WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Options Paper
2021 Longline Bigeye Catch Limits and US Participating Territory Allocation Limits
United States of America, American Samoa, Guam, and Commonwealth of the Northern Mariana Islands

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1. Summary

This paper presents options for consideration by the Western Pacific Regional Fishery Management Council (Council) for the 2021 specification of the annual longline bigeye tuna (hereafter, bigeye) limits for the US Pacific Island Territories of American Samoa, Guam, and the Commonwealth of Northern Mariana Islands (CNMI).

In 2014, Amendment 7 to the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region (PFEP) established the framework to specify catch and/or effort limits for pelagic fisheries in American Samoa, Guam and the CNMI, collectively termed the US Participating Territories. The process involves the Council annually recommending catch or fishing effort limits that may also include authorization for the governments of each U.S. Participating Territory to allocate a portion of its catch or fishing effort limits to a U.S. fishing vessel permitted under the Pelagic FEP. Specified Fishing Agreements are signed by territory government and fishing vessel parties and specify funding support for fisheries development in the US Participating Territories. The National Marine Fisheries Service must approve the annual limits and Specified Fishing Agreements in order for them to be implemented.

For the most recent fishing year (2019), the Council took final action in 2018 to set 2,000 mt longline bigeye longline limits for the US Participating Territories and specified up to 1,000 mt transfer limits per territory to US vessels. In 2019, only two specified agreements with US Participating Territories were able to be made with US fishing vessels and the US longline fishery was closed to bigeye harvest before the end of the fishing year on December 28, 2019.

At its 178th Meeting in June 2019, the Council voted, under Amendment 9 to the PFEP, to set multi-year catch and/or effort limits for pelagic fisheries in the US Participating Territories, remove catch limits for the US Participating Territories, and made specifications of catch allocation limits (1500 mt) from territories to US fishing vessels through 2023. Amendment 9 has yet to go through the rule-making processes due to administrative timing.

The Council took final action at its 181st Meeting in March 2020 to set 2,000 mt longline bigeye longline limits for the US Participating Territories, specified up to 1,500 mt transfer limits per

territory to US vessels, and limited total transfers to not exceed 3,000 mt. This specification was made to allow vessels flexibility in attaining allocation transfers with US Participating Territories while limiting expected environmental impacts to those consistent with previous specifications.

At its 182nd Meeting, the Council should take final action under the Amendment 7 framework to set catch and/or effort limits for longline fisheries targeting bigeye tuna in US Participating Territories in 2021 and allocation limits from US Participating Territories to US fishing vessels permitted under the PFEP in 2021.

The following options are for Council consideration for the specification of 2021 annual bigeye longline limits for the US Participating Territories and allocation limits:

Table 1: Preliminary 2021 US Participating Territory Catch and Transfer Limit Options

	Option 1	**Option 2**	**Option 3**
Description	No action	"Consistency": 2,000 mt longline bigeye longline limits for the US PTs; specify *up to* 1,500 mt transfer limits per territory with total allocation of 3000	"Flexibility": 2,000 mt longline bigeye longline limits for the US PTs; specify *up to* 2,000 mt transfer limits per territory

Council action on 2021 bigeye catch and allocation limits for US Participating Territories is covered under National Environmental Protection Act (NEPA) analyses from an Environmental Assessment (EA) conducted in 2019 (NMFS, 2019;). A supplementary EA is being prepared for the 2020 specification, which will include new scientific information. All three options are included in existing analyses and sufficiently covered under best scientific information available and NEPA analyses.

2. Background Information

The Western and Central Pacific Fisheries Commission (WCPFC) is a regional fisheries management organization (RFMO) that internationally manages high migratory fish stocks (HMS) in the Western and Central Pacific Ocean. The WCPFC was established by the adoption of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Honolulu Convention), which occurred in Honolulu in 2000. The WCPFC is comprised of 26 members, 7 participating territories, and 6 cooperating non- members.[1] Conservation and management measures for HMS are agreed to by the WCPFC and then implemented under domestic law by members and cooperating non-members.

Under Article 43 of the Honolulu Convention, American Samoa, Guam, and CNMI are provided the status of Participating Territories of the Western and Central Pacific Fisheries Commission (WCFPC). The US Participating Territories also grouped among Small Island Developing States and Territories within WCPFC conservation and management measures, and as such, may receive different catch and effort allocations than the US, which is a contracting party (member) of the WCPFC.

In November 2011, the U.S. Congress passed the Consolidated and Further Continuing Appropriations Act of 2012 or CFCAA (Pub. Law 112-55, 125 Stat. 552 *et seq*.). Section 113 of the CFCAA (hereafter Section 113) authorized American Samoa, Guam and the Northern Mariana Islands to use, assign, allocate and manage their catch and effort for highly migratory fish stocks (HMS), including Pelagic MUS, through fishing arrangement with U.S. vessels permitted under the Pelagic FEP to support fisheries development in the U.S. territories. Section 113 also directed the Council to recommend an amendment to the Pelagic FEP and associated regulations to implement Section 113 under the authority of the Magnuson-Stevens Act.

Consistent with Section 113, the Council in 2014, developed and NMFS approved Amendment 7 to the Pelagic FEP. Regulations implementing Amendment 7 became effective on October 24, 2014.

Since 2014, the Council has recommended, and NMFS has approved, a limit of 2,000 metric tons (mt) of longline-caught bigeye tuna for pelagic fisheries of each U.S. participating territory, and authorized each U.S. territory to allocate up to 1,000 mt of its 2,000-mt bigeye tuna limit to a U.S. longline fishing vessel or vessels identified in a Specified Fishing Agreement.

Amendment 7 also established criteria that a specified fishing agreement must satisfy, which include among other requirements, that agreements identify those vessels subject to the agreement,

[1] **Members**: Australia, China, Canada, Cook Islands, European Union, Federated States of Micronesia, Fiji, France, Indonesia, Japan, Kiribati, Republic of Korea, Republic of Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, United States of America, Vanuatu.
Participating Territories: American Samoa, Commonwealth of the Northern Mariana Islands, French Polynesia, Guam, New Caledonia, Tokelau, Wallis and Futuna
Cooperating Non-member(s): Ecuador, El Salvador, Liberia, Mexico, Panama, Thailand, Vietnam.

and that such vessels land fish in the territory, or deposit funds into the Western Pacific Sustainable Fisheries Fund (WP SFF). Pursuant to Section 204(e)(4) of the Magnuson- Stevens Act, funds deposited into the WP SFF may be used for the implementation of a marine conservation plan (MCP) . See 50 CFR 665.819 for regulations implementing Amendment 7.

2.1 Fishery Performance of the Hawaii Deep-set Longline Fishery in 2018

The 2018 fishing year for the Hawaii deep-set longline fishery began on January 1, 2018. As shown in Table 2, the US WCPO bigeye limit was set by the WCPFC at 3,554 mt, although the fishery reported an underage of US catch with 3,392 mt harvested.

In a final rule published on, October 23, 2018, NMFS specified a 2018 limit of 2,000 metric tons (mt) of longline-caught bigeye tuna for the Northern Mariana Islands, and allowed the territory to allocate up to 1,000 mt to U.S. longline fishing vessels identified in a specified fishing agreement that meets established criteria. As a result, the Governor of the CNMI entered into a specified fishing agreement with vessels in the Hawaii longline fishery and allocated 1,000 mt of CNMI's 2,000 mt bigeye tuna limit to vessels listed in the agreement. NMFS determined that the specified fishing agreement was consistent with the criteria set forth in NMFS' regulation (50 CFR 665.819) and Hawaii based longline vessels again began fishing for bigeye tuna in the WCPO under the fishing agreement. NMFS forecasted vessels listed in the specified fishing agreement would reach the 1,000 mt allocation limit on December 10, 2018, and issued a notice that it would restrict retention of bigeye tuna by vessels identified in the CNMI agreement on that date

In a final rule published on December 7, 2018, NMFS specified a 2018 limit of 2,000 metric tons (mt) of longline-caught bigeye tuna for American Samoa and allowed the territory to allocate up to 1,000 mt to U.S. longline fishing vessels identified in a specified fishing agreement that meets established criteria. As a result, the Governor of American Samoa entered into a specified fishing agreement with vessels in the Hawaii longline fishery and allocated 1,000 mt of Guam's 2,000 mt bigeye tuna limit to vessels listed in the agreement. NMFS determined that the specified fishing agreement was consistent with the criteria set forth in NMFS' regulation (50 CFR 665.819) and Hawaii based longline vessels began fishing for bigeye tuna in the WCPO under the American Samoa fishing agreement on December 10, 2018. NMFS did not implement catch and allocation limits for Guam in 2018.

Data compiled by the Pacific Islands Fisheries Science Center (PIFSC) indicate that Hawaii longline vessels caught the entire 2015 U.S. longline bigeye tuna quota of 3,554 mt, plus an additional 1,000 mt bigeye tuna provided by the CNMI specified fishing agreement, but did not reach the 1,000 mt allocation limit provided by the American Samoa specified fishing agreement before the end of the 2018 fishing year on December 31, 2018. Preliminary data from PIFSC also indicate that the American Samoa longline fishery caught less than 1,000 mt of bigeye tuna in 2018, and no bigeye tuna was harvested by longline vessels in Guam or the CNMI in 2018

2.2 Fishery Performance of the Hawaii Deep-set Longline Fishery in 2019

The 2019 fishing year for the Hawaii deep-set longline fishery began on January 1, 2019. In a final rule published on, July 18, 2019, NMFS specified a 2019 limit of 2,000 metric tons (mt) of

longline-caught bigeye tuna for each of the U.S. Territories (American Samoa, Guam, and the CNMI), and allowed each territory to allocate up to 1,000 mt to U.S. longline fishing vessels identified in a specified fishing agreement that meets established criteria (84 FR 34321).

On July 24, 2019, NMFS determined that the 3,554 mt WCPO catch limit for 2019 would be reached by July 27, 2019. In accordance with 50 CFR 300.224(e), NMFS closed the U.S. longline fishery for bigeye tuna in the Western and Central Pacific Fisheries Convention Area through a temporary rule effective on July 27, 2019 through December 31, 2019 (84 FR 35568).

On August 1, 2019, NMFS announced a valid specified fishing agreement between the CNMI and the Hawaii Longline Association (HLA)(84 FR 37592). In accordance with procedures in 50 CFR 300.224(d) and 50 CFR 665.819(c)(9), NMFS began attributing bigeye tuna caught by vessels identified in the CNMI/HLA agreement to the CNMI beginning on July 20, 2019. NMFS forecasted that the fishery would reach the CNMI allocation limit by November 4, 2019, and closed the fishery on that date (84 FR 57827, October 29, 2019).

On October 28, 2019, NMFS announced a valid specified fishing agreement between American Samoa and HLA, and began attributing bigeye tuna caught by vessels identified in the agreement to American Samoa starting on that date (84 FR 57652). NMFS forecasted that the fishery would reach the American Samoa allocation limit by December 22, 2019, and closed the fishery on that date.

Since NMFS closed the U.S. longline fishery in July 2019, NMFS has subsequently determined that the fishery caught and retained only 3,456 t of the 3,554 t limit while it was open from January through July 26, leaving 98 t available for catch and retention. Based on average bigeye tuna catch rates by the U.S. longline fishery in the month of December in calendar years 2012 to 2018, NMFS estimated that the fishery could catch 98 t in five calendar days. Accordingly, NMFS reopened the fishery in the WCPO for five days (from December 23, 2019 to December 27, 2019), after which, the closure published on July 24, 2019 (84 FR 35568), again took effect through December 31, 2019.

NMFS did not implement catch and allocation limits for Guam in 2019 under a valid specified fishing agreement. On December 28, 2019, the US deep-set longline fishery closed before the end of the fishing year.

At the 181st Council Meeting, the Council recommended a catch limit of 2,000 mt for each US Participating Territory (Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa) and specify that each US Participating Territory can allocate up to 1,500 mt of their bigeye tuna catch limit through specified fishing agreements with eligible US longline vessels permitted under the Pelagic FEP. The Council further recommended NMFS not authorize more than 3,000 mt in total allocations in 2020. This was to ensure that environmental impacts were to remain consistent with

In recent years, the catch (mt kept) per unit effort (CPUE, in sets) for bigeye tuna by the Hawaii longline fleet in the WCPFC Area in the first half of the year has higher than the recent 2007-14 average, based on preliminary data on nominal (not standardized) CPUE. Furthermore, sine 2014, the

average size of bigeye tuna may have increased, thus rendering high tonnage of bigeye tuna per deep-set effort. Both of these factors, combined with phased catch limit reductions, have contributed to the Hawaii longline fishery reaching the US WCPO longline bigeye limit sooner than in previous years.

Since 2015, the total catch of bigeye tunas (in numbers) by Hawaii longline fleet has stabilized and been higher than the previous decades (Figure 1). Associated catches of yellowfin tuna have increase over two-fold since 2015.

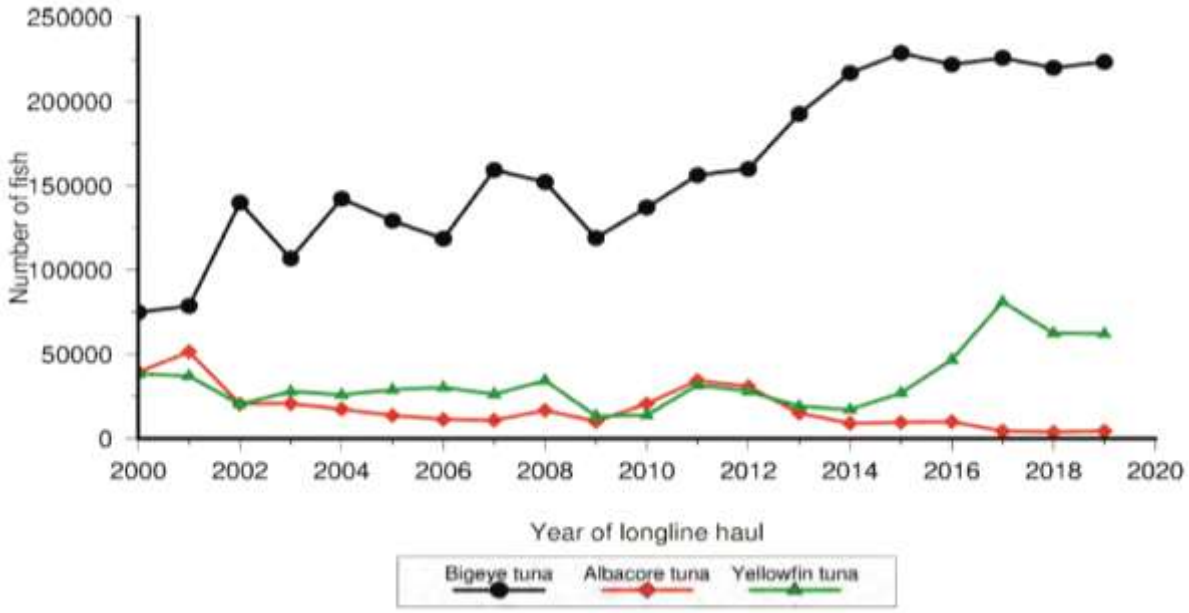

Figure 1: Total catch of tunas in the Hawaii longline fishery (in numbers caught) 2000-2019.

2.3 WCPO Bigeye Stock Status and WCPFC Management Measures

Bigeye tuna is considered a Pacific-wide stock that is managed and assessed separately by the WCPFC and Inter-American Tropical Tuna Commission (IATTC). In the WCPO bigeye tuna is not considered overfished or experiencing overfishing, according to stock status determination criteria described in the Pelagic FEP and limit reference points for the stock under the WCPFC. In the EPO, bigeye tuna is of concern due to decline in stock indicators for the stock and since the last stock assessment was deemed 'not suitable for management' by the IATTC assessment scientists due to reliance on data from purse seine fisheries. Declining trends in CPUE (in longline and purse seine fisheries) and continual annual increases in the number of purse seine sets on floating objects is of concern in the EPO. In the WCPO where the Hawaii deep-set fishery primarily operates, bigeye tuna is not overfished according to stock status determination criteria described in the Pelagic FEP. According to the 2017 stock assessment and 2018 update assessment for bigeye in the WCPO, the spawning biomass of bigeye is above the WCPFC adopted limit reference of $SB/SB_{F=0} = 0.20$. In the WCPO, bigeye tuna is harvested across a range of fishing gears, with primary impacts from longline and purse seine fisheries.

In previous decades, the WCPO longline fishery (collectively includes all fleets such as Japan, Korea, China, US, etc.,) for adult bigeye for sashimi markets contributed to the greatest impacts to the bigeye stock. In recent years, the purse seine fishery for skipjack and yellowfin for canned tuna markets has increased its incidental catch of bigeye resulting in the purse seine fishery having a greater impact on the bigeye stock as the longline fishery. The is due to fishing mortality on juveniles being disproportionately higher than adult bigeye. The purse seine fishery incidentally catches juvenile bigeye while fishing on drifting fish aggregation devices (FADs). The WCPFC manages impacts to bigeye from the purse seine fishery through a seasonal FAD closure and vessel day limits, and impacts from the longline fishery, through annual catch limits.

Under WCPFC conservation and management measure 2008-01, the US Participating Territories were each provided with annual 2,000 mt longline bigeye limits or no catch limits if undertaking responsible fisheries development. These limits were extended by the WCPFC in 2011 (CMM 2011-01). WCPFC CMM 2012-01 (2012-01) which replaced 2011-01, exempted PTs and SIDS from annual longline bigeye catch limits.

The annual US WCPO longline bigeye limits are principally applicable to the Hawaii longline deep-set fishery, which historically has landed over 5,000 mt of bigeye in Honolulu. There are about around 10 to 15 longline vessels based in southern California, which occasionally fish in the WCPO for bigeye tuna. Under CMM 2008-01, the US WCPO longline bigeye limit was 3,763 mt from years 2009-2014. Since 2015 and under the current CMM 2018-01, the US WCPO longline bigeye limit was reduced to 3,554 mt. CMM 2018-01 is expires at the end of 2020.

Table 2: Annual WCPO Bigeye Longline Catch limits (mt) Adopted by the WCPFC (CMM 2018-01)

CCM	2018 catch (mt)	2018 Catch limit (mt)	2019-2020 Catch limit (mt)
Japan	11,921	17,765	17,765
Korea	13,828	13,942	13,942
Chinese Taipei	9,068	10,481	10,481
China	8,695	8,724	8,724
Indonesia	1,255	5,889	5,889
USA	3,392	3,554	3,554
Australia	325	2000	2000
New Zealand	135	2000	2000
Philippines	0	2000	2000
EU	39	2000	2000
SIDS & PTs	--	N/A	N/A

3. Purpose of Options Paper

Consistent with Amendment 7 to the Pelagics FEP, the purpose of this options paper is for the Council's consideration of recommending the specification 2020 bigeye tuna catch and an allocation limits for longline fisheries of each of the US Participating Territories.

4. Catch Limit Options

The following table provides a summary of bigeye catch limit specification options considered in this paper. The Council may identify other options for consideration. For recent analyses on a similar range of catch limit options see Kingma and Bigelow (2019).

Table 3: Catch Limit Options

	Option 1	**Option 2**	**Option 3**
Description	No action	"Impact Consistency": 2,000 mt longline bigeye longline limits for the US PTs; specify *up to* 1,500 mt transfer limits per territory; total allocations not to exceed 3,000 mt	2,000 mt longline bigeye longline limits for the US PTs; specify *up to* 2,000 mt transfer limits per territory

1) No catch limits for the US PTs; no transfer limits

Under this option, there is no catch limit for any of the US Participating Territories and no transfer limits of bigeye tuna from US Participating Territories to U.S. vessels permitted under the FEP through specified fishing agreements.

2) 2,000 mt longline bigeye limits for the US PTs; *up to* 1,500 mt transfer limit; total transfers not to exceed 3000 (consistency)

Under this option, an annual longline bigeye limit of 2,000 mt would be established for each Territory. This limit is more restrictive than what is provided under the existing WCPFC tropical tuna measure CMM 2018-01, whereby no limits are provided to SIDS and Participating Territories. Also under this option, the Territories could assign up to 1,500 mt per year of their annual longline bigeye tuna catch limits through specified fishing agreements with U.S. vessels permitted under the FEP. Total allocations may not exceed 3,000 mt, such that environmental impacts remain commensurate to expected impacts under past specifications.

3) 2,000 mt longline bigeye limits for the US PTs; *up to* 2,000 mt transfer limit (flexibility)

Under this option, an annual longline bigeye limit of 2,000 mt would be established for each Territory. This limit is more restrictive than what is provided under the existing WCPFC tropical

tuna measure CMM 2018-01, whereby no limits are provided to SIDS and Participating Territories. Also under this option, the Territories could assign up to 2,000 mt per year of their annual longline bigeye tuna catch limits through specified fishing agreements with U.S. vessels permitted under the FEP.

5. Pros and Cons of Catch Limit Options

Option 1: No action - No catch limits for the US PTs; no transfer limits

Pros	Cons
• Demonstrates the US is taking stronger conservation measures than what are provided • May lead to some marginal conservation benefits, although not significant relative to foreign fisheries	• Removes fishing development funding opportunities for the Territories • Reduces food security for the United States and the US Participating Territories. • Diminishes US and territorial catch precedence in the WCPFC and may have negative political consequences • Will have negative consequences to the US seafood market, particular US Pacific Islands, which will not have fresh US-caught tuna throughout the calendar year and through a culturally-important season. • Will increase reliance on foreign seafood in US markets (seafood deficit)

Option 2: Consistency in Impacts- Specify 2,000 mt longline bigeye limits for the US PTs; 1,500 mt transfer limits per US PT; total transfers do not exceed 3,000 mt

Pros	Cons
• Demonstrates the US is taking stronger conservation measures than what are provided the Territories under WCPFC 2018-01 • Consistent with previously provided longline limits provided to the Territories and same as for members that have not harvested 2,000 metric tons annually, including New Zealand, Australia, Philippines, and European Union. • Addresses bigeye overfishing by establishing overall total Territory limits and limits on the amount that is potentially transferred under specified fishing agreements. • Supports fisheries development funding opportunities for the US Territories. • Does not unduly constrain existing Territory longline fisheries that land bigeye locally. • Would establish an overall longline bigeye limit applicable to US vessels in the WCPO of 6,345 mt (3,000 mt total for Territories + US limit of 3,345); this level of catch, if utilized, has been evaluated to not impede the international objective of eliminating overfishing of bigeye while *consistent* to impacts of specification in prior years • Supports fisheries development funding opportunities for the US Territories.	• May be reducing fishing development funding opportunities for one Territory by unnecessarily restricting the amount of catch that could be transferred under specified fishing agreements, while still achieving conservation objectives.

Option 3: 2,000 mt longline bigeye longline limits for the US PTs; specify *up to* 2,000 mt transfer limits per territory

Pros	Cons
• Allows flexibility for territories and US fishing vessels permitted under the Pelagic FEP to make arrangements that can keep the fishery operating through the fishing year without reliance on three specified agreements. • Demonstrates the US is taking stronger conservation measures than what are provided the Territories under WCPFC 2018-01. • Addresses bigeye overfishing by establishing overall total Territory limits and limits on the amount that is potentially transferred under specified fishing agreements. • Consistent with previously provided longline limits provided to the Territories and same as for members that have not harvested 2,000 metric tons annually, including New Zealand, Australia, Philippines, and European Union. • Would establish an overall longline bigeye limit applicable to US vessels in the WCPO of 9,345 mt (6,000 mt total for Territories + US limit of 3,345); this level of catch, if utilized, has been evaluated to not impede the international objective of eliminating overfishing of bigeye. • Supports fisheries development opportunities in the US Participating Territories. • Not anticipated to change fishing effort levels and evaluated impacts to non-target species, habitat and protected species would be maintained..	• May lead to a situation in which US Participating Territories are excluded from agreements due to timing, prior agreements, and/or fishery performance • Need to take into account American Samoa longline bigeye catches (approx. 500 mt) in regards to total 2,000 mt limit and the amount that could be transferred. • The longline fishery in CNMI and Guam has been inactive since 2011. CNMI and Guam would need to monitor longline development and the amount transfer that would be available under multiyear specified fishing arrangements.

The following table is for informational purposes and relates to the NMFS Environmental Assessment associated with the 2018 and 2019 Territory specification rule makings. The table presents the impact (in percent change to stock status reference points) of the potential utilization of Territory longline catch and transfer bigeye limits. The table was generated from an analysis that used the US WCPO longline limit of 3,554 mt.

Table 4: Option 1, No catch or allocation limit and Option 2, including F/F_{MSY}, $SB/SB_{F=0}$ values in 2045 based on SPC projections from Kingma and Bigelow (2019)

	Sub-Alternative 1: No catch or allocation limit		**Option 2: 2,000 t Catch Limit and 3,000 t total Allocation Limits for U.S. Participating Territory**					
No. of Specified Fishing Agreements	No Fishing Agreements and No BET Transfers		1 Fishing Agreement and 1,000 t of BET Transfers		2 Fishing Agreements and 2,000 t of BET Transfers		3 Fishing Agreements Or 2 agreements of 1,500 mt; 3,000 t of BET Transfers	
Total assumed BET Catch by U.S. and U.S. Participating Territory Longline Vessels	4,095 t		5,095 t		6,095 t		7,095 t	
Scaled U.S. Longline BET Catch (Regions 2 and 4)	3,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 0		4,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 1,000		5,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 2,000		6,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 3,000	
		Percent Change		Percent Change		Percent Change		Percent Change
F_{2045}/F_{MSY}	0.82	0.0	0.83	1.2	0.84	2.4	0.85	3.6
$SB_{2045}/SB_{F=0}$	0.38	0.0	0.37	-2.6	0.37	-2.6	0.37	-2.6

Table 5: Option 1, No catch or allocation limit and Option 3, including F/F_{MSY}, $SB/SB_{F=0}$ values in 2045 based on SPC projections from Kingma and Bigelow (2019)

	Sub-Alternative 1: No catch or allocation limit		**Option 3: 2000 mt Catch Limits and up to 2,000 t Allocation Limit for each U.S. Participating Territory**					
No. of Specified Fishing Agreements	No Fishing Agreements and No BET Transfers		1 Fishing Agreement and 2,000 t of BET Transfers		2 Fishing Agreements and 4,000 t of BET Transfers		3 Fishing Agreements and 6,000 t of BET Transfers	
Total assumed BET Catch by U.S. and U.S. Participating Territory Longline Vessels	4,095 t		6,095 t		8,095 t		10,095 t	
Scaled U.S. Longline BET Catch (Regions 2 and 4)	3,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 0		5,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 2,000		7,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 4,000		9,998 t HI: 3,554 HI/AS Dual: 444 Transfers: 6,000	
		Percent Change		Percent Change		Percent Change		Percent Change
F_{2045}/F_{MSY}	0.82	0.0	0.84	2.4	0.85	3.6	0.87	6.0
$SB_{2045}/SB_{F=0}$	0.38	0.0	0.37	-2.6	0.37	-2.6	0.36	-5.5

Note: Under the Pelagics FEP, a stock is experiencing overfishing when $F/F_{MSY} > 1.0$. Because Kingma and Bigelow (2019) could not generate an MSY-based biomass reference point, we use the WCPFC's adopted limit reference point to evaluate impacts to the bigeye tuna stock. WCPFC considers bigeye tuna overfished when $SB/SB_{F=0} < 0.20$.

6. New Information Since the 2019 EA

6.1 Summary of the 2019 Biological Opinion on the Continued Authorization of the Hawaii Shallow-set Longline Fishery

After the 2019 EA was finalized, NMFS completed an ESA section 7 consultation considering the potential impacts of the continued authorization of the Hawaii shallow-set longline fishery on listed species. NMFS issued a no-jeopardy BiOp on June 26, 2019 (NMFS 2019f). The level of impacts analyzed in the 2019 BiOp are based on the anticipated level of interactions with ESA-listed species by the shallow-set fishery that were generated by PIFSC using a Bayesian inferential approach (McCracken 2018) and that were described in the environmental baseline in the 2019 EA.

As described in the 2019 EA, on April 20, 2018, NMFS requested reinitiation of formal consultation under ESA Section 7 for the continued authorization of the shallow-set fishery as currently managed under the existing regulatory framework of the FEP and other applicable laws. Consistent with 50 CFR 402.16, NMFS reinitiated consultation because the shallow-set fishery met three of the four possible reinitiation triggers established in the previous Biological Opinion for the fishery. The fishery interacted with ESA-listed Guadalupe fur seals in 2016 and 2017, a species previously unknown to interact with the fishery, and exceeded the authorized amount of take of olive ridley sea turtles in early 2018. Revision of the green turtle listing under distinct population segments (DPSs; 81 FR 20058), listing of the oceanic whitetip shark (83 FR 4153) and giant manta ray (83 FR 2916) as a threatened species, and designation of MHI IFKW critical habitat (83 FR 35062) also triggered the requirement for NMFS to reinitiate consultation. Finally, on May 4, 2018, the portion of the 2012 shallow-set BiOp pertaining to loggerhead turtles was vacated and remanded to NMFS under a stipulated settlement agreement and court order.

Beyond the aforementioned reinitiation triggers, and to provide for a more comprehensive assessment, NMFS reinitiated consultation on all listed resources that occur where the shallow-set fishery operates. In total, 49 listed resources comprised of 40 listed species and nine critical habitat designations occur within the area the shallow-set fishery operates, and effects of the shallow-set longline fishery on ESA-listed species were analyzed in the 2019 BiOp. These also include listed fish, marine invertebrates, and other critical habitat associated with shallow-set longline vessels transiting areas off of California (Long Beach, San Francisco, and San Diego). Our approach to the assessment in the 2019 BiOp is divided into the following four sequential steps:

1. Identifying those physical, chemical, or biotic aspects of the shallow-set fishery that are known or are likely to have individual, interactive, or cumulative direct and indirect effects on the environment (i.e., “potential stressors”). As part of this step, NMFS also identified the spatial, or geographic, extent of any potential stressors whilst recognizing that the spatial extent of those stressors may change with time (also known as the “action area”).
2. Exposure analysis, identifies the listed species and designated critical habitat (collectively, listed resources) that are likely to co-occur with these potential stressors in

space and time, as well as the intensity, duration, and frequency of those stressors on listed resources.
3. Response analysis, NMFS examined the best scientific and commercial data available to determine whether and how those listed resources are likely to respond given their exposure.
4. NMFS identified and analyzed the probable risks posed to listed individuals that are likely to be exposed to the shallow-set fishery's effects. Specifically, NMFS focused on three variables in the jeopardy definition that determine a species likelihood of survival and recovery in the wild: reductions in the species' reproduction, number of individuals in the population, and distribution.

The exposure analysis for the loggerhead sea turtle, leatherback sea turtle, green sea turtle, olive ridley sea turtle, Guadalupe fur seal, oceanic whitetip shark, and giant manta ray focuses on hooking and entanglements that have been observed and reported in the shallow-set fishery. The 2019 BiOp analyzes impacts based on the anticipated level of interactions in the shallow-set fishery derived from predictions generated by PIFSC using a Bayesian inferential approach (McCracken 2018). The predictions, described in Table 1 below, are based on observer data from 2005–2017 for all species except for loggerheads. For loggerhead predictions, PIFSC used data from 2005–2018 to account for the higher number of interactions observed in 2018. For each of these species, PIFSC generated a predicted anticipated level of interactions for the mean, 80th percentile, and 95th percentile values for a predicted distribution of interactions over 1-year and multi-year (i.e., 2- and 3-year) periods. The percentile values reflect the probability that the observed interactions for the predicted period (e.g., 1, 2 or 3 years) would be less than or equal to the value (e.g., we expect the fishery to take fewer than or up to 36 loggerhead sea turtles in a given year). These predicted anticipated levels of interactions generated by PIFSC have the following three major assumptions:

1. The predictions assume that the characteristics of the fishery do not change in the future compared to the observed period (i.e., 2004 – 2018);
2. The model assumes that the annual number of interactions is independent between years, given that insufficient information exists at this time to make informed predictions of future multi-year patterns in interactions.[2]
3. The model assumes that the fishery has operated throughout the year for every year included in the analysis and did not truncate the predicted takes due to fishery closures (i.e., the analysis did not include annual fleet-wide interaction limits for either loggerheads or leatherbacks).

The multi-year prediction of anticipated level of take generated by the Bayesian inferential approach takes into account the inter-annual variability in the number of observed interactions over time. Statistically, the probability that observed interactions would be at the upper end of the 1-year predicted range over several consecutive years is low. The multi-year predictions

[2] While potential patterns in interactions (e.g., higher interactions tend to be observed in consecutive years) are seen for some species in the observed data since 2004, the data have not been assessed to evaluate the significance or to explore the underlying factors.

reflect a distribution of predicted values that incorporate the inter-annual variability in the observed data and smooth out the uncertainty associated with the predictions over a longer period. As a result, the 95th percentile values of the predicted 2-year and 3-year total interactions are lower than the 1-year predictions at the same percentile level multiplied by two or three years.

Table 1, below, summarizes the number of sea turtle, oceanic whitetip shark, giant manta ray, and Guadalupe fur seal interactions expected from the shallow-set longline fishery (operating as considered in the 2019 BiOp) during a single calendar year. The table also includes total mortalities (males and females, adults and juveniles) associated with the estimated number of interactions.

Table 1. Projected interactions between the Hawaii shallow-set longline fishery and listed sea turtles, oceanic whitetip shark, giant manta ray, and Guadalupe fur seal in a year, and estimates of mortalities.

Species	Number of Interactions (Annual)	Number of Mortalities (Annual)
Leatherback Sea Turtle	21	3
Loggerhead Sea Turtle	36	6
Olive Ridley Sea Turtle[1]	5	1
Green Sea Turtle (all DPSs)	5	1
Oceanic Whitetip Shark[2]	102	32
Giant Manta Ray[2]	13	4
Guadalupe Fur Seal	11	9

[1]The total number of interactions for the species and populations can be any combination from the listed populations for olive ridley sea turtles or green sea turtles. The anticipated number killed for green turtles is 0-1 annually, which we rounded to one.

[2]An ITS is not required to provide protective coverage for the Giant manta ray and oceanic whitetip shark because there are no take prohibitions under ESA section 4(d) for these species. Consistent with the decision in Center for Biological Diversity v. Salazar, 695 F.3d 893 (9th Cir. 2012), however, this ITS is included to serve as a check on the no-jeopardy conclusion by providing a reinitiation trigger if the level of take analyzed in the biological opinion is exceeded.

Source: 2019 BiOp (NMFS 2019f).

Based on the analysis in the 2019 BiOp, NMFS concluded that the shallow-set fishery may affect, but is not likely to adversely affect the following:

- Hawksbill sea turtle;
- MHI IFKW;
- Humpback whale (Mexico DPS);
- Fin whale;
- Blue whale;

- North Pacific right whale;
- Sei whale;
- Sperm whale;
- Eastern Pacific scalloped hammerhead shark; or
- Listed fish and invertebrate species common to transiting areas off the coast of California (Central California coast Coho salmon, Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, Central California coast steelhead, California coast steelhead, Southern North American green sturgeon, Black abalone, and White abalone).

Additionally, after reviewing the current status, the environmental baseline for the action area, the effects of the fishery and the cumulative effects, NMFS concluded in the 2019 BiOp that the continued authorization of the shallow-set fishery is not likely to jeopardize the continued existence of the following:

- North Pacific loggerhead sea turtle;
- Leatherback sea turtle;
- Olive ridley sea turtle;
- Eastern Pacific green sea turtle, Central North Pacific green sea turtle, East Indian-West Pacific green sea turtle, Central West Pacific green sea turtle, Southwest Pacific green sea turtle, Central South Pacific green sea turtle;
- Oceanic whitetip shark;
- Giant manta ray; or
- Guadalupe fur seal.

The 2019 BiOp also concluded that the shallow-set fishery is not likely to adversely modify designated critical habitat for the following:

- Leatherback sea turtle;
- Hawaiian monk seal;
- MHI IFKW;
- Steller sea lion; and
- Listed fish and invertebrate species common to transiting areas off the coast of California (Central California coast Coho salmon, Sacramento River winter-run Chinook salmon, California coast steelhead, Southern North American green sturgeon, and Black abalone).

6.2 Population Assessments for the North Pacific Loggerhead and Western Pacific Leatherback Turtles

Shallow-Set Longline Fishery

PIFSC conducted population assessments of the North Pacific loggerhead and Western Pacific leatherback turtles to support the ESA Section 7 consultation for the shallow-set fishery (NMFS 2019f). The assessment utilized a Bayesian state-space population viability analysis (PVA) using nest counts as index of abundance to estimate population growth rate and to generate population projections (**Error! Reference source not found.Error! Reference source not found.**). More complex demographic models were determined to be not suitable due to the lack of population-specific demographic data.

Nest count data from three nesting beaches, representing approximately 52% of loggerhead turtle nesting in Japan, were used for the North Pacific loggerhead turtle PVA. Modeling results, as described in the 2019 BiOp, estimated that the current mean total reproductive female abundance for the portion of the population included in the assessment is 3,632 (95% CI range = 2,976-4,468), and the mean long-term population growth rate (r) was estimated at 2.4% annually (95% CI range = -10.8%-5.6%). More recently, Martin et al. (2020) updated the current mean total reproductive female abundance to a 4,541 (95% CI range = 4074-4063), and the mean r to 2.3% annually (95% CI range = -11.1% – 15.6%). Projections show a low probability (less than 25% probability on average) that the North Pacific loggerhead turtle population would fall below 12.5% to 50% abundance thresholds within 100 years. Based on the estimates derived from the PVA model, NMFS estimates that the total number of nesting females in the population is 6,984 individuals, and the total estimated population of all age classes and both sexes is 341,071 individuals (NMFS 2019f).

Nest count data from two nesting beaches representing approximately 75% of nesting for the Western Pacific leatherback population were used for the PVA. Due to missing count data, an auto-regressive time series model was used to fill in the missing data in the nest count time series prior to proceeding with the PVA model. Modeling results, as described in the 2019 BiOp, estimated that the current mean total reproductive female abundance for the portion of the population included in the assessment is 1,180 (95% CI range = 949-1,479), and the mean long-term population growth rate (r) was estimated at -5.3% annually (95% CI range = -16.4%-5.9%), and later updated by Martin et al. (2020) to -6.1% annually (95% CI range = -23.85-12.2%). Projections show a high probability (greater than 91% probability on average) that the Western Pacific leatherback turtle population would fall below 12.5% to 50% abundance thresholds within 100 years. In the 2019 BiOp, NMFS (2019f) estimates that the total number of adult leatherback turtles in the Western Pacific population is 1,851 (range 1,488-2,320), and the total estimated population of all age classes and both sexes is 175,000 (range 68,000-360,000).

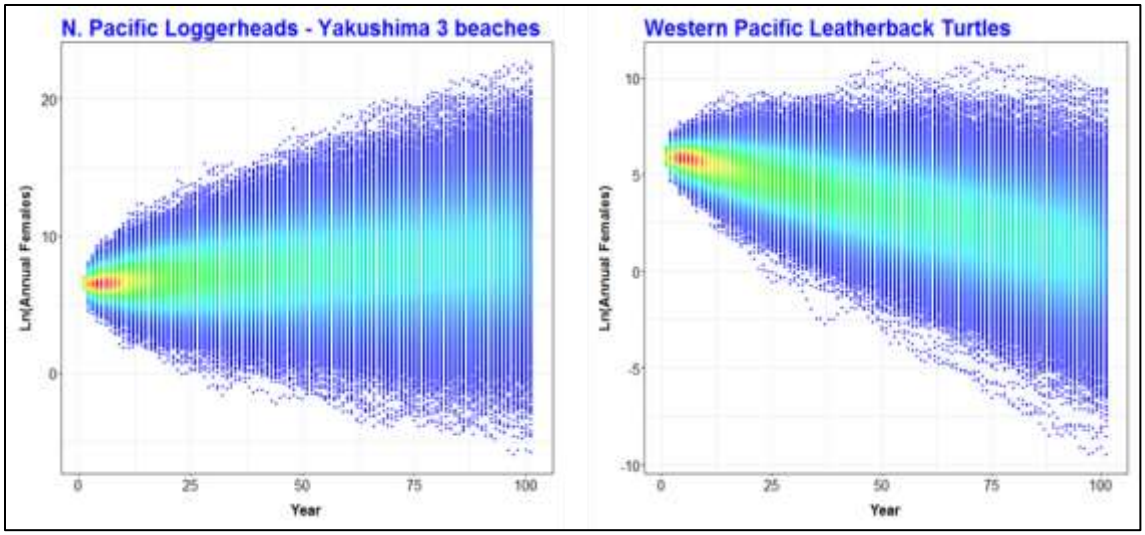

Figure 1. Population projection results for North Pacific loggerhead turtles (left) and Western Pacific leatherback turtles (right). Model projections are of annual females in natural log space. Figures show 10,000 model projection runs for 100 years into the future from the final data year.

Following the issuance of the 2019 BiOp, PIFSC completed a study (referred to here as a "take model") to assess the population level impacts of post-interaction mortality of loggerhead and leatherback turtle interactions in the shallow-set fishery (Martin et al. 2020). The model builds upon the PVA considered in the 2019 BiOp. For each species, the modeling framework shows the probability of the population being above or below abundance thresholds (50%, 25%, 12.5% of current annual nesters) within a 100-year simulation time frame, and the number of years (mean, median, & 95% credible interval) to reach each threshold for both "take" and "no take" scenarios (i.e., the population trends with and without the take associated with the fishery[3]). The model is divided into three main components:

1. Data imputations for monthly nest counts for leatherback turtles nesting in Indonesia due to low, or no monitoring using a Bayesian state-space model;
2. A trend analysis of nest count data to estimate population growth rates and current abundance for both species; and
3. A population viability analysis including future projections of annual nester population size and assessment of the impacts of anticipated take levels on the projections of both species.

The take level evaluated in the model was derived from predictions generated by PIFSC using a Bayesian inferential approach (McCracken 2018) and analyzed in the 2019 BiOp. Results for both species suggest that the fishery's anticipated take has negligible effects on the long-term population trends, with no discernable changes to the probabilities of the populations falling below abundance thresholds between the "no take" and "take" scenarios for the future (Martin et al. 2020).

[3] We clarify that in the population effects studies, Martin et al. (2020), used the term "take associated with the fishery" to refer to post-interaction mortality. Note that this definition of "take" differs from the ESA definition of "take" (16 U.S.C., 1532, section 3(19)).

For the North Pacific loggerhead turtle, the model suggests the population is increasing at 2.3% per year. When accounting for the anticipated level of take by the shallow-set longline fishery on this projection, the model shows no discernable difference in the population trend or the probability of the population falling below abundance thresholds within the 100-year projection period. For the leatherback turtle, the difference in the population trend only becomes apparent after the year 2060 and suggests the population would go extinct roughly 5 years sooner than in the "no take" scenario (around 2110 vs. 2115). However, this 5-year difference is statistically insignificant, and the actual population difference of the 5 year divergence represents less than 1 adult nester. Importantly, the difference seen between the "no take" and "take" scenarios in the 100-year projection is not seen in the 10-year projection (see Martin et al. (2020); Figs. 22 and 23). As described in Martin et al. (2020), projections out to 10 years into the future are more relevant biologically for management purposes than to 100 years given the estimated uncertainty in the population parameters. Specifically, the effects of the environmental or anthropogenic drivers on the population would be lagged; therefore, we think the first 10 years is largely based on the previously observed trend but after that we do not have sufficient information to account for uncertainty of the drivers that affect the populations.

Additionally, the trend was analyzed with historical impacts from the fishery removed (i.e., by adding back the adult nesters to the population); however, there was no difference between the trends for the "take" and "no take" scenarios for either species for the past.

At the 134th SSC and 180th Council Meetings, PIFSC summarized the external peer-review comments on the model, which indicated that the model approach was appropriate and adequate given the limited data available. The SSC further endorsed the model as the best scientific information available for evaluating the impacts of the fishery on loggerhead and leatherback turtle populations.

Deep-set longline Fishery

PIFSC applied the take model developed for the shallow-set longline fishery to the Hawaii deep-set longline fishery to evaluate population level impacts of loggerhead and leatherback turtle interactions. The model results were presented at the 135th SSC and 181st Council Meeting in March 2020, and are described in a publication that is being prepared to supplement the shallow-set longline take analysis. The primary difference between the shallow-set and deep-set applications of the model is the additional step needed to account for the approximately 20 percent observer coverage rate in the deep-set fishery compared to 100 percent in the shallow-set fishery. Specifically, the model draws from multivariate normal distributions informed by the historical observed interactions to assign length and mortality rate for the estimated unobserved takes when converting the historical take from the deep-set fishery into adult nester equivalents before incorporating those take back into the population as part of the retrospective analysis. The future take level evaluated in the model was the anticipated level of interactions in the deep-set fishery derived from predictions generated by PIFSC using a Bayesian inferential approach (McCracken 2019b) and analyzed in the Biological Evaluation reinitiating consultation for the Hawaii deep-set longline fishery (NMFS 2018d). The model assigns length and probability of mortality to the anticipated take level from the same multivariate normal distribution described above.

Results of the take model for the deep-set longline fishery show no discernable difference in the North Pacific loggerhead population trend or the probability of the population falling below abundance thresholds (50%, 25%, 12.5% of current annual nesters) within the 100-year projection period between the “no take” and “take” scenarios.

For Western Pacific leatherback turtles, the difference in the population trend only becomes discernable after the year 2060, with the median projection suggesting that the population would go extinct roughly 20 years sooner in the “take” scenario compared to the “no take” scenario (around year 2095 vs. year 2115) in the deep-set take model. However, the actual population difference of the 20 year divergence represents approximately 1 adult nester. The deep-set model results also show negligible differences between the “no take” and “take” scenarios in the mean number of years to reach the abundance thresholds. For example, the mean number of years to reach the 50% abundance threshold under the no take scenario is 12.89 years, whereas for the take scenario is 12.83 (or a difference of 0.06 year or 22 days). Similarly, the mean number of years to reach the 12.5% abundance threshold under the no take scenario is 36.29 years compared to 35.81 years in the take scenario (or a difference of 0.48 years or a difference of 175 days).

7. Detailed Descriptions of Possible Outcomes under Option 3

Under Option 3, NMFS would specify a catch limit of 2,000 t of bigeye tuna for each U.S. participating territory and authorize the three U.S. territories to each allocate up to their entire 2,000 t bigeye limit to FEP-permitted longline vessels identified in a specified fishing agreement with a U.S. territory. As an accountability measure, NMFS would prohibit the retention of longline-caught bigeye tuna by vessels in the applicable U.S. territory (if NMFS projects the territorial limit will be reached), and/or by vessels operating under the applicable specified fishing agreement (if NMFS projects the allocation limit will be reached). Pursuant to federal regulations at 50 CFR 665.819, if NMFS determines catch made by vessel(s) identified in a specified fishing agreement exceeds the allocated limit, NMFS will attribute any overage of the limit back to the U.S. or U.S. participating territory to which the vessel(s) is(are) registered and permitted.

Expected Fishery Outcomes

Under Option 3, each U.S. participating territory would be subject to a total longline bigeye tuna catch limit (2,000 t), and would be able to each allocate their entire catch limit of 2,000 t to FEP-permitted longline vessels identified in a specified fishing agreement. Like Alternative 1, NMFS does not expect bigeye tuna to be caught by longline vessels based in CNMI or Guam in the near future because there are currently no active longline fisheries based in those islands. Therefore, under this alternative, it is possible for the CNMI and Guam to allocate all 2,000 t of its limit to vessels identified in a specified fishing agreement.

American Samoa would have the ability allocate away all 2,000 t of its limit to vessels identified in a specified fishing agreement, or allocate only a portion of its bigeye tuna limit while retaining a portion for its local fleet. The American Samoa longline fleet landed an average of approximately 541 t annually from 2012-2017, with 97 t from vessels operating in the SPO and 444 t from dual permitted vessels operating in the NPO.

Based on recent levels of bigeye tuna catch by longline vessels to which the U.S. bigeye tuna limit applies, the U.S. longline fleet could reach the assumed U.S. bigeye tuna limit of 3,554 t by November or earlier. Once the prohibition occurs, NMFS expects that territorial governments and/or vessels in the Hawaii longline fishery will seek to negotiate a specified fishing agreement to allocate a portion of a territory's allocation limit. Because federal regulations prohibit a vessel from participating in more than one specified fishing agreement at a time, U.S. longline permitted vessels from Hawaii would enter into specified fishing agreements sequentially, with one or more U.S. territories.

Under the potential outcomes in this section, the expected interaction rate of the Hawaii deep-set longline fishery with protected species is not expected to significantly increase in outcomes yielding the highest total catches. The amount of effort (in hooks deployed) required to fulfill fishing capacity of the fleet is not linearly related to potential catch to fulfill capacity needs. Furthermore, best scientific information available does not demonstrate a linear relationship between effort deployment or bigeye tuna catch with interaction rates with protected species.

Potential Outcome 3A: Three Specified Fishing Agreements and Maximum Allocation of Territorial Limits up to 2,000 mt

Under Option 3, there are several distinct possible fishery outcomes for total catch of bigeye tuna, ranging from one specified fishing agreement (3,554 t from the U.S. limit, plus 2,000 t catch and allocation limit = 5,554 t) to all three specified fishing agreements (3,554 t from the U.S. limit, plus 6,000 t catch and allocation limit = 9,554 t). Under three specified fishing agreements, the maximum allowable catch, however, would be 3,554 t plus 6,000 t in allocations, or 9,554 t. This EA analyzes 9,554 t as the expected fishery Outcome 3A under Alternative 3. Under Outcome 3A, all three territories would each allocate all 2,000 t of their catch limit, and American Samoa would not retain any bigeye tuna for its local fleet.

Potential Outcome 3B: Three Specified Fishing Agreements and Maximum Allocation of Territorial Limit for Guam and the CNMI and 1,500 t Allocation for American Samoa

Because NMFS does not expect American Samoa to allocate its entire 2,000 t catch limit to U.S. longline vessels, we also analyze a more plausible outcome (Outcome 3B), where NMFS would authorize all three specified fishing agreements, with Guam and the CNMI each allocating the maximum of 2,000 t, while American Samoa allocates 1,500 t of its 2,000 t limit for a total of 5,500 t in allocations. Under this scenario (Outcome 3B), American Samoa would retain 500 t for its local fleet. Thus, the maximum allowable catch of bigeye tuna under Outcome 3B would be 9,554 t, with 3,554 t from the U.S. limit, 2,000 t of allocation each from the Guam and the CNMI, plus 1,500 t from the American Samoa allocation, and 500 t from American Samoa catch. While total bigeye mortality would be the same as in Outcome E (i.e., 9,554 t) under this outcome, there are slightly different socioeconomic effects for American Samoa.

Discussion

Under Outcomes 3A and 3B, we do not expect that the longline fisheries based in Hawaii and the U.S. participating territories would change the manner in which they fish, including gear types used, species targeted, area fished, seasons fished, or intensity of fishing. Under higher allocation limits, catch of target and non-target stocks and interactions with protected species could increase in the Hawaii deep-set longline fleet if fishing activity increases, as the catch of bigeye tuna drives fleet dynamics in the longline fishery as a whole. Even under higher allocation limits, we expect that protected species interactions would remain within the conservative levels analyzed in the EA and the proportion of harvested target and non-target stocks compared to the its maximum sustainable yield (MSY) or overall catch to remain low. For these reasons, we do not expect that the impacts would be substantial. NMFS and the Council would continue to develop mitigation measures as fishery management issues are identified."

Potential Outcome 3C: Up to three Specified Fishing Agreements with up to 1,500 t Allocation for Guam, the CNMI, and American Samoa

There are several distinct possible fishery outcomes for total catch of bigeye tuna under allocations up to 1,500 t per territorial agreement. These outcomes from one specified fishing agreement (3,554 t from the U.S. limit, plus 1,500 t catch and allocation limit = 5,054 t) to all three specified fishing agreements (3,554 t from the U.S. limit, plus 4,500 t catch and allocation

limit = 8,054 t). Under three specified fishing agreements, the maximum allowable catch would be 3,554 t plus 4,500 t in allocations, or 8,054 t. This Option includes the possibility of two territorial agreements of 1.500 t to be allocated to the U.S fishery, which is commensurate to recent historical allocations of 1,000 t under three agreements (total allocations of 3,000 t) from 2017 and 2018. In 2019, there was the availability of only two territorial agreements of 1,000 t, which led to premature closure of the fishery prior to December 31, 2019. Option G allows for up to three allocations under specified agreements of up to 1,500 t per territory, such that a significant possibility two specified agreements may fulfill fishing capacity needs of the U.S. fishery throughout the entire fishing year. This EA analyzes 8,054 t as the maximum possible expected fishery Outcome 3C under Alternative 3. Under Outcome 3C, all three territories would each allocate all 1,500 t of their catch limit, and American Samoa would not retain any bigeye tuna for its local fleet if it exceeds 500 t. American Samoa has historically attributed in excess of 500 t per year from dual-permitted vessels and its local fleet, thus there is possibility of American Samoa not retaining its catch of bigeye tuna before the end of the fishing year.

Potential Outcome 3D: Three Specified Fishing Agreements and Maximum Allocation of 1,500 t Allocation for Guam and the CNMI and 1,000 t for American Samoa

Because if American Samoa allocates 1,500 t catch limit to U.S. longline vessels, there is a possibility of dual-permitted and its local fleet exceeding its territorial catch limit of 2,000 t based on previous catch precedence and not having the ability to retain its bigeye catch during the fishing year. We also analyze an outcome to ameliorate this risk (Outcome 3D), where NMFS would authorize all three specified fishing agreements, with Guam and the CNMI each allocating the maximum of 1,500 t, while American Samoa allocates 1,000 t of its 2,000 t limit for a total of 4,000 t in allocations. Under this scenario (Outcome 3D), American Samoa would be able retain an excess of its historical 514 t catch for its local fleet and dual permitted vessels (up to 1,000 t total). Thus, the maximum allowable catch of bigeye tuna under Outcome 3B would be 8,054 t, with 3,554 t from the U.S. limit, 1,500 t of allocation each from the Guam and the CNMI, plus 1,000 t from the American Samoa allocation, and up to 1000 t from American Samoa catch. While total bigeye mortality would be the same as in Outcome 3C (i.e., 8,054 t) under this outcome, there are slightly different socioeconomic effects for American Samoa. American Samoa has not exceeded 700 t catch of bigeye for its dual-permitted vessels and its local fleet in recent years. Fishery participation in American Samoa has declined substantially since 2012, so the probability of catch for American Samoa exceeding its average 2012-2017 catch of 514 t of bigeye tuna (as referenced in the 2019 EA) is negligible and highly unlikely.

Discussion

Conservation and environmental impacts under Outcomes 3C and 3D are covered in analyses in the 2019 EA. Under Outcomes 3C and 3D, we do not expect that the longline fisheries based in Hawaii and the U.S. participating territories would change the manner in which they fish, including gear types used, species targeted, area fished, seasons fished, or intensity of fishing. Under higher allocation limits, catch of target and non-target stocks and interactions with protected species could increase in the Hawaii deep-set longline fleet if fishing activity increases, as the catch of bigeye tuna drives fleet dynamics in the longline fishery as a whole. Even under higher allocation limits, we expect that protected species interactions would remain within the conservative levels analyzed in Section 3.3 of the 2019 EA and the proportion of harvested target

and non-target stocks compared to the its maximum sustainable yield (MSY) or overall catch to remain low. For these reasons, we do not expect that the impacts would be substantial. NMFS and the Council would continue to develop mitigation measures as fishery management issues are identified.

8. References

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