implementing the False Killer Whale Take Reduction Plan if there are two or more observed serious injuries or mortalities of false killer whales in the EEZ around Hawaii in a given year.

Some limited longline fishing occurred in the U.S. EEZ around U.S. Pacific Remote Island Areas (PRIA) of Kingman Reef and Palmyra Atoll (5° N) prior to 2016. Figure 8 shows the distribution of fishing effort by the Hawaii deep-set longline fleet as the annual average number of hooks per 5 degree square in millions of hooks over 2019. The distribution of fishing operations over the fishing grounds varies seasonally and from year-to-year. Figure 8 includes both the 2019 effort distribution and the average effort distribution from 2008-2018. Figure 9 provides the same effort distribution maps for the Hawaii shallow-set longline fishery.

In general, deep-set longline vessels operate out of Hawaii ports, with the vast majority based in Honolulu. Infrequently, deep-set trips originate from other ports such as Long Beach or San Francisco, California, or Pago Pago, American Samoa, and then fishermen land their catches in Hawaii. Fishermen departing from California begin fishing on the high seas, outside the EEZ. Fishermen departing from American Samoa usually begin fishing near the Equator or farther north where they expect higher catch rates of bigeye tuna. The shallow-set (swordfish-targeting) longline fishery operates in the U.S. EEZ around Hawaii and on the high seas to the north and northeast of the MHI seasonally.

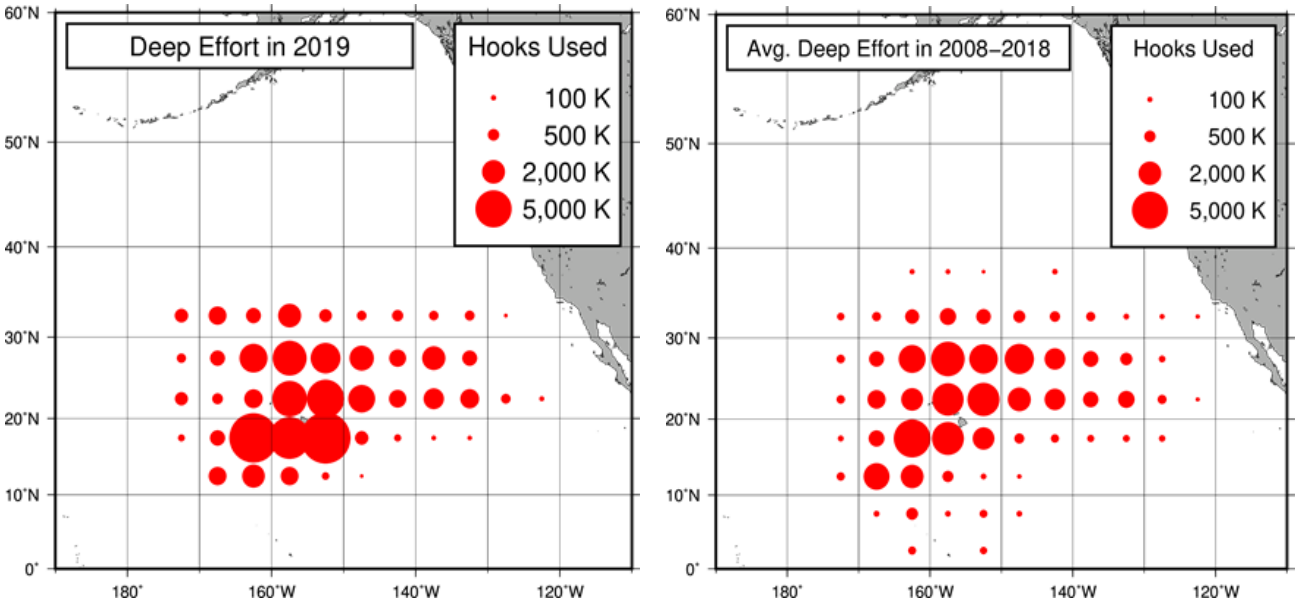


Figure 9. Left: distribution of deep-set fishing effort (hooks deployed) 2019. Right: Distribution of shallow-set fishing effort (hooks deployed) 2019. Source: R. Ito report to Council, March 2020

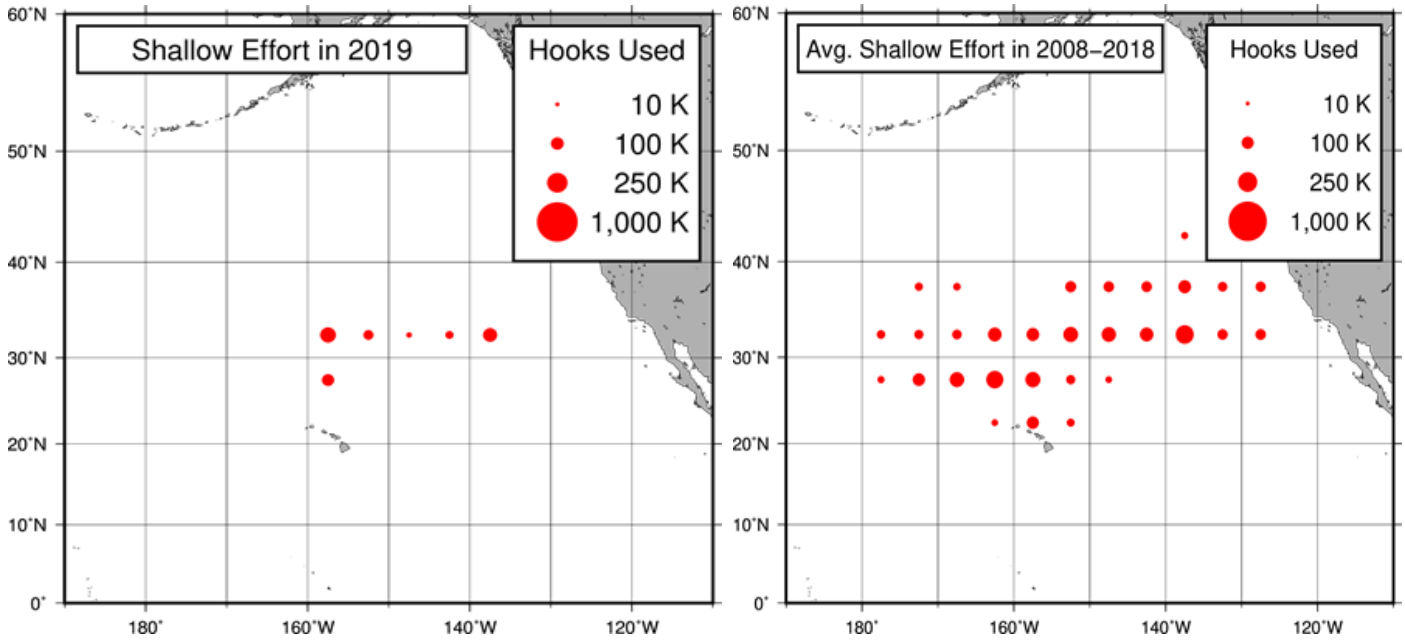


Figure 10. Left: distribution of deep-set fishing effort (hooks deployed) 2008-2018. Right: Distribution of shallow-set fishing effort (hooks deployed) 2008-2018. Source: R. Ito report to Council, March 2020

Fishing effort in the Hawaii deep-set longline fishery has increased over the years. From 2004-2012, the annual number of vessels that participated in the deep-set fishery remained relatively stable, ranging from 124 to 129. The number of active vessels has increased since 2012, with an average of 141 vessels operating over the last ten years (2012-2021). In 2021, 146 deep-set longline vessels made 1,690 trips with 22,192 sets and deployed 65.4 million hooks (Figure 10 and 11). In 2021, the deep-set longline revenue was $108.5 million and represented 87% of the total revenue from Hawaii-based longline fisheries.

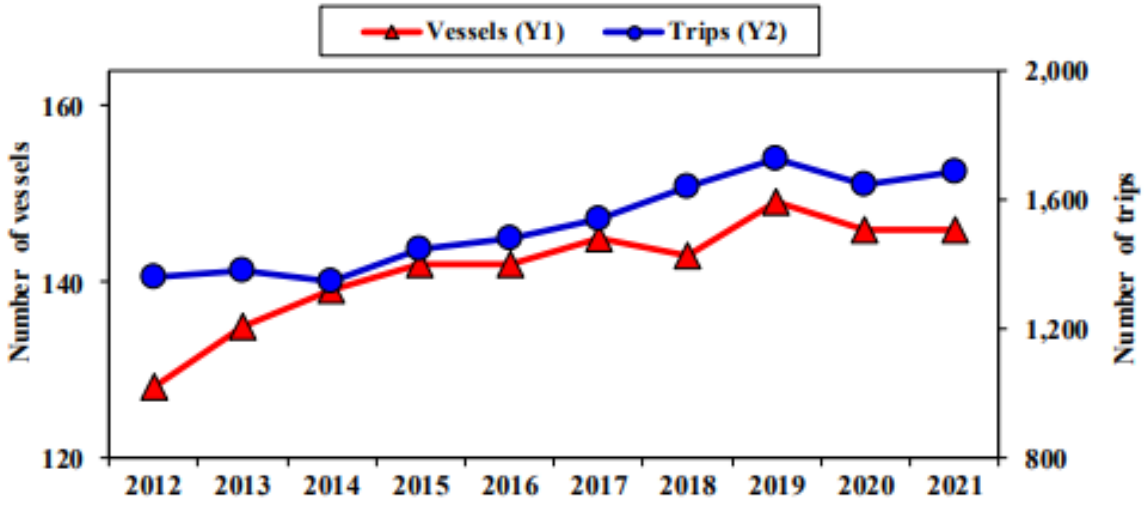


Figure 11. Number of Hawaii-permitted deep-set longline vessels**.** Source: WPFMC (2022).

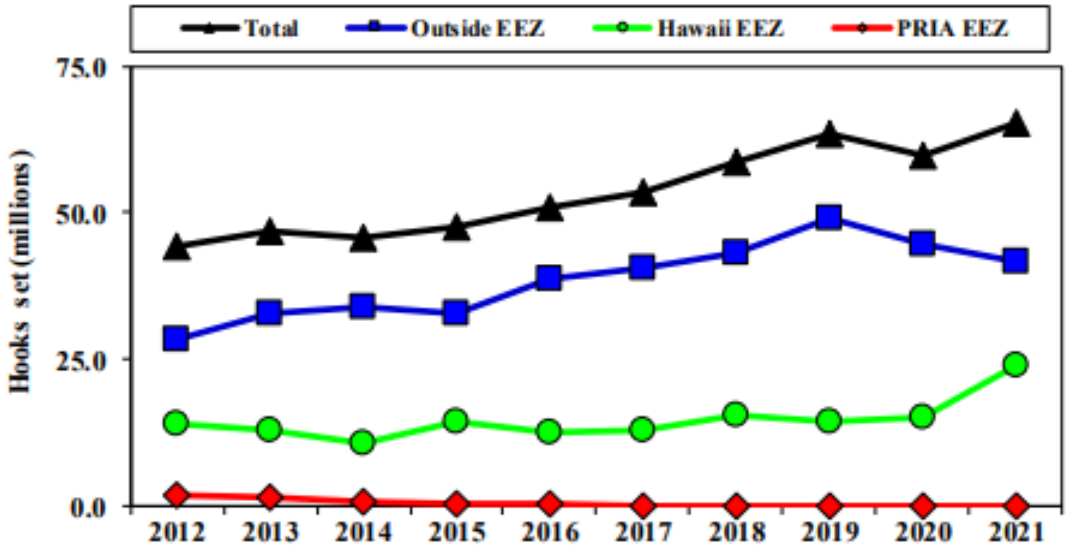


Figure 12. Number of hooks set by Hawaii-permitted deep-set longline vessels. Source: WPFMC (2022)

The number of vessels participating in the shallow-set fishery has declined over time from a high of 35 vessels in 2006 to a low of 11 vessels in 2018 with 17 participants in 2021. The numbers of trips and hooks have been more variable, although well below amounts in years prior (Figure 12 and 13). The shallow-set longline fishery is subject to an annual hard cap for the numbers of interactions with leatherback and loggerhead sea turtles. If the fishery reaches the hard cap, under current regulations, the fishery is subject to closure. The shallowest fishery generated $4.7 million in 2021 and accounted for 4% of the total revenue.

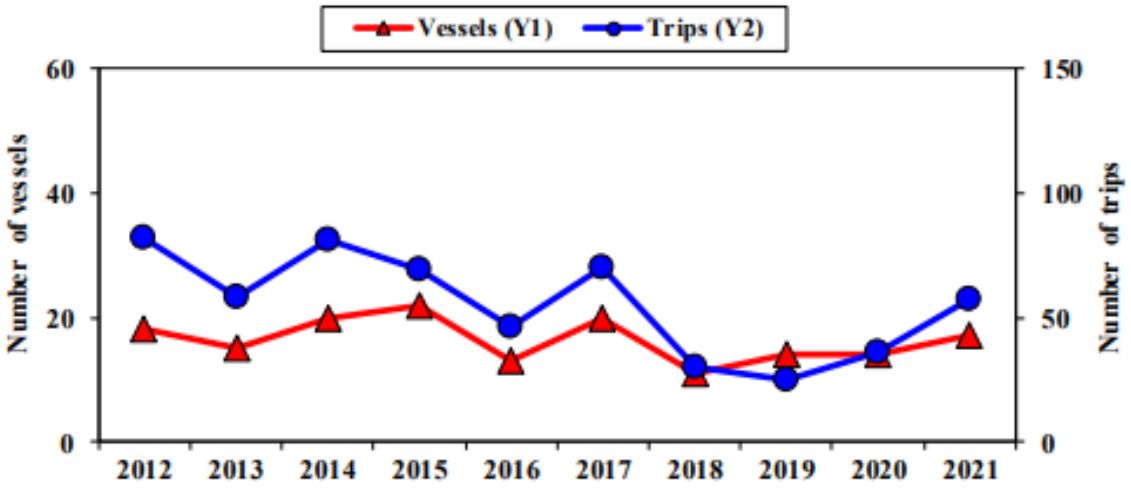


Figure 13. Number of Hawaii-permitted shallow-set longline vessels. Source: WPFMC (2022)

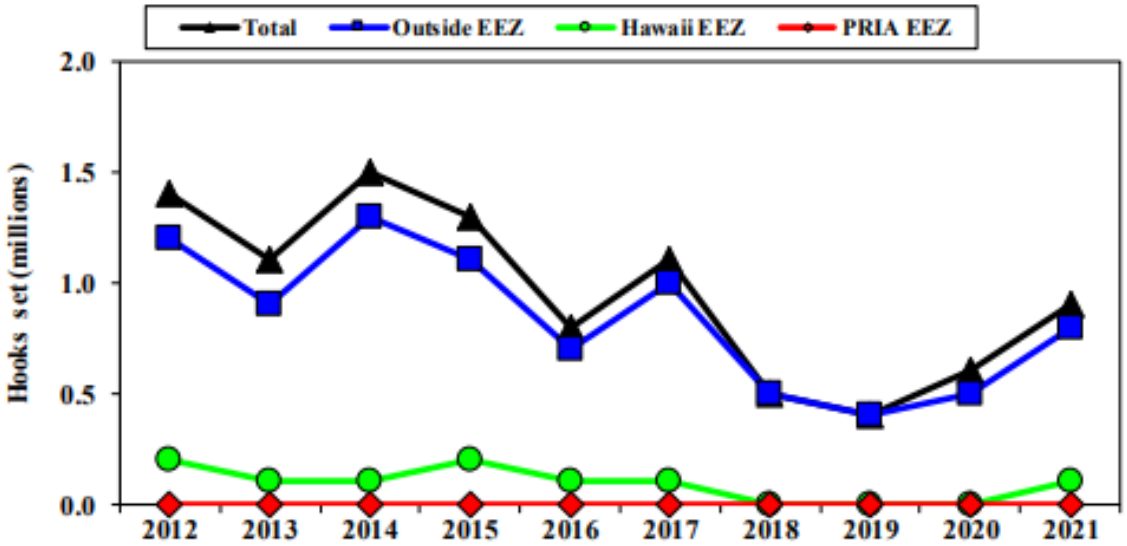


Figure 14. Number of hooks set by Hawaii-permitted shallow-set longline vessels. Source: WPFMC (2022)

3.5.2 Hawaii Troll and Handline Fisheries

Trolling and, to lesser extent, handline fishing is the largest pelagic fishery in Hawaii in terms of participation, although it catches annually a relatively modest volume of fish compared to longline gear. Troll and handline catches are dominated by yellowfin tuna in Hawaii. Other commonly caught troll catches include mahimahi, wahoo, and blue marlin. There were 382 fishers that fished 3,385 days in 2021 (WPFMC 2022). In 2021, the MHI troll revenue was $6.7 million, or 5% of the 2021 total, and the MHI handline fishery total revenue was $2.9 million, or 2% of the 2021 total.

3.5.3 American Samoa Longline Fishery

The longline fishery based in American Samoa is a limited access fishery with a maximum of 60 vessels under the federal permit program. Vessels range in size from under 40 to over 70 ft long. The fishery

primarily targets albacore for canning in the local Pago Pago cannery, although the fishery also catches and retains other tunas (e.g., bigeye, yellowfin, and skipjack), and other pelagic MUS (e.g., billfish, mahimahi, wahoo, oilfish, moonfish (opah), and sharks) for sale and home consumption. The target depth for albacore tuna is approximately 100-300 m (WPFMC 2009). Troll and handline fishing also occurs on a commercial and non-commercial basis in American Samoa, representing relatively small annual catches of yellowfin and skipjack tunas, and other pelagic MUS.

American Samoa longline fishing vessels operate in the EEZ around American Samoa, on the high seas in international waters, and occasionally in the EEZs of countries adjacent to American Samoa. Additionally, around 27 American Samoa longline limited access permit holders also hold Hawaii longline limited access permits, the latter of which allows them to fish in the EEZ around Hawaii and land fish in Hawaii. As previously noted, vessels possessing both an American Samoa and a Hawaii longline limited access permit have an exception to fishery restrictions on the retention on bigeye tuna in the WCPO and may continue to land fish in Hawaii, if NMFS prohibits catch and retention of bigeye tuna in the WCPO when the fishery reaches the U.S. WCPO limit. Federal regulations prohibit commercial fishing within marine national monuments. From early 2002 (67 FR 4369) until February 3, 2016 (81 FR 5619) and again from September 20, 2017 (82 FR 43908) until July 6, 2021 (86 FR 36239) fishing within the Large Vessel Prohibited Area (LVPA) for vessels greater than 50 feet in length (generally within 50 nm of emergent lands) was prohibited. Since July 6, 2021, U.S. large longline vessels that hold a Federal American Samoa longline limited entry permit may fish within the LVPA to approximately 12-17 nm from the shoreline around Swains Island, Tutuila, and the Manua Islands. **Error! Reference source not found.** shows the distribution of fishing effort by the American Samoa deep-set longline fleet in millions of hooks in years 2008-2017.

The American Samoa pelagic longline fishery is managed as a limited access fishery with a maximum of 60 vessel permits. Effort in the American Samoa deep-set longline fishery peaked in 2007, when 29 vessels participated and deployed 5,920 sets with approximately 17,554,000 hooks (NMFS 2015). Since that time, fishery statistics across all categories have generally declined; in 2021, 11 vessels made 40 trips and deployed 1,484 sets with 4.2 million hooks (WPFMC 2022). Total longline fleet revenue was was estimated at $2.55 million in 2021.

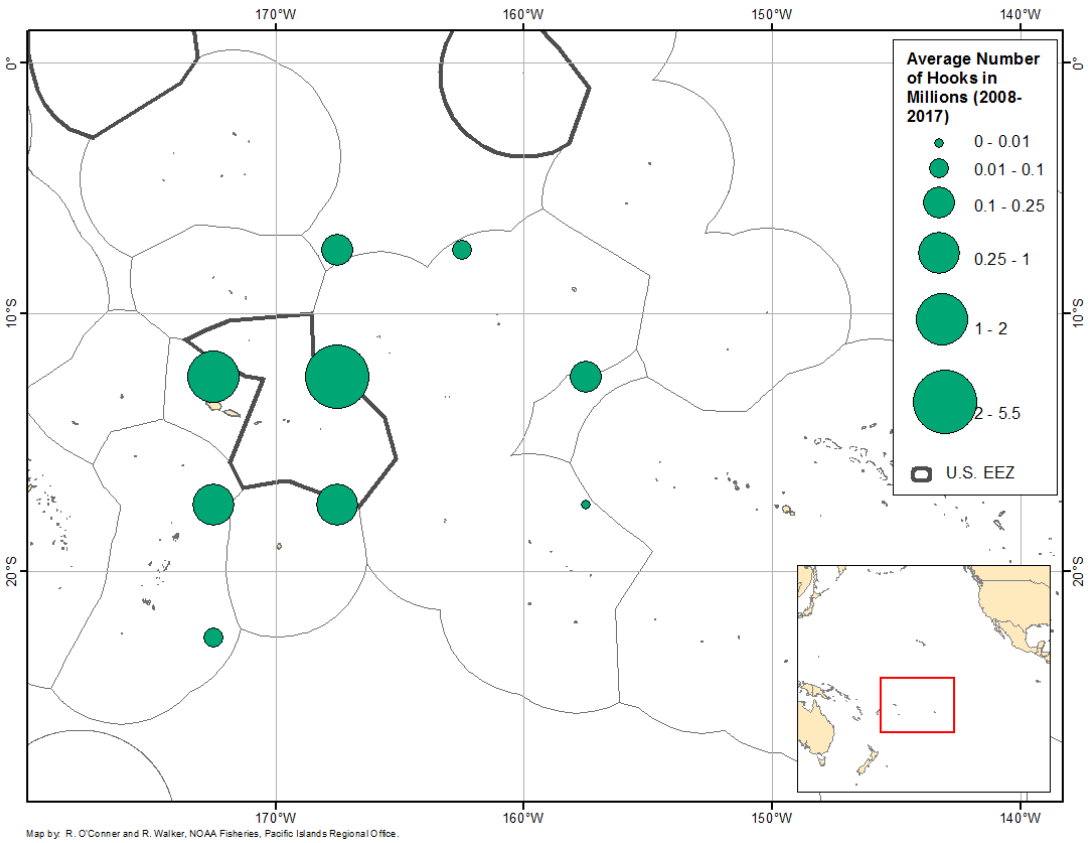


Figure 15. Average number of hooks (millions) set by American Samoa longline vessels, 2008-2017, per five degree square.

3.6 Administrative and Regulatory Process

NMFS and the Council developed the processes in the measure to ensure that both bodies administer the U.S. participating territories' use, assignment, allocation, and management of catch limits of pelagic MUS, or fishing effort limits, through agreements with U.S. vessels permitted under the Pelagics FEP consistent with Magnuson-Stevens Act and WCPFC management mandates. NMFS and the Council conduct several administrative processes relevant to managing territorial catch and effort limits, including but not limited to monitoring the effectiveness of catch or effort limits; in-season catch monitoring; enforcement; and publication of catch limits, specified fishing agreements, and closures.

NMFS determines the status of internationally managed stocks through stock assessments produced by various scientific bodies. These bodies provide advice to the WCPFC in the WCPO and IATTC in the EPO. NMFS reviews the assessments and notifies the appropriate Council if overfishing is occurring or if a stock is overfished. If the Council and NMFS consider that the stock is overfished due to international fishing pressure, NMFS and the Councils work with the State Department to put management measures into place internationally. If U.S. fisheries are responsible for the stock status, Councils and NMFS develop management measures to end overfishing. Additionally, the Council includes information from each newly assessed stock in its annual SAFE report. This work would not change under the alternatives.

NMFS PIFSC will ensure the efficacy of an in-season accountability measure by forecasting and monitoring striped marlin catches landed by US vessels inside the WCPFC Convention Area and north of the Equator. PIFSC has performed

Regarding enforcement, the NOAA Office of Law Enforcement (OLE) and U.S. Coast Guard (USCG) monitor vessel compliance with applicable regulations and laws, including territorial catch/effort or allocation limits, through vessel monitoring systems and vessel boarding at sea.

Publication of specified fishing agreements occurs after receipt of the agreement from vessels party to the agreement and territorial governments. The Council and NMFS review each agreement for consistency with the Pelagics FEP and implementing regulations, the Magnuson-Stevens Act, and other applicable laws. Then, NMFS authorizes the agreements through notice in the Federal Register. NMFS and the Council have reviewed and NMFS has authorized one or two specified fishing agreements under the Pelagics FEP every year since 2014. The territorial catch, effort and allocation limit measure's implementing regulations at 50 CFR 665.819 require that specified fishing agreements direct funds to the WP SFF to support fisheries development projects identified in a U.S. participating territory's MCP, or that vessels operating under such agreements must land in the territory to which the agreement applies. Pursuant to Section 204(e) of the Magnuson-Stevens Act, the Council, in close coordination with a particular U.S. participating territory, would use the WP SFF to implement fishery development projects identified in that territory's MCP. The administration of this funding is not considered part of the proposed action, and is analyzed as project details become available. The requirements for fishing agreements, and the approval and notice process would not change under the alternatives.

NMFS publishes notice of closures of the WCPO in the Federal register seven days before we expect the fishery to reach the U.S. limit in the WCPO, territorial catch limits, or an allocation limit authorized through a specified fishing agreement. NMFS also sends letters to notify permit holders of impending closures. NMFS has closed the WCPO bigeye tuna fishery in 2015, 2016, and 2017 for 65, 48, and 39 days, respectively, (Ayers et al. 2018), through *Federal Register* notices.

NMFS also conducts management activities relevant to managing the longline fisheries as a whole. These include the ESA listing process, the ESA consultation process, and conducting status reviews and recovery planning under the ESA. This management processes would continue under the proposed action without change.

3.7 Resources Eliminated from Detailed Study

The proposed action and potential alternatives would not affect resources of scientific, historic, cultural, or ecological importance in the PIR, other than those described above. Longline fishing activities are not known to result in adverse effects to scientific, historic, archeological or cultural resources because fishing activities occur generally miles offshore. Therefore, the proposed action is not likely to affect historic resources and topics will not be considered further in this EA.

NMFS is not aware of studies that show effects from pelagic longline fisheries to species fecundity or negative predator/prey relationships that result in adverse changes to food web dynamics. Without management to ensure fishing is sustainable, the removal of top predator pelagic species such as bigeye tuna, yellowfin tuna, and billfish above natural mortality rates has the potential to cause wide-ranging change to ecosystem functions, biodiversity, and habitats. However, both international and domestic catches are managed throughout the Pacific. NMFS expects such management to improve stock status and

prevent changes to ecosystem function. Therefore, NMFS does not analyze effects on biodiversity and/or ecosystem function in this assessment

4 ENVIRONMENTAL EFFECTS OF THE ALTERNATIVES

This chapter describes the potential effects of each Alternative on the components of the affected environment or other socio-economic elements identified in Chapter 3. Our analysis relies on the information described in Chapters 2 and 3 to evaluate the impacts of the alternatives. The action to establish catch limits for striped marlin does not have the potential to affect the physical environment and may render positive impacts to the striped marlin stock, which is overfished and experiencing overfishing. Economic consequences arise due to removal of a portion of striped marlin landings, and resulting impacts on market demands, with alternatives that limit retained catch. The domestic implementation of catch limits on an internationally overfished stock may affect target and non-target species, protected resources, marine habitat, fishery participants, fishing communities, and the management setting.

4.1 Potential Effects of Alternative 1: No Action (Status Quo)

The no action alternative would not be expected to affect physical resources, biological resources, socio-economic setting, or management settings as we would expect no change in the recent pattern of fishing as described in Sections 3.2. We briefly summarize the status quo, or baseline, conditions associated with this no action alternative to allow clear contrast between this and other alternatives.

4.1.1 Effects on Biological Resources

Under the no action alternative (Alternative 1), we do not expect a change in the operation of the Hawaii longline fisheries or other U.S. fisheries that catch striped marlin. Therefore, we do not expect any changes to the effect of the existing fisheries that either target our protected species in a way not already analyzed and authorized in biological opinions on the operation of the Hawaii deep-set (NMFS 2014), shallow-set longline fisheries (NMFS 2019), and other fisheries (see Section 3.2.2.1). Longline fisheries are subject to observer coverage and reporting, and must be conducted using a suite of mitigation measures to reduce the number and severity of protected species interactions (see 50 CFR 665 Subpart F and 50 CFR § 229.37).

Annual fishing effort for Hawaii-based U.S. shallow-set and deep-set longline fisheries have seen steady, but slight increases (Table 12 and 13) over the last five years. CPUE of target and non-target species, including striped marlin, have stabilized, and, in some cases, declined for U.S. longline fisheries. Therefore, we would not expect a significant change from baselines described in Sections 3.1 and 3.2.

As catches of striped marlin are likely to not change under this no action alternative, overfishing will persist for the WCNPO striped marlin stock, and the US will have contributed 14.8% of the relative impact, as described in Section 2.1. This Alternative would not account for relative impacts of U.S. vessels on international overfishing, nor is it based on proportional reductions in catch consistent with achieving international rebuilding targets.

4.1.2 Effects on Socio-economic Setting

As this is the no action alternative, we expect no effects on fishery participants and fishing communities. Catches of striped marlin from U.S. fisheries would remain similar to values presented in Table 2 (Section 2.1).

As presented in Section 2.1, US pelagic fisheries in the WCNPO averaged 356 t of landed striped marlin from 2016-2020 (Table 2). Striped marlin landings ranged from 287 to 458 t in those years. For our description of baseline socio-economic setting, we assumed that the more recent 2016-2020 average longline landings would be a good approximate of future years catch. Combining these recent average longline landings (356 t) with the recent landing value of $2.54/lb for striped marlin (WPFMC 2022) suggests approximately $1,993,500 is the base value of WCNPO striped marlin landings in the longline fishery. Even though striped marlin is not a target species, it does have market value. There is a niche market for striped marlin in certain seasons when the flesh is "pumpkin colored".

4.1.3 Effects on Administrative and Regulatory Setting

With this no-action alternative, we expect no changes to the administrative and regulatory setting as described in Section 3.6.

4.1.4 Other Effects

The no-action alternative is not expected to have an overall significant effect on any other aspect of the human environment. Because there are no expected effects, this alternative would not be controversial, although would not meet the requirements of Magnuson-Stevens Act Section 304(i) regarding required actions to address the U.S. proportion of international fishing impacts for this striped marlin stock, as it is overfished and experiencing overfishing. There is little uncertainty about the effects of this alternative, as recent year fishing patterns have declined in recent years. One source of uncertainty on future fishing patterns is the ongoing impacts of the current economic environment on operational costs to vessels. Several fisheries within the PIR have experienced significant increases in costs for pelagic fishing, driven largely by fuel costs that, prior to 2022, comprised 50% of trip costs (WCPFC 2022). The high cost of operation likely influences fishing activities and economic performance by restricting fishery effort. As costs hit record highs in 2022, we expect to see an effect within the longline fishery and total striped marlin catches.

4.2 Potential Effects of Alternative 2

Under Alternative 2, the Council would set a retention limit of 443 t for Hawaii longline fisheries, which is 97% of the CMM-2010-01 catch limit accounting for the reporting challenges within the MHI troll and handline fisheries. Retention of striped marlin once this limit was projected to be reached would be prohibited for the remainder of the fishing year. While there is uncertainty projecting what future striped marlin catches will be, we do not anticipate that this limit will be reached for WCNPO striped marlin. However, while this Alternative is not likely to have a significant impact on the current operation of longline fisheries, it fails to meet the requirements of Magnuson-Stevens Act Section 304(i) regarding required actions to address the relative contribution of U.S. fisheries to international overfishing of this striped marlin stock.

4.2.1 Effects on Biological Resources

Catch limits of 443 t for striped marlin under Alternative 2 would have no impact on target species, similarly to baseline impacts under Alternative 1. However, Alternative 2 would put a catch limit on striped marlin caught in WCNPO waters that may result in no-retention of striped marlin if the limit is projected to be reached – a limit that currently does not exist for these fisheries.

The striped marlin catch limit in Alternative 2 would ensure that U.S. longline fisheries comply with International WNCPO striped marlin retained catch limit specified in CMM 2010-01. While no other

measures by the WCPFC have been developed or adopted in response to the Interim Rebuilding Plan, the stock is overfished and overfishing is occurring according to the most recent assessment (ISC 2019). This alternative may not limit the U.S.'s relative contribution to international overfishing, and based on the 2019 assessment and lack of any other international catch reductions, would not change the status of the fishery.

Alternative 2 allows for catches of striped marlin to remain largely unchanged for U.S. longline fishery catches in the WCNPO. The largest year of reported retained catch of WCPFC striped marlin was 397 t in 2019. This total is still considerably under the 443 t catch limit established by this Alternative. Even if the retention limit was reached, and the retention of striped marlin prohibited for U.S. longline fisheries, the pattern of past striped marlin catches by month in the fishery (Figure 7) suggests that closure is likely to occur later in the year. In addition, with the anticipated reduction in catches of striped marlin with the prohibition of wire leaders in the Hawaii deep-set longline fishery (87 FR 25153), we do not anticipate this limit would be reached.

We do not expect a change in the operation of the Hawaii longline fisheries or other U.S. fisheries that catch striped marlin under Alternative 2. Therefore, we do not expect any changes to the effect of the existing fisheries that interact with our protected species in a way not already analyzed and authorized in biological opinions. If a no-retention limit is put into place, we also do not anticipate any other changes to catch of other target species as striped marlin as incidental non-target species on longline fishing vessels targeting tuna species or swordfish and is retained for sale due to its economic value. If a the retention limit was reached, striped marlin catches would be converted to regulatory discards instead of retained catch.

4.2.2 Effects on Socio-economic Setting

Under Alternative 2, Hawaii deep-set and shallow-set longline vessels catching the WCNPO stock of striped marlin would be subject to a 443 t retention limit of striped marlin each year to ensure that these fisheries, combined with the catches of the MHI troll and handline fisheries will not exceed 457 t. Once the 443 t retention limit for the longline fisheries is projected to be reached, all striped marlin caught on longline gear in the WCNPO would have to be discarded for the remainder of the year. The prohibition on striped marlin retention would not apply to troll or handline fisheries.

As with the no action alternative, we expect limited or no effects on fishery participants and fishing communities under Alternative 2. We anticipate that catches of striped marlin from U.S. fisheries would remain similar to recent averages (Figure 6), although we anticipate a drop from these catch levels due to the prohibition of wire leaders in the Hawaii deep-set fishery (87 FR 25153). As discussed in Section 4.1.2, the current value of recent average longline landings of WCNPO striped marlin is about $2.0 million. This value is based on recent average landings of 356 t, which is 87 t below the catch limit established under Alternative 2. The non-longline pelagic fisheries would continue to be able to retain striped marlin under the assumption that their landings are accounted for with the retention limit set at 97% of the 457 t catch limit.

Compared to Alternative 1 (status quo), Alternative 2 presents a catch limit on landed WCNPO striped marlin for U.S. vessels and a retention limit for striped marlin in the WCNPO by Hawaii deep-set and shallow-set longline fisheries. We assume socio-economic effects of reaching the no-retention limit in these fisheries is low, because despite the limit being exceeded by 1 t in 2019, the recent U.S. average landings of WCNPO striped marlin have well below the retention limit for this alternative (Table 2). In

addition, the wire-leader prohibition in the Hawaii deep-set fishery is also expected to reduce striped marlin catch.

4.2.3 Effects on Administrative and Regulatory Setting

With this alternative, and because it is unlikely that the retention limit will be reached, we expect no changes to the management setting, as described in Section 3.6. If the retention limit were reached, we expect it would be late in the year and have minimal impacts on annual striped marlin landings. If the retention limit was reached, the only change to the management setting would be increased need to communicate a retention prohibition to the fleet, and enforce that limit.

4.2.4 Other Effects

Alternative 2 is expected to have no effect on any other aspect of the human environment. Because the effects of the alternative are limited to U.S. longline fisheries, effects will be limited to individuals fishing in these fisheries. This alternative may be controversial among Hawaii-based longline fishermen, and may not meet the requirements of Magnuson-Stevens Act Section 304(i) regarding required actions to address the relative contribution of U.S. fisheries to international overfishing of his striped marlin stock. As the longline fishery itself would not be limited once the striped marlin limit is reached, there would be no other expected effects of this alternative. As discussed in Section 3.5, current economic conditions may have an impact on striped marlin catch and longline fisheries as a whole.

4.3 Potential Effects of Alternative 3

Under Alternative 3, the Council would set a retention limit for Hawaii-based longline fisheries of 397 t for striped marlin caught in WCNPO by Hawaii longline fisheries. This retention limit is 88% of the CMM-2010-01 catch limit, and was calculated by accounting for the relative impact of U.S. fisheries on total international catches and the reporting challenges within the MHI troll and handline fisheries. Retention of striped marlin once this limit was projected to be reached would be prohibited for the remainder of the fishing year. While there is uncertainty projecting what future striped marlin catches and economic value of catches will be, we do not anticipate that this limit will be reached for WCNPO striped marlin, particularly given recent catches and the prohibition of wire-leaders in the Hawaii deep-set longline fishery (87 FR 25153). Alternative 3 is not likely to have a significant impact on the current operation of longline fisheries while also meeting the requirements of Magnuson-Stevens Act Section 304(i) regarding required actions to address the relative contribution of U.S. fisheries to international fishing impacts on this striped marlin stock.

4.3.1 Effects on Biological Resources

Catch limits of 397 t for striped marlin under Alternative 3 would have no impact on target species, similar to baseline impacts under Alternative 1 and 2. However, the reduced catch limit would ensure that the relative impact of U.S. fisheries was accounted for, consistent with Magnusson Stevens Act Section 304(i). Concurrent catch reductions by the fisheries of other nations would be required to meet the Interim Rebuilding Target for the stock agreed to by the WCPFC (WCPFC 2019).

This Alternative 3 catch limit corresponds to analyses presented in Section 2.1 and 2.2.3. The catch limit for this Alternative is based on phased catch reductions (Broadziak 2021). There is no international agreement on what catch reductions are necessary to reach the goals of the rebuilding target. Even though Alternative 3 is an appropriate catch reduction to address Magnuson-Stevens Act requirements for this internationally managed and overfished stock, adopting it – without other international fishing nations

adopting similar catch reductions – will not end overfishing based on the projections from the 2019 assessment.

As discussed in Section 2.2.3, Alternative 3 also allows for catches of striped marlin to remain largely unchanged for U.S. catches in the WCNPO. The largest year of reported retained catch of WCPFC striped marlin was 397 t in 2019. This total is still under the 397 t catch limit established by this Alternative. Even if the retention limit was reached, and the retention of striped marlin prohibited for U.S. longline fisheries, the closure is likely to occur late in the year and have minimal impacts on revenue (see Section 4.3.2).

As discussed in Section 2.2.3, we do not expect a change in the operation of the Hawaii longline fisheries or other U.S. fisheries that catch striped marlin under Alternative 3. Therefore, we do not expect any changes to the effect of the Hawaii-based longline fisheries with protected species in a way not already analyzed and authorized in biological opinions. If a no-retention limit is put into place, we also do not anticipate any changes to catch of other target species. Striped marlin is an incidental non-target species on longline fishing vessels targeting tuna species or swordfish and is retained for sale due to its economic value. Striped marlin catches would be converted to regulatory discards instead of retained catch if the non-retention limit was reached.

4.3.2 Effects on Socio-economic Setting

As described in prior sections, striped marlin is an incidental non-target species for U.S. longline fishing vessels which target other species, and a no-retention limit for striped marlin will not impact the operation of these fisheries. Compared to Alternative 1 (status quo), Alternative 3 establishes a catch limit for striped marlin retention in the WCNPO by Hawaii-based longline fisheries. As with Alternative 2 (Section 4.2.2), we do not expect these longline fisheries to exceed the retention limit in the future. The recent average retained catch (Table 2) is 41 t less than the retention limit under Alternative 3, and catches since 2019 have been well below this limit. Based on recent catches and exceeding the retention and catch limit in 2019, we expect the retention limit would be reached as much as once in five years, or 20% of the time. We also expect catches to drop with the prohibition of wire leaders in 2022, and so the probability catches will reach the retention limit is lowered.

Even though we think there is a less than 20% chance the retention limit under Alternative 3 would be reached, it was exceeded in 2019. The catches in 2019 likely represent the highest catches we would anticipate in the future, given past catches and the prohibition of wire leaders. If catches were to reach the levels seen in 2019, the fishery would close earlier and the fishery would lose 61 t of catch. The loss of 61 t of catch, based on a 2021 average price of $2.54 per pound, would be about $341,600 across all longline vessels licensed in the Hawaii deep-set and shallow-set longline fisheries (147 in August 2022), or about $2,325 per vessel. Given recent information, we think a smaller loss of catch would be more likely if the retention limit was reached, likely late in the calendar year. Average catches in the second half of December from 2016-2020 have been about 21 t. The loss of 21 t of striped marlin would reduce landed value of the fishery by about $117,600, or about $800 per vessel.

4.3.3 Effects on Administrative and Regulatory Setting

With this alternative, and because it is unlikely that the retention limit will be reached, we expect no changes to the management setting, as described in Section 3.6. If the retention limit were reached, we expect it would be late in the year and have minimal impacts on annual striped marlin landings. If the retention limit was reached, the only change to the management setting would be increased need to communicate a retention prohibition to the fleet, and enforce that limit.

4.3.4 Other Effects

Alternative 3 is not expected to have an overall significant effect on any other aspect of the human environment. Because the effects of the alternative are limited to U.S. longline fisheries, effects will be limited to individuals fishing in these fisheries. This alternative may be controversial among U.S. longline fisheries, but would meet the requirements of Magnuson-Stevens Act Section 304(i) regarding required actions to address the U.S. proportion of international fishing impacts for this striped marlin stock. As the fishery would not be limited beyond no retention of striped marlin once the striped marlin limit is reached, there would be no other expected effects of this alternative. As discussed in Section 3.5, current economic conditions may have an impact on longline fisheries as a whole.

4.4 Potential Effects of Alternative 4

Under Alternative 4, NMFS would prohibit retention of striped marlin caught in WCNPO by Hawaii longline fisheries. This Alternative exceeds both the CMM-2010-01 catch limit and the requirements of Magunusson Section 304(i) regarding required actions to address the U.S. proportion of international fishing impacts for this striped marlin stock. This Alternative was included to allow for an evaluation of the most extreme action the U.S. could take to address the status of the stock.\

4.4.1 Effects on Biological Resources

Under Alternative 4, the Council would prohibit retention of striped marlin in the Hawaii longline fisheries. This alternative exceeds the requirements of CMM-2010-01 and the Magnusson Stevens Act Section 304(i). NMFS does not expect a change in the operation of the Hawaii longline fisheries that would affect either target or protected species in a way not already analyzed and authorized in the biological opinions on the operation of the Hawaii deep-set (NMFS 2014; NMFS 2022) and shallow-set longline fisheries (NMFS 2019). These fisheries are subject to observer coverage and reporting requirements, and must be conducted using a suite of mitigation measures to reduce the number and severity of protected species interactions (see 50 CFR 665 Subpart F and 50 CFR § 229.37).

As interactions with striped marlin are likely to not change under Alternative 4, striped marlin catches would instead be converted to regulatory discards instead of retained catch. This will lead to economic loss in revenue, which is discussed below (Section 4.4.2). Striped marlin is an incidental non-target species for longline fishing vessels targeting tuna species or swordfish and is retained for sale due to its economic value. Because of this, we do not expect a change in the operation of the Hawaii-based longline fisheries or other U.S. fisheries that catch striped marlin under Alternative 4.

Based on the 2019 assessment (ISC 2019), even prohibiting retention of striped marlin in U.S. fisheries under Alternative 4 would not end overfishing of the stock due to excessive international fishing pressure.

4.4.2 Effects on Socio-economic Setting

Alternative 4 would have major socioeconomic impacts relative to the impacts of the no action or other action alternatives. As referenced and presented in Section 2.1, U.S. catches of WCNPO striped marlin averaged 306 t from 2016-2020. Using 2021 prices, a complete ban on the retention of striped marlin results in an overall loss of about $2.0 million for the fishery. Across the 147 permitted longline vessels in the Hawaii deep-set and shallow-set longline fisheries in August 2022, this economic loss would be about $13,560/vessel.

While striped marlin is an incidental non-target species in existing fisheries, they are retained due to the economic value of the fish. Under Alternative 4, striped marlin catch will be converted to regulatory discards, this results in a loss in revenue for the industry. With the at vessel mortality rate of striped marlin estimated at 52% (Section 2.4), Alternative 4 would result in dead discards without any economic benefit to U.S. fisheries.

4.4.3 Effects on Administrative and Regulatory Setting

With this alternative, because striped marlin is an incidental non-target species, we expect only minor changes to the administrative and regulatory setting of U.S. fisheries as described in Section 3.6. Although a complete prohibition on the retention of striped marlin would make enforcement easier than alternatives 2 or 3, there would still need to be outreach and clear communication of the requirements under this Alternative.

4.4.4 Other Effects

Alternative 4 is not expected to have an overall significant effect on any other aspect of the human environment not addressed above. Because the effects of the alternative are limited to U.S. longline fisheries, effects will be limited to individuals fishing in these fisheries. This alternative would likely be controversial among U.S. longline fishermen based on the requirement to discard fish dead at capture, but it will meet and exceed the requirements of Magnusson Stevens Act Section 304(i) regarding required actions to address the relative contribution of U.S. fisheries to excessive international fishing pressure on this striped marlin stock. As the longline fishery itself would not be otherwise be limited in operations with a prohibition on retention of striped marlin, there would be no other expected effects of this alternative. As discussed in Section 3.5, current economic conditions may have an impact on longline fisheries as a whole. The compounding effects of both a loss of revenue from no longer being allowed to retain and sell striped marlin combined with increased operational costs may place an undue burden on U.S. longline fisheries. Additionally, Alternative 4 would prohibit retention in the longline fisheries only. MHI troll and handline fisheries would still be allowed to retain the small numbers of striped marlin the have caught in recent years. As noted previously, prohibiting striped marlin catch in U.S. longline fisheries would not end excessive international fishing pressure on the stock, so the disproportionate impact of Alternative 4 on U.S. vs other international fisheries would be unreasonable relative to benefits to the WCNPO striped marlin stock, and this alternative was only developed to provide the environmental effects of the most extreme action the U.S. could take to address the status of the stock.

4.5 Potential Effects on Protected Resources and Habitat

A number of protected species are documented as occurring in the waters where the longline fisheries operate, and there are documented interactions with these fisheries that catch striped marlin. This fishery has been evaluated for impacts on protected resources and is managed in compliance with the requirements of the Magnuson-Stevens Act, the MMPA, the ESA, the Migratory Bird Treaty Act, and other applicable statutes. Section 3.3 describes the baseline with respect to protected species interactions. Under the proposed Alternatives, the Hawaii longline fisheries would continue to operate under existing gear and handling measures for seabirds and sea turtles, as well as the measures implemented under the FKWTRP (50 CFR 229.37). The proposed action under consideration would not change the manner in which the fishery operates, so interactions with the protected species are not anticipated to change in frequency or intensity. Under all Alternatives considered, NMFS will continue to monitor the longline fisheries using the methods currently in place for these fisheries, including electronic catch reporting, vessel monitoring systems, and observers.

Under all outcomes associated with the alternatives, the current and maximum foreseeable levels of fishing effort by longline fisheries managed under the FEP will continue to be subject to applicable biological opinions, including regulations implementing the terms and conditions required to mitigate impacts on protected species. As noted in Section 3.2, NMFS is required to re-initiate consultation under ESA Section 7 if the level of anticipated take in any ITS applicable to the so the shallow-set fishery is exceeded or another criterion for reinitiation is triggered. To meet management mandates, the Council, NMFS, and the RFMOs will continue to develop protected species mitigation measures as resource issues are identified through reporting and monitoring.

All alternatives do not have the potential to change any longline fishery in terms of location, effort, seasonality, intensity, or any other way except in terms of retained catch as striped marlin is an incidental non-target species in these fisheries. Because the way the fishery is executed is not expected to change, interaction rates with protected species are also not expected to change under any of the alternatives considered here.

With all alternatives, NMFS does not anticipate any adverse effects to marine habitat, particularly critical habitat, essential fish habitat (EFH), habitat areas of particular concern (HAPC), marine protected areas (MPA), marine sanctuaries, or marine monuments. None of the FEP longline fisheries are known to have adverse effects on marine habitats, and none of the alternatives are likely to change the fishery in any way that would lead to substantial physical, chemical, or biological alterations to marine habitats. Fishing activity would not occur in any new areas or critical habitats under the alternatives considered. Fishing is either prohibited in the monuments, or conducted sustainably so as not to injure or destroy monument resources.

4.6 Additional Considerations

The longline fisheries operating under the FEP are not known to experience or cause other public health or safety-at-sea issues. The proposed rule would not change the operation of the fishery in any manner. Therefore, there is no potential for other significant adverse effects to public health or safety.

There have been no identified impacts to sensitive biological resources, marine biodiversity, and/or ecosystem function from FEP longline fisheries. These fisheries operate away from coastlines and outside of marine sanctuaries or monuments and fishing gear does not contact the bottom or affect coral ecosystems. Because the proposed action would not substantially modify vessel operations or other aspects of these fisheries, NMFS does not anticipate the proposed action would result in changes in gear types, areas fished, or fishing methods, as compared to baseline conditions. As such, NMFS expects no significant impacts on biodiversity or ecosystem function relative to baseline from the proposed action.

Cultural or archeological resources or resources important to traditional cultural and religious practices are not known to exist within the action area. NMFS is not aware of any districts, sites, structures, or objects listed in or eligible for listing in the National Register of Historic Places within areas fished by FEP longline fisheries. Longline fisheries are not known to result in adverse impacts to scientific, historic, archeological, or cultural sites. The proposed action would not change the fishery in any manner that would result in effects to such sites; therefore, there is no potential for loss or destruction of significant scientific, cultural, or historical resources in the marine environment.

These fisheries are not known to be introducing or spreading non-indigenous species. Because the proposed action would not substantially modify vessel operations or other aspects of these fisheries, NMFS does not anticipate it would result in the introduction or spread of non-indigenous species as compared to baseline conditions.

Climate change is expected to have similar impacts to the resources regardless of which Alternative is selected. In the coming years, the Council and NMFS will continue to monitor domestic catches of all pelagic MUS, and continue to consider information from scientifically-derived stock status reports as future catch and allocation limits are made, and as changes to fishery management are contemplated and implemented. Ongoing and future monitoring and research will allow fishery managers and scientists to consider impacts of climate change, fishing, and other environmental factors that are directly or indirectly affecting the resources.

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6 DRAFT PROPOSED REGULATIONS

This section contains the proposed regulations the Council deems necessary or appropriate to implement the conservation and management measures described in the FEP amendment document, based on the Alternatives 2 or 3, which would set a specified catch limit and retention limit for WCNPO striped marlin for US longline fisheries operating with a Hawaii limited access permit.

For the reasons set out in the preamble, NMFS proposes to amend 50 CFR part 665 as follows:

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 § 665.800 add paragraph (a) to read as follows:

§ 665.802 Prohibitions.

* * * * *

Non-retention date means the date upon which the Regional Administrator projects that a retention limit will be exceeded; retention of a species identified under § 665.813 is prohibited as specified under § 665.802, until the end of the fishing year.

* * * * *

3. In § 665.802 revise paragraph (uu) to read as follows:

§ 665.802 Prohibitions.

* * * * *

(uu) Fail to immediately release any captured striped marlin after the non-retention date, in violation of § 665.813(a).

* * * * *

4. In § 665.813 add paragraph (a) to read as follows:

§ 665.813 Western Pacific longline fishing restrictions.

* * * * *

(a) *Establishment of striped marlin retention limit*

(1) There is a retention limit of [Alt 2: 443 metric tons; or Alt 3: 397 metric tons] striped marlin retained each year in the Pacific Ocean north of 0° N latitude and west of 150° W longitude by vessels registered for use with a Hawaii longline limited access permit.

(2) NMFS will monitor striped marlin landings with respect to the limit established under paragraph (a)(1) of this section using longline landings, data submitted in logbooks, and other available information.

(3) When the retention limit is projected to be reached based on analyses of available information in paragraph (a)(2) of this section, the Regional Administrator shall publish a document to that effect in the Federal Register and shall use other means to notify permit holders. The document will include an advisement of a non-retention date beginning at a specified date, which is not earlier than seven days after the date of filing the non-retention date notice for public inspection at the Office of the Federal Register, until the end of the calendar year in which the retention limit was projected to be reached.

(4) Once an announcement is made pursuant to paragraph (3) of this section, a fishing vessel permitted under the Hawaii longline limited access permit may not retain on board, transship, or land striped marlin captured by longline gear in the Pacific Ocean north of 0° N latitude and west of 150° W longitude, except in the following cases:

(i) Exception for striped marlin retained prior to the non-retention date. Any striped marlin already on board a U.S. fishing vessel upon the effective non-retention date may be retained on board, transshipped, and/or landed, to the extent authorized by applicable laws and regulations, provided that the striped marlin is landed within 14 days after the effective non-retention date.

(ii) Exception for striped marlin caught by vessels included in specified fishing agreements under §665.819(c) of this title. Striped marlin caught by a vessel that is included in a specified fishing agreement under §665.819(c) of this title will be attributed to the longline fishery of American Samoa, Guam, or the Northern Mariana Islands, according to the terms of the agreement to the extent the agreement is consistent with §665.819(c) of this title and other applicable laws, and will not be counted against the limit provided that:

(A) The striped marlin were not caught in the EEZ surrounding the Hawaiian Archipelago;

(B) The striped marlin were landed by a fishing vessel operated incompliance with a valid permit issued under § 660.707 or § 665.801 of this title.

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