



OPTIONS and PURPOSE AND NEED

**Catch and Retention Limits for Striped Marlin within the Western and Central Pacific Fisheries
Commission Convention Area North of the Equator for 2025 to 2027**

Summary

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 Pacific Fishery Management Council (Council), at its 193rd meeting on December 6 to 8, 2022, considered alternative management options for U.S. fisheries for this stock. A proposed rule to promulgate a previously preferred alternative was withdrawn by NMFS because the purpose in need in the previous Council action is moot given the stock status of no longer overfished under the Council's adopted status determination criteria. The previous purpose and need addressed the Council's obligation to end international overfishing. However, the Council may still consider taking action to implement a catch limit to prevent overfishing and sustain long-term viability of the resource. It may also newly adopted WCPFC catch limits in December 2024. This summary provided 4 draft options for Council consideration, setting catch limits 2025 through 2027:

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

Option 2, (Councils' previously preferred alternative in withdrawn action), would set a longline retention limit of 443 t and a catch limit of 457 t, for years 2025-2027.

Option 3, an internationally adopted catch limit for U.S. vessels, which would set a catch limit of 228.4 t, plus an additional catch up to 165 t each year, consistent with a new adopted conservation and management measure (CMM) by the WCPFC (Appendix 1). This would set a catch limit of 393.4 mt for 2025 and catch limits *up to* 393.4 for years 2026 and 2026, contingent on reported catch underages for other nations in the new CMM for 2024 and 2025.

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

Under any option, there would be no change in the operation of longline fisheries in terms of location, target and non-target species, catch, effort, fisher participation, gear composition, seasonality, intensity, or bycatch. It is anticipated that striped marlin catches will be lower than the retention limit in most years.

Background Information

The National Marine Fisheries Service (NMFS) and the Western Pacific Fishery Management Council (Council) manage U.S. vessels 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 nm from shore). The management of these PMUS is documented in the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region (Pelagics FEP) as authorized by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. § 1801 et seq.).

Under the Magnuson-Stevens Act, the U.S. cooperates with or through international management organizations to promote management of international highly migratory species (HMS) across their entire range. In the Pacific Ocean, two Regional Fisheries Management Organizations (RFMOs), the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC), manage fisheries for HMS, such as striped marlin. Individual RFMO member states are responsible for implementing the requirements of RFMO resolutions or measures under domestic regulations for their fisheries and vessels flying their flag. The United States is a member of both the IATTC and WCPFC.

The WCPFC is the responsible body for managing the striped marlin stock that this action will focus on, the western central north Pacific stock (WCNPO). 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 HMS Stocks in the Western and Central Pacific Ocean (WCPFC Convention), the United States is one of over 40 other member countries, cooperating non-members, and participating territories. For the purpose of WCPFC membership, the United States is a member while the U.S. territories of American Samoa, Guam, and CNMI are each considered a participating territory (PT). The primary responsibility of the WCPFC is to develop and agree upon Conservation and Management Measures (CMM) for HMS caught by fisheries in the WCPFC Convention Area, such as striped marlin. The WCPFC Convention Area is generally the western Pacific Ocean west of 150° W (Figure 1).

For U.S. Fisheries, striped marlin (*Kajikia audax*) is managed as a PMUS under the Pelagics FEP, and is primarily caught on deep-set longline gear with occasional landings on shallow-set longlines, troll, and handline gear. These fisheries primarily target tuna or swordfish, but will often retain striped marlin when caught as a non-target species due to its economic value. Although the Pelagics FEP indicates that PMUS have statutory exemptions from annual catch limits (ACLs), the Magnuson-Stevens Act authorizes the Council to determine ACLs or other catch limits for PMUS if such actions are deemed appropriate and consistent with the Magnuson-Stevens Act and other statutory mandates.

The WCPFC adopted CMM 2010-01 based on results of a 2007 stock assessment for the North Pacific striped marlin developed by the International Scientific Committee for Tuna and Tuna-like species in the North Pacific Ocean (ISC) in response to the status of North Pacific striped marlin¹. The stock was subject to fishing mortality above levels sustainable in the long term. Under CMM 2010-01, WCPFC members agreed to reduce total catch by 20% by 2013. For the United States, this equated to a catch limit

¹ Striped marlin was originally assessed as a single North Pacific stock prior to adoption of CMM 2010-01. The 2011 stock assessment separated the original stock into two stocks, and assessed only the western and central North Pacific stock (ISC 2011). The 2015 (ISC 2015), 2019 (ISC 2019), and 2023 (ISC 2023a) assessment adopted the same approach.

of 457 metric tons (t)². This limit refers only to retained catch as the CMM does not specify limits for discarded bycatch. The measure also does not apply to fisheries of Small Island Developing States (SIDS) or PTs, which include the Pacific U.S. participating territories. The IATTC does not have a management measure for WCNPO striped marlin, as it does not occur in its convention area. The WCPFC adopted a new CMM for WCNPO striped marlin (CMM 2024-0X, Appendix I) that set a catch limit of 228.4 for the U.S., with up to an additional 165 t for years 2025 through 2027, depending on underages reported by other members in the CMM. The CMM 2024-0X acknowledges an additional catch of 165 t that would be available for 2025 due to underage of 826 t in 2023. Additional catches for 2026 and 2027 would depend on underages for 2024 and 2025, respectively.

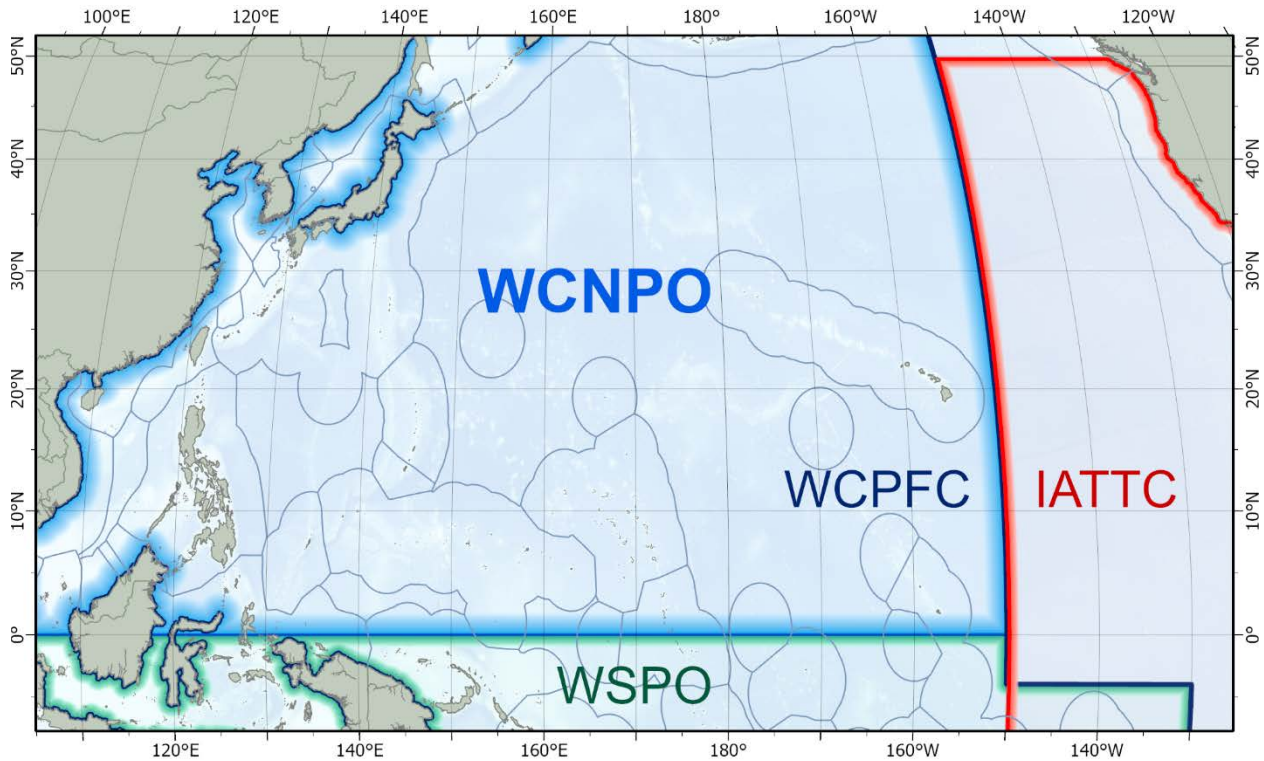


Figure 1. Map of the western Pacific Ocean showing the WCNPO stock boundary (in blue) and Western South Pacific Ocean (WSPO) stock (in green). The WCPFC and IATTC boundaries are shown in black and red lines, respectively.

Stock assessments for the WCNPO stock of striped marlin occurred in 2011, 2015³, 2019, and 2023. The 2023 assessment was prepared by the ISC and used 1977 to 2020 fisheries data from the United States, Japan, Taiwan, and other nations with reported landings of WCNPO striped marlin. The assessment concluded that the WCNPO striped marlin continued to be both overfished and experiencing overfishing, relative to WCPFC stock status determination criteria (SDC), meaning that the stock biomass is too low and fishing mortality is too high to be sustainable (Table 1; ISC, 2023). Results of the 2023 assessment relative to those WCPFC are summarized in Table 1 and Figure 2. However, under domestic SDC, the 2023 stock assessment indicates that the stock is no longer overfished, is rebuilding, but is still subject to overfishing (September 5, 2024 NMFS Status Determination Decision Memo).

² Each CCM, or members of the WCPFC, established their catch limits by reducing their highest reported catch from 2000-2003 by 20%. For the U.S., the highest catch at the time was 571 t; a 20% reduction equals 456.8 t, or 457 t.

³ Details on the 2011 and 2015 stock assessments can be found in section 3.1.1.; both found the stock of striped marlin to be overfished and experiencing overfishing.

The WCPFC, in recognition of the status of the stock, adopted an interim rebuilding plan at its 16th Regular Session in December 2019 (WCPFC 2020) with the following terms:

- A rebuilding target of 20% of spawning stock biomass (SSB) in absence of fishing ($20\% \text{ SSB}_{F=0}$);
- Rebuilding should be complete by 2034; and
- Catch and effort levels will be based on a 60% probability of reaching the target within the rebuilding period.

The interim rebuilding plan did not define any catch reductions or limits to achieve the rebuilding goal, but highlighted that the rebuilding objective would be subject to further consideration and. The WCPFC has not updated the catch limits defined in CMM 2010-01. Instead, the new CMM 2024-0X (as provided in Appendix 1) replaced CMM 2010-01 and assigned catch limits that would manage the stock toward the rebuilding target. The ISC is to evaluate the efficacy of the new CMM 2024-0X in 2025 and assess the stock in 2027. CMM 2024-0X is applicable through 2027.

Table 1. Summary of the 2023 benchmark stock assessment of WCNPO striped marlin relative to WCPFC stock determination criteria, including definitions of different stock assessment statistics ([ISC 2023](#)).

Statistic	Value	Notes	Status
F_{2020}	0.58	Fishing mortality, or rate at which fish stock is caught	
$F_{2018-2020}$	0.68	Average fishing mortality from 2018-2020	
F_{MSY}	0.63	Fishing mortality for MSY	
$SPR_{2018-2020}$	0.17	Spawning potential ratio to produce MSY	
$SSB_{2018-2020}$	1,359 t	Spawning stock biomass in 2	
SSB_{MSY} or B_{MSY}	2,920 t	Spawning stock biomass for MSY	
$20\% \text{ SSB}_{F=0}$	3,660 t	Rebuilding target; based on what 20% of the SSB would be if there was no fishing mortality	
$F_{20\% \text{ SSB}(F=0)}$	0.53	Rebuilding target; fishing mortality rated need to reach 20% $SSB_{F=0}$	
$SSB_{2018-2020}/SSB_{MSY}$	0.47	A value less than one means that the stock biomass is too low	Overfished
$F_{2018-2020}/F_{MSY}$	1.09	A value greater than one means that the fishing mortality is too high	Overfishing Occurring

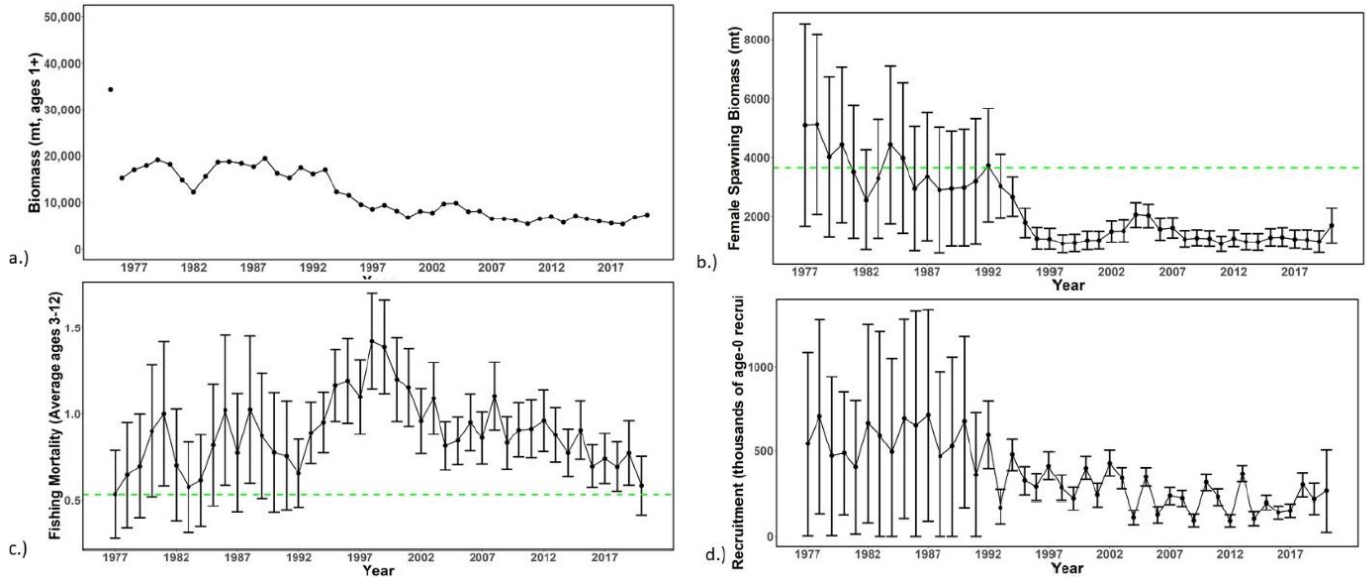


Figure 2. Estimates of: (a) population biomass (age 1+), (b) spawning biomass, (c) instantaneous fishing mortality (average for age 3-12, year-1), and (d) recruitment (age-0 fish) for Western and Central North Pacific striped marlin (*Kajikia audax*) from the 2023 stock assessment. The circles represents the maximum likelihood estimates by year for each quantity and the error bars represent the uncertainty of the estimates (95% confidence intervals), green dashed lines indicate the dynamic 20% SSBF=0 and F20% SSBF=0 reference point.

Possible Decisions to be Made

The Council could direct staff, working with NMFS in an Action Team to develop a regulatory amendment that will implement a catch and retention limit to address the relative impact of U.S. vessels on WCNPO striped marlin. Stocks under international agreements are exempt from Magnuson-Stevens Act section 303(a)(15) requiring implementation of annual catch limits (ACL); instead, Section 304(e) and 303(a)(1)(A) provides the flexibility for the Council to set catch limits where deemed necessary for the sustainability of the stock and consistent with any international agreements.

At its 193rd meeting in December 2022, the Council recommended a catch limit and a retention limit to address the U.S. fleet's relative impact on the internationally overfished striped marlin stock in the WCNPO. This recommendation was in response to Magnuson-Stevens Act section 304(i) requirements for the United States to address the relative impact of domestic fisheries on an internationally managed stock that was overfished as a result of international fishing pressure. As a result, NMFS proposed a catch limit of 457 t of striped marlin for all U.S. Fisheries (Hawaii longline, handline, and troll fisheries) in the action area managed under the FEP, and a retention limit of 443 t for Hawaii limited entry longline fisheries. Under the proposed rule, if the retention limit was projected to be reached, retention of striped marlin caught within the WCNPO by Hawaii longline fisheries would be prohibited for the remainder of the calendar year. With the September 5, 2024 determination that the stock was no longer overfished relative to domestic SDC, NMFS withdrew the proposed rule on November 5, 2024, as the requirements of Magnuson-Stevens Act section 304(i) no longer applied to the stock.

Purpose and Need for Action

The purpose of this action is to manage the U.S. catch of WCNPO striped marlin under the FEP while minimizing adverse economic impacts to the affected fisheries and sustaining long-term viability of the fishery resource. Although the FEP provides a statutory exemption from annual catch limits for this stock, the need for this action is to ensure that domestic management addresses ongoing international overfishing of the stock and promotes stock rebuilding.

This action is consistent with Magnuson-Stevens Act (MSA) Section 303(a) and shall (303(a)(1)) contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are (303(a)(1)(A)) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery.

Additionally, (MSA) Section 304(e) states that for fisheries managed under international agreements that are notified as overfished relative to those agreements that the Council (304(e)(3)) within two years shall prepare and implement a fishery management plan, plan amendment, or proposed regulations for the fishery to which the identification or notice applies.

Action Area

The action area for domestic implementation of catch and retention limits is the stock boundaries of WCNPO striped marlin, i.e., north of the equator and west of 150° W longitude (Figure 1), for any domestic fishing vessels, excluding vessels from U.S. participating territories, that fish for, possess, or transship PMUS, or land PMUS within the states, territories, commonwealths, or unincorporated U.S. island possessions in the western Pacific region.

Previous Council Action and Summaries

The Council, at its 161st meeting in 2014, recommended the annual catch limit of 457 t of WCNPO striped marlin for U.S. fisheries in response to the stock status in the 2011 stock assessment. The Council also recommended a 434 t retention limit for the Hawaii longline fishery (which is 95% of the 457 t limit). If the 434 t limit were to be reached, the Hawaii longline fishery would be prohibited from retaining striped marlin for the remainder of the fishing year, whereas other fisheries would not. This recommendation was initially incorporated into a previously proposed FEP Amendment, which has yet to be finalized.

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 the WCPFC due to the 2019 stock assessment showing no improving stock conditions. Previous projections in the stock assessment implemented constant catch levels over a ten year horizon and there was international 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 WCPFC's U.S. delegation to propose a CMM that would initiate a total allowable catch of striped marlin among all nations in the North Pacific, with a 457 t catch limit by U.S. vessels, 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 U.S. 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.

Public comment on North Pacific striped marlin at the 184th meeting supported the phased approach and subsequent catch limits, but noted the international community may not agree to a rebuilding plan and requested more Options be developed.

Also at the 184th meeting, the Council reviewed a Hawaii Longline Association proposal (on behalf of >90% of permitted Hawaii longline vessels) to phase out steel wire leaders in longline gear for Hawaii-based longline fisheries. Wire leaders are difficult for sharks and other non-target species to bite off and free themselves and difficult for fishermen to cut from deck height as compared to Option monofilament leaders. Considering this proposal, the Council recommended a comprehensive initiative to 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 then directed its staff to prepare a regulatory amendment to the FEP to evaluate options to prohibit the use of wire leaders in the Hawaii deep-set longline fishery for Council action at its 185th 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 WCNP striped marlin. This is due in part to uncertainties in foreign catch and discards on the stock, particularly among those WCPFC member fisheries that lack consistent monitoring and catch reporting and have been a leading source of fishing mortality. The U.S. acting unilaterally would not end overfishing of the stock and other WCPFC members have not agreed on an international commitment to reduce impacts on the stock; without reductions in catch limits from the WCPFC, the rebuilding target specified in 2019 will not be reached. The Council further noted its concern over the uncertainty in the BSIA information, although the anticipated benchmark stock assessment in 2023 is expected to address the Council's concerns.

Taking into account BSIA and the associated uncertainties, the Council recommended an Option with a phased approach to accomplish the following:\

- Establish an initial catch limit of 457 t for 2022;
- Beginning in 2023, after the anticipated 2022 stock assessment, recommend specified catch limits proportional to stock-wide catch reductions consistent with U.S. obligations that reduce fishing mortality to a rate approaching F_{MSY} and with rebuilding the stock through a phased catch reduction approach; and
- Establish an in-season accountability measure to cease retention and landing of WCNP striped marlin by U.S. longline fisheries once they 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 WCPFC:

- A measure requiring the use of circle hooks in all WCNP longline fisheries;
- Development of a standardized billfish catch and discards reporting mechanism for WCNP longline fisheries; and
- 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 prohibiting wire leaders in the Hawaii deep-set longline fishery and requiring trailing gear removal from oceanic whitetip sharks. The Council took final action on this amendment at its 186th meeting (June 2021). The regulations

prohibiting wire leaders went into effect May 31, 2022 (87 FR 25153), and a study by Ward et al. (2008) suggests striped marlin catchability in longline fisheries would be reduced by transitioning from steel wire leaders to nylon monofilament leaders.

Public comment at the 185th meeting reiterated comments made at the 184th meeting on overfishing of WCNPO striped marlin.

At its 193rd meeting (December 2022), the Council revisited its Magnuson-Stevens Act section 304(i) obligation to address the relative impact of U.S. fishing vessels on WCNPO striped marlin stock due to a delay in the anticipated 2022 stock assessment. The Council recommended NMFS implement Option 2, which is an annual catch limit of 457 t for all U.S. fisheries, and a retention limit of 443 t for vessels with Hawaii limited entry longline permits. If the retention limit is projected to be reached, retention of striped marlin by Hawaii longline vessels would be prohibited for the remainder of the year.

Finally, at the 193rd meeting there was public comment to urge Council to, at a minimum, set a catch limit no greater than that proposed under Option 3. This comment cautioned against Options 1 & 2, suggesting that both would allow for an increase in catch. This comment also suggested that Council should consider other options, such as live release.

Development of the Options

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

- The 2023 striped marlin assessment (ISC 2023a) and phased reduction plan (Brodziak 2024)
- International and domestic management measures applicable to the stock; and
- The Magnuson-Stevens Act 303(a)(1)(A) and 304(e)

For Council and WCPFC consideration, PIFSC developed a phased reduction plan (Brodziak et al. 2024) to achieve the rebuilding goals of the interim plan adopted by the WCPFC in 2019 (WCPFC 2020). The PIFSC plan consisted of three international catch reduction phases bounded by planned stock assessments to allow updated information to inform the plan in the future. The specific reduction amount was modeled to allow for roughly equal catch reductions in each phase and rebuilding was estimated to be achieved according to the Interim Rebuilding Plan – with at least a 60% probability by 2034 – if all applicable member states complied (Brodziak et al. 2024). The phased reduction plan called for average catch from 2018-2020 to serve as a baseline in the first phase, was used to develop Options related to this stock. The phased reduction plan will be considered by the WCPFC at their December 2024 meeting. We considered the phased reduction plan as a reasonable starting point for Option 3.

As described in the introduction, CMM 2010-01 (WCPFC 2010) represents the current international management requirement for the stock, and the Interim Rebuilding Plan does not include catch reductions necessary to achieve the objectives of the plan (WCPFC 2020). The CMM requires the U.S. to limit catch of WCNPO striped marlin to 457 t of retained catch annually and this remains the limit. The United States striped marlin catch has been consistently lower than the catch limit established by the CMM until 2019, when catch came very close to the 457 t WCPFC catch limit but did not exceed it under the current catch attribution scheme. To ensure U.S. fisheries remain compliant with the CMM, and to meet the obligations under the Magnuson-Stevens Act, the Council has acted to establish the WCPFC catch limit in domestic regulations, consistent with MSA § 304(i) and its implementing regulations.

The striped marlin limit specified by CMM 2010-01 does not apply to American Samoa-based 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 Council's limit would apply to dual permitted American Samoa/Hawaii longline vessels (i.e., U.S. fishing vessels that hold both a Hawaii longline permit and an American Samoa long line permit). These dual permitted vessels are most often based out of Hawaii, and fish north of the equator. Vessels holding solely an American Samoa longline permit would not be subject to this catch limit, nor would longline vessels of CNMI or Guam, given their status as participating territories. There are currently no active longline vessels operating from CNMI or Guam. For the Hawaii longline, handline, and troll fisheries to which the catch limit applies, only striped marlin caught and retained west of 150° W longitude and north of the equator (Figure 1) will count towards the catch limit as this is the WCNPO striped marlin stock boundary.

Accordingly, to address the relative impact of U.S. fishing vessels, we generated an estimate of the U.S. contribution to international catch of WCNPO striped marlin based on recent catch information (Table 2). We used the most recent five years (2016-2020) of catch data from the 2023 stock assessment and the Council's Stock Assessment and Fishery Evaluation (SAFE) report to estimate the recent U.S. contribution to the retained catch of WCNPO striped marlin applicable to the WCPFC limit. Table 2 provides the international striped marlin catch estimates (ISC 2023). Detailed U.S. striped marlin catch information is presented in the SAFE report for the 2022 fishing year ([WPFMC 2022](#)).

The SAFE report presents the total retained striped marlin catch (not including discards) reported to the WCPFC for U.S. and territorial fisheries in SAFE report Table 42 (WPFMC 2022). This table did not include information on what gear-type caught the striped marlin. Because we required estimates of the retained catch of U.S. fisheries by fishery for the striped marlin caught in the WCPFC action area, we calculated the proportions by gear type reported in SAFE report Table A-80. The striped marlin catch presented in the SAFE report Table A-80 shows total catch by gear type, and includes both retained and released catch from the entire Pacific Ocean, not just the WCNPO; additionally striped marlin totals incorporate a proportion of unidentified billfish. We assumed that the total catch by each gear type is representative of striped marlin catch in the WCNPO, and then used those proportions to calculate WCPFC landings from SAFE report Table 42 into gear-specific groupings. For example, to calculate how much striped marlin was caught by the Hawai'i deep-set longline fishery in the WCNPO area, we first calculated what proportion of total striped marlin catch from the entire Pacific Ocean was compared to what was caught in the WCNPO area. For 2020, WCPFC reported catches in the WCNPO were 83% of all reported U.S. striped marlin catches. This proportion was then applied to Table A-80 for each gear type to determine how much of that catch came from the WCNPO. For the 2020 deep-set longline fishery, the total reported catch was 336 t, and the proportion from WCNPO was 278 t. This allowed us to calculate the average relative percentage of total international catch attributed to U.S. vessels, which from 2016-2020 was 14.8% (Table 2).

In considering Options 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 Options described here, we specifically mean estimates of retained WCNPO striped marlin, either developed directly from the catch data obtained from the fishery using both catch location information and catch disposition (retained or released), or by using an average scaling factor described in the previous paragraph in the most recent three years.

Table 2. The total international catch (t) of WCNPO 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 as used in most recent stock assessment.

Year	Total international catch (t) ¹	Deep-set longline catch (t) ^{2,3}	Shallow - set longline catch (t) ²	MHI ⁴ troll and handline catch (t) ²	MHI ⁴ troll and handline % all catch ²	Total U.S. catch (t) ³	% U.S. catch of WCPFC 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; this action counts dual permitted vessels with Hawai'i vessels for total landings. U.S. catch reports to the WCPFC historically separated Hawai'i and American Samoa catch to mirror bigeye tuna catch attribution.

⁴ Main Hawaiian Islands

While the May 2022 regulation prohibiting wire leaders in the Hawaii deep-set longline fishery (87 FR 25153) is intended to reduce post-hooking mortality of the threatened oceanic whitetip sharks, it may impact catch rates 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 limited experimental data from Australia. Although the regulation has applied to the Hawaii deep-set fishery since May 28, 2022, effects for striped marlin in 2022 have yet to be fully analyzed. We expect to see a reduction 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). However, we recognize that this reduction may not be enough to achieve management objectives of the Council for this stock.

Differences in the timing of catch reporting across U.S. fisheries in the Options for this action must be considered to make tracking the catch and retention limits in-season possible. Since September 2021, Hawaii longline vessels have been required to submit electronic logs of fishing activity and catch in near-real time (86 FR 42744), allowing for precise and timely in-season accounting of striped marlin catch. Catch data from MHI troll and handline fisheries 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). Therefore, to ensure the catch limits associated with the Options in this action are not exceeded, NMFS and the Council would specify a retention limit equivalent to 97% of the catch limit for applicable Options (i.e., total catch (100%) minus the contribution from troll and handline fisheries (3%). Thus, the retention limits are specific to only WCNPO striped

marlin catches monitored in-season from the Hawaii deep- and shallow-set longline fisheries as estimated directly from the available data. This retention limit suggests a larger proportion of the catch limit than indicated in previous actions for the stock (95%) because it 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 been inconsistent, with declines in total catch noted in each subsequent assessment but no concurrent reduction in estimated fishing mortality. In the 2011 stock assessment (Piner et al., 2011), projected catch of 2,500 t would rebuild the spawning stock biomass to 20% $SSB_{F=0}$ by 2017, and be above the 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 t, the stock would be fished at levels commensurate with fishing mortality at MSY (F_{MSY}). While Table 2 indicates that total catches from 2016 to 2020 averaged 2,402 t per year, the 2019 stock assessment projections indicated that this level of catch is still not below F_{MSY} . 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 in 1993, but estimates of fishing mortality relative to F_{MSY} have continued to increase. This pattern was noted by the ISC Billfish Working Group in 2020. Uncertainties with metrics for catch to meet rebuilding criteria, combined with additional uncertainties around catch biomass by non-U.S. fisheries, have been a concern to the Council in developing limits and is considered in our analysis of appropriate catch limits for U.S. vessels. Never the less, the 2023 assessment is the best available scientific information (BSIA) for the stock, and forms the basis for the Options described here.

Given these considerations, we developed three action Options to meet the purpose and need for this action while addressing the uncertainty. In addition to a status quo Option with no retention limit for striped marlin, the action Options consider various catch limits up to a complete prohibition on retention of striped marlin. We use these Options to consider the effects across the full range of possible Options on the human environment, including explicit consideration of the effects of no U.S. catch of striped marlin.

Description and effect of the Options

Regardless of which option is considered, the U.S. longline fisheries would continue to fish in accordance with regulations that limit participation through permits; require electronic reporting of fishing activity and catch, vessel monitoring systems, and observer placement; and require NMFS to monitor and respond to annual catch limits for bigeye tuna or any other PMUS. This action will not change ongoing Council and NMFS management and attribution of catch for bigeye tuna by dual-permitted vessels.

The options would apply to the following vessels:

- 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 (dual-permitted) provided the vessel is fishing on the high seas seaward of the U.S. EEZ around Hawaii in the North Pacific Ocean within the WCNPO striped marlin stock boundary.
- 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 on 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, CNMI, and the PRIA (no active permits since 2013).
- U.S. longline vessels only possessing a valid American Samoa longline fishing permit fishing on the high seas or in the U.S. EEZ around American Samoa.
- U.S. purse seine vessels fishing in the WCPO or EPO.

Option 1: No Action (Status Quo/Current Management)

Under Option 1, NMFS would not establish a catch limit for WCNPO striped marlin. This Option would not meet the purpose and need of addressing the relative impact of U.S. fishing vessels on the stock under 304(i) of the Magnuson-Stevens Act and is only included to allow consideration of an environmental baseline against which the impacts of the action Options may be compared.

Expected Fishery Outcomes

Under Option 1, U.S. fisheries would have no limits on the catch of the WCNPO stock of striped marlin, and although the 457 t limit on retained catch would still apply to U.S. fisheries via the WCPFC, there is a chance the U.S. would be found out of compliance with no way to limit catch domestically. 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.

Although we expect no changes to U.S. fisheries under Option 1, the May 2022 regulatory prohibition of wire leaders in the Hawaii deep-set longline fishery (Section 2.1, 87 FR 25153) is expected to result in a reduction in striped marlin catch in future years. Because the expected fishery outcomes of Option 1 are used as a baseline against which all other Options are compared, we consider the potential impacts of this measure, which has yet to influence striped marlin catch but is anticipated to do so. We do not have data to suggest how big the reduction in catch might be, thus for the purposes of this EA, we assume that U.S. fishery catches under Option 1 will reflect recent year mean catches (Table 2).

During the last five years in the 2019 stock assessment (2013-2017), U.S. landings of striped marlin from the stock averaged about 356 t landed from the WCPFC statistical area (WCPFMC 2022). The most recent five year (2017-2021) average landings were 334 t (WPRFMC 2022), and reached the CMM 2010-01 catch limit of 457 t once in 2019 when adding the dual permit vessel catch with the Hawaii longline catch.

Under this Option, we expect that retained catch of WCNPO striped marlin from Hawaii longline and MHI troll and handline fisheries would likely remain below 457 t in most years. While the U.S. would remain compliant with the CMM, there would be no safeguard in place to ensure compliance with the CMM.

Option 2: Retention limit of 443 t

Under Option 2, the Council would establish a WCNPO striped marlin catch limit (457 t) for both the Hawaii limited entry longline fisheries and the MHI troll and handline fisheries, and a retention limit (443 t) for only the Hawaii longline fisheries for years 2025 to 2027. The catch limit of 457 t was the catch limit under the WCPFC CMM 2010-01 and is not consistent with CMM 2024-0X. As described previously, the retention limit is set 3% lower to ensure that total catch of this stock will remain below that catch limit due to the lack of in-season monitoring of catches in the MHI troll and handline fisheries.

If, based on logbook, landing, and other available information, that the catch in U.S. longline fisheries would reach the retention limit under Option 2, retention of striped marlin by the Hawaii deep-set and shallow-set longline fleet would be prohibited for the remainder of the fishing year.

The catch of striped marlin in the action area by dual-permitted vessels would be counted against the retention limit, and the non-retention provisions would apply to dual-permitted vessels fishing in the action area. Striped marlin catch by dual-permitted vessels would not be attributed to American Samoa because there is no assigned catch limit for striped marlin for the American Samoa Fishery (50 CFR 665.819(a)(1)).

Option 2 would not ensure that U.S. catch of striped marlin would remain compliant with WCPFC CMM 2010-0X, but would be consistent with CMM 2010-01. Internationally, the WCPFC has established striped marlin catch limits (CMM 2024-0X) and adopted an interim rebuilding plan. CMM 2010-01 had prescribed catch limits for the U.S. and other members. The stock is no longer overfished but is experiencing overfishing relative to WCPFC SDC and is overfished according to the WCPFC. Therefore catch limits under CMM 2010-01 would not rebuild the stock as CMM 2024-0X intends to do.

Expected Fishery Outcomes

Under Option 2, Hawaii longline fisheries would not retain or land WCNPO striped marlin if the retention limit were projected to be reached. As striped marlin are non-target catch 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 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 Option in most years. The Hawaii troll and handline fishery (commercial troll and charter fishery combined) typically catch less than 3% of the total U.S. commercial striped marlin. With this Option, Council expects that there will be no change in the characteristics of the Hawaii troll and handline fisheries, and catches in these fisheries would therefore be consistent with recent averages.

If the retention limit is projected to be reached, and retention and landing of striped marlin are 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 occurred, the prohibition on striped marlin retention would be of a short duration near the end of the calendar year resulting in minimal economic impacts. 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 predict that the retention limit only very rarely be reached, if at all.

Option 3: Catch Limit of 228.4 t, plus an additional catch up to 165 t, Retention limit = 97% of catch limit

Under Option 3, the Council would establish catch limit of 228.4 t, plus an additional catch up to 165 t for fishing years 2025 through 2027, consistent with CMM 2024-0X (Appendix 1). This option would set a catch limit of 393.4 mt for 2025 and catch limits *up to* 393.4 for years 2026 and 2026, contingent on reported catch underages for other nations in CMM 2024-0X for 2024 and 2025, respectively. CMM 2024-0X acknowledges an underage of 826 t for 2023 which can be applied to 2025 and underages in 2024 and 2025 can be applied to 2026 and 2027. As described for Option 1, to address MHI troll and handline fishery catch that is not monitored in-season. A longline retention limit 3% lower than the catch limit (97% of 393.4 t) is defined as 381.5 t for year 2025 under Option 3. Retention and landing of WCNPO striped marlin would be prohibited once the retention limit was reached. Retention limits of 97% would apply against catch limits for 2026 and 2027, which would not exceed 381.5 t.

Option 3 would ensure that U.S. catch of striped marlin is compliant with WCPFC CMM 2024-0X, would fulfill the need to promote rebuilding of the stock, and is consistent with the Magnuson-Stevens Act Section 303(a)(1)(A) and 304(e). Option 3 would also serve as a clear indication of the United States desire to meet the rebuilding goals as outlined by the WCPFC Rebuilding Plan.

The total catch under CMM 2024-0X is based on a catch projection analyses provided to the ISC (Brodziak, 2024) that would provide a phased step for 2025-2027 toward rebuilding the stock by the 2034 WCPFC rebuilding target. The ISC intends to evaluate CMM 2024-0X in 2025 and assess the stock in 2027, as CMM 2024-0X expires at the end of 2027.

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

Expected Fishery Outcomes

Under this Option, U.S. fisheries new catch limit would be 228.4 t of WCNPO striped marlin, plus up to an addition 165 t contingent on catch reported under CMM 2024-0X over the next two years. This would lead to a significant reduction from the 457 t catch limit (Option 2) specified under the previous CMM 2010-01, consistent with CMM 2024-0X, and following a phased rebuilding plan. As striped marlin are non-target catch 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 and handline fishery 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 changes to these fisheries as a result of this rule, and expects future catches to be consistent with recent averages.

If the retention limit is exceeded and retention prohibited, as is the case for Option 2 impacts, we would expect a market supply loss and loss of revenue for the longline fishery by reducing annual catch and sales of striped marlin. There would be some loss of revenue if a catch limit for 2025 is 393.4 t, given that catches of striped marlin in 2024 are anticipated to exceed 434 mt. We expect significant decline in revenue if catch limits for 2026 and 2027 are below 393.4 t. Losses are intensified without the additional 165 t to an annual catch limit for 2026 or 2027, especially if catches for competing nations under CMM 2024-0X are fully realized. In addition to economic discards and waste, catch limits contingent on competing nations' catch puts the U.S fishery at a competitive disadvantage.

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

Under Option 4, the Council would prohibit retention of WCNPO striped marlin in the Hawaii longline fisheries. This Option represents the strongest longline management measure possible to reduce fishery impacts to the WCNPO striped marlin stock. This Option does not meet the purpose and need for the action, but instead provides the opposite of the no-action Option to assist with interpretation of the relative impacts of all Options. Because no other Options consider prohibitions to retention in the troll and handline fisheries, Option 4 also does not.

Expected Fishery Outcomes

As striped marlin are non-target catch in the Hawaii longline fisheries, we expect there would be no change in the operation of these fisheries in terms of location, target and non-target species, catch, effort, fishermen participation, gear composition, seasonality, intensity, or bycatch. Hawaii-based troll and handline fisheries target striped marlin, but because this Option would not apply to them, we also expect no changes to those fisheries as well. There would only be small amounts of striped marlin available in the market from troll and handline vessels under this Option, and Hawaii longline fisheries 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 of approximately \$2.0 million annually for the Hawaii longline fisheries in that year. The fisheries would continue to catch this stock as regulatory bycatch, and bycatch mortality is about 52% at haulback; however, this Option would reduce total fishing mortality and reduce the impact of U.S. fisheries on the stock.

Comparison of the Options

The proposed Options cover a wide range of catch limits for Hawaii longline fisheries, from no catch limit to a full retention prohibition on striped marlin (Table 3). Option 1 represents no domestic catch or retention limit. For Options 2 and 3, the catch limits proposed are similar, but, based on recent catches, can have different impacts on the fishery overall. Option 2 proposes a 443 t retention limit and 457 t catch limit. This is above the 5-year average (356 t), but is below reported landings from one recent year (2019). Option 3 proposes a 228.4 t base catch limit which can be increased to up to 393.4 t.

Table 3. Comparison of proposed catch and retention limits across Options.

Attribute	Option 1	Option 2	Option 3	Option 4
Catch Limit	None	457 t	228.4 t, plus up to an additional 165 t (393.4 t)	0 t
Retention Limit	None	443 t	97% of catch limit	0 t
Economic impact	None	Rare minor economic impacts	Possibility of significant economic loss	Complete revenue loss for striped marlin (~\$2M/yr)
Consistency with international management requirements	Inconsistent	Inconsistent with newly adopted measure	Consistent with current newly adopted requirement and international rebuilding plan	Consistent with current requirements

Options Considered, but Rejected from Further Analysis

Other Options considered but rejected from further consideration included area-based management, effort limits, gear restrictions, and requiring releases of striped marlin. Area-based management is not

appropriate because there is little evidence to show any current fishing area has a disproportionate impact on the WCNPO striped marlin stock. The Hawaii longline fishery has already been precluded from fishing (i.e., MPAs) in many of its historical 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 analysis 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 releases of striped marlin brought to longline vessels alive at haulback. Figure 5 (from Brodziak, 2020) 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 release of striped marlin catch across all international fleets, assuming 48% of striped marlin are alive at haulback as estimated for U.S. longline vessels, would not result in rebuilding of the stock (Figure 5). Live releases would also not meet the purpose and need for the action as it would have economic impacts for the fishery.

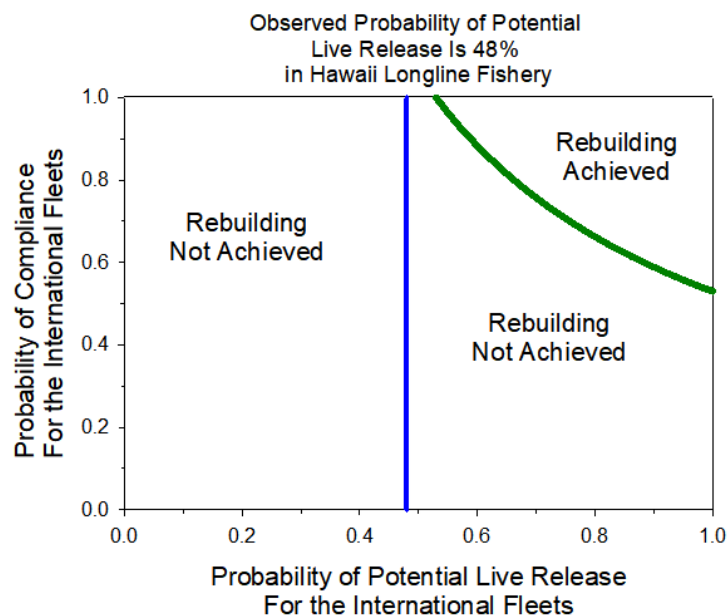


Figure 3. Impact of stock-wide requirements of live releases of WCNPO striped marlin, using estimated post-release mortality and proportion of striped marlin alive at haulback (48%, blue line), estimated for the Hawaii longline fishery. The green line delineates stock recovery, with the zone above achieving rebuild and below not achieving rebuilding.

Source: Brodziak 2020.

References

Brodziak, J., M. Mangel, and C.L. Sun. 2015. Stock-recruitment resilience of North Pacific striped marlin based on reproductive ecology. *Fisheries Research*. 166: 144-150

Brodziak, J. 2020a. Some Rebuilding Analyses for the Western and Central North Pacific Ocean Striped Marlin Stock. Working paper: PIFSC Honolulu, HI. p. 71.

Brodziak 2024

ISC. 2023a. Stock Assessment Report for Striped Marlin (*Kajikia audax*) in the Western and Central North Pacific Ocean Through 2020. Paper presented at: 19th Meeting of the WCPFC Scientific Committee, Koror, Palau. WCPFC-SC19-2023/SA-WP-11

Mittleman, 1993 (?)

NMFS 2016 – drift net reference – unsure which one.

Piner, K.R., H.H. Lee, Kimoto, A., Taylor, I.G., Kanaiwa, M. and Sun, C.L., 2013. Population dynamics and status of striped marlin (*Kajikia audax*) in the western and central northern Pacific Ocean. *Marine and freshwater research*, 64(2), pp.108-118. WCPFMC 2020

WCPFMC 2020 – reference to a Council recommendation, unsure which one.

WPFMC. 2023. Annual Stock Assessment and Fishery Evaluation Report for the Pacific Pelagic Fisheries Fishery Ecosystem Plan 2021. T Remington, M Fitchett, A Ishizaki (Eds.). Honolulu: Western Pacific Regional Fishery Management Council. https://www.wpcouncil.org/wp-content/uploads/2023/07/Pelagic-FEP-SAFE-Report-2022-Final_v5.pdf