



### Draft Options Paper 2017 Longline Bigeye Catch Limits for the U.S. Pacific Island Territories and Commonwealth

167<sup>th</sup> Council Meeting August 3, 2016 Teleconference

### **1. Introduction**

This paper presents options for consideration by the Western Pacific Regional Fishery Management Council (Council) for the establishment of 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).

Under Article 43 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean<sup>1</sup>, American Samoa, Guam, and CNMI are afforded 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 (Article 30 of the Convention).

Table 1: Preliminar	v 2017 US Partic	ipating Territory	Catch and Transf	er Limit Options
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	Option A	Option B	Option C
Description	Status quo- Specify	2,000 mt longline	Specify greater
	2,000 mt longline	bigeye longline	than 2,000 mt
	bigeye limits for the	limits for the US	annual limits for
	US PTs; specify 1,000	PTs; specify 2,000	the US PTs;
	mt transfer limits per	mt transfer limits	specify greater
	US PT	per territory	than 2,000 mt
			transfer limits per
			territory

<sup>&</sup>lt;sup>1</sup> Otherwise known as the Honolulu Convention of 2000. The convention established the Western and Central Pacific Fisheries Commission.

### 2. Background Information

The 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 is comprised of 26 members, 7 participating territories, and 6 cooperating non-members.<sup>2</sup> Conservation and management measures for HMS are agreed to by the WCPFC and then implemented under domestic law by members and cooperating non-members.

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. Amendment 7 established a process under the authority of the Magnuson-Stevens Act to specify catch and/or effort limits for pelagic fisheries in American Samoa, Guam and the CNMI as recommended by the Council. The process also allows NMFS to authorize the government of each U.S. participating territory to allocate a portion of its catch or fishing effort limit of pelagic management unit species to a U.S. fishing vessel permitted under the Pelagic FEP through specified fishing agreements to support fisheries development in the U.S participating territories (WPFMC and NMFS 2014). Regulations implementing Amendment 7 became effective on October 24, 2014.

Pursuant to Amendment 7 regulations, the Council may recommend the specification of annual Territory bigeye limits on an annual basis. Since 2014, the Council has recommended, and NMFS has approved, a specified a catch 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, and that such vessels land fish in the territory, or deposit funds into the Western

Cooperating Non-member(s): Ecuador, El Salvador, Liberia, Mexico, Panama, Thailand, Vietnam.

<sup>&</sup>lt;sup>2</sup> **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

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 to the Pelagic FEP. For more information see

### 2.1 Fishery Performance of the Hawaii Deep-set Longline Fishery in 2015

The 2015 fishing year for the Hawaii deep-set longline fishery began on January 1, 2015. As shown in Table 2, the US WCPO bigeye limit was set by the WCPFC at 3,554 mt; however, the US reported its 2014 catch of bigeye to the WCPFC to be in excess of its limit by 52 mt. In accordance with CMM 2014-01, any longline bigeye catch overage is to be deducted the following year. As such, NMFS specified that the 2015 WCPO US bigeye limit to be 3,502 mt. On August 5, 2015, NMFS restricted the retention, transshipment and landing of bigeye tuna captured by longline gear in the western and Central Pacific Ocean (WCPO) as a result of the U.S. longline fishery reaching the 2015 U.S. bigeye tuna limit of 3,502 mt (80 FR 44883, July 28, 2015).

In a final rule published on, October 14, 2015, NMFS specified a 2015 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 (80 FR 61767). 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 November 30, 2015, and issued a notice that it would restrict retention of bigeye tuna by vessels identified in the CNMI agreement on that date (80 FR 74002, November 27, 2015).

In a final rule published on November 6, 2015, NMFS specified a 2015 limit of 2,000 metric tons (mt) of longline-caught bigeye tuna for Guam 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 (80 FR 68778). As a result, the Governor of Guam 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 (80 FR 75437, December 2, 2015). 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 Guam fishing agreement on November 25, 2015. NMFS did not implement catch and allocation limits for American Samoa in 2015.

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 3,426 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 Guam specified fishing agreement before the

end of the 2015 fishing year on December 31, 2015<sup>3</sup>. Preliminary data from PIFSC also indicate that the American Samoa longline fishery caught less than 1,000 mt of bigeye tuna in 2015, and no bigeye tuna was harvested by longline vessels in Guam or the CNMI in 2015. Therefore, total bigeye tuna caught by U.S. longline vessels in 2015 remained below the maximum levels analyzed in the 2015 EA.

### 2.2 Fishery Performance of the Hawaii Deep-set Longline Fishery in 2016

NMFS established a calendar year 2016 limit of 3,554 mt of bigeye tuna that may be caught and retained in the U.S. pelagic longline fishery in the area of application of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention Area) (81 FR 41239, June 24, 2016). NMFS monitored the retained catches of bigeye tuna using logbook data submitted by vessel captains and other available information, and determined that the 2016 catch limit would be reached by July 22, 2016 (81 FR 45982, July 15, 2016).

The CNMI government and Hawaii longline vessels have signed a specified fishing agreement applicable to 2016. If NMFS approves the territorial bigeye tuna catch and allocation limits for 2016, it is expected that this agreement will become effective shortly after the territorial catch limits become effective.

In both 2015 and 2016, the catch (mt kept) per unit effort (sets) for bigeye by the Hawaii longline fleet in the WCPFC Area in the first half of the year has been approximately 40% higher than the recent (2007-14) average, based on preliminary data on nominal (not standardized) CPUE. In this area in the first half of 2015 the size (average weight) of bigeye landed by Hawaii longline vessels was larger than in the prior year; and in 2016 preliminary fish size data was larger than the recent (2007-14) average. Both of these factors, combined with phased catch limit reductions, have contributed to the Hawaii longline fishery reaching the US WCPO longline bigeye limit in 2015 and 2016 sooner than in previous years (Dr. Christopher Boggs, NMFS PIFSC, pers. comm, July 25, 2016).

### 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 has been experiencing overfishing since 2004 (69 FR 78397, December 30, 2004), according to stock status determination criteria described in the Pelagic FEP (WPFMC 2009). In the EPO bigeye is not in an overfishing condition. In both the WCPO and EPO, bigeye tuna is not overfished according to stock status determination criteria described in the Pelagic FEP (WPFMC 2009). According to the 2014 stock assessment for bigeye in the WCPO, the spawning biomass of bigeye is below the WCPFC adopted limit reference of SB/SB<sub>F=0</sub> = 0.20.<sup>4</sup>

<sup>&</sup>lt;sup>3</sup> USA. 2016. Annual Report to WCPFC. Part 1: Information on fisheries, research, and statistics.2016.WCPFC-SC12-AR/CCM-27.

<sup>&</sup>lt;sup>4</sup> As indicated in the 2014 WCPO bigeye stock assessment, recent levels (based on 2008-11 average) of spawning potential are most likely at (SB/SBF=0 = 0.20) or below (SB/SBF=0 = 0.16) based on 2012 levels of the limit reference point of 20%SBF=0 agreed by WCPFC.

In the WCPO, bigeye tuna is harvested across a range of fishing gears, with primary impacts from longline and purse seine fisheries. As an internationally managed species, the U.S. cannot end overfishing on bigeye tuna through unilateral actions. International cooperation within the WCPFC is ultimately required to end and prevent overfishing of bigeye tuna in the WCPO. See Appendix 1 for more information on bigeye stock status and catch trends.

Historically, 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 around an equal impact on the bigeye stock as the longline fishery.<sup>5</sup> 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. CMM 2012-01 was later replaced by CMM 2013-01, CMM 2014-01, and then CMM 2015-01. The main provisions of the measures as they relate to purse seine, longline, and other fisheries have been continued in the replaced conservation and management measures including the goal of reducing bigeye tuna mortality to a level no greater than F/Fmsy  $\leq$  1, through a step-by-step approach through 2017. For more information on bigeye stock status see Appendix 1.

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 12 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. Under CMM 2013-01, the US WCPO longline bigeye limit was reduced to 3,554 mt in 2015 and 2016. Under CMM 2015-01, the 2017 US WCPO longline bigeye limit is further to 3,345 mt. CMM 2015-01 is scheduled to expire at the end of 2017.

<sup>&</sup>lt;sup>5</sup> Williams, P. and P. Terawasi. 2015. Overview of the tuna fishery in the Western and Central Pacific Ocean, including economic conditions-2015. WCPFC-SC12-2015/GN WP-1.

Table 2: Annual WCPO Bigeye Longline Catch limits (mt) Adopted by the WCPFC(CMM 2013-01; replaced by CMM 2015-01)

	2014	2015	2016	2017	
CHINA	9,398	8,224	8,224	7,049	
INDONESIA	5,889	5,889	5,889	5,889	
JAPAN	19,670	18,265	18,265	16,860	
REPUBLIC OF KOREA	15,014	13,942	13,942	12,869	
CHINESE TAIPEI	11,288	10,481	10,481	9,675	
USA	3,763	3,554	3,554	3,345	
AUSTRALIA	2,000	2,000	2,000	2,000	
NEW ZEALAND	2,000	2,000	2,000	2,000	
PHILIPPINES	2,000	2,000	2,000	2,000	
EUROPEAN UNION	2,000	2,000	2,000	2,000	
12 PACIFIC ISLAND COUNTRIES and the 3 US PARTICIPATING TERRITORIES	No limit	No limit	No limit	No limit	

### **3.** Purpose of Options Paper

Consistent with Amendment 7 to the Pelagics FEP, the purpose of this options paper is for the Council's initial consideration of specifying 2017 bigeye tuna catch and an allocation limits for longline fisheries of each of the US Participating Territories (American Samoa, Guam and the CNMI).

### 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 NMFS (2015) and NMFS (2016).

**Table 3: Catch Limit Options** 

	Option A	Option B	Option C
Description	Status quo- Specify	2,000 mt longline	Specify greater
	2,000 mt longline	bigeye longline	than 2,000 mt
	bigeye limits for the	limits for the US	annual limits for
	US PTs; specify 1,000	PTs; specify 2,000	the US PTs;
	mt transfer limits per	mt transfer limits	specify greater
	US PT	per territory	than 2,000 mt
		-	transfer limits per
			territory

## A) 2,000 mt longline bigeye longline limits for the US PTs; 1,000 mt transfer limit (status quo)

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 2015-01, whereby no limits are provided to SIDS and Participating Territories. Also under this option, the Territories could assign up to 1,000 mt per year of their annual longline bigeye tuna catch limits through specified fishing agreements with U.S. vessels permitted under the FEP

### B) 2,000 mt longline bigeye limits for the US PTs; 2,000 mt transfer limit

Under this option, an annual longline bigeye limit of 2,000 mt would be established for each Territory. 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.

### C) Greater than 2,000 mt longline bigeye longline limits for the US PTs; Greater than 2,000 mt transfer limits

Under this option, an annual longline bigeye limit greater than 2,000 mt would be established for each Territory. Also under this option, US PTs could assign greater than 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. In order to be effective, the Council would have to identify the limits.

### 5. Pros and Cons of Catch Limit Options

# Option A: Status quo- Specify 2,000 mt longline bigeye limits for the US PTs; 1,000 mt transfer limits per US PT

	Pros	Cons
•	Demonstrates the US is taking stronger conservation measures than what are provided the Territories under WCPFC 2015-01.	• May be reducing fishing development funding opportunities for the Territories by unnecessarily restricting the amount of catch that could be transferred under specified
•	Consistent with previously provided longline limits provided to the Territories (e.g. CMM 2008-01; 2011-01) and same as limits established under CMM 2015-01 for members that have not harvested 2,000 metric tons annually, including New Zealand, Australia, Philippines, and European Union.	fishing agreements, while still achieving conservation objectives.
•	Addresses bigeye overfishing by establishing overall total Territory limits and limits on the amount that is potentially transferred under specified fishing agreements.	
•	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 3,45); this level of catch, if utilized, has been evaluated to not impede the international objective of eliminating overfishing of bigeye.	
•	Supports fisheries development funding opportunities for the US Territories.	
•	Does not unduly constrain existing Territory longline fisheries that land bigeye locally.	

# **Option B: 2,000 mt longline bigeye longline limits for the US PTs; 2,000 mt transfer limits per territory**

	Pros		Cons
•	Demonstrates the US is taking stronger conservation measures than what are provided the Territories under WCPFC 2012-01.	•	Need to take into account American Samoa longline bigeye catches (apprx. 500 mt) in regards to total 2,000 mt limit and the amount that could be transferred.
•	Addresses bigeye overfishing by establishing overall total Territory limits and limits on the amount that is potentially transferred under specified fishing agreements.	•	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
•	Consistent with previously provided longline limits provided to the Territories (e.g. CMM 2008-01; 2011-01) and same as limits established under CMM 2015-01 for members that have not harvested 2,000 metric tons annually, including New Zealand, Australia, Philippines, and European Union.		under multiyear specified fishing arrangements.
•	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.		

# Option C: Specify greater than 2,000 mt annual limits and greater than 2,000 mt transfer limits per territory

	Pros		Cons
Der con pro 201	nonstrates the US is taking stronger servation measures than what are vided the Territories under WCPFC 5-01.	•	Council would need to identify the exact limits to facilitate evaluation for impacts to the WCPO bigeye stock.
<ul> <li>Addesta and tran agree</li> <li>Sup opp Ter</li> </ul>	dresses bigeye overfishing by ablishing overall total Territory limits limits on the amount that is potentially asferred under specified fishing eements. poorts fisheries development portunities in the US Participating ritories.	•	Would establish an overall longline bigeye limit applicable to US vessels in the WCPO greater than 9,544 mt (6,000 mt total for Territories + US limit of 3,554). 9,554 mt was evaluated to not impede WCPFC conservation objectives to eliminate bigeye overfishing. New catch limit levels of greater catch limits for US Territories would require new analyses on bigeye stock status.
		•	Not consistent with previous longline limits provided to the Territories (e.g. CMM 2008-01; 2011-01) and or limits established under CMM 2015-01 for members that have not harvested 2,000 metric tons annually, including New Zealand, Australia, Philippines, and European Union.

The following table is for informational purposes and relates to the NMFS Environmental Assessment associated with the 2015 and 2016 Territory specification rule makings (See NMFS 2015). 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 that was in effect in 2015. Note that the US WCPO bigeye longline limit is scheduled to be reduced further in the 2017 to 3,345 mt in 2017 under CMM 2015-01.

Table 4: Stochastic projections related to potential utilization of Territory bigeye limits, and % increase in median  $F/F_{MSY}$ ,  $SB/SB_{MSY}$  and  $B/B_{MSY}$  levels,  $SB_{2032}/SB_{F=0}$ , at various scalars, and using stochastic projections of recent average bigeye tuna recruitment (2002-2011) distributions.

	Baseline Catch	Alternative	1: No Action		Alternative 2: 2,000 mt Catch Limit and 1,000 mt Allocation Limit for ea					each U.S. Terri	itory
	Cutch			Pa	otential	Po	tential	Pote	ential	Potential	
				Out	tcome A	Outcome B		Outcome C		Outcome D	
No. of Specified	2012	No Fishing Ag	reements and	1 Fishin	g Agreement	2 Fishing Agreements and		3 Fishing		3 Fishing Ag	greement and
Fishing		No BET 7	Fransfers	and 1,00	0 mt of BET	2,000 mt of	2,000 mt of BET Transfers		ents and	3,000 mt of 1	BET transfers
Agreements				Transfers				3,000 mt of BET		and Full Util	ization of BET
								Transfers		limits in Territories	
U.S. Longline	4,998 mt*	3,948	8 mt*	4,948 mt*		5,948 mt*		6,948 mt*		9,554 mt	
BET Catch											
(Regions 2 and	HI: 3,660	HI: 3,554		HI: 3,554		HI: 3,554		HI: 3,554		HI: 3,554	
4)	AS: 567	AS: 394		AS: 394		AS: 394		AS: 394		AS: 1,000	
	Transfers:	Transfers: 0		Transfers:	1,000	Transfers: 2,000		Transfers:	3,000	GU: 1,000	
	771									CNMI: 1,000	
										Transfers: 3,0	00
			Percent		Percent		Percent		Percent		Percent
			Change		Change		Change		Change		Change
2032 F/F <sub>MSY</sub>	0.983	0.978	-0.5%	0.983	0.0%	0.987	0.4%	0.993	1.0%	1.007	2.5%
2032 SB/SB <sub>MSY</sub>	1.568	1.580	0.8%	1.568	0.0%	1.556	-0.7%	1.545	-1.5%	1.515	-3.3%
2032 B/B <sub>MSY</sub>	1.554	1.565	0.7%	1.555	0.0%	1.545	-0.6%	1.535	-1.3%	1.510	-2.8%
SB <sub>2032</sub> /SBF=0	0.330	0.332	0.7%	0.330	0.0%	0.328	-0.6%	0.326	-1.3%	0.320	-3.1%

Source: NMFS 2015 (b)

WPFMC and NMFS PIRO, 2015.



### **Appendix 1- Information on WCPO bigeye stock status and catch trends**

**Figure 1: Areas of competency for the WCPFC and IATTC** Shaded portion is an overlap area shared between the two RFMOs.

#### WCPO Bigeye stock Status

Bigeye tuna is considered a Pacific-wide stock, but is assessed separately in the WCPO and EPO. The most recent stock assessment for WCPO bigeye tuna was completed in 2014 and covers bigeye tuna from Indonesia in the far western Pacific, to the 150° W in the central Pacific Ocean (Harley et al., 2014). The 2014 stock assessment further separates fishing areas into 9 regions, and evaluates biomass and fishing mortality information and trends within the regions. The regions with the highest impact to bigeye tuna in the WCPO are Regions 3 and 4 – representing 88 percent of bigeye tuna fishing mortality (WCPFC 2011a). Regions 3 and 4 – comprise the tropical equatorial zone between 20° N and 10° S, and where the area between 10° N and 10° S can be further characterized as the core zone for the tropical tuna longline and purse seine fisheries (Figure 2).



**Figure 2: Distribution of bigeye tuna catch, 1990-2015** Note: WCPO Stock Assessment regions shown in purple Source: Williams and Terawasi, 2016

Bigeye tuna in the WCPO is currently subject to overfishing due to international overfishing (F/F<sub>MSY</sub>=1.57). Based on the status determination criteria set forth in the Pelagic FEP, bigeye tuna is not overfished (SB/SB<sub>MSY</sub>=0.94).<sup>6</sup>



**Figure 3: Kobe plot (left) from 2014 WCPO Bigeye Stock Assessment** Source: Harley et al. 2014

<sup>&</sup>lt;sup>6</sup> Under the Pelagics FEP, bigeye would be in an overfished condition if  $B/B_{MSY} < 0.6$ . The 2014 WCPFC bigeye stock assessment does not calculate  $B_{MSY}$ , so spawning biomass can be used as a proxy. As shown above, the ration of bigeye spawning biomass to that associated with MSY is:  $SB/SB_{MSY}=0.94$ .

The majority of fishing effort by the Hawaii longline fishery occurs north of above 20° N in Region 2, and further 98% of bigeye tuna caught by the Hawaii longline fishery comes from north of 10° N and outside of the core equatorial zone of heavy purse seine and longline fishing (NMFS unpublished data). As shown in Figure 2, the estimated impact of bigeye tuna catches in Region 2 is much lower than Regions 3 and 4, where the majority of catch occurs. The WCPFC Scientific Committee has recognized the disparity in impacts to the stock between evaluated regions in the stock assessment and has recommend that the WCPFC consider adopting spatial management measures to address overfishing of bigeye tuna (WCPFC 2011).



**Figure 4: Estimated total biomass trajectories of bigeye tuna in the WCPO with biomass trajectories that would have occurred in the absence of fishing.** Source: Harley et al. 2014.

Since 1980, the Pacific-wide total catch of bigeye (all gears) has varied between 120,000 and 290,000 mt, with Japanese longline vessels generally contributing over 80% of the catch until the early 1990s. The provisional 2015 bigeye catch for the Pacific Ocean (231,470 mt) was about 10,000 mt lower than in 2014 and slightly lower than the average for the past ten years (Williams and Terawasi, 2015).



**Figure 5: Pacific-wide bigeye catch (mt) by gear** Source: Williams and Terawasi 2016

The provisional WCP-CA longline bigeye catch for 2015, at 63,986 mt, is the lowest catch since 1991 (slightly higher than in 2013 – 64,420 mt – also a low catch year). The provisional WCP–CA purse seine bigeye catch for 2015 was estimated to be 48,772 mt was also amongst the lowest catch levels for this fishery over the past twenty years. The WCP–CA pole-and-line fishery has generally accounted for between 3,000–10,000 mt (2-6%) of bigeye catch annually over the past decade. The "other" category, representing various gears in the Philippine, Indonesian and Japanese domestic fisheries, has accounted for an estimated 12,000–16,000 mt (3–7% of the total WCP–CA bigeye catch) in recent years (Williams and Terawasi 2016).



**Figure 6: Bigeye catch (mt) in the WCP-CA by gear type** Source: Williams and Terawasi 2016

**Table 5: Catch of bigeye in the WCP-CA by gear and by flag, 2010-2015** GEAR : 'G'–Gillnet; 'H'–Handline; 'L'–Longline; 'P'–Pole-and-line; 'S'–Purse seine and ringnet; 'T'-Troll; 'Z'- Others (mainly artisanal/subsistence fisheries).

Source: Pacific Community 2016; USA Part I Report to WCPFC 2016.

GEAR	COM	2010	2011	2012	2013	2014	2015
G	INDONESIA	0	0	0	1,602	1,875	248
G	JAPAN	2	1	2	2	2	2
G	VIETNAM	646	606	363	400	641	472
		648	607	365	2,004	2,518	72.2
H	INDONESIA	218	444	1,231	1,086	3, 465	5,845
н	PHILIPPINES	1,684	825	1,508	1,207	771	2,000
н	USA	340	296	298	392	206	202
		2,242	1, 565	3,037	2,685	4, 442	8,047
L	AMERICAN SAMOA	487	1,269	1,502	359	327	51.5
L	AUSTRALIA	458	379	482	42.5	440	719
L	BELIZE	89	102	132	217	217	0
L	CHINA	13,924	11,139	11,324	10,671	9,370	8,210
L	CHINESE TAIPEI	11,552	11,275	10,994	10,600	10,018	7,977
L	COOK ISLANDS	319	925	1,624	208	194	152
L	EU-PORTUGAL	0	3	17	106	71	17
L	EU-SPAIN	15	10	23	23	65	53
L	FIJI	539	1,718	1,588	1,018	1,698	1,184
L	FRENCH POLYNESIA	43.6	607	65.4	787	741	794
L	FSM	899	1,500	1,700	1,270	1,388	1,518
L	GUAM	0	0	0	0	0	831
L	INDONESIA	3,380	4,714	5,371	4, 513	7,194	3,762
L	JAPAN	15,983	16,885	15,533	11,903	14,555	12,521
L	KIRIBATI	3	155	800	582	268	556
L	MARSHALL ISLANDS	257	259	335	80	0	0
L	NEW CALEDONIA	44	41	49	51	58	63
L	NEW ZEALAND	132	174	154	109	122	122
L	NIUE	4	0	0	0	0	0
L	NORTHERN MARIANAS	0	0	0	492	1001	1,000
L	PAPUA NEW GUINEA	39	59	119	32	52	15
L	PHILIPPINES	59	777	248	167	63	0
L	REPUBLIC OF KOREA	13,914	15,282	18,823	12,818	12,779	7,745
L	SAMOA	108	71	54	36	48	48
L	SENEGAL	0	0	0	0	0	0
L	SOLOMON ISLANDS	806	213	0	0	3,054	4,160
L	TONGA	24	18	10	7	22	25
L	TUVALU	0	105	1,408	76	76	204
L	USA	3,577	3, 565	3,660	4,113	4,815	3,426
L	VANUATU	2,060	2,060	2,151	1,989	3,419	6,019
L	VIETNAM	2,441	3, 424	3,761	2,260	2,350	2,350
L	WALLIS AND FUTUNA	0	6	0	0	0	0
		71,549	76,735	82,516	64,420	73,404	63,986
P	FRENCH POLYNESIA	0	0	2	4	2	1
P	INDONESIA	4,645	3,308	1,817	2,586	2,053	4,906
P	JAPAN	2,374	2,339	2,107	2,411	2,658	760
P	KIRIBATI	8	8	8	8	0	0
P	NEW ZEALAND	0	0	0	0	0	0
P	SOLOMON ISLANDS	0	0	0	0	1	0
P	USA	0	0	0	0	0	0
		7,027	5,655	3,934	5,009	4,714	5,667
3	AUSTRALIA	0	0	0	0	0	0
3	CHINA	2,202	4,300	2,476	3,682	2,684	1,907
S	CHINESE TAIPEI	6,456	8,536	8,253	8,735	8,455	6,635
3	EASTERN PACIFIC	305	305	30.5	0	0	0
3	ECUADOR	1,558	3, 198	3,936	3,145	2,414	1,094
3	EL SALVADOR	1,169	1,871	1,943	1,977	1,912	380
3	EU-SPAIN	4,134	6,097	5,354	7,116	5,471	1,812
3	FSM	986	1,177	1,744	1,136	1,617	1,591

GEAR	COM	2010	2011	2012	2013	2014	2015
3	INDONESIA	2,038	1,746	1,940	4,507	2,054	2,049
S	JAPAN	2,790	2,675	3,493	2,821	4,000	3,978
S	KIRIBATI	2,091	3,740	2,009	3,847	4,294	2,817
S	MARSHALL ISLANDS	3,396	6, 530	4,545	4,412	3,714	2,642
S	NEW ZEALAND	395	535	21.4	419	278	58
S	PAPUA NEW GUINEA	6,014	4, 422	6,951	5,961	7,671	6,813
S	PHILIPPINES	4,746	2,797	4,993	4,074	4,745	4,644
S	REPUBLIC OF KOREA	6,857	7,942	5,326	5,471	4,954	5,071
S	SOLOMON ISLANDS	31.5	1,018	603	727	60.0	189
S	TUVALU	183	202	359	258	170	57
S	USA	7,934	11,778	8,582	12,290	9,678	5,690
S	VANUATU	705	1,142	817	641	691	32.4
S	VIETNAM	32.5	688	965	80.5	1,192	1,394
		54,599	70,699	64,808	72,024	66,594	49,145
т	AMERICAN SAMOA	0	0	0	0	0	0
т	CANADA	0	0	0	0	0	0
т	COOK ISLANDS	0	0	0	0	0	0
т	INDONESIA	0	0	0	3,175	3,910	4,061
т	JAPAN	157	141	118	118	118	118
т	NAURU	0	0	0	0	0	0
т	NEW ZEALAND	0	0	0	2	0	0
т	TOKELAU	0	0	0	0	0	0
т	TUVALU	0	0	0	5	9	5
т	USA	118	110	155	147	128	59
		275	251	273	3,447	4,165	4,243
Z	AUSTRALIA	0	20	8	6	19	19
Z	FRENCH POLYNESIA	0	0	0	14	16	21
Z	INDONESIA	490	2,688	8,565	3,337	3,316	1,868
Z	JAPAN	86	140	146	146	146	146
Z	KIRIBATI	0	0	0	0	0	0
z	NEW ZEALAND	0	0	0	0	0	0
Z	NIUE	0	0	0	0	0	0
z	PHILIPPINES	365	1	43	216	155	22.0
		941	2,849	8,762	3,719	3,652	2,274

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