NOAA FISHERIES
Pacific Islands Regional Office

FAD Management Plan for the United States

August 15, 2013

Objective

To ensure U.S. management of the use of fish aggregating devices (FADs) by purse seine vessels is consistent with the conservation and management measures and data collection protocols of the Western and Central Pacific Fisheries Commission (WCPFC or Commission).

Scope

This document applies to drifting FADs used by U.S. flagged purse seine vessels operating within the area of competence of the WCPFC (i.e. the Convention Area), including the exclusive economic zones (EEZs) of Pacific Island countries (PICs), the exclusive economic zone of the United States and the high seas.[1]

Background

Landings derived from floating objects (natural and manmade FADs) have historically constituted large portions of the overall tuna catches by purse seiners in the western and central Pacific Ocean (WCPO) (Dagorn et al 2012). FADs are employed because they provide vessel operators a greater chance of catching fish (fewer zero-catch sets). Although FAD sets generally yield higher proportions of skipjack than unassociated sets, they also tend to result in higher proportions of juvenile yellowfin and bigeye tuna, as well as other non-tuna species (generally referred to as non-target, associated and dependent species, or NADS), than unassociated sets.

U.S. purse seine vessels have operated in the WCPO since the 1970s under various regimes and agreements and since 1988, under the Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States (Treaty), which authorizes access to waters of 16 PICs. Under the Treaty, U.S. purse seine fishing effort has predominantly occurred in the EEZs of these PICs. For example, from 1997 until 2010 (inclusive), the U.S. WCPO purse seine fleet spent, on average, 6% of its annual effort (fishing days) in the U.S. EEZ, 22% of its effort on the high seas and 73% in EEZs of PICs (National Marine Fisheries Service (NMFS) unpublished data). Participation in the U.S. WCPO purse seine fishery has fluctuated over time with vessel numbers increasing from the late 1980s to the mid-1990s, gradually decreasing until 2006,

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1 Paragraph 24 of "Conservation and Management Measure for Bigeye, Yellowfin and Skipjack Tuna in the Western and Central Pacific Ocean," (or CMM 2012-01) states: "CCMs fishing on the high seas shall submit to the Commission Management Plans for the use of FADs by their vessels on the high seas." Although this CMM only requires management plans for the high seas, this plan includes all areas where U.S. purse seine vessels are authorized to fish within the Convention Area.

and then rebounding to levels similar to the late 1990s in the late 2000s (see Figure 1 below). As of January 2013, the U.S. WCPO purse seine fleet included 40 vessels –– the maximum number of non-joint venture licenses allowed under the Treaty.

Figure 1.Number of U.S.-flagged purse seine vessels licensed, vessels fished and maximum treaty licenses (other than joint-venture licenses) available under the SPTT from 1988 to 2012

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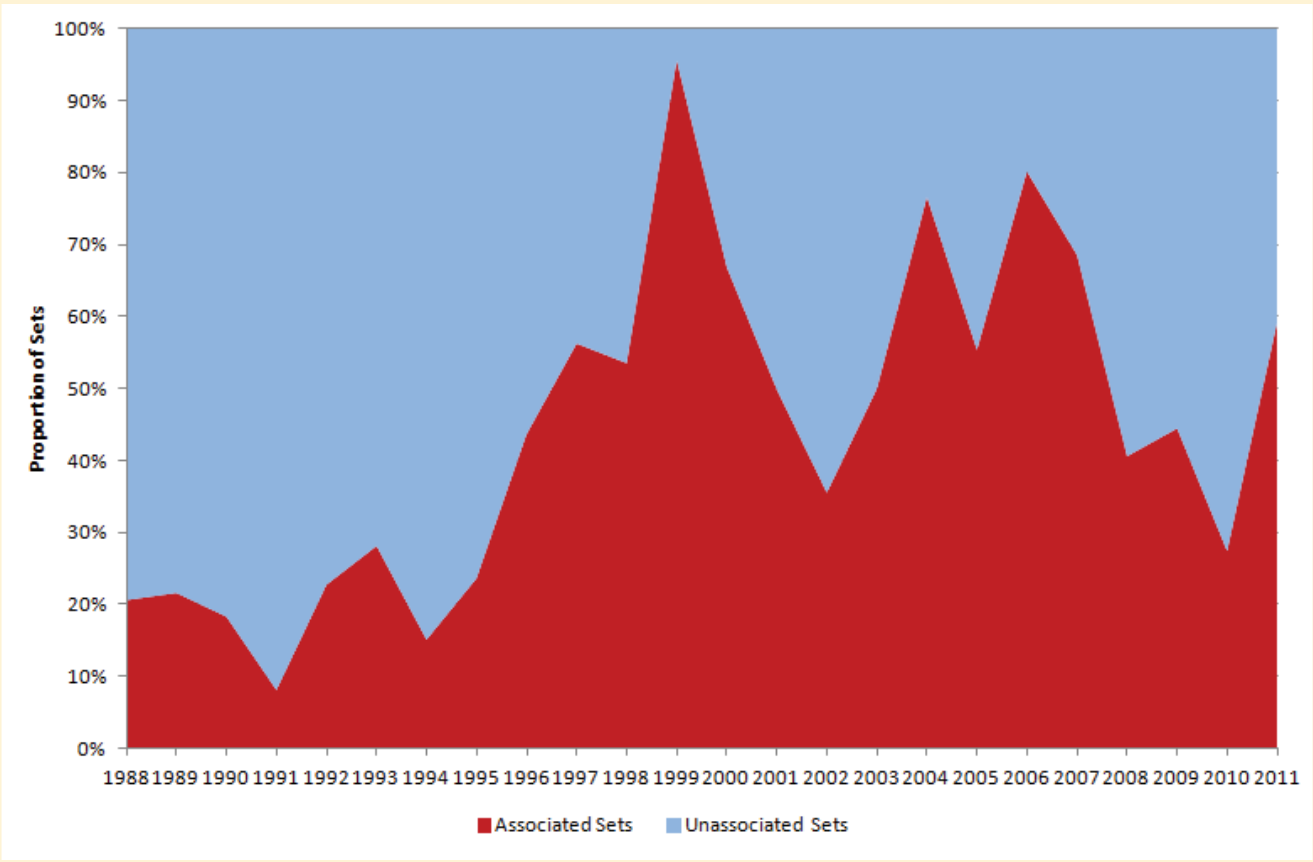
U.S. purse seine vessels make sets on unassociated and associated schools of fish. The proportion of sets made on each of these two set types varies widely from year to year. The proportion of all annual sets that was associated sets ranged from 8% to 96% from 1988 through 2011 (see Figure 2 below). Table 1 shows the recent catch of the three principal tuna species by set type and Table 2 shows average catch by set type for the U.S. purse seine fleet from 2007 to 2011.

Figure 2. Associated sets as proportion of all sets by U.S. WCPO purse seine fleet, 1988-2011.



NMFS unpublished data.

Table 1. Annual U.S. WCPO purse seine catch estimates in metric tons by set type (unassociated and associated), 2007-2011

Year	Skipjack		Yellowfin		Bigeye		Totals
	Unass.	Ass.	Unass.	Ass.	Unass.	Ass.	
2007	14,306	55,842	2,466	12,587	100	3,435	88,736
2008	69,170	89,935	20,058	23,491	466	6,203	209,323
2009	96,975	138,645	9,005	26,975	777	9,212	281,589
2010	112,738	86,504	18,993	19,878	1,111	6,302	245,526
2011	54,424	113,328	4,093	21,328	328	9,714	203,215
2012	69,523	96,851	10,923	20,852	556	6,973	205,678

Source: SPC 2013

Table 2. Average U.S. WCPO purse seine catch per set in metric tons by set type (unassociated and associated), 2007-2011

Year	Skipjack		Yellowfin		Bigeye	
	Unass.	Ass.	Unass.	Ass.	Unass.	Ass.
2007	21.7	39.7	3.7	9.0	0.2	2.4
2008	16.9	32.4	4.9	8.5	0.1	2.2
2009	19.9	36.6	1.8	7.1	0.2	2.4
2010	17.9	35.9	3.0	8.3	0.2	2.6
2011	18.4	33.3	1.4	6.3	0.1	2.9
Average	18.9	35.6	3.0	7.8	0.1	2.5

Source: SPC 2013

Information on FADs

Although catch and species composition data by set type are available for the U.S. purse seine fleet (e.g., through logbooks and observer data), very little information and few analyses are available on such things as: (1) the total number of FADs in use in the WCPO (by the U.S. fleet or in total by all fleets), (2) each FAD's fish production and lifetime, (3) the composition of FADs in terms of materials, (4) FAD structure, (5) the design of FADs and (6) which design factors influence the ability of FADs to aggregate either target species or NADS. The regulations implementing the Treaty require vessels to report daily activity (including whether a set is associated or not) and catches in logbooks. There are no other domestic requirements specifically related to reporting information regarding the use of FADs.

On U.S. purse seine vessels, Regional Observer Programme (ROP) observers collect some information on FADs as part of the Purse Seine Observer Workbook provided by the Pacific Islands Forum Fisheries Agency[2] (FFA) (PS-2 Form) and for the WCPFC Regional FAD information record (GEN-5 Form).[3] The PS-2 Form includes, among other things, information on sightings of FADs and schools of fish. The GEN-5 Form, developed from minimum standard data fields adopted by the Commission at WCPFC6 (http://www.wcpfc.int/doc/rop-fad-data-fields), has fields for information on the materials used in the FAD construction, the electronics associated with the FAD, the use of the FAD by the vessel, and a description of the FAD (e.g., diagram, markings, general description). Although the GEN-5 form has been in use for a few years, it is unclear if all FFA-deployed observers consistently collect this information, and how much of any collected data have been provided to the Secretariat and been entered into the WCPFC ROP database. We have seen no analysis done on those data.

In 2012, the United States reviewed observer records for 25 trips that occurred outside of the FAD prohibition periods in 2010-2012.[4] The review suggests large differences in the numbers of FADs recorded on the GEN-5 forms and the numbers of FAD sets recorded on RPLs (catch and effort logsheets commonly known as regional purse seine logsheets or RPLs). The GEN-5 forms for six out of the 25 trips reviewed (or 24% of the reports) contained no FAD related information. When the review was conducted, compiled information from the GEN-5 forms was not available and thus, the United States was unable to determine the number of FADs in use by the U.S. fleet, average duration of use, time between sets, composition and structure, or how any of those factors might influence a FAD's effectiveness in aggregating fish. All of which is needed to begin to understand FAD use and the impact of FADs on the pelagic resources under the purview of the WCPFC.

2 Under the Treaty the U.S. has been obligated to ensure a 20% observer coverage rate, a level that had been met using FFA trained and deployed Pacific Island country observers (since 1988). After the adoption of CMM 2008-01 (and as continued by its follow-on measures (CMM 2011-01 and CMM 2012-01)), 100% observer coverage has been required, and the U.S. has employed the FFA observer program, who has become an authorized observer provider under the WCPFC ROP. All reporting has been and continues to be completed by FFA observers on regional forms as required by FFA.

3 Copies of these forms can be accessed at http://www.spc.int/oceanfish/en/observer-forms.

4 These prohibition periods are discussed in greater detail below.

When data from the GEN-5 forms become available, there may be greater information known on the materials, composition, and structure of FADs used by the U.S. fleet. Although some information may also be gained from the GEN-5 forms on the deployment and collection of FADs from U.S. vessels, it is unlikely that we would be able to learn much about yields from FADs without additional information including time spent in the water, number of sets made by vessels on the FAD and time between sets. Given there are no gear marking requirements in the WCPFC, and radio buoys often are swapped if FADs are found by competing vessels, tracking a FAD throughout its lifetime and linking all information on FADs and sets is not feasible at present.

Current Management/Regulatory Framework

The WCPFC has adopted conservation and management measures (CMMs), for the conservation and management of bigeye, yellowfin and skipjack tuna that contain FAD-related provisions for purse seine vessels. These include CMM 2008-01, CMM 2011-01 and CMM 2012-01. These CMMs established FAD prohibition periods whereby Commission members, non-members and participating territories (CCMs) were required to prohibit their purse seine vessels from setting on FADs between 20° N. and 20° S. latitude in the Convention Area – for two months in 2009, and three months in each of 2010-2013.

The United States has implemented the FAD prohibition periods through several rulemakings. The FAD prohibition periods for 2009-2011 were implemented domestically by a final rule published August 4, 2009, (vol. 74 Federal Register, p. 38544). This final rule prohibited U.S. purse seine vessels from setting around a FAD, setting on fish aggregated in association with a FAD, setting in an area where a FAD was present in the prior 8 hours, deploying FADs, or servicing FADs during the FAD prohibition periods. The FAD prohibition period for 2012 was implemented domestically in an interim rule published December 30, 2011 (vol. 76 Federal Register, p. 82180).

For 2013, CCMs are required to implement a three-month FAD prohibition period, as well as either an additional one-month FAD prohibition period or a limit on the annual number of FAD sets. The limit on the annual number of FAD sets is 8/12 of the average number of annual FAD sets between 2001-2011 for the CCM, or for a Small Island Developing State (SIDS) CCM, 8/9 of the three years average (2009-2011) of the CCM. The United States has domestically implemented a four month FAD prohibition period for 2013 through a final rule published May 23, 2013 (vol. 78 Federal Register, p. 30773).

Suggested Elements from CMM 2012-01

Attachment E of CMM 2012-01 provides suggested guidelines for elements to include in a FAD management plan. The U.S. FAD management plan has incorporated some of those suggested elements (see Table 2).

Table 2. Suggested Elements from Attachment E of CMM 2012-01 that were incorporated into the U.S. FAD management plan.

Suggested Element	U.S. Response
Objective	The U.S. plan includes an objective (see above).
Scope	The U.S. plan includes a scope (see above and below).
• Vessel types and support and tender vessels	This plan applies to U.S. flagged purse seine vessels. No tender vessels are used to fish.
• FAD types (anchored (AFAD) and drifting (DFAD))	This plan applies to drifting FADs.
• Reporting procedures for AFAD and DFAD deployment	Domestic regulations require vessels to record their daily activity in logbooks. Activities reported can include FAD deployment.
• Catch reporting from FAD sets (consistent with the Commission's Standards for the Provision of Operational Catch and Effort Data)	Domestic regulations require vessels to record information on all catches in logbooks.
Institutional arrangements for management of the FAD Management Plans	
• Reporting obligations	Domestic regulations require vessels to submit logbooks containing information on their daily activities (including type of set) and catch at the conclusion of each trip.
Applicable areas	The U.S. plan applies to the area of competence of the WCPFC, including the EEZs of PICs, the EEZ of the United States and the high seas.
• Details of any closed areas or periods e.g. territorial waters, shipping lanes, proximity to artisanal fisheries, etc.	Domestic regulations prohibit FAD sets commensurate with WCPFC CMM 2012-01.
Applicable period for the FAD-MP	This plan is applicable until changed and is in accordance with U.S. laws and regulations
Means for monitoring and reviewing implementation of the FAD-MP	This plan will be reviewed and updated as necessary.
Means for reporting to the Commission	This plan will be provided to the Commission.

Some of the suggested elements from Attachment E were not incorporated (see Table 3). Some of these elements reflect regulatory, reporting and management requirements that neither the WCPFC or the United States has not put into place as it is premature to do so without the necessary data to inform the development of such measures.

Table 3. Suggested Elements from Attachment E of CMM 2012-01 that were not incorporated in the U.S. FAD management plan. The United States believes that additional data are needed before such specific management measures can be considered.

Suggested Element	U.S. Response
Scope	
• Maximum FAD numbers permitted to be deployed [per purse seine or ring net vessel per FAD type]	There are no measures on the maximum number of FADs permitted to be deployed.
• Minimum distance between AFADs	There are no minimum distance requirements between AFADs, nor do U.S. vessels employ AFADs in the WCPO.
• Incidental by-catch reduction and utilization policy	The United States does not have FAD-specific incidental by-catch reduction or utilization policies.
• Consideration of interaction with other gear types	There are no specific considerations of interaction with other gear types in the area in which the U.S. purse seine fleet operates.
• Statement or policy on "FAD ownership"	The U.S. does not have a statement or policy on "FAD ownership."
Institutional arrangements for management of the FAD Management Plans	
• Institutional responsibilities	The U.S. does not have specific institutional FAD management responsibilities.
• Application processes for FAD deployment approval	The U.S. does not require FAD deployment approval.
• Obligations of vessel owners and masters in respect of FAD deployment and use	The U.S. does not have any policies creating obligations for vessel owners and masters regarding FAD deployment and use.
• FAD replacement policy	The U.S. does not have a FAD replacement policy.
• Observer acceptance obligations	U.S. domestic regulation mandates vessels to accept an observer if required, but these regulations are not related to FAD-management.
• Relationship to Catch Retention Plans	The U.S. has implemented the WCPFC conservation and management measures regarding catch retention, but these are not FAD-specific.
• Conflict resolution policy in respect of FADs	The U.S. does not have a conflict resolution policy with respect to FADs.

FAD construction specifications and requirements	
• FAD design characteristics (a description)	**The U.S. does not have domestic requirements related to FAD design characteristics, FAD markings/ identifiers, lighting requirements, radar reflectors, visible distance, reporting of radio buoy serial numbers or reporting of satellite transceiver serial numbers.**
• FAD markings and identifiers	
• Lighting requirements	
• Radar reflectors	
• Visible distance	
• Radio buoys [requirement for serial numbers]	
• Satellite transceivers [requirement for serial numbers]	

Going Forward

CMMs 2008-01 and 2012-01 require CCMs to submit management plans for the use of FADs by their vessels on the high seas. As of October 2012, twelve CCMs had submitted documents identified as FAD management plans in response to CMM 2008-01 or an earlier CMM. The Secretariat conducted an analysis of the FAD management plans in 2009 and noted that the structure and content of many of the plans varied widely (WCPFC 2009). The United States also compared the FAD management plans submitted and observed a large number of differences among the plans. Some of the FAD management plans describe specific data collection requirements imposed by the CCM on vessel owners or operators, such as: the date and location of deployment or retrieval; specific FAD identification numbers; the type, structure and specification of FADs; and the amount of catch from fishing on FADs. However, as there was little uniformity among plans, the nature, extent and utility of the data being collected on FADs in the WCPO is unclear at this time.

The United States supports the development of a WCPFC-wide FAD management program that uniformly applies to all CCMs with defined objectives, measurement metrics and reporting requirements. The Commission does not currently have any information on the number of FADs used by the various fleets, how long FADs are left in the water, composition, structure, and how any of those components affect catch rates of FADs. This information is essential to developing a meaningful and effective FAD management plan. Without this information, the United States does not believe it can develop a useful and productive management plan for the U.S. fleet, nor is the Commission in the position to develop a comprehensive WCPFC-wide plan.

Given the heterogeneity of the FAD management plans submitted by CCMs, the United States believes that a more effective FAD management program would be one developed by the Commission that all CCMs would implement and enforce on a uniform and consistent basis. The United States would like to emphasize that before the Commission can manage FADs beyond the seasonal closures (and FAD set limits) adopted to date, the Commission must have additional information regarding the extent and nature of FAD use in the Convention Area. As mentioned previously, there is limited information regarding the number of FADs deployed, where they are deployed, how long they are left in the water, and what materials are used in the construction of FADs.

As a first step, the United States endorses the development of a comprehensive FAD information collection program, including specific FAD marking requirements, that is designed to be as useful as possible (e.g., using a unique identifier for a deployed FAD could provide information for how long the FAD has been in the water). This information could then be analyzed by the Scientific Committee, the Technical and Compliance Committee and the Commission, to determine how to most appropriately manage the use of FADs in the Convention Area. The United States tabled a FAD marking and information collection proposal at WCPFC9, which was not adopted at that meeting. However, the United States continues to support the idea of a comprehensive FAD information collection program which includes the following

elements: comprehensive FAD data collection, FAD marking requirements, enhanced management of ROP-collected FAD data, and specific provisions for the development of Commission-wide technical and management recommendations for the use of FADs. Management plans developed by each CCM in isolation will have little effect on the overall management of FADs in the WCPO.

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