WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Options to Address the Economic Collapse of the American Samoa Longline Fishery

Background

Last year, longline vessels based in American Samoa recorded their lowest annual catch numbers in the past decade. The catch rate across the American Samoa longline fleet was at a maximum of about 6,000 mt (more than 300,000 fish) in 2002, and catches have declined since 2007. The catch rate has declined by 40% on average, and the 2013 catch rate is a record low and 70% less than the highest catch rate, recorded in 1996 (Figure 1).

A low of about 2000 mt (~117,000 fish) was recorded in 2013, and 2014 is likely to be even worse (Figure 2). The American Samoa longline fishery has suffered a catastrophic economic collapse.

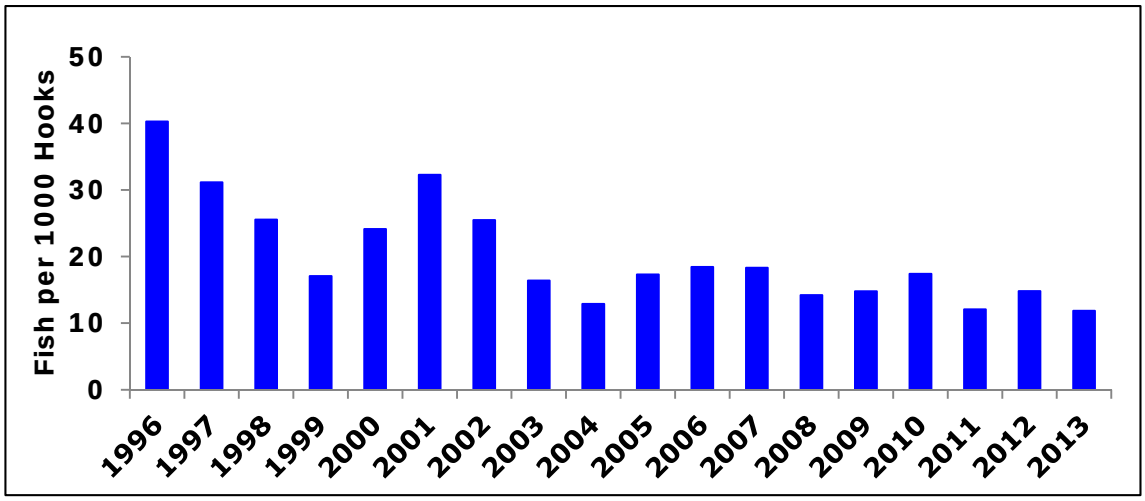

Figure 1. Time series of albacore CPUE in the American Samoa longline fishery 1996-2013

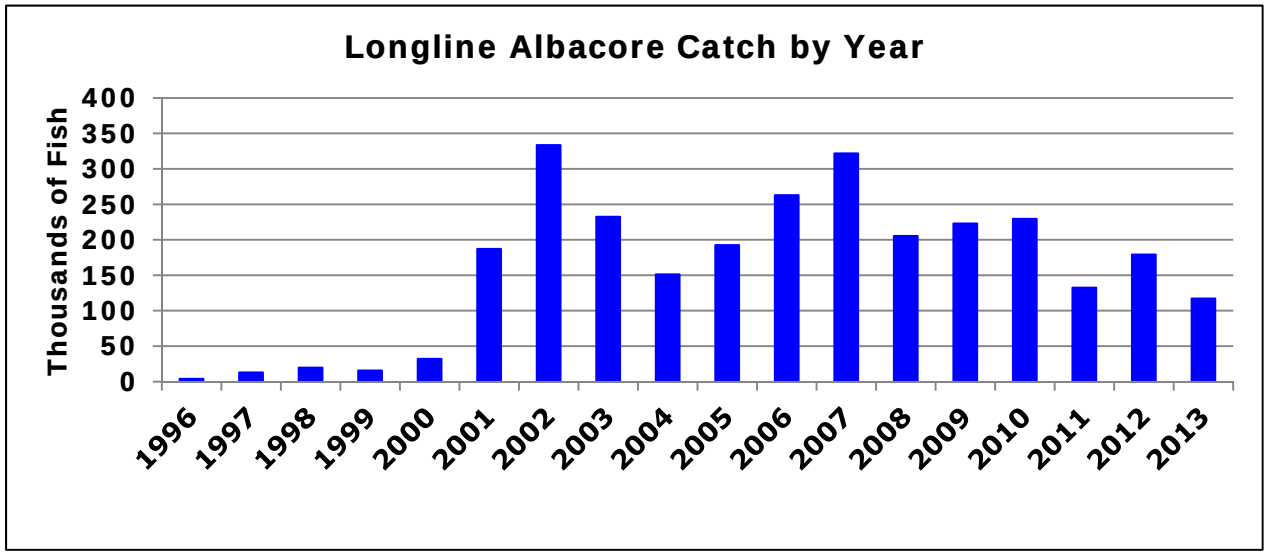

Figure 2. Time series of albacore landings by the American Samoa longline fishery 1996-2013

The fishery is strongly seasonal with a low period in the Austral summer between December and April. Typically, vessels experience lower catches in these months (Figure 3). However, even the peak of the fishing season has failed recently to yield sufficient catches to cover fishing expenses. Most vessels are no longer fishing since catches are insufficient to cover operating costs and. A study by NMFS PIFSC showed that a vessel operator could expect to clear $100,000 from the fishery in 2001. In 2009, this revenue had fallen by 94%, to $6,000. That was five years ago; it is likely that some vessels are now in negative income territory.

Recent anecdotal information indicates that vessels are returning from trips of greater than one month duration with their fish holds only half full and with insufficient catch to cover costs. The situation has become so dire that recently American Samoa-based owners en masse have offered their vessels for sale (Figure 4). Only a few vessels that are engaged in limited fresh fish operations are still fishing.

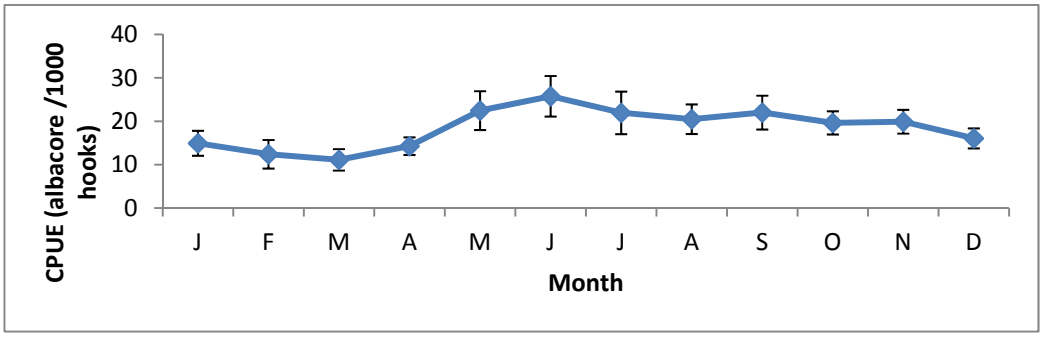

Figure 3. Seasonality of albacore catch per unit of effort (CPUE)

Figure 4 . Longline vessels for sale January 2014 in Pago Pago Harbor. Source: Nate Ilaoa

This collapse is not confined to American Samoa; it has also been documented across the Central South Pacific – from Fiji (Fiji Sun, Thurday January 16), Samoa (John Luff, pers. comm.) Tonga (Pacific Islands Tuna Industry Association, pers. comm.) and the Cook Islands (Josh Mitchell, pers. comm.) However, the fishery in French Polynesia is being maintained by government subsidies for now (C. Daxboeck, pers. comm.)

Anecdotal information from longline fishermen and others indicates a shared perception that an influx of Chinese longline vessels 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 vessels enjoy generous subsidies on fuel, licensing, freight costs, exports, tax, loans and labor.

It is likely this influx of these vessels that has 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 taken in the EEZs of Pacific Island Countries (PICs) through access agreements for foreign longline vessels.

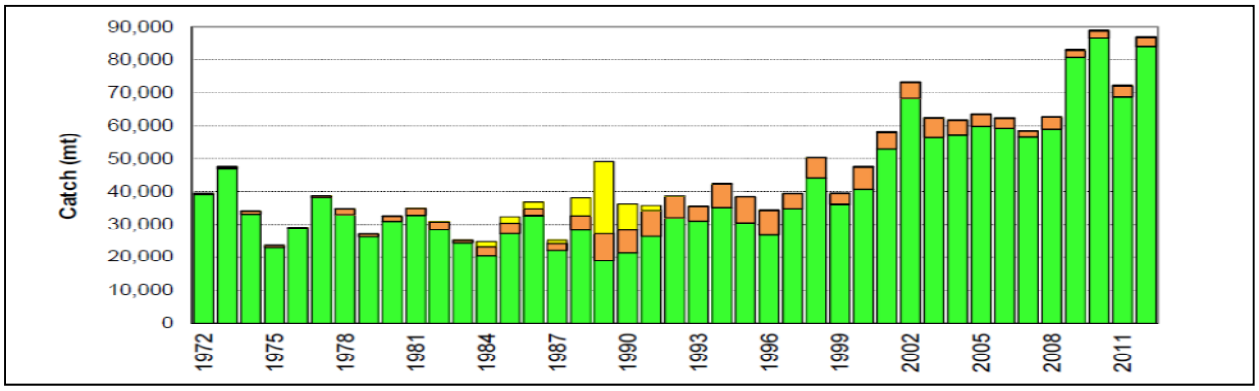

Figure 5. Time series of South Pacific albacore catch. Longline catches are shown in green

Stock status of South Pacific Albacore

The most recent stock assessment of South Pacific albacore was conducted by Hoyle et al (2012) with data extending from 1960 to 2011. The following summary of albacore stock status is freely adapted from Hoyel et al (*ibid*).

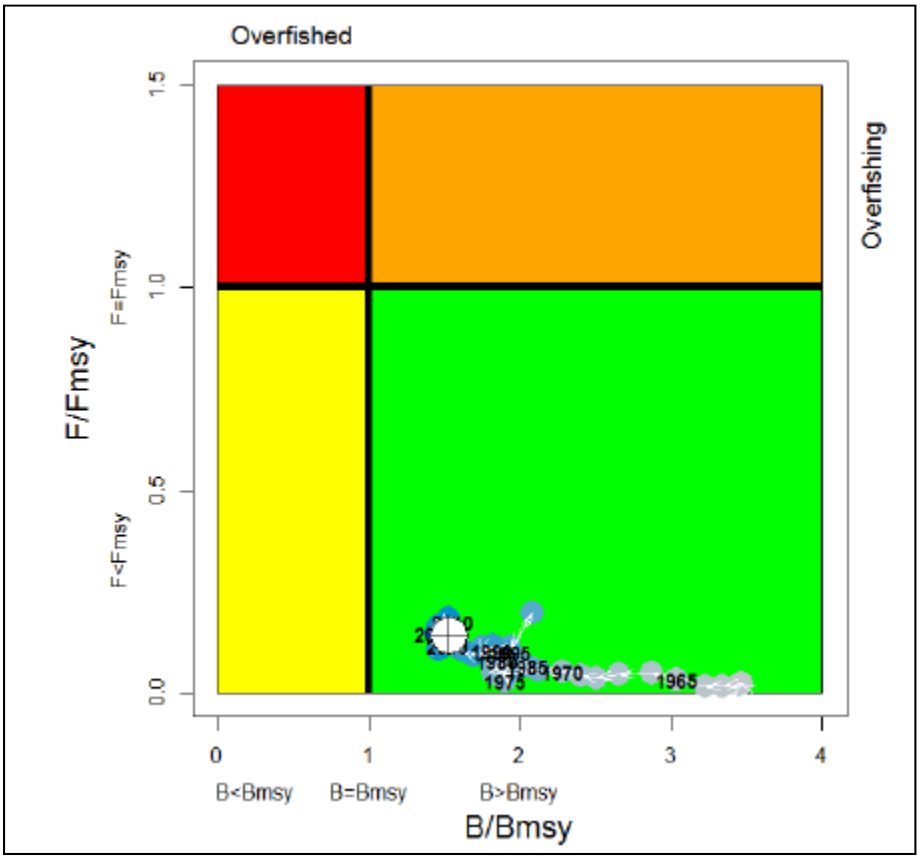

Figure 6. Temporal trend in annual stock status, relative to BMSY (x-axis) and FMSY (y-axis) reference points, for the model period (starting in 1960). The color of points is graduated from lavender (2006) to blue (2009) and white cross (2010), and points are labeled at five-year intervals. The last year of the model (2011) is excluded because it is highly uncertain.

Figure 6 shows a 'Kobe' plot 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}).

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[1] from the fishery ($C_{current}$ 78,664 mt, C_{latest} 90,000 mt). There is no indication that current levels of catch are causing recruitment overfishing, particularly given the age selectivity of the fisheries. 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.

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 subequatorial 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 this assessment suggest that regional stock depletion has contributed to catch rate declines, but localized depletion may also have contributed. Observed declines in catch rates from significant domestic longline fisheries (e.g. Fiji, French Polynesia, and Samoa) — following periods of relatively high albacore catch (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 EEZ's may be lower than peak catch levels, and there may be some viscosity (perhaps residency) in the population.

Regulatory Options to Assist in Recovery of the Fishery

It is important to state at the outset that regulatory action is unlikely to lead to immediate relief for the American Samoa longline fishery. As noted above, the South Pacific albacore stock is not overfished or subject to overfishing. However, the combination of effort concentrated into a relatively small area and the low viscosity or replacement of the fished population may lead to both regional and localized depletion and concomitant low catch rates.

Given the virtual elimination of the Alia fleet it is appropriate among other things to look at the continuing basis of the large vessel area closure as it relates to the > 50ft American Samoa longline vessels and the efficiency of the fishery.

Among other National Standards, a federally managed fishery should be consistent with Magnuson Steven Act National Standard 5 which states: 'Conservation and management

[1] $C_{current}$ = mean catch from June 2007-June 2010, C_{latest} = June 2010-June 2011)

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.'

However, it should be recognized that any changes through regulatory action typically take 1-2 years to be fully reviewed and implemented as regulations by NMFS, following transmittal by the Council (see Appendix 1).

The American Samoa longline fishery at present operates under a limited entry program with vessel limits within four size classes (Class A < 40 ft, 12 permits; Class B 40.1-50 ft, 1 permit; Class C 50.1-70 ft, 12 permits; Class D >70 ft, 27 permits). There is no upper size limit on the longline vessels in the largest size class.

Not all of the US EEZ (118,354 sq nmi) around American Samoa is available to the longline fishery, about 33,000 sq nmi or about 28% of the EEZ is closed to all pelagic fishing vessels > 50 ft in overall length (LOA).

Regulatory actions for which final action has been taken by the Council includes modifying the current permit programs, removing the ten fish per trip swordfish trip limit and permitting shallow-set longline fishing for swordfish (see Appendix 1).

The original intent of the limited entry permit program was to maximize American Samoa participation in the longline fishery, consistent with the conservation and management needs of target stocks. However, even with the proposed modifications into only two size classes, eliminating the qualification criteria and the minimum landing requirements for vessels < 50ft, this may still have a dampening effect on participation in the fishery.

On average <30 participating vessels have operated in the fishery after 2004 when the limited entry permit program began, although there are 60 permits available.

Most of this deficit is due to the collapse of the small vessels fishery in the A and B size classes which contracted to a single vessel by 2008.

As such American Samoa longline participants may wish to consider additional changes to the longline limited entry program:

a) **Maintain a limit of 60 permits but abolish the permit size classes and, without any landing requirements and allow them to be freely transferable in the same way as the Hawaii longline limited entry permits**
b) **Abolish the limited entry program altogether and have the fishery operate as before under the Western Pacific general longline permits**

Modifications to the permit program will not solve the immediate problems of low price and low albacore catch rates across the central South Pacific. However, the current poor performance of the fishery may improve in the future and the continuity of the fishery may be more assured with a more flexible permit program in place. However, it should also be noted that potential increases in participation and increasing fishing pressure on a finite resource may continue to exacerbate the problems currently being experienced in the fishery. Even though the stock is not experiencing overfishing and is not overfished, localized depletion may continue to be a problem.

It may be possible to open the current large vessel area closures around the American Samoa archipelago. As these areas are unfished it is possible that albacore may have accumulated within the closure boundaries. Moreover, the poor state of the albacore longline fishery has stimulated interest in targeting of species such as yellowfin fresh fish for fresh fish exports using longlines and other hook and line gear. Such operations may well benefit from being able to fish in the waters that are currently closed, especially around Tutuila and thus cutting trip lengths.

Options that might be considered to modify the large vessel area closure include:

a) **Removing or modifying the area closure around Swains Island only**
b) **Removing or modifying the area closure around all areas, apart from Rose Atoll MNM**
c) **Reducing the area closure around the islands of American Samoa to 12 nm for a two year period, as requested by the Tautai O Samoa Longline & Fishing Association**

However, the same caveats as above still apply; namely that while the stock is not overfished nor subject to overfishing, localized depletion and low viscosity may continue to depress catch rates, even if there are untapped albacore resources within the area closures. Moreover, albacore are highly migratory species, and the area closures are not very large relative to the EEZ as a whole, the volumes of fish within the closure boundaries may not differ greatly from the currently open portions of the EEZ.

Moreover, if opened, about 10,000 sq nmi (8% of EEZ) would remain closed due to the provisions of the Rose Atoll Marine National Monument.

Summary of potential actions

Action	Pros	Cons
Minimize permit conditions	May encourage more participation in fishery	Increased participation in the fishery may lead to more localized depletion

Action	Pros	Cons
	May increase value of permit if it can be held without minimum landing requirement Would reduce administrative burden	May lead to reduced American Samoan participation in fishery May reduce pool of available permits without landing requirements Would not address primary cause of fishery collapse
Remove area closures	May lead to exploitation of unfished albacore stocks Would increase fishable area by nearly 30% Would reduce administrative burden	No guarantee that albacore have accumulated in the closed area Any gains from fishing in closed areas likely to be ephemeral May increase competition for pelagic fish and potential gear conflict between coastal small vessels and longline fleet Opposed by sports fishermen
Modify area closures (reduction to 12 nm) for a finite period	May lead to exploitation of unfished albacore stocks Would increase fishable area Temporary measure so should limit impacts of competition between coastal small vessels and longline fleet	No guarantee that albacore have accumulated in the closed area, nor that localized depletion would quickly reduce any 'windfall' benefits Any gains from fishing in closed areas likely to be ephemeral May increase competition for pelagic fish between coastal small vessels and longline fleet despite limited time period Opposed by sports fishermen

At its 159th Meeting, the Council may select to take no action, select one or more of these options or develop another preferred option for regulatory action to assist the recovery of the American Samoa longline fishery.

Appendix 1. Details of pending Council Actions for American Samoa

1. Most Recently Implemented Measures

A. Gear modifications. Completed in May 2011 and final rule published in August 2011

The amendment requires American Samoa longline vessels to ensure that all hooks are set below 100 m to minimize interactions with green sea turtles. The amendment also set a trip limit of ten swordfish per trip.

B. Modification of the boundaries of the southern large vessel (> 50 ft) area closure for congruency with the Rose Atoll Marine National Monument boundary. Completed in April 2011 and final rule published in April 2012

This amendment modifies the boundaries to the southern portion of the large vessels area closure implemented around the American Samoa archipelago. The large vessel closure had two functions; to prevent purse seine fishing in the immediate vicinity of the islands of American Samoa, and to provide a buffer between large conventional monohull longline vessels and smaller outboard powered artisanal alia longliners. The implementation of the Rose Atoll MNM was conducted without consultation with the Council with the net result that the 50 nm monument boundary did not overlap congruently with the large vessel closure boundary. As such, this represented further loss of fishing opportunity to the large monohull longline vessels.

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, now 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 to provide a primary pathway for sustained community and indigenous American Samoan participation in the fishery. The amendment combines the four vessels size classes into just two classes A (vessels < 50f) and B (vessel > 50ft), reduces the minimum landing requirement for vessel size class A from 1000 lbs to 500 lbs per three year period, and permit eligibility would be limited 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.

American Samoa Shallow-Set Longline Fishery for Swordfish, Final Action at 153 CM, March 2102, Sent to NMFS-PIRO for Review in May 2012

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 hard caps for loggerhead and leatherback turtles, and no specific seabird mitigation measures.

American Samoa Longline Swordfish Trip Limit, Final Action June 2013

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. Part of that measure was to implement a trip limit of 10 swordfish 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 limit of 10 swordfish be increased, as it was in the Hawaii deep set longline fishery. 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.

References

Hoyle, S., J. Hampton and N. Davies. 2012. Stock Assessment of Albacore Tuna in The South Pacific Ocean. Western and Central Pacific Fishery Commission, Science Committee, Eighth Regular Session, 7-15 August 2012, Busan, Republic of Korea, WCPFC-SC8-2012/SA-WP-04-REV1, 123 pp.