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Agenda Item E.2.a
Attachment 1
June 2010

**AMENDMENT 2 TO THE FISHERY MANAGEMENT
PLAN FOR U.S. WEST COAST FISHERIES FOR
HIGHLY MIGRATORY SPECIES TO ADDRESS
REVISED NATIONAL STANDARD 1 GUIDELINES**

ENVIRONMENTAL ASSESSMENT

(PARTIAL DRAFT)

PREPARED BY:

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**NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST REGION**

JUNE 2010

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Table of Contents

CHAPTER 1	Introduction, Including Purpose and Need for the Proposed Action	1
1.1	Organization of the Document	1
1.2	The Proposed Action and Why the Council and NMFS are Considering It.....	2
1.3	Background on Revised National Standard 1 Guidelines	3
1.4	Scoping and the Council Process.....	3
1.5	Internal Scoping and Determination of the Range of Impacts Evaluated in this EA.....	3
CHAPTER 2	Description of the Alternatives	5
2.1	Introduction	5
2.2	Classification of Stocks in the FMP	5
2.2.1	Classification Criteria in the Original HMS FMP	5
2.2.2	Revised National Standard 1 Classification Criteria	6
2.2.3	Reclassification Options	7
2.3	Applying the NS1 Guideline’s “International Exception”	11
2.4	Determining the Primary FMP	13
2.5	Establishing Reference Points, ACLs, and Accountability Measures	15
2.5.1	Reference Points Required For All Managed Stocks	15
2.5.1.1	MSY or an MSY Proxy	15
2.5.1.2	Status Determination Criteria	16
2.5.1.3	Optimum Yield	17
2.5.2	Reference Points for Managed Species not Subject to the International Exception.....	18
2.5.2.1	Allowable Biological Catch.....	18
2.5.2.2	Annual Catch Limit.....	18
2.6	Accountability Measures.....	19
2.7	Proposed Alternatives	20
2.7.1	Alternative 1: No Action.....	20
2.7.2	Alternative 2.....	21
2.7.3	Alternative 3.....	21
2.7.4	Alternative 4.....	22
2.7.5	Alternative 5 (Council-preferred).....	22
2.8	Alternatives Considered but Rejected from Further Analysis	27
2.9	Summary of the Impacts of the Alternatives	27
2.9.1	Alternative 1 (No Action)	27
2.9.2	Alternative 2.....	27
2.9.3	Alternative 3.....	27
2.9.4	Alternative 4.....	28

List of Figures

No table of figures entries found.

List of Tables

Table 1.	Reclassification options for current HMS FMP managed/monitored species.	9
Table 2.	Summary of stock assessments and RFMO conservation measures for HMS FMP MUS.	12

DRAFT

Table 3. Potential primary FMP for HMS MUS..... 15
 Table 4. Summary of alternatives..... 23
 Table 5. Monitored Species, commercial or recreational catch reported..... 10
 Table 6. Monitored species for which commercial (2000-2008) or recreational (2004-2008) catch was not reported for HMS gears. 11

Glossary of National Standard 1 Guideline Concepts

Reference Point	Description
Maximum Sustainable Yield (MSY) <i>600.310(e)(1)</i>	The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technology characteristics (e.g., gear selectivity)
Optimum Yield (OY) <i>600.310(e)(3) and (e)(3)(iv)</i>	A decisional mechanism to address MSA and FMP objectives. OY definition(s) must account for the need to prevent overfishing. A long-term average amount of desired yield that accounts for economic, social, and ecological factors... an FMP must contain ACLs and AMs to achieve OY. See (e)(3)(iii) and (iv) for factors to be considered in determining OY.
Status Determination Criteria (SDC): <i>600.310(e)(2)</i>	The FMP must describe which one of two methods will be used to determine overfishing status: (1) $F > MFMT$ or reasonable proxy or (2) $Catch > OFL$; in both cases exceeds the threshold for 1 year or more
Maximum Fishing Mortality Threshold (MFMT)	The level of fishing mortality (F), on an annual basis, above which overfishing is occurring
Overfishing Limit (OFL)	Annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance expressed in terms of numbers or weight of fish
Minimum Stock Size Threshold (MSST)	The level of biomass below which the stock or stock complex is considered overfished
Acceptable Biological Catch (ABC) / ABC Control Rule <i>600.310(f)</i>	ABC is a level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty and should be based on the ABC control rule. ABC control rule means a specified approach to setting ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty. Councils should develop a process for receiving scientific information and advice used to establish ABC including the body that will apply the ABC control rule (calculate the ABC) and the review process. The SSC must recommend the ABC to the Council.
Annual Catch Limit (ACL); mechanisms for specifying ACLs <i>600.310(f)</i>	The level of annual catch of a stock or stock complex that serves as the basis for invoking AMs. ACL cannot exceed ABC but may be divided into sector-specific ACLs
Accountability Measures (AMs) <i>600.310(g)</i>	Management controls to prevent ACLs from being exceeded and to correct or mitigate overages of the ACL if they occur. There are two categories: inseason AMs and AMs for when the ACL is exceeded.
Annual Catch Target (ACT) (optional) <i>600.310(f)(6) & (g)(2)</i>	An optional AM. An amount of annual catch that is the management target of the fishery, and accounts for management uncertainty in controlling catch at or below the ACL.

CHAPTER 1 INTRODUCTION, INCLUDING PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Organization of the Document

This document provides background information about, and analysis of, a proposed amendment (Amendment 2) to the *Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species* (HMS FMP) to revise part of the FMP to ensure that it is consistent with guidelines to meet the objectives of National Standard 1 in the Magnuson-Stevens Fishery Conservation and Management Act (MSA). National Standard 1 states that “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the U.S. fishing industry.” The MSA is the principal legal basis for fishery management of U.S. fisheries in the EEZ or on the high seas beyond the EEZ for vessels making landings at U.S. ports. The EEZ extends from the outer boundary of state waters at 3 nautical miles (nmi) to a distance of 200 nmi from shore.

In addition to addressing MSA mandates, this document is a supplemental environmental impact statement (SEIS), pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended. According to NEPA (Section 102(2)(C)), any “major Federal action significantly affecting the quality of the human environment” must be evaluated in an environmental impact statement (EIS). However, an agency may prepare an environmental assessment (EA), which provides “sufficient evidence and analysis for determining whether to prepare an environmental impact statement.” The EA serves to disclose what impacts are anticipated, and if the proposed action is found to result in significant impacts an EIS need not be prepared. The agency then makes a Finding of No Significant Impact. Based on a preliminary determination by National Marine Fisheries Service (NMFS) staff in consultation with Pacific Fishery Management Council (hereafter, Council) staff, implementing the proposed action is unlikely to result in significant impacts. Therefore, rather than preparing an EIS, NMFS and the Council have decided to prepare an EA. This document is organized so that it contains the analyses required under NEPA and other applicable law (see Chapter 6).

Environmental impact analyses have four essential components: 1) a description of the purpose and need for the proposed action; 2) a set of alternatives that represent different ways of accomplishing the proposed action; 3) a description of the human environment affected by the proposed action; and 4) an evaluation of the expected direct, indirect, and cumulative impacts of the alternatives. (The human

environment includes the natural and physical environment, and the relationship of people with that environment, 40 CFR 1508.14.) These elements allow the decision maker to look at different approaches to accomplishing a stated goal and understand the likely consequences of each choice or alternative. Based on this structure, the document is organized in six chapters:

- The remainder of Chapter 1 describes the purpose and need for the proposed action and considerations that went into the development of this EA.
- Chapter 2 outlines different alternatives that have been considered to address the purpose and need. The Council will choose a preferred alternative from among these alternatives.
- Chapter 3 describes the components of the human environment potentially affected by the proposed action (the “affected environment”). The affected environment may be considered the baseline condition, which would be potentially changed by the proposed action.
- Chapter 4 evaluates the effects of the alternatives on components of the human environment in order to provide the information necessary to determine whether such effects are significant, or potentially significant.
- Chapter 5 details how this action meets 10 National Standards set forth in the MSA (§301(a)).
- Chapter 6 provides information on those laws and Executive Orders, in addition to the MSA and NEPA, that an action must be consistent with, and how this action has satisfied those mandates.

1.2 The Proposed Action and Why the Council and NMFS are Considering It

The proposed action is to revise relevant sections of the HMS FMP to ensure they are consistent with advisory guidelines published in Federal regulations at Section 600.310. The guidelines describe fishery management approaches to meet the objectives of National Standard 1 found in the MSA, Section 301. National Standard 1) states “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the U.S. fishing industry.” The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSRA) amended the MSA to include new requirements for annual catch limits (ACLs) and accountability measures (AMs) and other provisions regarding preventing and ending overfishing and rebuilding fisheries. NMFS revised National Standard 1 (NS1) Guidelines in response to these changes in the MSA. The NS1 Guidelines were published in the Federal Register on January 16, 2009. These revisions to the NS1 guidelines address, among other things, new requirements for fisheries undergoing overfishing, to have ACLs and AMs to end overfishing by 2010, and all fisheries to have ACLs and AMs in place to prevent or end overfishing by 2011, and beyond. A stock or stock complex may not require an ACL and AMs if it qualifies for a statutory exception under the Magnuson-Stevens Act. The NS1 Guidelines also discuss how stocks should be classified in the FMP. As part of this action the HMSMT evaluated all the species and stocks identified in the FMP in light of available information on catch to consider possible reclassification.

The Guidelines are intended to meet the objectives of NS1 by providing guidance on:

1. Specifying maximum sustainable yield (MSY) and OY;
2. Specifying status determination criteria (SDC) so that overfishing and overfished determinations can be made for stocks and stock complexes that are part of a fishery;

3. Preventing overfishing and achieving OY, incorporation of scientific and management uncertainty in control rules, and adaptive management using annual catch limits (ACL) and measures to ensure accountability (AM); and
4. Rebuilding stocks and stock complexes.

The Council is revising the HMS FMP to be consistent with revised NS1 Guidelines in order to more effectively prevent overfishing and rebuild overfished stocks, or stocks that may become overfished.

1.3 Background on Revised National Standard 1 Guidelines

1.4 Scoping and the Council Process

Public involvement is an important part of the scoping process. According to NEPA regulations (40 CFR 1501.7) scoping is “an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to the proposed action.” Public scoping is designed to provide interested citizens, government officials, and tribes an opportunity to help define the range of issues and alternatives that should be evaluated in the EIS. The Council process, which is based on stakeholder involvement and allows for public participation and public comment, has been the principal mechanism for public scoping in developing the proposed action for Amendment 2 and the related range of alternatives. The public has had and will continue to have the opportunity to comment on the proposal during Council, subcommittee, and advisory body meetings.

1.5 Internal Scoping and Determination of the Range of Impacts Evaluated in this EA

On May 5, 2010, NMFS held an internal scoping meeting to determine the appropriate type of NEPA document to prepare based on an initial assessment of the range of impacts that may result from the proposed action. Based on the results of this meeting the SWR Regional Administrator concurred with the recommendation of the NMFS NEPA Coordinator that an EA was the appropriate level of analysis for this action.

Based on this and subsequent internal scoping NMFS and Council staffs determined that the following environmental components may be affected by the proposed action:

- Fish stocks
- Other components of the fishery ecosystem
- The socioeconomic environment.

CHAPTER 2 DESCRIPTION OF THE ALTERNATIVES

2.1 Introduction

The alternatives are organized around the following topics:

- 1) Classification of stocks in the FMP as either management unit species (MUS) or ecosystem component (EC) species, or otherwise dropped from the FMP
- 2) Application of the MSA international exception to annual catch limits (ACLs) and accountability measures (AMs) for MUS
- 3) Determining the Primary fishery management plan (FMP) for MUS also addressed by the Western Pacific Fishery Management Council's (WPFMC) Pelagics FMP
- 4) Establishing Reference Points and Accountability Measures

The following sections detail issues considered under these topics, which in some cases are presented as different options for Council decision-making. Section 2.7 describes four alternatives, including the alternative of no action, that combine responses to the issues outlined below into proposals for amending the HMS FMP to comply with the revised National Standard 1 Guidelines. Appendix A contains proposed changes to the HMS FMP.

2.2 Classification of Stocks in the FMP

2.2.1 Classification Criteria in the Original HMS FMP

The HMS FMP identifies both **managed species** and **monitored species**. Section 3.1 of the original HMS FMP discusses classification criteria. The list of criteria for classification as an MUS included:

1. *the species occurs in the Pacific Council management area*
2. *the species occurs in west coast HMS fisheries*
3. *the species is defined as highly migratory in the MSA or the Law of the Sea Convention*
4. *the species is important (moderate to high value) in the landings or to the fishery*
5. *the species is managed by the Western Pacific Fishery Management Council (WPFMC)*
6. *sufficient data exists to calculate a bio-analytically based MSY, including a reasonable MSY proxy that is based, e.g., on catches and yields that are stable over time*
7. *the species possesses special biological characteristics (e.g. low productivity)*

The originally proposed HMS FMP stipulated that any species meeting the first three criteria on the list of MUS classification criteria would be strongly considered for inclusion. The Council chose to adopt the proposed action alternative, which was to include species “that are at least moderately important or of special conservation concern in West Coast HMS fisheries, and also managed by the WPFMC,” leading to the current list of 13 HMS FMP MUS. Tunas, swordfish, striped marlin and HMS sharks were deemed variously important to commercial and sports interests, dorado (dolphinfish) was noted to be of growing importance in the Southern California recreational fishing industry, and all were mentioned to be of concern to conservationists, particularly the HMS sharks.

The criteria for inclusion in the original FMP for monitoring purposes included the following:

1. species having a record of being caught in an HMS fishery and not covered by another FMP or state management regime
2. otherwise of special concern (e.g. elasmobranchs, which have relatively low productivity)

The original FMP noted that these species “often comprise a fishery’s bycatch,” and stated that they should be “monitored on a consistent and routine basis to the extent practicable. Sampling and coverage fraction will depend on the take rates of the species that are of the most concern. This monitoring is needed to evaluate the impact of HMS fisheries on incidental and bycatch species (as well as MUS) and to track the effectiveness of bycatch reduction methods.”

2.2.2 Revised National Standard 1 Classification Criteria

The Guidelines introduce the concept of species “in the fishery,” for which catch limits must be considered, and **ecosystem component (EC) species**, an optional stock classification category in an FMP; EC species do not require active management. The current FMP monitored species category seems to be very similar in concept to the EC category. The HMSMT decided that this FMP amendment provides an opportunity to take a comprehensive look at the current list of MUS and monitored species to determine which should be considered “in the fishery” and subject to management and which are more appropriately classified as EC species, and whether some of the species currently listed as monitored species in the FMP should be dropped altogether, because they are rarely if ever caught in current west coast HMS fisheries.

According to revised National Standard 1 Guidelines (600.310(d)(1)) all stocks in an FMP are considered to be “in the fishery” by default unless they are identified as ecosystem component (EC) species. There are several criteria that should be met for a species to be included in the EC category (§660.310(d)(5)). These are:

- Be a non-target stock/species;
- Not be subject to overfishing, approaching overfished, or overfished and not likely to become subject to overfishing or overfished in the absence of conservation and management measures; and,
- Not generally retained for sale or personal use, although “occasional” retention is not by itself a reason for excluding a species from the EC category.

One of the reasons given for including EC species in an FMP is for data collection purposes, which is consistent with the intent presented in the HMS FMP. EC species are not considered “in the fishery” but Councils should consider measures to minimize bycatch of these species consistent with National Standard 9. OY and reference points (MSY, OFL, SDC, ABC, ACL, ACT) do not need to be specified for EC species. One of the essential purposes behind monitored species in the FMP and the EC species

in the Guidelines is similar: to track species over time, periodically evaluate their status, and assess whether any management is needed under the FMP, in which case a monitored/EC species could be reclassified as MUS that is “in the fishery.” Other purposes for identifying EC species are to allow Councils to consider measures “to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem.”

Many of the monitored species are also currently WPFMC Pelagics Plan FMP MUS. Inclusion in another FMP could also be used as a criterion for determining whether a stock should be classified as an EC or in the fishery, if both Pelagics FMP fisheries and HMS FMP fisheries are catching the same stock. If a species is actively managed in that FMP, this would lend additional support to classifying it as an EC species if there is low susceptibility to HMS FMP fisheries. However, the WPFMC is considering reclassifying some of their MUS as EC species.

If a monitored/EC species is reclassified as an MUS in the fishery, then it should be determined:

- If the international exception should be applied, and
- If it is also an MUS in the Pelagics FMP, which FMP should be designated the primary FMP.

2.2.3 Reclassification Options

The options described below are not mutually exclusive; one or more may be combined in the alternatives described in Section 2.7.

1. Leave all management unit species (MUS) as MUS, and reclassify all monitored species as EC species.

Rationale: The inclusion of monitored species in the HMS FMP appears to have captured, for most monitored species, the intent of the new EC species in that they are not major components of the fishery but have been captured, at least once, incidentally in the U.S. west coast HMS fisheries.

2. Reclassify opah as an MUS.

Rationale: Landings by gear types used to target HMS are significant (exceeding 50 mt annually in recent years) and the market for opah has apparently grown since the development of the HMS FMP. On the other hand, Opah is not defined as highly migratory under the MSA or the UN Law of the Sea Treaty (Annex 1), one of the three criteria that the HMS FMP uses to consider inclusion as a managed species.

3. Reclassify bigeye thresher and pelagic thresher as EC species.

Rationale: These two species were included in the HMS FMP because they may be particularly vulnerable to the effects of fishing due to their life history characteristics. Like the other three pelagic shark species covered in the HMS FMP, they are long lived, have low fecundity and are slow to mature. However, unlike the other three pelagic shark species in the HMS FMP, they are not taken in high numbers in the U.S. west coast HMS fisheries. Recent landings of each species average less than 5 mt annually, and pelagic threshers are mainly encountered during warm water El Niño years. Observer records for the swordfish drift gillnet fishery demonstrate that estimated blue shark catch is at least ten-fold higher than either pelagic or bigeye thresher shark catch, on average. Neither pelagic thresher nor bigeye thresher is of recreational or commercial importance for U.S. west coast fisheries; in contrast, shortfin mako and common thresher sharks are recreationally and commercially important species. In

addition, both the pelagic and bigeye thresher sharks are taken in greater numbers by fisheries operating outside the U.S. west coast EEZ, and both are managed under the WPFMC Pelagics FMP.

4. Drop 22 monitored species from the HMS FMP and reclassify all other monitored species as EC species.

Rationale: Table 1 shows the proposed reclassification of monitored species under this option. (Data on recent landings is shown in Table 2.) All species proposed to be dropped from the FMP with the exception of bat ray and leopard shark have average annual landings of less than 1 mt over the past 9 years. Upon closer examination, the relatively higher level of reported bat ray landings was taken during CPS targeted trips.

Leopard sharks are benthic dwelling, coastal sharks; although the reported annual recreational catch is relatively high, it is unlikely that leopard sharks are actually taken while targeting HMS. Furthermore, leopard sharks are included in the Council's Groundfish FMP.

Twelve monitored species would be reclassified as EC species under this option (note that opah, which in the option above would be reclassified as an MUS, is included here among these 12 species). Most of these have landings less than 1 mt annually. Pacific bonito, louver, escolar, and bat ray have had landings over 1 mt in recent years (see Table 2) Chapter 3 provides additional information on the catch of these species, and explanation of why they would qualify as EC species.

Table 1. Reclassification options for current HMS FMP managed/monitored species.

Species	Commercial Landings Reported
Drop from FMP	
1. Bat ray, <i>Myliobatis californica</i>	Yes
2. Black marlin, <i>Makaira indica</i>	
3. Blacktip shark, <i>Carcharhinus limbatus</i>	
4. Blue marlin, <i>Makaira nigricans</i>	
5. Dusky shark, <i>C. obscurus</i>	
6. Lancetfishes, Alepisauridae	
7. Leopard shark, <i>Triakis semifasciata</i>	Yes
8. Manta/Mobula rays, Mobulidae	
9. Oarfish, <i>Regalecus glesne</i>	
10. Oceanic whitetip shark, <i>C. longimanus</i>	
11. Pacific moonfish, <i>Selene peruviana</i>	
12. Pacific sailfish, <i>Istiophorus platypterus</i>	
13. Pacific saury, <i>Cololabis saira</i>	
14. Prickly shark, <i>Echinorhinus cookei</i>	
15. Rainbow runner, <i>Elageteris bipinnulata</i>	
16. Salmon shark, <i>Lamna ditropis</i>	Yes
17. Shortbill spearfish, <i>Tetrapturus angustirostris</i>	
18. Silky shark, <i>C. falciformis</i>	Yes
19. Six gill shark, <i>Hexanchus riseus</i>	
20. Soupfin shark, <i>Galeorhinus galeus</i>	
21. Spiny dogfish, <i>Squalus acanthias</i>	
22. Whale shark, <i>Rincodon typus</i>	
Reclassify as EC Species	
1. Black skipjack, <i>Euthynnus lineatus</i>	Yes
2. Bullet mackerel (tuna), <i>Auxis rochei</i>	
3. Common mola, <i>Mola mola</i>	
4. Escolar, <i>Lepidocybium flavobrunneum</i>	Yes
5. Hammerhead sharks, Sphyrnidae	Yes
6. Louvar, <i>Luvarus imperialis</i>	Yes
7. Oilfish, <i>Ruvettus pretiosus</i>	Yes
8. Pacific bonito, <i>Sarda chiliensis</i>	Yes
9. Pacific pomfret, <i>Brama japonica</i>	Yes
10. Pelagic stingray, <i>Pteroplatytrygon violacea</i>	Yes
11. Wahoo, <i>Acanthocybium solandri</i>	Yes
Reclassify from Monitored to MUS	
Opah, <i>Lampris guttatus</i>	Yes
Reclassify from MUS to EC	
Pelagic thresher shark, <i>Alopias pelagicus</i>	Yes
Bigeye thresher shark, <i>Alopias superciliosus</i>	Yes

Table 2. Monitored Species, commercial or recreational catch reported.

Species	Other FMP Coverage	Average Annual Commercial Landings (mt) 2000-2008	Average Annual Recreational Dead Catch (mt) 2004-2008	Estimated Average Annual DGN Catch 2000-2008, no. fish
Pacific bonito, <i>Sarda chiliensis</i>		420.28	4.2	412
Opah, <i>Lampris guttatus</i>	WP Pelagics	37.56	0.1	997
Louvar, <i>Luvarus imperialis</i>		1.98	0.0	137
Escolar, <i>Lepidocybium flavobrunneum</i>	WP Pelagics	1.58	0.0	1
Bat ray, <i>Myliobatis californica</i>		1.43 [¥]	1.0	6
Leopard shark, <i>Triakis semifasciata</i>	P Groundfish	0.63	4.4	0
Pelagic stingray, <i>Pteroplatytrygon violacea</i>		0.33	0.0	80
Oilfish, <i>Ruvettus pretiosus</i>	WP Pelagics	0.26	0.0	5
Wahoo, <i>Acanthocybium solandri</i>	WP Pelagics	0.26	0.0	0
Hammerhead sharks, Sphyrnidae	WP Pelagics	0.10	0.0	7
Pacific pomfret, <i>Brama japonica</i>	WP Pelagics	0.02	0.0	73
Black skipjack, * <i>Euthynnus lineatus</i>	WP Pelagics	0.02	0.5	0
Common mola, <i>Mola mola</i>		–	0.0	12,738
Salmon shark, <i>Lamna ditropis</i>	AK Groundfish	‡	0.0	15
Silky shark, <i>C. falciformis</i>	WP Pelagics	‡	0.0	0
Spiny dogfish, <i>Squalus acanthias</i>	AK & P Groundfish	–	0.1	0
Bullet mackerel (tuna), <i>Auxis rochei</i>	WP Pelagics	–	0.0	116

Sources:

PacFIN ft and ftl tables; only landings by HMS gear types.

Average annual RecFIN HMS A+B1 catch (dead catch) weight estimates in metric tons for private and rental.

Notes:

*RecFIN does not separately report "black skipjack"; average for all skipjack catch is shown.

¥Although bat ray was landed with purse seine, a HMS gear, examination of species composition shows that the sets were made on CPS.

**RecFIN does not appear to separately report the different thresher shark species; total thresher

‡ Excluded because less than 3 vessels made landings during the time period.

–No landing record for this time period.

Table 3. Monitored species for which commercial (2000-2008) or recreational (2004-2008) catch was not reported for HMS gears.

Species	Other FMP Coverage	Note on PacFIN data
Black marlin, <i>Makaira indica</i>	WP Pelagics	Species not separately identified in PacFIN
Blacktip shark, <i>Carcharhinus limbatus</i>		No landing record for this time period
Blue marlin, <i>Makaira nigricans</i>	WP Pelagics	No landing record for this time period
Dusky shark, <i>C. obscurus</i>		No landing record for this time period
Lancetfishes, Alepisauridae		No landing record for this time period
Manta/Mobula rays, Mobulidae		Species not separately identified in PacFIN
Oarfish, <i>Regalecus glesne</i>		Species not separately identified in PacFIN
Oceanic whitetip shark, <i>C. longimanus</i>	WP Pelagics	Species not separately identified in PacFIN
Pacific moonfish, <i>Selene peruviana</i>		Species not separately identified in PacFIN
Pacific sailfish, <i>Istiophorus platypterus</i>	WP Pelagics	No landing record for this time period
Pacific saury, <i>Cololabis saira</i>		No landing record for this time period
Prickly shark, <i>Echinorhinus cookei</i>		Species not separately identified in PacFIN
Rainbow runner, <i>Elagetus bipinnulata</i>		Species not separately identified in PacFIN
Shortbill spearfish, <i>Tetrapturus angustirostris</i>	WP Pelagics	Species not separately identified in PacFIN
Six gill shark, <i>Hexanchus riseus</i>	AK Groundfish	No landing record for this time period
Soupsin shark, <i>Galeorhinus galeus</i>	AK & P Groundfish	No landing record for this time period
Whale shark, <i>Rincodon typus</i>		Species not separately identified in PacFIN

Sources:

PacFIN fit and fit tables; only landings by HMS gear types.

Average annual RecFIN HMS A+B1 catch (dead catch) weight estimates in metric tons for private and rental.

2.3 Applying the NS1 Guideline’s “International Exception”

Section 660.310(h)(2)(ii) of the revised National Standard 1 Guidelines, relating to international fishing agreements, applies to stocks or stock complexes subject to management under an international agreement, which is defined as “any bilateral or multilateral treaty, convention, or agreement which relates to fishing and to which the United States is a party.” For stocks that meet this exception, only MSY, OY, and SDCs have to be defined. ABC, ACLs, and AMs are not required. Once any changes to the list of HMS FMP MUS are determined, the Council would need to decide which of these would be subject to the MSA “international exception.”

Opah, if reclassified as an MUS, would be subject to the international exception under all of the following options.

1. Apply the international exception to all of the HMS MUS

The rationale for this alternative is that both the IATTC and WCPFC (the two RFMOs that manage HMS stocks in the Pacific at the international level) include general statements in their charter documents asserting broad management authority over all HMS species. Article 1 of the IATTC Antigua Convention, which enters into force August 27, 2010, defines fish stocks covered by this Convention as “stocks of tunas and tuna-like species and other species of fish taken by vessels fishing for tunas and tuna-like species in the Convention Area.” Article 2 of the WCPFC Convention states

“The objective of this Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific ...” Article 1 defines highly migratory fish stocks as “all fish stocks of the species listed in Annex 1 of the 1982 Convention occurring in the Convention Area, and such other species of fish as the Commission may determine.” All of the HMS MUS are found on the referenced Annex 1 list.

Furthermore, the WPFMC has indicated that it is considering applying the international exception to all MUS in their Pelagics FMP after reclassifying selected MUS as EC species (personal communication from Paul Dalzell, Senior Staff Scientist, WPFMC). Since all HMS FMP MUS are also Pelagics FMP MUS applying the international exception to all HMS FMP MUS would be consistent with the WPFMC’s approach. The two Councils should ensure consistency in their treatment of these stocks with respect to the international exception and, as necessary, agree upon which will become the primary FMP (see Section 2.4 below).

The RFMOs regularly conduct stock assessments for tuna and billfish species in the HMS FMP. Conservation measures have been adopted, or are under consideration for many of the species in the HMS FMP. Table 4 summarizes information on stock assessments and RFMO activities.

Table 4. Summary of stock assessments and RFMO conservation measures for HMS FMP MUS.

Species (stocks)	Assessment and conservation measures
Tunas	
Albacore tuna, <i>Thunnus alalunga</i> (NPO)	Regularly assessed by the ISC. IATTC and WCPFC conservation measures in place
Bigeye tuna, <i>T. obesus</i> (EPO, WCPO)	Regularly assessed by WCPFC and IATTC and both RFMOs have conservation measures in place
Skipjack tuna, <i>Katsuwonus pelamis</i> (EPO, WCPO)	Regularly assessed by the WCPFC and IATTC; no specific conservation measure in place but both RFMOs are addressing purse seine fleet capacity and the issue of unsustainable FAD sets.
Bluefin tuna, <i>T. orientalis</i> (NPO)	Occasionally assessed by the ISC; the WCPFC adopted a conservation measure in 2009
Yellowfin tuna, <i>T. albacares</i> (EPO, WCPO)	Regularly assessed by WCPFC and IATTC and both RFMOs have conservation measures in place
Billfish	
Striped marlin, <i>Tetrapturus audax</i> (NPO, EPO)	Occasionally assessed by the ISC and IATTC; WCPFC considered conservation measure in 2009 to be developed further in 2010
Swordfish, <i>Xiphias gladius</i> (NPO, SEPO)	Occasionally assessed by the ISC and IATTC; WCPFC has conservation measure for SP stock
Sharks	
Bigeye thresher shark, <i>Alopias superciliosus</i>	NMFS has occasionally assessed selected species; IATTC and WCPFC adopted conservation measures for sharks (C-05-03, CMM-2008-06). The WCPFC identifies “key shark species” as blue shark, oceanic whitetip shark, mako sharks, silky sharks, and thresher sharks
Blue shark, <i>Prionace glauca</i>	
Common thresher shark, <i>A. vulpinus</i>	
Pelagic thresher shark, <i>A. pelagicus</i>	
Shortfin mako shark, <i>Isurus oxyrinchus</i>	
Other	

Species (stocks)	Assessment and conservation measures
Dorado (dolphin), <i>Coryphaena hippurus</i>	IATTC has consolidated bycatch resolution referencing dorado (C-04-05); WCPFC has nonbinding resolution on bycatch species
Possible Additional MUS	
Opah, <i>Lampris guttatus</i>	IATTC has consolidated bycatch resolution (C-04-05); WCPFC has nonbinding resolution on bycatch species

2. Apply the international exception to all MUS except for common thresher shark and shortfin mako shark

Common thresher shark and shortfin mako shark are important species in west coast EEZ fisheries and the HMS FMP established harvest guidelines for common thresher and shortfin mako sharks. This reflects the fact that west coast fisheries catch these species in more than negligible quantities. Thus, even though there is evidence that RFMOs are managing shark species included in the HMS FMP, it may be appropriate to consider adopting ACLs (and perhaps reevaluating the current harvest guidelines) for these two species.

3. Apply the international exception for all MUS except for common thresher shark

Although a large portion of the common thresher shark stock appears to inhabit Mexico waters and they are taken in large numbers in near shore fisheries there, the best available science indicates that the range of the common thresher shark taken in the U.S. west coast fisheries is likely limited to the U.S. EEZ and the Mexico EEZ off the northern portion of Baja California, with very limited movement beyond to the north and west. Collaborative research among SWFSC scientists, Scripps Institute of Oceanography and CICESE, Ensenada, Mexico, demonstrates a significant artisanal fishery for common thresher sharks off northern Baja, yet the fractional catch by Mexico fisheries of the common thresher shark stock is estimated to have been either stable or in decline since the development of the HMS FMP due to recent regulatory changes affecting shark fisheries. Accurate landings estimates for the Mexico fleet are not available, yet the stock is relatively confined and U.S. West Coast landings likely comprise a greater proportion of the total stockwide catch than for any of the other pelagic shark MUS.

2.4 Determining the Primary FMP

Section 600.310(d)(7) of the Guidelines states that Councils should choose which FMP will be the primary FMP in which management objectives and other requirements of the Guidelines will be established in cases where a stock or species is identified in more than one FMP. All of the HMS FMP MUS are also currently MUS in the WPFMC’s Pelagics FMP; therefore, it is necessary to determine which FMP will identify MSY, OY, SDC, and other management objectives. For stocks subject to the international exception (most or all under both FMPs) only MSY, SDCs, and OY need to be specified. Both Councils could rely on RFMO sponsored stock assessments to identify these reference points, if available.

An approach based on determining the primary FMP at a stock level, rather than a species level, is proposed. Where stock structure is understood, as with the tropical tunas, separate stocks have been identified in the EPO and WCPO. As general principal, the WPFMC’s Pelagics FMP would be the primary FMP for stock in the WCPO and the HMS FMP would be the primary FMP for stocks in the EPO. A second important principal for determining the primary FMP is the importance of the species or stock for the fisheries managed under the respective FMPs. For species where current understanding

identifies a single stock across the North Pacific, or where stock structure is not well understood, this principal would be another consideration in determining the primary FMP. The division of responsibility between NMFS Southwest and Pacific Islands Regions and Science Centers is a third consideration. The Regions have divided responsibilities for coordinating participation in RFMO forums, for example, and the Science Centers divide responsibility for developing stock assessments (which may be developed through the RFMO forums with participation by scientists for national government agencies). Finally, where stock structure is poorly understood, and MSY may be specified for a local (west coast EEZ) portion of the stock (see discussion below), the HMS FMP would report reference points for that local stock. Table 5 shows possible assignments of managed species between the HMS FMP and the Pelagics FMP, based on these considerations and discussions among the staffs of the two Councils and their respective management teams.

HMS stock structure is an active area of research and scientific understanding of stock structure may change over time. Therefore, a stock-based approach to addressing the primary FMP issue will have to take into account potential changes in such scientific understanding. Greater stock partitioning or lumping may require the WPFMC and PFMC to reconsider designation of the primary FMP. For this reason the proposed designations outlined in Table 5 would not be specified in the HMS FMP. Instead, the FMP will be amended to discuss the process by which the determination of the primary FMP will be made in consultation with the WPFMC, allowing changes to primary FMP designations without the need to again amend the FMP.

Although MUS would be identified at the stock level for the purpose of identifying reference points in the respective FMPs, the PFMC would continue to maintain a Pacific-wide management interest in the species and therefore report reference points for WCPO stocks based on what is reported by the WPFMC.

Table 5. Potential primary FMP for HMS MUS.

Species	Potential Primary FMP Designations
Tunas	
Albacore tuna, <i>Thunnus alalunga</i> (NPO)	HMS FMP
Bigeye tuna, <i>T. obesus</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
Skipjack tuna, <i>Katsuwonus pelamis</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
Bluefin tuna, <i>T. orientalis</i> (NPO)	HMS FMP
Yellowfin tuna, <i>T. albacares</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
Billfish	
Striped marlin, <i>Tetrapturus audax</i> (NPO, EPO)	Pelagics FMP (NPO) / HMS FMP (EPO)
Swordfish, <i>Xiphias gladius</i> (NPO) ¹	Pelagics FMP (NPO) / HMS FMP (EPO) ⁴
Sharks	
Bigeye thresher shark, <i>Alopias superciliosus</i>	May be classified as EC species under HMS FMP
Blue shark, <i>Prionace glauca</i>	HMS FMP
Common thresher shark, <i>A. vulpinus</i>	HMS FMP (local stock)
Pelagic thresher shark, <i>A. pelagicus</i>	May be classified as EC species under HMS FMP
Shortfin mako shark, <i>Isurus oxyrinchus</i>	HMS FMP (local stock)
Other	
Dorado (dolphin), <i>Coryphaena hippurus</i>	HMS FMP (local stock)
Possible Additional MUS	
Opah, <i>Lampris guttatus</i>	HMS FMP reports MSY proxy for portion of the stock in the west coast EEZ

2.5 Establishing Reference Points, ACLs, and Accountability Measures

2.5.1 Reference Points Required For All Managed Stocks

The reference points discussed in the section apply to all managed stocks in the FMP, including those subject to the international exception.

2.5.1.1 MSY or an MSY Proxy

A framework is proposed based on a tiered system depending upon whether or not a stock assessment with MSY based estimates is available and whether or not a time series of stockwide catch is available.

Stocks with Quantitative Assessments, Category 1: These are stocks for which a recent stock assessment has been conducted, containing MSY-based estimates. For these stocks the HMSMT would summarize the results of the stock assessment and estimated reference points and present the summary to the SSC. If the SSC considered the assessment results to be robust, the MSY and OFL would be

¹ The HMS FMP identified EPO swordfish as the managed stock. IATTC conducts stock assessments on EPO swordfish. Recent genetics studies, fishery and demographics data conclude that the NEPO and SEPO stocks may be distinct. The latest IATTC swordfish assessment was conducted for the SEPO only. Due to uncertainty about stock structure, the primary FMP for the NPO stock would be the Pelagics FMP while responsibility for reporting on EPO assessments would be covered under the HMS FMP.

recommended to the Council for management. These quantities would be reported in the annual SAFE document

Stocks with Estimates of Stock-wide Catch, Category 2: If the stock has not been recently or ever assessed, the HMSMT would compile the best available data on stockwide catch and use some part of the time series to estimate a sustainable catch limit. Catch-based models that incorporate some stock productivity parameters and methods to account for uncertainty, such as DCAC or DB-SRA, may prove useful for estimating MSY. Alternatively, if justified, catch levels from select years when the stock was believed to be fished sustainably could be used to come up with a proxy MSY.

Stocks with Estimates of Local Catch Only, Category 3: If a time series of stockwide catch is not available, then it may be necessary to use a time series of only regional (U.S. west coast) catch and apply a catch-based estimation model (as above) or select levels of sustainable catch to serve as a proxy local MSY.

While the HMSMT may identify a reasonable MSY or MSY proxy, the SSC would endorse the reference point and recommend it to the Council for use in management. When an MSY proxy is established on a local level, the target yield can be considered equivalent to a regional overfishing limit (OFL), a new reference point established under the revised NS1 Guidelines. Catch-based models that incorporate some stock productivity parameters and methods to account for uncertainty, such as depletion corrected average catch (DCAC) or depletion based stock reduction analysis (DB-SRA) may prove useful for estimating a MSY for Category 2 and 3 stocks. Alternatively, if justified, catch levels from select years when the stock was believed to be fished sustainably could be used to come up with a proxy MSY.

The MSY or MSY proxy estimate for each managed stock would be reported in the SAFE, published annually.

2.5.1.2 Status Determination Criteria

The Guidelines state that status determination criteria “must be expressed in a way that enables the Council to monitor each stock or stock complex in the FMP, and determine annually, if possible, whether overfishing is occurring and whether a stock or stock complex is overfished” 660.310(e)(2)(ii).

Overfishing Threshold

To determine if overfishing is occurring a Council may use the maximum fishing mortality threshold (MFMT), which “may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential” 660.310(e)(2)(ii)(A)(1) or the overfishing limit (OFL), “the annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex’s abundance and is expressed in terms of numbers or weight of fish” 660.310(e)(2)(i)(D). According to the Guidelines, exceeding either the MFMT or the OFL for a period of 1 year or more constitutes overfishing.

The HMS FMP identifies a default calculation, $MFMT = F_{MSY}$. For vulnerable species, an alternative calculation is proposed for identifying OY determined in terms of $F = 0.75 F_{MSY}$. The Guidelines define vulnerability as follows:

A stock’s vulnerability is a combination of its productivity, which depends upon its life history characteristics, and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted, and susceptibility is the

potential for the stock to be impacted by the fishery, which includes direct captures, as well as indirect impacts to the fishery (e.g., loss of habitat quality). 660.310(d)(10)

Under this amendment no change is proposed to the calculation of the overfishing threshold ($MSST = F_{MSY}$), except that it would be expressed as an OFL or fishing mortality rate, as appropriate. The OFL estimate for each managed stock would be reported in the SAFE, published annually. If either Pacific RFMO adopts a fishing mortality based reference point for an HMS stock, that reference point would be reported, after SSC review.

For vulnerable species a precautionary reduction from the default calculation would be considered on a case-by-case basis, based on information about the vulnerability of the stock. The FMP currently describes a precautionary threshold of $0.75 F_{MSY}$. The FMP would be amended to emphasize the case-by-case approach with $0.75 F_{MSY}$ as a starting point.

The FMP identifies the managed shark species, bluefin tuna, and striped marlin as vulnerable. Under this amendment the FMP would be revised so that vulnerable species would not be specified in the FMP itself. Instead, the HMSMT would periodically evaluate the vulnerability of selected stocks when respecifying MSY and/or SDCs.

Overfished Threshold

The minimum stock size threshold (MSST) is used to determine if a stock is overfished. “The MSST or reasonable proxy must be expressed in terms of spawning biomass or other measure of reproductive potential” 660.310(e)(2)(ii)(B).

The HMS FMP defines a default MSST as no less than half of B_{MSY} (when natural mortality exceeds 0.5). If natural mortality is equal to or greater than 0.5 then the MSST would vary between $0.5B_{MSY}$ and $0.75B_{MSY}$ based on the calculation $(1-M)B_{MSY}$. For vulnerable species the HMS FMP currently suggests a precautionary adjustment from the default value used to calculate the MSST; it would be set generally closer to B_{MSY} than under the default calculation. No change is proposed in the method for determining the MSST, except that the FMP will more clearly specify how the calculation would be made for vulnerable species.

The Guidelines at 600.310(k) describe the required Council response to a Secretarial determination of international overfishing. The FMP will be amended to reference and summarize these requirements.

2.5.1.3 Optimum Yield

Optimum yield is defined in the MSA. The Guidelines state “The determination of OY is a decisional mechanism for resolving the Magnuson-Stevens Act’s conservation and management objectives, achieving a fishery management plan’s (FMP) objectives, and balancing the various interests that comprise the greatest overall benefits to the Nation” 600.310(b)(2)(ii). OY is based on MSY as reduced by factors outlined in Section (e)(3) of the Guidelines. OY is expressed as an “amount of fish”; in other words it is a quantity rather than a rate.

The HMS FMP describes an OY control rule. For species not considered vulnerable the OY or OY proxy is set equal to MSY. For vulnerable species the OY or OY proxy is set at $0.75MSY$.

Under the amendment the FMP would be revised to describe a more flexible framework for setting OYs that addresses life history concerns, management goals, and socioeconomic considerations on a species-by-species basis. The description of the framework would be based on the criteria enumerated in the

following sections in the Guidelines: (e)(3)(iv), factors to consider in OY specification, and (e)(3)(iii), determining the greatest benefit to the Nation. As in the FMP currently, the framework would relate OY to SDCs, such that OY control rules are consistent with the objectives of preventing overfishing and rebuilding overfished stocks. For stocks where a local MSY is identified (Category 3 above), the OY (and SDCs) would be for the portion of the stock for which local MSY is determined.

2.5.2 Reference Points for Managed Species not Subject to the International Exception

In addition to the reference points outlined above, for those species not subject to international exception (potentially, shortfin mako and common thresher shark) the allowable biological catch and annual catch limit must be established. The Guidelines also identify the annual catch target (ACT) as an optional accountability measure. ACTs are intended to account for management uncertainty.

2.5.2.1 Allowable Biological Catch

ABC is a new concept in the revised Guidelines. According to the Guidelines, “ABC is a level of a stock or stock complex’s catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty ..., and should be specified based on the ABC control rule” 310(f)(2)(ii). The ABC control rule is a “specified approach” for setting the ABC. Catch is measured in weight or numbers of fish and is assessed from all sources (commercial, recreational, subsistence, tribal, and other fisheries). The SSC must recommend the ABC to the Council and the ABC may not exceed the OFL.

Because this is a new concept the HMS FMP currently contains no definition or discussion of ABC. Under this amendment the FMP would be revised to describe the processes for specifying ABC control rules and ABCs. The HMSMT would define the ABC control rule, which would then be reviewed by the SSC and adopted by the Council.²

Generally, the ABC control rule should be consistent with the OY control rule, because the OY should not be greater than the ABC. For stocks where a local MSY is identified (Category 3 above), the ABC would be for the portion of the stock for which local MSY is determined.

The Guidelines suggest a stochastic approach to setting ABC: “The determination of ABC should be based, when possible, on the probability that an actual catch equal to the stock’s ABC would result in overfishing. This probability that overfishing will occur cannot exceed 50 percent and should be a lower value” 660.310(f)(4). The Groundfish and CPS Subcommittees of the SSC have developed a methodology that relates the probability of overfishing to a corresponding reduction from the OFL to set the ABC {SSC, 2009 1723 /id}, often referred to a “P star” (P*) after the symbol used to denote the probability that overfishing will occur. This methodology could be combined with DCAC or DB-SRA methods to determine the ABCs for the two shark stocks (since they are likely to fall into Category 3 in terms of data availability).

2.5.2.2 Annual Catch Limit

According to the Guidelines, an ACL is “the level of annual catch of a stock or stock complex that serves as the basis for invoking AMs [accountability measures]” 660.310(f)(2)(iv). The ACL cannot exceed the ABC and may be set annually or on a multiyear plan basis, 660.310(f)(5)(i). The Guidelines

² The Guidelines state “each Council must establish an ABC control rule based on scientific advice from the SSC” 600.310(f)(4).

are silent on what considerations would prompt setting the ACL to a level below the ABC. Presumably, considerations equivalent to those used for setting the OY could factor into setting an ACL below the ABC. The ACL would normally not be set greater than the OY.³ Therefore, if the OY is set below the ABC, it is likely that the ACL should also be set at that lower level.

2.6 Accountability Measures

Accountability measures are management controls to prevent ACLs from being exceeded and to respond to a situation where an ACL has been exceeded. Section g in the Guidelines describes the features of accountability measures. Inseason AMs include monitoring and management measures to prevent catch from exceeding ACLs, and may include annual catch targets (ACTs). If an ACL is exceeded more than once every four years then the system of ACLs and AMs should be re-evaluated and modified as necessary.

Chapter 5 in the HMS FMP describes a framework for the periodic specification of quotas, harvest guidelines, and an array of management measures. In section 6.1.7, describing quotas and harvest guidelines, the FMP authorizes the following procedure:

The HMS Management Team, at its annual meeting in May or June, will review the catches from the previous statistical year (April 1-March 31) and compare those catches with the established harvest guidelines; evaluate the status of the stocks; and develop recommendations for management measures, as appropriate. These management measures will be presented to the Council as part of the SAFE document at its June and/or September meetings to be reviewed and approved for public review. Final action on management measures would be scheduled for the Council's November meeting.⁴

The specification process operates on a 2-year, or biennial, schedule. The fishing year is defined as April 1-March 31 and the current biennial period ends on March 31, 2011. The Council has considered implementation or adjustment of management measures for two biennial periods since implementation of the HMS FMP (2007-2009 and 2009-2011). For the first cycle the Council adopted new recreational bag limits for albacore tuna and modified vessel marking requirements for CPFV vessels. For the second cycle the Council considered measures to constrain the recreational catch of common thresher shark (time/area closures, bag limits) but ultimately did not recommend new regulatory measures.

This framework provides flexibility to respond to changing conditions in fisheries. It is very similar to the specifications framework authorized by the Groundfish FMP. As part of the biennial process, routine management measures can be identified. These can be implemented or modified inseason through a single Council meeting and one Federal Register notice ("notice actions") or two Council meetings and one Federal Register notice ("abbreviated rulemaking"). To date the Council has not done any inseason management under the HMS FMP, because no pressing resource conservation issues have arisen that can be dealt with unilaterally (without international action).

³ An exception might be for a stock where MSY (rather than a proxy) can be specified and current stock biomass is well in excess of BMSY. Since OY is a long-term average amount of desired yield, it could be set consistent with long-term MSY while in the short term the ACL could be set higher so that stock biomass declines to BMSY. However, given current rates of exploitation of almost all fish stocks, it is unlikely that such a situation would arise.

⁴ Although this paragraph uses the term "management measures," given the context it may be assumed that the specific reference would be to quotas or harvest guidelines.

This framework is readily adaptable to the requirements of the Guidelines. Therefore, no new accountability measures are proposed under this amendment. However, the FMP would be revised to explain how the existing AMs are related to any ACLs that may be established. Added language in the FMP will explain their function in preventing an ACL from being exceeded or addressing situations where post-season accounting shows an ACL has been exceeded.

If ACLs were established for any MUS, perhaps the more pressing issue would be whether current catch monitoring systems are sufficient to ensure that an ACL would not be exceeded. Specifically, if the ACL is developed as a limit on total removals (catch and dead discards) then appropriate monitoring of bycatch would need to be ensured. Some components of the recreational fishery may be poorly monitored. For some species many fishermen practice catch-and-release, and post-release mortality rates are not well estimated.⁵ Finally, data availability and analysis of total removals would need to be timely if inseason measures are needed to prevent an ACL from being exceeded.

2.7 Proposed Alternatives

In this section the range of issues outlined above, some presented with different options, are organized into a set of alternatives. Each alternative represents a complete package of measures to amend the HMS FMP to comply with the Guidelines. Table 6 provides a comparative summary of the alternatives described below.

2.7.1 *Alternative 1: No Action*

Under the No Action the HMS FMP would not be amended.

Classification of Stocks in the FMP: Currently there are 13 MUS and 34 monitored species listed in Chapter 3 of the HMS FMP. Section 2.2.1 describes the criteria that were used to select which species would be included in these categories

Applying the International Exception: When the FMP was implemented the Guidelines did not contain provisions for ACLs or the exception at 660.310((h)(2)(ii) for setting ABCs and ACLs.

Determining the Primary FMP: When the FMP was implemented the Guidelines did not contain language at 660.310(d)(7) stating that for stocks or species appearing in more than one FMP Councils should choose which FMP will be the primary FMP.

Establishing Reference Points, ACLs, and Accountability Measures: Chapter 4 in the HMS FMP identifies MSY for managed species and describes methods for determining SDCs and OYs. The FMP does not discuss or specify ABCs or ACLs for any managed species, because at the time of implementation the Guidelines did not contain these provisions. Chapters 5 and 6 describe the framework for the periodic specification of management measures and management measures in place at the time of FMP implementation. Regulations pursuant to the HMS FMP are found at 50 CFR 660 Subpart K.

⁵ NMFS SWFSC has been conducting ongoing research to improve estimates of post-release mortality for recreational caught sharks.

2.7.2 Alternative 2

Classification of Stocks in the FMP: The current 13 MUS would remain as listed. All 34 listed monitored species would be reclassified as EC species.

Applying the International Exception: The international exception to setting ABCs and ACLs described at 660.310((h)(2)(ii)) would be applied to all managed species.

Determining the Primary FMP: The HMS FMP will be amended to discuss the process by which the determination of the primary FMP will be made in consultation with the WPFMC. The determination will be based on the stock, or portion of the stock (if stock structure is poorly understood and catch data is limited), for which reference points will be identified.

Establishing Reference Points, ACLs, and Accountability Measures: MUS will be assigned to one of three categories based on how much information is available for estimating an MSY or MSY proxy. Methods appropriate to data availability will be applied to estimate MSYs and SDCs. The FMP will be amended to more clearly describe the methods for determining SDCs. If an RFMO has adopted reference points for an HMS FMP managed stock, that reference point will be reported, after SSC review. MSY or MSY proxy and OFL estimates will be reported in the SAFE, which is published annually. The FMP would be revised to describe a more flexible framework for setting OYs that addresses life history concerns, management goals, and socioeconomic considerations on a species-by-species basis consistent with the criteria enumerated in the Guidelines. Although all species would be excepted from the ABC/ACL requirement under this alternative, language would be added describing these reference points and the process for determining them in the event that at a later date the Council chooses to set an ACL for one or more managed species. Language will be added to the FMP referencing Section 600.310(k) in the Guidelines on Council response to a Secretarial determination of international overfishing. Since the international exception is applied to all stocks, ABCs and ACLs would not be identified. The current processes and measures described in Chapters 5 and 6 of the FMP would be used to address the Guidelines' discussion of accountability measures. Chapter 5 would be amended to reference and summarize relevant sections of the Guidelines.

2.7.3 Alternative 3

Classification of Stocks in the FMP: Opah would be added to the current list of 13 MUS for a total of 14 MUS. Monitored species that the HMSMT has determined have very low susceptibility to west coast fisheries would be dropped so that 11 EC species are identified in the HMS FMP.

Applying the International Exception: The international exception to setting ABCs and ACLs described at 660.310((h)(2)(ii)) would be applied to all managed species except for common thresher and shortfin mako shark.

Determining the Primary FMP: Same as Alternative 2.

Establishing Reference Points, ACLs, and Accountability Measures: For MSY, SDCs, and OY the FMP would be amended in the same manner as under Alternative 2. Additional language would be added to the FMP stating that ABCs and ACLs would be set for common thresher and shortfin mako shark. The current processes and measures described in Chapters 5 and 6 of the FMP would be used to address the Guidelines' discussion of accountability measures. Chapter 5 would be amended to reference and summarize relevant sections of the Guidelines.

2.7.4 Alternative 4

Classification of Stocks in the FMP: Opah would be added to the current list of 13 MUS while pelagic and bigeye thresher shark would be reclassified as EC species, leaving a total of 12 MUS in the FMP. Monitored species that the HMSMT has determined have very low susceptibility to west coast fisheries would be dropped so that 13 EC species are identified in the HMS FMP.

Applying the International Exception: The international exception to setting ABCs and ACLs described at 660.310((h)(2)(ii) would be applied to all managed species except for common thresher shark.

Determining the Primary FMP: Same as Alternative 2.

Establishing Reference Points, ACLs, and Accountability Measures: For MSY, SDCs, and OY the FMP would be amended in the same manner as under Alternative 2. Additional language would be added to the FMP describing the process and methods for setting ABCs and ACLs for common thresher shark. The current processes and measures described in Chapters 5 and 6 of the FMP would be used to address the Guidelines' discussion of accountability measures. Chapter 5 would be amended to reference and summarize relevant sections of the Guidelines.

2.7.5 Alternative 5 (Council-preferred)

To be completed after June Council meeting.

Classification of Stocks in the FMP

Applying the International Exception

Determining the Primary FMP

Establishing Reference Points, ACLs, and Accountability Measures

Table 6. Summary of alternatives.

Issue	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4
Classification of stocks	13 MUS 34 monitored species	13 MUS 34 EC species	14 MUS (add Opah) 11 EC species (drop selected)	12 MUS (bigeye and pelagic thresher to EC, add opah) 13 EC species (drop selected, move as above)
Application of the international exception	Not applied	Applied to all stocks	Applied to all stocks except common thresher and shortfin mako	Applied to all stocks except common thresher
Primary FMP designation	No designations	Designation at stock level in consultation with WPFMC; flexibility to change based on new information	Designation at stock level in consultation with WPFMC; flexibility to change based on new information	Designation at stock level in consultation with WPFMC; flexibility to change based on new information
Specification of MSY and SDC	<ul style="list-style-type: none"> MSY or MSY proxies listed in FMP Methods for determining MFMT and MSST identified 	<ul style="list-style-type: none"> MSY or MSY proxies estimated using methods consistent with data availability category MSY and SDCs reported in SAFE 	<ul style="list-style-type: none"> MSY or MSY proxies estimated using methods consistent with data availability category MSY and SDCs reported in SAFE 	<ul style="list-style-type: none"> MSY or MSY proxies estimated using methods consistent with data availability category MSY and SDCs reported in SAFE
Specification of OYs	Default and alternative OY control rules described	Flexible framework to determine OY on stock basis based on criteria in Guidelines	Flexible framework to determine OY on stock basis based on criteria in Guidelines	Flexible framework to determine OY on stock basis based on criteria in Guidelines
Specification of ABCs	Not specified	Not Specified	Specified for common thresher and shortfin mako	Specified for common thresher
Specification of ACLs	Not specified	Not Specified	Specified for common thresher and shortfin mako	Specified for common thresher
Accountability measures	Chapters 5 & 6 outline managed measures and process for periodic adjustment	Measures and processes as described in Chapters 5 & 6 of the FMP	Measures and processes as described in Chapters 5 & 6 of the FMP	Measures and processes as described in Chapters 5 & 6 of the FMP

Table 7. Managed and EC species under the action alternatives.

Alternative 2	Alternative 3	Alternative 4
Managed Species		
1 Albacore tuna, <i>Thunnus alalunga</i>	1 Albacore tuna, <i>Thunnus alalunga</i>	1 Albacore tuna, <i>Thunnus alalunga</i>
2 Bigeye tuna, <i>T. obesus</i>	2 Bigeye tuna, <i>T. obesus</i>	2 Bigeye tuna, <i>T. obesus</i>
3 Skipjack tuna, <i>Katsuwonus pelamis</i>	3 Skipjack tuna, <i>Katsuwonus pelamis</i>	3 Skipjack tuna, <i>Katsuwonus pelamis</i>
4 Bluefin tuna, <i>T. orientalis</i>	4 Bluefin tuna, <i>T. orientalis</i>	4 Bluefin tuna, <i>T. orientalis</i>
5 Yellowfin tuna, <i>T. albacares</i>	5 Yellowfin tuna, <i>T. albacares</i>	5 Yellowfin tuna, <i>T. albacares</i>
6 Striped marlin, <i>Tetrapturus audax</i>	6 Striped marlin, <i>Tetrapturus audax</i>	6 Striped marlin, <i>Tetrapturus audax</i>
7 Swordfish, <i>Xiphias gladius</i>	7 Swordfish, <i>Xiphias gladius</i>	7 Swordfish, <i>Xiphias gladius</i>
8 Bigeye thresher shark, <i>Alopias superciliosus</i>	8 Bigeye thresher shark, <i>Alopias superciliosus</i>	8 Blue shark, <i>Prionace glauca</i>
9 Blue shark, <i>Prionace glauca</i>	9 Blue shark, <i>Prionace glauca</i>	9 Common thresher shark, <i>A. vulpinus</i>
10 Common thresher shark, <i>A. vulpinus</i>	10 Common thresher shark, <i>A. vulpinus</i>	10 Shortfin mako shark, <i>Isurus oxyrinchus</i>
11 Pelagic thresher shark, <i>A. pelagicus</i>	11 Pelagic thresher shark, <i>A. pelagicus</i>	11 Dorado (dolphin), <i>Coryphaena hippurus</i>
12 Shortfin mako shark, <i>Isurus oxyrinchus</i>	12 Shortfin mako shark, <i>Isurus oxyrinchus</i>	12 Opah, <i>Lampris guttatus</i>
13 Dorado (dolphin), <i>Coryphaena hippurus</i>	13 Dorado (dolphin), <i>Coryphaena hippurus</i>	
	14 Opah, <i>Lampris guttatus</i>	
EC Species		
1 Bat ray, <i>Myliobatis californica</i>	1 Black skipack, <i>Euthynnus lineatus</i>	1 Pelagic thresher shark, <i>Alopias pelagicus</i>
2 Black marlin, <i>Makaira indica</i>	2 Bullet mackerel (tuna), <i>Auxis rochei</i>	2 Bigeye thresher shark, <i>Alopias superciliosus</i>
3 Blacktip shark, <i>Carcharhinus limbatus</i>	3 Common mola, <i>Mola mola</i>	3 lack skipack, <i>Euthynnus lineatus</i>
4 Blue marlin, <i>Makaira nigricans</i>	4 Escolar, <i>Lepidocybium flavobrunneum</i>	4 Bullet mackerel (tuna), <i>Auxis rochei</i>
5 Dusky shark, <i>C. obscurus</i>	5 Hammerhead sharks, Sphyrnidae	5 Common mola, <i>Mola mola</i>
6 Lancetfishes, Alepisauridae	6 Louvar, <i>Luvarus imperialis</i>	6 Escolar, <i>Lepidocybium flavobrunneum</i>
7 Leopard shark, <i>Triakis semifasciata</i>	7 Oilfish, <i>Ruvettus pretiosus</i>	7 Hammerhead sharks, Sphyrnidae
8 Manta/Mobula rays, Mobulidae	8 Pacific bonito, <i>Sarda chiliensis</i>	8 Louvar, <i>Luvarus imperialis</i>
9 Oarfish, <i>Regalecus glesne</i>	9 Pacific pomfret, <i>Brama japonica</i>	9 Oilfish, <i>Ruvettus pretiosus</i>
10 Oceanic whitetip shark, <i>C. longimanus</i>	10 Pelagic stingray, <i>Pteroplatytrygon violacea</i>	10 Pacific bonito, <i>Sarda chiliensis</i>
11 Pacific moonfish, <i>Selene peruviana</i>	11 Wahoo, <i>Acanthocybium solandri</i>	11 Pacific pomfret, <i>Brama japonica</i>
12 Pacific sailfish, <i>Istiophorus platypterus</i>		12 Pelagic stingray, <i>Pteroplatytrygon violacea</i>
13 Pacific saury, <i>Cololabis saira</i>		13 Wahoo, <i>Acanthocybium solandri</i>
14 Prickly shark, <i>Echinorhinus cookei</i>		
15 Rainbow runner, <i>Elageteris bipinnulata</i>		
16 Salmon shark, <i>Lamna ditropis</i>		
17 Shortbill spearfish, <i>Tetrapturus angustirostris</i>		

	Alternative 2	Alternative 3	Alternative 4
18	Silky shark, <i>C. falciformis</i>		
19	Six gill shark, <i>Hexanchus riseus</i>		
20	Soufjin shark, <i>Galeorhinus galeus</i>		
21	Spiny dogfish, <i>Squalus acanthias</i>		
22	Whale shark, <i>Rincodon typus</i>		
23	lack skipack, <i>Euthynnus lineatus</i>		
24	Bullet mackerel (tuna), <i>Auxis rochei</i>		
25	Common mola, <i>Mola mola</i>		
26	Escolar, <i>Lepidocybium flavobrunneum</i>		
27	Hammerhead sharks, Sphyrnidae		
28	Louvar, <i>Luvarus imperialis</i>		
29	Oilfish, <i>Ruvettus pretiosus</i>		
30	Opah, <i>Lampris guttatus</i>		
31	Pacific bonito, <i>Sarda chiliensis</i>		
32	Pacific pomfret, <i>Brama japonica</i>		
33	Pelagic stingray, <i>Pteroplatytrygon violacea</i>		
34	Wahoo, <i>Aathocybium solandri</i>		

2.8 Alternatives Considered but Rejected from Further Analysis

In November 2009 the Council considered an alternative under which the international exception would only be applied to the managed tunas and billfish in the HMS FMP and not to the four shark species and dorado.

2.9 Summary of the Impacts of the Alternatives

2.9.1 *Alternative 1 (No Action)*

The Council continues to provide advice to U.S. RFMO delegations as the primary means to prevent/end overfishing on HMS stocks. If the Secretary determines that overfishing is occurring on an internationally managed stock, MSA Section 304(i) applies. Under this section the Council provides a report to Congress and the Departments of Commerce and State describing measures needed at the international level to end overfishing and proposes domestic regulations to address the relative impact of U.S. fishing vessels.

Catch estimates for common thresher and shortfin mako sharks are periodically compared to established harvest guidelines. If information suggests a harvest guideline has been or is likely to be exceeded within 2 years the Council may implement additional management measures through the biennial process.

If significant trends or changes in the status of monitored species are detected, they are documented in the SAFE. The SAFE may include recommendations concerning bycatch and incidental catch.

Since the HMS FMP has been implemented, no catch controls have been established under the management framework that have had an adverse socioeconomic impact. (New recreational bag limits for albacore were implemented in 2007 but likely had negligible socioeconomic impacts.)

2.9.2 *Alternative 2*

No change from No Action except:

- Identification and regular reporting of OFLs/MFMT could provide additional criteria relative to Secretarial determination of overfishing and action under MSA Section 304(i).
- Coordination with the WPFMC on identification of reference points for stocks would be needed.

2.9.3 *Alternative 3*

In addition to the effects described for Alternative 2, the following would apply under this alternative:

- The Council would have the opportunity to implement management measures for opah should a need be identified under the framework described in Chapter 5 of the FMP.
- A fewer number of monitored EC species could allow more effective tracking of the status of these stocks.
- ACLs for shortfin mako and common thresher sharks would establish a stricter standard for limiting catch than the current harvest guidelines. If an ACL is exceeded more than once in 4 years the Council would have to implement appropriate accountability measures.

2.9.4 Alternative 4

The effects of Alternative 4 would be the same as those described under Alternative 3 except:

- ACLs are only set for common thresher shark. Given information on the distribution and migration patterns of shortfin mako shark, this stock is more likely to be encountered in internationally managed pelagic fisheries. Therefore, the application of the international exception is appropriate.
- The reclassification of pelagic and bigeye thresher as EC species recognizes that they are less frequently encountered and landed in west coast HMS fisheries. The catch of these species would continue to be monitored. This change is unlikely to have a substantial effect on the conservation of these stocks from a west coast perspective.