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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
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Honolulu, Hawaii 96818
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Regulatory Amendment

Exemption for Large (≥ 50 ft) U.S. Longline Vessels to Fish in Portions of the American Samoa Large Vessel Prohibited Areas

Including an Environmental Assessment and Regulatory Impact Review

RIN 0648-BF22

January 8, 2016

Western Pacific Fishery Management Council
1164 Bishop St. Suite 1400
Honolulu, HI 96813

and

Pacific Islands Regional Office
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
1845 Wasp Blvd. Bldg. 176
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Responsible Agency:
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Abstract:

The Western Pacific Fishery Management Council (Council) recommended that the National Marine Fisheries Service (NMFS) amend federal regulations governing the American Samoa pelagic longline fishery to provide an exemption for longline vessels 50 ft and longer holding an American Samoa longline limited entry permit to fish within certain portions of the large vessel prohibited area (LVPA), see 50 CFR 665.806). Federal regulations prohibit large vessels, defined at 50 CFR 665.12, as vessels equal to or greater than 50 ft in length, from fishing for pelagic management unit species within the LVPA. The proposed action (Alternative 4c) allows large longline vessels to fish inside the LVPA seaward of 12 nm of Swains Island, and Tutuila and Manua Islands. NMFS will continue to prohibit fishing in the LVPA by large purse seine vessels. The fishing requirements for the Rose Atoll Marine National Monument remain unchanged.

The Council and NMFS will review annually the effects of the action on catch rates of all pelagic fishery participants, small vessel participation in pelagic fisheries, and sustainable fisheries development initiatives. The action allows large U.S. longline vessels to fish over an additional 16,817 nm² of ocean total, thereby reducing the total area of the U.S. Exclusive Economic Zone (EEZ) around American Samoa that is closed to large longline vessels from 25.5 to 11.3%. The purpose of this action is to provide regulatory relief to large longline vessels in order to improve the efficiency of the American Samoa longline fleet and to promote its economic viability while ensuring fishing by the longline and small vessel fleets remain sustainable on a continual basis.

NMFS prepared this environmental assessment (EA) to evaluate the potential environmental impacts of the proposed action on the human environment. The EA considers information provided in an October 30, 2015, biological opinion on the potential impacts of the American Samoa longline fishery on threatened and endangered species and their habitats. This information was not available when NMFS made the draft EA, dated August 10, 2015, available for public review and comment (80 FR 51527, August 25, 2015), although the EA noted NMFS had reinitiated consultation under the Endangered Species Act (ESA) and had conducted a 7(a)(2), 7(d) analysis. The analyses in the EA indicate that the proposed action is not expected to result in adverse effects on the sustainability of other non-target species, bycatch species, protected species, or adversely affect marine habitats.

Obtain copies of this document and the associated final rule by searching on RIN 0648-BF22 at www.regulations.gov, or by contacting the responsible official or Council at the above address.

Executive Summary

The Western Pacific Fishery Management Council (Council) recommended an amendment to federal regulations to allow large (equal to or greater than 50 ft length overall) longline vessels that are permitted under the American Samoa longline limited entry program to fish within certain portions of the Large Vessel Prohibited Area (LPVA) around American Samoa (Figure ES-3). The Council and NMFS would modify regulations governing the American Samoa longline fishery to exempt all federally permitted large longline vessels (large longline vessels) from the prohibition on fishing in certain portions of the LVPA. The Council recommended the exemption not apply within 12 nm of Tutuila, Manua Islands, and Swains Island, or the portion of the LPVA coterminous with the Rose Atoll Marine National Monument (MNM). NMFS would continue to prohibit large longline vessels from fishing within the EEZ from 3-12 nm from shore around Tutuila, Manua Islands, and Swains Island, and within the entire Rose Atoll MNM. The Council further recommended that they and NMFS annually review management of the American Samoa longline fishery under the proposed regulatory exemption regarding, but not limited to, the following topics:

a) Catch rates of all pelagic fishery participants;
b) Small vessel participation in pelagic fisheries; and
c) Sustainable fisheries development initiatives.

American Samoa longline vessels primarily target albacore using deep-set longline fishing gear. Fishermen sell the albacore to one of the local canneries located in Pago Pago Harbor. The Council and NMFS established the LPVA in 2002, at a time when the American Samoa longline fishery comprised about 40 small alia catamarans (vessels less than 50 ft long) and 25 large conventional mono-hull longline vessels. At that time, consistent with the Council's recommendation, NMFS established the LVPA, which encompasses waters from three to approximately 50 nm around the islands of the American Samoa Archipelago to separate small alia longline vessels from large longline and purse seine vessels, and to reduce the potential for gear conflict and catch competition between small and large vessels. During the establishment of the LVPA, two large vessel permit holders were "grandfathered" to fish in the LVPA because of their long history of fishing in waters encompassed by the LVPA. These are the only individuals authorized to fish within the LVPA with large vessels. However, only one of the grandfathered vessels actively fished, and currently fishes, in the LVPA.

Since 2006, fewer than three alia (small longline vessels) have been operating on a regular basis; and of these, only one was active in 2013 and 2014. Currently, there are fewer than 50 other small vessels that fish both commercially and recreationally for yellowfin and skipjack tunas and billfishes in nearshore waters and on offshore banks around American Samoa. Therefore, even accounting for the potential for competition with pelagic troll and recreational vessels, the conditions that led to the establishment of the LVPA in 2002 no longer support a full 50 nm closure.

While the LVPA may benefit a few small alia vessels, and these other fishing sectors, the LVPAmay be further reducing the fishing efficiency of large longline vessels in combination

with reduced catch per unit effort (CPUE), lower sales price for fish and increasing operational costs. The South Pacific albacore stock is not subject to overfishing and is not overfished.

Since 2001, large longline vessels have faced declining CPUE and increased costs. This may be partially due to displacement from a part of the fleet's historical fishing grounds due to the implementation of the LVPA. Once the LVPA was established, large longline vessels longer than 50 ft had to venture beyond 50 nm from shore to begin fishing. After years of declining CPUE and rising fuel costs, incomes had declined by 90% by 2009, and in 2013 and 2014, longline operations began to lose money.

Currently, the American Samoa longline fleet is experiencing dire economic conditions and several vessels have left the fishery in recent years. One could attribute low CPUE by the fleet to increased catches of South Pacific albacore across its range, some localized depletion due to more intensive effort in a smaller area, and inefficiency in fishing operations as large longline vessels are not able to follow fish from outside the LVPA once the fish enter the LPVA. Lower CPUE, lower catches, high costs, and low prices for fish by the cannery all combine to result in an economically distressed fishery.

An exemption that would allow large longline vessels to fish in a portion of the LPVA may assist the longline fleet by spreading the fishing effort over a larger fishable area, thereby reducing catch competition among remaining large vessels, promoting economic efficiency, improving profits and, in some cases, reducing transit costs.

The analyses in this document indicate that the American Samoa longline fishery does not negatively affect the sustainability of the American Samoa bottomfish fishery, which targets reef associated snappers and groupers, or the commercial and non-commercial troll fisheries, which target skipjack, yellowfin and billfish. Moreover, large longline vessels would still be prohibited from fishing within EEZ from 3-12 nm around the islands of American Samoa, thus maintaining opportunities for the small vessel alia longline fleet to rebuild and increase participation in that segment of the fishery.

The proposed action would maintain all existing monitoring measures, including: permits and logbook reporting requirements, dockside inspections by the U.S. Coast Guard and NMFS Office of Law Enforcement (OLE), Vessel Monitoring Systems that track vessel movements through satellite transmissions, independent observer monitoring, fishing gear and depth requirements; vessel marking requirements; requirements pertaining to protected species workshops, and handling/mitigation and catch and release protocols for turtles, seabirds, cetaceans, and sharks.

Experience from one large longline vessel NMFS authorized to fish in the LPVA pursuant to federal regulations at 50 CFR 665.818 suggests that fishing conditions are sometimes better in the LVPA than outside these zones in addition to reducing fuel consumption and fishing time. While fish are not always guaranteed to be found in an LPVA, once found, they can be followed into or out of the LPVA, thus allowing for the opportunity to increase catch rates and improving fishing efficiency.

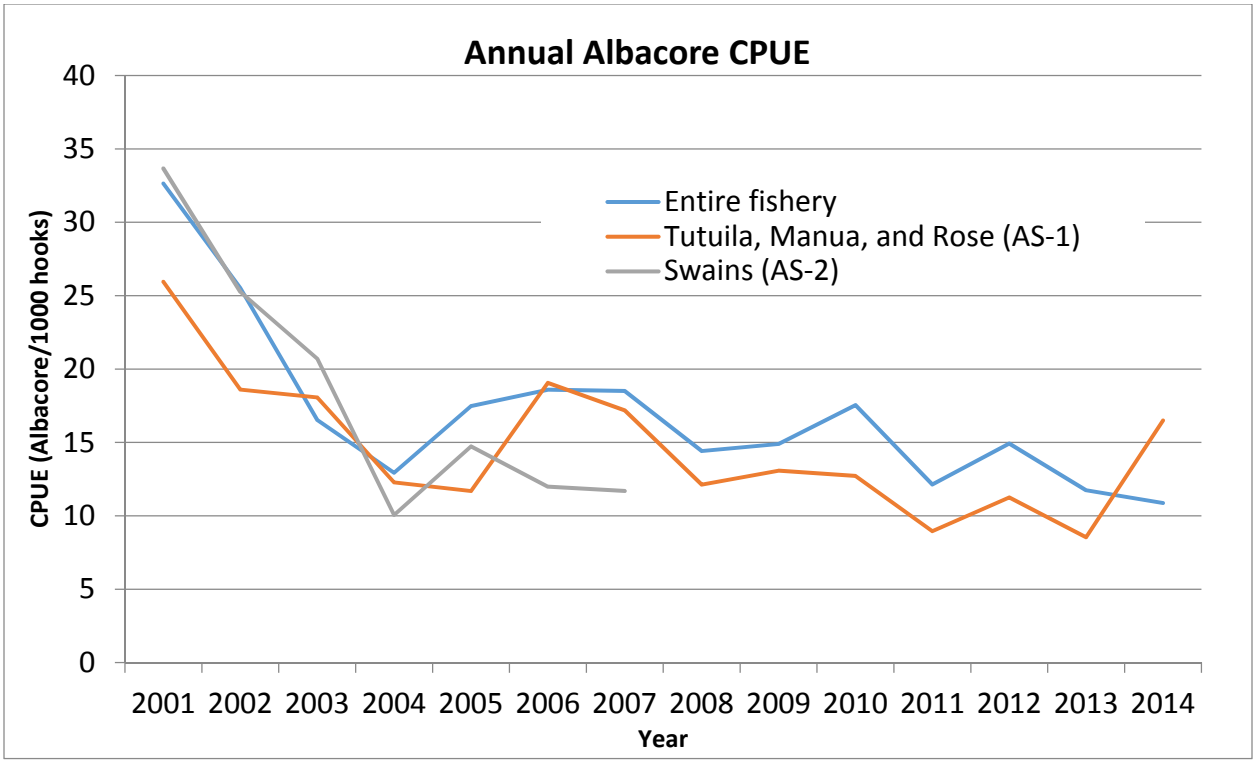


Figure ES-1: Annual albacore CPUE (fish per 1,000 hooks) from 2001–2014 for the entire American Samoa longline fishery, for the LVPA around Tutuila, the Manua Islands, and Rose Atoll and for the area around Swains Island.
Source: PIFSC unpublished data.
Note: Data for LVPA around Swains beyond 2007 not presented due to data confidentiality requirements. The 2014 data points do not include October-December.

There are times during the year that catch rates for albacore may be much greater inside the LVPA than outside (Figure ES-2).

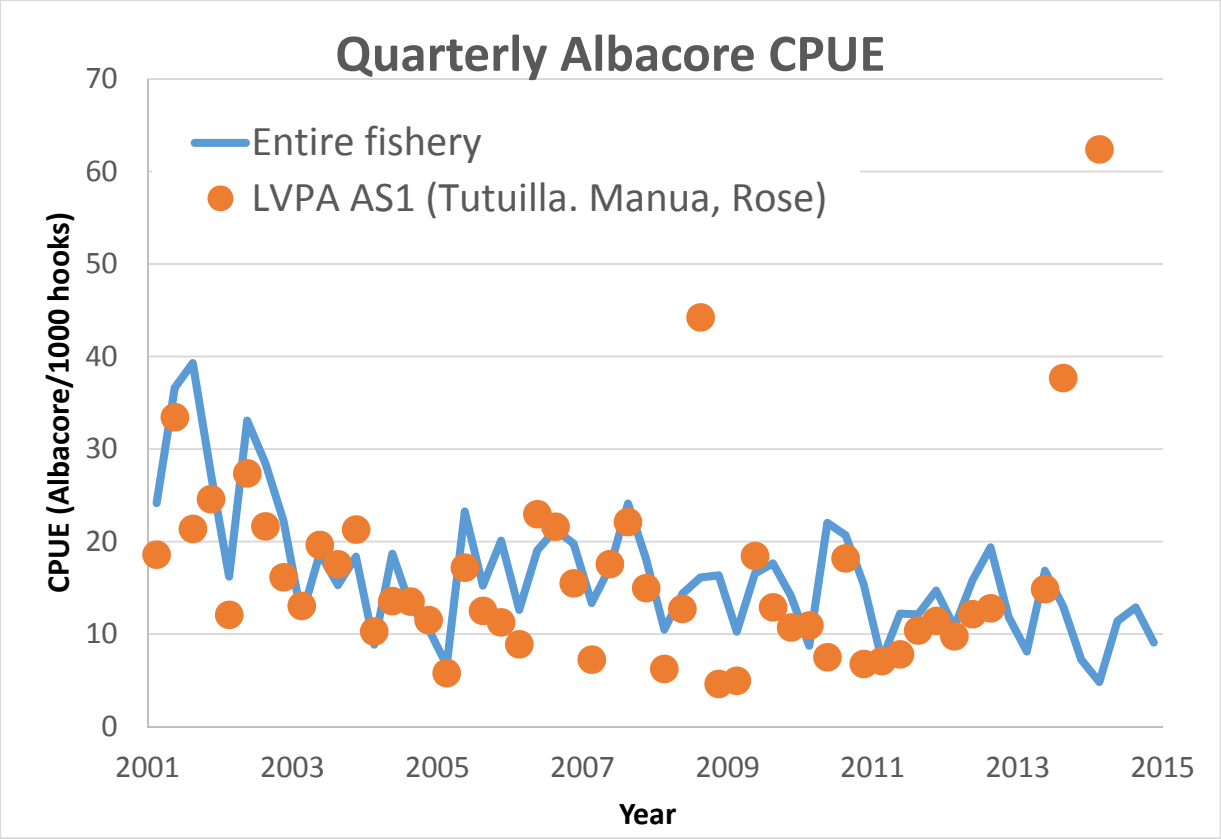


Figure ES-2: Quarterly albacore CPUE (fish per 1,000 hooks) from 2001–2015 for the entire American Samoa longline fishery, and for the LVPA around Tutuila, the Manua Islands, and Rose Atoll

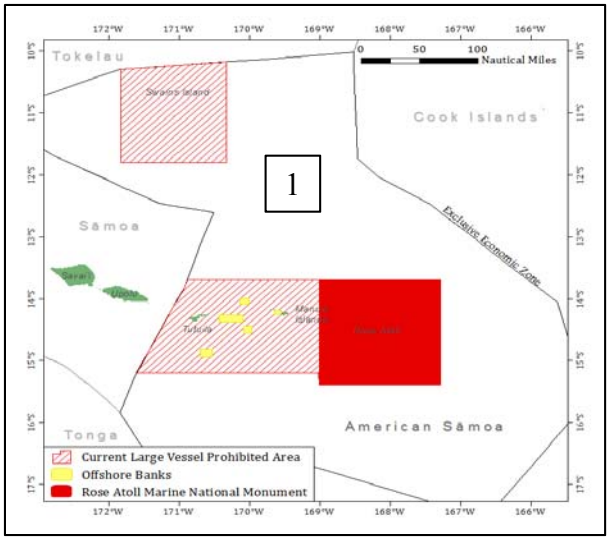
Source: PIFSC unpublished data.

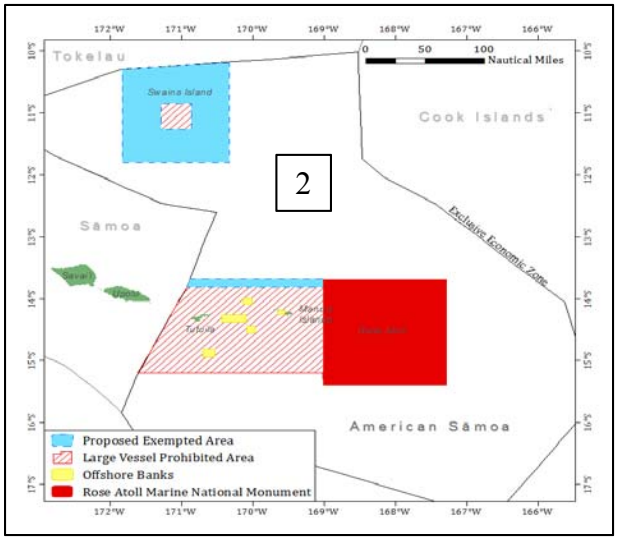
Note: Albacore CPUEs for fishing that occurred inside the LVPA for some years beyond 2011 are not shown due to data confidentiality requirements. Swains Island not shown because in many quarters there was no fishing, or fishing was conducted by fewer than three vessels.

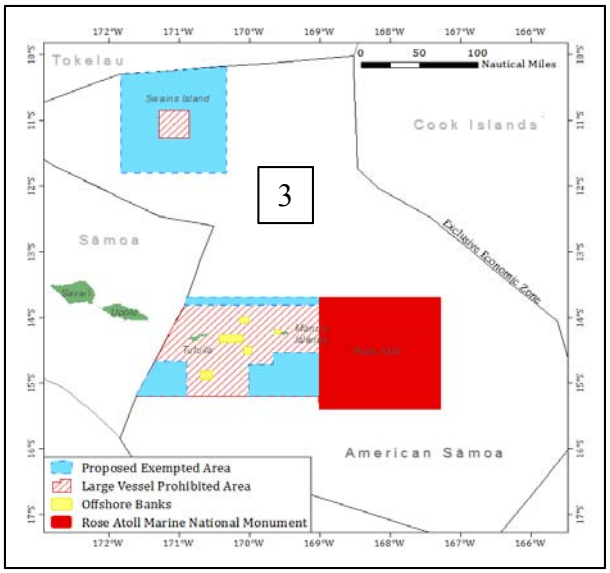
The Council considered a range of possible spatial areas and temporal exemptions to the LVPA; they form the range of alternatives analyzed herein. For example, the alternative period of duration of the proposed LVPA exemption ranged from: a) one year, b) three years, or c) no specified end period, but with periodic review and re-evaluation by the Council. The last temporal alternative would support an adaptive management framework that would allow the Council and NMFS to respond to changing fishing conditions and fisheries development. There is interest on the part of local fishery managers and members of the fishing community in reviving the small vessel alia fleet, but this will take time and, in the meantime, medium and large longline vessels could make efficient use of the waters currently off limits to them in portions of the LPVA.

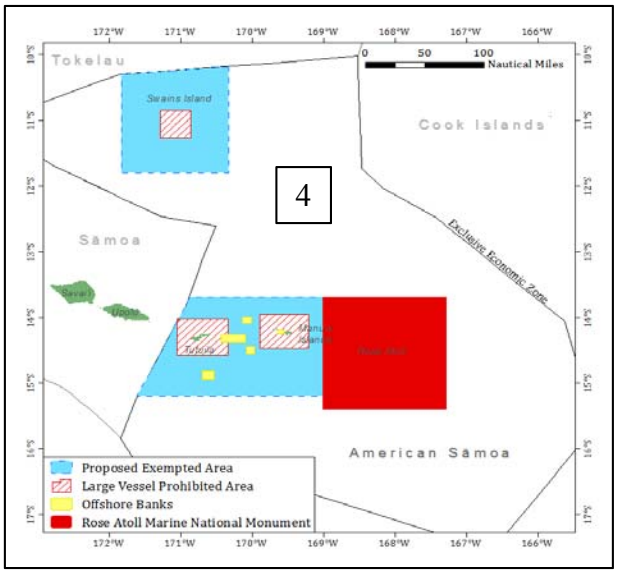
The analysis in this document shows that the proposed action may help the fishery achieve better yields of albacore on a sustainable and continuing basis and is not expected to result in overfishing of target albacore, or other not target stocks.

The proposed action is intended to improve fishing efficiency of large longline vessels. Given the low number of active alia longline vessels and limited range and frequency of non-longline pelagic fisheries, the proposed action is not expected to result in catch competition or gear conflict between large and small pelagic fishing vessels. Regardless of which alternative is selected for implementation, NMFS would continue to prohibit large longline vessels (with the exception of the two grandfathered vessels) from fishing within the LVPA from 3-12 nm around Tutuila, Swains and the Manua Islands, and from fishing within the entire LVPA around within the Rose Atoll MNM. This restriction would continue to provide a spatial separation between most large longline vessels and small vessels (i.e., alia longline vessels as well as pelagic troll vessels to prevent gear conflicts in areas preferentially fished by trollers around Tutuila and Manua Islands). This continued restriction would also provide a buffer between longline fishing gear and coral reefs of Swains Islands and Rose Atoll. NMFS would continue to prohibit fishing in the LVPA by large purse seine vessels.









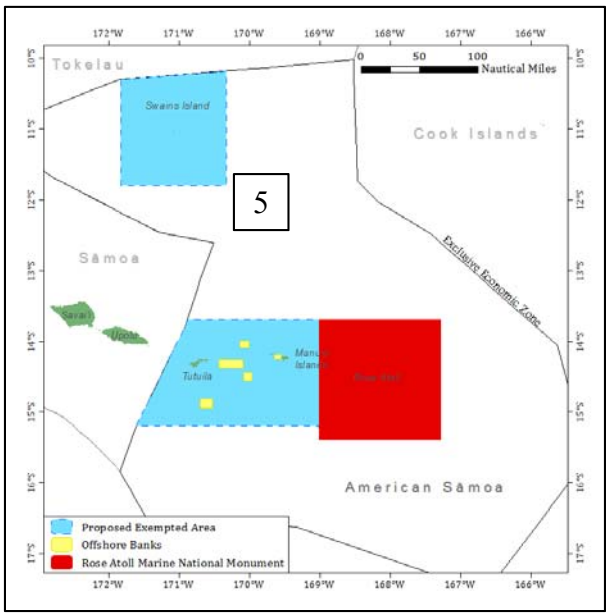


Figure ES-3: Summary graphic comparing the No Action Alternative (Alternative 1) and four action alternatives (Alternatives 2 through 5) under which large longline vessels would be allowed to fish within some portion of the LPVA around American Samoa. Alternative 4, (4c) is the preferred alternative. See Section 2 for a description of each alternative.

Regulatory Amendment

Exemption for Large (≥ 50 ft) U.S. Longline Vessels to Fish in Portions of the American Samoa Large Vessel Prohibited Areas

Including an Environmental Assessment and Regulatory Impact Review

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Acronyms and Abbreviations

APA	Administrative Procedure Act
ASG	American Samoa Government
CMM	Conservation and management measure
CPUE	Catch per unit of effort
DMWR	American Samoa Department of Marine and Wildlife Resources
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EPO	Eastern Pacific Ocean
ESA	Endangered Species Act
FAD	Fish aggregating device
FEP	Fishery ecosystem plan
FMP	Fishery management plan
FR	*Federal Register*
HAPC	Habitat Areas of Particular Concern
IATTC	Inter-American Tropical Tuna Commission
ITS	Incidental Take Statement
MMPA	Marine Mammal Protection Act
MSY	Maximum sustainable yield
MUS	Management unit species
NMFS	National Marine Fisheries Service
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
PIFSC	NMFS Pacific Islands Fisheries Science Center
PIRO	NMFS Pacific Islands Regional Office
RFMO	Regional fishery management organization
SEC	South Equatorial Current
SECC	South Equatorial Counter Current
SSC	Scientific and Statistical Committee
SPC	Secretariat of the Pacific Community
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
VMS	Vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and central Pacific Ocean
WPFMC	Western Pacific Fishery Management Council (Council)

1 Introduction

1.1 Background information

In the early 1990s, longline fishing technology in what was then Western Samoa (now simply Samoa) was imported to American Samoa. This method of fishing utilized a locally manufactured outboard powered aluminum catamaran of about 30 ft in length and a hand operated monofilament longline with between 200 and 300 hooks suspended from a mainline with floats. The principal target of this fishery was albacore tuna, which fishermen sold to the then-operational StarKist cannery in Pago Pago. This method of fishing expanded rapidly due the relatively inexpensive start-up and running costs (WPFMC, 2000).

After this small vessel or "alia" fishery had begun to develop, longline vessels greater than 50 ft in length overall (>50 ft) began entering the fishery. The reaction from the alia fishermen was to request that the Western Pacific Fishery Management Council (Council) implement an area closure around the islands of American Samoa for pelagic fishing vessels ≥50 ft long. At the time, alia fishermen were concerned that, because the larger longline vessels were deploying as many as 3,000 hooks in a set, these larger operations might outcompete the smaller alia fishing operations. The limited range of the alia fishermen meant that they were essentially coastal vessels enduring whatever the fishing conditions persisted around Tutuila. The large longline vessels could range out into the U.S. Exclusive Economic Zone (EEZ) around American Samoa and even into waters beyond, onto the high seas or into the EEZs of neighboring countries through licensing agreements.

The Council initially recommended a 100-nm closure for pelagic fishing vessels ≥50 ft, but the Secretary of Commerce, through the National Marine Fisheries Service (NMFS), disapproved the action in March 1999. The Council later recommended establishing prohibited fishing areas for vessels greater than 50 ft long in certain parts of the U.S. EEZ around American Samoa. NMFS implemented the Council's recommendation in early 2002 (67 FR 4369, January 30, 2002).

The number of alia longline vessels fishery reached its peak in 2001, and by 2002, had begun to decline (see Figure 20 in Section 4.9.7) By 2006, fewer than three alia vessels were operating in the fishery, and by 2014, only one alia longline vessel remained active in the fishery

The large vessel fishery expanded rapidly after the year 2000 and reached a peak of about 30 vessels in 2004, after which it declined to 19 vessels in 2014. The large vessel component of the American Samoa longline fishery has endured a prolonged period of low catch, as well as poor economic conditions. In 2013, longline vessels based in American Samoa recorded their lowest annual catch in the past decade. The catch of the American Samoa longline fleet reached a maximum of about 6,000 mt (more than 300,000 fish) in 2002, and catches have declined since 2007. The catch per unit of effort (CPUE) has declined by 40% on average, and the 2013 catch rate hit a record low and 70% less than the highest catch rate, recorded in 1996 (Figure 1).

In recent years, longline vessels caught a low of about 2,000 mt (~117,000 fish) in 2013 and 2014 (Figure 2).

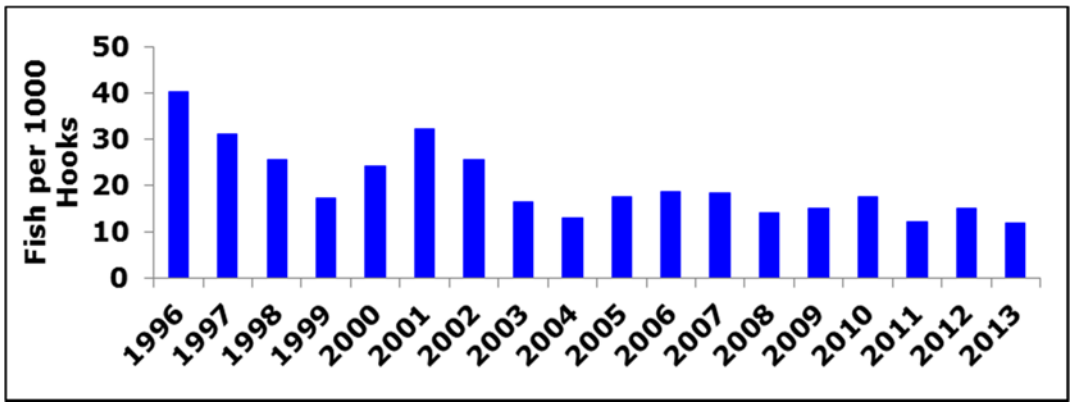

Figure 1. Time-series of albacore CPUE in the American Samoa longline fishery 1996–2013.
Source: NMFS WPacFIN[1] plus unpublished data

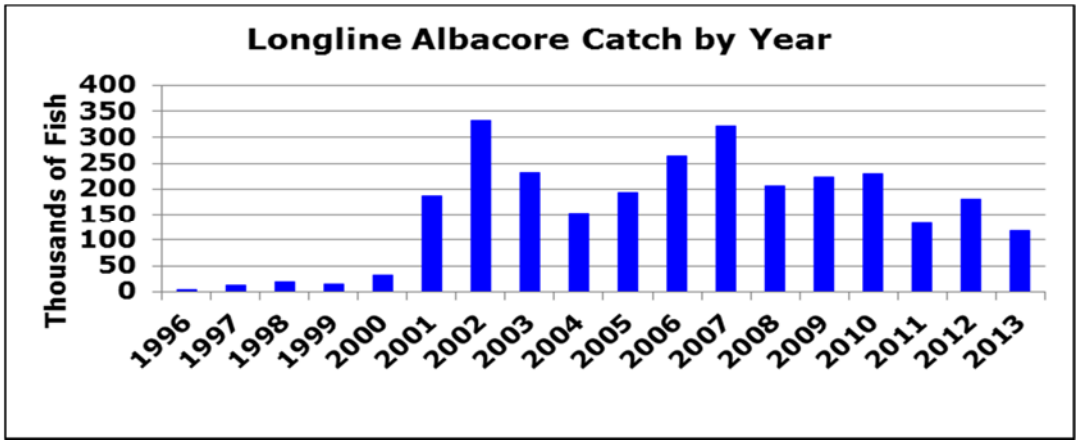

Figure 2. Time-series of albacore landings by the American Samoa longline fishery 1996–2013.
Source: NMFS WPacFIN plus unpublished data

The fishery is strongly seasonal with a period of higher CPUEs in May through November, and a period of lower CPUEs in the Austral summer between December and April. Typically, vessels experience lower catches in these months and fishing effort is much lower than the rest of the year (Figure 3).

A study by NMFS Pacific Islands Fisheries Science Center (PIFSC) showed that a large longline vessel operator could expect to earn $100,000 from the fishery in 2001 (Arita and Pan, 2013, see also Appendix 1). In 2009, this net revenue had fallen by 94%, to $6,000, and has worsened since then (see Appendix 1). A sensitivity analysis showed that due to a very thin profit margin, small declines in CPUE or fish price would yield a negative net return to owners. An update of this study in 2015 (see Appendix 1) showed that the fishery had indeed worsened in 2013 compared to 2009. There were further declines in CPUE, possibly due to localized depletion, lower fish prices and higher fuel costs with the expected negative net returns to owners. The

[1] http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_2.php

situation became so dire that in February 2014, American Samoa-based owners offered their vessels for sale (Figure 4) as a gesture of their desperation and frustration. The economic downturn in the fishery continued and three vessels stopped fishing altogether and their owners offered the vessels for sale.

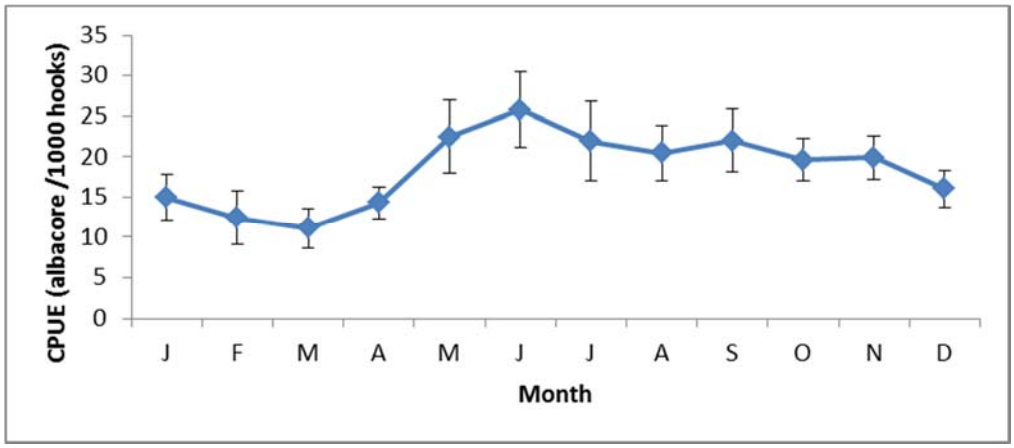

Figure 3. Seasonality of albacore catch per unit of effort (CPUE) for the American Samoa longline fishery, 1997-2013.
Source: NMFS WPacFIN

Figure 4. Longline vessels for sale in American Samoa in February 2014.
Source: Nate Ilaoa, Council Staff

The economic collapse of the longline fishery, which targets albacore, is not confined to American Samoa. It has also been documented across the Central South Pacific—in Fiji (Fiji Sun, Thursday January 16, 2014), Samoa (John Luff, Apia Export Fish Packers Ltd, Samoa, pers. comm., January 14, 2014, to Paul Dalzell, Council staff), Tonga (Charles Hufflett, Pacific Islands Tuna Industry Association, pers. comm., January 15, 2014, to P. Dalzell, Council staff),

and the Cook Islands (Josh Mitchell, Ministry of Foreign Affairs, pers. comm., January 13, 2014, to P. Dalzell, Council staff). The fishery in French Polynesia is being maintained by government subsidies (Charles Daxboeck, Biodax Consulting, pers. comm., January 15, 2014, to P. Dalzell, Council staff).

Anecdotal information from longline fishermen in American Samoa, Fiji, Samoa, and other Pacific Islands indicate a shared perception that an influx of Chinese longline vessels and associated increase in albacore catch across the region is mostly responsible for the collapse. The Chinese government has encouraged and facilitated substantial longline vessel construction in recent years and Chinese fishing vessels enjoy generous subsidies on fuel, licensing, freight costs, exports, tax, loans and labor. These government subsidies give the Chinese longline vessels an advantage over non-subsidized fleets by allowing them to fish heavily, even on fish species that may not be plentiful in a particular area at a particular time. This foreign fleet is not dependent on high catch rates (CPUE) to continue to fish.

This influx of foreign vessels caused the South Pacific albacore catch to double from around 40,000 mt in 1990 to over 80,000 mt in 2012 (Figure 5). Most of this catch is from the EEZs of Pacific Island Countries (PICs) through access agreements with foreign longline vessels. These large catches by foreign vessels outside the U.S. EEZ around American Samoa are believed to be depressing CPUE in the U.S. EEZ around American Samoa. Low CPUE and low fish prices are making it difficult for the American Samoa longline fishery to continue fishing for albacore.

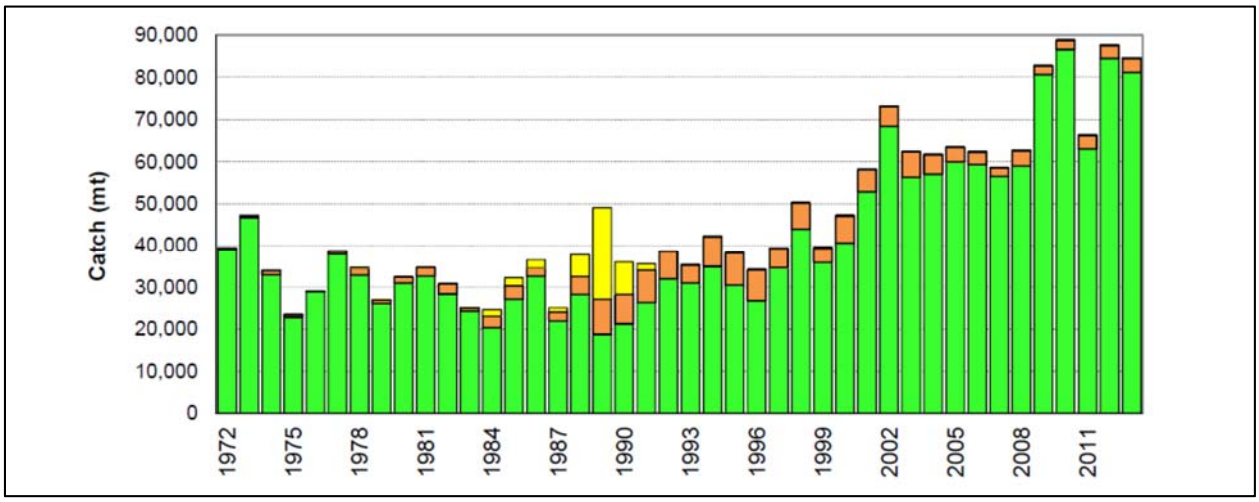

Figure 5. Time-series (catch over time) of total South Pacific albacore catch for all countries combined.
Source Williams and Terawasi 2014.
Note: longline catches are shown in green, troll catches in orange, and high seas drift net catches of South Pacific albacore in yellow.

1.2 Purpose and Need

NMFS implemented the LVPA in 2002 when there were nearly 40 alia and other small vessels and 25 large vessels operating in the local longline fleet. The Council established the LVPA to prevent the potential for gear conflicts and catch competition between large fishing vessels and

locally based small fishing vessels (67 FR 4369; January 30, 2002). The LVPA currently prohibits vessels 50 ft or greater from operating within the EEZ 3-50 nm around Swains Island and generally within 3-50 nm around Tutuila and the Manua Islands (the northern boundary of the LVPA around Tutuila and Manua is approximately 32 nm seaward from the islands). Two longline vessels were exempt from the prohibition on fishing within the LVPA at the time the regulations were implemented.[2]

In 2014, just one small longline vessel (e.g., alia) operated in the U.S. EEZ around American Samoa; whereas there were 19 large longline vessels that fished using longline gear outside the LVPA. There were 13 small troll vessels that were reported to catch pelagic species in 2013,[3] and 24 bottomfish vessels, but these vessels do not target albacore like the longline fleet. The conditions that existed at the time the LVPA was established has changed and no longer support the full 50 nm closure for large longline vessels. Additionally, the American Samoa longline fishery has endured several years of poor fishing where the profitability of the fishery is zero and some fishing vessels are operating at a loss. Thus, there is less reason currently to maintain the full 50 nm fishing restriction of the current LVPA regulations pertaining to large longline vessels.

Concerns, however, about the large amount of fish that can be harvested by purse seiners, which can result in catch competition with the locally-based troll fleet, as well as with both alia and larger longline vessels, still exist. Therefore the Council recommended maintaining the current LVPA regulations applicable to purse seiners, which will continue to prohibit purse seine fishing using a large vessel (≥ 50 ft) to fish within the LVPA.

The objective of this regulatory amendment is to promote greater fishing efficiency for large longline vessels and enhance fishing revenues by reducing the cost of trips and increasing CPUE and catches. This amendment is expected to boost the likelihood for long-term viability of the fishery while maintaining sustainability of fish stocks. Providing large longline vessels greater than 50 ft an exemption from the prohibition on fishing in designated areas within certain portions of the LVPA is expected to disperse the large longline vessel fishing effort over a wider area, reduce catch competition between vessels and improve fishery efficiency, while limiting adverse impacts on the alia and small vessel longline and troll fleet. There is also a need to provide a continued supply of sustainably caught, high quality albacore to the Pago Pago based canneries. Furthermore, the ability to fish within LVPA waters closer to Tutuila may reduce some trip times, and thus reduce trip costs. The ability to fish within LVPA waters closer to Tutuila may also allow longline vessels to diversify their product from just supplying cannery albacore to also marketing of fresh fish, which can fetch higher ex-vessel prices.

[2] When implemented in 2002, the northern boundary of the LVPA was approximately 45 nm to the north of Tutuila and the Manua Islands. The LVPA was modified in the 2012 to make the boundaries of the LVPA and the Rose Atoll Marine National Monument congruent, and in doing so, the northern boundary was shifted south approximately 12 miles, and the eastern boundaries were shifted east and south (77 FR 34260, June 11, 2011).
[3] 2014 data for troll vessels was unavailable at time of writing. Troll vessel data is collected by American Samoa's Department of Marine and Wildlife's creel survey program. Longline vessels of any size are required to obtain a federal permit and are required to submit catch logbooks, among other requirements.

1.3 Proposed Action

The Council recommended that NMFS amend federal regulations that govern the American Samoa longline fishery. The change would exempt longline vessels 50 ft and longer that hold American Samoa longline limited entry permits to fish in portions of the LVPA seaward of 12 nm around Swains, Tutuila, and the Manua Islands. The recommended change would be effective indefinitely, but with periodic review re-evaluation by the Council. NMFS would continue to prohibit fishing in the LVPA by large purse seine vessels. The fishing requirements for the Rose Atoll Marine National Monument would also remain unchanged (see Figure 9).

The proposed action (Alternative 4c) would allow large longline vessels to fish over an additional 16,817 nm² of ocean in total thereby reducing the total area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 11.3%.

On an annual basis, the Council will review the effects of the proposed action regarding, but not limited to, the following topics:

a) Catch rates of all pelagic fishery participants;
b) Small vessel participation in pelagic fisheries; and
c) Sustainable fisheries development initiatives.

1.4 Initial Council Actions

The status of the American Samoa longline fishery, and the issues described in Section 3.1 were discussed by the Council at its 159th Meeting in March 2014 held in Guam. At that meeting, the Council directed its staff to prepare a draft regulatory or FEP amendment to the Pelagic FEP to modify the LVPA and identify options to reduce, for a period of one year, the northern boundary of the LVPA around Tutuila and Manua to 25 nm and to reduce the LVPA around Swains to 12 nm, as preliminarily preferred.

The Council then held a public hearing on the LVPA issue in American Samoa in May 2014 (79 FR 22100, April 21, 2015). Views expressed at the hearing on the LVPA exemption measure were mixed, with small vessel owners generally opposed, and large longline vessels in favor.

In June 2014 the Governor of American Samoa, Lolo M. Moliga requested the Council to defer action on the LVPA issue in order for the American Samoa Government develop a measure through a resolution by the Legislature. The Council approved this request at its next meeting.

At its 160th meeting held in June 2014, in Honolulu, the Council discussed the exemption to fish within the American Samoa LVPA and:

1. Supported all forms of pelagic fishing in American Samoa and the need to balance existing fishing activity and fishery development aspirations;
2. Recommended deferring action at this time until further discussions and public meetings with representatives of the American Samoa government, Swains Island, Tutuila, Manua Islands and American Samoa fishermen; and

3. Directed staff to work with Council members and advisors to coordinate the various discussions and public meetings.

In 2015, the Council convened a public informational meeting in American Samoa on the LVPA action. At this meeting, Council staff presented information on the status of the pelagic fisheries in American Samoa and potential management alternatives. Council staff also held meetings with local government officials on the LVPA measure and associated issues including fisheries development initiatives.

At its 162nd meeting held in March of 2015, in Honolulu, the Council reviewed correspondence regarding the LVPA action submitted to the Council prior to the 162nd meeting. In a letter dated March 13, 2015, American Samoa Governor, Lolo. M. Moliga, expressed opposition to efforts by NOAA and the Council to alter the underlying policies regarding the protection of resources surrounding American Samoa; he again requested the Council to defer action until the next Council meeting. Also expressing opposition to the LVPA measure was a member of the Pago Pago Sportfishing Association. In favor of Council action to authorize the LVPA exemption were several longline vessel owners, StarKist Samoa, Tri Marine, and other associated businesses and individuals. After considering these comments, the Council took final action on the LVPA measure and recommended the authorization of an exemption to portions of the LVPA for American Samoa longline limited entry permitted vessels greater than 50 ft in length. The Council further recommended that the exemption be authorized for an indeterminate period, and included that the Council and NMFS review the LVPA exemption on an annual basis with regards, but not limited to, the following topics:

a) Catch rates of all pelagic fishery participants;
b) Small vessel participation in pelagic fisheries; and
c) Sustainable fisheries development initiatives.

2 Description of the Alternatives

2.1 Alternative 1-No Action (Status Quo)

Under this alternative, the areas that are closed to all pelagic fishing vessels ≥50 ft overall length, including longline vessels would remain unchanged. American Samoa longline vessels ≥50 ft that had been grandfathered into the fishery prior to March 1, 2002, would continue to be able to fish within the LVPAs around American Samoa. Figure 6 shows the current LVPAs in American Samoa. The LVPA around Swains Island extends approximately 50 nm from the shoreline and encompasses approximately 8,266 nm². The LVPA around Tutuila and Manua Islands extends approximately 32nm from the shoreline to the North, and approximately 50 nm from the shoreline to the South and encompasses approximately 11,792 nm². The Rose Atoll Marine National Monument, which is within the LVPA and shown in Figure 6 in solid red, extends approximately 50 nm from the shoreline and encompasses 10,146 nm².

Under the no-action alternative, the America Samoa longline fishery is not expected to experience any relief from current LVPA requirements. Under the No Action alternative, approximately 30,204nm^2 or 25.5% of the 118,438 nm² U.S. EEZ around American Samoa

would continue to be closed to large pelagic fishing vessels including both longliners and purse seiners.

Under this and all other alternatives, all existing monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, Vessel Monitoring Systems, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks, including completion of protected species workshops, would continue.

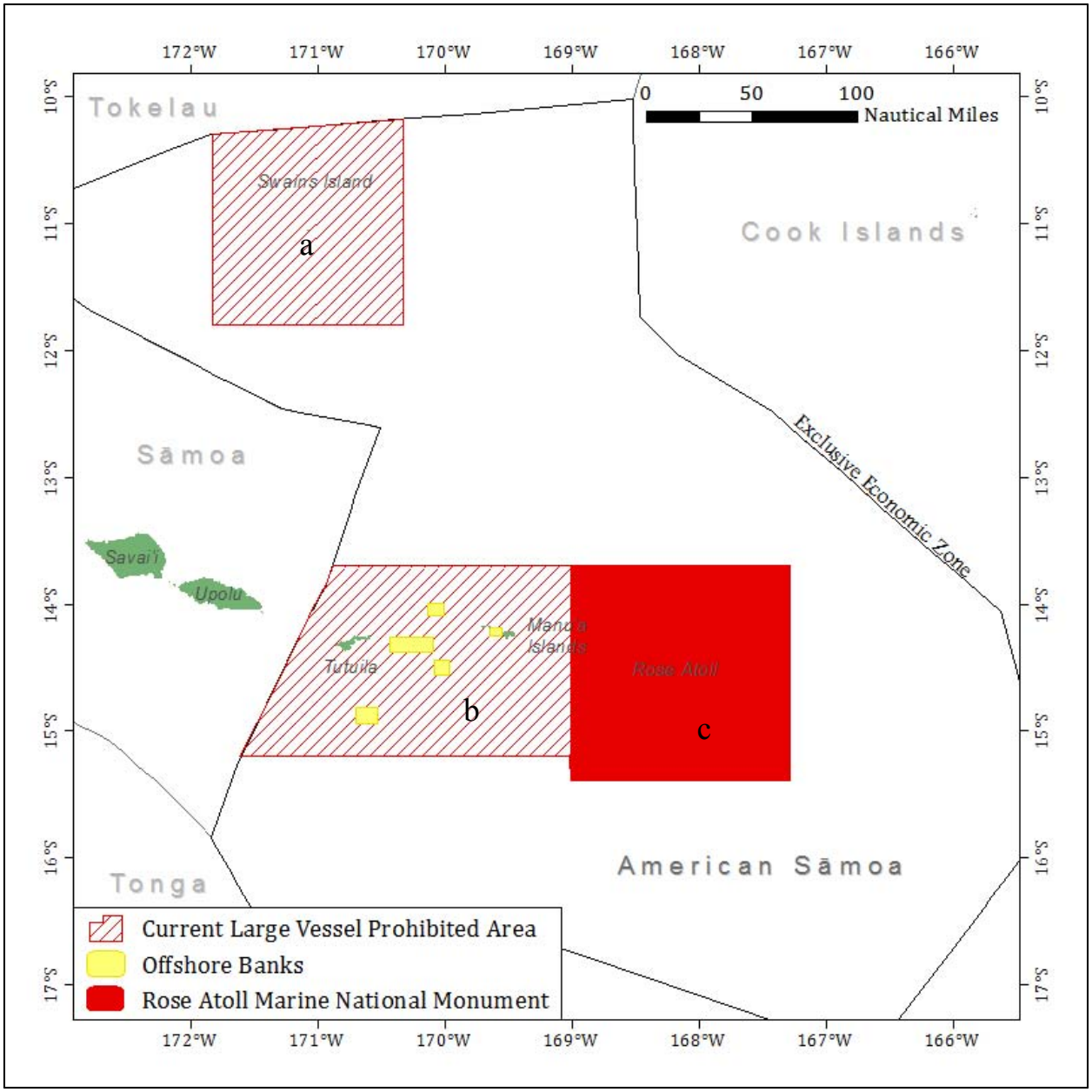

Figure 6 Graphic showing the current LVPA boundaries in waters around American Samoa under Alternative 1, status quo.

Area of LVPA Closed to Large Longline Vessels (nm²)			Area of LVPA Open to Large Longline Vessels (nm²)	
a	8,266		-	0
b	11,792		-	0
c	10,146		-	0
Total	**30,204**		**Total**	**0**
% of EEZ	**25.5**		**% of EEZ**	**0**

2.2 Alternative 2

Provide an exemption for longline vessels ≥50 ft holding an American Samoa longline limited entry permit to fish within portions of the LVPA as follows:

i. seaward from 25 nm to the north of Tutuila and Manua Islands; and
ii. seaward from approximately 12 nm around Swains Island

for a period of:

Alternative 2a. One year for permitted large longline vessels.
Alternative 2b. Three years for permitted large longline vessels.
Alternative 2c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council.

Under this alternative, vessels ≥50 ft holding an American Samoa longline limited entry permit would be exempt from the prohibition on pelagic fishing in portions of the LVPA north of Tutuila and Manua Islands from approximately 25 nm to 32 nm, and from portions of the LVPA around Swains Island from approximately 12 nm to 50 nm as shown in Figure 7. Fishing within the Rose Atoll Marine National Monument, which is within the LVPA would continue to be prohibited.

Alternative 2 would allow the vessels to fish over an additional 8,401 nm² of ocean, thereby reducing the total area of the U.S. around American Samoa closed to large longliners from approximately 25.5% to 18.4% .

Under Alternative 2, the American Samoa longline fishery would experience some relief in terms of opening more areas to longline fishing including areas closer to Tutuila. Compared to Alternative 1, this alternative would have the effect of spreading fishing density over a wider area within the U.S. EEZ around American Samoa and could provide more stability to the American Samoa longline fishery and the cannery.

Under Alternatives 2a and 2b, the exemption would end after 1 or 3 years, respectively and the prohibition on fishing in the LVPA using a large longline vessel would automatically resume. Under Alternative 2c, the prohibition would not end until the Council makes a recommendation to remove the exemption from regulations and NMFS implements the action through rulemaking.

As with the No Action Alternative, all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, Vessel Monitoring Systems, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks, including completion of protected species workshops would continue.

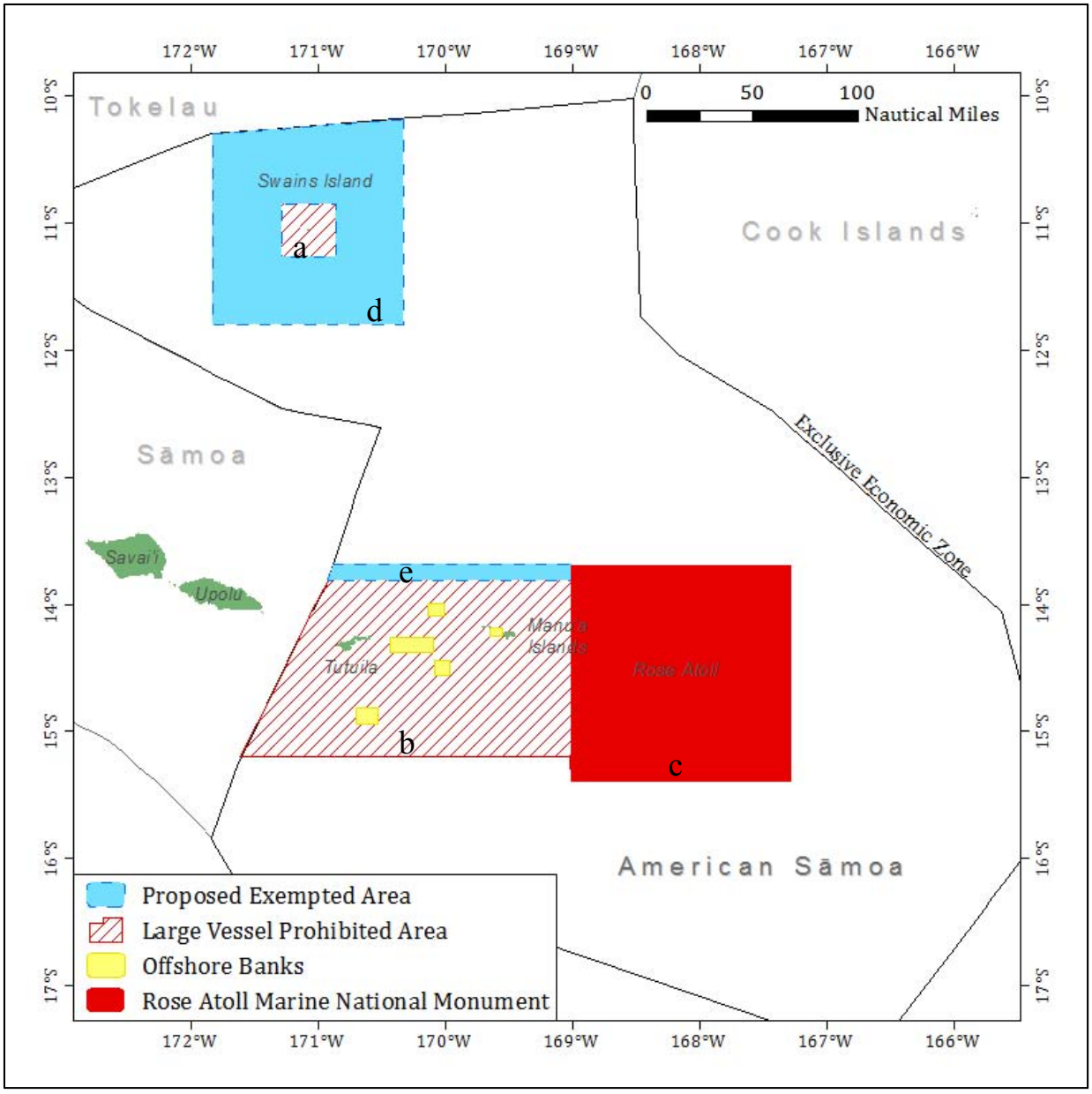

Figure 7. Graphic showing the current LVPA boundaries in waters around American Samoa and proposed longline vessel exempted areas under Alternative 2.

Area of LVPA Closed to Large Longline Vessels (nm²)			Area of LVPA Open to Large Longline Vessels (nm²)	
a	649		d	7,617
b	11,008		e	784
c	10,146		-	0
Total	**21,803**		**Total**	**8401**
% of EEZ	**18.4**		**% of EEZ**	**7.1**

2.3 Alternative 3

Provide an exemption for longline vessels ≥50 ft holding an American Samoa longline limited entry permit to fish within portions of the LVPA as follows:

i. seaward from 25 nm to the north of Tutuila and Manua Islands;
ii. within designated waters southeast of Tutuila;
iii. with designated waters south of Manua Islands; and
iv. seaward from approximately 12 nm around Swains Islands

for a period of:

Alternative 3a. One year for permitted large longline vessels.
Alternative 3b. Three years for permitted large longline vessels.
Alternative 3c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council.

Under this alternative, vessels ≥50 ft holding American Samoa longline limited entry permits would be exempted from the prohibition on pelagic fishing in four areas of the LVPA. The first two areas would be identical to the areas proposed in Alternative 2 around Swains Islands and north of Tutuila Island.

The third exempted area would extend 20 nm south of Tutuila and approximately 33 nm from the western boundary of the EEZ. The fourth area would extend 16 miles south of Manua and 58 nm to the southwestern boundary of the Rose Atoll Marine National monument (Figure 8). Fishing within the Rose Atoll Marine National Monument, which is within the LVPA would continue to be prohibited.

Alternative 3 would allow vessels to fish over an additional 11,601 nm² of ocean in total thereby reducing the total area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 15.7%.

Under this alternative, the American Samoa longline fishery would experience some relief in terms of opening more area to longline fishing closer to Tutuila. Compared to Alternatives 1 and 2, this alternative would have the effect of spreading fishing density over a wider area within the U.S. EEZ around American Samoa and could provide more stability to the American Samoa longline fishery and the cannery.

Under Alternatives 3a and 3b, the exemption would end after 1 and 3 years, respectively and the prohibition on fishing in the LVPA using a large longline vessel would automatically resume. Under Alternative 3c, the prohibition would not end until the Council makes a recommendation to remove the exemption from regulations and NMFS implements the action through rulemaking. As with the No Action Alternative, all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, Vessel Monitoring Systems, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks, including completion of protected species workshops would continue.

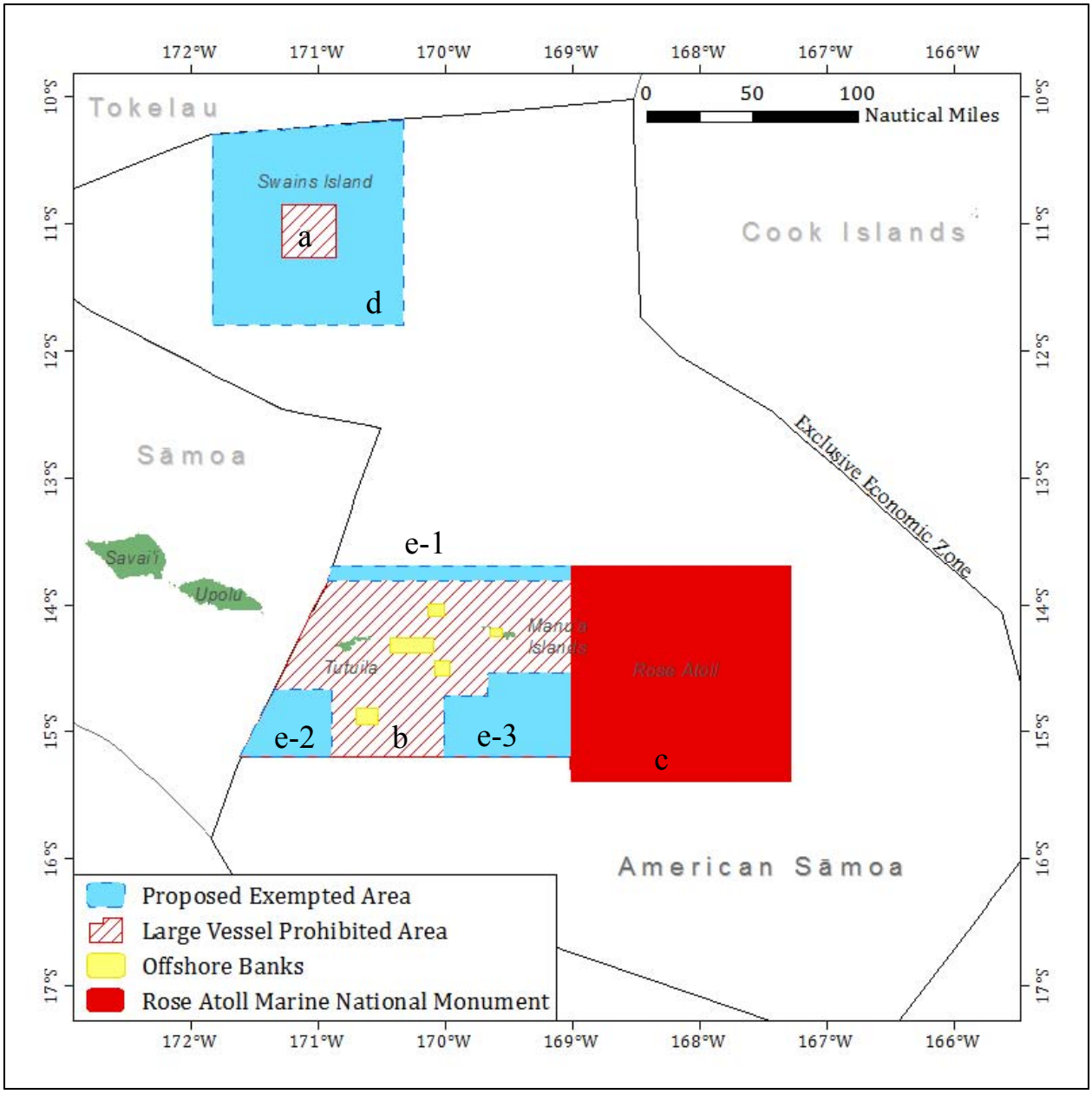

Figure 8. Graphic showing the current LVPA boundaries, in waters around American Samoa and proposed longline vessel exempted areas under Alternative 3.

Area of LVPA Closed to Large Longline Vessels (nm²)			Area of LVPA Open to Large Longline Vessels (nm²)	
a	649		d	7,617
b	7808		e-1	784
			e-2	1,068
			e-3	2,132
c	10,146		-	**0**
Total	**18,603**		**Total**	**11,601**
% of EEZ	**15.7**		**% of EEZ**	**9.8**

2.4 Alternative 4 (Including Alternative 4c, Council Preferred)

Provide an exemption for longline vessels ≥50 ft holding an American Samoa longline limited entry permit to fish in within portions of the LVPA as follows:

- seaward from approximately 12 nm around Swains Islands, and Tutuila and Manua Islands.

for a period of:

Alternative 4a. One year for permitted large longline vessels

Alternative 4b. Three year for permitted large longline vessels

Alternative 4c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council. (This is the Council's preferred alternative).

Under this alternative, vessels ≥50 ft holding an American Samoa longline limited entry permit would be exempted from the prohibition on pelagic fishing in portions of the LVPA. Specifically, these vessel would be allowed to fish in the LVPA to within 12 nm of Swains Island, and Tutuila and Manua Islands. Fishing within the Rose Atoll Marine National Monument, which is within the LVPA, would continue to be prohibited (Figure 9). Alternative 4 would allow the vessels to fish over an additional 16,818 nm² of ocean in total thereby reducing the total area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 11.3%.

Under this alternative, the American Samoa longline fishery would experience some relief in terms of opening more area to longline fishing closer to Tutuila. Compared to Alternatives 1 and 2, and 3, this alternative would have the effect of spreading fishing density over a wider area within the U.S. EEZ around American Samoa and could provide more stability to the American Samoa longline fishery and the cannery.

Under Alternatives 4a and 4b, the exemption would end after 1 and 3 years, respectively, and the prohibition on fishing in the LVPA using a large longline vessel would automatically resume. Under Alternative 4c (Council preferred), the prohibition would not end until the Council makes a recommendation to remove the exemption from regulations and NMFS implements the action through rulemaking. However, the Council and NMFS would annually review management of the American Samoa longline fishery under the proposed regulatory exemption regarding, but not limited to, the following topics:

a) Catch rates of all pelagic fishery participants;
b) Small vessel participation in pelagic fisheries; and
c) Sustainable fisheries development initiatives.

As with the No Action Alternative, all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, Vessel Monitoring Systems, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks would continue.

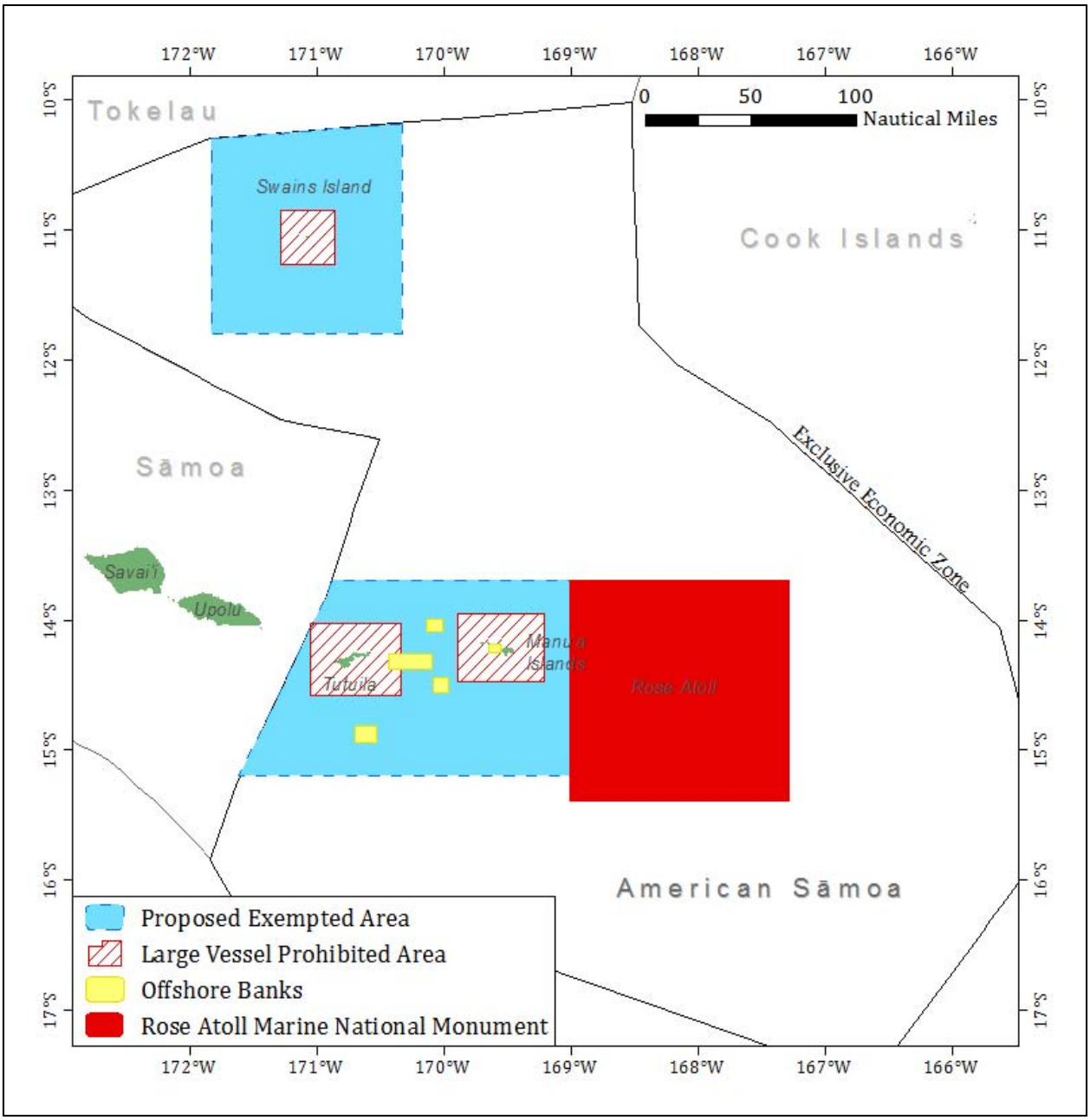

Figure 9. Graphic showing the current LVPA boundaries in waters around American Samoa and proposed longline vessel exempted areas under Alternative 4.

Area of LVPA Closed to Large Longline Vessels (nm²)			Area of LVPA Open to Large Longline Vessels (nm²)	
a	649		d	7,617
b	2,591		e	9,201
c	10,146		-	**0**
Total	**13,386**		**Total**	**16,818**
% of EEZ	**11.3**		**% of EEZ**	**14.2**

2.5 Alternative 5

Provide an exemption for longline vessels ≥50 ft holding an American Samoa limited entry permit to fish within the entire LVPA for a period of:

Alternative 5a. One year for permitted large longline vessels.
Alternative 5b. Three year for permitted large longline vessels.
Alternative 5c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council.

Under this alternative, vessels ≥50 ft holding an American Samoa longline limited entry permit would be exempt from the prohibition on pelagic fishing in the LVPA (Figure 10).

Under Alternative 5, the American Samoa longline fishery would experience the maximum relief in terms of opening more areas to longline fishing including areas closer to Tutuila. This alternative would allow large longline vessels to fish over an additional 20,058 nm² in total thereby reducing the area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 8.6%. This alternative would have the effect of spreading fishing density over a wider area within the U.S. EEZ around American Samoa and could provide more stability to the American Samoa longline fishery and the cannery.

Under Alternatives 5a and 5b, the prohibition on fishing in the LVPA using a large longline vessel would automatically resume after 1 and 3 years, respectively. Under Alternative 5c, the prohibition would revert once the Council makes a recommendation to remove the exemption from regulations and once NMFS implements the action.

As with the No Action Alternative, all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS Office of Law Enforcement, Vessel Monitoring Systems, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks would continue.

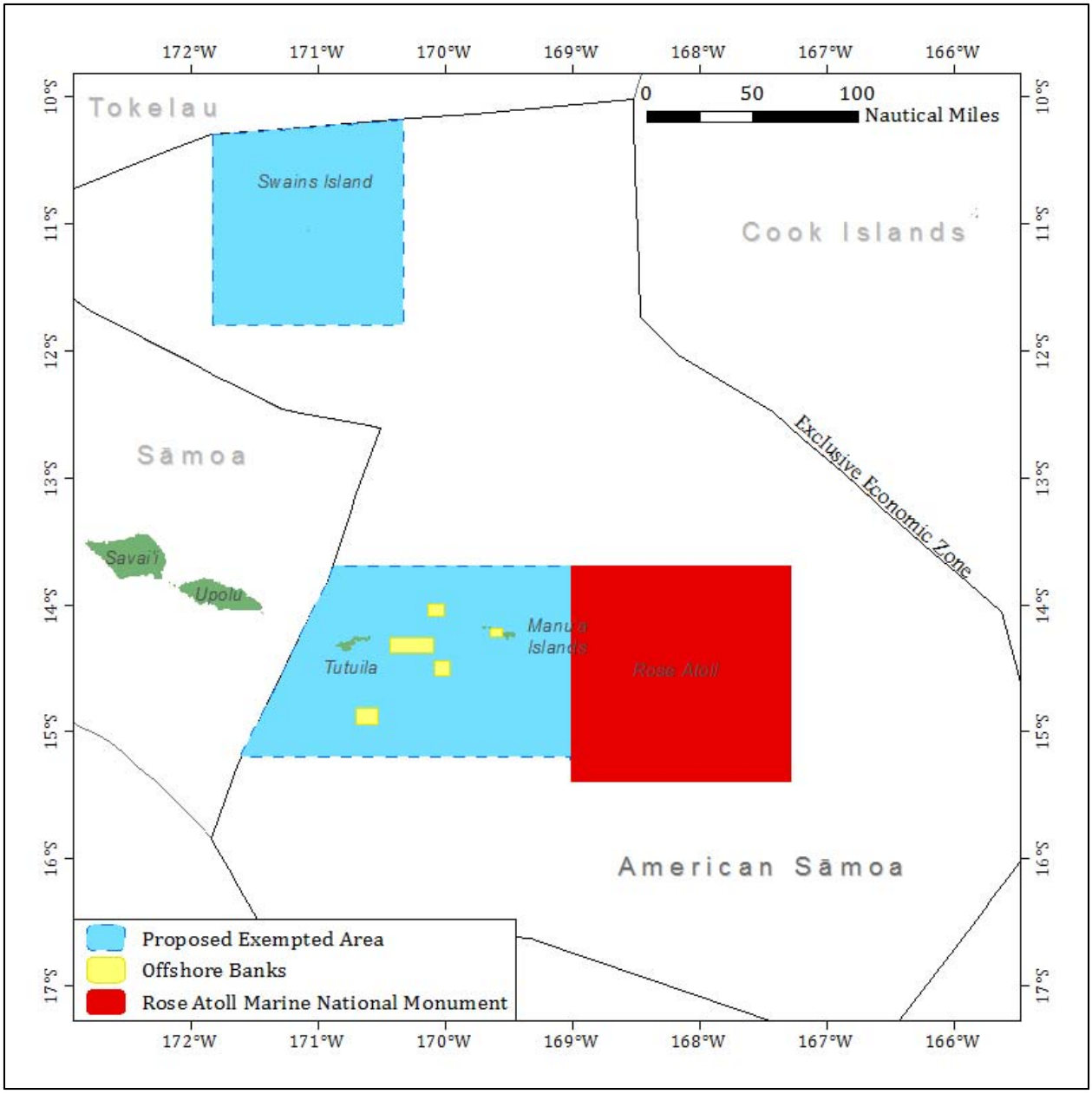

Figure 10. Graphic showing the proposed exempted areas under Alternative 5 which would be throughout the current LVPA in waters around American Samoa.

Area of LVPA Closed to Large Longline Vessels (nm²)			Area of LVPA Open Large Longline Vessels (nm²)	
c	10,146		-	0
-	0		d	8,266
-	0		e	11,792
Total	**10.146**		**Total**	**20,058**
% of EEZ	**10**		**% of EEZ**	**16.9**

2.6 Alternatives Considered but not Analyzed in Detail

The Council considered but did not take action on removing the restrictions and conditions for holding an American Samoa longline limited-entry permit in order to fish in the LVPA.

The American Samoa longline limited-entry permit program was designed to maximize American Samoan participation in the longline fishery based out of Pago Pago. The permit system was designed for maximum stability at a time when all size classes of longline vessels were expanding rapidly. The program has an overall limit of 60 permits which are spread among four vessel size classes. These are: Class A vessels (less than or equal to 40 ft long), Class B vessels (over 40 ft up to 50 ft long), Class C vessels (over 50 ft long up to 70 ft long), and Class D vessels (over 70 ft long). Holders of an American Samoa longline limited-entry permit must land a minimum volume of fish in order to renew their permits. Further, permits are issued to specific fishing vessels so a permit holder must surrender their permit to NMFS if they lose or sell their vessel and do not obtain a replacement vessel. By contrast, Hawaii longline permit holders may renew their permits without vessel ownership and have no landing requirements to maintain permit ownership.

The Council recognized that the American Samoa longline limited-entry permit program may be acting as a disincentive for participation in the fishery. At its 150th meeting held in March of 2011 in American Samoa, the Council took final action and made the following recommendation:

- Combine A and B permits and C and D permits into two new vessels classes. Small class A and B vessels (vessels up to 49.9 ft) and Large class C and D vessels (50 ft and above)
- Reduce landing requirements for Small class vessels from 1,000 lb to 500 lb/3yrs. Maintain the 5,000 lb/3yrs landing requirement for Large class
- Modify eligibility criteria to U.S. Citizen or U.S. National without prior participation in fishery (fishing history to apply in the event of multiple applications)

If this recommendation is implemented, it, too, is expected to provide more incentive to engage in longline fishing based out of American Samoa and a more stable operating environment for the American Samoa longline fishery. The Council's recommendation was provided to NMFS for implementation after evaluation in accordance with applicable law.

Because the American Samoa longline limited-entry permit program is already under review for possible modification, and because the modifications are expected to have positive fisheries conservation and management outcomes for the fishery, the Council did not consider an alternative to remove restrictions and conditions for holding a longline fishing permit to fish in the EEZ around American Samoa.

The Council did not consider an LVPA exemption for purse seine vessels because the fishery capabilities and economic conditions in that fishery are different. First, purse seiners target skipjack and yellowfin tuna, which is also targeted by small scale troll vessels operating out of American Samoa. Purse seiners also catch other species when they make their sets. Catch competition between purse seiners and the local troll and longline fleets remains an issue of

concern for both the troll local longline fishing fleets. U.S. purse seine vessels also have greater range and flexibility to "follow the fish" as they fish under provisions of the South Pacific Tuna Treaty. Economic conditions in the U.S. purse seine fleets are not having a dampening effect on the fishery as they are for the American Samoa longline fleet.

A summary of the U.S. purse seine fleet operations in the U.S. EEZ around American Samoa is shown in Table 1. On average, the U.S. purse seine fleet annually catches about 100 mt of skipjack, 10 mt of yellowfin and 3 mt of bigeye tuna within the EEZ around American Samoa. However, four times the mean was caught in 2011, two times average in 2009 and 2010. This amount of catch is on average 10 times greater than the catch made by troll vessels fishing in waters around American Samoa, and in some years substantially higher.

For comparison, between 2011 and 2013, the American Samoa longline fleet annually caught approximately 141 mt of skipjack, 445 mt of yellowfin and 141 mt of bigeye tuna (Table 7). This amount of catch is also on average 10 times greater than the catch made by troll vessels fishing in waters around American Samoa.

Table 1. Summary of U.S. purse seine fleet operations and catches in the U.S. EEZ around American Samoa.

YEAR	Trip days (n)	Vessels (n)	Skipjack Tuna catch (mt)	Yellowfin Tuna catch (mt)	Bigeye Tuna catch (mt)	Skipjack, Yellowfin and Bigeye Tuna catch (mt)
1997	6	6	0	0	0	0
1998	18	10	NA	0	0	NA
1999	19	7	NA	NA	0	NA
2000	13	9	100.7	18.9	0	119.6
2001	30	16	128.8	8.1	NA	144.2
2002	38	21	137	NA	0	145.1
2003	13	7	0	0	0	0
2004	10	9	NA	NA	0	NA
2005	8	6	NA	NA	0	NA
2006	5	4	NA	NA	0	NA
2007	4	3	0	0	0	0
2008	13	7	150.2	12.1	18.5	180.8
2009	35	12	188.3	30	9.7	228
2010	11	7	204	NA	0	207.6
2011	15	6	355.9	21.5	NA	388.3
MEAN	16	9	96	9	3	95

Source: PIFSC unpublished data.

Note: "NA" means not available due to data confidentiality non-disclosure requirements, however, are calculated into the mean. Zero catches also calculated into the mean.

However, because the U.S. purse seine fleet is currently successfully making catches in the U.S. EEZ around American Samoa and across a wide area of the Pacific; because the fleet is not facing severe economic hardship, as is the case in the American Samoa longline fishery; and because purse seiners can and do catch large amounts of skipjack tuna which is preferentially targeted by the local troll fleet and important to the longline fleet, the Council did not consider regulatory relief from the prohibition on fishing using a large purse seine vessel in the LVPAs around American Samoa in detail.

A summary of the features of the alternatives is given in Table 2.

Table 2. Summary of Features of the Alternatives for Large Vessel Prohibited Area Large Longline Vessel Exemption Areas and Duration Alternatives.

Alternative: Feature:	**Alt. 1 (Fig 6) (Status quo)**	**Alt. 2 (Fig 7)**	**Alt. 3 (Fig 8)**	**Alt. 4 (Fig 9)** (Council preferred)	**Alt. 5 (Fig 10)**
General location of the LVPA and Large LL vessel LVPA exemption area around Tutuila and Manua Islands:	LVPA currently extends seaward approximately ~32 nm to the North of Tutuila and ~50 nm to the South (Fig. 6). LVPA sub-area: 11,792 nm^2.	No change to LVPA. Large LL vessel exemption area would be from ~25 nm to ~32 nm North of Tutuila (Fig. 7).	No change to LVPA. Large LL vessel exemption area would be from ~25 nm to ~ 32 nm North of Tutuila and in portions of the LVPA south of Manua and Tutuila Islands (Fig. 8).	No change to LVPA. Large LL vessel exemption area would be a square extending ~12 nm around Tutuila and Manua Islands (Fig. 9).	No change to LVPA. Large LL vessel exemption area would be throughout the current LVPA (Fig. 10).
Location of the LVPA around Swains Island and Large LL vessel LVPA exemption area around Swains Island:	LVPA is a square area extending approximately 50 nm seaward from Swains Island (Fig. 6). LVPA sub-area: 8,266 nm^2.	No change to LVPA. Large LL vessel exemption area would be from 12-50 nm around Swains Island (Fig. 7).	No change to LVPA. Large LL vessel exemption area would be from 12-50 nm around Swains Island (Fig. 8).	No change to LVPA. Large LL vessel exemption area would be from 12-50 nm around Swains Island (Fig. 9).	No change to LVPA. Large LL vessel exemption area would be throughout the current LVPA (Fig. 10).
Duration of the proposed exemption allowing large longline vessels to fish in portions of the LVPA:	N/A. No exemption would be implemented.	Alt. 2a: 1 yr Alt. 2b: 3 yr Alt. 2c: indeterminate time period with periodic Council review.	Alt. 3a: 1 yr Alt. 3b: 3 yr Alt. 3c: indeterminate time period with periodic Council review.	Alt. 4a: 1 yr Alt. 4b: 3 yr Alt. 4c: indeterminate time period with periodic Council review.	Alt. 5a: 1 yr Alt. 5a b: 3 yr Alt. 5a c: indeterminate time period with periodic Council review.

Alternative: Feature:	**Alt. 1 (Fig 6) (Status quo)**	**Alt. 2 (Fig 7)**	**Alt. 3 (Fig 8)**	**Alt. 4 (Fig 9)** (Council preferred)	**Alt. 5 (Fig 10)**
Estimated amount of additional fishing area in the U.S. EEZ available to large longline vessels:	A total of 30,204 nm^2 (25.5% of the EEZ area) is currently closed to longline fishing by large vessels including the LVPA and the Rose Atoll Marine National Monument (MNM).	8,401 nm^2 more area opened to longline fishing; increases area of the EEZ open to longline fishing by 7.1%. 18.4% of the EEZ would be closed to longline fishing by large vessels.	11,601 nm^2 more area opened to longline fishing; increase area of the EEZ open to longline fishing by 9.8%. 15.7% of the EEZ would be closed to longline fishing by large vessels.	16,818nm^2 more area opened to longline fishing; increase area of the EEZ open to longline fishing by 14.2%. 11.3% of the EEZ would be closed to longline fishing by large vessels.	20,058 nm^2 more area opened to longline fishing; increase area of the EEZ open to longline fishing by; 16.9%. 8.6% of the EEZ would be closed to longline fishing by large vessels in the Rose Atoll MNM.
Degree of regulatory and economic benefit to large vessels in the American Samoa longline fleet:	n/a	Alt. 2a: substantial benefit, limited duration. Alt. 2b: substantial benefit and moderate duration. Alt. 2c: substantial benefit and duration.	Alt. 3a: substantial benefit, limited duration. Alt. 3b: substantial benefit and moderate duration. Alt. 3c: substantial benefit and duration.	Alt. 4a: substantial benefit, limited duration. Alt. 4b: substantial benefit and moderate duration. Alt. 4c: substantial benefit and duration.	Alt. 5a: substantial benefit, limited duration. Alt. 5b: substantial benefit and moderate duration. Alt. 5c: substantial benefit and duration.
Potential for longline fishing by large vessels in proximity of offshore banks preferred by troll fleet:	No overlap (Fig. 6).	No change/ No overlap (Fig. 7).	No change / No overlap (Fig. 8).	Substantial overlap (Fig. 9).	Substantial overlap (Fig. 10).

Alternative: Feature:	Alt. 1 (Fig 6) (Status quo)	Alt. 2 (Fig 7)	Alt. 3 (Fig 8)	Alt. 4 (Fig 9) (Council preferred)	Alt. 5 (Fig 10)
Portions of the U.S. EEZ in American Samoa that may be fished by large purse seine vessels:	Large purse seine vessels (≥50 ft long) may fish in areas outside of the LVPA and the Rose Atoll Marine National Monument.	No change.	No change.	No change.	No change.
Portions of the U.S. EEZ in American Samoa that may be fished by troll, recreational, and bottomfish fishermen:	Participants in these fisheries may fish throughout the U.S. EEZ except commercially in Rose Atoll, and if they are fishing for PMUS using vessel longer than 50 ft in which case they would not be allowed to fish in the LVPA areas.	No change.	No change.	No change.	No change.

A summary of the size and extent of current and proposed managed areas within the U.S. EEZ around American Samoa under the various alternatives is given in Table 3.

Table 3. Implemented and proposed managed areas in the U.S. EEZ around American Samoa

Spatial management unit	Area (nm^2)	Percent of EEZ
EEZ around American Samoa	118,438	100
Current Swains LVPA closure	8,266	7.0
Current Southern Closure (Tutuila, Manua, Rose)	11,792	10
Current Closure at Rose Atoll Marine National Monument	10,146	8.5
Current Closure Total	**30,204**	**25.5**
Swains proposed 12 nm square	649	0.5
Swains proposed open	8,266	7.0
Small strip north of Tutuila and Manua proposed open	784	0.7
South of Manua Island proposed open	2132	1.8
South of Tutuila proposed open	1068	0.9
Proposed new exempted fishable area under Alt 2	8,401	7.1
Proposed new exempted fishable area under Alt 3	11,601	9.8
Proposed new exempted fishable area under Alt 4	16,818	14.2
Proposed open fishable area under Alt 5 (all exempt except Rose)	20,058	16.9
Total fishable area in EEZ under Alt 2	96,636	81.6
Total fishable area in EEZ under Alt 3	99,838	84.3
Total fishable area in EEZ under Alt 4	105,051	88.7
Total fishable area in EEZ under Alt 5 (all exempt except Rose)	108,296	91.4

Areas are approximate and were calculated in ArcGIS 10.2. Areas may vary.

3 Description of the Affected Environment

3.1 American Samoa Setting

3.1.1 Socio-economic setting

American Samoa is an unincorporated and unorganized territory of the United States located in the central South Pacific Ocean. It is the only U.S. territory in the Southern Hemisphere. The Council and NMFS, under the Magnuson-Stevens Act, formally designated American Samoa as a fishing community in 1999 (April 19, 2009 (64 FR 19067). However, local dependence on fishing goes back approximately 3,500 years to when the islands of the Samoan archipelago were first inhabited (Sabater and Carroll 2009; Severance and Franco 1989). Many aspects of the culture have changed in contemporary times, but American Samoans have retained a traditional socio-cultural system that is strongly interrelated with fishing. Social values still influence when and why people fish, how they distribute their catch, and the meaning of fish within the society. Fish and other resources may move through a complex and culturally embedded exchange system that supports the food needs of aiga (family), and recognizes the status of both matai (chief) and village ministers (Severance et al., 1999).

The 1899 Tripartite Convention divided the Samoan archipelago between the U.S. and Germany, with the 199 km^2 (~ 77 mi^2) of land on the islands of Tutuila, Aunuu, Ofu, Olosega, Tau, Swains, and Rose Atoll in the east coming under U.S. control (http://en.wikipedia.org/wiki/Tripartite_Convention). A year later, the U.S. government and local chiefs signed a Deed of Cession to formally declare American Samoa a U.S. Territory. The U.S. and other powers especially prized the deepwater harbor at Pago Pago for its strategic and commercial value. Following World War I, the League of Nations granted New Zealand the responsibility for administering German or "Western" Samoa. In 1962, Western Samoa was granted independence and the country changed its name to Samoa in 1997 (it is also referred to as Independent Samoa). However, the demarcation between Samoa and American Samoa is largely political; many families are cross-related and there is much cultural and commercial exchange between the two.

In 2014, the population was listed at 55,517 people (www.economywatch.com/economic-statistics/country/American-Samoa/). Approximately 90 of the population are indigenous Samoans, who, prior to European contact, occupied the archipelago and exercised local sovereignty (AS DOC, 2011). The small economy in American Samoa continues to develop. Its two most important sectors are the American Samoa Government (ASG), which receives income and capital subsidies from the U.S. Government, and canned tuna is the primary export (BOH, 1997). Other private businesses and commerce comprise a smaller third sector. While the visitor industry is not well-developed in American Samoa, tourism is a promising developing sector (economywatch.com) and the Territory has been improving its visitor support infrastructure in recent years. Visitor arrivals are primarily from Samoa and the U.S., as well as from cruises that arrive from the U.S., Europe, and Australia (see http://www.euromonitor.com/travel-and-tourism-in-american-samoa/report).

The excellent harbor at Pago Pago; 406,231 km^2 (118,438 nm^2) of water within the U.S. EEZ around American Samoa, and certain special provisions of U.S. law form the basis of American

Samoa's decades-old fish processing industry (BOH, 1997). The Territory is exempt from the Nicholson Act, which prohibits foreign ships from landing their catches in U.S. ports. American Samoan products with less than 50 percent market value from foreign sources enter the United States duty free (Headnote 3(a) of the U.S. Tariff Schedule).

Despite recent declines, tuna canning remains an important industry in the Territory. In 2012, tuna exports represented more than 99 percent of the $416 million in commodities that American Samoa shipped to the United States (GAO, 2014). Tuna (primarily albacore) are caught by local longline vessels and delivered to one of the two tuna canneries in American Samoa.

However, the tuna canning industry faces competition from other countries. From 1995 to 2003, the value of canned tuna imported into the United States from American Samoa exceeded that of tuna imported from all other countries combined (GAO, 2014). In a recent study, the Government Accountability Office estimated that in 2012 tuna canning was responsible for 2,200 jobs, or about 12% of American Samoa's non-government workforce. While this is a substantial decrease from pre-2010 figures, the job impact of fish processing still extends well beyond direct employment; the industry's operating expenditures create employment opportunities in other parts of the economy.

Analysis by McPhee et al. (2008) found that fish processing accounted for nearly one out of every two jobs in the Territory in 2002.

On October 5, 2010, Tri Marine International acquired the former Chicken of the Sea tuna cannery facility in American Samoa. Tri Marine anticipates processing sashimi-grade tuna in early 2014 and formally reopened the cannery in 2015. When the cannery is fully operational, Tri Marine expects to employ 1,200 people (GAO, 2014).

The multinational corporations that ran the cannery operations supplied a number of raw and finished materials, including shipping services and infrastructure facilities (Schug and Galeai 1987). Even a substantial portion of the raw tuna processed by StarKist Samoa was landed by vessels owned by the parent company. Furthermore, most of the unskilled labor of the canneries is imported (many from nearby Samoa and Tonga), resulting in much of the payroll of the canneries being remitted overseas.

There is currently an effort to promote the export of fresh fish from American Samoa led by Samoa Tuna Processors (STP), a subsidiary of TriMarine. STP constructed a new cold storage facility that has the capacity to store over 5,000 tons of tuna. The location and design of the building allows tuna boats to unload tuna directly into a climate-controlled facility, where the fish are then transferred to the cannery for processing within the facility. STP also receives, processes, and exports fresh tuna by air to Japan and the United States. STP has also built a new seawall and dock to service the local alia fleet[4] to promote the sustainability of the small boat fleet, as well as the large vessel fleet.

On September 29, 2009, a magnitude 8.0 submarine earthquake south of the Samoan archipelago triggered a tsunami that made landfall in several Pacific island locations, including American

[4] http://www.trimarinegroup.com/news/press/STP_Project_Update_Press_031212.html

Samoa and Samoa. Four tsunami waves 15 to 20 ft (4 to 6 m) high arrived ashore on American Samoa about 15 minutes after the quake, killing 31 people. Reports indicate that in some areas the waves reached a mile (1.5 kilometers) inland (Sagapolutele, 2009). In Pago Pago, near the capital, streets and fields filled with debris, mud, overturned cars and boats. Several buildings in the village were flattened and a primary power generation station was damaged. For a period following the disaster, shelters housed an estimated 2,200 people across the island.

In terms of fish harvesting equipment and fishery management resources, the waves damaged or destroyed all of the American Samoa Department of Marine and Wildlife Resources' floating docks and the first floor of the building. The tsunami also damaged Department equipment, such as vehicles and boats. All ramps in Pago Pago and shipyard dry-docking facilities sustained damage and major boat dock areas were unusable for a time because of the many vessels that were tossed about. A facility and associated equipment located in Pago Pago that was funded by the Community Development Project Program for the Pago Pago Commercial Fishermen Association project was destroyed.

The Council and NMFS PIRO jointly examined the effects of the tsunami on the territory's fishing fleets. Fortunately, a purse seiner at dry dock was released the day before the tsunami and many longline vessels were out to sea at the time. However, the tsunami destroyed or damaged many alia vessels predominately used in the bottomfish fishery. The U.S. Secretary of Commerce determined a commercial fishery failure occurred for the commercial bottomfish fishery on January 26, 2012, clearing the way for Congress to appropriate relief funds.

As described in Section 1.0 above, the American Samoa longline fleet is facing a trend of declining catch and profitability; consequently, vessel owners are facing difficult economic circumstances. If locally caught U.S. albacore are not landed by the American Samoa longline fleet, the canneries may need to increasingly purchase albacore from foreign fleets at higher costs, and could jeopardize contract obligations with the U.S. military, which purchase only U.S. caught tuna (see Section 4.9.16, analysis of the alternatives). Although estimates are not currently available, the fishing activity supports the American Samoa economy by providing wages for captain and crew and income for the vessel owner. Moreover, the preparations for each trip include the purchase of supplies, including fuel, food for crew, and other items, which are bought locally. Additionally, each vessel requires a variety of local services including but not limited to, electrical engineering, hydraulics, engine maintenance, and vessel repair, all of which contribute to the local economy. Change is needed to help ensure that an important economic sector of American Samoa—its local longline fleet—is able to recover from the recent challenges.

3.1.2 U.S. EEZ around American Samoa

The U.S. EEZ around American Samoa comprise 118,438 nm^2 (406,750 km^2). Waters managed by the Council and NMFS in the U.S. EEZ generally extend from 3 nm to the extent of the 200 nm EEZ, but the U.S. EEZ around American Samoa is truncated by the EEZs around the other nearby island nations. The islands of American Samoa are in an area of modest oceanic productivity relative to areas to the north and northwest. To the south of American Samoa lie the subtropical frontal zones consisting of several convergent fronts located along latitudes 25°- 40°

N and S often referred to as the Transition Zones. To the north of American Samoa, spanning latitudes 15° N –15° S, lies the equatorial current system consisting of alternating east and west zonal flows with adjacent fronts; the southern branch of the South Equatorial Current (SEC) flows westward from June to October and the South Equatorial Counter Current (SECC) flows eastward from November to April.

Domokos et al. (2007) have investigated the oceanography of the waters surrounding American Samoa and noted the impact of the SEC and SECC on the productivity of the longline fishery. They explain that the American Samoa fishing ground is a dynamic region with strong mesoscale eddy activity and temporal variability with respect to albacore catches on a scale of less than one week. Seasonal and interannual variability in eddy activity, induced by baroclinic instability[5] that is fueled by horizontal shear between the eastward-flowing SECC and the westward-flowing SEC, seems to play an important role in the performance of the longline fishery for albacore. The fishery experiences variable success from one year to the next, and generally has its best catches between May to July although the fishing season can extend through to November. Catches have been observed to be highest when there are a lot of eddies that come off of the SECC in the north and enter the EEZ.

Domokos et al. (2007) found that mesoscale eddy variability in the EEZ around American Samoa peaks from March to April, when the kinetic energy of the eastward flowing SECC is at its strongest. Longline albacore catch tends to be highest at the eddy edges, while albacore catch per unit effort (CPUE) shows intra-annual variability. The fishery experiences high CPUE that lags the periods of peak eddy activity by about 2 months. When CPUE is highest, catches are distributed toward the northern half of the EEZ, the region affected most by the SECC. Further indication of the possible importance of the SECC for longline fishing performance was the significant drop in eddy variability in 2004 when compared with that observed in 2003 – resulting from a weak SECC – which was accompanied by a substantial drop in albacore CPUE rates and a lack of improved CPUE in the northern portion of the EEZ around American Samoa.

Fishermen tend to fish in areas in which the edge of eddies were located. Informal communications indicate they believe that prey items are highest in the upper 200 m of these eddy boundary areas. However, evidence to support higher micronekton biomass in the upper 200 m at eddy boundaries is inconclusive. According to Domokos et al, albacore's vertical distribution seems to be governed by the presence of prey. Albacore spend most of their time between 150 and 250 m in depth, away from the deep daytime and shallow nighttime sonic scattering layers. Using pop-off archival tags, researchers found that albacore congregated at depths that coincided with small local maxima in micronekton biomass whose backscattering properties are consistent with those of albacore's preferred prey. Settling depths of longline sets during periods of decreased eddy activity correspond to those most occupied by albacore. It is thought that lower CPUEs are the result of longline bait being rendered less attractive to albacore in the presence of high levels of preferred prey.

[5] Baroclinic instability is a fluid dynamical instability of fundamental importance in the atmosphere and in the oceans. In the atmosphere it is the dominant mechanism shaping the cyclones and anticyclones that dominate weather in mid-latitudes.

In summary, Domokos et al. were able to explain variations in catch and CPUE by the American Samoa longline fleet. These patterns of high catch/and high CPUE followed by lower catches/lower CPUE are fairly consistent across the years. The American Samoa longline fishery experiences peak catches from May to July. Catch and CPUE of albacore drop off during other parts of the year and it becomes extremely difficult for the fishery to cover its expenses during the "off season." The Council finds that providing more area to fish within the U.S. EEZ may result in higher CPUE by making it more likely for individual fishermen to encounter albacore outside of these areas in which there is a high density of prey items.

3.1.3 American Samoa-based Pelagic Fisheries

In 1995, small-scale longline fishing began in American Samoa following training initiated by the Secretariat of the Pacific Community (Chapman, 1998). Pelagic fishing commercial ventures are diverse, ranging from small-scale vessels that have a very limited range, to moderate sized longline and troll vessels that fish primarily within the EEZ, to large-scale purse seine vessels capable of catching tuna in the EEZ and distant high seas waters, and then delivering their catches to the two canneries located in American Samoa. Currently the pelagic fisheries of American Samoa rely on supplying frozen albacore and small amounts of other pelagic fish directly to the StarKist and TriMarine canneries in Pago Pago. These fisheries include small and large-scale longlining, large scale purse seiners, and a small local pelagic trolling fishery. Regulations require all owners and operators of American Samoa longline vessels to obtain a federal permit and to submit logbooks containing detailed data on each of their sets and the resulting catch. Boat-based creel surveys, a Commercial Purchase System, and Cannery Sampling Forms are also used to collect fishery information for all fishing activity. Additional historical and recent data can be found in the Council's 2012 Pelagic Fisheries Annual Report (WPFMC, 2014).

More than $6.5 million worth of pelagic species were landed in American Samoa during 2013 (WPFMC, in prep). Longline fishing dominated (99.2%) the value of pelagic landings during 2013. Over $5.2 million worth of albacore dominated (80%) the value of longline caught pelagic species during 2013 followed by yellowfin (~ $828,000), bigeye (~$150,000), and skipjack (~$107,000) tunas. Wahoo (~$77,000) and mahimahi (~$68,000) were the top-value non-tuna species during 2013 (WPFMC, in prep).

3.1.4 Small-Scale Longline, Troll and Bottomfish Fishing

3.1.4.1 Small-Scale Longline

According to Levine and Allen (2009), longlining was introduced to American Samoa in 1995 by fishermen from Western Samoa. Local fishermen have found longlining to be a worthwhile venture because they catch more fish with less effort and gas consumption. Longlining now accounts for the majority of the catch in American Samoa. Initially, alia catamarans were the vessels most frequently used for longline fishing. Alias, which are Samoan-built, twin aluminum-hulled boats with fiberglass or wood superstructures, generally are 24 to 38 ft in length and powered by small (40 hp) gasoline outboard engines (Kaneko and Bartram, 2004). Alias were the dominant fishing vessels of the 1980s and 1990s in American Samoa. Navigation

on these vessels was visual, using landmarks. The gear was stored on deck on a hand-crank reel which held as much as 10 miles or as little as 2–3 miles of monofilament mainline.

Gear for longlining on alias was set by spooling the mainline off the reel and retrieved by hand-pulling the line back to the boat. The reel was used to take up and store the mainline as it was pulled. Trips were 1 day long (about 8 hours). Setting the equipment generally began in the early morning and hauling was generally in the midday to mid-afternoon. The catch was stored in boxes built into the hull of the boat or in portable coolers or freezer chests.

The predominant catch is albacore, which is sold to the tuna cannery. By 1997, 33 alia vessels received general longline permits from NMFS to fish in federal waters around American Samoa, although only 21 were actively fishing at that time. The number of small longline vessels participating in longline fishing in American Samoa has dropped substantially. Since 2008, only one alia vessel has been actively longline fishing and NMFS cannot report its landings due to data confidentiality rules. Based on information available, the decline in participation of the small alia vessels in the fishery was driven primarily by low catch rates of albacore experienced across the South Pacific region combined with high economic and other operating costs (WPFCM 2014; in prep).

3.1.4.2 Bottomfish Fishery

WPFMC (2009) provides a summary of the bottomfish fishery in American Samoa. Long before the arrival of Europeans in the islands of Samoa, the indigenous people of those islands had developed specialized techniques for catching bottomfish from canoes. Some bottomfish, such as ulua, held a particular social significance and were reserved for the matai (chiefs) (Severance and Franco, 1989).

By the 1950s, many of the small boats in American Samoa were equipped with outboard engines, steel hooks were used instead of ones made of pearl shell, and monofilament fishing lines had replaced hand woven sennit lines. However, bottomfish fishing remained largely a subsistence practice. It was not until the early 1970s that the bottomfish fishery developed into a commercial venture (Ralston, 1979). Surveys conducted around Tutuila Island from 1967 to 1970 by the American Samoa Office of Marine Resources indicated that the potential existed for developing a small-scale commercial bottomfish fishery.

In the early 1980s, the 28-foot alia catamaran, designed by the Food and Agriculture Organization of the United Nations, was introduced into American Samoa, and local boat builders began constructing these inexpensive but seaworthy fishing vessels. A recovery in the size of the fishing fleet, together with a government-subsidized development project aimed at exporting deep-water snapper to Hawaii, caused another notable increase in bottomfish landings (Itano, 1996). Between 1982 and 1988, the bottomfish fishery made up as much as half of the total catch of the local commercial fishery. However, since 1988, the nature of American Samoa's fisheries has changed dramatically, with a shift in importance from bottomfish fishing to trolling and longlining for pelagic species (WPFMC, 1999). Landings trends in the bottomfish fishery have also been periodically adversely impacted by hurricanes. The 1987 hurricane, in particular, damaged or destroyed a large segment of American Samoa's small-boat fishing fleet.

Commercial landings of bottomfish account for almost all of the total bottomfish catch, the amount of bottomfish caught for recreational or subsistence purposes was very small. The commercial catch of bottomfish declined significantly in 1987, recovered slightly in 1988, but then decreased dramatically again during the early 1990s. The overall decline was due to the effects of hurricanes that struck the territory in 1987, 1990, 1991, 2004, and 2005; the departure of several highliners from the fishery; and a shift by the fleet from bottomfish fishing to trolling for pelagic species (WPFMC, 2006) In addition, fishermen began to experience competition in local markets from fresh bottomfish imported from Samoa and Tonga.
In 1991, bottomfish imports exceeded local landings of bottomfish. The significantly greater 1994 total landings, when compared with previous years, occurred primarily because of improved catch recording, an increase in effort by highline vessels, and a high fish demand for government and cultural events. However, the 1998 harvest was only 25 percent of the 17-year average and was the smallest catch since 1992. This decline was primarily due to a shift by highliners in the local fleet from bottomfish fishing to fishing for pelagic species with longline gear. Since 1998, some alias have returned to bottomfish fishing when longline catches and prices for pelagic species declined.

Currently, approximately 24 vessels fish commercially for bottomfish (Domingo Ochavillo, DMWR, pers. comm. To Council Staff, May 11, 2015), with a catch in 2013 of 27,378 lb (Sabater, 2015). Bottomfish fishing targets a different species assemblage, so there would not be catch competition. Only Alternative 5 is expected to result in large longline vessels being able to fish around shallower banks. Longline fishing operations are expected to avoid fishing over banks where bottomfish fishermen tend to target in order to prevent gear losses. For these reasons bottomfish operations are unlikely to be affected by any of the Alternatives and this fishery will not be considered in detail in the rest of this document.

3.1.4.3 Troll Fishery

In 2013, 13 troll fishing vessels landed 16,764 lb of pelagic fish of which 8,334 lb was skipjack and 7,037 lb was yellowfin tuna (WPFMC, in prep). Trollers fish in the coastal waters of Tutuila and Manua and on offshore banks and seamounts (Figure 21). The average number of vessels participating in the troll fishery from 2000-2013 was 25, though only 10 vessels participated in trolling in 2013 (WPFMC, 2014 and WPFMC, in prep). The reduction in vessel participation in the pelagic trolling fishery is due to high fuel prices and vessels switching to bottomfish fishing. Trolling does occur while fishermen move between bottomfish fishing locations or transitioning to and from port, which creates large apparent fluctuations in CPUE for pelagic species.

Levine and Allen (2009) provide some background on troll fishing in American Samoa. Until 1995, boat-based fishing in Tutuila and Manua was primarily trolling and bottomfish handlining. In 1996, the majority of trolling fishermen converted their alias to longline fishing, although some of them continued to troll fish occasionally. Consequently, the fishery has experienced a decline in its catch and effort, especially since larger commercial trollers were most often the ones that converted to longlining. In 1996, 7 of the 35 trolling vessels were 25-40 ft long pleasure boats whose captains fished for recreation on weekends, holidays or competed in fishing tournaments, with the catch rarely sold.

Yellowfin and skipjack tuna have always made up most of the trolling landings. In 1986, when trolling was the only pelagic fishing method, 53 trolling boats landed 137,100 pounds of skipjack tuna and 54,622 pounds of yellowfin tuna. In 1996 when longlining was just getting started, these two species comprised 75% of the trolling landings with 35 boats landing 56,562 pounds of skipjack and 36,551 pounds of yellowfin tuna. Mahimahi, blue marlin and wahoo made up a significant proportion of the other 25% of the catch. By 2001, when longlining became the dominant fishing method in American Samoa, the number of trolling boats and their total catch dropped dramatically. A summary of the troll fishery catch, effort and CPUE from 2000 to 2013 is given in Table 4.

Table 4. Summary of troll fishing effort, catch and CPUE in American Samoa, 2000-2013
Source: WPFMC 2014 and WPFMC in prep.

Year	Vessels	Effort (trips)	(Effort (hours)	Total catch (lb)	CPUE lb/hour	CPUE lb/trip
2000	19	292	1149	23,014	22.01	78.82
2001	18	330	1655	23,073	18.09	69.92
2002	16	288	1362	25,235	20.62	87.62
2003	20	310	1044	31,112	31.78	100.36
2004	18	276	1204	28,598	25.7	103.62
2005	9	211	862	22,075	25.44	104.62
2006	9	193	883	27,412	36.02	142.03
2007	19	145	723	24,196	35.15	166.87
2008	16	143	808	38,215	50.44	267.24
2009	10	81	424	5,328	26.38	65.78
2010	7	53	308	4,599	20.32	86.77
2011	10	141	711	35,205	51.56	249.68
2012	9	84	389	19,086	52.03	227.21
2013	13	131	666	16,764	27.29	127.97
Average	13.79	191.29	870.57	23,136.57	31.63	134.18

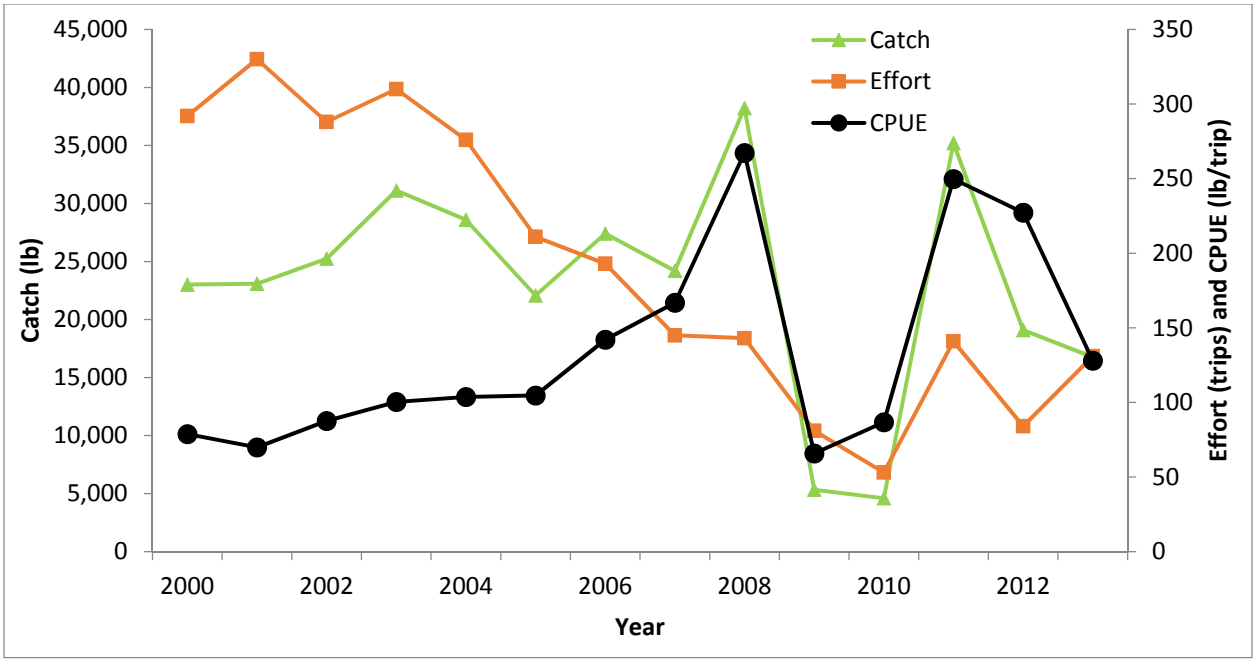

Figure 11. Catch, fishing effort and CPUE for troll fishing vessels in American Samoa, 2000-2013.
Source: WPFMC 2014 and WCPFC in prep

Fishing effort in the troll fishery has declined since 2000, though with a partial recovery after 2010 (Figure 11). On average there were about 14 troll vessels fishing each year making about 190 fishing trips each year, although fleet size ranged from 9-20 vessels, making 53-330 fishing trips

Despite declining troll effort, troll catches were relatively stable between 2000 and 2008, and then declined sharply during 2009 and 2010, and then recovering to former levels in 2011 (Figure 11). Most of the catch, about 95%, is equally split between skipjack tuna and yellowfin tuna (WPFMC, 2014)

The CPUE in the troll fishery showed an increasing trend, as effort declined, between 2000 and 2008 (Figure 11). Like the catch, there was a major decline in the CPUE between 2009 and 2010, which likely accounted for the catch decline. Following 2010, CPUEs, though still variable returned to former levels.

3.1.5 Large-Scale Longline

In 2000, the American Samoa longline fishery began to expand rapidly with the influx of large (≥50 ft) conventional monohull vessels similar to the type used in the Hawaii-based longline fishery, including some vessels from Hawaii. These vessels were larger, had a greater range, and were able to set 30-40 miles of mainline and more hooks per trip than the average alia vessel. The number of permitted and active longline vessels in this sector increased from three in 1997 to 31 in 2003. Of these 31 vessels, 10 permits were believed to be held by indigenous American Samoans as of March 21, 2002 (P. Bartram, Akala Products Inc., pers. comm. to Council Staff

March 2002). Economic barriers, such as the capital needed to purchase, operate and maintain a large fishing vessel, may have prevented more substantial indigenous participation in the large-scale sector of the longline fishery. Over time, most of the small longline vessels became inactive and in 2013, there was one small (Class A) vessel, and 23 active Class C and D (large) vessels in the fishery (Figure 20). These vessels fish predominantly in the U.S. EEZ around American Samoa (Figure 12) but can fish at greater distance through fishery access agreements with neighboring countries or on the high seas (see Section 3.1.5.1).

Vessels longer than 50 ft can set from 1,500 to over 4,000 hooks per day on between 30 and 40 miles of mainline. They have a greater fishing range and a greater capacity for storing fish (8-40 mt compared to small-scale vessels which can store between 0.5 and 2 mt. Large vessels are outfitted with hydraulically powered reels to set and haul mainline, and with modern electronic equipment for navigation, communications, and fish finding. All are presently being operated to freeze albacore onboard, rather than to land chilled fish.

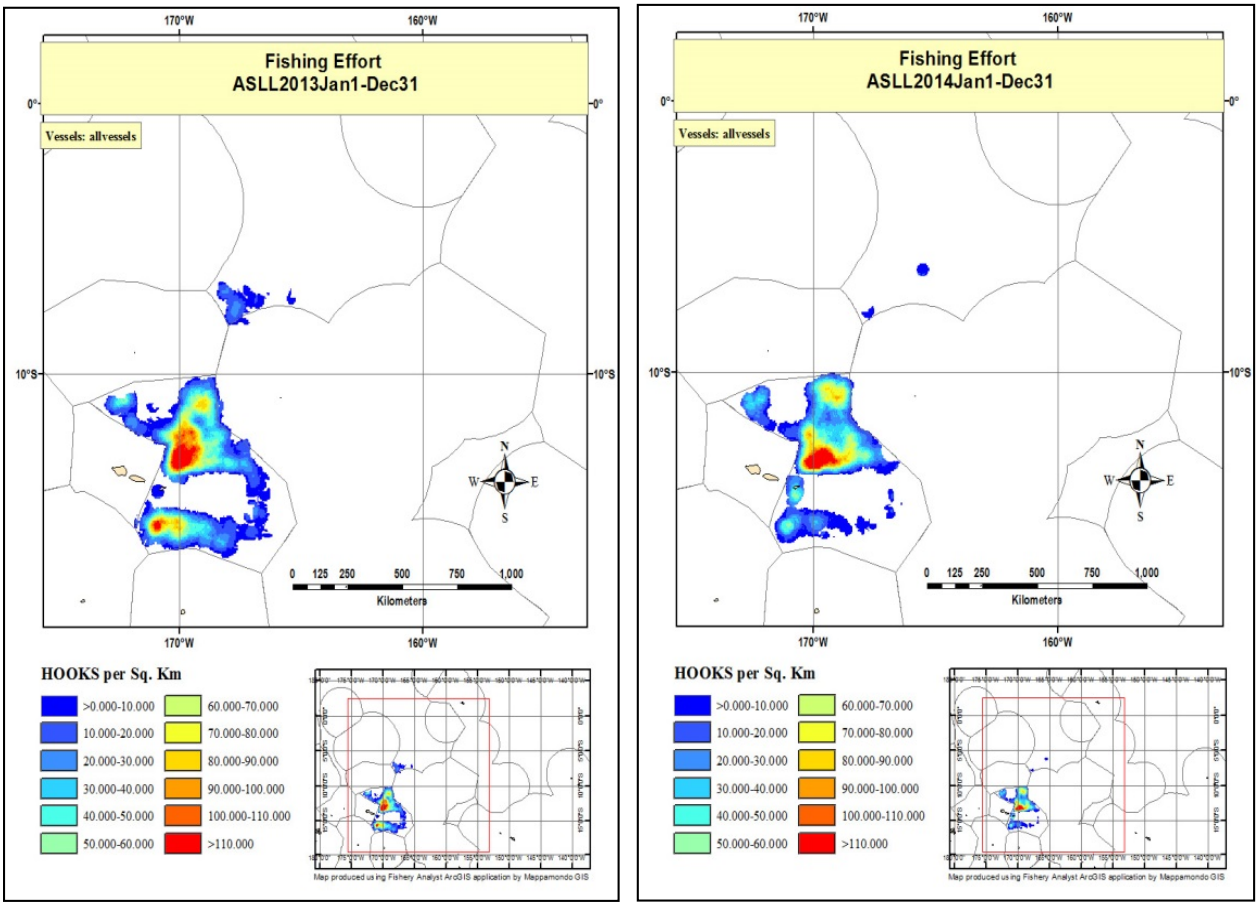

Figure 12. General location of total longline fishing effort within and beyond the U.S. EEZ around American Samoa in 2013 and 2014.
Source: NMFS PIFSC

Based on logbook data from 2002-2013, the average number of hooks per set used by the longline fleet steadily increased from 1,905 to 3,070 (WPacFIN[6]; Table 5), but has since declined to 2,985 in 2013. Observed effort for 2013 was 2,985 hooks per set (WPFMC, in prep).

Table 5. Logbook Effort in the American Samoa Longline Fishery from 2008-2013.

Year	Average Hooks per Set	Number of Sets	1000s of Hooks
2002	1,905	6,872	13,095
2003	2,277	6,221	14,165
2004	2,419	4,853	11,741
2005	2,553	4,359	11,128
2006	2,814	5,069	14,264
2007	2,965	5,920	17,554
2008	3,038	4,754	14,444
2009	3,070	4,910	15,074
2010	2,906	4,534	13,174
2011	2,851	3,776	10,767
2012	2,877	4,068	11,702
2013	2,985	3,393	10,129

Source: http://www.pifsc.noaa.gov/wpacfin/index.php and WPFMC in prep.
Note: Data presented for 2008-2013 because it captures predominantly Class C and D vessels; only one Class A vessel was active and zero Class B vessels were active.

Over time, the average set for longline vessels remains at around 3,000 hooks per set. The number of sets made in a year has decreased in the past several years from a high of 4,910 in 2009 to 3,393 sets in 2013, the lowest since 2008. Similarly, the number of hooks set annually has decreased from 17.5 million hooks in 2007 to around 10 million hooks in 2013.

3.1.5.1 Effort

Since 2001, the number of American Samoa troll and longline vessels landing pelagic species has decreased from a high of 80 vessels in (2001) to 36 vessels in 2013 (Table 6). Effort is dominated by large longline vessels (Class D) as there was only one active small longline vessel in 2013 and the troll fleet continues to decrease in numbers of vessels and trips.

Table 6. Number of Vessels Using Different Fishing Methods, 1996-2013.

Year	Number of Vessels		
	Longline	Trolling	Total
1996	12	37	49
1997	21	32	53
1998	26	24	50
1999	29	36	65
2000	37	19	56

[6] Found at: http://www.pifsc.noaa.gov/wpacfin/index.php

Year	Number of Vessels		
	Longline	Trolling	Total
2001	62	18	80
2002	58	16	74
2003	50	20	70
2004	41	18	59
2005	36	9	45
2006	31	9	40
2007	29	19	48
2008	28	16	44
2009	26	10	36
2010	26	7	33
2011	24	10	34
2012	22	9	31
2013	23	13	36

Source: WPFMC 2014 and WPFMC in prep

Note: The number of vessels does not reflect the number of permits. The number of vessels can be higher if a permit transfer occurred within a given year. Staff from the WPacFIN program use vessel number as a proxy for permit number when analyzing data.

Fishing power[7] is clearly distinct between the different size classes of vessel, and separate catch statistics are compiled by the Department of marine and Wildlife Resources. The alia vessels use manually-powered mainline drums that hold about four miles of monofilament line. These smaller longline vessels make single day trips with a crew of three, making a single set of around 300 – 350 hooks per set and keep their catch on ice.

Large monohull vessels in the fishery are typically steel-hulled vessels of around 60–80 ft long operating hydraulically-driven mainline reels holding 30–50 miles of monofilament, setting around 3,000 hooks per day with crews of 5–6 people. They are also likely to be well equipped with marine electronics and have refrigeration systems to freeze catch onboard for extended trips of up to 60 days. Therefore, the larger vessels can range out to the outer portions of the EEZ and, in the past, some have negotiated fishing access with neighboring states. The large monohull vessels are, in some cases, the same vessels that have engaged in the Hawaii longline fisheries.

Fishing effort has occurred predominantly in the EEZ surrounding American Samoa (excluding the existing LVPA) and some limited effort in foreign EEZs surrounding American Samoa where vessels have fishing access agreements, including the Cook Islands, Samoa, Tokelau, and others, as well as all four high seas areas (NW, NE, E, and S) giving an operational area roughly 155° W to 180°, and from 3° to 32° S from 2000 through 2009 (NMFS, 2010a). Fishing effort in these countries has ranged from a couple thousand hooks per year to over 2.7 million hooks set in the Cook Islands in 2006.

[7] Fishing power provides a measure of vessel efficiency. A full explanation may be found on FAO website at: http://www.fao.org/DOCREP/003/X2250E/x2250e0f.htm

The number of hooks set by the American Samoa-based longline fleet has varied over time, and in recent years, shows a general decline. Data for 2013 indicate 10.1 million hooks were set by the American Samoa longline fishery, down from 15 million hooks set in 2009, and 38 percent less than a high of 17.5 million set in 2007 (WPFMC, 2014 and WPFMC, in prep). Table 7 shows landing and effort statistics for the longline fishery.

Table 7. American Samoa Longline Fishery Landings and Other Statistics, 2003-2013.

	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Active Vessels	49	41	36	31	29	28	26	26	24	22	23
Hooks Set (millions)	14.2	11.7	11.1	14.3	17.5	14.4	15.0	13.2	10.8	11.7	10.1
Trips	650/ 282*	430/ 193*	223/ 179*	331	377	287	177	264	274	275	96
Sets Made	6,221	4,853	4,359	5,069	5,919	4,754	4,910	4,534	3,776	4,068	3393
Total Pelagics Landings (mt)	5,173	4,079	3,999	5,401	6,586	4,347	4,787	4,673	3,250	4,022	2.717
Albacore Landings (mt)	3,931	2,488	2,919	4,104	5,329	3,456	3,910	3,938	2,292	3,092	2,051
Yellowfin Tuna (mt)	517	890	516	493	620	336	155	445	536	385	414
Bigeye Tuna (mt)	253	226	132	199	199	124	146	178	170	167	85
Skipjack Tuna (mt)	120	235	141	213	165	163	156	111	109	250	64
Wahoo (mt)	195	215	221	287	198	136	139	131	125	83	88
Total Ex-vessel Value (adjusted) ($ millions)	$10.7	$9.1	$8.0	$11.5	$13.7	$9.4	$10.4	$ 10.4	$7.2	$7.2	$6.5

Source: WPFMC 2014 and WPFMC in prep

*The first number represents trips by small alia and the second by larger monohull vessels. From 2006, three or fewer alia vessels were active and those data are confidential.

Note: all other species (e.g., mahimahi, swordfish, etc.) landed are less than one percent of total landings.

3.1.5.2 Catch

Approximately 6.3 million lb (2,858 mt) of pelagic species are estimated to have been landed by American Samoa vessels (longline and troll) during 2013 (Table 10), which is a reduction of about 3 million lb from the 9.3 million lb landed in 2012. Landings of tuna species decreased substantially by 3 million lb, while non-tuna landings decreased by about 12,000 lb. Declines in catch are directly related to reduced effort and declining CPUE (WPFMC, in prep).

About 5.9 million lb (94%) of total landings in 2013 were of tuna species, while the non-tuna landing were roughly 353,000 lb. Albacore dominated tuna species landings at 78 percent and comprised 74 percent of all pelagic species landings; while yellowfin (15 %), bigeye (3%), skipjack (2%), and unknown tunas make up the rest of the tuna landings. Wahoo species dominated the "Non-Tuna and Others" total landings; they make up 55 percent of non-tuna landings and 3 percent of all pelagic landings (WPFMC, 2014). Class D (>70 ft) longline vessels account for the majority of the American Samoa total pelagic landings and commercial landings (WPFMC, in prep).

3.1.5.3 Catch-Per-Unit-of-Effort (CPUE)

CPUE data for all American Samoa longline vessels is summarized in Table 8. The CPUE for albacore, the main target species of the longline fishery, reached a peak in 2001 at 33 fish per 1,000 hooks and has decreased to approximately 12 fish per 1,000 hooks in 2011 (Table 8). CPUE rose in 2012 to 14.9 fish/1,000 hooks, and decreased again in 2013 to 11.7. The reasons for declining CPUE could include localized depletion of adult albacore stock in the U.S. EEZ around American Samoa and its slow replacement by new recruits.

Table 8. CPUE (number of fish caught/1,000 hooks) for All American Samoa Longline Vessels, 2007-2013.

Species	2007	2008	2009	2010	2011	2012	2013
Skipjack	2.3	2.4	2.3	2.4	2.5	4.3	1.2
Albacore	18.3	14.2	14.8	17.4	12.1	14.9	11.7
Yellowfin	1.9	1	1.1	1.8	2	1.2	1.9
Bigeye	0.9	0.5	0.6	0.8	0.7	0.7	0.4
TUNAS SUBTOTAL	23.5	18.2	18.8	22.4	17.3	21.1	15.2
Mahimahi	0.1	0.1	0.2	0.2	0.1	0.1	0.2
Blue marlin	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Wahoo	1	0.7	1	1	0.9	0.7	0.7
Sharks	0.4	0.4	0.4	0.4	0.5	0.6	0.4
Swordfish	0	0	0	0	0	0	0
Spearfish	0	0.1	0.1	0.1	0.1	0.1	0.1
Oilfish	0.5	0.4	0.5	0.6	0.6	0.8	0.7
Pomfret	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NON-TUNA PMUS SUBTOTAL	2.4	2	2.5	2.5	2.4	2.4	2.3
Pelagic fishes (unknown)	0.2	0.1	0.2	0.3	0.4	0.3	0.2
OTHER PELAGICS SUBTOTAL	0.2	0.1	0.2	0.3	0.4	0.3	0.2
TOTAL PELAGIC	26	20.3	21.5	25.2	20	23.8	17.7

Source: WPFMC 2014 and WPFMC in prep.

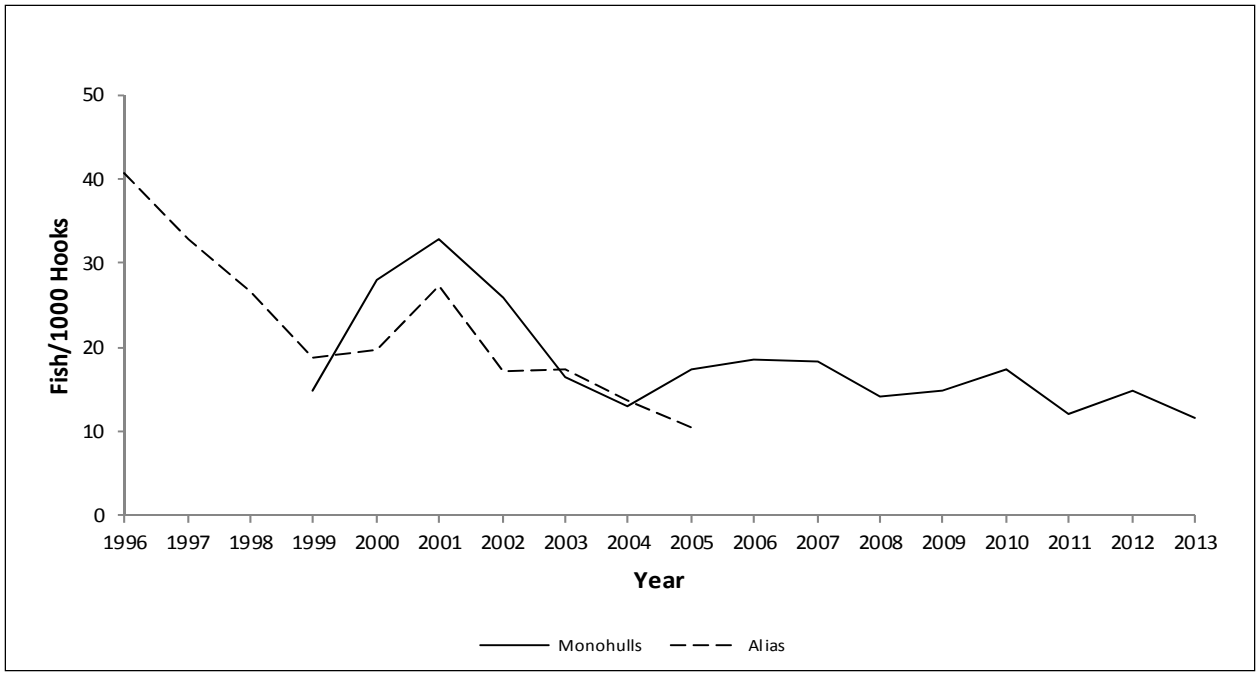

Figure 13. Graph showing albacore CPUE (fish per 1,000 hooks) in the American Samoa longline fishery, 1996-2013.
Source: WPFMC, 2014 and WPFMC, in prep

Figure 13 provides a summary at a glance of the trend over time of albacore CPUE in the American Samoa longline fishery. CPUE has been declining over time, but has shown variability among years. The trend is expected to improve if vessels in the fleet are allowed to fish over a wider area of the EEZ, thus distributing effort over a larger area and allowing fishing vessels to pursue fish into LVPA areas that are currently off limits to large vessels.

3.1.6 Recreational Fishing in American Samoa

Levine and Allen (2009) provide an overview of fisheries in American Samoa, including subsistence and recreational fisheries. Citing a survey conducted in American Samoa by Kilarski et al. (2006), Levine and Allen noted that approximately half of the respondents stated that they fished for recreation, with 71 percent of these individuals fishing once a week or less. Fishermen also fished infrequently for cultural purposes, although cultural, subsistence, and recreational fishing categories were difficult to distinguish as one fishing outing could be motivated by all three reasons.

Boat-based recreational fishing in American Samoa has been influenced primarily by the growth in fishing clubs and fishing tournaments. Recreational catch and release fishing is not conducted in American Samoa. A small number of fishermen do fish for recreational purposes but they also fish for sustenance and cultural exchange purposes. A small number of recreational fishing tournaments are held annually. Currently, the tournaments target billfish and large pelagic fish.

Table 9 shows a summary of the species composition from fishery tournaments held between 1974 and 2010. The data do not document every tournament held in the four decades since records were kept, but cover 55 individual competitions. Of the nearly 136,000 lb of fish landed in the tournaments, almost two-thirds of the catch comprised equal amounts of skipjack and yellowfin tuna, while blue marlin, wahoo, mahimahi, and sailfish made up the majority of the remaining catch.

Table 9. American Samoa Recreational Fishing Tournaments Catch Composition, 1974 - 2010.

Species	Weight (lb)	Percent
Skipjack tuna	40,655.85	29.93%
Yellowfin tuna	39,458.34	29.05%
Blue marlin	21,102.25	15.54%
Wahoo	11,807.25	8.69%
Mahimahi	11,035.20	8.13%
Sailfish	3,215.00	2.37%
Sharks (unknown)	2,805.75	2.07%
Dogtooth tuna	1,786.05	1.32%
Others	3,951.75	2.91%
Total	135,817.44	100.00%

Source: American Samoa Dept. of Marine and Wildlife Resources unpublished data.

More recently, recreational fishing has undergone a renaissance in American Samoa through the establishment of the Pago Pago Game Fishing Association (PPGFA), founded by a group of recreational anglers in 2003.[8] The motivation to form the PPGFA was the desire to host regular fishing competitions. There are about 15 recreational fishing vessels ranging from 10 ft single engine dinghies to 35-ft long twin diesel engine cabin cruisers. The PPGFA has annually hosted

[8] http://ppgfa.com/page/about-ppgfa.

international tournaments in each of the past five years with fishermen from neighboring Samoa and Cook Islands attending.

The recreational vessels use anchored fish aggregating devices (FADs) extensively, and on tournaments venture to the various outer banks which include the South Bank (35 miles), North East Bank (40 miles NE), South East bank (37 miles SE), 2% bank (40 miles), and East Bank (24 miles East). In 2012, PPGFA hosted the 13th Steinlager Ia Lapoa Game Fishing Tournament in which a total of 2,598 lb of qualifying fish were landed. Species landed during the tournament included barracuda, blue marlin, dogtooth tuna, mahimahi, wahoo, and yellowfin tuna; blue marlin were also tagged and released.[9]

Members of the PPGFA fish a few times per week. Not all members go out that frequently, but across the membership, several trips per week are taken. The target species include yellowfin tuna and mahimahi (W. Sword, PPGFA, pers. comm. to Council staff, October 31, 2012).

There is no full-time regular charter fishery in American Samoa similar to those in Hawaii or Guam. However, Pago Pago Marine Charters[10], which is concerned primarily with industrial work such as underwater welding, construction, and salvage, also includes for-hire fishing among the services it offers. Pago Pago Charters goes out two to three times a week, many times to fish but other times to go whale watching. The target species are typical pelagic species including yellowfin tuna and mahimahi (W. Sword, PPGFA, pers. comm., Council staff, October 31, 2012).

Estimation of the volume and value of recreational fishing in American Samoa is not known with any precision. An approximation of the volume of boat based recreational fishing is generated in the Council's Pelagics Annual Reports, based on the annual sampling of catches conducted under the auspices of WPacFIN[11]. Boat-based recreational catches have ranged from 857 to 2,920 lb (average 2,176 lb) between 2008 and 2012 comprising primarily pelagic fish (WPFMC 2014). These catches are unsold, but based on the 2012 average price for troll caught pelagic fish ($3.38/lb) (WPFMC 2014) this would be worth $2,896 - $9,869. An additional volume of fish is caught recreationally by fishing tournaments mounted by the PPGFA, but WPacFIN does not monitor these landings.

3.2 Target and Non-Target Stocks

3.2.1 South Pacific Albacore

The most recent assessment of South Pacific albacore was conducted in 2012 by Hoyle et al. (2012). The assessment used the integrated stock assessment model known as MULTIFAN-CL (or MFCL), under the assumption that there is a single stock of albacore in the South Pacific Ocean. The model was age structured (20 age-classes) and the catch, effort, size composition and tagging data used in the model were classified by 30 fisheries and quarterly time periods from July 1960 through June 2011. The assessment included a range of model options and sensitivities

[9] http://www.ppgfa.com/blog/final-results
[10] http://pagopagomarinecharters.com/
[11] http://www.pifsc.noaa.gov/wpacfin/.

that were applied to investigate key structural assumptions and sources of uncertainty in the assessment.

Holye et al. (2012) includes a "Kobe plot" (Figure 14) of the ratios of current fishing mortality ($F_{current}$) to fishing mortality at the maximum sustainable yield or MSY (F_{MSY}) versus the current biomass ($B_{current}$) to the biomass at MSY (B_{MSY}). Based on the information in the stock assessment, the stock of South Pacific albacore is not subject to overfishing and is not overfished. South Pacific Albacore stocks are healthy and current harvests remain sustainable. The fishing mortality reference point $F_{current}/F_{MSY}$ has an estimate of 0.21, and there is a low risk that overfishing is occurring. The corresponding biomass-based reference points $B_{current}/B_{MSY}$ is estimated to be above 1.0 and therefore the stock is not in an overfished state. The estimate of MSY (99,085 mt) is comparable to the recent levels of catch[12] from the fishery ($C_{current}$ 78,664 mt, C_{latest} 89,790 mt). There is no indication that current levels of catch are causing recruitment overfishing, particularly given the age selectivity of the fisheries. However, Hoyle et al. (2012) state that longline catch rates are declining, and catches over the last 10 years have been at historically high levels and are increasing.

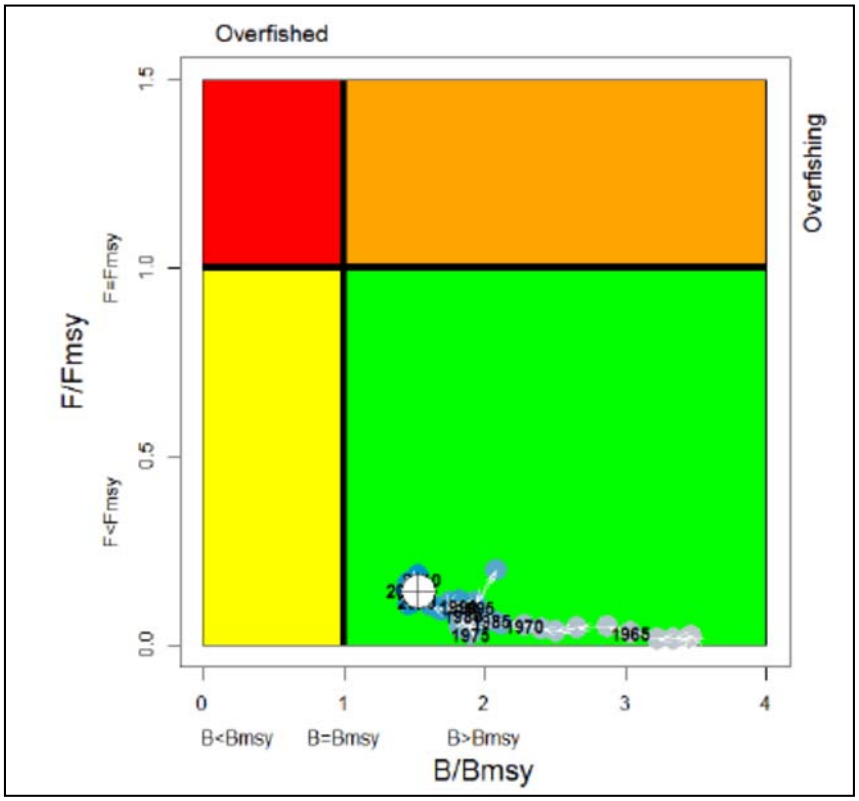

Figure 14. Temporal trend in annual stock status, relative to B/BMSY (x-axis) and F/FMSY (y-axis) reference points, for the model period (starting in 1960).
Source: Hoyle et al., 2012.

[12] $C_{current}$ = mean catch from June 2007-June 2010, C_{latest} = June 2010-June 2011). In December 2015, the SPC presented the results of 2015 stock assessment for south Pacific albacore tuna to the WCFPFC (Harley et al, 2015). The results and main conclusions for the 2015 assessment are similar to the 2012 assessment and indicate the stock is not subject to overfishing and is not overfished and catch is still at sustainable levels.

Note: The color of points is graduated from lavender (2006) to blue (2009) and white cross for the year 2010, and points are labeled at five-year intervals. The last year of the model (2011) is excluded because it is highly uncertain.

Langley (2006) reported that recent levels of fishing effort from all South Pacific albacore fisheries combined reduced the level of biomass available to the Pacific Island nations domestic longline fisheries by approximately 30 percent compared to unexploited levels. Langley predicted that increases in fishing effort in the Pacific Islands longline fisheries would result in declines in CPUE due to a decline in exploitable biomass. Catch rates in domestic longline fisheries exhibit strong seasonal trends due to fluctuations in the oceanographic conditions and inter-annual variation in albacore catch rates are evident in most of the Pacific Island fisheries.

Most of the longline albacore catch is taken in a relatively narrow latitudinal band between 10°–40° S. The highest catch rates for albacore in the sub-equatorial area are relatively localized and limited to discrete seasonal periods; possibly associated with the northern and/or southern movements of fish during winter and/or summer. These peaks in seasonal catch rates tend to persist for a couple of months and to extend over a 10° latitudinal range. On this basis, it would appear that most of the longline exploitable biomass resides in a relatively small area, suggesting a modest stock size.

The results of the 2006 assessment suggest that regional stock depletion has contributed to catch rate declines, but localized depletion may also have contributed. Observed declines in catch rates for South Pacific Albacore from important longline fisheries (e.g., Fiji, French Polynesia, and Samoa)—following periods of relatively high albacore catches (e.g., from 3,000–10,000 mt per year)—may indicate localized stock depletion. Strong relationships may occur between catch rates and removals in the preceding 10-day period. Movement rates into and out of EEZs may be lower than peak catch levels, and there may be some residency in the population.

International catches of South Pacific albacore

As described in Williams and Terawasi (2014), prior to 2001, South Pacific albacore catches were generally in the range 25,000-44,000 mt, although a significant peak was attained in 1989 (49,076 mt), when driftnet fishing was in existence. Since 2001, catches have greatly exceeded this range, primarily because of the growth in several Pacific Islands domestic longline fisheries. The South Pacific albacore catch in 2013 (84,698 mt) was the third highest on record. In that year, the American Samoa longline fishery landed 2,051 mt of South Pacific albacore, or approximately 2 percent of total South Pacific albacore landings, although this was less than the 2002 landings, which were almost 6,000 mt .

The longline catch of albacore is distributed over a large area of the South Pacific (Figure 15), but concentrated in the west. The Chinese-Taipei distant-water longline fleet catch is taken in all three regions, while the Pacific Island domestic longline fleet catch is restricted to the latitudes 10°–25°S. Troll catches are distributed in New Zealand's coastal waters, mainly off the South Island, and along the sub-tropical convergence zone (STCZ). Less than 20 percent of the overall South Pacific albacore catch is usually taken east of 150° W (Williams and Terawasi, 2014).

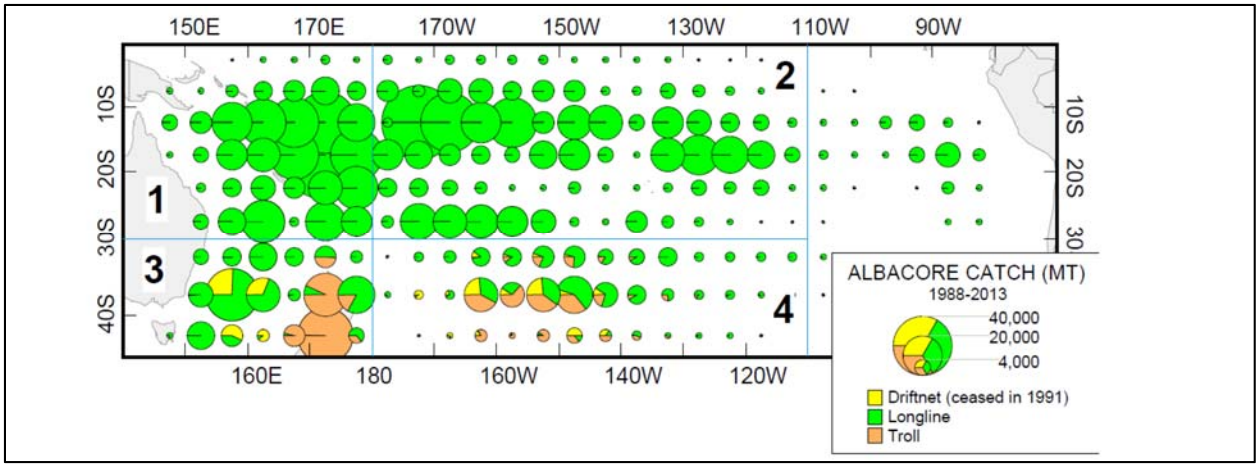

Figure 15. Distribution of South Pacific albacore catches, 1988-2013.
Source: Williams and Terawasi 2014.

3.2.2 Skipjack Tuna

The most recent stock assessment for skipjack tuna in the WCPO was conducted by Rice et al. (2014). The latest catches slightly exceed MSY, while fishing mortality for adult and juvenile skipjack tuna is estimated to have increased continuously since the beginning of industrial tuna fishing. According to the stock assessment, fishing mortality still remains below the level that would result in overfishing. Recent levels of spawning potential are well above the level that will support the MSY.

Rice et al. (2014) estimate the fishing mortality reference point ($F_{current}/F_{MSY}$) to be 0.62, indicating that overfishing is not occurring. The corresponding biomass-based reference point, Spawning Biomass/Spawning Biomass at MSY ($SB_{current}/SB_{MSY}$) is estimated to be 1.94 and therefore the stockis not in an overfished state. Rice et al. estimates an MSY of 1,532,000 mt while current catch (2013) is 1,784,091mt.

The American Samoa longline fishery landed 64 mt of skipjack in 2013. This was a small fraction of total landings. American Samoa longline catches are considered sustainable and catches could increase to levels previously caught (say in 2007 at 163mt) and remain sustainable.

3.2.3 Yellowfin Tuna

The most recent stock assessment for yellow tuna in the WCPO was conducted by Davies et al. (2014. The main conclusions of the current assessment are consistent with recent assessments presented in 2009 and 2011. Current catches marginally exceed the MSY, while recent levels of fishing mortality are most likely below the level that will support the MSY. Recent levels of spawning potential are most likely above the level which will support the MSY.

Davis et al. (2014) estimate the fishing mortality reference point ($F_{current}/F_{MSY}$) to be 0.72, indicating that overfishing is not occurring. The corresponding biomass-based reference point, $SB_{current}/SB_{MSY}$ is estimated to be 1.37 and therefore the stock is not in an overfished state. Davis et al. (2014) estimates an MSY of 586,400 mt while current catch (2013) is 535,656 mt

The American Samoa longline fishery landed 414 mt of yellowfin tuna in 2013. This was a small fraction of total landings. American Samoa longline catches are considered sustainable and catches could increase to levels previously caught (say in 2007 at 620 mt) and remain sustainable.

3.2.4 Bigeye Tuna

The most recent stock assessment for bigeye tuna in the WCPO was conducted by Harley et al. (2014). The main conclusions of the current assessment are consistent with recent assessments presented in 2010 and 2011. Current catches of BET in the WCPO exceed maximum sustainable yield (MSY) and recent levels of fishing mortality by certain nations exceed the level that will support the MSY.

Harley et al. (2014) estimate the fishing mortality reference point ($F_{current}/F_{MSY}$) to be 1.57, indicating that overfishing is occurring. The corresponding biomass-based reference point, $SB_{current}/SB_{MSY}$ is estimated to be 0.94. While this is below the biomass necessary to produced MSY, the stock is not in an overfished state based on the status determination criteria in the Pelagic FEP. Harley et al. estimates an MSY of 108,520 mt while current catch is 158,662 mt

In 2013, the American Samoa longline fishery landed 85 mt of bigeye tuna in American Samoa (WPFMC, in prep). This was a small fraction of total bigeye tuna catch of 158,662. The American Samoa longline fishery is not subject to internationally agreed upon catch limits for bigeye tuna; however the fishery would be subject to any domestic catch limit recommended by the Council and implemented by NMFS. In 2014, NMFS implemented a catch limit of 2,000 mt for longline caught bigeye tuna in American Samoa. For 2015, the Council has recommended NMFS implement the same catch limit.

3.2.5 Incidental Catch

In addition to tuna species, the American Samoa longline fishery also catches and lands various non-tuna PMUS, including wahoo, mahimahi, swordfish, blue marlin, spearfish, striped marlin, and moonfish (Table 10).These landings, however, only represent 6 percent of the total landings and 4 percent of the total landings value in 2013 (WPFMC, unpublished data).

Table 10. Estimated total landings of pelagic fish by American Samoa pelagic fisheries in 2013 by gear type.

Species	LongLine Pounds	Troll Pounds	Other Pounds	Total Pounds
Skipjack tuna	143,347	8,334	0	151,680
Albacore tuna	4,679,946	0	0	4,679,946
Yellowfin tuna	926,140	7,037	231	933,408
Kawakawa	0	5	0	5
Bigeye tuna	187,277	0	0	187,277
Tunas (unknown)	377	0	0	377
TUNAS SUBTOTALS	5,937,086	15,376	231	5,952,693
Mahimahi	42,529	295	0	42,825
Black marlin	338	0	0	338
Blue marlin	67,557	0	0	67,557
Striped marlin	7,430	0	0	7,430
Wahoo	196,260	1,093	104	197,457
Sharks (all)	2,600	0	0	2,600
Swordfish	23,180	0	0	23,180
Sailfish	3,918	0	0	3,918
Spearfish	2,622	0	0	2,622
Moonfish	4,840	0	0	4,840
Oilfish	1,306	0	78	1,385
Pomfret	756	0	0	756
NON-TUNA PMUS SUBTOTALS	353,337	1,388	182	354,908
Pelagic fishes (unknown)	144	0	0	144
OTHER PELAGICS SUBTOTALS	144	0	0	144
TOTAL PELAGICS	**6,290,567**	**16,764**	**414**	**6,307,745**

Source: WPFMC in prep.

3.2.6 Bycatch

Table 11 shows the number of fish kept and released in the American Samoa longline fishery during 2013. Overall, 12 percent of the total catch was released, with skipjack tuna having one of the highest numbers released. Fishermen released nearly all sharks and oilfish. Fish are released for various reasons including quality, size, handling and storage difficulties, and as well as marketing issues. However, catch rates and total catches of some pelagic MUS, such as the billfishes and mahimahi that typically occur closer to the surface, may have been reduced by fishing with gear at 100 m and deeper, which was mandated in 2011 through gear configuration requirements (50 CFR 665.819).

Table 11. American Samoa longline fishery bycatch in 2013.

Species	Number Kept	Number Released	Percent Released
Skipjack tuna	11,230	402	3
Albacore tuna	118,414	335	0
Yellowfin tuna	19,087	232	1
Bigeye tuna	4,181	126	3
Tunas (unknown)	21	0	0
TUNAS SUBTOTALS	152,933	1,095	1
Mahimahi	1,854	598	24
Black marlin	3	8	73
Blue marlin	497	842	63
Striped marlin	108	149	58
Wahoo	5,868	1,235	17
Sharks (all)	40	3,850	99
Swordfish	181	108	37
Sailfish	50	232	82
Spearfish	57	816	93
Moonfish	98	274	74
Oilfish	69	6,762	99
Pomfret	73	767	91
NON-TUNA PMUS SUBTOTALS	8,898	15,641	64
Pelagic fishes (unknown)	3	1,756	100
OTHER PELAGICS SUBTOTALS	3	1,756	100
TOTAL PELAGICS	161,834	18,492	10

Source: WPFMC in prep.

Note: Percent released for a species is calculated from the number released for that species divided by the total number of that species caught plus the number of that species released.

3.3 Protected Species

NMFS funds fishery observer recruitment, training, and support in the western Pacific region including its observer program in American Samoa. NMFS strives to maintain an annual observer coverage rate of at least 20 percent American Samoa longline fishery and is in the process of increasing observer coverage in the American Samoa longline fishery (Table 12). Prior to beginning the mandatory observer program in American Samoa, NMFS conducted a pilot program from August through October 2002. The pilot program observed 76 sets on one Class C and two Class D vessels that set 197,617 hooks. There were no sightings of, or interactions with, any protected species including sea turtles, marine mammals, or seabirds (NMFS 2003). Mandatory observer placement to monitor protected interactions and collect other fishery data on American Samoa longline vessels (longer than 40 ft) began in April 2006. Table 12 shows the level of observer coverage from 2006-2014.

Table 12. Observer coverage in the American Samoa longline fishery, 2006-2014.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015*
Number of sets observed	287	410	379	306	798	1,257	662	585	565	231
Observer coverage (percent)	8.1	7.1	6.4	7.7	25	33.3	19.8	19.4	19.4	17.9

Source: NMFS PIRO Observer Program 2006-2015 Status Reports.
http://www.fpir.noaa.gov/OBS/obs_as_ll_rprts.html
* 2015 estimates based on data from January 1 to June 30 (1st and 2nd Quarter)

Vessels in the American Samoa longline fishery have the potential to interact with a number of protected species, including sea turtles, marine mammals, a listed shark species, reef-building corals and seabirds. This section describes the species listed as endangered or threatened under the Endangered Species Act (ESA) and the species protected under the Marine Mammal Protection Act (MMPA) that have the potential to interact with the American Samoa longline fishery. This section also provides the number of interactions observed and estimated between protected species and the American Samoa fishery in the last 10 years.

3.3.1 Species Protected under the Endangered Species Act

The ESA provides for the conservation of species that are endangered or threatened, and the conservation of the ecosystems on which they depend. Section 7(a)(2) of the ESA requires each federal agency to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. To "jeopardize" means to reduce appreciably the likelihood of survival and recovery of a species in the wild by reducing its numbers, reproduction, or distribution. When a federal agency's action "may affect" an ESA-listed species, that agency is required to consult formally with NMFS (for marine species, some anadromous species, and their designated critical habitats) or the U.S. Fish and Wildlife Service (USFWS; for terrestrial and freshwater species or their designated critical habitat). The product of formal consultation is the agency's biological opinion (BiOp). Federal agencies are exempt from this formal consultation requirement if they have concluded that an action "may affect, but is not likely to adversely affect" ESA-listed species or their designated critical habitat, and NMFS or USFWS concur with that conclusion (50 CFR 402.14(b)).

The ESA also prohibits the taking[13] of listed species except under limited circumstances. Western Pacific regional fisheries are operated in accordance with terms of ESA consultations that consider the potential interactions of fisheries with listed species, the impacts of interactions on the survival and recovery of listed species, and the protection of any designated critical habitat.

[13] The definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.

As provided in 50 CFR 402.16, NMFS is required to reinitiate formal consultation if:

1. the amount or extent of the incidental take is exceeded;
2. new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in an opinion;
3. the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in the opinion; or
4. a new species is listed or critical habitat designated that may be affected by the action.

3.3.2 Marine Mammal Act Authorization

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, taking of marine mammals in the U.S., and by persons aboard U.S. flagged vessels (i.e., persons and vessels subject to U.S. jurisdiction). Under section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries (LOF) that classifies U.S. commercial fisheries into one of three categories based upon the level of serious injury and mortality of marine mammals that occurs incidental to each fishery. A Category 1 fishery is one with frequent incidental morality and serious injury of marine mammals. A Category 2 fishery is one with occasional incidental morality and serious injury of marine mammals. A Category 3 fishery is one with a remote likelihood or no known incidental morality and serious injury of marine mammals. On December 29, 2014, (79 FR 77919), NMFS published the final LOF for 2015 which classifies the American Samoa longline fishery as a Category 2 fishery under Section 118 of the MMPA due to interactions with false killer whales, rough-toothed dolphins, short-finned pilot whales and Cuvier's beaked whales (Table 17). Pursuant to the MMPA, owners of vessels engaging in a Category 2 fishery are required to register with NMFS and obtain a marine mammal authorization to lawfully take non-endangered and non-threatened marine mammals incidental to commercial fishing operations. On September 29, 2015, NMFS published the proposed List of Fisheries for 2016, which maintains the American Samoa longline fishery as a Category 2 fishery (80 FR 58427).

3.3.3 Sea Turtles

All Pacific sea turtles are listed under the ESA as either threatened or endangered (Table 13) except for the flatback turtle (*Natator depressus*), which is native to Australia and does not occur in the action area and thus will not be covered in this document. Detailed information regarding the affected sea turtle species, including the range, abundance, status and threats of the affected sea turtle species can be found in the 2015 Biological Evaluation (NMFS 2015a), the 2015 American Samoa BiOp (NMFS 2015b), and on the NOAA website at: http://www.nmfs.noaa.gov/pr/species/turtles.

Table 13. Sea turtle species occurring around American Samoa and their current ESA listing status.

Species	ESA status
Green turtle (*Chelonia mydas*)	Threatened, except for Mexico's Pacific coast nesting population which is Endangered*

Species	ESA status
Hawksbill turtle (*Eretmochelys imbricata*)	Endangered
Leatherback turtle (*Dermochelys coriacea*)	Endangered
Loggerhead turtle (*Caretta caretta*), South Pacific DPS	Endangered
Olive ridley turtle *(Lepidochelys olivacea*)	Threatened, except for Mexico's nesting population which is Endangered

*Section 3.3.3.1 describes a proposal to list distinct population segments of green turtles.

In addition to protection under the federal ESA, sea turtles in American Samoa are protected by the Fishing and Hunting Regulations for American Samoa which prohibit the import, export, sale, possession, transport, or trade of sea turtles or their parts and take (as defined by the ESA) and carry additional penalties for violations at the local government level. The Department of Marine and Wildlife Resources (DMWR) is the agency with vested authority and responsibility for conservation of protected species and enforcement of protected species regulations in American Samoa.

All sea turtles, being air-breathers, are typically found closer to the surface (in the upper 100 m of the ocean's water column). However, some turtles, such as olive ridleys, may be more susceptible to deep-set longlining because of their deeper foraging behavior to 150 m depth. Therefore, sea turtles are vulnerable to longline fishing gear in the American Samoa longline fishery. Figure 16 shows the non-confidential observed sea turtle interactions with the American Samoa longline fleet from 2006 to 2014.

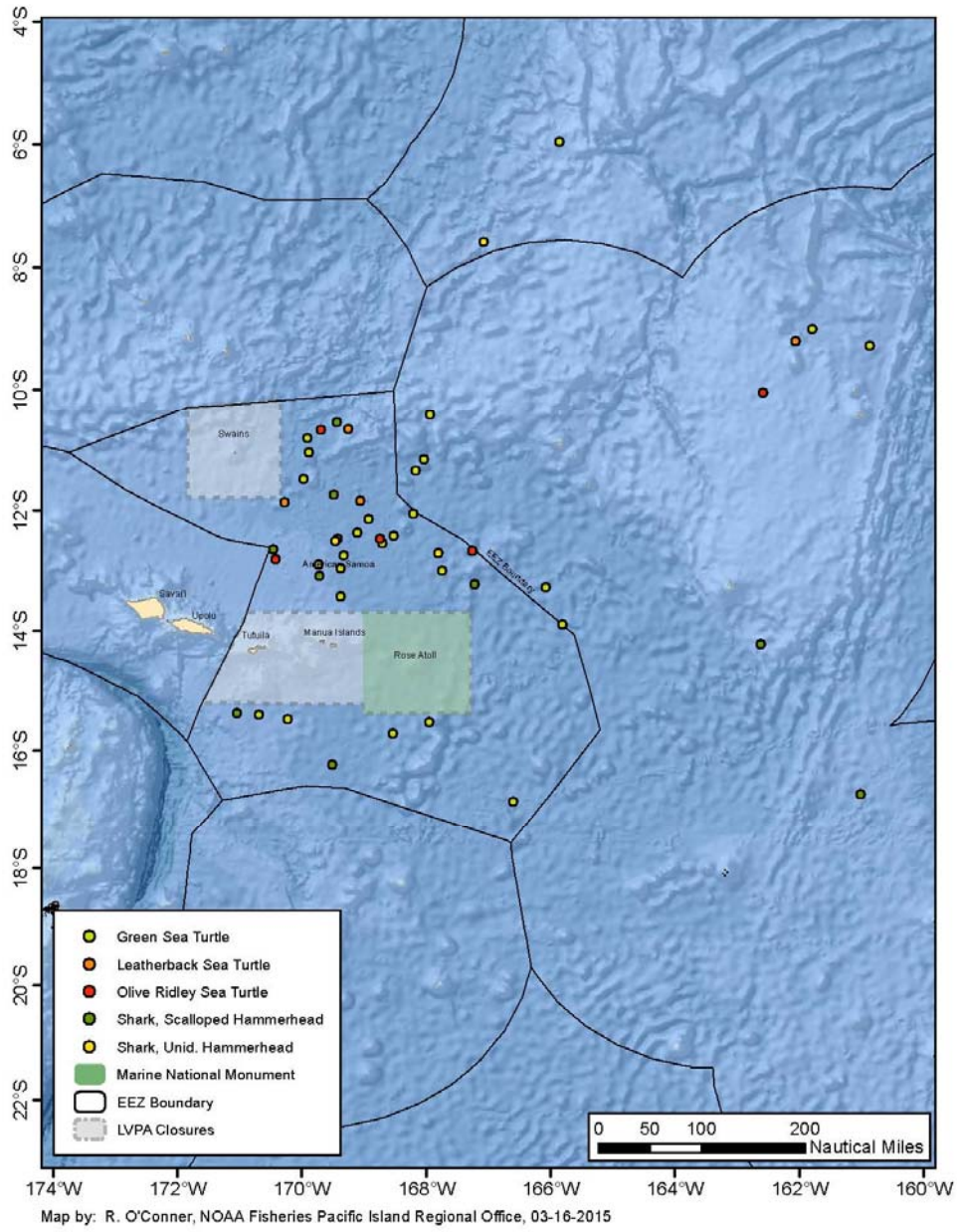

Figure 16. Cumulative observed sea turtle and scalloped hammerhead shark interactions with the American Samoa longline fleet, 2006–2014.

Table 14 shows the interactions and conditions of sea turtles caught from observed fishing trips from 2006–September 22, 2011, before the 2010 BiOp ITS (and gear modifications) went into effect on September 23, 2011. Table 15 show the interactions and conditions of sea turtles caught from observed fishing trips from September 23, 2011– June 30, 2015, after the 2010 BiOp ITS went into effect. Interactions with hawksbill and loggerhead turtles have not been observed in the American Samoa longline fishery to date.

Table 14. Interactions and conditions of sea turtles caught from observed fishing trips from 2006 through September 22, 2011.

Sea turtle species	Observed interactions and dispositions at time of capture or release					
	2006	2007	2008	2009	2010	1/1/11–9/22/11
Green	3 dead	1 dead	1 dead	3 dead	1 injured, 7 dead	7 dead
Hawksbill	0	0	0	0	0	0
Leatherback	0	0	0	0	0	1 injured, 1 dead
Loggerhead	0	0	0	0	0	0
Olive Ridley	0	0	0	0	0	0

Source: NMFS American Samoa Longline Observer Program Annual Reports 2006–2011 (NMFS 2006, 2007, 2008, 2009, 2010d, 2011) and unpublished data

Table 15. Interactions and conditions of sea turtles caught from observed fishing trips from September 23, 2011 through June 30, 2015.

Sea turtles species	Observed interactions and dispositions				
	9/23/2011 – 12/31/2011	2012	2013	2014	2015*
Green	1 dead, 1 injured	0	2 dead	2 dead	0
Hawksbill	0	0	0	0	0
Leatherback	0	1 injured	1 injured, 1 dead	0	3 dead
Loggerhead	0	0	0	0	0
Olive Ridley	1 injured	1 dead	1 injured	2 injured	0

Source: NMFS American Samoa Longline Observer Program Annual Reports 2011–2015 (NMFS 2011, 2012, 2013, 2014e, 2015c)
* 2015 estimates in NMFS 2015c are based on data from January 1 to June 30 (1st and 2nd Quarter)

The number of observed sea turtle interactions is expanded by statistical sampling to get an annual estimate for the total number of incidental interactions for all longline fishing trips that landed in that calendar year. Table 16 provides annual statistically expanded estimates from observed interactions in the American Samoa longline fishery from 2011–2015 (McCracken, 2015b; NMFS 2015a).

Table 16. Estimated total sea turtles interactions with the American Samoa longline fishery for 2011–2015.

Year	Green	Leatherback	Olive Ridley
2011*	8	4	4
2012**	0	6	6

Year	Green	Leatherback	Olive Ridley
2013**	19	13	4
2014[+]	11	0	11
2015†	0	16	0
Total	38	39	25
Estimated mortality rate[a]	0.90	0.706	0.29
Estimated 2011–2015 mortality	35	28	8
Annual mean interactions	10	8	7
Estimated annual mortality	9	6	2

Source: *2011 annual take estimates for green sea turtles from NMFS 2015a. 2011 annual take estimate for leatherback and olive ridleys from McCracken 2015b.
**2012–2013 take expansion from McCracken 2015b.
[+]2014 take expansion based on observer coverage rate of 19.4% and expansion factor of 5.15.
† 2015 take expansion based on observer coverage rate of 18.75 percent and expansion factor of 5.33.
[a] NMFS determined the estimated mortality rates using criteria from Ryder et al. 2006 and applied them to annual mean interactions from 2011–2015. For example, NMFS estimates 70.6 percent of the estimated 39 leatherback sea turtles interactions between 2011 and 2015 resulted in mortality, or 28 total mortalities. Total mortalities include sea turtles observed dead, plus those NMFS expected to die after being released alive.

Additional information regarding each of the sea turtle species are included in the following sections.

3.3.3.1 Green Sea Turtles

The green sea turtle was listed as threatened on July 28, 1978 (43 FR 32800), except for breeding populations found in Florida and the Pacific coast of Mexico, which were listed as endangered. For green sea turtles in the Pacific, the estimated number of nesting females is approximately 189,374, with some areas increasing, some decreasing, and others less understood (NMFS 2015b). On March 23, 2015, NMFS and the USFWS (Services) published a proposed rule finding that the green sea turtle is composed of 11 DPSs that qualify as a "species" for listing (80 FR 15272). The Services propose to remove the current range-wide listing and, in its place, list eight DPSs as threatened and three as endangered. Please consult the proposed rule for specific details on the proposal.

Of the 11 proposed green sea turtle DPS, genetic analysis of green turtles observed interacting with the American Samoa longline fishery indicate that the fishery may affect sea turtles from the Central South Pacific, the Central West Pacific, East Indian-West Pacific, the Southwest Pacific and the Eastern Pacific DPSs (NMFS, 2015a; 2015b). All observed green turtle interactions to date in the American Samoa longline fishery have been with juvenile turtles (NMFS 2015a). The Services estimate the nesting female abundance of each DPS as follows: approximately 2,902 nesting females for the Central South Pacific DPS; approximately 6,158 for

the Central West Pacific DPS, 77,009 for the East Indian-West Pacific DPS, 83,058 for the Southwest Pacific DPS; and 20,112 for the Eastern Pacific DPS (80 FR 15272; NMFS 2015b).

Green sea turtles occur in the waters off Tutuila and the Manua Group of American Samoa, but in relatively low numbers. The adults that nest at Rose Atoll likely feed elsewhere in the Central South Pacific, such as Fiji, Vanuatu, and French Polynesia. Conversely, juveniles and resident foraging adult green turtles found around American Samoa most likely originated at distant nesting beaches.

3.3.3.2 Hawksbill Turtles

NMFS estimates that the total number of nesting hawksbill turtles in Oceania (Great Barrier Reef, Papua New Guinea, Solomon Islands, Vanuatu, Fiji, Federated States of Micronesia, Palau, Western Samoa, American Samoa, Guam and CNMI) to be 23,190 females annually (Van Houtan 2015 in NMFS, 2015b). In American Samoa, hawksbills are the most commonly sighted sea turtle species in some nearshore waters.

Hawksbill sea turtles occur in the waters off Tutuila and the Manua Group of American Samoa, but in relatively low numbers. Researchers estimate that fewer than 30 females nest annually in American and Western Samoa combined. Anecdotal information suggests the population has declined (NMFS and USFWS, 2013). On Ofu Island, American Samoa, regular monitoring of nesting beaches is occurring. Between October 1, 2011 and March 31, 2012, six hawksbill nests occurred on two Ofu beaches (Tagarino, 2012).

There are no observed interactions with hawksbill turtles in the American Samoa longline fishery.

3.3.3.3 Leatherback Turtles

Genetic analysis of three leatherback turtles caught incidentally in the American Samoa longline fishery indicate that they are from the Western Pacific genetic stock comprised of nesting populations in Papua-Barat, Indonesia, Papua New Guinea and Solomon Islands (NMFS 2015b). NMFS estimates that there are approximately 2,739 nesting females in the Western Pacific Population (Van Houtan 2015, in NMFS, 2015b).

Leatherback life history is characterized by juvenile and adult life history stages occurring primarily in the pelagic zone. Two of the leatherbacks caught in the American Samoa longline fishery were juveniles. NMFS observers measured one to have a curved carapace length (CCL) of 89 cm and the other had a CCL of 92 cm. Juvenile leatherback turtles are not known to occur in nearshore areas around American Samoa.

3.3.3.4 Loggerhead Turtles

All loggerhead sea turtles inhabiting the South Pacific Ocean are derived from beaches in Eastern Australia and a lesser known number of beaches in southern New Caledonia, Vanuatu,

and Tokelau (Limpus and Limpus 2003; Limpus 2009). However, there is little information available regarding the population size and structure of the South Pacific loggerhead DPS. The size of the annual breeding population (females only) has been monitored at numerous rookeries in Australia since 1968 (Limpus and Limpus, 2003), and these data constitute the primary measure of the current status of the DPS. Limpus and Limpus (2003) estimated this nesting population at less than 500 females in the 1999–2000 nesting season. The most current 2015 IUCN Red List Assessment provides mean values for the past five years at: Woongarra Coast, Australia (392 females/yr), Wreck Island, Australia (381 females/yr), and Tyron Island, Australia (222 females/yr) (IUCN 2015 in NMFS 2015b).

Comparable nesting surveys have not been conducted in New Caledonia. However, based on data from a 2005 pilot study, only 60 to 70 loggerhead sea turtles nested on the four surveyed New Caledonia beaches during the 2004–2005 nesting season (Limpus et al., 2006 in NMFS 2015b). For these reasons, NMFS estimates the adult female nesting population size for the South Pacific DPS is approximately 1,400 (Van Houtan 2015 in NMFS 2015b).

There have been no observed interactions with loggerhead turtles in the American Samoa longline fishery, and there are low densities of this species within waters around American Samoa.

3.3.3.5 Olive Ridley Turtles

Olive ridley sea turtles are the most abundant sea turtle species and are known for major nesting aggregations called *arribadas* with tens of thousands to over a million nests annually, the largest of which occur on the west coasts of Mexico and Costa Rica, and on the east coast of India. Genetic analysis of an olive ridley turtle observed interacting with the American Samoa longline fishery indicate that the animal was from the Eastern Pacific nesting stock, which nest primarily in large *arribadas* on the west coasts of Mexico and Costa Rica. On the Mexican coast, three populations appear stable, two are increasing (Ixtapilla and La Excobilla), and one decreasing, with over one million nests laid annually (NMFS 2015b). In Costa Rica, the Ostional nesting assemblage is one of the largest in the world, with between 3,564 and 476,550 egg-laying females during the period 2006–2010 (Valverde et al., 2012).

3.3.4 Marine Mammals

Marine mammals that occur in the western Pacific region and have been recorded as being sighted or probable in waters around American Samoa are shown in Table 17. Information on cetaceans around American Samoa are limited due to the lack of comprehensive surveys in the area (Johnston et al., 2008).

Table 17. Marine mammals occurring around American Samoa.

Common Name	Scientific Name
Blainville's beaked whale	*Mesoplodon densirostris*
Bottlenose dolphin	*Tursiops truncates*
Bryde's whale	*Balaenoptera edeni*
Common dolphin	*Delphinus delphis*

Common Name	Scientific Name
Cuvier's beaked whale	*Ziphius cavirostris*
Dwarf sperm whale	*Kogia simus*
False killer whale	*Pseudorca crassidens*
Fraser's dolphin	*Lagenodelphis hosei*
Humpback whale	*Megaptera novaeangliae*
Killer whale	*Orcinus orca*
Melon-headed whale	*Peponocephala electra*
Minke whale	*Balaenoptera acutorostrata*
Pygmy sperm whale	*Kogia breviceps*
Risso's dolphin	*Grampus griseus*
Rough-toothed dolphin	*Steno bredanensis*
Short-finned pilot whale	*Globicephala macrorhynchus*
Sperm whale	*Physeter macrocephalus*
Spinner dolphin	*Stenella longirostris*
Spotted dolphin	*Stenella attenuate*
Striped dolphin	*Stenella coeruleoalba*

Source: WPFMC 2011a.

3.3.4.1 ESA-listed Marine Mammals

Humpback whales (*Megaptera novaeangliae*) and sperm whales (*Physeter macrocephalus*) are listed as endangered under the ESA and have been observed in the waters around American Samoa. On July 27, 2010, NMFS determined that the American Samoa longline fishery was not likely to adversely affect humpback and sperm whales (NMFS 2010c). The fishery has not had observed interactions with humpback or sperm whales since the inception of the observer program in 2006.

On April 21, 2015 (80 FR 22304), NMFS published a proposed rule in the Federal Register to reclassify the humpback whale into 14 distinct population segments under the Endangered Species Act (ESA), of which four DPSs would be proposed for listing. The remaining ten DPSs are not proposed for listing, including the Hawaii DPS and the Oceania DPS, which occur in areas where the Hawaii and American Samoa longline fisheries operate, respectively. Please consult the proposed rule for specific details on the proposal.

NMFS also determined in 2010 that the American Samoan longline fishery will not affect blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*) or sei whales (*Balaenoptera borealis*). These three species have not been sighted in American Samoa and there have been no observed interactions in the American Samoa longline fishery.

3.3.4.2 Other Marine Mammals

The observer program for the American Samoa longline fishery has recorded interactions with false killer whales, Cuvier's beaked whales, rough-toothed dolphins, a short-finned pilot whale, and two unidentified cetaceans (Table 18). Most cetaceans observed interacting with the fishery are released alive, with only three out of 17 observed interactions from 2006-2014 released dead.

However, most of the cetaceans released alive are classified as serious injury (Oleson, 2009; McCracken, 2015b).

Table 18. Observed cetacean interactions and their release condition (alive or dead) in the American Samoa longline fishery from 2006-2014.

Year	Unidentified Cetacean[1]		False Killer Whale		Cuvier's Beaked Whale		Rough-toothed Dolphin		Short-finned pilot whale	
	Alive	*Dead*	*Alive*	*Dead*	*Alive*	*Dead*	*Alive*	*Dead*	*Alive*	*Dead*
2006	-	-	-	-	-	-	-	-	-	-
2007	-	-	-	-	-	-	-	-	-	-
2008	-	-	1	1	-	-	1	-	-	-
2009	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-
2011	2	-	3		-	1	5	-	-	-
2012	-	-	-	-	-	-	-	-	-	-
2013	-	-	1	-	-	-	-	1	-	-
2014	-	-	-	-	-	-	-	-	1	-

[1] Of the two unidentified cetacean interactions in 2011, one was later classified to be an unidentified blackfish (false killer whale or short-finned pilot whale)
Source: http://www.fpir.noaa.gov/OBS/obs_as_ll_rprts.html

Expansion data estimating the total number of interactions from the observed interactions is available for 2010-2013 (McCracken, 2015b) and shown in Table 19. Only those interactions categorized as mortality or serious injury (MSI) are included in the total estimates. Based on the 2010-2013 estimated total MSI, the annual average MSI in the American Samoa longline fishery is estimated at 3.8 false killer whales, 1 Cuvier's beaked whale, 3 rough-toothed dolphins, 0.8 unidentified blackfish and 1 unidentified cetacean.

Prior to 2010, cetacean interactions were only observed in 2008. Two false killer whale interactions and a rough-toothed dolphin interaction where all considered MSI and the total interactions were preliminarily estimated at 23.5 false killer whales and 11.8 rough-toothed dolphins at 8.5% observer coverage (Oleson, 2009). MSI determination for 2014 is not yet available and thus the total estimated interactions are unknown.

Table 19. Observed and estimated total cetacean interactions resulting in classification of mortality or serious injury in the American Samoa longline fishery, 2010-2013.

Year	Unidentified Blackfish[1]		Unidentified Cetacean		False Killer Whale		Cuvier's Beaked Whale		Rough-toothed Dolphin	
	Obs. MSI[2]	*Total MSI*[3]	*Obs. MSI*	*Total MSI*	*Obs. MSI*	*Total MSI*	*Obs. MSI*	*Total MSI*	*Obs. MSI*	*Total MSI*
2010	0	0	0	0	0	0	0	0	0	0
2011	1	3	1	4	3	6	1	4	4	8
2012	0	0	0	0	0	0	0	0	0	0

2013	0	0	0	0	1	9	0	0	1	4
Average	0.3	0.8	0.3	1	1	3.8	0.3	1	1.3	3

Source: McCracken 2015b.

[1] False killer whale or short-finned pilot whale.

[2] Animal observed hooked or entangled in the gear and then classified as mortality or serious injury (MSI).

[3] Estimated total MSI for the landing year.

Information on the abundance and distribution of marine mammals in waters around American Samoa are limited. Of the species observed to interaction with the American Samoa longline fishery, a stock assessment report (SAR) prepared under the MMPA is available for false killer whales but no abundance estimate is available (Carretta et al., 2012). SARs for the American Samoa population of Cuvier's beaked whale and rough-toothed dolphin are not available.

3.3.5 Seabirds

Seabird species that are considered residents or visitors are listed in Table 20. Of these, only the Newell's shearwater is listed as threatened under the ESA.

Table 20. Seabirds Occurring in American Samoa.

Samoan name	English name	Scientific name
Residents (i.e., breeding)		
ta'i'o	Wedge-tailed shearwater	*Puffinus pacificus*
ta'i'o	Audubon's shearwater	*Puffinus lherminieri*
ta'i'o	Christmas shearwater	*Puffinus nativitatis*
ta'i'o	Tahiti petrel	*Pterodroma rostrata*
ta'i'o	Herald petrel	*Pterodroma heraldica*
ta'i'o	Collared petrel	*Pterodroma brevipes*
fua'o	Red-footed booby	*Sula*
fua'o	Brown booby	*Sula leucogaster*
fua'o	Masked booby	*Sula dactylatra*
tava'esina	White-tailed tropicbird	*Phaethon lepturus*
tava'e'ula	Red-tailed tropicbird	*Phaethon rubricauda*
atafa	Great frigatebird	*Fregata minor*
atafa	Lesser frigatebird	*Fregata ariel*
gogouli	Sooty tern	*Onychoprion fuscatus*
gogo	Brown noddy	*Anous stolidus*
gogo	Black noddy	*Anous minutus*
laia	Blue-gray noddy	*Procelsterna cerulea*
manu sina	Common fairy-tern (white tern)	*Gygis alba*
Visitors/vagrants/accidental visitors:		
ta'i'o	Short-tailed shearwater	*Puffinus tenuirostris*
ta'i'o	Newell's shearwater (ESA threatened)	*Puffinus auricularis newelli*
ta'i'o	Mottled petrel	*Pterodroma inexpectata*
ta'i'o	Phoenix petrel	*Pterodroma alba*
ta'i'o	White-bellied storm petrel	*Fregetta grallaria*

Samoan name	English name	Scientific name
ta'i'o	Polynesian storm petrel	*Nesofregetta fuliginosa*
-----	Laughing gull	*Larus atricilla*
gogosina	Black-naped tern	*Sterna sumatrana*

Source: WPFMC 2009; online sources.

3.3.5.1 ESA-listed Seabirds

The threatened Newell's shearwater has only been confirmed in American Samoa once (Grant et al., 1994) and is considered an accidental visitor to American Samoa. Since its inception in 2006, the NMFS American Samoa Observer Program has not documented any sightings of Newell's shearwaters or interactions between Newell's shearwaters and longline vessels or gear. In an informal consultation, dated May 19, 2011, USFWS concurred with the NMFS determination that the American Samoa longline fishery is not likely to adversely affect the Newell's shearwater.

In addition, three other seabirds in the South Pacific were determined to be endangered under the ESA in 2009: the Chatham petrel (*Pterodroma axillaris*), Fiji petrel (*Pseudobulweria macgillivrayi*), and the magenta petrel (*Pterodroma magentae*). However, the ranges of these three species are assumed not to overlap with that of the American Samoa longline fishery. In a communication from USFWS to NMFS on July 29, 2011, and recorded in a memorandum for the record on the same date, USFWS advised that, because of the lack of overlap between the range of the American Samoa longline fishery and the ranges of Chatham, Fiji, and magenta petrels, the fishery would not affect those petrels.

3.3.5.2 Other Seabirds

Since its inception in 2006, the NMFS American Samoa Observer Program has recorded two interactions with unidentified shearwaters and one unidentified frigatebird in the American Samoa longline fishery from 2006-2014 (Table 21). All three interactions between 2006 and 2014 were released dead.

Table 21. Observed and estimated seabird interactions in the American Samoa longline fishery, 2006-2014.

Landing Year	Percent Observer Coverage	Expansion Factor	Unidentified Shearwater		Unidentified Frigatebird	
			Observed Take	Estimated Total Take[1]	Observed Take	Estimated Total Take[1]
2006*	8.10	12.35	0	0	0	0
2007*	7.10	14.08	1	15	0	0
2008*	6.40	15.63	0	0	0	0
2009*	7.70	12.99	0	0	0	0
2010+	–	–	0	0	0	0
2011+	–	–	1	2	0	0

2012+	–	–	0	0	0	0
2013+	–	–	0	0	1	5
2014*	19.4	5.15	0	0	0	0
Total	–	–	2	17	1	5
Average	–	–	0.2	1.9	0.1	0.6

Source: NMFS American Samoa Longline Observer Program Annual Reports 2010–2014 (2010d, 2011, 2012, 2013, 2014e) and unpublished data; 2010–2013 McCracken 2015b
*2006–2009 and 2014 take expansions based on observer coverage.
+2010–2013 take expansion from McCracken 2015b

The species of shearwater observed interacting with the American Samoa longline fishery is unknown. However, three species of shearwaters (wedge-tailed shearwater, Audubon shearwater, and Christmas shearwater) and two species of frigatebirds (great frigatebird and lesser frigatebird) are considered residents in American Samoa. Abundance estimates of the three shearwater species are large, with an estimated 5,200,000 individuals for wedge-tailed shearwaters, 500,000 individuals for Audubon's shearwater and 150,000 individuals for Christmas shearwater (Waugh et al., 2009; BirdLife International, 2012c). Abundance estimates of great and lesser frigatebirds are not available, but both species are considered to have very large populations (BirdLife International, 2012a, 2012b).

Information on the distribution of shearwaters and frigatebirds around American Samoa are limited. Wedge-tailed shearwaters are recorded to have a foraging range of 480 km from breeding sites, and great frigatebirds are recorded to have a foraging range of up to approximately 600 km from breeding sites (Maxwell and Morgan, 2013).

3.3.6 Reef Building Corals

On September 10, 2014, NMFS issued a final rule to list 20 species of corals as threatened under the ESA (NMFS 2014b). Fifteen of the newly listed species occur in the Indo-Pacific, and five in the Caribbean. The six species thought to occur in American Samoa are *Acropora globiceps, A. jacquelineae, A. retusa, A. speciosa, Euphyllia paradivisa,* and *Isopora crateriformis.* Species-specific information on the exact location of these ESA-listed coral is unavailable.

On October 6, 2014, NMFS determined that pelagic fisheries, including the American Samoa longline fishery would not affect ESA-listed species of shallow reef-building corals (NMFS, 2014e) because there is sufficient spatial separation between the listed reef corals and the activities of pelagic fishing vessels. However, the proposed action creates potential overlap in coral habitat and areas open to longline fishing within the EEZ around American Samoa and thus NMFS included the six coral species in the consultation for the fishery reinitiated on May 8, 2015.

In American Samoa, coral reef habitat is generally in nearshore waters from 0-3 nm from the shore, although some coral reef habitat can be found further offshore. ESA-listed coral species have confirmed depth ranges of up to 50 m depth (NMFS, 2015a; NMFS 2015b), although data are not available on the maximum depth of each species in waters around American Samoa. In contrast, pelagic fisheries generally operate and target pelagic fish species in the water column

dozens to a thousand miles offshore, far away from the islands and coral reef habitat areas. Because these fisheries occur deeper than ESA-listed coral depth and fishermen typically avoid coral reef structures during transit in Territorial and Federal waters to protect their vessels, the likelihood of damage to corals from pelagic fishing gear or transiting vessels is extremely unlikely to occur.

3.3.7 Scalloped Hammerhead Shark

On July 3, 2014, NMFS listed four DPS of scalloped hammerhead shark under the ESA (79 FR 38213). The threatened Indo-West Pacific DPS is the only DPS that occurs in the action area and that may be affected by the American Samoa longline fishery.

Detailed information on the Indo-West Pacific scalloped hammerhead shark DPS, including the range, abundance, status, and threats to the species can be found in the 2014 BiOp for the deep-set longline fishery (NMFS, 2014a), the 2015 BiOp for the American Samoa longline fishery (NMFS 2015b), the 2014 Status Review Report and the 2014 ESA-listing final rule (NMFS, 2014c).

The American Samoa longline fishery has incidentally caught very low numbers of scalloped hammerhead sharks. From 2006 to 2014, observers recorded nine scalloped hammerhead sharks or an average of one observed shark take per year (Table 22). Of the nine observed scalloped hammerhead sharks, six were released alive and three were released dead (NMFS observer program, unpublished data), resulting in an estimated mortality rate of 33%.

Table 22. Number of observed interactions with the Indo-West Pacific scalloped hammerhead DPS and total estimate using expansion factor from 2006–2014.

Year	Percent Observer Coverage	Expansion Factor	Observed	Estimated Interactions
2006*	8.10	12.35	1	13
2007*	7.10	14.08	1	15
2008*	6.40	15.63	0	0
2009*	7.70	12.99	0	0
2010^{+}	–	–	4	17
2011^{+}	–	–	2	7
2012^{+}	–	–	0	0
2013^{+}	–	–	0	0
2014*	19.4	5.15	1	5
Total 2006-2014	–	–	9	57
Average	–	–	1	7

Source: NMFS American Samoa Longline Observer Program Annual Reports 2006–2014 (NMFS 2006, 2007, 2008, 2009, 2010d, 2011, 2012, 2013, 2014e) and unpublished data; 2010–2013 McCracken 2015a
*2006–2009 and 2014 take expansions based on observer coverage.
$^{+}$2010–2013 take expansion from McCracken 2015a

Abundance estimates for the Indo-West Pacific DPS of scalloped hammerhead shark is not available. There are some areas where there are depletions of local populations, such as off the

coast of South Africa and Australia based on trends in abundance. Both of these areas are known to have high levels of illegal fishing that take sharks which is contributing to these decreasing trends. There is no information on the population trend for the Indo-west Pacific DPS in the area where the American Samoa longline fishery operates; however, there is no evidence to suggest that there is a localized depletion in the area because there are no artisanal or international shark fisheries in the action area. In the Biological Opinion for the Hawaii deep-set pelagic longline fishery, the effective population size of the Indo-West Pacific DPS was estimated to be 11,280-33,600 adults (NMFS, 2014c; 2015b).

The Shark Finning Prohibition Act of 2000 (P.L. 106–557; December 21, 2000) prohibited shark finning and discarding shark carcasses at sea; and landing any fin without the corresponding carcass. The Shark Conservation Act of 2010 (P.L. 111; January 4, 2011) further required all fishermen harvesting sharks to land the carcass intact, among other provisions. In November 2012, the Government of American Samoa banned shark fishing, including the sale possession, and distribution fins or other shark parts, in territorial waters (within 3 nm of the coastline).

3.3.8 Summary of Recent ESA Consultations for the American Samoa Longline Fishery

On July 27, 2010, NMFS determined that the American Samoa longline fishery may affect, but is not likely to adversely affect, loggerhead sea turtles, humpback and sperm whales, and would not affect blue, fin or sei whales (NMFS, 2010a).

On September 16, 2010, NMFS completed a biological opinion (2010 BiOp) evaluating the potential impacts to green, hawksbill, leatherback, and olive ridley sea turtles resulting from the continued operation of the fishery (NMFS 2010b). The 2010 BiOp determined that authorization of the fishery is not likely to jeopardize the continued existence of green sea turtles, hawksbill sea turtles, leatherback sea turtles, and olive ridley sea turtles. Through the 2010 BiOp, NMFS also anticipated and authorized the incidental take of 45 green, one hawksbill, one leatherback, and one olive ridley sea turtle over a consecutive 3-year period. The incidental take statement (ITS) contained in the 2010 BiOp became effective on September 23, 2011, when the gear requirements were implemented in regulation (76 FR 52888).

After the ITS became effective in 2010, several events occurred that required NMFS to re-initiate ESA consultation for the American Samoa longline fishery. First, from 2011 through 2014, the observer program reported five observed fishery interactions with leatherback sea turtles and five with olive ridley sea turtles. These interactions exceeded the ITS set in the 2010 BiOp for leatherback sea turtles and olive ridley sea turtles. During the first half of 2015 (January 1-June 30, 2015), NMFS observer program reported the fishery interacted with three additional leatherback sea turtles. Second, on September 10, 2014, NMFS published a final rule (79 FR 53852) that listed 20 new species of reef-building corals as threatened under the ESA. Of those, six occur in American Samoa. Third, on July 3, 2014, NMFS published a final rule that listed four Distinct Population Segments (DPSs) of scalloped hammerhead shark under the ESA (79 FR 38213). The threatened Indo-West Pacific DPS is the only scalloped hammerhead shark DPS that occurs in the action area that may be affected by the American Samoa longline fishery. In response to these events, NMFS reinitiated consultation on May 8, 2015 under section 7 of the

ESA to evaluate the effects of the American Samoa longline fishery on ESA-listed species, including the effects on these species under the proposed action (NMFS 2015a).

During the period of consultation (which extended between May 8 and October 30, 2015), NMFS determined the continued operation of the American Samoa longline fishery, including operations under the proposed action, would not jeopardize the continued existence of any ESA-listed species under NMFS jurisdiction or result in irreversible or irretrievable commitments of resources that would foreclose the formulation or implementation of any reasonable and prudent alternative measures for the fishery. NMFS documented its determination in a memorandum dated May 8, 2015, as amended on July 21, 2015 (NMFS 2015d).

On October 6, 2014, NMFS determined that Pacific Islands pelagic fisheries, including the American Samoa longline fishery, would not affect ESA-listed species of shallow reef-building corals (NMFS, 2014d) because there was sufficient spatial separation between the listed reef corals and the activities of pelagic fishing vessels given the 50 nm LVPA (NMFS 2014d). However, NMFS included the ESA-listed coral species in the reinitiated consultation for the fishery because the proposed action could create a potential for overlap between ESA-listed coral distribution and areas exempted from the LVPA.

On October 30, 2015, NMFS completed the ESA consultation for the American Samoa longline fishery and a issued a biological opinion (2015 BiOp) evaluating the effects of the fishery on threatened and endangered species, their designated critical habitat, and species proposed for listing as threatened or endangered (NMFS 2015b). The 2015 BiOp considered the fishery under the existing regulatory framework and the proposed action described in this document. Although participation and effort has varied and declined in recent years, NMFS expects that the level of participation, in terms of fleet-wide sets and hooks deployed, could return to historic levels. For this reason, the 2015 BiOp anticipated the fishery potentially operating up to the level seen in 2007 when 29 vessels deployed 5,920 sets and approximately 17,554,000 hooks.

In the 2015 BiOp, NMFS determined that because there is no new information on fishery interactions with humpback and sperm whales, NMFS' previous determination of July 27, 2010 (NMFS 2010c), that the fishery is not likely to adversely those species remains valid. In the 2015 BiOp, NMFS also determined that the continued authorization of the fishery is not likely to adversely affect ESA-listed species of shallow-reef building corals because there is very limited reef habitat in the EEZ outside of 3 nm and longline vessels fish far offshore outside of 3 nm. The 2015 BiOp also noted that pelagic longline fishing vessels actively avoid reef coral reef structures to avoid damage to their hulls and vessels do not deploy gear while in transit and fishing activities do not involve anchoring.

Based on the information provided in the 2015 BiOp, NMFS determined that the continued authorization of the fishery under the proposed action may adversely affect, but is not likely to jeopardize the continued existence of green, hawksbill, leatherback, South Pacific loggerhead or olive ridley sea turtles, or the Indo-West Pacific scalloped hammerhead shark, and issued a three-year ITS for each individual species. The number of incidental takes and take associated mortalities NMFS expects could potentially occur over a 3-year period under the proposed action are shown in Table 23 below.

Table 23. Total number of ESA-listed species expected from the proposed action over a three-year period.

Species	3 – Year		
	Interactions	Total Mortalities	Equivalent AFMs
Green sea turtle	60	54	0.3
Leatherback sea turtle	69	49	1.65
Olive Ridley sea turtle	33	10	0.93
Hawksbill sea turtle	6	3	1.05
South Pacific loggerhead sea turtle	6	3	0.42
*Indo-West Pacific scalloped hammerhead shark DPS	36	12	NA

Source: NMFS 2015b.

* An ITS is not required to provide protective coverage for the Indo-West Pacific scalloped hammerhead shark DPS because there are no take prohibitions under ESA section 4(d) for this DPS. 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 so the action does not jeopardize the species if the level of take analyzed in the biological opinion is exceeded.

3.4 Fisheries Administration and Enforcement

The American Samoa longline fishery is managed in accordance with provisions of the Western Pacific Pelagics FEP (WPFMC, 2009) and implementing regulations at 50 CFR 665. Fishery participants must comply with a suite of fishing regulations intended to ensure the fishery is sustainably managed and that it operates in compliance with applicable laws including the ESA and MMPA. Requirements include permits and logbooks, vessel monitoring systems, accommodation of NOAA-assigned observers, gear restrictions, gear deployment requirements, and requirements for reducing interactions and the severity of interactions with protected species. In addition, the fishery is also subject to conservation and management measures agreed to by the Western and Central Pacific Fisheries Commission and implemented by NMFS at 50 CFR 300. Enforcement of federal fishery regulations is the responsibility of NOAA OLE which will also enforce provisions of the ESA and MMPA.

3.4.1 Marine Protected Areas

In addition to the LVPA described above, there are other marine protected areas in the planning area around American Samoa, including the Rose Atoll Marine National Monument and the American Samoa National Marine Sanctuary. Commercial fishing is prohibited within the Monument waters.

The American Samoa sanctuary is comprised of six protected areas, covering 13,581 square miles of nearshore coral reef and offshore open ocean waters across the Samoan Archipelago. NOAA originally established the sanctuary in 1986 to protect and preserve the 0.25 square miles of coral reef ecosystem within Fagatele Bay. In 2012, NOAA expanded the sanctuary to include Fagalua/Fogamaa (the next bay east of Fagatele) on Tutuila Island, as well as areas at Aunuu, Tau and Swains islands, and a marine protected area at Rose Atoll (which is named Muliava as known by the Manua residents) including nearby Vailuluu Seamount. The proposed action would not apply to any areas within the Monument or the Sanctuary.

3.4.2 Essential Fish Habitat and Habitat Areas of Particular Concern

Essential fish habitat (EFH) is defined as those waters and substrate as necessary for fish spawning, breeding, feeding, and growth to maturity. This includes marine areas and their chemical and biological properties that are utilized by the organism. Substrate includes sediment, hard bottom, and other structural relief underlying the water column along with their associated biological communities. In 1999, the Council developed and NMFS approved EFH definitions for management unit species (MUS) of the Bottomfish and Seamount Groundfish FMP (Amendment 6), Crustacean FMP (Amendment 10), Pelagic FMP (Amendment 8), and Precious Corals FMP (Amendment 4) (74 FR 19067, April 19, 1999). NMFS approved additional EFH definitions for coral reef ecosystem species in 2004 as part of the implementation of the Coral Reef Ecosystem FMP (69 FR8336, February 24, 2004). EFH definitions were also approved for deepwater shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008).

Ten years later, in 2009, the Council developed and NMFS approved five new archipelagic-based fishery ecosystem plans (FEP). The FEP incorporated and reorganized elements of the Councils' species-based FMPs into a spatially-oriented management plan (75 FR 2198, January 14, 2010). EFH definitions and related provisions for all FMP fishery resources were subsequently carried forward into the respective FEPs. In addition to and as a subset of EFH, the Council described habitat areas of particular concern (HAPC) based on the following criteria: ecological function of the habitat is important, habitat is sensitive to anthropogenic degradation, development activities are or will stress the habitat, and/or the habitat type is rare. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered. The designated areas of EFH and HAPC for all FEP MUS by life stage are summarized in Table 24.

Table 24. EFH and HAPC for Western Pacific FEP MUS.

MUS	Species Complex	EFH	HAPC
Bottomfish MUS	**American Samoa, Guam and CNMI bottomfish species:** lehi (*Aphareus rutilans*) uku (*Aprion virescens*), giant trevally (*Caranx ignoblis*), black trevally (*Caranx lugubris*), blacktip grouper *(Epinephelus fasciatus)*, Lunartail grouper *(Variola louti)*, ehu (*Etelis carbunculus*), onaga (*Etelis coruscans*), ambon emperor *(Lethrinus amboinensis)*, redgill emperor *(Lethrinus rubrioperculatus)*, taape (*Lutjanus kasmira*), yellowtail kalekale (*Pristipomoides auricilla*), opakapaka (*P. filamentosus*), yelloweye snapper (*P. flavipinnis*), kalekale (*P. sieboldii*), gindai (*P. zonatus*), and amberjack (*Seriola dumerili*).	**Eggs and larvae:** the water column extending from the shoreline to the outer limit of the EEZ down to a depth of 400 m (200 fm). **Juvenile/adults:** the water column and all bottom habitat extending from the shoreline to a depth of 400 m (200 fm)	All slopes and escarpments between 40–280 m (20 and 140 fm)
Crustaceans MUS	**Spiny and slipper lobster complex (all FEP areas):** spiny lobster (*Panulirus marginatus*), spiny lobster (*P. penicillatus, P.* spp.), ridgeback slipper lobster (*Scyllarides haanii*), Chinese slipper lobster (*Parribacus antarcticus*) **Kona crab :** Kona crab (*Ranina ranina*)	**Eggs and larvae:** the water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (75 fm) **Juvenile/adults:** all of the bottom habitat from the shoreline to a depth of 100 m (50 fm)	All banks in the NWHI with summits less than or equal to 30 m (15 fathoms) from the surface

MUS	Species Complex	EFH	HAPC
	Deepwater shrimp (all FEP areas): (*Heterocarpus* spp.)	**Eggs and larvae:** the water column and associated outer reef slopes between 550 and 700 m **Juvenile/adults:** the outer reef slopes at depths between 300-700 m	No HAPC designated for deepwater shrimp.
Precious Corals MUS	**Shallow-water precious corals (10-50 fm) all FEP areas:** black coral (*Antipathes dichotoma*), black coral (*Antipathis grandis*), black coral (*Antipathes ulex*) **Deep-water precious corals (150–750 fm) all FEP areas:** Pink coral (*Corallium secundum*), red coral (*C. regale*), pink coral (*C. laauense*), midway deepsea coral (*C.* sp nov.), gold coral (*Gerardia* spp.), gold coral (*Callogorgia gilberti*), gold coral (*Narella* spp.), gold coral (*Calyptrophora* spp.), bamboo coral (*Lepidisis olapa*), bamboo coral (*Acanella* spp.)	EFH for Precious Corals is confined to six known precious coral beds located off Keahole Point, Makapuu, Kaena Point, Wespac bed, Brooks Bank, and 180 Fathom Bank EFH has also been designated for three beds known for black corals in the Main Hawaiian Islands between Milolii and South Point on the Big Island, the Auau Channel, and the southern border of Kauai	Includes the Makapuu bed, Wespac bed, Brooks Banks bed For Black Corals, the Auau Channel has been identified as a HAPC
Coral Reef Ecosystem MUS	**Coral Reef Ecosystem MUS (all FEP areas)**	EFH for the Coral Reef Ecosystem MUS includes the water column and all benthic substrate to a depth of 50 fm from the shoreline to the outer limit of the EEZ	Includes all no-take MPAs identified in the CREFMP, all Pacific remote islands, as well as numerous existing MPAs, research sites, and coral reef habitats throughout the western Pacific

MUS	Species Complex	EFH	HAPC
Pelagic MUS	Tunas, billfish, sharks and other pelagic MUS	EFH for pelagic MUS is the water column down to a depth of 1,000 m from the shoreline to the outer limit of the EEZ	The water column down to a depth of 1,000 m that lie above all seamounts and banks within the EEZ shallower than 2,000 m

3.4.3 Historic Archeological and Cultural Resources

There are no known districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places in American Samoa waters where pelagic longline fishing activities are conducted. Additionally, longline fishing activities are not known to result in adverse impacts to scientific, historic, archeological or cultural resources because fishing activities occur generally miles offshore.

4 Potential Impacts of the Alternatives

This section describes the potential impacts of the alternatives on resources described in Section 3, the affected environment. The environmental baseline is Alternative 1, No Action. The Council's preferred alternative is Alternative 4, sub-Alternative 4c.

4.1 Alternative 1: No Action (Status Quo)

Under this alternative, the areas that are closed to longline fishing by vessels ≥50 ft overall length would remain unchanged. American Samoa longline vessels ≥50 ft that had been grandfathered into the fishery prior to March 1, 2002, would continue to be able to fish within the LVPAs around American Samoa. Figure 6 shows the current LVPAs in American Samoa. The LVPA around Swains Island extends approximately 50 nm from the shoreline and encompasses approximately 8,266 nm². The LVPA around Tutuila and Manua Islands extends approximately 32 nm from the shoreline to the North, and approximately 50 nm from the shoreline to the South and encompasses approximately 11,792 nm². The Rose Atoll Marine National Monument, which is within the LVPA and shown in Figure 6 in solid red, extends approximately 50 nm from the shoreline and encompasses 10,146 nm². In total 30,204 nm^2 of the U.S. EEZ would remain closed to fishing or about 26% of the total.

Expected Fishery Outcome

Under the No Action Alternative, large longline vessels would not be allowed an exemption from the prohibitions on fishing for pelagic species within the LVPA. Thus, there would not be regulatory relief for large longline vessels and waters of the LVPA would not be open to fishing by large longline vessels other than two that are currently not subject to the prohibition. As a result, the American Samoa longline fishery would likely maintain its current patterns of fishing activity as described in Section 3. The fishery would continue operating within those parts of the U.S. EEZ around American Samoa that remain open to longline fishing by large longline vessels.

In addition, the fishery would either operate on the high seas areas to the north of American Samoa, or fish under access agreements with neighboring South Pacific countries. However, most fishing effort in the longline fishery is conducted between the southern islands of American Samoa and Swains Island (see Figure 12). Large longline vessels are expected to continue to experience lower CPUE, as they would be unable to follow albacore into the LVPA areas.

The troll fishery would continue to fish as it currently does, close to shore and sometimes on offshore banks targeting skipjack and yellowfin tuna. The single grandfathered vessel would continue to fish within the LPVA.

4.2 Alternative 2

Provide a temporary exemption for longline vessels 50 ft and longer holding an American Samoa longline limited entry permit to fish within portions of the LVPA as follows:

i. seaward from 25 nm to the north of Tutuila and Manua Islands; and

ii. seaward from approximately 12 nm around Swains Island

for a period of:

Alternative 2a. One year for permitted large longline vessels.

Alternative 2b. Three years for permitted large longline vessels.

Alternative 2c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council.

Under this Alternative, vessels larger than 50 ft in length holding an American Samoa longline limited entry permit would be exempt from the prohibition on pelagic fishing in portions of the LVPA north of Tutuila and Manua Islands from approximately 25 nm to 32 nm, and from portions of the LVPA around Swains Island from approximately 12 nm to 50 nm as shown in Figure 7. Fishing within the Rose Atoll Marine National Monument, which is within the LVPA, would continue to be prohibited. This would increase the areas of fishable waters by 8,401 nm^2, and reduce the area closed to large longline vessels to 21,803 nm^2, or 18.4% of the total U.S. EEZ around American Samoa

Expected Fishery Outcome

Under Alternative 2, overall longline fishing effort is expected to be more dispersed throughout the EEZ as more fishing area would be available to large longline vessels compared to the No Action Alternative. Within the proposed exempted areas, fishing effort by large longline vessels is expected to increase as these vessels adjust to take advantage of the new open fishing area, although this would only be temporary under Alternatives 2a (one year) and Alternative 2b (three years). While Alternative 2c would allow large longline vessels to fish in the new open fishing area indefinitely, the number of vessels and number of hooks set are not expected to increase

substantially over recent levels because the American Samoa longline fishery is a limited entry fishery and is currently experiencing challenging conditions. For these reasons, the fishery as a whole under all of these alternatives (2a, 2b, and 2c) is also not likely to exceed effort seen in the year 2007, when the fishery experienced the highest level of vessel participation, fishing effort and catch.

Under all alternatives (2a, 2b, and 2c), CPUE of target South Pacific albacore within the U.S. EEZ could be improved if fishermen are able to follow the fish within the LVPA exempted area proposed under this alternative. Both alternatives 2a and 2b would be limited in impact because the duration of the change in prohibited areas would be limited to either one or three years. For this reason, catch and effort is likely to be similar to recent years' catches.

Under Alternative 2c, the exemptions would not have a sunset period, but would be re-evaluated annually by the Council regarding, but not limited to, catch rates, fishery participants, small vessel participation and fisheries development initiatives. Should the Council need to modify the fishery further, under Alternative 2c, additional project-specific environmental review would occur.

4.3 Alternative 3

Temporary exemption for longline vessels holding an American Samoa longline limited entry permit to be able to fish in waters of the LVPA:

i. seaward of 25 nm to the north of Tutuila and Manua Islands;

ii. seaward from 12 nm around Swains Islands; and,

iii. within designated waters south of Tutuila and Manua:

for a period of:

Alternative 3a. One year exemption for permitted large longline vessels

Alternative 3b. Three year exemption for permitted large longline vessels

Alternative 3c. No sunset on the exemption for permitted large longline vessels but with periodic re-evaluation by the Council

Under this alternative, vessels 50 ft and longer holding American Samoa longline limited entry permits would be exempted from the prohibition on pelagic fishing in four areas of the LVPA. The first exempted area would extend north of Tutuila and Manua Islands from approximate 25 nm to 32 nm and encompasses approximately 784 nm².

The second exempted area would extend 20 nm south of Tutuila and approximately 33 nm from the western boundary of the EEZ. The third area would extend 16 miles south of Manua and 58 nm to the southwestern boundary of the Rose Atoll Marine National monument. The fourth

exempted area would include the portion of the LVPA around Swains Island from approximately 12 to 50 nm. Fishing within the Rose Atoll Marine National Monument, which is within the LVPA, would continue to be prohibited.

Alternative 3 would allow vessels to fish over an additional 11,601 nm² of ocean in total thereby reducing the total area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 15.7%.

Expected Fishery Outcome

Under Alternative 3, overall longline fishing effort is expected to be more dispersed throughout the EEZ as more fishing area would be available to large longline vessels compared to Alternatives 1 and 2. Within the proposed exempted areas, fishing effort by large longline vessels is expected to increase as these vessels adjust to take advantage of the new open fishing area, although this would only be temporary under Alternatives 3a (one year) and Alternative 3b (three years). While Alternative 3c would allow large longline vessels to fish in the new open fishing area indefinitely, the number of vessels and number of hooks set are not expected to increase substantially over recent levels because the American Samoa longline fishery is a limited entry fishery and is currently experiencing challenging conditions. For these reasons, the fishery as a whole under all of these alternatives (3a, 3b, and 3c) is also not likely to exceed effort seen in the year 2007, when the fishery experienced the highest level of vessel participation, fishing effort and catch.

As noted previously, under all alternatives (3a, 3b, and 3c) CPUE of target South Pacific albacore within the U.S. EEZ could be improved if fishermen are able to follow the fish within the LVPA exempted area proposed under this alternative. Both alternatives 3a and 3b would be limited in impact because the duration of the change in prohibited areas would be limited to either one or three years. For this reason, catch and effort is likely to be similar to recent years' catches.

Under Alternative 3c, the exemptions would not have a sunset period, but would be re-evaluated annually by the Council with regards to, but not limited to, catch rates, fishery participants, small vessel participation and fisheries development initiatives. Should the Council need to modify the fishery further, under Alternative 3c, additional project-specific environmental review would occur.

4.4 Alternative 4 (including Alternative 4c, the Council's Preferred Alternative)

Temporary exemption for longline vessels holding an American Samoa longline limited entry permit to be able to fish in waters of the LVPA:

- Seaward from 12 nm around Swains Islands Tutuila and Manua Islands (Preferred):

for a period of:

Alternative 4a. One year exemption for permitted large longline vessels

Alternative 4b. Three year exemption for permitted large longline vessels

Alternative 4c. No sunset on the exemption for permitted large longline vessels but with periodic re-evaluation by the Council (the Council's Preferred Alternative)

Under this alternative, vessels 50 ft and longer holding an American Samoa longline limited entry permit would be exempted from the prohibition on pelagic fishing in portions of the LVPA. Specifically, these vessel would be allowed to fish in the LVPA to within 12 nm of Swains Island, and Tutuila and Manua Islands. Fishing within the Rose Atoll Marine National Monument, which is within the LVPA, would continue to be prohibited (See Figure 9).

Alternative 4 would allow vessels to fish over an additional 16,817 nm² of ocean in total thereby reducing the total area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 11.3%.

Expected Fishery Outcome

Under Alternative 4, overall longline fishing effort is expected to be more dispersed throughout the EEZ as more fishing area would be available to large longline vessels compared to Alternatives 1, 2 and 3. Within the proposed exempted areas, fishing effort by large longline vessels is expected to increase as these vessels adjust to take advantage of the new open fishing area, although this would only be temporary under Alternatives 4a (one year) and Alternative 4b (three years). While Alternative 4c would allow large longline vessels to fish in the new open fishing area indefinitely, the number of vessels and number of hooks set are not expected to increase substantially over recent levels because the American Samoa longline fishery is a limited entry fishery and is currently experiencing challenging conditions. For these reasons, the fishery as a whole under all of these alternatives (4a, 4b, and 4c) is also not likely to exceed effort seen in the year 2007, when the fishery experienced the highest level of vessel participation, fishing effort and catch.

As noted previously, under all alternatives (4a, 4b, and 4c) CPUE of target South Pacific albacore within the U.S. EEZ could be improved if fishermen are able to follow the fish within the LVPA exempted area proposed under this alternative. Both alternatives 4a and 4b would be limited in impact because the duration of the change in prohibited areas would be limited to

either one or three years. For this reason, catch and effort is likely to be similar to recent years' catches.

Under Alternative 4c, the exemptions would not have a sunset period, but would be re-evaluated annually by the Council regarding, but not limited to, catch rates, fishery participants, small vessel participation and fisheries development initiatives. Should the Council need to modify the fishery further, under Alternative 4c, additional project-specific environmental review would occur.

4.5 Alternative 5

Temporary exemption for longline vessels 50 ft and longer holding an American Samoa limited entry permit to fish within the entire LVPA for a period of:

for a period of:

Alternative 5a. One year for permitted large longline vessels.

Alternative 5b. Three years for permitted large longline vessels.

Alternative 5c. No sunset on the exemption for permitted large longline vessels but with periodic review and re-evaluation by the Council.

Under this alternative, vessels 50 ft and longer holding an American Samoa longline limited entry permit would be exempt from the prohibition on pelagic fishing in the LVPA.

Under Alternative 5, the American Samoa longline fishery would experience the maximum relief in terms of opening more areas to longline fishing including areas closer to Tutuila. This alternative would allow large longline vessels to fish over an additional 20,061 nm² in total thereby reducing the area of the U.S. EEZ around American Samoa closed to large longliners from 25.5% to 8.6%

Expected Fishery Outcome

Under Alternative 5, overall longline fishing effort is expected to be more dispersed throughout the EEZ as more fishing area would be available to large longline vessels compared to Alternatives 1-4. Within the proposed exempted areas, fishing effort by large longline vessels is expected to increase as these vessels adjust to take advantage of the new open fishing area, although this would only be temporary under Alternatives 5a (one year) and Alternative 5b (three years). While Alternative 5c would allow large longline vessels to fish in the new open fishing area indefinitely, the number of vessels and number of hooks set are not expected to increase substantially over recent levels because the American Samoa longline fishery is a limited entry fishery and is currently experiencing challenging conditions. For these reasons, the fishery as a whole under all of these alternatives (5a, 5b, and 5c) is also not likely to exceed effort seen in the year 2007, when the fishery experienced the highest level of vessel participation, fishing effort and catch.

As noted previously, under all alternatives (5a, 5b, and 5c) CPUE of target South Pacific albacore within the U.S. EEZ could be improved if fishermen are able to follow the fish within the LVPA exempted area proposed under this alternative. Both alternatives 5a and 5b would be limited in impact because the duration of the change in prohibited areas would be limited to either one or three years. For this reason, catch and effort is likely to be similar to recent years' catches.

Under Alternative 5c, the exemptions would not have a sunset period, but would be re-evaluated annually by the Council regarding, but not limited to, catch rates, fishery participants, small vessel participation and fisheries development initiatives. Should the Council need to modify the fishery further, under Alternative 5c, additional project-specific environmental review would occur.

4.6 Impacts of the Alternatives on Target and Non-Target Stocks

4.6.1 Impacts of the No-Action Alternative on Target and Non-Target Stocks

Under the No-action Alternative, impacts to target and non-target stock status would remain largely unchanged, and could potentially be reduced, due to the lower levels of longline fishery participation during a prolonged period of low catch rates of albacore, the primary target of the fishery. The American Samoa longline fleet is expected to set up 10.1 million hooks/year, make 3,411 sets and 95 trips. The fleet will fish for albacore mostly between April and July. Effort and catch could fluctuate under the No-action Alternative.

Because the fishery would not benefit from regulatory relief that would occur under the action alternatives, it is anticipated that catch rates of albacore would not improve significantly in the short-term other than expected seasonal fluctuations. Declines in neighboring Pacific island-based domestic fisheries could lead to better fishing conditions in the long term if some participants drop out of the fishery. Conversely, entry of additional foreign longline vessels fishing on the high seas and in neighboring countries' EEZs may offset any gains to target and non-target stocks from reduced participation by domestic island fisheries.

In 2013, the American Samoa longline fleet deployed approximately 10.1 million hooks and landed approximately a little more than 2,000 mt of albacore (Table 5) with a CPUE of 11.7 albacore per 1,000 hooks in 2013 (Table 8). These estimates were the lowest recorded since 2003. Because there are no restrictions imposed on the fleet regarding albacore catch limits, fishing effort, catch and CPUE could potentially return to 2007 levels when the fishery deployed 17.5 million hooks, landed 5,329 mt of albacore with a CPUE of 18.3 albacore per 1,000 hooks. Therefore, under Alternative 1, catches of albacore could range from around 2,051 mt to 5,329 mt (Table 7).

Using the higher 2007 level estimates of catch to evaluate the potential impacts of the No-action Alternative on south Pacific albacore stocks, the American Samoa longline fishery could catch up to 5 percent of the stock's estimated MSY of 99,085 mt (Holye et al. 2012). As described in Section 3.2.1, current catch of south Pacific albacore by all fishing nations was 89,790 mt. This level of catch includes catches by the American Samoa longline fleet. Therefore, the current

level and projected maximum level of catches of Albacore under the No-action Alternative would continue to be sustainable.

Under the No-action Alternative, American Samoa longline landings of skipjack tuna (Section 3.2.2), yellowfin tuna (Section 3.2.3) and bigeye tuna (Section 3.2.4) are expected to be similar to the levels landed in 2013 when the fleet landed 64 mt (skipjack), 414 mt (yellowfin), and 85 mt (bigeye). These non-target species are only a minor component of the overall catch by American Samoa longline vessels that is landed in American Samoa.

Because there are no restrictions imposed on the fleet regarding albacore catch limits, fishing effort, catch and CPUE could potentially return to 2007 levels when the fishery landed 165 mt of skipjack, 620 mt of yellowfin and 199 mt bigeye tuna, respectively. However, this level of catch represents no more than 0.01-0.1 percent of each stock's estimated MSY (See Section 3.2.1). Therefore, the current level and projected maximum level of catches of these species under the No-action Alternative would continue to be sustainable. Similarly, incidental catches of non-tunas would likely continue at much the same levels seen in 2013, and these levels are considered sustainable. The limited amount of catch of non-target species including wahoo, mahimahi, and billfishes would continue to be sustainable, even if the longline fleet were to increase effort under the No-action Alternative. Billfish and mahimahi show some CPUE decline during the advent of the longline fishery (WPFMC, 2014), when mainly alias were fishing but these flatten out when the fleet became predominantly large vessels. Wahoo shows a variable CPUE trend but without any increase or decline.

Catches of bycatch species such as sharks are currently sustainable as most are discarded alive and would likely remain around 10-12 percent of annual catch (Section 3.2.5). Longline shark catch CPUE continues to remain steady (WPFMC, 2014). As described in Section 3.2.5 and 3.2.6, bycatch is not known to be having a large impact on the sustainability of the resources in American Samoa and is not expected to change under this alternative.

Impacts to the target species and bycatch species caught by troll fishing are highly likely to remain unchanged under the No Action Alternative and catches would remain sustainable. The same separation would be maintained between troll vessels and the longline fishery, with only one vessel grandfathered to fish within the LVPA.

4.6.2 Impacts of Alternative 2 on Target and Non-Target Stocks

Compared to Alternative 1, the exemption proposed under Alternative 2 would allow longline vessels 50 ft and longer to fish within LVPA up to 25 nm to the north of Tutuila and Manua and within 12 nm of Swains opening 8,401 nm of the EEZ to longline fishing. This would result in 7.1% fishable area within the U.S. EEZ around American Samoa compared to Alternative 1 (see Figure 7).

As described above, Alternative 2c could see some improvement in both catches and CPUEs, and increased effort as the longline fishery becomes more stable. The fishery is not expected to expand substantially as a result of the regulatory relief and, at most, could revert to no greater than the levels of catch and effort realized in 2007. This is the same impact that could be

achieved under the best case analysis of the baseline environment. As described in Section 2.2, the net effect of this level of fishing on target stocks would be sustainable. Such a modest increase in catches as could be realized is not expected to result in local depletion for any target stock because pelagic MUS are migratory and are not likely to be clustered in any single location. As such, no adverse impacts to target and non-target stocks are anticipated from this alternative.

South Pacific albacore stock status indicates that it continues to be neither overfished nor subject to overfishing. Any improvements of the performance of the American Samoa longline fishery are going to be localized to the U.S. EEZ around the Territory, and would be within the levels of catch already observed in the fishery.

Figure 17 shows the albacore CPUE time series for the entire American Samoa fishery and from aggregated CPUE for vessels permitted to fish within the LVPA around Swains and the southern islands of the archipelago. The data, though incomplete for the LVPA around Swains, shows a clear correspondence of the CPUE trends in all three time series, with the fishery as a whole having on average a higher CPUE than the two closed areas, with the exception of 2014, where the LVPA around Tutuila saw higher albacore catch rates. There are, however, times during the year that catch rates for albacore may be much greater inside the LVPA than outside (Figure 18).

The expected improvement in CPUEs that may be experienced when large vessels are allowed to fish within the previously closed zones may not be long lasting; however, the greater separation of the fleet over the larger area of the fishing ground may reduce the potential for catch competition between longline vessels in the future. All fish in a given population are exposed to an equal probability of capture by a fishery whose units of gear are scattered randomly over the fishing grounds (Ricker, 1975). Further, at low densities the units of gear do not interfere with each other in respect to the mechanics of their operations. In such a situation, catches by any additional new unit of gear may reduce the potential catch of all vessels. The competition takes the form of a faster reduction in the size of the population as a whole. As the fishing season progresses, each unit may catch fewer and fewer fish, and the more gear present, the more rapid is this decrease in catch.

Ricker (1975) states that if fishing gear is dispersed unequally over the population, its action tends to produce local reductions in abundance greater than what the population experiences as a whole, leading to a different type of competition. This may be the case in American Samoa, with the LVPA and Rose Atoll MNM crowding the fishing fleet into the remaining EEZ waters. In such an instance fishing may produce a local depletion of the supply; additional hooks set in the same region increase the local depletion and catch per unit effort will fall off in proportion to the local abundance. The magnitude of this fall will be cushioned if some fish from the rest of the stock migrate into the fishing area and so keep the supply there from dropping as far as it otherwise would. However, competition between units of gear is intensified under the current status quo because catch per unit effort reflects the size of only the immediately available restricted portion of the stock, rather than the stock as a whole.

Under Alternatives 2a, 2b, and 2c, the American Samoa longline fishery may benefit from a reduction in catch competition because the fleet would be able to spread out over a larger area

and fish within in a larger portion of ocean. This could lead to better catch rates, especially of the target species, albacore. This in turn should lead to shorter fishing trips, lower costs and improvements to the economic performance and efficiency of the fishery. Any such benefits will be greater for a three year period than a one year period and thus Alternative 2b would have a greater impact on the benefits for the longline fishery, but the impact would not be large given the limited time period of the benefit.

The benefits to the fishery of the proposed regulatory relief would be greatest under Alternative 2c. As described above, although the fishery would likely experience improved economic conditions, the fishery is not expected to expand substantially, and at most would remain below the effort and catch levels attained in 2007. As such, it is unlikely that there would be major increases of incidentally caught species such as skipjack, bigeye or yellowfin tuna, or bycatch such as sharks compared to the No Action alternative.

In summary, the potential impacts to target and non-target stocks of this alternative is likely to be higher than Alternative 1 because the fishery would be expected to catch more fish, and experience higher CPUEs. Impacts to target and non-target stocks, moreover, would not be substantially different from the No Action Alternative because the fishery is not expected to expand substantially. At a maximum, under Alternative 2c, catches of Albacore and other non-target species could be expected to return to levels seen in 2007, and those levels of catch were sustainable.

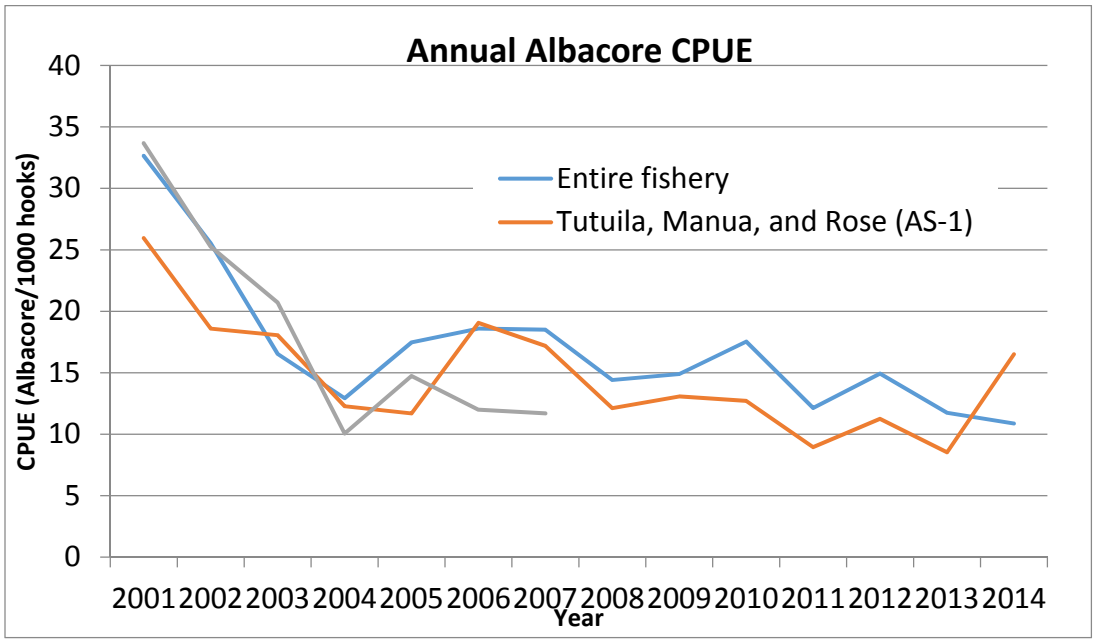

Figure 17. Annual albacore CPUE for the entire American Samoa longline fishery, for the LVPA around Tutuila, the Manua Islands, and Rose Atoll ("Tutuila"), and for the area around Swains Island.
Source: PIFSC unpublished data.
Note: Data for LVPA around Swains beyond 2007 not presented due to data confidentiality requirements.

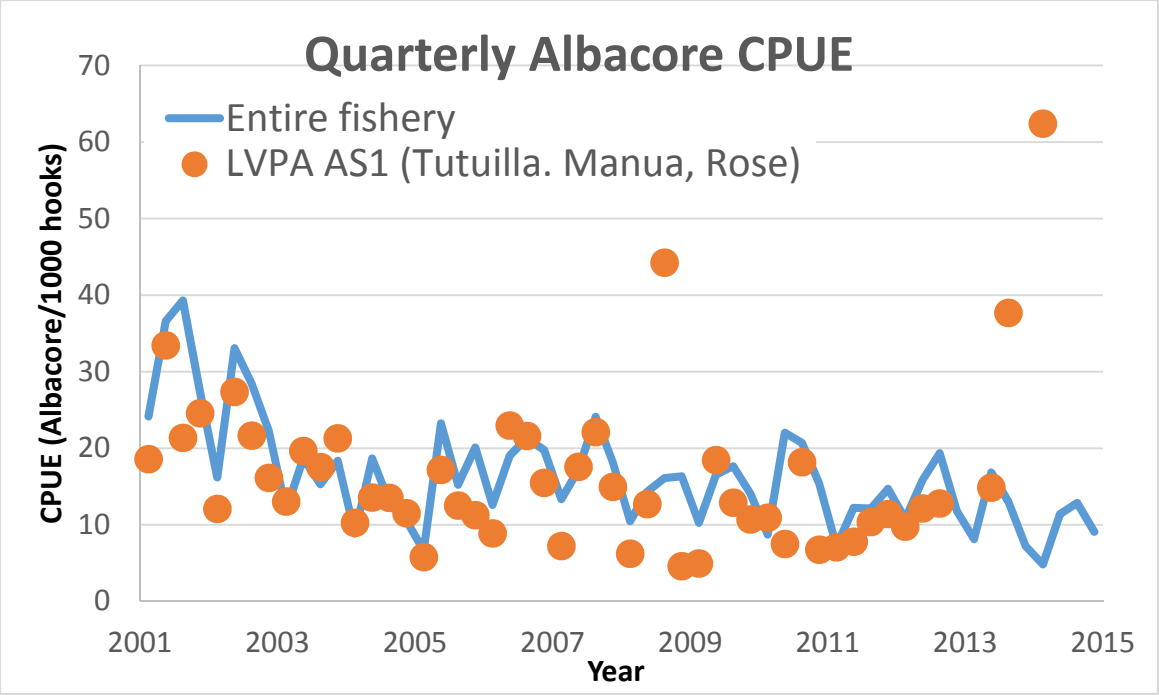

Figure 18. Quarterly albacore CPUE for the entire American Samoa longline fishery, and for the LVPA around Tutuila, the Manua Islands, and Rose Atoll ("Tutuila").
Source: Source: PIFSC unpublished data
Note: Swains Island not shown because in many quarters there was no fishing, or fishing was conducted by fewer than 3 vessels.

4.6.3 Impacts of Alternatives 3 on Target and Non-Target Stocks

Compared to the No Action alternative, the exemption proposed under Alternative 3, would open 11,601 nm² of the U.S. EEZ around American Samoa to longline fishing.
This would result in 9.8% more fishable area within the U.S. EEZ around American Samoa compared to Alternative 1.

The impacts to target and non-target stocks under this alternative with respect to the longline fishery are similar to those described under Alternative 2 (Section 4.6.2). However, a greater area of the LVPA may be fished by the longline fishery due to exemptions to fish to the east and west of South Bank, up to the boundaries of the EEZ in the west and the Rose Atoll MNM in the east. Given the greater area of the LVPA that may be fished, this alternative should have the greater potential to minimize catch competition between the vessels of the longline fleet.

Any gains to the fishery may be offset if the fishery chooses to crowd into the exempted areas but it is likely that the fishery will ultimately settle down to fish in the increased fishable area. There may be a return to levels of fishing comparable to 2007 when up to 27 vessels were operating, making 375 trips per year and deploying 17.6 million hooks.

As noted in Section 4.6.2, the impacts to target stock status are likely to be indistinguishable from those under the No Action Alternative. However, any benefits from the LVPA exemption

will be greater for a three year period than a one year period, and probably more so without any sunset provisions.

4.6.4 Impacts of Alternatives 4 on Target and Non-Target Stocks

Compared to the No Action alternative, the exemption proposed under Alternative 4, would open 16,817 nm² of the U.S. EEZ around American Samoa to longline fishing. This would result in 14.2% more fishable area within the U.S. EEZ around American Samoa compared to Alternative 1. As noted above there is no guarantee that large volumes of albacore or other species such as skipjack, yellowfin or bigeye, have accumulated within the LVPA. However, the measure could increase the efficiency of the American Samoa longline fleet by allowing it to range more freely over the waters within the U.S. EEZ around American Samoa.

Any gains to the fishery may be offset if the fishery chooses to crowd into the exempted areas but it is likely that the fishery will ultimately settle down to fish in the increased fishable area. There may be a return to levels of fishing comparable to 2007 when up to 27 vessels were operating, making 375 trips per year and deploying 17.6 million hooks.

The ability to fish in closer proximity to Pago Pago may also reduce costs and possibly offer the alternative for targeting fish for a fresh fish fishery as opposed to frozen landings for sale at the local canneries.

As noted earlier, benefits from the LVPA exemption will be greater for a three year period than a one year period, and probably more so without any sunset provisions.

4.6.5 Impacts of Alternative 5 on Target and Non-Target Stocks

Compared with the No Action Alternative, Alternative 5, would open 20,061 nm² of the U.S. EEZ around American Samoa to longline fishing. This would result in 16.9% more fishable area within the U.S. EEZ around American Samoa compared to Alternative 1, and provides the large vessel longline fleet the maximum extent possible over which to fish, with the exclusion of waters around Rose Atoll Marine National Monument. It is not anticipated that the volume of fishing will expand much beyond current limits, but that this fishing effort will be more diffuse within the U.S. EEZ around American Samoa. Any gains to the fishery may be offset if the fishery chooses to crowd into the previously exempted areas but it is likely that the fishery will ultimately settle down to fish in the increased fishable area. There may be a return to levels of fishing comparable to 2007 when up to 27 vessels were operating, making 375 trips per year and deploying 17.6 million hooks.

It is unlikely that impacts to target stocks will be markedly affected, nor those of incidentally caught species such as skipjack, yellowfin and bigeye, and bycatch such as sharks. Increased catch rates for albacore may occur with reduced inter-vessel competition for fish. However, the impacts to South Pacific albacore stock wide (Figure 15) are a function of the cumulative catches of many island based and distant water longline fleets. The same is broadly true for the other tunas and tuna like species captured by longliners in the South Pacific.

As noted earlier, benefits from the LVPA exemption will be greater for a three year period than a one year period, and probably more so without any sunset provisions. Alternative 5 would open 20,061 nm² of the U.S. EEZ around American Samoa to large longline vessels compared to 16,818 nm² under Alternative 4, the preferred Alternative. This additional 3,240 nm² of open fishing area provided under Alternative 5 is relatively small such that it is not expected to result in impacts to bigeye tuna any greater than under Alternative 4.

4.7 Impact of the Alternatives on Protected Species

As described in Section 3.3.8, NMFS recently completed the ESA consultation for the American Samoa longline fishery and issued a biological opinion (2015 BiOp) evaluating the effects of the fishery on threatened and endangered species, their designated critical habitat, and species proposed for listing as threatened or endangered (NMFS 2015b). The 2015 BiOp considered the fishery under the existing regulatory framework, and the proposed action described in this document. Although participation and effort has varied and declined in recent years, NMFS in the 2015 BiOp anticipated that the level of participation, in terms of fleet-wide sets and hooks deployed, could potentially return to historic levels. For this reason, the 2015 BiOp evaluated the effects of the fishery operating in the geographic areas identified in the proposed action as well as under effort levels seen in 2007, when 29 vessels deployed 5,920 sets and approximately 17,554,000 hooks.

4.7.1 Impacts of the No Action Alternative on Protected Species

Under the No Action Alternative, the American Samoa longline fishery would not greatly change its patterns of fishing, and NMFS anticipates the potential for interactions with sea turtles (section 3.3.3), marine mammals (section 3.3.4), seabirds (section 3.3.5), reef building corals (section 3.3.6) and scalloped hammerhead shark (section 3.3.7) would continue to be at levels observed in the recent past (See Tables 14-22). These interaction levels are lower than the ITS in the 2015 BiOp shown in Table 23, which NMFS determined would not likely jeopardize the continued existence of any ESA listed species. Thus, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on protected species. The basis for this finding is presented below.

4.7.1.1 Green Sea Turtles

As described in Section 3.3.3.1, the estimated number of nesting female green turtles in the Pacific is approximately 189,374 females (NMFS 2015b). In the 2015 BiOp, NMFS anticipates the American Samoa longline fishery operating under the proposed action could interact with up to 20 green sea turtles annually or 60 green turtles over a three-year period (See Table 23). NMFS also estimates that 90 percent of all interactions would likely result in mortality. The 2015 BiOp anticipates that 20 annual interactions would result in 18 annual mortalities or 60 interactions and 54 mortalities over 3 years.

The American Samoa longline fishery interacts with male and female green sea turtles. To estimate the risk that the American Samoa longline fishery poses to sea turtle populations, the 2015 BiOp estimates the number of adult females (termed the adult nester equivalent or ANE)

harmed through injury or death. To do this, the 2015 BiOp applies two adjustment factors (1) the proportion of females in the population, and (2) the adult equivalent represented by juvenile sea turtle interactions with the fishery. Based on the methods described in the 2015 BiOp, NMFS estimates the 20 annual interactions is equivalent to an ANE of 0.10 annually or an ANE of 0.30 over three years. This represents less than 0.000001 percent of the population of nesters in the South Pacific. In the 2015 BiOp, NMFS considers this level of take is negligible to the overall nesting population in the South Pacific, and therefore to the globally listed species.

Under the No Action Alternative, NMFS expects the impacts to green sea turtle populations would be within the levels analyzed in the 2015 BiOp. Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on green sea turtles.

Because NMFS proposes to remove the current global range-wide listing for green sea turtles and, in its place, list 11 DPSs, the 2015 BiOp also assesses the impact of the American Samoa longline fishery on the five green sea turtle DPS, which are known to interact with the American Samoa longline fishery. The findings of the 2015 BiOp and NMFS' evaluation of the effects of the proposed action on these DPS are summarized below.

Central South Pacific DPS

The estimated number of nesting females for the Central south Pacific DPS is 2,902 (2015 BiOp). In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with up to 10 green sea turtles from the Central South Pacific DPS annually or 30 turtles over a three-year period. Based on the same ANE adjustment factors described above , NMFS estimates the 10 interactions is equivalent to an ANE of 0.05 annually or an ANE of 0.15 over three years. This represents 0.0017 percent of this DPS. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the Central south Pacific DPS would be within the levels analyzed in the 2015 BiOp. Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the Central South Pacific DPS.

Southwest Pacific DPS

The estimated number of nesting females for the Southwest Pacific DPS is 83,058 (2015 BiOp). In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with up to 7 green sea turtles from the Southwest Pacific DPS annually or 20 turtles over a three-year period. Based on the same ANE adjustment factors described above, NMFS estimates the 7 interactions is equivalent to an ANE of 0.033 annually or an ANE of 0.099 over three years. This represents 0.00004 percent of this DPS. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the Southwest Pacific DPS would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the Southwest Pacific DPS.

East Pacific DPS

The estimated number of nesting females for the East Pacific DPS is 20,112 (2015 BiOp). In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with less than three green sea turtles from the East Pacific DPS annually or up to 7 turtles over a three-year period. Based on the same ANE adjustment factors described above, NMFS estimates the 3 interactions is equivalent to an ANE of 0.012 annually or an ANE of 0.036 over three years. This represents 0.00006 percent of this DPS. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the East Pacific DPS would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the East Pacific DPS population.

Central West Pacific DPS

The estimated number of nesting females for the Central West Pacific DPS is 6,158 (2015 BiOp). In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with one green sea turtle from the Central West Pacific DPS annually or up to two turtles over a three-year period. Based on the same ANE adjustment factors described above, NMFS estimates that one interaction is equivalent to an ANE of 0.003 annually or an ANE of 0.009 over three years. This represents 0.00005 percent of this DPS. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the Central West Pacific DPS would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the Central West Pacific DPS.

East Indian DPS

The estimated number of nesting females for the East Indian DPS is 77,009 (2015 BiOp). In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with one sea turtle over three-year period. Based on the same ANE adjustment factors described above, NMFS estimates that one interactions is equivalent to an ANE of 0.002 annually or an ANE of 0.006 over three years. This represents 0.00005 percent of this DPS. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the East Indian DPS would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the East Indian DPS.

4.7.1.2 Hawksbill Sea Turtles

NMFS estimates that the total number of nesting hawksbill turtles in Oceania to be 23,190 (Van Houtan 2015 in NMFS 2015b). Although there has never been an observed or reported interaction with a hawksbill sea turtle in the fishery, in the 2015 BiOp, NMFS estimates that under the proposed action American Samoa longline fishery could interact with two hawksbill turtles annually or six over a three-year period. Based on the ANE adjustment factors described for hawksbill sea turtles in the 2015 BiOp (that is, a 50:50 male to female population ratio, and

juvenile annual survival of 0.85, and time between interaction and first breeding of 10 years), NMFS estimates that two interactions is equivalent to an ANE of 0.35 annually or an ANE of 1.05 over three years. This represents 0.0001 percent of the adult female population. In the 2015 BiOp, NMFS considers this this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to hawksbill sea turtles would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the population.

4.7.1.3 Leatherback Sea Turtles

NMFS estimates that there are approximately 2,739 nesting females in the Western Pacific Population (Van Houtan 2015, in NMFS, 2015c). In the 2015 BiOp, NMFS anticipates the American Samoa longline fishery operating under the proposed action could interact with up to 23 leatherback sea turtles annually or 69 turtles over a three-year period (See Table 23). NMFS also estimates that 70.6 percent of all interactions would likely result in mortality. Accordingly, the 2015 BiOp anticipates 23 annual interactions would lead to in 16.28 annual mortalities or 54 mortalities over 3 years.

The American Samoa longline fishery interacts with male and female leatherback sea turtles, and these are predominantly juveniles (Van Houtan 2015 in NMFS 2015b). To estimate the risk that the American Samoa longline fishery poses to sea turtle populations, the 2015 BiOp estimates the number of adult females (termed the adult nester equivalent or ANE) harmed through injury or death. To do this, the 2015 BiOp applies two adjustment factors: (1) the proportion of females in the adult population (using a ratio of 65 percent females to 35 percent males; and (2) the adult equivalent represented by each juvenile interaction. The adult equivalent was determined using the discounting method (Van Houtan 2013, 2015 as describe in NMFS 2015b). This discounting method summarized in the 2015 BiOp incorporates an exact demographic match to the observed interactions, and relies on accurate length measurements by fishery observers of bycaught turtles and conversion of these recorded lengths to ages. Therefore, of an estimated 16.28 leatherback sea turtle mortalities, NMFS estimates 10.58 would be females (16.28 x 0.65 = 10.58). Applying the adult equivalent discounting method (Van Houtan 2013, 2015 in NMFS 2015b), NMFS estimates 23 leatherback interactions would result in the mortality of 0.55 adult females annually, or 1.65 adult females over a three year period. This is equivalent to one adult female mortality every 1.8 years from a nesting population of 2,739 females (Van Houtan 2015). The number of estimated mortality represents less than 0.02 percent of the nesting population of leatherback sea turtles in the western Pacific. In the 2015 BiOp, NMFS considers this level of impact to be negligible to the population. Under the No Action Alternative, NMFS expects the impacts to leatherback sea turtles would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the population.

4.7.1.4 South Pacific Loggerhead Sea Turtle DPS

NMFS estimates the adult female nesting population size for the South Pacific DPS is approximately 1,400 (Van Houtan 2015 in NMFS 2015b). Although there has never been an observed or reported interaction with a loggerhead sea turtle in the fishery, in the 2015 BiOp,

NMFS estimates that under the proposed action American Samoa longline fishery could interact with two loggerhead turtles annually or six over a three-year period. Based on the ANE adjustment factors described for loggerhead sea turtles described in the 2015 BiOp (that is, a 50:50 male to female population ratio, and juvenile annual survival of 0.85, and time between interaction and first breeding of 10 years), NMFS estimates that two interactions is equivalent to an ANE of 0.14 annually or an ANE of 0.42 over three years. This represents 0.0001 percent of the adult female population. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to the South Pacific loggerhead sea turtle DPS would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the population.

4.7.1.5 Olive Ridley

Based on the genetic results from the olive ridley sea turtles that were caught in the American Samoa longline fishery, all of the turtles are from the eastern Pacific nesting stocks (Dutton pers comm 2015, in NMFS 2015b). The eastern Pacific population has at least one million adult nesting females. In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with 11 olive ridley sea turtles annually or up to 33 turtles over a three-year period. Based on the ANE adjustment factors described for olive ridley sea turtles in the 2015 BiOp (that is, a 50:50 male to female population ratio, and juvenile annual survival of 0.85, and time between interaction and first breeding of 10 years), NMFS estimates that one interaction is equivalent to an ANE of 0.31 annually or an ANE of 0.93 over three years. This level of mortality represents 0.000001 percent of the adult nesting female population from one nesting area. In the 2015 BiOp, NMFS considers this level of take is negligible to the nesting population. Under the No Action Alternative, NMFS expects the impacts to olive ridley sea turtles would be within the levels analyzed in the 2015 BiOp.Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the population.

4.7.1.6 Marine Mammals

From 2006 to 2014, the American Samoa longline fishery has recorded 17 observed interactions consisting ofsix false killer whales, a Cuvier's beaked whale, seven rough-toothed dolphins, a short-finned pilot whale, and two unidentified cetaceans (Table 18). Of these, 11 interactions were observed in 2011 when the observer coverage was the highest at 33 percent.

In accordance with section 118 of the MMPA, NMFS published the proposed List of Fisheries for 2016, which classifies the American Samoa longline fishery as a Category 2 fishery (80 FR 58427, September 29, 2015). A Category 2 fishery is one with occasional incidental morality and serious injury of marine mammals. Under the No Action Alternative, the fishery would continue to operate without changes and would likely have occasional interactions with marine mammals but not affect marine mammals in any manner not previously considered or authorized by the commercial fishing incidental take authorization under section 118 of the MMPA.

4.7.1.7 Seabirds

Since 2006, the American Samoa longline fishery has had two observed interactions with unidentified shearwaters and one interaction with an unidentified frigatebird (Table 21). Annual estimated total interactions are 1.9 interactions for unidentified shearwaters and 0.6 unidentified frigatebirds (Table 21). These levels of interactions are extremely small compared to the population of shearwater species occurring around American Samoa, which are estimated at 5,200,000 individuals for wedge-tailed shearwaters, 500,000 individuals for Audubon's shearwater and 150,000 individuals for Christmas shearwater (Waugh et al., 2009; BirdLife International, 2012c). The No Action Alternative would continue the fishery without change, and therefore, impacts to seabirds are expected to remain at these extremely low levels and not anticipated to increase under this alternative.

4.7.1.8 Reef-Building Corals

In American Samoa, coral reef habitat is generally in nearshore waters from 0-3 nm from shore, although some coral reef habitat can be found further offshore. In contrast, pelagic fisheries generally operate and target pelagic fish species in the water column dozens to a thousand miles offshore, far away from the islands and coral reef habitat areas. Because these fisheries occur deeper than ESA-listed coral depth and fishermen typically avoid coral reef structures during transit in Territorial and Federal waters to protect their vessels, under the No Action Alternative, the likelihood of damage to corals from pelagic fishing gear or transiting vessels is extremely unlikely to occur.

4.7.1.9 Scalloped Hammerhead Sharks

The American Samoa longline fishery operates in the range of the Indo-West Pacific DPS. Between 2006 and2014, observers in the fishery recorded interactions with nine scalloped hammerhead sharks and three unidentified hammerheads. In the 2015 BiOp, NMFS estimates the American Samoa longline fishery could interact with up to 12 Indo-West Pacific DPS sharks annually or 36 sharks over a three-year period. Based on an observed post-hooking mortality rate of 33 percent as described in the 2015 BiOp, NMFS expects 3.96 (rounded to 4) shark mortalities annually as a result of interactions with the fishery.

The effective population size of the Indo-West Pacific DPS is estimated to be at least 11,280 adults (NMFS 2015b), therefore four mortalities represent 0.04 percent of the population. In the 2015 BiOp, NMFS considers the risk to the scalloped hammerhead shark DPS from the American Samoa longline fishery would be negligible. Under the No Action Alternative, NMFS expects the impacts to the Indo-West Pacific DPS would be within the levels analyzed in the 2015 BiOp. Therefore, NMFS does not expect the fishery operating under the No Action Alternative would have large adverse effects on the population.

4.7.2 Impacts of Alternative 2 on Protected Species

4.7.2.1 Sea Turtles

While NMFS cannot predict the number of sea turtle interactions that might occur under Alternative 2, it is reasonable to expect that interactions could be similar to or even slightly higher than under the No Action Alternative. This is because under Alternative 2, more area of the EEZ would be open to large longline vessels compared to the No Action Alternative. However, NMFS expects that under Alternative 2, the level of interactions with each species of sea turtle would be within the levels analyzed in the 2015 BiOp. This is because the 2015 BiOp analyzed the effects of the proposed action (Alternative 4c), which would open more area of the EEZ compared to Alternative 2. Based on the population level impacts to each sea turtle species described in Section 4.7.1 above, NMFS does not expect the fishery operating under Alternative 2 would have large adverse effects on any sea turtle population.

4.7.2.2 Marine Mammals

Under Alternative 2, NMFS does not anticipate the level of fishing effort would dramatically increase under Alternatives 2a, 2b, 2c compared to the No Action Alternative. However, Alternative 2c would allow large longline vessels to fish over slightly more area compared to the No Action Alternative. This would occur primarily at Swains Island where large fishing vessels would be allowed to fish to within 12 nm of the island as opposed to within 50 nm under the status quo.

Unlike Hawaii, there is no data for American Samoa to indicate that there are any island associated marine mammal stocks. Further, the South Pacific has many archipelagos in proximity to one another and has a different ecology compared to a remote archipelago like Hawaii. For these reasons, NMFS does not anticipate longline fishing under Alternative 2c would result a substantial change to the frequency or severity of interaction with marine mammals compared to the No Action Alternative.

Observer data will allow fishery managers and scientists to continue to monitor interactions and determine whether the level of interactions warrant an elevation of the fishery from Category 2 (one with occasional incidental morality and serious injury of marine mammals) to a Category 1 fishery (one with frequent incidental morality and serious injury of marine mammals).

4.7.2.3 Seabirds

The species of shearwaters and frigatebirds observed interacting with the American Samoa longline fishery are unidentified. If the fishery were to interact with known populations considered resident of American Samoa, there is a potential that interaction may increase. However, shearwaters and frigatebirds have foraging distance ranging up to 400-600 km from breeding sites (Maxwell and Morgan, 2013), and there is no additional information to suggest shearwater and frigatebird occurrence to be significantly higher in the 12-50 nm range compared to beyond 50 nm of Swains Island. Therefore, compared to the No Action Alternative, the

increase in areas in which large longline vessels may fish under Alternative 2 is not expected to result in large increases in interactions with seabirds.

4.7.2.4 Reef-Building Corals

As discussed under the No Action Alternative, coral reef habitat around American Samoa is generally in nearshore waters from 0-3 nm from the shore. Coral reef habitat is not known to occur beyond 12 nm of Swains Island or areas beyond 25 nm to the north of Tutuila and Manua. Therefore, compared to the No Action Alternative, the increase in areas in which large longline vessels may fish under Alternative 2 is not expected to result in any increases in interactions with ESA-listed coral species.

4.7.2.5 Scalloped Hammerhead Shark

While NMFS cannot predict the number of scalloped hammerhead shark interactions that might occur under Alternative 2, it is reasonable to expect that interactions could be similar to or even slightly higher than under the No Action Alternative. This is because under Alternative 2, more area of the EEZ would be open to large longline vessels compared to the No Action Alternative. However, NMFS expects that under Alternative 2, the level of interactions with scalloped hammerhead sharks would be within the levels analyzed in the 2015 BiOp. This is because the 2015 BiOp analyzed the effects of the proposed action (Alternative 4c), which would open more area of the EEZ compared to Alternative 2. Based on the population level impacts to the Indo-West Pacific scalloped hammerhead shark DPS described in Section 4.7.1 above, NMFS does not expect the fishery operating under Alternative 2 would have large adverse effects on this population.

4.7.3 Impacts of Alternative 3 on Protected Species

4.7.3.1 Sea Turtles

While NMFS cannot predict the number of sea turtle interactions that might occur under Alternative 3, it is reasonable to expect that interactions could be similar to or even slightly higher than under the No Action Alternative. This is because under Alternative 3, more area of the EEZ would be open to large longline vessels compared to the No Action Alternative. However, NMFS expects that under Alternative 3, the level of interactions with sea turtles would be within the levels analyzed in the 2015 BiOp. This is because the 2015 BiOp analyzed the effects of the proposed action (Alternative 4c), which would open more area of the EEZ compared to Alternative 3. Based on the population level impacts to each sea turtle species described in Section 4.7.1 above, NMFS does not expect the fishery operating under Alternative 3 would have large adverse effects on any sea turtle population.

4.7.3.2 Marine Mammals

Under Alternative 3, NMFS does not anticipate the level of fishing effort would dramatically increase under Alternatives 3a, 3b, 3c compared to the No Action Alternative. However, Alternative 3c would allow large longline vessels to fish over slightly more area compared to the

No Action Alternative. This would occur primarily at Swains Island where large fishing vessels would be allowed to fish to within 12 nm of the island, and southeast of Tutuila and southwest of the Manua Islands (See Figure 8).

Unlike Hawaii, there is no data for American Samoa to indicate that there are any island associated marine mammal stocks. Further, the South Pacific has many archipelagos in proximity to one another and has a different ecology compared to a remote archipelago like Hawaii. For these reasons, NMFS does not anticipate longline fishing under Alternative 3c would result a substantial change to the frequency or severity of interaction with marine mammals compared to the No Action Alternative.

4.7.3.3 Seabirds

Since 2006, the American Samoa longline fishery has had two observed interactions with unidentified shearwaters and one interaction with an unidentified frigatebird (Table 21). Annual estimated total interactions are 1.9 interactions for unidentified shearwaters and 0.6 unidentified frigatebirds (Table 21). These levels of interactions are extremely small compared to the population of shearwater species occurring around American Samoa, which are estimated at 5,200,000 individuals for wedge-tailed shearwaters, 500,000 individuals for Audubon's shearwater and 150,000 individuals for Christmas shearwater (Waugh et al., 2009; BirdLife International, 2012c).

However, shearwaters and frigatebirds have foraging distance ranging up to 400-600 km from breeding sites (Maxwell and Morgan, 2013), and there is no additional information to suggest shearwater and frigatebird occurrence to be significantly higher in the 12-50 nm range compared to the area restricted to large longline vessels under the No Action Alternative. For these reasons, NMFS does not anticipate longline fishing under Alternative 3c would result a substantial change to the frequency or severity of interaction with marine mammals compared to the No Action Alternative.

The impacts to seabirds under this alternative with respect to the longline fishery are similar to those described under the No Action Alternative (Section 4.7.1). Encounter rates of shearwaters and frigate-birds that may interact with the fishery are not likely to increase as a result of additional areas accessible to large longline vessels under Alternative 3, and thus is not expected to result in large increases in interactions with seabirds.

4.7.3.4 Reef Building Corals

The impacts to reef building corals under this alternative with respect to the longline fishery are similar to those described under the No Action Alternative (Section 4.7.1). Potential coral habitat containing ESA-listed coral species are not known to occur in areas in which large longline vessels may fish under Alternative 3. Therefore, impacts to reef building corals under Alternative 3 are likely to be indistinguishable to those under the No Action Alternative.

4.7.3.5 Scalloped Hammerhead Shark

While NMFS cannot predict the number of scalloped hammerhead shark interactions that might occur under Alternative 3, it is reasonable to expect that interactions could be similar to or even slightly higher than under the No Action Alternative. This is because under Alternative 3, more area of the EEZ would be open to large longline vessels compared to the No Action Alternative. However, NMFS expects that under Alternative 3, the level of interactions with scalloped hammerhead sharks would be within the levels analyzed in the 2015 BiOp. This is because the 2015 BiOp analyzed the effects of the proposed action (Alternative 4c), which would open more area of the EEZ compared to Alternative 3. Based on the population level impacts to the Indo-West Pacific scalloped hammerhead shark DPS described in Section 4.7.1 above, NMFS does not expect the fishery operating under Alternative 3 would have large adverse effects on this population.

4.7.4 Impacts of Alternative 4 on Protected Species

4.7.4.1 Sea Turtles

In a biological opinion dated October 30, 2015, NMFS evaluated the effects of the American Samoa longline fishery on sea turtles under the proposed action. A summary of the expected level of sea turtle interactions and associated population level effects under the proposed action are described in sections 4.7.1.1. (green sea turtles and five proposed DPS), 4.7.1.2 (hawksbill), 4.7.1.3 (leatherback), 4.7.1.4 (South Pacific loggerhead), and 4.7.1.5 (olive ridley). As described in the sections above, NMFS, in the 2015 BiOp, considers level of takes anticipated under the proposed action to be negligible to the sea turtle populations. Therefore, NMFS does not expect the action would result in large adverse effects on any sea turtle population.

4.7.4.2 Marine Mammals

Under Alternative 4, NMFS does not anticipate the level of fishing effort would dramatically increase under Alternatives 4a, 4b, 4c compared to the No Action Alternative. However, Alternative 4c would allow large longline vessels to fish to within 12 nm of the islands of American Samoa, which is more area compared to the No Action Alternative. (see Figure 9).

Unlike Hawaii, there is no data for American Samoa to indicate that there are any island associated marine mammal stocks. Further, the South Pacific has many archipelagos in proximity to one another and has a different ecology compared to a remote archipelago like Hawaii. For these reasons, NMFS does not anticipate longline fishing under Alternative 4c would result a substantial change to the frequency or severity of interaction with marine mammals compared to the No Action Alternative.

4.7.4.3 Seabirds

The impacts to seabirds under this alternative with respect to the longline fishery are expected to be similar to those described under Alternative 3 (Section 4.7.3.3). Therefore, compared to the

No Action Alternative, the increase in areas in which large longline vessels may fish under Alternative 4 is not expected to result in large increases in interactions with seabirds.

4.7.4.4 Reef Building Corals

As discussed under the No Action Alternative, coral reef habitat around American Samoa is generally in nearshore waters from 0-3 nm from the shore and thus most areas where ESA-listed coral species may occur would be contained within areas that will remain closed to large longline vessels under Alternative 4. Potential coral habitat that may contain ESA-listed species may be found in shallow offshore banks, primarily at South Bank, which are located in areas open to large longline vessels under Alternative 4. However, longline gear requirements for American Samoa result in all hooks to be deployed to fish at least 100 m deep, thus gear would not be deployed at depths shallower than 50m where ESA-listed corals are found. Therefore, impacts to reef building corals from Alternative 4 are not expected to increase compared to the No Action Alternative.

4.7.4.5 Scalloped Hammerhead Shark

NMFS evaluated the potential effects of the American Samoa longline fishery on the Indo-West Pacific scalloped hammerhead shark DPS under the proposed action. As described in Section 4.7.1, NMFS expects the impacts to the population would be within the levels analyzed in the 2015 BiOp. Therefore, NMFS does not expect Alternative 4c would result in large adverse effects on the Indo-West Pacific scalloped hammerhead shark DPS.

4.7.5 Impacts of Alternative 5 on Protected Species

Under this alternative, vessels 50 ft and longer holding an American Samoa longline limited entry permit would be exempt from the prohibition on pelagic fishing in the entire LVPA as shown in Figure 10.

4.7.5.1 Sea Turtles

While NMFS cannot predict the number of sea turtle interactions that might occur under Alternative 5, it is reasonable to expect that interactions could be similar to or even slightly higher than under Alternative 4, which includes the interaction levels analyzed in the 2015 BiOp. This is because under Alternative 5, more area of the EEZ would be open to large longline vessels compared to Alternative 4.

Because Alternative 5 would open all EEZ waters to fishing by large longline vessels, there is a potential for greater interactions with green and hawksbill sea turtles, which are more associated with the coastal environment than other sea turtle species compared Alternative 4. If the level of interactions under Alternative 5 remains within the level analyzed in the 2015 BiOp, NMFS does not expect the fishery operating under Alternative 5 would have large adverse effects on any sea turtle population. However, if interactions exceed the levels anticipated in the 2015 BiOp, NMFS would reinitiate consultation under ESA to evaluate the effects of the fishery.

4.7.5.2 Marine Mammals

Under Alternative 5, NMFS does not anticipate the level of interactions with marine mammals would dramatically increase under Alternatives 5a, 5b, 5c compared to Alternative 4. This is because there is no data for American Samoa to indicate that there are any island associated marine mammal stocks. Further, the South Pacific has many archipelagos in proximity to one another and has a different ecology compared to a remote archipelago like Hawaii. Therefore, while Alternative 5 would allow large longline vessels to fish in the entire EEZ around American Samoa, NMFS does not anticipate longline fishing under Alternative 5c would result a substantial change to the frequency or severity of interaction with marine mammals compared to Alternative 4.

4.7.5.3 Seabirds

Under Alternative 5, NMFS does not anticipate the level of interactions with seabirds would dramatically increase under Alternatives 5a, 5b, 5c compared to Alternative 4. This is because since 2006, the American Samoa longline fishery has had two observed interactions with unidentified shearwaters and one interaction with an unidentified frigatebird. Additionally, shearwaters and frigatebirds have foraging distance ranging up to 400-600 km from breeding sites (Maxwell and Morgan, 2013), and there is no additional information to suggest shearwater and frigatebird occurrence would be significantly higher closer to shore. Accordingly, there is no information to suggest higher levels of interactions would occur closer to shore.

Therefore, while Alternative 5 would allow large longline vessels to fish in the entire EEZ around American Samoa, NMFS does not anticipate longline fishing under Alternative 5c would result a substantial change to the frequency or severity of interaction with seabirds compared to Alternative 4.

4.7.5.4 Reef-Building Corals

Under Alternative 5, large longline vessels could fish closer to shore in the proximity of coral reefs compared to Alternative 4. This could increase the potential for interactions with ESA listed coral species. However, there is no information indicating large U.S. longline vessels fishing near coral reef, even during the period of time pre-dating establishment of the LVPA. This is because albacore are pelagic fish and are not found in shallow coral reef areas; hence the likelihood of large longliners fishing in these areas and impacting ESA listed species is unlikely to occur.

As discussed under Alternative 4, the offshore banks and seamounts, some of which may contain potential coral habitat, would be within the range of longline vessels. However, it is likely that the longliners would actively avoid setting close to these structures to avoid the potential for their gear becoming entangled on bottom substrate. Therefore, impacts to reef building corals from Alternative 5c are not expected to increase compared to the Alternative 4.

4.7.5.5 Scalloped Hammerhead Shark

While NMFS cannot predict the number of scalloped hammerhead shark interactions that might occur under Alternative 5, it is reasonable to expect that interactions could be similar to or even slightly higher than Alternative 4, which includes the interaction levels analyzed in the 2015 BiOp. This is because under Alternative 5, more area of the EEZ would be open to large longline vessels compared to Alternative 4. However, there is no additional information to suggest scalloped hammerhead occurrence would be significantly higher closer to shore. Accordingly, there is no information to suggest higher levels of interactions would occur under Alternative 5 compared to Alternative 4.

If the level of interactions under Alternative 5 remains within the level analyzed in the 2015 BiOp, NMFS does not expect the fishery operating under Alternative 5 would have large adverse effects on the Indo-West Pacific scalloped hammerhead DPS. However, if interactions exceed the levels anticipated in the 2015 BiOp, NMFS would reinitiate consultation under ESA to evaluate the effects of the fishery.

4.8 Impact of the Alternatives on Marine Protected Areas and Other Marine Resources

4.8.1 Impact of the No Action Alternative on Marine Protected Areas and Other Marine Resources

Pelagic longline gear by virtue of its fishing in the water column and not on the substrate means that the fishery does not have a large adverse effect on bottom habitats. Under the No-action Alternative, longline gear is not likely to come into contact with shallow seamounts or coral reef habitats.

Under the No Action alternative, most large vessels in the longline fishery would continue to be prohibited from operating in areas where shallow seamounts such as South Bank and Northeast Bank occur and within 50 nm of Swains Atoll. A low level of longline fishing currently occurs in or near these areas, and despite that, there have been no reported incidents of gear loss or vessel groundings or significant discharge of oil or other pollutants into the marine environment. In the past, prior to the establishment of the LVPA areas and the Rose Atoll MNM, there were no reported incidents of gear loss or vessel groundings. Thus, the No Action Alternative is unlikely to have any impacts on coral reefs or on corals listed under the Endangered Species Act. Further, longline fishing is not having any discernable impact on resources in the American Samoa National Marine Sanctuaries or the Rose Atoll Marine National Monument, and due to rare instances of gear loss, not believed to be having an adverse impact on essential fish habitat (EFH) or habitat areas of particular concern (HAPC).

There are no known districts, sites, highways, structures or objects that are listed in or eligible for listing under the National Register of Historic Places within federal waters of American Samoa where longline fishing activities are conducted. Longline fishing in marine protected areas and the Rose Atoll Marine National Monument would continue to be restricted by Territorial and Federal laws, and fishing in general will continue to be subject to federal logbook

reporting, VMS and observer placement to help to ensure the marine resources of these special areas are sustainable.

Additionally, longline is not known to be a potential vector for spreading alien species as most vessels fish within the U.S. EEZ around American Samoa. For this reason, none of the alternatives are expected to increase the potential for the spread of alien species into or within American Samoa waters.

To date, there have been no identified impacts to marine biodiversity and/or ecosystem function from the American Samoa longline fishery and none of the alternatives is expected to result in impacts to these environmental features. The proposed alternatives would not result in major changes to the American Samoa longline fishery and would not have large adverse impacts to marine biodiversity and/or ecosystem function.

4.8.2 Impact of Alternative 2 on Marine Protected Areas and Other Marine Resources

In the past, prior to the establishment of the LVPA areas and the Rose Atoll MNM, there were no reported incidents of gear loss or vessel groundings. Thus, the No Action Alternative is unlikely to have any impacts on coral reefs or on corals listed under the Endangered Species Act. Further, longline fishing is not having any discernable impact on resources in the American Samoa National Marine Sanctuaries or the Rose Atoll Marine National Monument, and due to rare instances of gear loss, not believed to be having an adverse impact on essential fish habitat (EFH) or habitat areas of particular concern (HAPC).

In addition, longline fishing is not known to be having an adverse impact on historical, archeological or cultural resources, biodiversity or ecosystem function. The fishery is managed in a manner that is intended to provide for a sustainable harvest of renewable resources.
As noted in the impacts of the No Action Alternative above, pelagic longline fishing does not have a large adverse effect on bottom habitats. As under the No-action Alternative, the pelagic longline fishery would continue to be prohibited from operating in areas where shallow seamounts such as South Bank and Northeast Bank occur and within 50 nm of Swains Atoll. Thus, under Alternatives 2a, 2b, and 2c, it is not likely to have any impacts on coral reefs habitats. Further, longline fishing is not having any discernable impact on resources in the American Samoa National Marine Sanctuaries or the Rose Atoll Marine National Monument, nor having an adverse impact on essential fish habitat (EFH) or habitat areas of particular concern (HAPC).

The American Samoa longline fishery is not having a large adverse effect on pelagic ecosystem processes, such as fish diversity or predator prey relationships. The ability for large longline vessels to fish in areas closer to Tutuila and the Manua Islands, and closer to Swains Island would not result in a large change of fishing intensity in any area, so similarly, pelagic ecosystem processes would not be affected.

Under Alternatives 2a, 2b and 2c, large longline vessels could fish closer to Tutuila and Manua Islands (within 25 nm in the north) and within 12nm from Swains Island for up to one year (Alternative 2a) three years (Alternative 2b) or no specified time period (2c). Longline fishing in

these areas is not expected to have an adverse impact on special areas including the National Marine Sanctuaries because the special coral reef resources would be at least 12 nm from where longliners may fish around Swains Island. In the past, when the waters around Swains Island were open to longline fishing, there were no known incidences of longline fishing affecting this area. Thus, impacts to marine protected areas, habitat, and other marine resources would likely be no greater than the No-action Alternative, whether the exemption is for one year, three years, or for an indeterminate period of time.

4.8.3 Impact of Alternative 3 on Marine Protected Areas and Other Marine Resources

Under this alternative, large longline vessels could fish closer to Tutuila and Manua Islands (seaward of 25 nm in the north and seaward from 20 miles to the south of Tutuila and seaward from 16 miles south of Manua) and seaward from 12nm from Swains Island for up to one year (Alternative 3a) three years (Alternative 3b) or no specified time period (Alternative 3c). Longline fishing in these areas is not expected to have an adverse impact on special areas including the National Marine Sanctuaries because the special coral reef resources would be at least 12 nm from where longliners may fish. In the past, when the waters around Swains Island were open to longline fishing, there were no known accidents with longline fishing that affected these areas.

Thus impacts to marine protected areas, habitats and other marine resources would likely be no greater than the No-action Alternative, whether the exemption is for one year, three years or for an indeterminate time period.

4.8.4 Impact of Alternative 4 on Marine Protected Areas and Other Marine Resources

Under this Alternative, large longline vessels could fish closer to Tutuila and Manua Islands and Swains Island (to within approximately 12nm from shore) for up to one year (Alternative 4a) three years (Alternative 4b) or for an indeterminate time period (Alternative 4c). Coral reefs around the American Samoa archipelago would remain outside the range of the longline vessels, which in any case would want to avoid setting where there gear might become tangled with bottom substrate. Under this Alternative, the offshore banks and seamounts, important to the troll fleet would now be accessible to longline vessels. However, it is likely that the longliners would avoid setting close to these structures to avoid their gear becoming entangled on the seamount demersal substrate. In previous years, before the LVPA was established, there was no record of longline gear becoming entangled on seamounts or demersal substrate. Thus, impacts to marine protected areas, habitats and other marine resources would likely be no greater than under the Alternative 3, whether the exemption is for one year, three years or for an indeterminate time period.

4.8.5 Impacts of Alternative 5 on Marine Protected Areas and Other Marine Resources

Under Alternative 5, large longline vessels could fish closer to shore in the proximity of coral reefs compared to Alternative 4. This could increase the potential for interactions with ESA listed coral species. However, there is no information indicating large U.S. longline vessels fishing near coral reef, even during the period of time pre-dating establishment of the LVPA.

This is because albacore are pelagic fish and are not found in shallow coral reef areas; hence the likelihood of large longliners fishing in these areas and impacting ESA listed species is unlikely to occur.

Under this alternative, the offshore banks and seamounts, important to the troll fleet would now be accessible to longline vessels. However, it is likely that the longliners would avoid setting close to these structures to avoid their gear becoming entangled on the seamount demersal substrate. In previous years, before the LVPA was established, there was no record of longline gear becoming entangled on seamounts or demersal substrate. Thus, impacts to marine protected areas, habitats and other marine resources would likely be no greater than Alternative 4, whether the exemption is for one year, three years, or for an indeterminate time period.

4.9 Impacts of the Alternatives on Fishery Participants and Fishing Communities

4.9.1 Potential Impacts of the No Action Alternative on Class C and D Longline Vessels

As described in Section 2.6, the American Samoa longline fishery is a limit entry fishery with a maximum of 60 permitted vessels. The available permits are spread among four vessel size classes. These are: Class A vessels (less than or equal to 40 ft long), Class B vessels (over 40 ft up to 50 ft long), Class C vessels (over 50 ft long up to 70 ft long), and Class D vessels (over 70 ft long). The potential effects of the alternatives considered on Class C and D vessels is described in Sections 4.9.1 to 4.9.5, while the potential effects of the alternatives considered on Class A and B vessels is described in Section 4.9.6 to 4.9.10.

Under the No Action Alternative, approximately 30,204 nm² or 25.5% of the 118,438 nm² U.S. EEZ around American Samoa is closed to large pelagic fishing vessels including both longliners and purse seiners. Under the No Action Alternative due to the presence of the LPVA, the American Samoa fishery would not change its patterns of fishing and large longline vessels would have to continue fishing predominantly within the open areas inside the U.S. EEZ around American Samoa. The large vessel sector of the fishery would thus have to continue to deal with any adverse impacts of the fishery within the current fishing grounds, including potential for catch competition between active longline vessels operating in a small EEZ, low catch rates, high operating costs, potentially prolonging the period of low economic returns from the fishery.

Personal communications from two skippers that have fished on the single vessels grandfathered to fish inside the LVPA indicate that fishing inside the LVPA has advantages such as reduced fuel costs and shorter trip lengths. Further, fishing within the LVPA can be profitable if the fish are there, but if not, then like other vessels fishing must be conducted outside the LVPA. One cited advantage is that if there are fish that move through the LPVA, they can be pursued to maintain good catches, and vessels would not have to stop their operations several miles from the LVPA boundary to avoid fishing gear drifting into the LVPA.

The No Action Alternative would maintain most longline fishing outside of the LVPA, which means that large longline vessel hook densities within the available fishing grounds are relatively high, resulting in likely catch competition between active vessels. Under the No Action alternative, therefore, there may continue to be a reduction of participation in the domestic

longline fleet in American Samoa, with concomitant negative impacts to the incomes and livelihoods of vessels crew and owners.

Fishing by a single large longline vessel which is exempt from the prohibition on fishing within the LVPA would continue under the No-action Alternative. This vessel fishes both within and outside of the LVPAs. However, confidential information on the operations of this vessel and its catch rates cannot be disclosed.

4.9.2 Potential Impacts of Alternatives 2 on Class C and D Longline Vessels

As the American Samoa longline fishery operates predominantly in waters to the north of Tutuila, the freeing up of fishing grounds around Swains should reduce competition for fish between longlines set in this area. It is expected to improve CPUE by allowing longline fishermen to 'follow the fish' and access fishing grounds within U.S. EEZ around American Samoa that otherwise would be restricted.

When it was established in 2002, the LVPA imposed some economic costs on large vessels that were excluded from fishing for pelagic species within 50 nm of the shore. For example, to fish outside the LVPA, more fuel is necessary to make fishing trips, then would have been needed prior to the establishment of the LVPA. Fuel prices increased steadily from the fishery began around 2001 (Figure 19) and this portion of the trip cost has become a much more important consideration. Recent fuel prices have been reduced are currently around the 2009 level.

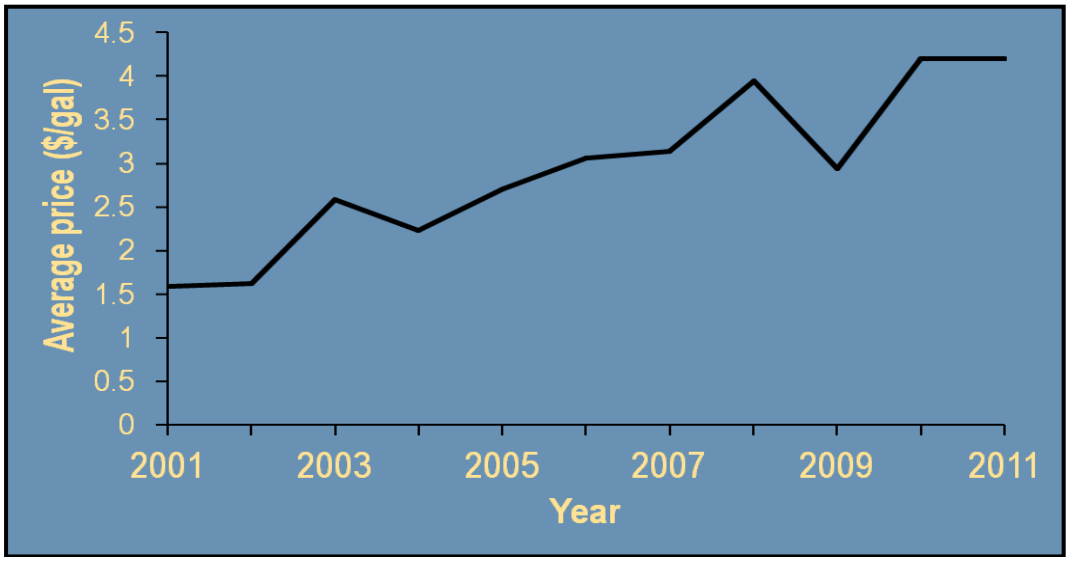

Figure 19. Average annual fuel price in American Samoa, 2001-2011
Source: American Samoa Government

Compared to the No Action alternative, under Alternatives 2a, 2b, and 2c, some larger longline vessels could see a reduction in the amount required to be spent on fuel, if they choose to fish in areas to the north of Tutuila and Manua Islands. Allowing large vessels (≥50 ft) to spread fishing effort over wider areas may reduce catch competition as noted above in Section 4.2 and thus would reduce the length of fishing trips if vessels can fill their fish holds more rapidly. Shorter

duration fishing trips would enable vessels to make more frequent fishing trips with potentially lower operating costs.

It is believed that minimal improvements to the economic efficiency of longline vessels may have larger positive effects, including the ability to amass revenue for the diversification of fishing operations. For example, American Samoa pelagic fishermen have recently been discussing innovations to their fishing techniques. However, the difficult economic conditions in the fishery may be dissuading them from trying anything new or different.

Granting access to the LPVA for 1 year is unlikely to result in any major improvement to the fishery, nor imbue it with hope and aspiration for the future. Any such benefits are more likely to be realized for an authorization of at least 3 years or unlimited period, and thus Alternatives 2b and 2c would likely have a greater economic impact on the longline fishery. A longer time horizon under 2c would provide more opportunity to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.9.3 Potential Impacts of Alternatives 3 on Class C and D Longline Vessels

Compared to the No Action Alternative, having a wider area (99,331 nm²) over which to fish for three years may be of benefit to the longline fleet, if the ability to fish in the exempted segments of the LVPA minimizes catch competition between longline vessels and thereby reducing trip lengths and minimizing costs. This alternative also frees up three bodies of water that are much closer to Tutuila than the larger fishing area around Swains. Thus this alternative has the potential to reduce travel times and trip length that would have a beneficial impact to reducing costs.

Granting access to the LPVA for 1 year versus 3 years is likely to have fewer benefits to fishery participants, nor imbue it with hope and aspiration for the future. Any such benefits are more likely to be realized for an unlimited period and thus Alternative 3c could have a greater economic impact on the longline fishery. A longer time horizon would provide more opportunity to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.9.4 Potential Impacts of Alternatives 4 on Class C and D Longline Vessels

Having a wider area (104,595 nm²) over which to fish for one to three years may be of benefit to the large vessel longline fleet, if the ability to fish in the exempted segments of the LVPA minimizes catch competition between longline vessels and thereby reducing trip lengths and minimizing costs. This alternative also frees up water that is much closer to Tutuila than the larger fishing area around Swains. Thus this alternative has the potential to further reduce travel times and trip length that would have a beneficial impact to reducing costs.

Granting access to the LPVA for 1 year versus 3 years is likely to have fewer benefits to fishery participants, nor imbue them with hope and aspiration for the future. Any such benefits are more likely to be realized for an unlimited period and thus Alternative 4c could have a greater economic impact on the longline fishery. A longer time horizon would provide more opportunity

to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.9.5 Potential Impacts of Alternatives 5 on Class C and D Longline Vessels

Having a the widest area possible (107,823 nm²) over which to fish for one year, three years or no specified time period may be of benefit to the large vessel longline fleet, if the ability to fish in the exempted segments of the LVPA minimizes catch competition between longline vessels and thereby reducing trip lengths and minimizing costs. This alternative also frees up water that is much closer to Tutuila than the larger fishing area around Swains. Thus, Alternative has the potential to further reduce travel times and trip length that would have a beneficial impact to reducing costs, compared to Alternative 4.

Granting access to the LPVA for 1 year versus 3 years is likely to have fewer benefits to fishery participants, nor imbue it with hope and aspiration for the future. Any such benefits are more likely to be realized for an unlimited period and thus Alternative 5c could have a greater economic impact on the longline fishery. A longer time horizon would provide more opportunity to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.9.6 Potential Impacts of the No Action Alternative on Class A and B Longline Vessels

Under the No Action alternative, the amount of longline fishing by medium and small longline vessels (e.g., vessels smaller than 50 ft in length) within the LVPA would remain unchanged, and would be comprised of 1-2 alias and one grandfathered large longline vessel. Even with the large area of the LVPA for their nearly exclusive use, alia vessels have proven to be largely uneconomic as evinced by the decline in the fleet to where there were was one alia fishing in 2014. Based on the current condition of the alia fleet, it will likely take several years for the alia fleet to rebuild to their former fleet size (Faasili, 2014).

4.9.7 Potential Impacts of Alternatives 2 on Class A and B Longline Vessels

Compared to the No Action Alternative, Alternatives 2a, 2b and 2c would exempt Class C and Class D vessels from about 8,400 nm^2 of the LPVA, most of it around Swains Island. The impetus for creating the LVPA was to provide a buffer between American Samoa's large (C and D) and small-scale (A and B) longline fisheries. The LVPA measure intended to maintain the potential for economically viable catches of pelagic fish in those fisheries, by disallowing larger vessels from fishing around some known banks and seamounts, which are likely to aggregate tuna. In doing so, it avoided gear conflicts between large and small vessels and encouraged domestic harvest of underutilized pelagic fishery resources at a small scale.

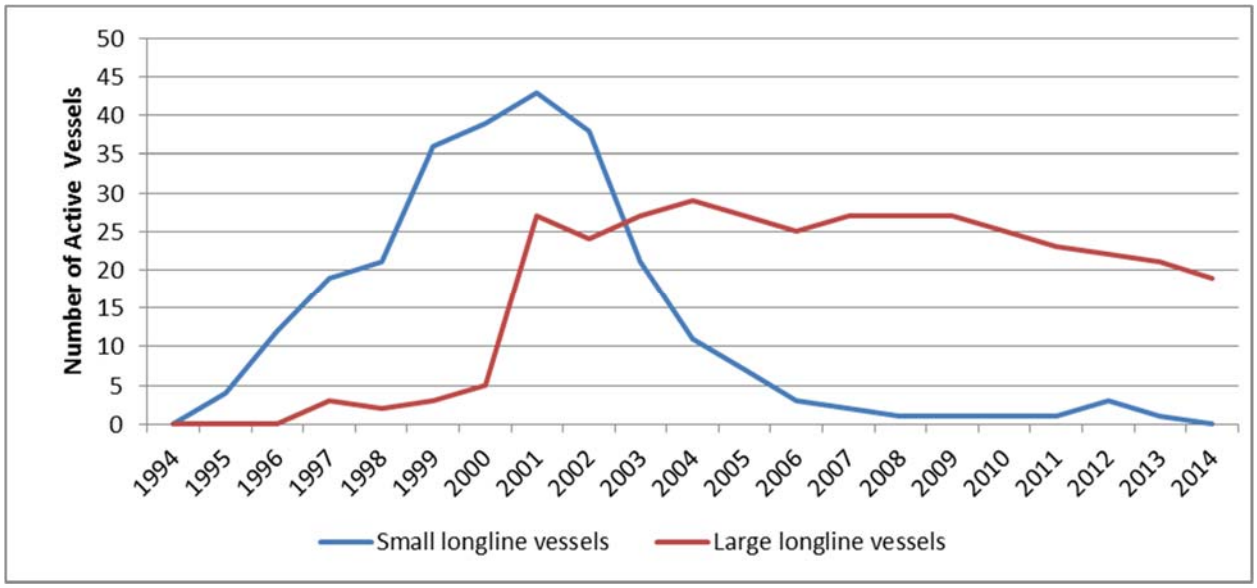

Figure 20. Fleet size of Class A and Class B longline vessels (alia catamarans) in American Samoa
Source WPFMC 2014 and unpublished data.

However, small-scale longline fishing in American Samoa has declined dramatically since its peak in 2001 (Figure 20), while the large vessel fleet peaked at about 30 vessels and now is reduced to 22 in 2013 vessels and 19 in 2014. Currently, there are no active participants in the alia fishery and it is unlikely that additional participants will enter the fishery in the near term (e.g., during the period of the LVPA exemption). Thus, there is little potential for gear conflict or catch competition between the two fishery sectors under the preliminary preferred alternative. Moreover, the purpose and need for the action that established the LVPA was to keep catch competition minimized between large and small longline vessels, which this proposed alternative would do by maintaining the longline fleet at a minimum of 25 nm from Tutuila and Manua Islands

The 50-nm area LVPA closure around Swains Island, located 210 miles north of Tutuila was established to support the development of a small-scale pelagic fishery. However, prior to the closure, the island was devastated by Hurricane Tusi in 1987 and Hurricane Val in 1991 which reduced the Swains population to about 33 families. In February 2005, Cyclone Percy struck the island, causing widespread damage and virtually destroying the village of Taulaga. Although the majority of the 200 Swains islanders living elsewhere in American Samoa wished to return home, some of them have become involved in small-scale fisheries on Tutuila and other cottage industries. As such, resettlement never occurred. Only seven people were on the island at the time of Cyclone Percy, and a Coast Guard visit in March 2007 listed 12 to 15 inhabitants. Currently, Swains continues to be inhabited by a few people throughout the year, and therefore there is no basis to consider potential impacts to a small-scale pelagic fishery around Swains Island. Finally, based on the current condition of alia vessels, it will likely take several years for the alia fleet to rebuild to their former fleet size (Faasili, 2014).

4.9.8 Potential Impacts of Alternatives 3 on Class A and B Vessels

Compared to the No Action Alternative, Alternatives 3a, 3b and 3c would exempt Class C and Class D vessels from approximately 11,600 nm^2 of water of the LPVA. Given the factors that led to the decline of the small alia longline fleet, it is unlikely that the opening of portions of the southern LVPA would affect this fleet, especially given its low level of operations in 2014. Further, based on the current condition of alia vessels it will likely take several years for the alia fleet to rebuild to their former fleet size (Faasili, 2014). It might be argued that having the larger longline fleet operating portions of the southern LVPA might act as a disincentive for the revival of an alia or similar small vessel fleet. However, the alia fleet had over a decade of protection from competition from large longline vessels during which time it went into irrevocable decline. Further, the data in suggests that catch rates throughout the U.S. EEZ around American Samoa are broadly similar, and this alternative still includes buffers between the large longline vessel fleet and any potential fishing by the alia fleet.

4.9.9 Potential Impacts of Alternatives 4 to Class A and B Longline Vessels

Compared to the No Action alternative, Alternatives 4a, 4b and 4c would exempt Class C and Class D vessels from approximately 16,818 nm^2 of the LVPA. This measure still maintains the separation of the smaller alia longliners and the conventional longliners larger than 50 ft monohull longliners. Further, there appears to be little justification for the persistence of the LVPA in its present form when the alia fleet is entirely moribund as of 2014. Further, based on the current conditions of alia vessels, it will likely take several years for the alia fleet to rebuild to their former fleet size (Faasili, 2014). If the fleet is rebuilt, the action still reserves areas exclusively for the alia and recreational vessels.

4.9.10 Potential Impacts of Alternatives 5 to Class A and B Longline Vessels

Alternatives 5a, 5b and 5c would exempt Class C and Class D vessels from 20,061 nm^2 of the LVPA. This measure maintains no separation of the smaller alia longliners and the conventional larger than 50 ft monohull longliners. However, there appears to be little justification for the persistence of the LVPA in its present form when the alia fleet is entirely moribund as of 2014. Further, based on the current performance of the alia catamarans it will likely take several years for the alia fleet to rebuild to their former fleet size (Fa'asili, 2014). Therefore, Alternative 5 is not expected to result in impacts to Class A and B vessels greater than considered in Alternative 4, the preferred alternative.

4.9.11 Potential Impacts on of the No Action Alternative on the Commercial Troll, Charter and Recreational Pelagic Vessels

The No-action Alternative would continue to maintain a geographic separation between larger longline fishing vessels and troll vessels including charter and recreational fishing vessels when they fish on offshore banks and seamounts (Figure 21).

Under the No-action Alternative, fewer than 50 troll and other small fishing vessels would continue to fish for yellowfin and skipjack tunas and billfishes using trolling gear in nearshore waters and on offshore banks.

Based on input provided to the Council during public meetings by troll fishermen, troll fishermen perceive a benefit from the separation between small vessels and longline vessels in terms of improved catches. The troll vessel fishermen believe that the LVPA offers some protection to the pelagic species they target by preventing them from being caught by longline gear.

The Council is not aware of reliable scientific information to support this belief; and the data required to confirm this is not available. Data collection for troll vessel catches in American Samoa is limited to opportunistic creel surveys conducted by the American Samoa DMWR, whereas daily federal catch logbooks are required to be completed by longline fishery participants, so the Council does have data about longline catches. Longline vessels target albacore, whereas troll vessels target yellowfin and skipjack tunas and billfishes both in nearshore waters and offshore at banks and seamounts. The seasonal, migratory nature of pelagic species limits protection that the LVPA offers to any pelagic fish species as these highly migratory fish are believed to move in and out of LVPA as well as in and out of the U.S. EEZ around American Samoa.

4.9.12 Potential Impacts of Alternatives 2 on Commercial Troll, Charter and Recreational Pelagic Vessels

Compared to the No Action alternative, Alternatives 2a, 2b and 2c exempts Class C and D vessels from about 8,400 nm^2 of the LVPA. However, this alternative still places the banks and seamounts important to the troll fishery off limits to the large longline vessels.

In scoping meetings with recreational fishery participants in February 2014, commercial troll, charter and recreational troll fishermen expressed apprehension at allowing large longline vessels to fish within portions of the current LVPA. Data from WPacFIN surveys indicates that about 40% of the troll pelagic catch comes from fishing on the banks, although about a fifth of this catch is generated from fishing around East Bank (Table 24). In order to reduce the potential for gear and catch competition with larger longline vessels, this alternative leaves in place the LVPA around the southern banks, which are important grounds for recreational and charter fishing.

Table 24. Troll catches in American Samoa from the entire fishery and from the offshore banks. Approximately 20% of the bank troll catch comes from East Bank

Year	Troll Vessels	Total Troll Catch (lb)	Total Troll Catch from Banks	Troll catch from the banks as % of total troll catch
2004	18	28,598	21,611.86	75.57%
2005	9	13,094	11,565.19	88.32%
2006	9	27,412	14,557.29	53.11%
2007	19	24,688	12,035.17	48.75%
2008	16	38,215	20,134.09	52.69%

Year	Troll Vessels	Total Troll Catch (lb)	Total Troll Catch from Banks	Troll catch from the banks as % of total troll catch
2009	10	9,867	2,862.02	29.01%
2010	7	4,599	3,462.14	75.28%
2011	10	35,205	13,634.08	38.73%
2012	9	17,856	8,552.34	47.90%
2013	13	16,764	7,864.87	46.92%
Average	12	21,630	11,628	55.63%

An exemption to fish within the LVPA to seaward from 25 nm north of Tutuila and Manua (with the exception of two grandfathered vessels) means that large longline vessels would continue to be unable to fish at Northeast Bank. Therefore, this alternative is unlikely to result in negative impacts to the small-boat pelagic fisheries in American Samoa. Details on the structure and depths of the banks is given in Table 25.

Table 25. Details on the American Samoa seamounts and banks

Bank	Extent (nm)	Depth (m)
South Bank	4.5	40
East Bank	20	200-500
Southeast Bank	Not available, comprises several small pinnacles	200
Northeast Bank	Flat topped guyot with top of 3 nm^2	100
Manua Bank	Not available, comprises several small pinnacles	100-600

Source: Ralston & Goolsby (1986).

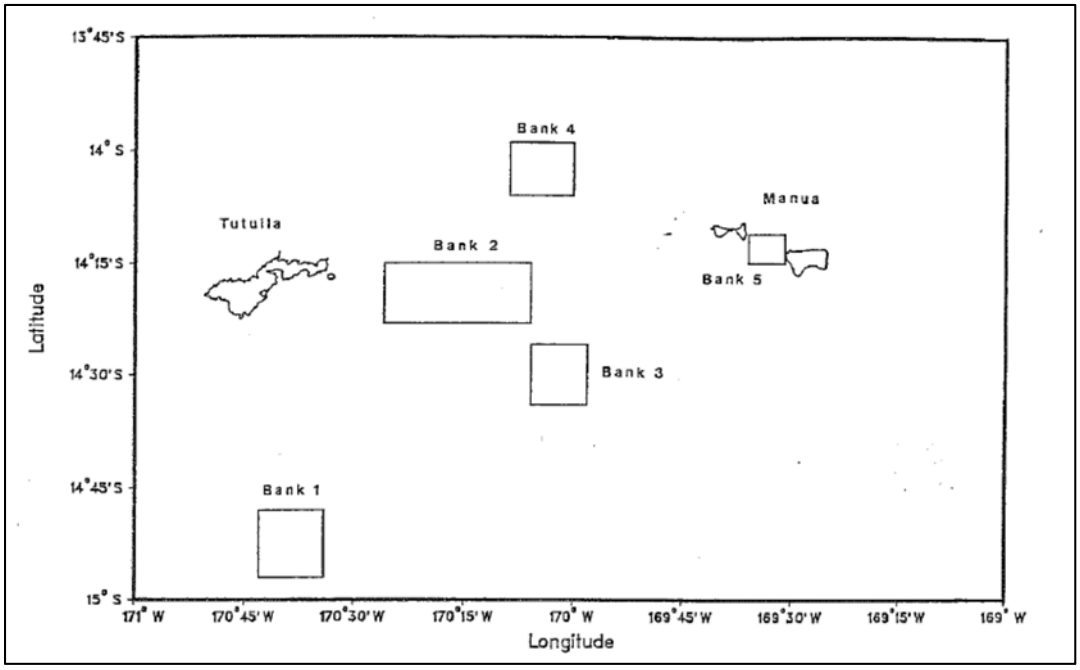

Figure 21. General locations of banks and seamounts around Tutuila and Manua Islands. Bank 1 = South Bank, Bank 2 = East Bank, Bank 3 = Southeast Bank, Bank 4 = Northeast Bank, Bank 5 = Manua Bank.

Source: Ralston & Goolsby (1986)

Skipjack and yellowfin tunas are the major components of the troll catch accounting for over 90% of the troll catch. However, data does not indicate longline fisheries are negatively affecting troll CPUE. Regressions were conducted of skipjack and yellowfin troll CPUE on skipjack and yellowfin longline catch based on the data in to determine whether longline fisheries were affecting troll fishery catches (Table 26). The regressions were not significant, but all had positive slopes, suggesting that increased longline catches of skipjack and yellowfin are coincident with higher CPUEs of the same two species in the troll fishery. This suggests that the CPUEs for both fisheries are dependent on regional availability of skipjack and yellowfin tuna. Studies from other parts of the region (Skillman et al., 1993; He & Boggs, 1996) showed no evidence of interactions and catch competition between troll and longline vessels.

Table 26. Summary of longline skipjack and yellowfin catches and skipjack and yellowfin troll CPUE in the EEZ around American Samoa

Year	Longline Catches (mt)			Troll CPUE (lb/hr)		
	Skipjack	Yellowfin	Skipjack & Yellowfin	Skipjack	Yellowfin	Skipjack & Yellowfin
1997	1.15	22.04	23.19	10.10	7.19	16.57
1998	18.43	41.97	60.40	10.80	4.89	15.36
1999	25.41	63.27	88.68	18.40	5.62	23.59
2000	14.63	86.46	101.09	14.90	4.61	18.22
2001	66.14	187.91	254.05	11.40	4.44	12.47
2002	244.27	485.41	729.69	9.03	9.83	16.40
2003	119.63	496.86	616.48	19.80	7.10	25.30

Year	Longline Catches (mt)			Troll CPUE (lb/hr)		
	Skipjack	Yellowfin	Skipjack & Yellowfin	Skipjack	Yellowfin	Skipjack & Yellowfin
2004	234.64	889.85	1,124.49	18.20	5.10	21.91
2005	141.54	522.09	663.63	13.30	9.25	23.20
2006	213.25	496.99	710.23	15.40	10.80	32.28
2007	165.66	633.37	799.03	18.20	13.40	32.05
2008	163.14	340.21	503.35	21.50	26.90	45.03
2009	155.89	393.16	549.05	11.70	14.00	13.11
2010	111.42	445.68	557.11	8.78	9.23	13.30
2011	110.38	540.67	651.05	30.50	19.10	45.35
2012	289.23	374.06	663.29	29.50	23.20	46.74
2013	63.71	414.18	477.90	13.00	11.40	22.19
mean	125.79	378.51	504.28	16.14	10.94	24.89

Source: WPFMC 2014.

4.9.13 Potential Impacts of Alternatives 3 on Commercial Troll, Charter and Recreational Pelagic Vessels

Compared to the No Action alternative, Alternatives 3a, 3b and 3c exempts Class C and D vessels from about 11,600 nm^2 of the LVPA. Having a one, three year or unspecified LVPA exemption area period may be perceived as onerous for troll vessels if they experience poor fishing conditions, regardless of whether this is from opening up of the LVPA or for other reasons. However, as noted in Section 4.9.12 there is little evidence that longline vessels directly compete with non-longline troll vessels based on data from American Samoa and studies in Hawaii (Skillman et al., 1993; He & Boggs, 1996). Moreover, this alternative still maintains buffers between the main islands of American Samoa and the banks and seamounts important to the commercial and recreational troll fisheries.

4.9.14 Potential Impacts of Alternatives 4 to Commercial Troll, Charter and Recreational Pelagic Vessels

Compared to the No Action alternative, Alternatives 4a, 4b and 4c exempts Class C and D vessels from about 16,800 nm^2 of the LVPA. Under this alternative, the larger longline vessels would be able to fish in proximity to the seamounts and banks used by troll fishermen. However, there is the disincentive of fishing too close to these submarine structures due to the possibility of longline gear being snagged on the seabed, which could result in loss of catch and gear. Having a one, three year or unspecified LVPA exemption area period may be perceived as onerous for troll vessels if they experience poor fishing conditions, regardless of whether this is from opening up of the LVPA or for other reasons. Moreover, there is little evidence that longline vessels directly compete with non-longline troll vessels based on data from American Samoa (Table 26) and studies in Hawaii (Skillman et al., 1993; He & Boggs, 1996).

4.9.15 Potential Impacts of Alternatives 5 on Commercial Troll, Charter and Recreational Pelagic Vessels

Alternatives 5a, 5b and 5c would exempt the Class C and D fishing vessels from the entire LPVA, freeing up a total of just over 20,000 nm^2 of waters for fishing. Under Alternative 5, the larger longline vessels would be able to fish in proximity to the seamounts and banks used by troll fishermen. However, there is the disincentive of fishing too close to these submarine structures due to the possibility of longline gear being snagged on the seabed, which could result in the loss of catch and gear. Having a one, three year or unspecified LVPA exemption area period may be perceived as onerous for troll vessels if they experience poor fishing conditions, regardless of whether this is from opening up of the LVPA or for other reasons. There is little evidence that longline vessels directly compete with non-longline troll vessels based on data from American Samoa (Table 26) and studies in Hawaii (Skillman et al., 1993; He & Boggs 1996). However, under Alternative 5, large longline vessels could fishing in areas where small boat fleet activities are frequently conducted and concentrated, and could result in gear conflicts between large and small vessels. Such conflicts would be minimized or avoided altogether under Alternatives 1-4.

4.9.16 Potential Impacts of all Alternatives to Local Canneries

The No Action alternative may affect supply of albacore to the fish processing sector in American Samoa, which may have to buy albacore from foreign fleets. Any reduction in supplies of albacore to the Pago Pago canneries from the American Samoa fleet may create problems. StarKist, for example, supplies the U.S. Military with white meat (albacore) tuna products, whereby U.S. military seafood meals are required to be sourced from catch by U.S. vessels. Reduced production of the albacore by the American Samoa longline fishery also reduces the potential for the fishery to obtain eco-label certification which can lead to higher ex-vessel prices and reduces potential for the development of niche products that could be produced in the local canneries.

Consequently, any increased production of albacore under Alternatives 2-5 will likely have a positive impact on the StarKist cannery in meeting its contractual obligations to the U.S. military and the potential for the fishery to obtain eco-label certification.

4.9.17 Potential Impacts of All Alternatives on Fishermen's Safety at Sea

None of the alternatives, including the No Action Alternative, are likely to have any implications for safety at sea for fishermen. Federal management provisions applicable to the American Samoa longline fishery is not known to be having adverse public safety impacts including for any fishery participant. Current fishery regulations are not resulting in increased likelihood of racing to fish or collisions among vessels.

4.10 Impacts of the Alternatives on Enforcement and Administration

4.10.1 Impacts of the No Action Alternative on Enforcement and Administration

Under the No Action Alternative, the existing enforcement and administration burden s are expected to continue, whether the fishery trajectory remains the same, declines, or improves somewhat. Among the administrative and enforcement activities are: routine random gear compliance checks, periodic at sea monitoring of fishing regulation compliance by NOAA NMFS OLE and the U.S. Coast Guard. Additionally, large longline vessels must carry onboard an operational vessels monitoring system which allows NMFS enforcement and the U.S. Coast Guard to track vessel positions at all times.

4.10.2 Impacts of Alternative 2 on Enforcement and Administration

Compared to the No Action alternative, Alternatives 2a, 2b, and 2c would require a change to regulations and a need to coordinate among fishery management entities, scientists, fishermen, enforcement agencies, and the public. All of the alternatives would require public funds to be expended for both implementation of an exemption as well as the termination of the exemption. Under Alternatives 2a and 2b, the costs would be less than Alternative 2c because the initial rulemaking could include the environmental and compliance review of termination of the exemption because the termination date would be known and potential impacts are likely to be understood. Alternative 2c would require public funds to be expended for implementation, ongoing programmatic review of the fishery operating under the exemption, and for rulemaking including compliance at such time as the exemption may be terminated or otherwise modified. All three sub-alternatives will necessitate coordination between the Council, NMFS, NMFS OLE and the USCG to help promote an understanding of the exemption provision by both the regulatory agencies and fishermen.

All vessels > 50 ft in the American Samoa longline fleet must carry a VMS beacon so none of the sub-alternatives would create a large and additional enforcement burden, other than understanding the exemption boundaries within the VMS monitoring program. Routine fishery enforcement patrols would continue and enforcement officers would be able to evaluate the gear being used in order to distinguish between exempted longline fishing and illegal purse seine fishing, so enforcement would not be highly adversely affected.

In addition, under this and all subsequent action alternatives, all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks would continue as under current enforcement, compliance, and monitoring programs.

4.10.3 Impacts of Alternatives 3 on Enforcement and Administration

Compared to the No-action alternative, Alternatives 3a, 3b and 3c will create some additional administrative burden for NMFS since new temporary boundaries will need to be established in the regulations for the LVPA, i.e., seaward of 25 nm north from Tutuila and Manua, south of Tutuila and Manua, and seaward from 12 nm around Swains for one or three years. This

alternative will necessitate coordination between the Council, NMFS, NMFS OLE and the USCG to ensure that the new exemption boundaries are understood by fishermen.

All vessels > 50 ft in the American Samoa longline fleet must carry a VMS beacon so that there would likely be little extra enforcement burden, other than noting the exemption boundaries within the VMS monitoring program. In addition, under this and all subsequent alternatives all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks would continue.

The administrative burden of providing an exemption from the LVPA to large longline vessels are not considered large. However, there would be little benefit to making the exemption for a one year period only. Any economic benefits to the longline fishery from the exemptions are more likely to be realized cumulatively over a three year or longer period than a one year period or no specified time period. A three year or longer time horizon provides more opportunity to evaluate the economic impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

Another aspect of the exemption process to consider is if the Council decides it would like to maintain the exemptions for longliners within the LVPA. If the exemptions are for one year only then it is highly unlikely that the requisite documentation and rulemaking would be completed so that there would be a seamless transition from the initial sunset date and the new period for exemption. Further, even with an initial three year exemption, there is no guarantee that such a seamless transition would happen. As such Alternative 3c, which has no sunset provision, may be the most optimal for the Council to review all information available, conduct public hearings prior to additional documentation and rulemaking.

4.10.4 Impacts of Alternatives 4 on Enforcement and Administration

Compared to the No-action Alternative, Alternatives 4a, 4b and 4c would create some additional administrative burden for NMFS since new boundaries would need to be established in the regulations for the LVPA, i.e., seaward from 12 nm around Swains, Manua, and Tutuila, for one or three years or for an indeterminate time period. This alternative would necessitate coordination between the Council, NMFS, NMFS OLE and the USCG to ensure that the new exemption boundaries are understood by both the regulatory agencies and fishermen.

All vessels > 50 ft in the American Samoa longline fleet must carry a VMS beacon so that there would likely be little extra enforcement burden, other than noting the exemption boundaries within the VMS monitoring program. In addition, under this and all subsequent alternatives all monitoring measures such as logbooks, dockside inspections by the USCG and NMFS OLE, observer placement and catch and release protocols for turtles, seabirds, cetaceans and sharks would continue.

The administrative burden of amending federal regulations to provide an exemption to the LVPA for large longline vessels would be the same regardless of the alternative and time period selected. As described above, any benefits are more likely to be realized for a three year or

longer period than a one year period and thus would have a greater benefit for the longline fishery. A three year or longer time horizon would provide more opportunity to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.10.5 Impacts of Alternatives 5a, 5b and 5c on Enforcement and Administration

Under Alternative 5a, 5b or 5c, exempting large longline vessels from fishing restrictions of the LVPA, in its entirety for one year, three year, or for an indefinite time period, respectively, would reduce the enforcement burden, either temporarily or for a longer time period, since the only closed area would be the Rose Atoll Marine National Monument. All large vessels 50 ft and longer, including longliners would be free to fish at liberty in all other parts of the U.S. EEZ around American Samoa. The administrative burden of amending federal regulations to provide an exemption to the LVPA for large longline vessels would be the same regardless of the alternative and time period selected. As described above, any benefits are more likely to be realized for a three year or longer period than a one year period and thus would have a greater cumulative impact on the longline fishery. A three year or longer time horizon provides more opportunity to evaluate the impact of the LVPA boundaries under a variety of different environmental and socio-economic conditions.

4.11 Other Impacts of All Alternatives

4.11.1.1 Climate Change Considerations

Climate change is not known to be having a large impact on the status of stocks caught by the American Samoa longline fishery. Monitoring of stock status would continue and impacts to stocks that might be occurring as a result of climate change are likely to be detected and modifications could be made to fishery management provisions to ensure that all fisheries, including American Samoa fisheries, remain sustainably managed. See section 4.12.12 below for additional analysis related to climate associated with ocean productivity.

4.11.1.2 Environmental Justice Considerations

Regardless of whether the fishery remains the same, declines substantially, or improves to recent levels, the American Samoa longline fishery is not known to be having and is not expected to have disproportionately large or adverse environmental or health impacts on members of minority or low income communities in American Samoa.

4.12 Cumulative Effects

The Magnuson-Stevens Act and NEPA require analysis of the potential cumulative effects of a proposed action, as well as the cumulative effects of the alternatives to the proposed action. Under NEPA, cumulative effects are defined as those combined effects on the human environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what Federal or non-Federal agency or person undertakes such other actions (40 CFR 150.8.7). The following

cumulative effects analysis is organized by the following issues: target and non-target species, protected species, fishery participants and communities.

4.12.1 Target and Non-Target Species

4.12.1.1 Past, Present, and Reasonably Foreseeable Management Actions

Pelagic FEP

Measures adopted by the Council but not yet implemented by NMFS

A. Modification of the American Samoa Limited Entry Permit Program. Final Action Taken at 150th Council Meeting in March 2011

Large vessels, 50 ft and longer comprise > 95% of the American Samoa longline fishery in 2011. The lack of small vessel participation in the longline fishery is of concern to the Council, because this fleet, when active, is believed by the Council to provide a primary pathway for sustained community and indigenous American Samoan participation in the fishery. When the Council transmits a completed amendment document, and if approved by NMFS, the action would combine the four vessels size classes into just two classes A (vessels < 50 ft) and B (vessel > 50 ft). The action would also reduce the minimum landing requirement for vessel size class A from 1,000 lb to 500 lb per three-year period, and limit permit eligibility to U.S. citizens and nationals, with no other qualifying criteria (i.e., documented history in the fishery would no longer be required). The prior history ranking system is maintained if there are two or more applications for the same available permit.

B. American Samoa Shallow-Set Longline Fishery for Swordfish, Final Action at 153 CM, March 2102, sent to NMFS-PIRO for Review in May 2012 (requires an Environmental Impact Statement and separate Biological Opinion)

The final rule implementing gear modifications to minimize sea turtle interaction for the American Samoa longline fishery (see 1. A) requires all hooks set by the fishery to be deeper than 100 m. This eliminates the possibility of shallow-set targeting of South Pacific swordfish, which was conducted on a limited scale in 2006 and 2007, prior to the management action. One of the main concerns about shallow-set longlining is its potential to interact with protected species of sea turtles and seabirds, resulting in bycatch and unintentional mortality. The preferred alternative would amend the PFEP to permit the use of shallow-set longline fishing to target swordfish employing the full suite of mitigation measures required for sea turtle mitigation in the Hawaii shallow set fishery, but without the interaction limits for loggerhead and leatherback turtles, and no specific seabird mitigation measures. However, because shallow set fishing (deploying longline hooks shallower than 100 m) is prohibited under current federal regulations, and the Council has not yet developed an amendment to the Pelagic FEP explain how allowing shallow-set longline fishing could be achieved, this recommendation is not reasonably foreseeable and is not considered in the cumulative impact analyses.

C. American Samoa Longline Swordfish Trip Limit, Preliminary Action June 2013

The final rule implementing gear modifications to minimize sea turtle interaction for the American Samoa longline fishery requires all hooks set by the fishery to be deeper than 100 m. Part of that measure was to implement a trip limit of 10 swordfish that may be retained per trip as a disincentive for fishermen to set hooks shallower than 100 m. The limit was adopted directly from the Hawaii longline fishery as a disincentive for fishermen to surreptitiously switch from deep setting to shallow setting on unobserved trips and thus maximize swordfish catches. American Samoa fishermen have asked that the current trip retention limit of 10 swordfish be increased, as it was in the Hawaii deep set longline fishery once that fishery was required tom use only circle hooks. American Samoa longline fishermen are suffering economic hardship from an economic downturn in the albacore longline fishery and do not want to discard economically important species which could be sold locally.

D. *U.S. Territorial Catch and Fishing Effort Limits*

On October 28 2014, NMFS published the final rule for Amendment 7 to the Pelagics FEP, which implements a management framework for specifying catch and effort limits and accountability measures for pelagic fisheries in the U.S. Pacific territories of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI). Using the established framework, the Council has recommended NMFS specified a catch limit of 2,000 metric tons (mt) of longline-caught bigeye tuna for each territory for 2015, including American Samoa. The Council also recommended NMFS authorize each US territories to allocate up to 1,000 mt of their 2,000 mt limit to eligible U.S. longline fishing vessels from another U.S. territory or Hawaii through a specified fishing arrangement. The proposed 2015 catch and allocation limit recommendations are identical to those that NMFS specified for each U.S. territory in 2014.

Although the Council has not yet developed amendments to the Pelagic FEP, or associated environmental impact analyses describing how the American Samoa longline fishery would be conducted under recommendations A, C and D, NMFS does not expect such recommendations would result in a substantial change in the operation of the fishery. This is because the recommendations are not expected to increase the number of vessels authorized to participate in the fishery, the level of fishing effort, or the level of catch beyond the level described in section 3. For these reasons, NMFS expects fishery operations under these reasonably foreseeable actions would be similar to the current operation of the fishery described in section 3 and analyzed in Section 4.

Western and Central Pacific Fisheries Commission

The Western and Central Pacific Fisheries Commission (WCPFC) was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention) which entered into force on 19 June 2004. Members of the Commission include: Australia, China, Canada, Cook Islands, European Union, Federated States of Micronesia, Fiji, France, Japan, Kiribati, 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, and Vanuatu. Participating

Territories of the Commission include: American Samoa, Commonwealth of the Northern Mariana Islands, French Polynesia, Guam, New Caledonia, Tokelau, Wallis and Futuna. Cooperating non-members include: Belize, Indonesia, Senegal, Mexico, El Salvador, Ecuador, and Vietnam. The WCPFC area of competence is shown in Figure 22.

In 2005, the WCPFC agreed on a conservation and management measure for South Pacific albacore whereby Commission Members, Cooperating Non-Members, and participating Territories (CCMs) are to not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above current (2005) levels or recent historical (2000-2004) levels (CMM 2005-02). The conservation and management measure also includes a provision whereby the requirement to cap the level of fishing vessels described above shall not prejudice the legitimate rights and obligations under international law of small island developing State and Territory CCMs in the Convention Area for whom South Pacific albacore is an important component of the domestic tuna fishery in waters under their national jurisdiction, and who may wish to pursue a responsible level of development of their fisheries for South Pacific albacore.

WCPFC has also agreed on conservation and management measures for Southwest Pacific swordfish, bigeye and yellowfin, Southwest Pacific striped marlin, bluefin, sea turtles, seabirds, and sharks. See http://www.wcpfc.int/conservation-and-management-measures for more information.

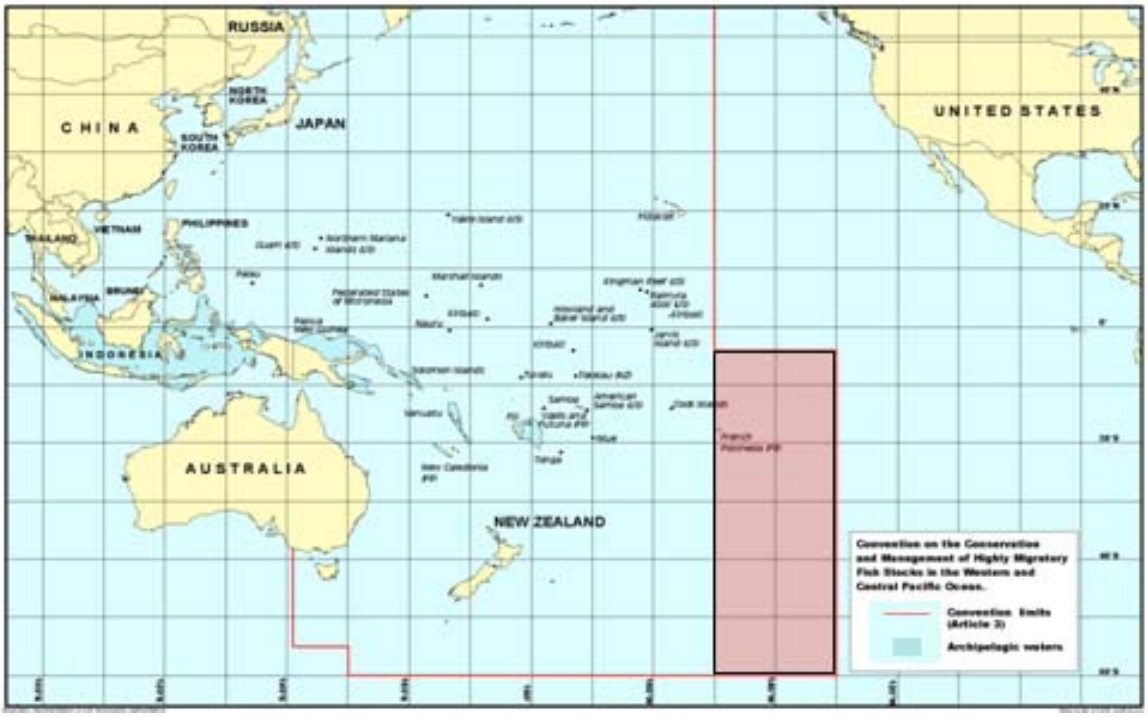

Figure 22: Map of the WCPFC Area of Competence.

4.12.1.2 Exogenous Factors Affecting Target Species and Non-Target Species

Fluctuations in the pelagic ocean environment

Catch rates of pelagic fish species fluctuate in a time and space in relation to environmental factors (e.g., temperature) that influence the horizontal and vertical distribution and movement patterns of fish. Cyclical fluctuations in the pelagic environment affect pelagic habitats and prey availability at high frequency (e.g., seasonal latitudinal extension of warm ocean waters) and low-frequency (e.g., ENSO-related longitudinal extension of warm ocean waters). Low or high levels of recruitment of pelagic fish species are also strongly related to fluctuations in the ocean environment.

The effects of such fluctuations on the catch rates of pelagic MUS obscure the effects of the combined fishing effort from Pacific pelagic fisheries. During an El Niño, for example, the purse seine fishery for skipjack tuna shifts over 1,000 km from the western to central equatorial Pacific in response to physical and biological impacts on the pelagic ecosystem (Lehodey et al., 1997). Future ocean shifts are likely to cause changes in the abundance and distribution of pelagic fish resources, which could contribute to cumulative effects. For this reason, accurate and timely fisheries information is need to produce stock assessments that allow fishery managers the ability to regulate harvests based on observed stock conditions.

Ocean productivity related to global climate change

The global mean temperature has risen 0.76° C over the last 150 years, and the linear trend over the last 50 years is nearly twice that for the last 100 years (IPPC, 2007a). Climate change effects are already being observed on a wide range of ecosystems and species in all regions of the world (Walther et al., 2002; Rosenzweig et al., 2007). There is a high confidence, based on substantial new evidence, that observed changes in marine systems are associated with rising water temperatures, as well as related changes in ice cover, salinity, oxygen levels, and circulation. These changes include shifts in ranges and changes in algal, plankton, and fish abundance (IPPC, 2007b).

The seasonal north-south movements of many large pelagics appear to track the similar peak migration of primary productivity. Using remotely-sensed chlorophyll[14] concentrations from satellite observations, Polovina et al. (2008) found that over the past decade, primary productivity in the North Pacific Subtropical Transition Zone has declined an average of 1.5% per year, and a 3% per year decline occurring at the southern limit of the transition zone. The expansion of the low chlorophyll waters is consistent with global warming scenarios based on increased vertical temperature stratification of the world's oceans in the mid-latitudes. Expanding oligotrophic[15] portions of large subtropical gyres, will in time lead to a reduction in chlorophyll density and carrying capacity in these oceanic features, which will impact the abundance of pelagic species.

[14] Chlorophyll is the green pigment found in phytoplankton that absorbs light energy to initiate the process of photosynthesis.
[15] Meaning waters where relatively little plant life or nutrients occur, but are rich in dissolved oxygen.

A recent study using an the spatial ecosystem and population dynamics model[16] (SEAPODYM), suggests that by the end of this century, ocean temperatures in the WCPO will increase to levels that will not support bigeye populations in the WCPO (J. Sibert, PFRP, pers. comm. July 2008). An international program called CLIOTOP (climate impacts on oceanic top predators) is currently gathering information on climate change and its effects on pelagic ecosystems. Within this group, the SEAPODYM model is being applied to investigate the future management of tuna stocks and other highly migratory species in the context of climate and ecosystem variability, as well as to investigate potential changes due to greenhouse warming.

The Council and NMFS will continue to obtain and consider impacts of climate change on fish stocks under its management purview and will include consideration of these impacts in stock assessments and fishery management actions. For these reasons, climate change impacts are not expected to increase impacts of the proposed alternatives on fish stocks caught by any fishery in American Samoa.

Catches of South Pacific Albacore

The most recent assessment of South Pacific albacore was conducted in 2012 by Hoyle et al. (2012). The assessment used the integrated stock assessment model known as MULTIFAN-CL (or MFCL), under the assumption that there is a single stock of albacore in the South Pacific Ocean. The model was age (20 age-classes) structured and the catch, effort, size composition and tagging data used in the model were classified by 30 fisheries and quarterly time periods from July 1960 through June 2011. The assessment included a range of model options and sensitivities that were applied to investigate key structural assumptions and sources of uncertainty in the assessment.

The estimated stock status was similar to 2009 and 2011 estimates. The fishing mortality reference point $F_{current}/F_{MSY}$ had a median estimate of 0.21, (90% CI 0.04-1.08) and on that basis it was concluded that there is low risk that overfishing was occurring. The corresponding biomass-based reference points, $B_{current}/B_{MSY}$ and $SB_{current}/SB_{MSY}$, were estimated to be above 1.0 (median 1.6, 1.4-1.9, and median 2.6, 1.5-5.2 respectively), and therefore the stock is not in an overfished state.

The median estimate of MSY from the structural sensitivity analysis (99,085 mt, 46-560 – 215,445) was comparable to the recent levels of (estimated) catch from the fishery ($C_{current}$ = 78,664 mt, C_{latest} = 89,790 mt).

There was no indication that current levels of catch are causing recruitment overfishing, particularly given the age selectivity of the fisheries. However, longline catch rates are declining, and catches over the last 10 years have been at historically high levels and are increasing. These trends may be significant for management.

[16] The model based on advection-diffusion-reaction equations explicitly predicts spatial dynamics of large pelagic predators, while taking into account data on several mid-trophic level components, oceanic primary productivity and physical environment.

4.12.1.3 Cumulative Impacts to Target and Non-Target Stocks

The American Samoa longline fishery is capped at 60 vessels under the limited entry program, but only 28 vessels (mostly in Classes C and D) have been active since NMFS and the Council established the program in 2004. None of the alternatives considered in this document are expected to change any American Samoa pelagic fishery substantially, with respect to participation, fishing effort or level of catch. However, with the exception of Alternative 5, the preferred alternative (Alternative 4c) would provide large longline fishing vessels the most potential area to fish and for the longest duration, which could result in positive benefits from increased CPUEs of albacore. No large changes are expected for the American Samoa troll fishery under any of the alternatives considered.

Given that the stocks of target and non-target species caught by the longline fishery are generally in good condition (with the exception of WCPO bigeye tuna), the small potential increase yield from the fishery under Alternatives 2-5 would have negligible impacts even when added to impacts by other fisheries and the environment on the stocks.

The potential additive impacts of the alternatives considered in combination with the impacts past, present, and future actions as well as exogenous factors are not expected to result in any significant cumulative impacts on target and non-target stocks.

4.12.2 Protected Species

4.12.2.1 Past, Present, and Reasonably Foreseeable Management Actions

ESA and MMPA

In the late 1970s, NMFS and the USFWS listed all five sea turtles species that occur in the U.S. EEZ as either threatened or endangered pursuant to the ESA (43 FR 32800). The ESA offers Federal protection to species that are displaying population trends that make them vulnerable to extinction.

The Marine Mammal Protection Act (MMPA) requires FMP-regulated fisheries be evaluated by NMFS for impacts on marine mammals and be designated as Category I, II, or III (with Category III having the lowest impact). The fishery classification criteria consist of a two-tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock, and then addresses the impact of individual fisheries on each stock. Under existing regulations (Appendix 2), all fishermen participating in Category I or II fisheries must register under the MMPA, obtain an Authorization Certificate, pay a fee of $25, and report any interactions with marine mammals. Additionally for Category I fisheries, fishermen may be subject to a take reduction plan and requested to carry an observer. The American Samoa longline fishery is classified as Category II fishery.

Pelagics FMP/FEP

See Section 4.12.1.1 for a description of reasonably foreseeable fishery management measures adopted by the Council but not yet approved by NMFS.

4.12.2.2 Exogenous Factors Affecting Sea Turtles and Marine Mammals

Existing threats that are common to all species of sea turtles include:

- human use and consumption- legal and illegal harvest of adults, juveniles and/or eggs
- sea turtle nesting and marine environments, including directed takes, predation, and coastal habitat development
- marine debris (entanglement and ingestion)
- incidental capture in fisheries (trawl, gillnet and longline);
- fluctuations in the ocean environment
- climate change

External factors affecting other marine mammals such as whales and dolphins include the following: (a) incidental take in fisheries; (b) collisions with ship traffic, ship disturbance, and ship noise, and (c) marine debris and waste disposal.

4.12.2.3 Cumulative Impacts to Protected Species

The American Samoa longline fishery is capped at 60 vessels under the limited entry program, but only 22 vessels (mostly in Classes C and D) have been active as of 2012 (WCPFC 2012; WCPFC in prep.). The impacts of all the alternatives considered when added to the impacts of past, present, and future actions, and exogenous factors are not expected to adversely affect the status of protected species. This is because NMFS expects fishery operations under these reasonably foreseeable actions and future conditions would be similar to the current operation of the fishery described in section 3 and analyzed in Section 4.

No large-and-adverse or large-and-positive cumulative effects are expected for any of the alternatives considered. There is no known large adverse impact to these areas from past, present and reasonably foreseeable actions including the alternatives under consideration.

4.12.3 Fishery Participants and Fishing Communities

4.12.3.1 Past, Present, and Reasonably Foreseeable Future Actions

See Section 4.12.1.1 for a description of reasonably foreseeable fishery management measures adopted by the Council but not yet approved by NMFS.

4.12.3.2 Exogenous factors affecting Fishery Participants and Fishing Communities

There are wide-ranging factors (that change over time) that affect fishing participants as well as fishing communities. Current factors include high fuel costs, increased seafood imports, and restricted access to traditional fishing grounds. High fuel costs affect fishing participants in that

it is simply increasingly expensive to go fishing. The effect is that fishery participants reduce fishing trips, switch to less fuel-intensive fisheries, or simply do not go fishing at all. These effects are believed to have resulted in the decline of the small vessel alia fishery in American Samoa.

4.12.3.3 Cumulative Impacts to Fishery Participants and Fishing Communities

None of the alternatives considered in this document are expected to change any American Samoa pelagic fishery substantially, with respect to participation, fishing effort or level of catch. The additive effect of the alternatives considered coupled with past, present, and future actions may have positive impacts on active large longline fishery participants. However, none of the alternatives may improve the ability of fishery participants to overcome exogenous factors impacting fishery participants such high operating costs and low ex-vessel fish prices. There would not be environmental impacts from any of the alternatives considered that would interact with fishing communities to result in a large socio-economic impact on other fisheries or members of fishing communities.

5 Consistency with the Magnuson-Stevens Act and Other Applicable Laws

5.1 Magnuson-Stevens Act National Standards

Section 301 of the Magnuson-Stevens Act requires that regulations implementing any FMP or FMP amendment be consistent with the ten national standards listed below.

National Standard 1 states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The preferred alternative is consistent with National Standard (NS) 1 as it will not lead to overfishing of South Pacific albacore nor lead the stock to become overfished. As noted in section 3.1.5.3, the problems associated with sub equatorial longline fisheries across the South Pacific could be due to depletion of adult albacore stocks within EEZs of Pacific Island countries, including the U.S. EEZ around American Samoa. The stock status of South Pacific albacore continues to be healthy, with stock-wide fishing mortality at 20% of that generating MSY, while catches are at about the MSY.

Catches by the American Samoa longline fishery are not leading to overfishing of skipjack and yellowfin, which, according to recently assessments are not being overfished nor subject to overfishing. Bigeye tuna continues to be subject to overfishing. The WCPFC has established a longline catch limit for WCPFC member countries in 2015. While the limit does not apply to participating territories, including American Samoa, the Council has recommended NMFS implement, through a separate action, a catch limit of 2,000 mt of longline caught bigeye tuna for each U.S. territory in 2015, and authorize each territory to allocated half of that limit to U.S. longline vessels in another territory or Hawaii through a specified fishing agreement as authorized under Amendment 7 to the Pelagic FEP (WPFMC, 2013). Historically, bigeye tuna

catches by the American Samoa longline fishery, including allocated catches have been well below this 2,000 mt limit (NMFS 2015e).

National Standard 2 states that conservation and management measures shall be based upon the best scientific information available.

The preferred alternative is based on the best scientific information available, including the most recent stock assessment and information on catches in the American Samoa longline fishery, and observer data on protected species interactions and information obtained from published reports and articles, as well as recommendations from the Council's Scientific and Statistical Committee. Exclusion of purse seine vessels from the proposed exemption is consistent with National Standard 2. The purse seiners currently catch less skipjack and yellowfin than the longline fleet in the U.S. EEZ around American Samoa (Table 1 and Table 26). However, purse seiners catch fish predominantly in the upper surface layers of the water column and may take fish which would have been available to the troll fishery. Longline vessels by contrast fish at 100-400 m catching fish not available to the troll fleet. As such, the continued separation of the purse seine fishery from the small vessel troll fleet will continue to minimize catch competition between trollers and the purse seiners.

National Standard 3 states that, to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The preferred alternative is consistent with the concept of managing a stock throughout its range. The impact analysis considers stock assessments for the South Pacific Albacore stock, as well as stock status for other target and non-target stocks as a whole.

National Standard 4 states that conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred alternative is consistent with NS 4 in that it does not discriminate between residents of different states and applies to all American Samoa limited entry permit holders of vessels ≥ 50 ft. The purpose of the measure is to promote conservation of albacore and to assist the American Samoa longline fishery, which has recently experienced low catches and poor economic returns. The purse seiners do not fish for albacore and typically fish over large areas of the WCPO so their exclusion from the LPVA will have minimal impact to their operations. Further, as noted above, purse seiners catch fish predominantly in the upper surface layers of the water column and may take fish, which would have been available to the troll fishery. Longline vessels by contrast fish at 100-400 m catching fish not available to the troll fleet. As such, the continued separation of the purse seine fishery from the small vessel troll fleet will continue to minimize catch competition between trollers and the purse seiners.

National Standard 5 states that conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

An efficient fishery should harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where conservation constitutes wise use of all resources involved in the fishery, not just fish stocks. Restrictive measures that unnecessarily raise any of those costs move the regime toward inefficiency.

In this instance the LVPA cuts off substantial areas of water in the U.S. EEZ around American Samoa for no net gain to the majority of the fishing community. Further, the very fishery that led to the creation of the LVPA has become entirely defunct, thus the measure has no purpose. Concerns from the troll fishermen are relatively recent stemming from the request to the Council to let large longline vessels have access to the LVPA. However, as noted in the analysis of the alternatives (Section 4.9.12), there is no evidence that indicates longline fishing negatively affects CPUE of target species of the American Samoa troll fishery (i.e., skipjack and yellowfin tuna).

Further, unless the use of inefficient techniques or the creation of redundant fishing capacity contributes to the attainment of other social or biological objectives, an FMP may not contain management measures that impede the use of cost-effective techniques of harvesting, processing, or marketing. Thus the preferred alternative is consistent with NS 5 since it is intended to promote the continuity of the American Samoa longline fishery and maintain a supply of albacore for the Pago Pago cannery, and fresh fish for domestic markets in American Samoa, and promote achievement of optimum yield of albacore.

National Standard 6 states that conservation and management action shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources and catches.

As noted in Section 1.2, the LVPA was established in 2002 to prevent the potential for gear conflicts and catch competition between large fishing vessels and locally based small fishing vessels (67 FR 4369; January 30, 2002). The measure was established as a framework action to the Pelagic FEP that could be adjusted in response to changing regulatory, economic or environmental conditions, and was previously adjusted to conform to the boundary of the Rose Atoll Marine National Monument (77 FR 34260, June 11, 2011).

Given the decline of the small vessel fleet in American Samoa, the conditions that existed at the time the LVPA was originally established no longer exists. Additionally, the large longline fleet is experiencing difficulty in catching albacore and faced with increasing operation costs.

The preferred alternative is consistent with NS 6 since it responds to the changing conditions in the fishery and fishery resources.

National Standard 7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternative is consistent with NS 7 as it is the most practicable and among the least costly alternative that can be conducted, beyond No Action Alternative, to promote the continuity of the American Samoa longline fishery. In developing the management option, the Council sought to minimize costs of the regulation for both the agencies and the fishery and avoided unnecessary duplication.

National Standard 8 states that conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

The preferred alternative is consistent with NS 8 whereby ensuring the continuity of the American Samoa longline fishery provides for the sustained participation of the American Samoa community. The Council and NMFS considered the potential economic impacts and balanced competing needs of small and large vessels fleet in a manner that would not result in large adverse economic impacts to any sector of the American Samoa fishing community.

National Standard 9 states that conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided minimize the mortality of such bycatch.

The preferred alternative is consistent with NS 9 in that it will not modify the fishing operations of the American Samoa longline fishery, and should not lead to any dramatic increases in bycatch.

National Standard 10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The preferred alternative is consistent with NS 10. The proposed action would allow fishing vessels to begin fishing 12 nm from shore as opposed to 30-50 nm from shore as is currently required. However, the proposed action is not expected to lead to any modifications of pelagic longline fishing activities currently being conducted in the fishery and thus any potential increase in the risks of injury or mortality to longline fishermen.

5.2 Magnuson-Stevens Act Essential Fish Habitat Designations

Essential fish habitat (EFH) is defined as those waters and substrate as necessary for fish spawning, breeding, feeding, and growth to maturity. This includes the marine areas and their chemical and biological properties that are utilized by the organism. Substrate includes sediment, hard bottom, and other structural relief underlying the water column along with their associated biological communities. In 1999, the Council developed and NMFS approved EFH definitions for management unit species (MUS) of the Bottomfish and Seamount Groundfish FMP

(Amendment 6), Crustacean FMP (Amendment 10), Pelagic FMP (Amendment 8), and Precious Corals FMP (Amendment 4) (74 FR 19067, April 19, 1999). NMFS approved additional EFH definitions for coral reef ecosystem species in 2004 as part of the implementation of the Coral Reef Ecosystem FMP (69 FR8336, February 24, 2004). EFH definitions were also approved for deepwater shrimp through an amendment to the Crustaceans FMP in 2008 (73 FR 70603, November 21, 2008).

Ten years later, in 2009, the Council developed and NMFS approved five new archipelagic-based fishery ecosystem plans (FEP). The FEP incorporated and reorganized elements of the Councils' species-based FMPs into a spatially-oriented management plan (75 FR 2198, January 14, 2010). EFH definitions and related provisions for all FMP fishery resources were subsequently carried forward into the respective FEPs. In addition to and as a subset of EFH, the Council described habitat areas of particular concern (HAPC) based on the following criteria: ecological function of the habitat is important, habitat is sensitive to anthropogenic degradation, development activities are or will stress the habitat, and/or the habitat type is rare. In considering the potential impacts of a proposed fishery management action on EFH, all designated EFH must be considered.

The designated areas of EFH and HAPC for all FEP MUS by life stage are summarized throughout the Western Pacific Region in Table 24.

The alternatives are not expected to have any impacts on essential fish habitat (EFH) or habitat areas of particular concern (HAPC) for species managed under the Western Pacific FEPs. EFH and HAPC for these species groups has been defined as presented in Table 27. The alternatives are not expected to result in a change in fishing operations that would lead to substantial physical, chemical, or biological alterations to the habitat, or result in loss of, or injury to, these species or their prey. The proposed action would maintain the same level of protection to EFH and HAPC provided under the current Pelagics FEP. Pelagic fishing usually occurs in deep water environments (greater than 1,000 m) and do not typically make contact with coral or rock substrate; therefore, not altering or substantially impacting EFH and HAPCs. For the same reason, the alternatives are not anticipated to cause substantial damage to the ocean and coastal habitats.

5.3 National Environmental Policy Act

This amendment has been written and organized to meet the requirements of the National Environmental Policy Act and thus is a consolidated document including an draft environmental assessment (EA), as described in NOAA Administrative Order 216-6, Section 603.a.2. The relevant NEPA section requirements can be found in this document as follows:

- Purpose and Need, Section: 1.2
- Proposed Action, Section: 1.3
- Description of Alternatives: Section 2
- Description of Affected Environment: Section 3
- Impacts of Alternatives: Section 4
- Cumulative Effects: Section 4.12

The NMFS Regional Administrator will use the analysis in this EA to consider the impacts of the proposed action on the human environment, taking into consideration public comments on the proposed action in this document and to determine whether the proposed action would have a significant environmental impact, which, if so, would require the preparation of an environmental impact statement.

5.4 List of Agencies/Persons Consulted

The proposed action described in this EA was developed in coordination with various federal and local government agencies that are represented on the Council. Specifically, agencies that participated in the deliberations and development of the proposed management measures include:

- American Samoa Department of Marine and Wildlife Resources
- Guam Department of Agriculture, Division of Aquatic and Wildlife Resources
- Hawaii Department of Land and Natural Resources, Division of Aquatic Resources
- Northern Marina Island Department of Land and Natural Resources, Division of Fish and Wildlife
- U.S. Coast Guard
- U.S. Fish and Wildlife Service
- U.S. Department of State

5.5 Public Coordination

The development of the proposed action has taken place in several public meetings of the SSC and the Council in 2014 and 2015. In addition, the Council held several public meetings in American Samoa during this timeframe and advertised these meetings in media releases, newsletter articles, and on the Council's website, http://www.wpcouncil.org. On August 25, 2015, NMFS published the proposed rule and the draft EA for public review and comment (80 FR 51527). The comment period ended September 24, 2015. NMFS received comments on the rule and on the draft EA from over 270 individuals, commercial and recreational fishermen, businesses, Territorial government offices (including the Governor of American Samoa and the American Samoa Department of Marine and Wildlife Resources), Federal agencies, and non-governmental organizations. NMFS considered public comments in finalizing the EA and in making its decision on the proposed action, and responds to comments in the final rule.

5.6 Executive Order 12866 – Regulatory Planning and Review

To meet the requirements of Executive Order 12866 (E.O. 12866), NMFS requires that a Regulatory Impact Review (RIR) be prepared for all regulatory actions that are of public interest. This review provides an overview of the problem, policy objectives, and anticipated impacts of regulatory actions, and ensures that management alternatives are systematically and comprehensively evaluated such that the public welfare can be enhanced in the most efficient and cost effective way.

In accordance with E.O. 12866, the RIR will evaluate whether the action would have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety; or state, local or tribal governments or communities; (2) Whether the action is likely to create any serious inconsistencies or otherwise interfere with any actions taken or planned by another agency; (3) whether the action would materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) and whether the action would raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order. Based on the costs and benefits discusses in the RIR (Appendix B) and the above criteria, none of the alternatives appear to have the potential to constitute a "significant" action under the E.O. 12866.

5.7 Administrative Procedure Act

All federal rulemaking is governed under the provisions of the Administrative Procedure Act (APA) (5 U.S.C. Subchapter II) which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Under the APA, NMFS is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it becomes effective, with rare exceptions. On August 25, 2015, NMFS published the proposed rule and the draft EA for public review and comment (80 FR 51527). The comment period ended September 24, 2015. After considering public comments, NMFS expects to publish a final rule that would then become effective 30 days after publication unless there is good cause to waive the 30-day delay of effectiveness period.

5.8 Coastal Zone Management Act

The Coastal Zone Management Act requires a determination that a recommended management measure will have no effect on the land, water uses, or natural resources of the coastal zone, or is consistent to the maximum extent practicable with an affected state's enforceable coastal zone management program. The American Samoa longline fisheries primarily occur in Federal waters and on the high seas, although vessels do transit the coastal zone. On July 13, 2015, NMFS sent a letter to the American Samoa CZM Program informing them of its determination that the proposed action is consistent, to the maximum extent practicable, with their respective coastal zone management programs. NMFS received no response.

5.9 Executive Order 12898 – Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898 (E.O. 12898), "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." E.O. 12898 provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." E.O. 12898 also provides for agencies to collect, maintain, and analyze information on patterns of subsistence

consumption of fish, vegetation, or wildlife. That agency action may also affect subsistence patterns of consumption and indicate the potential for disproportionately high and adverse human health or environmental effects on low-income populations, and minority populations. A memorandum by President Clinton, which accompanied E.O. 12898, made it clear that environmental justice should be considered when conducting NEPA analyses by stating the following: "Each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA[17].

The American Samoa longline fishery is not known to be having large and adverse environmental effects on fisheries or other marine resources. The fishery does not pollute waters and so does not have adverse impacts to human health or on marine life.

The fishery is also managed to enhance the economic and social well-being of the American Samoa fishing community, including members of minority populations and low-income populations.

The fishery does not have an adverse impact on stocks of fish that may be caught by subsistence fisherman and does not have an adverse impact on any other marine resources that may be gathered for subsistence consumption. The fishery is also managed sustainably and fishing is carried out in compliance with all laws intended to further consideration of environmental protections. Therefore, there would not be a disproportionately high and adverse impact to minority or low-income populations with respect to the availability of fish as a result of the proposed action.

5.10 Information Quality Act

The information in this document complies with the Information Quality Act and NOAA standards (NOAA Information Quality Guidelines, September 30, 2002) that recognize information quality is composed of three elements: utility, integrity, and objectivity. National Standard 2 of the Magnuson-Stevens Act states that an FMP's conservation and management measures shall be based upon the best scientific information available. In accordance with this national standard, the information product incorporates the best biological, social, and economic information available to date, including the most recent biological information on, and assessment of, the pelagic fishery resources and protected resources, and the most recent information available on fishing communities, including their dependence on pelagic longline fisheries, and up-to-date economic information (landings, revenues, etc.). The policy choices, i.e., proposed management measures, contained in the information product are supported by the available scientific information. The management measures are designed to meet the conservation goals and objectives of the Pelagic FEP and the Magnuson-Stevens Act.

The data and analyses used to develop and analyze the measures contained in the information product are presented in this amendment. Furthermore, all reference materials utilized in the discussion and analyses are properly referenced within the appropriate sections of the

[17] Memorandum from the president to the Heads of Departments and Agencies. Comprehensive Presidential Documents No. 279 (February 11, 1994).

environmental assessment. The information product was prepared by Council and NMFS staff based on information provided by NMFS Pacific Islands Fisheries Science Center (PIFSC) and NMFS PIRO. The information product was reviewed by PIRO and PIFSC staff, and NMFS Headquarters (including the Office of Sustainable Fisheries). Legal review was performed by NOAA General Counsel Pacific Islands and General Counsel for Enforcement and Litigation for consistency with applicable laws, including but not limited to the Magnuson-Stevens Act, National Environmental Policy Act, Administrative Procedure Act, Paperwork Reduction Act, Coastal Zone Management Act, Endangered Species Act, Marine Mammal Protection Act, and Executive Orders 13132 and 12866.

5.11 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act (PRA) is to minimize the paperwork burden on the public resulting from the collection of information by or for the Federal government. The PRA is intended to ensure the information collected by the Federal government is needed and is collected in an efficient manner (44 U.S.C. 3501(1)). The proposed action does not include any new collection of information.

5.12 Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601 et seq.) requires government agencies to assess and present the impact of their regulatory actions on small entities including small businesses, small organizations, and small governmental jurisdictions. The assessment is done by preparing a Regulatory Flexibility Analysis and Final Regulatory Flexibility Analysis (FRFA) for each proposed and final rule, respectively. Under the RFA, an agency does not need to conduct an IRFA or FRFA if a certification can be made that the proposed rule, if adopted, will not have a significant adverse economic impact on a substantial number of small entities.

On June 12, 2014, the Small Business Administration issued an interim final rule revising small business size standards, effective July 14, 2014 (79 FR 33647). The rule increased the size standard for finfish fishing from 19.0 to $20.5 million, for shellfish fishing from $5.0 million to $5.5 million, and for other marine fishing from $7.0 million to $7.5 million.

Based on available information presented in this EA, NMFS has determined that all vessels participating in the pelagic fisheries of American Samoa are small entities under the Small Business Administration's definition of a small entity. That is, they are engaged in the business of fish harvesting, are independently owned or operated, are not dominant in their field of operation, and have annual gross receipts not in excess of any of the small business size standard for fishing.

Even though this proposed action would affect a substantial number of pelagic fishing vessels, i.e., 100 percent pelagic troll and longline fishing vessels, NMFS does not expect the rule will have a significantly adverse economic impact to individual vessels. This is because large longline vessels are expected to benefit from the proposed action as it provides an exemption to a portion of the LVPA. While small longline vessels and pelagic trolling that currently fish inside the LVPA may now experience additional fishing vessels, the analysis in the EA does not

indicate reduced catch or catch rates would result. Therefore, there are no disproportionate economic impacts between large and small entities and the proposed action, if implemented, would not have a significant economic impact on small entities. Furthermore, there are no disproportionate economic impacts among the universe of vessels based on gear, home port, or vessel length. The Chief Counsel for Regulation of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration during the proposed rule stage that this action would not have a significant economic impact on a substantial number of small entities. NMFS published the factual basis for the certification in the proposed rule (80 FR 51527, August 25, 2015). NMFS received no comments on this certification; as a result, a regulatory flexibility analysis is not required, and none was prepared.

5.13 Endangered Species Act

Section 3.3 of this document describes the threatened and endangered species found in the action area of the American Samoa-based longline fishery.

On October 30, 2015, NMFS completed the ESA consultation for the American Samoa longline fishery and a issued a biological opinion (2015 BiOp) evaluating the effects of the fishery on threatened and endangered species, their designated critical habitat, and species proposed for listing as threatened or endangered (NMFS 2015b). The 2015 BiOp considered the fishery under the existing regulatory framework, and the proposed action described in this document. Although participation and effort has varied and declined in recent years, NMFS expects that the level of participation, in terms of fleet-wide sets and hooks deployed, could return to historic levels. For this reason, the 2015 BiOp anticipated the fishery potentially operating up to the level seen in 2007 when 29 vessels deployed 5,920 sets and approximately 17,554,000 hooks.

In the 2015 BiOp, NMFS determined that, because there is no new information on fishery interactions with humpback and sperm whales, NMFS' previous determination of July 27, 2010 (NMFS 2010c), that the fishery is not likely to adversely those species remains valid. In the 2015 BiOp, NMFS also determined that the continued authorization of the fishery is not likely to adversely affect ESA-listed species of shallow-reef building corals because there is very limited reef habitat in the EEZ outside of 3 nm and longline vessels fish far offshore outside of 3 nm. The 2015 BiOp also noted that pelagic longline fishing vessels actively avoid reef coral reef structures to avoid damage to their hulls and vessels do not deploy gear while in transit and fishing activities do not involve anchoring.

Based on the information provided in the 2015 BiOp, NMFS determined that continued authorization of the fishery under the proposed action may adversely affect, but is not likely to jeopardize the continued existence of green, hawksbill, leatherback, South Pacific loggerhead or olive ridley sea turtles, or the Indo-West Pacific scalloped hammerhead shark, and issued a three-year ITS for each individual species. The number of incidental takes and take associated mortalities NMFS expects could potentially occur over a 3-year period under the proposed action are shown in Table 23.

5.14 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of marine mammals in the U.S. and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA gives the Secretary of Commerce authority and duties for all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). The MMPA requires NMFS to prepare and periodically review stock assessments of marine mammal stocks.

Under section 118 of the MMPA, NMFS must publish, at least annually, a List of Fisheries that classifies U.S. commercial fisheries into one of three categories. These categories are based on the level of serious injury and mortality of marine mammals that occurs incidental to each fishery. Specifically, the MMPA mandates that each fishery be classified according to whether it has frequent, occasional, or a remote likelihood of or no known incidental mortality or serious injury of marine mammals. A Category 1 fishery is one with frequent incidental morality and serious injury of marine mammals. A Category 2 fishery is one with occasional incidental morality and serious injury of marine mammals. A Category 3 fishery is one with a remote likelihood or no known incidental morality and serious injury of marine mammals.

On December 29, 2014, (79 FR 77919), NMFS published the final LOF for 2015 which classifies the American Samoa longline fishery as a Category 2 fishery under Section 118 of the MMPA due to interactions with false killer whales, rough-toothed dolphins, short-finned pilot whales and Cuvier's beaked whales. On September 29, 2015, NMFS published the proposed List of Fisheries for 2016, which maintains the American Samoa longline fishery as a Category 2 fishery (80 FR 58427).

The proposed action makes no changes to allowable amount of fishing except to open certain areas of the U.S. EEZ around American Samoa to longline fishing. It does not alter the way that fishery is conducted. As noted above, unlike Hawaii, there is no data for American Samoa to indicate that there are any island associated marine mammal stocks. Further, the South Pacific has many archipelagos in proximity to one another and has a different ecology compared to a remote archipelago like Hawaii. It is therefore assumed that fishing closer to Swains would not have any substantial impact on encounter rates and hence interactions. Thus, the American Samoa longline fishery does not require an MMPA category re-designation or other action.

Vessel owners and crew that are engaged in Category II fisheries may incidentally take marine mammals after registering or receiving an Authorization Certificate under the MMPA, but they are required to: 1) report all incidental mortality and injury of marine mammals to NMFS, 2) immediately return to the sea with minimum of further injury any incidentally taken marine mammal, 3) allow vessel observers if requested by NMFS, and 4) comply with guidelines and prohibitions under the MMPA when deterring marine mammals from gear, catch, and private property (50 CFR 229.4, 229.6, 229.7). The MMPA registration process is integrated with existing state and Federal licensing, permitting, and registration programs. Therefore, individuals who have a state or Federal fishing permit or landing license, such as the American Samoa limited entry longline permit, are currently not required to register separately under the MMPA.

In addition, fishermen participating in a Category I or II fishery are required to accommodate an observer onboard their vessel(s) upon request (50 CFR 229.7); and fishermen participating in a Category I or II fishery are required to comply with any applicable take reduction plans. NMFS may develop and implement take reduction plans for any Category I or II fishery that interacts with a strategic stock.

See Section 3.3 of this document for descriptions of marine mammals found around American Samoa. Section 4.7 provides an analysis of the anticipated impacts on these species under each of the alternatives considered by the Council. The Council expects that the alternatives considered would not adversely affect any marine mammal populations or habitat.

5.15 Executive Order 13132 – Federalism

The objective of Executive Order 13132 is to guarantee the Constitution's division of governmental responsibilities between the federal government and the states. Federalism Implications (FI) is defined as having substantial direct effects on states or local governments (individually or collectively), on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government. This action does not contain policies with FI under E.O. 13132, as it does not impact or later the relationship between the federal government and the government of the Territory of American Samoa

6 Draft Proposed Regulations

PART 665--FISHERIES IN THE WESTERN PACIFIC

The authority citation for part 665 continues to read as follows:

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

1. Revise § 665.818 to read as follows:

§ 665.818 Exemptions for American Samoa large vessel prohibited areas.

(a) *Exemption for historical participation*.

(1) An exemption will be issued to a person who currently owns a large vessel to use that vessel to fish for western Pacific pelagic MUS in the American Samoa large vessel prohibited areas, if the person seeking the exemption had been the owner of that vessel when it was registered for use with a Western Pacific general longline permit, and has made at least one landing of western Pacific pelagic MUS in American Samoa on or prior to November 13, 1997.

(2) A landing of western Pacific pelagic MUS for the purpose of this paragraph must have been properly recorded on a NMFS Western Pacific Federal daily longline form that was submitted to NMFS, as required in § 665.14.

(3) An exemption is valid only for a vessel that was registered for use with a Western Pacific general longline permit and landed western Pacific pelagic MUS in American Samoa on or prior to November 13, 1997, or for a replacement vessel of equal or smaller LOA than the vessel that was initially registered for use with a Western Pacific general longline permit on or prior to November 13, 1997.

(4) An exemption is valid only for the vessel for which it is registered. An exemption not registered for use with a particular vessel may not be used.

(5) An exemption may not be transferred to another person.

(6) If more than one person, e.g., a partnership or corporation, owned a large vessel when it was registered for use with a Western Pacific general longline permit and made at least one landing of western Pacific pelagic MUS in American Samoa on or prior to November 13, 1997, an exemption issued under this section will be issued to only one person.

(b) *Exemption for vessel size*. Except as otherwise prohibited in Subpart I of this chapter, a vessel of any size that is registered for use with a valid American Samoa longline limited access permit is authorized to fish for western Pacific pelagic MUS within the American Samoa large vessel prohibited areas as defined in § 665.806(b), except that no large vessel as defined in § 665.12 of this subpart may be used to fish for western Pacific pelagic MUS in the portions of the American Samoa large vessel prohibited areas, as follows:

(1) EEZ waters around Tutuila Island enclosed by straight lines connecting the following coordinates:

Point	**S. lat.**	**W. long.**
TU-1	14° 01' 42"	171° 02' 36"
TU-2	14° 01' 42"	170° 20' 22"
TU-3	14° 34' 31"	170° 20' 22"
TU-4	14° 34' 31"	171° 03' 10"
TU-5	14° 02' 47"	171° 03' 10"
TU-1	14° 01' 42"	171° 02' 36"

(2) EEZ waters around the Manua Islands enclosed by straight lines connecting the following coordinates:

Point	**S. lat.**	**W. long.**
MA-1	13° 57' 16"	169° 53' 37"
MA-2	13° 57' 16"	169° 12' 45"
MA-3	14° 28' 28"	169° 12' 45"
MA-4	14° 28' 28"	169° 53' 37"
MA-1	13° 57' 16"	169° 53' 37"

(3) EEZ waters around Swains Island enclosed by straight lines connecting the following coordinates:

Point	**S. lat.**	**W. long.**
SW-1	10° 50' 42"	171° 17' 42"
SW-2	10° 50' 42"	170° 51' 39"
SW-3	11° 16' 08"	170° 51' 39"
SW-4	11° 16' 08"	171° 17' 42"
SW-1	10° 50' 42"	171° 17' 42"

* * * * *

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Appendix 1 Economic Performance and Status of American Samoa Longline Fishery

Economic Performance and Status of American Samoa Longline Fishery 2014 Internal Report to Council

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January 22, 2015

Purpose: The purpose of this report is to document the dynamic changes in the economic health of the American Samoa longline fishery. This brief summary includes a comparison of the cost-earnings status for the 2001 operating year vs. the 2009 operating year. In addition, this report presents a long-term trend of net revenues of the fleet for the period from 2006 to 2014. This trend data, collected through a routine data collection program, illustrates the declining trend in net returns to the fishery, offering an insight to the fishery collapse in 2013.

Cost-Earnings Status of 2009 Operations: The cost-earnings study (Arita and Pan, 2013) found that in 2009, the average annual revenue per vessel was $448,817, just slightly higher than total expenditures; and as a result, the average annual cash return (profit) per vessel was $6,379. Table 1 shows the detailed figures of revenue, variable costs, fixed costs, labor costs, and net cash return (profit) for an average vessel of the American Samoa longline fleet operated in 2001 and 2009. Among 23 active vessels surveyed in 2009, 48% suffered net losses from fishing operations. If depreciation of a vessel is considered, the average profit to an owner was negative per vessel. Rising fuel costs, which accounted for approximately 27% of total expenditures, coupled with relatively low revenues (due to lower albacore CPUE), were the major factors leading to poor economic performance.

Comparison with 2001 Cost Earnings Study: In general, the 2009 cost-earnings status was much worse compared to 2001 operations. While the average vessel generated net cash return (profit) to an owner of $177,207 in 2001, the average vessel in 2009 generated only $6,379, a 96% decrease compared to that in 2001. The detailed cost-earnings data of the American Samoa fleet based on 2001 operations (O'Malley and Pooley, 2002) are also listed in Table 1.

Table 1. Cost-Earnings Performance in 2001 and 2009 of the American Samoa Longline Fishery.

	2009	2001	% Change
Average Annual Revenue per Vessel	448,817	657,063	-32%
Average Annual Trip Costs per Vessel	268,016	200,923	33%
Fuel	121,648	73,314	66%
Oil	6,064	5,085	19%
Freezer Operations	8,389	10,090	-17%
Bait	53,312	60,318	-12%
Provisions	20,109	22,739	-12%
Communication	3,846	n/a	
Fishing Gear	22,843	29,378	-22%
Misc. Trip Costs	31,804	n/a	
Average Annual Labor Costs per Vessel	78,167	177,894	-56%
Total Captain Share	30,594	68,421	-55%
Total Crew Payments	47,573	109,474	-57%
Average Annual Fixed Costs per Vessel	96,256	101,039	-5%
Mooring	3,365	6,480	-48%
Bookkeeping	3,467	1,609	115%
Insurance	24,970	26,533	-6%
Loan Payments	19,251	35,578	-46%
Other Fixed Costs	3,413	8,180	-58%
Drydock Costs	16,541	4,077	306%
Overhaul Costs	5,584	1,558	258%
Major Repairs	10,761	3,333	223%
Routine repairs	8,904	13,691	-35%
Average Total Annual Expenditures per Vessel	442,438	479,856	-8%
Average Annual Net Return per Vessel	6,379	177,207	-96%

Data sources: 2001 data are from O'Malley and Pooley (2002), and 2009 data are from (Arita and Pan, 2013)

There are two main changes in the cost-earning status of 2009 vs. 2001. First, average overall revenues in 2009 per vessel fell by 32% compared to 2001. A decline in albacore CPUE was the main factor that contributed to lower revenues in 2009 because albacore was the main component of the catch. In 2009, CPUE was approximately 14.8 fish per 1000 hooks, which was 56% lower than the 2001 CPUE of 34 fish per 1000 hooks. If we measure CPUE by fish per set (as opposed to fish per hooks), CPUE fell from 66.5 fish per set in 2001 to 45.5 fish per set in 2009, a 32% decline.

Second, there was a substantial increase in variable costs. Annual variable costs (trip expenditure) increased by 33%. The substantial increase in fuel expense, 66% more compared to 2001, was the major driver of overall cost increases. On the other hand, annual fixed costs in 2009 were 5% lower than 2001. Annual labor costs per vessel declined 56% compared to 2001. The decline in labor costs implied that crew received lower payments, thus, fishermen's income from fishing operations were greatly reduced in 2009 compared to in 2001.

When comparing the economic statuses of these two years, it is important to note that the O'Malley and Pooley study (2002) estimated revenues based on a subsample of longline vessels, which may not have been a representative sample of all vessel activity. O'Malley and Pooley also indicated that the revenue may have been overestimated because, during the study period, the majority of vessels arrived in midyear. Albacore are more abundant from May to October in American Samoa's waters (Domokos et al., 2007) than in the early months of the year, hence the catch per unit effort (CPUE) figure after midyear is usually higher than the annual average. In contrast, the revenue data used to evaluate the fishery's 2009 economic performance were based on a full year of logbook data for each vessel in the surveyed sample, reflecting a more accurate depiction of vessel performance. As a result of these methodological differences, our ability to meaningfully make comparisons between the two studies has that limitation.

The Fishery Collapse of 2013: At the end of 2013, the majority of the vessels in the American Samoa fleet were tied up at dock, and 18 vessels posted "For Sale" signs, according to the *Samoa News* of December 18, 2013. The collapse of the fishery seems inevitable due to the poor economic performance resulting from the continuous decline in CPUE, increases in fuel prices, and a sharp drop in albacore prices in 2013. The cost-earnings study (Arita and Pan 2013) had already indicated a thin profit margin for the American Samoa longline fleet in 2009.

A sensitivity analysis shows that if CPUE of the main catch species (albacore) is lower than 14.3 fish per 1000 hooks, and the price is $2,200 per metric ton ($1.00/lb), while holding other factors unchanged, the profit (net cash return) for an individual vessel would be negative. In 2009, the albacore CPUE was 14.8 fish per 1000 hooks and the albacore price was $2,200 per metric ton. Therefore, the profit in 2009 was very close to zero. In 2013, the albacore CPUE declined to 11.9 fish per 1000 hooks from 14.8 fish per 1000 hooks in 2012, and albacore prices declined to $2,200 per metric ton from $3,249 per metric ton in 2012. Obviously, the decline of both CPUE and the price of albacore yielded a negative profit.

In addition, the continuous economic data collection program that has monitored the economic performance from 2006 to the present (Pan et al., 2012) showed that fishing costs continued increasing after 2009. Figure 1 illustrates the revenue and variable costs by fishing set from the

period 2006 to 2013. The variable costs presented in the figure include costs of diesel fuel, engine oil, bait, freezer operating costs, gear, provisions, communications, and miscellaneous items, but do not include labor costs. The data were collected on a trip base. However, since the trip length (total days of a fishing trip) for the American Samoa longline fleet varied substantially across years, the cost per set (usually one set a day) is a better index for a cost comparison across years. In 2013, fishing costs exceeded revenues. Obviously, fleet operations cannot be continued with negative cash returns.

The net revenue per set (Figure 2) further illustrates the poor economic performance of the fishery in recent years. During the period 2006 to 2014, net revenue per set fluctuated but in a declining trend. The net revenue in 2011 and 2012 was $244 and $713 per set, respectively, much lower than the net revenue in 2009 ($1,307 per set). Yet, it further declined in 2013 to a negative -$372 per set.

The economic performance of the American Samoa longline fleet in 2014 slightly improved based on the logbook data January 2014 to October 2014 (data for the last two months aren't available yet). Compared to 2013, 2014 revenue per set increased to $1933 per set from $1765 per set in 2013. Variable costs, which mainly included fuel and bait costs but excluded labor cost and fixed costs, were $1553 per set in 2014. Thus, positive trip net revenue yielded in 2014.

However, in order for an owner to gain profit from fishing, the net revenue should be about 40%[18] of the trip revenue, thus the owner would have sufficient amount of net revenue to pay for the labor cost and fixed cost (e.g., insurance and major repairs). In other words, for a boat owner to earn profit in 2014 (that were comparable to that in 2009), the net revenue should be at least $761 per set. However, the actual net revenue was $380 per set in 2014.

[18] According to 2009 cost-earnings study (Table 1), for the 100% revenue earned, 60.6% spent on the trip expenditure, 17.7% went to pay for the captain and crew, 21.8% went to fixed costs for repairs and insurances etc., and only 1.5% went to the boat owner.

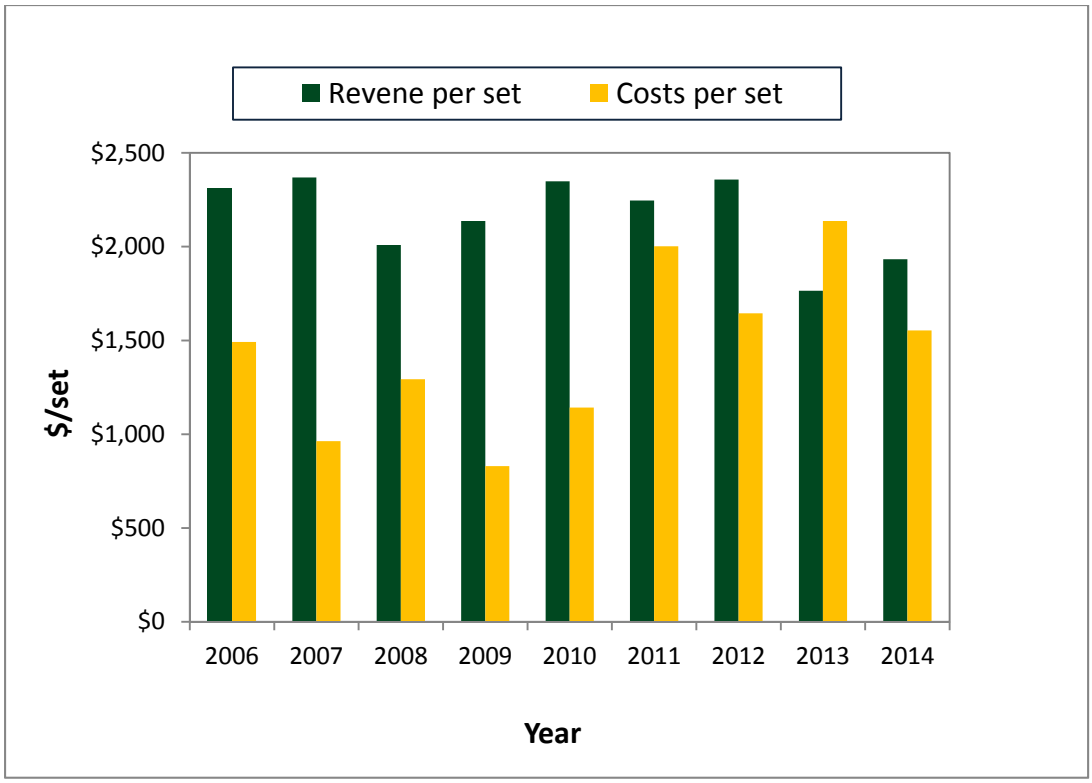

Figure 1. Revenue and cost per set of American Samoa Longline Fishery, 2006-2014.

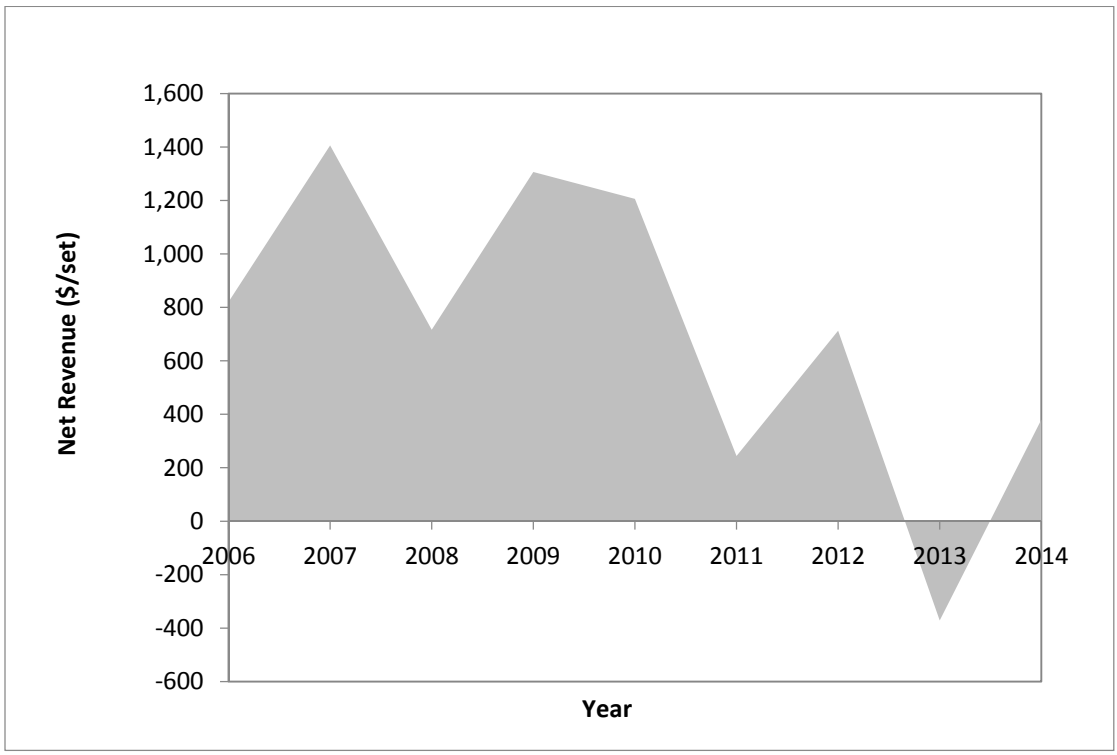

Figure 2. Net Revenue per Set of American Samoa Longline Fishery, 2006-2014.

Data sources for Figures 1 and 2: cost information are from the Continuous Economic data Collection Program from 2006 to 2014 (Pan et al., 2012), and revenue per trip for 2016-2013 are calculated using the annual revenue and the number of sets collected by PIFSC's WPacFIN Program and published at http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_5.php. 2014 revenue data were provided by internal request from the FMRD PIFSC

As discussed previously, fixed costs were not included in Figure 2. Figure 3 presents the net revenue trend when fixed costs were considered. In Figure 3, the net revenue was defined as revenue minus variable costs and fixed costs, while net revenue in Figure 2 was defined as revenue minus variable costs. The fixed costs information of the American Longline fleet was available in 2009 and 2001 respectively when cost-earnings studies were conducted based the fishing operations of the two years. The average fixed costs per vessel were $96,000 in 2009, while they were $101,000 in 2001. Compared the cost-earnings tables of 2001 and 2009, the fixed costs between 2001 and 2009 did not show large difference, although variable costs and labor costs experienced significant changes (see Table 1). The previous cost-earnings studies of the Hawaii longline fleet also demonstrated that fixed costs were more stable compared to other cost items. Based on this finding from the cost-earnings studies, we may assume that the fixed cost per set were stable during the period of 2006 to 2014 and similar to the 2009 level.

Based on the logbook summary (http://www.nmfs.hawaii.edu/wpacfin/as/Data/Annual_Log/all09catsizemain.htm), the average number of sets per vessel was 189 sets in 2009. Thus, converted the figure from vessel to set, the average fixed costs was $509 per set in 2009. Considering fixed costs, the fishing operations in 2011, 2013, and 2014 suffered negative revenue, as shown in Figure 3.

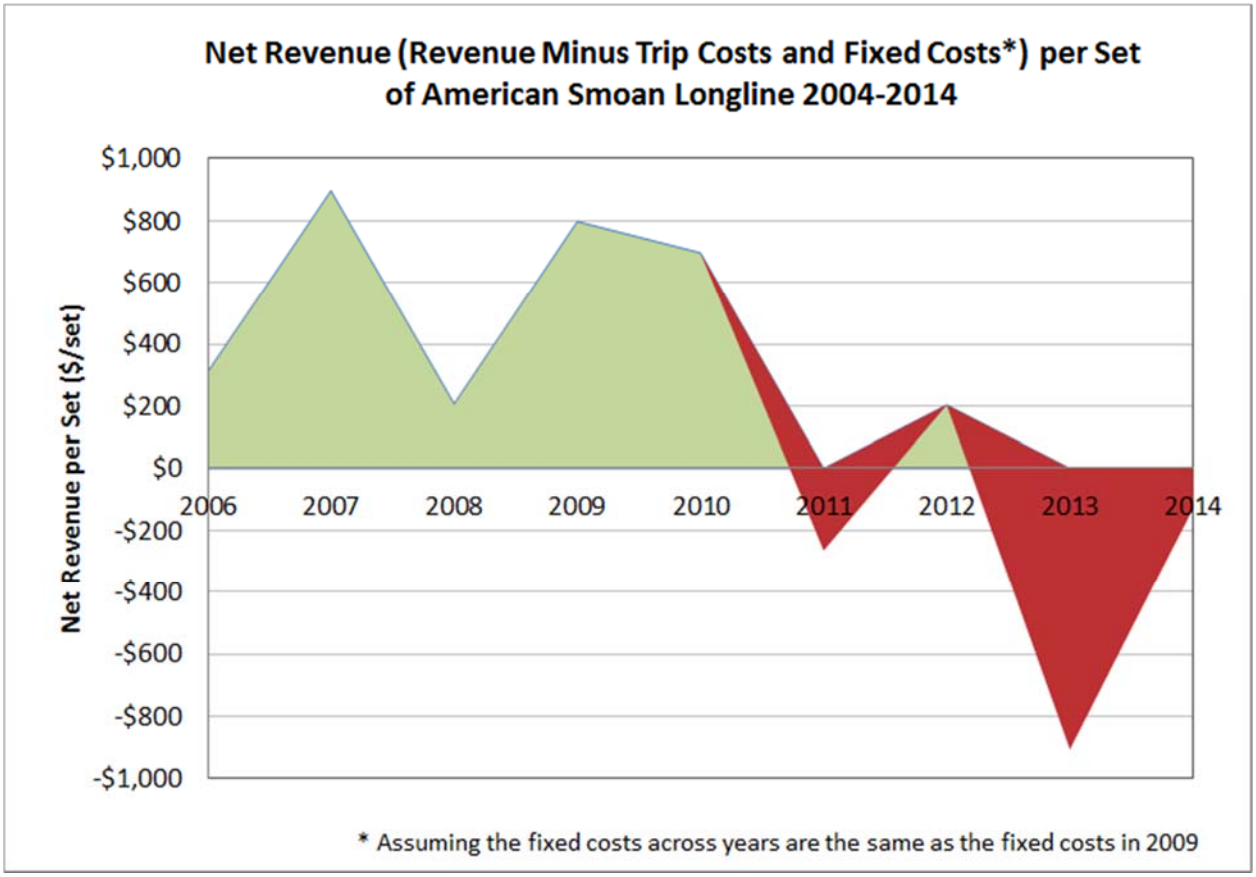

Figure 3. Net Revenue (Revenue minus variable costs and fixed costs per set) of American Samoa Longline Fishery, 2006-2014.

Conclusion: The cost-earnings study shows a thin profit earned in the American Samoa longline fishery in 2009 operations. Earnings to fishermen declined an average 56% for crew and captain, and 96% for a vessel owner. The economic performance became even worse in 2013, showing a negative return (even before charging fixed costs and labor cost) from fishing. The economic performance improved in 2014 over 2013. However, the earnings to the boat owners for the American Samoa fleet in 2014 may still be negative, after subtracting the fixed cost and labor costs. A sensitivity analysis shows that the net return of the fishery is tied to both the CPUE and the price of its main species, albacore. If the CPUE of albacore is lower than 14.3 fish per 1000 hooks (0.5 fish lower than the 2009 CPUE), or the fish price is lower than $0.97/lb (3 cents less than the 2009 reported price), while holding other variables unchanged, the net return for an average vessel will be negative. Therefore, the recovery of the fishery would rely on a significant improvement of either fish catch or price, or a combination of both.

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Appendix 2 Draft Regulatory Impact Review

1. Introduction

The regulatory impact review (RIR) is required under Executive Order (E.O.) 12866 (58 FR 51735; October 4, 1993) and E.O. 13563 (76 FR 3821; January 21, 2011). The following statement from E.O. 12866 summarizes the requirements for all regulatory actions:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

2. Problem Statement and Management Objective

The American Samoa longline fishery has recently endured several years of poor fishing, including low profits, with some fishing vessels operating at a loss. The purpose of this proposed action is to provide regulatory relief to large longline vessels holding valid federal permits authorized under the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region (FEP) ("permitted vessels") by increasing the area where they are allowed to fish by providing a partial exemption with regard to the scale of the Large Vessel Prohibited Area (LVPA). The Western Pacific Fishery Management Council and the National Marine Fisheries Service (NMFS) will review periodically the effectiveness and impacts of the proposed action and make changes, as necessary,. NMFS expects this action to improve the efficiency of the American Samoa longline fleet and to enhance its economic viability while ensuring fishing by the fleet remains sustainable.

NMFS implemented the LVPA in 2002, when nearly 40 small vessels, including alia (locally-built catamarans under 40 ft), and 25 large vessels were operating in the local longline fleet. The Council established the LVPA to prevent gear conflicts and catch competition between large and small fishing vessels (67 FR 4369; January 30, 2002). The LVPA currently prohibits vessels 50 ft or greater from operating within areas of the U.S. Exclusive Economic Zone (EEZ) that are approximately 3-50 nm around Swains Island and 3-50 nm around Tutuila and the Manua Islands, except that the northern boundary of the LVPA around Tutuila and the Manua Islands is approximately 32 nm seaward from the islands. The Council and NMFS exempted two large vessels from the prohibition on fishing within the LVPA, based on their historical fishing activity.

As of 2014, only one small longline vessel (alia) operated in the EEZ around American Samoa. Nineteen large longline vessels fished in the EEZ outside the LVPA. The number of large longline vessels in 2014 was 10 fewer than at its peak in 2004. Thirteen small troll vessels

reported catching pelagic species in 2013 but, unlike longline vessels, the trollers do not target albacore tuna like the longline fleet. The conditions in 2002 that led to the implementation of the LVPA do not appear to be concerns, at present. However, concerns still exist about the large amount of fish that can be harvested by purse seiners, which can result in catch competition with, and local depletion of target fish for, the local troll fleet, alia, and larger longline vessels. Therefore, the Council recommended maintaining the current LVPA regulations to prohibit purse seine fishing by large vessels (≥ 50 ft).

The objective of this regulatory amendment is to improve fishing efficiency and help increase profits for large longline vessels by reducing the cost of trips and increasing CPUE and catches. The Council and NMFS intend the proposed action to boost the likelihood of long-term viability of the fishery, while maintaining sustainability of fish stocks. Providing large longline vessels access to certain portions of the LVPA is expected to disperse the fishing effort by large longline vessels over a wider area, reduce operating costs, and improve efficiency, while not having a large adverse effect on alia, small vessel longliners and trollers. In addition, enhancing the ability of the large longline vessels to fish would help Pago Pago-based canneries maintain their supply of sustainably caught, high-quality albacore. The ability to fish within LVPA waters closer to Tutuila may also allow longline vessels to diversify their product from just supplying cannery albacore to also increasing landing and marketing of fresh fish, which can fetch higher ex-vessel prices.

3. Description of the Fisheries

Please see Section 3.1.4 and 3.1.5 of the EA for more details on fishing activities around American Samoa, including small-vessel longline, troll, and bottomfish fishing, and for more information on the American Samoa large-vessel longline fishery. These sections also provide additional details on historical and recent catch and effort, by fishery. Section 3.1.6 provides information on recreational fishing in American Samoa. Section 2.6 provides a brief description of U.S. purse seine fishing activities and landings within the EEZ around American Samoa, as this fishery will continue to be prohibited from fishing within the LVPA under all alternatives.

The American Samoa-based pelagic fisheries primarily consist of small and large-scale longlining, and pelagic trolling. Historically, most participants in the small-scale domestic longline fishery had been indigenous American Samoans with alia. In recent years, the alia longline fleet has greatly declined from 37 active vessels in 2001 to one or two vessels remaining active since 2007. The composition of the fleet began to change in the late 1990s with the influx of large (≥ 50 feet) conventional monohull longline vessels. As many as 31 Class C and D longline vessels (50 ft and greater) fished in 2002 and 2003. In 2013, 23 Class C and D vessels fished. NMFS authorized two large longline vessels to continue fishing in the LVPA due to their historical fishing activity.

Fishing Community in American Samoa

Section 3.1 of the EA provides detail on the socio-economic setting of the American Samoa fishing community, and this will only be described briefly here. American Samoa's small developing economy depends mainly on two primary income sources: the American Samoa

Government, which receives income and capital subsidies from the Federal government, and the fish processing industry on Tutuila. Prior to 2009, there had been two operating tuna canneries in American Samoa; however, one of two canneries, Chicken-of-the-Sea, closed in September 2009. In 2010, Tri Marine International acquired the former Chicken-of-the-Sea tuna cannery. Tri Marine formally reopened the cannery in 2015. In a recent study, the Government Accountability Office (GAO) estimated that in 2012, tuna canning was responsible for 2,200 jobs, or about 12% of the non-government workforce.

In 2009, a tsunami struck American Samoa, resulting in the damage or destruction of many fishing vessels and much of the fishing infrastructure. Although the tsunami damage did not greatly affect longline catches and revenues, the U.S. Secretary of Commerce determined a commercial fishery failure had occurred for the commercial bottomfish fishery.

4. Description of the Alternatives

All of the Alternatives under consideration would apply to vessels 50 ft and longer (i.e., Class C and D vessels) in the American Samoa longline limited entry fishery. Table 2 of the EA provides an overview of each of the five alternatives.

Alternative 1 (No Action):

Under this alternative, the areas that are closed to longline fishing by vessels ≥50 ft would remain unchanged. American Samoa longline vessels ≥50 ft that had been grandfathered into the fishery prior to March 1, 2002, would continue to be able to fish within the LVPAs around American Samoa. Figure 6 of the EA shows the current LVPAs in American Samoa, and Section 2.1 provides detail regarding the current boundaries and size of the current LVPA.

Alternative 2:

Alternative 2 would provide an exemption for permitted longline vessels 50 ft and longer to fish within portions of the LVPA as follows (see Figure 7 of the EA):

iii. seaward from 25 nm to the north of Tutuila and the Manua Islands; and
iv. seaward from approximately 12 nm around Swains Island

for a period of:

Alternative 2a. One year.
Alternative 2b. Three years.
Alternative 2c. No sunset, but with periodic review and re-evaluation by the Council.

Alternative 3:

Alternative 3 would provide an exemption for permitted longline vessels 50 ft and longer to fish within portions of the LVPA as follows (see Figure 8 of the EA):

v. seaward from 25 nm to the north of Tutuila and the Manua Islands;

vi. within designated waters southeast of Tutuila;
vii. with designated waters south of the Manua Islands; and
viii. seaward from approximately 12 nm around Swains Island

for a period of:

Alternative 3a. One year.
Alternative 3b. Three years.
Alternative 3c. No sunset, but with periodic review and re-evaluation by the Council.

See Section 2.3 of the EA for more details on Alternative 3.

Alternative 4 (Council Preferred):

Alternative 4 would provide an exemption for permitted longline vessels l 50 ft and longer holding to fish in within portions of the LVPA as follows (see figure 9 of the EA):

i. seaward from approximately 12 nm around Swains Islands, Tutuila, and the Manua Islands.

For a period of:

Alternative 4a. One year
Alternative 4b. Three years
Alternative 4c. No sunset, but with periodic review re-evaluation by the Council. **(This is the Council's preferred alternative).**

Under Alternatives 4a and 4b, the exemption would end after one and three years, respectively, and the prohibition on fishing in the LVPA using a large longline vessel would automatically resume. Under Alternative 4c, the prohibition would not end until the Council makes a recommendation to remove the exemption from regulations and NMFS implements the action through rulemaking.

See Section 2.4 of the EA for more details on Alternative 4.

Alternative 5:

Alternative 5 would provide an exemption for permitted longline vessels 50 ft and longer to fish within the entire LVPA for a period of:

Alternative 5a. One year.
Alternative 5b. Three years.
Alternative 5c. No sunset on the exemption, but with periodic review and re-evaluation by the Council.

Under Alternatives 5a and 5b, the prohibition on fishing in the LVPA using a large longline vessel would automatically resume after 1 and 3 years, respectively. Under Alternative 5c, the

prohibition would resume once the Council makes a recommendation to remove the exemption from regulations and NMFS implements the action.

See Section 2.5 of the EA for more details on Alternative 5.

5. Analysis of Expected Benefits and Costs of the Proposed Action

5.1 Changes in Net Benefits

The analysis emphasizes changes in net benefits to the U.S. national accounts; changes in net benefits that occur to foreign interests are not relevant in the context of this RIR. Benefits accrued as surplus to consumers measure the difference between the amount consumers are willing to pay for products or services and the amount they actually pay. Benefits accrued as surplus to producers measure the difference between the amount producers actually received for providing products or services and the economic cost producers bear to do so. In the case of fish harvesting operations, producer surplus can be measured by the difference between gross revenues and operating costs. Benefits and costs in both the private and public sectors are important with respect to net benefits to the national account; effects in both sectors are accounted for in this analysis to the extent possible. Without information that could affect revenue and operating costs, such as where large vessels actually fish, the economic impacts will be assessed qualitatively.

Alternative 1 - No Action

Under the no-action alternative, the areas that are closed to longline fishing by vessels 50 ft and longer would remain unchanged, with the exception of the two vessels that had been allowed to fish within the LVPA, when the LVPA went into effect. Under the no-action alternative, 30,204 nm^2 of the EEZ surrounding American Samoa (26% of the total) would remain closed to fishing by most large longline vessels, as well as purse seiners. There would be no direct cost or benefit beyond the status quo associated with this alternative.

Under the no action alternative, the American Samoa longline fishery is not expected to experience any relief from the current LVPA requirements. Large longline vessels would fish within the EEZ, but outside the LVPA, on the high seas areas to the north of American Samoa, or fish under access agreements with neighboring South Pacific countries.

The continued separation of most large longline and purse seine vessels from the small longline and commercial and recreational trolling vessels within the current boundary of the LVPA would ensure a measure of protection for small vessels. This includes minimizing the potential for physical interactions between large and small vessels and localized resource depletion by the proximity of large vessels to small vessels within the same fishing grounds. The troll fishery would likely continue to fish close to shore and sometimes on the offshore banks targeting skipjack and yellowfin tuna.

Alternative 2

Alternative 2 would allow permitted vessels 50 ft and longer to fish over an additional 8,401 nm² of ocean, relative to the no-action alternative, thereby reducing the total area of the EEZ around American Samoa that is closed to large longliners from approximately 26% to 18.4%.

Under Alternatives 2a and 2b, the exemption would end after 1 or 3 years, respectively and the prohibition on fishing in the LVPA using a large longline vessel would automatically resume. Under Alternative 2c, the prohibition would not end until the Council makes a recommendation to remove the exemption from regulations, based on periodic review and re-evaluation by the Council and NMFS implements the action through rulemaking.

Under Alternatives 2a, 2b, and 2c (collectively referred to as Alternative 2 here), the American Samoa longline fishery would experience some relief in terms of opening more areas to longline fishing including areas closer to Tutuila. Compared to Alternative 1, Alternative 2 would have the effect of spreading fishing density over a wider area within the EEZ around American Samoa and could provide more stability to the American Samoa longline fishery and canneries in the short term (or perhaps longer under Alternative 2c).

Moving the boundary closer to shore would help decrease length of travel time for large longline vessels before fishing. During the time during which they can travel a shorter distance before being allowed to fish, large longline vessels may see a minor decrease in fuel and labor costs relative to the no action alternative. Alternative 2 could also lead to an increase in landings for these large longline vessels by expanding the areas in which they are allowed to fish, as well as potentially improve CPUE of target South Pacific albacore within the EEZ, as large longline vessels are able to follow the fish into the exempted areas. The benefits to large longline vessels under alternatives 2a and 2b would be limited because of the relatively short duration of the exemption, which would not likely to result in a substantial increase in the number of vessels and hooks relative to the no action alternative. Under Alternative 2c, the exemptions would not automatically sunset and therefore, the exempted area may end up being open to large longline vessels for longer than either Alternative 2a or 2b. The exemption would be subject to annual review with regard to such factors as catch rates, fishery participants, small-vessel participation and fisheries development initiatives. By requiring an annual review, the number of vessels and number of hooks set are not expected to increase substantially relative to the no action alternative, but may increase in the longer term relative to Alternatives 2a and 2b.

Small troll and small longline vessels might have a slight negative impact from this action, as could the two large longline vessels that are currently allowed to fish throughout the LVPA. These adverse effects could come through the constriction of the area in which they could fish without having to interact with large vessels which would now be able to fish within parts of the LVPA.

Alternative 2 is expected to have a small positive impact on the amount of tuna supplied to the American Samoa canneries, as the size of the exempted area is small, relative to the remaining areas of the EEZ where the large longline vessels are currently allowed to fish. In addition, the cannery still receives tuna from purse seine boats as well as those from foreign sources. As a

result, there should be no notable effect on canned tuna supply to the U.S. market as a direct result of this action, either in the short term or in the long term.

Implementing either Alternatives 2a or 2b should only increase administration costs slightly, mainly through the process of modifying maps and providing information to the fishing community through various outreach methods, both when the exemptions go into effect and when the exemptions end. Implementing Alternative 2c would have higher administration costs relative to 2a and 2b, due to the ongoing annual review through the Council process, in addition to the process of modifying maps and other sources of information as well as the process of informing the fishing community. Enforcement costs should not change among the alternatives, as well as compared to the no action alternative.

Alternative 3

Alternative 3 would allow permitted vessels 50 ft and longer to fish over an additional 11,601 nm² of ocean, relative to the no-action alternative, thereby reducing the total area of the EEZ around American Samoa that is closed to large longliners from approximately 26% to 15.7%.

In terms of impacts to fishermen, markets and government administrative costs, the impacts would be similar to those of Alternative 2. Large longline vessels would see a slightly greater benefit from the implementation of Alternative 3 relative to Alternative 2 (and even more so relative to the no action alternative). Small vessels would see a slightly higher negative impact under the implementation of Alternative 3, relative to Alternatives 2 and 1. Enforcement and administration costs are likely to be the same relative to Alternative 2.

Alternative 4 – Preferred

Alternative 4 would allow permitted vessels 50 ft and longer to fish over an additional 16,817 nm² of ocean, relative to the no-action alternative, thereby reducing the total area of the EEZ around American Samoa that is closed to large longliners from approximately 26% to 11.3%.

In terms of impacts to fishermen, markets, and government administrative costs, the impacts would be similar to those of Alternative 2 and 3. Large longline vessels would see a slightly greater benefit from the implementation of Alternative 4 relative to Alternatives 2 and 3 (and even more so relative to the no action alternative). Small vessels would see a slightly higher negative impact under the implementation of Alternative 4, relative to Alternatives 3, 2 and 1. Enforcement and administration costs are likely to be the same relative to Alternatives 2 and 3.

Alternative 5

Alternative 5 would allow permitted vessels 50 ft and longer to fish over an additional 20,061 nm² of ocean, relative to the no-action alternative, thereby reducing the total area of the EEZ around American Samoa that is closed to large longliners from approximately 26% to 8.6%.

In terms of impacts to fishermen, markets and government administrative costs, the impacts would be similar to those of Alternative 2, 3, and 4. Large longline vessels would see a slightly

greater benefit from the implementation of Alternative 5 relative to Alternatives 2, 3, and 4 (and even more so relative to the no action alternative). Small vessels would see a slightly higher negative impact under the implementation of Alternative 5, relative to Alternatives 4, 3, 2 and 1. Enforcement and administration costs are likely to be the same relative to Alternatives 2, 3, and 4.

5.2 Distributional Changes in Net Benefits

NMFS expects each of the action alternatives to have minor distributional effects among large and small vessels. Each action alternative generally will provide greater benefits to large longline vessels that would be allowed to fish in the exempted areas of the LVPA, and adversely affect the small vessels (and the two large longline vessels that is currently exempt from the LVPA requirements) that currently allowed to fish in those areas. The larger the proposed exempted area, the greater the extent of the distributional change in net benefits.

5.3 Changes in Income and Employment

NMFS expects the action alternatives to increase net income earned by large longline vessels that are currently prohibited from fishing within the LVPA, through a potential increase in revenue and reduction in trip costs. The increase in net income is expected to be great for the action alternatives that enable these vessels to fish within greater areas of the LVPA and for a longer time (with Alternative 5c, being the alternative which would likely result in the highest increase in net revenue). The action alternatives might also have a small effect on income and regional employment because the potential increase in large longline fishing activity might generate increase in sales of provisions, supplies, and fuel for this fishery.

The action alternatives might lower revenues for small vessels that currently fish within the LVPA without competition from larger vessels, because of the potential increase in catch competition.

5.4 Cumulative Impacts

NMFS does not expect any of the alternatives considered to result in cumulatively significant adverse impacts when considered in conjunction with other existing or future conservation and management measures that affect the American Samoa-based fisheries.

6. Summary of the Significance Criteria

E.O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be significant. A significant regulatory action is one that is likely to:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
- Create a serious inconsistence or otherwise interfere with an action taken or planned by

another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

Based on the costs and benefits discusses in the RIR and the above criteria, none of the alternatives appear to have the potential to constitute a significant action under the E.O. 12866.

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FINDING OF NO SIGNIFICANT IMPACT

Exemption for Large U.S. Longline Vessels to Fish in Portions of the American Samoa Large Vessel Prohibited Area

(RIN 0648-BF22)

The National Marine Fisheries Service (NMFS) prepared this Finding of No Significant Impact (FONSI) according to NMFS Instruction 30-124-1 (July 22, 2005), the guidelines for fisheries management actions, and National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 (May 20, 1999), the requirements for compliance with the National Environmental Policy Act (NEPA). The environmental effects analysis in the attached Environmental Assessment (EA) supports this FONSI. NMFS also prepared the EA in accordance with the requirements of NEPA and agency guidelines.

Background and Federal Action

In 2002, NMFS implemented the American Samoa large vessel prohibited area (LVPA), which restricts vessels 50 ft and longer from fishing for pelagic management unit species in the U.S. Exclusive Economic Zone (EEZ) from 3 nm to approximately 30-50 nm around the various islands of American Samoa. NMFS established the LVPA to prevent the potential for gear conflicts and catch competition between small (less than 50 ft) and large (50 ft and greater) longline fishing vessels, which could reduce opportunities for sustained participation by American Samoans in the small-scale pelagic fisheries. You may read more about the establishment of the LVPA in the 2001 proposed rule (66 FR 39475, July 31, 2001) and 2002 final rule (67 FR 4369, January 30, 2002).

Since 2002, the conditions that led NMFS to establish the LVPA have changed. Today, only a few small longline vessels are operating on a regular basis, and the large vessels have faced declining catch per unit of effort (CPUE), increased costs, and greatly reduced revenues. Although other small non-longline vessels fish both commercially and recreationally for yellowfin and skipjack tunas and billfishes in nearshore waters and on offshore banks around American Samoa, the conditions that led to the establishment of the LVPA in 2002 no longer support the full extent (30-50 nm) of the original prohibited area for longlining. The LVPA may be unnecessarily reducing the efficiency of the larger American Samoa longline vessels by displacing the fleet from a part of their historical fishing grounds.

To address the fishery conditions resulting from the LVPA, NMFS proposes to allow federally-permitted U.S. longline vessels 50 ft and longer to fish in portions of the LVPA (the Preferred Alternative 4, including 4c). Specifically, the action would allow large U.S. vessels that hold a federal American Samoa longline limited entry permit to fish within the LVPA seaward of 12 nm around Swains Island, Tutuila, and the Manua Islands. NMFS will continue to prohibit

fishing in the LVPA by large purse seine vessels. The fishing requirements for the Rose Atoll Marine National Monument also remain unchanged. The Western Pacific Fishery Management Council (Council) intended this action to improve the efficiency and economic viability of the American Samoa longline fleet, while ensuring that fishing by the longline and small vessel fleets remains sustainable on an ongoing basis.

The action would allow fishing in an additional 16,817 nm^2 of federal waters, thereby reducing the total portion of the U.S. EEZ around American Samoa that is closed to large longline vessels from 25.5 percent to 11.3 percent. Thus, large longline vessels would be able to distribute fishing effort over a larger area, which may reduce catch competition among the larger vessels and promote economic efficiency by reducing transit costs. NMFS will continue to prohibit large longline vessels from fishing in the EEZ from 3-12 nm around the islands, thus maintaining non-competitive fishing opportunities for the American Samoa's small-vessel longline and troll fleets.

The Council and NMFS will annually review the effects of the action on catch rates, small vessel participation, and sustainable fisheries development initiatives. Any changes to the LVPA, if proposed, would be subject to additional environmental review and opportunity for public review and comment.

On August 25, 2015, NMFS published a proposed rule and draft environmental assessment (EA) for public comment (80 FR 51193). The comment period ended September 24, 2015. NMFS received comments from over 270 individuals, commercial and recreational fishermen, businesses, Territorial government offices (including the Governor of American Samoa and the American Samoa Department of Marine and Wildlife Resources or DMWR), Federal agencies, and non-governmental organizations. NMFS received numerous comments simply expressing support for or opposition to the proposed rule. NMFS also received detailed comments on the proposed rule and on the draft EA. NMFS responds to these comments in the final rule.

Significance Analysis

NAO 216-6 contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 CFR, section 1508.27 suggest that an agency analyze an action in terms of both "context" and "intensity." Each criterion listed below is relevant in making a finding of no significant impact and NMFS considered these criteria individually and combined. We analyzed the significance of this action based on the NAO 216-6 criteria and CEQ context and intensity criteria. NAO 216-6, Section 6.01b, 1-11 provides eleven criteria, the same ten as in the CEQ regulations and one additional criterion, for determining whether the impacts of a proposed action are significant. The following questions and answers apply to the analysis in the attached EA for the selected alternative (Alternative 2). The questions are consistent with NAO 216-6, CEQ criteria, and guidelines for a FONSI for fishery management actions (NMFS Instruction 30-124-1), and form the basis for the finding of no significant impact.

1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

No. The American Samoa longline fishery targets South Pacific albacore, a highly migratory species. While this action would open 16,817 nm² of the EEZ around American Samoa to large-vessel longline fishing, there is no indication that large volumes of albacore accumulate in the LVPA.

As described in the EA, overfishing occurs when the fishing mortality rate (F/F_{MSY} ratio) is greater than 1.0 for one year or more. Currently, South Pacific albacore is healthy and is not subject to overfishing because the fishing mortality rate is approximately 21 percent of the rate that produces MSY (e.g., $F/F_{MSY} = 0.21$) (See EA sections 3.2.1). While the action could increase the efficiency of the American Samoa longline fleet by allowing it to fish in more area within in the EEZ, including areas closer to shore than previously allowed, there is no indication that this action would jeopardize the sustainability of the albacore stock (EA, section 4.6.4).

2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?

No. There is no indication that non-target species (skipjack, yellowfin, and bigeye tunas, and other pelagic fish), have accumulated within the LVPA. As shown in EA section 3.2, skipjack and yellowfin tunas are not subject to overfishing and are not overfished. While bigeye tuna continues to be subject to overfishing, the WCPFC has established a longline catch limit for member countries in 2015. Although the limit does not apply to American Samoa, the Council recommended that NMFS implement, in a separate action, a catch limit of 2,000 mt of longline caught bigeye tuna for each U.S. territory, including American Samoa in 2015 and 2016. Historically, bigeye tuna catches by the American Samoa longline fishery, including allocated catches have been well below this 2,000-mt limit. (EA sections 3.1.5.1 and 5.1). Therefore, while this action could increase the efficiency of the American Samoa longline fleet by allowing it to fish in more area within in the EEZ, including areas closer to shore than previously allowed, there is no indication that this action would jeopardize the sustainability of non-target stocks of pelagic fishes (EA, section 4.6.4).

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

No. NMFS does not expect the action to result in impacts to essential fish habitat (EFH) or habitat areas of particular concern (HAPC) for species managed under the FEP. The action does not change fishing operations that would lead to substantial physical, chemical, or biological alterations to the habitat, or result in loss of, or injury to, these species or their prey. The action would maintain the same level of protection to EFH and HAPC provided under the current FEP. Pelagic fishing usually occurs in deep water environments (greater than 1,000 m) and does not typically make contact with coral or rock substrate, thus not altering or substantially affecting EFH and HAPCs. (EA sections 4.8.4 and 5.2)

4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?

No. Federal management of the American Samoa longline fishery requires conservation and management to promote, to the extent practicable, the safety of human life at sea. NMFS does not expect the action to lead to modifications of pelagic longline fishing activities and, thus, there would be no potential change in the risks to the public or safety of fishermen at sea. (EA sections 4.8 and 4.9)

5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

No. NMFS does not expect this action will adversely affect endangered or threatened species, marine mammals, or critical habitat of these species. Section 3.3 of the EA describes the current levels of protected species interaction in the American Samoa longline fishery under the No Action Alternative. Section 4.7 of the EA describes the impacts to these species under this action. Because this action would allow large longline vessel to fish in a larger area of the EEZ compared to the No Action Alternative, there is a potential for increased level of interactions. However, based on the analyses presented in the EA, the anticipated level of interactions under this action is expected to have a negligible population level impact to endangered and threatened species and marine mammals that are known to interact with the American Samoa longline fishery (EA section 4.7). NMFS expects that the anticipated level of interactions will remain within the incidental take statements authorized in the October 30, 2015 biological opinion NMFS prepared for this fishery.

Under this action, the American Samoa longline fishery will continue to be subject to fishing requirements including at-sea-observer monitoring, catch and reporting requirements and protected species mitigation measures. If information indicates the fishery has exceeded an ITS, NMFS would reinitiate formal consultation under the ESA and take appropriate action to ensure the continued operation of the fishery does not jeopardize the continued existence of any endangered or threatened species.

There is no designated critical habitat for any ESA-listed species in the area of operation of American Samoa longline fishery. So there will be no impacts to critical habitat.

6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

No. The American Samoa longline fishery does not have a large adverse effect on pelagic ecosystem processes, such as fish diversity or predator-prey relationships. The ability for large longline vessels to fish in areas closer to the islands would not result in a large change of fishing intensity in any area. Thus, NMFS does not expect this action to have a substantial impact on pelagic ecosystem processes or biodiversity. (EA section 4.8)

7) Are significant social or economic impacts interrelated with natural or physical environmental effects?

No. The action is expected to reduce catch competition among large longline vessels, while also reducing trip length, and costs, and there are no interrelated impacts with environmental effects. NMFS does not expect the rule will have a significantly adverse economic impact to individual vessels because large longline vessels could benefit from this action. While there are a few small longline vessels and pelagic trolling vessels that currently fish inside the LVPA, there is no indication that the action would reduce catch or catch rates by these vessels particularly as the action preserves a 12 nm zone around certain islands to be used exclusively by small (<50 ft) vessels. Additionally, there are no disproportionate economic impacts among the universe of vessels based on gear, home port, or vessel length. (EA sections 4.9.4, 5.12). Furthermore, the Council and NMFS will annually review the effects of the action on catch rates, small vessel participation, and sustainable fisheries development initiatives.

8) Are the effects on the quality of the human environment likely to be highly controversial?

No. The Council developed the action in a public process in accordance with the provisions of the Magnuson-Stevens Act, the FEPs, and in coordination with fishery scientists, managers, other resource managers, and other interested parties. NMFS coordinated the EA with the public. While the action may be unpopular with the Government of American Samoa and certain individuals, it is not controversial from a scientific or legal standpoint, and the public coordination process revealed no controversy regarding the potential effects of this action on the quality of the human environment.

9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

No. There are no such areas in the EEZ around American Samoa beyond 12 nm from shore. The fishery would continue to operate beyond the range of coral reefs around the American Samoa, and these vessels would avoid setting gear where it might contact the sea floor. The offshore banks and seamounts, important to the troll fleet, would be accessible to longline vessels, but it is likely that the longliners would avoid setting close to these structures to avoid their gear entangling on the seamount demersal substrate. Before the LVPA was established, there was no record of longline gear entangled on seamounts or demersal substrate. Thus, impacts to marine protected areas, habitats and other marine resources would likely be insignificant. Furthermore, the fishing requirements for the Rose Atoll Marine National Monument remain unchanged. (EA section 4.8).

10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

No. NMFS and the Council have provided qualitative or quantitative estimates of the potential risk to the environment, including the risk of overfishing to target and non-target stocks, the risks

to protected resources, the risks to habitat, and the risks to fishermen and fishing communities, administration and enforcement. NMFS and the Council have been managing the fishery using the same set of tools for more than a decade, and this action does not present a change in management or operations that carry unique or unidentified risks. (EA sections 4.1-4.12.)

11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

No. NMFS evaluated the potential for cumulative effects of the action on target and non-target stocks, ocean productivity related to climate change, protected species, catch rates of albacore, and fishing communities. NMFS does not expect this to result in cumulative impacts that could have substantial effects. (EA section 4.12)

12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

No. There are no known such places or objects in the EEZ around American Samoa where the pelagic longline fishing operates. Additionally, longline fishing activities are not known to result in adverse impacts to scientific, historic, archeological, or cultural resources because fishing activities occur generally many miles offshore. (EA section 4.8)

13) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

No. Longline fisheries are not known to be a potential vector for spreading non-indigenous species. Because most vessels will fish within waters around American Samoa, they would not spread species from other areas. (EA section 4.8)

14) Is the proposed action likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

No. This action relieves a restriction imposed by the Council and NMFS in 2002. Aside from opening some, but not all, of the LVPA to large-vessel longline fishing, all existing management measures remain in place. These include permits and logbook reporting, dockside inspections by the U.S. Coast Guard and NMFS Office of Law Enforcement (OLE), Vessel Monitoring System that tracks vessel movements, independent observer monitoring, fishing gear and depth requirements, vessel and gear marking requirements, protected species workshops, and handling/mitigation and catch and release protocols for turtles, seabirds, cetaceans and sharks. No new measures are proposed. The Council and NMFS would review the effects of the action on catch rates, participation, and sustainable fisheries development initiatives. The Council and NMFS would take appropriate management action, as necessary. (EA section 2).

15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

No. The Council developed this action in a public process consistent with the Magnuson-Stevens Act, the National Standards, the FEP, and other applicable laws including Territorial laws, and in coordination with fishery scientists, managers, other resource managers, and other interested parties. (EA section 5).

16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

No. NMFS evaluated the potential for cumulative effects of this action on target and non-target stocks, ocean productivity related to climate change, protected species, catch rates of albacore, and fishing communities. NMFS does not expect this action to result in cumulative impacts that could have substantial effects. (EA section 4.12).

NMFS also considered the effects of this action on climate change and climate change impacts on the feasibility of the action and to resources considered in the EA. (EA section 4.11). Monitoring of stock status would continue and we are likely to detect any impacts to stocks that might be occurring because of climate change. Managers could modify fishery management provisions to ensure that all fisheries, including American Samoa fisheries, remain sustainably managed. We do not expect the action to change the fishery's conduct and any resulting greenhouse gas emissions.

Determination

Based on the information in this document and the analysis contained in the EA, I have determined that the impact of implementing this action will not have significant effects on the quality of the human environment. All relevant potential beneficial and adverse impacts of the action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

JAN 12 2016

Michael D. Tosatto
Regional Administrator

Date

Attachment