



**Report of the 108th Meeting of the Scientific and Statistical Committee
October 17-19, 2011**

Program Planning

A. Specification of Acceptable Biological Catches (ABC)

1. Species with No MSY, Existing Quota, or Reference Points (Tier 5)

a. Coral Reef Fish, Crustaceans and Mollusks for All Island Areas

Council staff presented tabular summaries of total estimated biomass, proposed ABCs, proposed ACLs and mean catch (last 5 years) for family complexes by archipelago fisheries. With respect to establishing ABCs for Tier 5 species, the Council approved ABC control rule is the long term median catch history multiplied by a factor based on a qualitative estimate of relative stock size. The SSC notes that catch time series data usually display considerable inter-annual variability so that nonparametric measures are a better way to summarize such data¹. While the median (50th percentile) is a robust measure of the long-term trend in such data, using the median of the catch time series would not be practical because the control rule would be triggered 50% of the time. This is far too sensitive for catch data with significant interannual variations and impractical for management. The 75th percentile (the upper bound of the interquartile range¹) would result in fewer false triggering events resulting from inter-annual random fluctuations in the catch data series. **Therefore, the SSC has adopted the 75th percentile of the long-term catch series distribution to use for deriving the ABC for Tier 5 species. Since the catch is a minor fraction, for most cases <10%, of biomass for reef fish, the SSC chose to use a multiplier of 1.00. Therefore the ABC control rule for these stocks will be 1*75th percentile of the entire catch history.**

For American Samoa, Guam, CNMI, and Hawaii, the ABCs for the Coral Reef Ecosystem Management Unit Species for the fishing years FY2012 and 2013 are as follows:

Table 1. Acceptable Biological Catches and Annual Catch Limits for the coral reef fish families that comprise the top 90% of the total coral reef fish catch and species complex comprising the remaining 10% of the total coral reef fish catch regarded as the minor fishery components in American Samoa.

Family	Total estimated biomass (lbs)	ABC (lbs) FY12&13	Mean_{last 5 yrs} (lbs)
Acanthuridae	1,779,286	19,516	9,468
Lutjanidae	338,371	18,839	13,185
<i>Selar crumenophthalmus</i> (akule)	N/A	8,396	3,079

¹ Chambers J, Cleveland W, Kleiner B, Tukey P (1983) Graphical Methods for Data Analysis. Duxbury Press, Boston; Cleveland WS (1993) Visualizing Data. Hobart Press, Summit, New Jersey

Mollusk	N/A	16,694	7,886
Carangidae	129,955	9,490	6,273
Lethrinidae	142,349	7,350	6,872
Scaridae	964,989	8,145	3,007
Serranidae	251,814	5,600	5,289
Holocentridae	45,721	2,585	1,552
Mugilidae	N/A	2,857	2,608
Crustacean	N/A	2,136	1,360
Remaining 10%	>2 million	18,910	16,556

Table 2. Acceptable Biological Catches and Annual Catch Limits for the coral reef fish families that comprise the top 85% of the total coral reef fish catch and species complex comprising the remaining 15% of the total coral reef fish catch regarded as the minor fishery components in Guam. The incremental difference between each group is small that only 85% was reach with family level grouping and the rest are general CREMUS categories analogous to the remaining 10% bin in other island areas.

Family	Total estimated biomass (lbs) ¹	ABC (lbs) FY12&13	Mean_{last 5 yrs} (lbs)
Acanthuridae	3,535,142	70,702	41,420
Carangidae	472,124	45,377	42,822
<i>Selar crumenophthalmus</i> (akule)	N/A	56,514	7,312
Lethrinidae	290,557	38,720	17,056
Scaridae	1,568,760	28,649	12,870
Mullidae	239,115	25,367	9,880
Mollusk	N/A	21,941	13,083
Siganidae	N/A	26,120	10,132
Lutjanidae	1,816,674	17,726	10,679
Serranidae	922,895	17,958	10,020
Mugilidae	N/A	15,032	2,850
Kyphosidae	176,229	13,247	7,258
Crustacean	N/A	5,523	2,353
Holocentridae	343,170	8,300	2,699
Algae	N/A	5,329	639
Labridae	886,855	5,195	1,757
Other CREMUS	>3.4 million	83,214	22,920

Table 3. Acceptable Biological Catches and Annual Catch Limits for the coral reef fish families that comprise the top 90% of the total coral reef fish catch and species complex comprising the remaining 10% of the total coral reef fish catch regarded as the minor fishery component in CNMI.

Family	Total estimated biomass (lbs) ¹	ABC (lbs) FY12&13	Mean_{last 5 yrs} (lbs)
Lethrinidae	290,557	27,466	23,413
Carangidae	472,124	21,512	14,968
Acanthuridae	3,535,142	6,884	5,517

<i>Selar crumenophthalmus</i> (akule)	N/A	7,459	5,024
Serranidae	922,895	5,519	4,220
Lutjanidae	1,816,674	3,905	3,367
Mullidae	922,895	3,670	3,323
Scaridae	1,568,870	3,784	2,672
Mollusk	N/A	4,446	2,693
Mugilidae	N/A	3,308	2,268
Siganidae	N/A	2,537	1,441
Remaining 10%	>3.4 million	9,820	6,120

Table 4. Acceptable Biological Catches and Annual Catch Limits for the coral reef fish families that comprise the top 90% of the total coral reef fish catch and species complex comprising the remaining 10% of the total coral reef fish catch regarded as the minor fishery component in Hawaii.

Family	Total estimated biomass (lbs)	ABC (lbs) FY12&13	Mean _{last 5 yrs} (lbs)
Carangidae	130,521,134	193,423	139,398
Mullidae	12,017,286	125,813	48,671
Acanthuridae	104,285,468	80,545	86,109
Lutjanidae	33,557,777	65,102	9,057
Holocentridae	7,049,398	44,122	31,808
Mugilidae	N/A	41,112	8,964
Mollusk	N/A	28,765	21,361
Parrotfish	76,936,076	33,326	34,326
Crustaceans	N/A	20,686	18,713
Remaining 10%	>58 million	142,282	73,081

b. Vulnerable Species for All Island Areas

The Coral Reef Plan Team previously identified humphead wrasse, reef sharks and bumphead parrotfish as vulnerable species. As these species occur infrequently in the surveys and have low overall catch they are deemed unsuitable by the SSC even for the application of the Tier 5 control rule. **Therefore, the SSC recommends setting ABC at 5% of the estimated reef shark, humphead wrasse and bumphead parrotfish archipelagic biomass from towed-board surveys (in BOLD at table below) in American Samoa, Guam, CNMI, and Hawaii. This provides a substantially more conservative buffer than the Tier 5 control rule. The ABCs are as follows:**

Table 5. Acceptable Biological Catches for reef sharks in American Samoa, Guam, CNMI and Hawaii based on percentage reduction from the habitat expanded biomass estimates.

ABC Alternatives	AS	CNMI	Guam	Hawaii
Estimated biomass (lbs)	26,181	111,997	138,830	2,231,321
ABC at 5% of biomass	1,309	5,600	6,942	111,566

Table 6. Acceptable Biological Catches for humphead wrasse in American Samoa, Guam, and CNMI based on percentage reduction from the habitat expanded biomass estimates.

ABC Alternatives	AS	CNMI	Guam
Estimated biomass (lbs)	34,860	40,184	39,200
<i>ABC at 5% of biomass</i>	<i>1,743</i>	<i>2,009</i>	<i>1,960</i>

Table 7. Acceptable Biological Catches for bumphead parrotfish in American Samoa and Mariana Islands based on percentage reduction from the habitat expanded biomass estimates.

ABC Alternatives	AS	Mariana Is.	Hawaii
Estimated biomass (lbs)	4,699	15,931	N/A
<i>ABC at 5% of biomass</i>	<i>235</i>	<i>797</i>	<i>N/A</i>

2. Species with MSY, Existing Quota, or Reference Points (Tier 3 and 4)

a. Coastal Pelagics in Hawaii

The SSC believes it is appropriate to set ABC = MSY because these species are relatively short lived (akule 1+ year and opelu 5 years) with high turn-over and because catches of akule have only occasionally exceeded MSY and catches of opelu are well below MSY.

The SSC determines ABCs for akule (bigeye scad) and opelu (round scad) equal to the available MSY estimates as follows:

Table 8. Acceptable Biological Catches for Hawaii akule and opelu.

Species	ABC (lbs)	Mean_{last 5 yrs} (lbs)
<i>Selar crumenophthalmus</i> (akule)	651,292	221,431
<i>Decapterus macarellus</i> (opelu)	393,563	184,533

b. Non-Finfish for All Island Areas

As noted previously for reef fish, the SSC has adopted the 75th percentile of the long-term catch series distribution to use for deriving the ABC for Tier 5 species. Generally, there was no long-term decline in catch history for any of these species and extensive regulatory instruments are in place in all Territories and Hawaii, therefore justifying a multiplier of 1. Therefore, the ABC control rule for these stocks will be 1*75th percentile of the entire catch history.

i. Lobster

The ABCs for spiny lobsters in American Samoa, Guam, CNMI, and Hawaii are:

American Samoa: ABC = 2,300 lbs.

CNMI: ABC = 5,500 lbs.
Guam: ABC = 2,700 lbs.
Hawaii: ABC = 10,000 lbs.

For slipper lobsters in Hawaii, the ABC is 280 lbs.

Since there are no catch data for slipper lobster in American Samoa, Guam, or the CNMI, **the SSC utilized the Hawaii ABC/coral reef habitat area as a proxy. The ABCs are as follows:**

American Samoa: 30 lbs
CNMI: 60 lbs
Guam: 20 lbs

ii. Kona Crab

The ABC for Hawaii is 27,600 lbs.

Though not known to exist in other fisheries in the Western Pacific Region, there is a possibility that Kona crab occurs in these other archipelagos. **Hence, the SSC used the Hawaii ABC divided by coral reef habitat area as a proxy, resulting in the ABCs for the following areas:**

American Samoa: 3,200 lbs.
CNMI: 6,300 lbs.
Guam: 2,000 lbs.

iii. Deepwater Shrimp

The SSC discussed issues related to estimates of biomass and fishery data, need for consistency, and other information challenges. MSYs were available for CNMI, Guam, and Hawaii. A proxy MSY was developed for American Samoa based on a study that stated $MSY = 200 \text{ kg/km}^2$ (King 1986) and the area of deepwater shrimp habitat (200 km^2).

The SSC established the following ABCs using the Tier 4 ABC Control Rule where $ABC=0.91*MSY^2$.

² Jensen (2002) proposes $0.75*FMSY$ as the risk-averse control rule for harvesting assuming a logistic production function while Walters et al (2005) propose $0.70*FMSY$. Assuming the $0.70*FMSY$ metric then this is equivalent to $0.91*MSY$. If it is assumed to be $0.75*FMSY$ then it would be $0.9375*MSY$.

The SSC chose the Walters et al (2005) metric for risk-averse control rule for harvesting in an ecosystem context and so the SSC chose to use $0.91*MSY$ as the management metric.

- Assume a logistic population model: $dB/dt = rB(1-B/K) - FB$
- At equilibrium $0 = rB(1-B/K) - FB$ which implies $0 = r(1-B/K) - F$ and so $F = r(1-B/K)$
- Set $F=F'=0.7Fmsy = 0.7r/2 = r(1-B/K)$ so that $0.7/2 = 1 - B/K$,
- Therefore, $B/K = 1 - 0.7/2 = 0.65$ and $C' = F'B = F'B/K*K = 0.7r/2*0.65*K =$
- $0.35*0.65*rK$
- $MSY = rK/4$

American Samoa ABC = 80,000 lbs.

Hawaii ABC = 544,000 lbs.

CNMI ABC = 268,000 lbs.

Guam ABC = 56,000 lbs.

iv. Black Corals

Tier 4 control rule was used for the Hawaii black corals although there is a fishery of less than three participants because the fishery is currently inactive and is sporadic in nature.

The SSC set the ABC at 7,500 lbs. for black coral in Hawaii using the Tier 4 ABC Control Rule.

Given the lack of MSY estimates or catch data for black corals in the Territories, as well as a lack of defined EFH for black coral, the MSY estimates for the Territories are based on a proxy using Hawaii's MSY. The SSC sets the following Territorial black coral ABCs as:

American Samoa ABC = 790 lbs.

CNMI ABC = 2,100 lbs.

Guam ABC = 700 lbs.

v. Exploratory Areas

For exploratory areas, none of the ABC control rules cover the situation when there is no estimate of MSY, no catch, and only suspected occurrence. **SSC retained 1,000 kg/yr as the ABC to allow exploratory fishing that would provide information on occurrence and abundance while still allowing the venture to be profitable. The SSC clarified that the 1000 kg/yr is for the entire State of Hawaii.**

vi. Precious Corals except black coral

Regarding pink and bamboo coral on Makapuu Bed in Hawaii, MSY has been estimated. **Hence, the SSC sets the following ABCs using the Tier 4 ABC Control Rule: 1,400 kg for pink coral and 260 kg for bamboo coral.**

For the "Conditional Beds" in Hawaii (180 Fathom Bank, Brooks Bank, Kaena Point, and Keaohole Point), there is no MSY estimate nor catch data. **Hence, the SSC sets the ABCs for bamboo and pink corals for conditional beds using the MSY estimates for Makapuu Bed as a proxy, as shown in Table 9.**

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- $C'/MSY = .35 * .65 * 4 = 0.91$
 - Hence catch is 91% of MSY.

Jensen, A (2002) Maximum harvest of a fish population that has the smallest impact on population biomass. Fisheries Research. 57: 89-91

Walters C, Christensen V, Martell S, Kitchell J (2005) Possible ecosystem impacts of applying MSY policies from single-species assessment. ICES Journal of Marine Science, 62: 558-568

Table 9. Acceptable Biological Catches of pink and bamboo corals for Makapuu and in four conditional beds in Hawaii

Area	Pink MSY	Bamboo MSY	ABC pink (0.91xMSY)	ABC bamboo (0.91xMSY)
Makapuu	1500	285	1400	260
180 fathom	1500	285	1400	260
Brooks bank	1500	285	1400	260
Kaena Pt	94	18	85	16
Keahole Pt	94	18	85	16
Totals			4370	812

American Samoa, Guam, and CNMI are exploratory beds and none of the ABC control rules cover the situation when there is no estimate of MSY, no catch, and only suspected occurrence. **SSC retains 1,000 kg/yr for other precious corals as the ABC to allow exploratory fishing that would provide information on occurrence and abundance while still allowing the venture to be profitable.**

c. Bottomfish

i. BMUS in American Samoa, Guam, CNMI

An MSY estimate is available for the BMUS of American Samoa, Guam and CNMI from Moffitt et al. 2007. This report did not undergo the WPSAR review and cannot be regarded as Tier 2 therefore the SSC applied a Tier 4 control rule based on $0.91 \times \text{MSY}$ (see footnote 11) for these stocks. The SSC notes that recent annual catches of BMUS in American Samoa, Guam and CNMI are below the estimated MSY. **Applying this control rule, the SSC establishes the following ABCs:**

American Samoa = 99,200 lbs

Guam = 48,200 lbs

CNMI = 182,500

ii. Non Deep 7 BMUS for Hawaii

The non deep-7 BMUS in Hawaii consists of uku, several ulua, kahala, kalekale, and taape, with uku being the dominant species by far. Five alternatives were presented for estimating an ABC for this complex. Three were based on an analogy of the OFL projections from the most recent stock assessment of the deep-7 complex (all data, the last 10 years of catch data, and the last 3 years of catch data), one on the 75th percentile of the non deep-7 catch history, and the mean of the recent catch (2006-2010). **The SSC finds that it has no basis for choosing one model over another. Hence, the SSC recommends taking an average of the following three ABC estimates: 1) ABC at 50%OFL of entire catch time series using the analogy method; 2) ABC from the 1*75th percentile; and 3) ABC from 1*mean of recent catch (5 years), similar**

to model averaging³ resulting in an ABC = 135,000 lbs.

B. Alternatives for Non-commercial Data Collection in Hawaii (Action Item)

I. Non-Commercial Fisheries Data Advisory Committee Recommendations

Council staff presented alternative strategies for collecting non-commercial catch data for the State of Hawaii and followed with the recommendations from the Non-commercial Fisheries Data Advisory Committee. Four Alternatives were presented. It was noted that there would be a continued data gap for catches occurring in state waters with all the four alternatives.

- Alternative 1. No Action. Continue data collection under existing programs (with improvements) using HMRFS/MRIP *etc.*
- Alternative 2. Require Federal permits with monthly logbook reporting for coral reef and pelagic fishing in the EEZ only but not in State waters.
- Alternative 3. Require a single Federal permit for all fishers in all fisheries with monthly reporting.
- Alternative 4. Require a single Federal permit for vessel owners only with per-trip reporting.

Alternative 4 was preferred by the Advisory Committee.

The SSC reiterates its previous support for Alternative 4 "to require a single Federal permit for vessel owners only with per trip reporting" and adds a further recommendation that the eventual permit form include space for an option to document crew member identification and participation.

C. Report on WPacFIN Program Data Review

Sunny Bak, Council contractor, presented preliminary results of the data review and noted some issues with sampling protocols and fielding the surveys.

The SSC looks forward to reviewing the final report and seeing recommendations for improvements in the data collection programs in American Samoa, Guam and CNMI along with a cost estimate for proposed improvements.

D. Essential Fish Habitat/Habitat Areas of Particular Concern

Michael Parke, PIFSC, described recent updates to the data base for Essential Fish Habitat/Habitat Areas of Particular Concern for CNMI, Guam and American Samoa, Mark

³ Three estimates of MSY were derived using 3 different approaches. Assuming equal weight for each of the 3 estimates then it is useful to model average to derive an overall estimate that explicitly takes into account the uncertainty associated with the 3 estimates — this approach is known as multi-model inference (Burnham and Anderson 2002). The MSY estimate is then the average of the 3 model estimates, which was 135,000 lbs.

Burnham K, Anderson D (2002) Model selection and multimodel inference: a practical information-theoretic approach. Springer New York

Mitsuyasu presented SSC the Draft Amendment to the Hawaii Bottomfish EFH/HAPC designations. This Amendment has already had its WPSAR review, the preferred alternatives from that review have already been incorporated in this Draft. Essentially there is no change recommended for general EFH from 0-400 meters with only a minor change from egg/larvae to egg/post-hatch designation. Further, preferred Alternative 2 recommendations were to change depth designations from 2 to 3: shallow, intermediate and deep bottomfish complexes for all BMUS and not just the Deep Seven species. The WPSAR Alternative 2 for EFH designation for seamount groundfish will add Cross Seamount specifically to the designation and change the depth designation from 100-600m to 0-600m with three (3) species complexes included.

With respect to the HAPC, WPSAR Alternative 3 was the preferred Alternative, which retained only 7 of the 16 proposed candidate bottomfish HAPC areas. Detailed maps (with lats. and longs.) of the proposed preferred Alternative EFH and HAPC designations were provided.

The SSC reiterates its concurrence with recommendations for the preferred Alternatives as presented by the WPSAR Committee and as incorporated in the current Amendment.

E. Status of FEP Amendments

Council staff updated the SSC on progress on the multitude of amendments progressing through the review process

F. Review of the WPRFMC 5 Year Research Priorities

G. Cooperative Research Priorities

Council staff updated the SSC on progress made on the multitude of the Council's 5 Year Research Priorities and noted the significant number of completed priorities. He also described the suggested priorities for Cooperative Research. The SSC concurred with those research priorities and suggested additional priorities.

The SSC continues to endorse the Council's 5 Year Research Priorities and also recommends that a high research priority be added: studies on False Killer Whale demographics including annual survival and breeding probabilities. The SSC also recommends that similar studies be done on pantropical spotted dolphins. It was also suggested that the Council's Social Science Research Committee be reconvened and given a chance to review these priorities and suggest any newly emerging priorities.

The SSC heard a very interesting discussion of Yellowfin Tuna behavior, dynamics, and marketing presented by Dave Itano, PFRP. Itano suggested a number of potentially useful future studies on Yellowfin.

Given the economic and cultural importance of Yellowfin Tuna in Hawaii, the SSC recommends the list of useful studies suggested by Itano be incorporated into the 5 year and Cooperative Research Priorities as follows:

1) Examine long term trends in yellowfin CPUE by size class for coastal troll and handline

gear.

2) Investigate and estimate the landings and economic value of small yellowfin tuna in poorly documented fisheries and markets.

3) Determine the contribution of yellowfin tuna to commercial landings at small size classes, i.e. < 3 lbs, 3 – <10 lbs, 10 - <15 lbs, etc.

4) Examine socio-cultural impacts of raising the commercial size limit on yellowfin tuna or the imposition of recreational size and bag limits.

5) Conduct a Yield per Recruit analysis of yellowfin harvested by Hawaii-based fisheries.

H. Report on Marianas Trench MNM Science and Expo Workshop

SSC member Judith Amesbury reported on the Marianas Trench Marine National Monument Science Exploration and Research Workshop, noting that there was no indigenous representation at the workshop and further noting that there are indigenous fisheries scientists in the Marianas. She distributed to SSC members her letter to the workshop organizers and their response. Amesbury also noted the lack of Guam representation on the Monument Advisory Council.

The SSC shares Amesbury's concerns at the lack of indigenous representation at the workshop and the lack of Guam representation on the Advisory Council. The SSC conveys these concerns to the Council for their consideration and possible action.

J. Response to NMFS letter on Council recommended fishing regulation for Marine National Monument

Council staff updated the SSC on progress on the amendment related to the Council recommended Fishing Regulations for Marine National Monuments and the letter received from PIRO regarding the concept of "Customary Exchange" and a perceived need to ensure that there were adequate mechanisms for enforcement and to make sure there was a clear distinction between "Customary Exchange" and "commercial fishing". The SSC noted that the language in the NMFS letter gave some room and encouraged revisiting the definitions and draft regulations.

The SSC formed a small working group to revisit the "customary exchange" concept, definitions and draft regulations prior to the next SSC meeting. The Chair asked for volunteers and the following members offered their services: Stewart Allen, Judy Amesbury, Charles Daxboeck, Domingo Ochavillo, Minling Pan, and Craig Severance.



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6. Pelagic Fisheries

A. Amendment Options for American Samoa Longline Swordfish Fishery

The SSC heard a presentation on alternative actions with respect to possible development of an American Samoa swordfish longline fishery. The SSC looks forward to hearing more on this topic at a subsequent meeting.

B. Information on Yellowfin Tuna Around the Hawaiian Islands - Management Implications

The SSC heard an interesting report by Dave Itano, University of Hawaii's Pelagic Fisheries Research Program, on yellowfin in the Hawaiian Islands, in which he presented the following research recommendations.

- 1) Examine long term trends in yellowfin CPUE by size class for coastal troll and handline gear.
- 2) Investigate and estimate the landings and economic value of small yellowfin tuna in poorly documented fisheries and markets.
- 3) Determine the contribution of yellowfin tuna to commercial landings at small size classes, i.e. < 3 lbs, 3 – <10 lbs, 10 - <15 lbs, etc. (Note that the state of Hawaii commercial limit for yellowfin is 3 lb)
- 4) Examine socio-cultural impacts of raising the commercial size limit on yellowfin tuna or the imposition of recreational size and bag limits.
- 5) Conduct a Yield per Recruit analysis of yellowfin harvested by Hawaii-based fisheries

The SSC endorses these five recommendations and recommends that they be added to the Council's five year list of research priorities. The SSC further noted the uncertain future of the University of Hawaii's Pelagic Fisheries Research Program. The SSC strongly recommends that it be adequately funded by NMFS to continue support for essential science based fishery management.

C. Striped Marlin Catch Limit

Council staff and Keith Bigelow, Pelagic Plan Team Chair, presented an update on striped marlin

which is currently subject to a WCPFC catch limit. Keith Bigelow reported on the size, condition, and disposition of striped marlin caught in Hawaii-based longline fisheries. The SSC looks forward to receiving presentations on further studies of potential blue and striped marlin size limits and the associated economic impacts thereof.

D. American Samoa and Hawaii Longline Quarterly Reports

Kimberly Lowe from NMFS PIFSC presented a report on the 2011 second quarter fishery performances of the Hawaii and American Samoa longline fisheries.

E. International Fisheries Meetings

1. Kobe III

Council staff reported on the third in the Kobe series of meetings of tuna RFMOs. Council staff noted the wide-spread adoption globally of circle hooks and fish bait to minimize sea turtle interactions with pelagic longline fishing.

2. Kobe III Bycatch Working Group

Council staff also reported on a bycatch pre-meeting at Kobe III. It was noted that most concern at present is focused on shark bycatch

3. WCPFC Science Committee

Keith Bigelow reported on the seventh meeting of the WCPFC Science Committee. Among other items, he reviewed the recent catches by different fishery sectors and the results of stock assessments for South Pacific albacore, WCPO yellowfin, WCPO bigeye and WCPO skipjack tuna. Overfishing of bigeye tuna continues to occur, ($F_{\text{current}} > F_{\text{MSY}}$) but overfishing is not occurring for other stocks.

The SSC noted that the current situation, in which the status of bigeye stock is close to MSY level, is a result of two factors:

1. Fishing mortality from all fishing gears has increased over time, and;
2. The advent of a skipjack purse seine FAD fishery with large incidental catches of juvenile bigeye, which reduced the MSY to less than half of its prior value.

The SSC thanked Council Staff, Paul Dalzell, who stepped down from chairing the WCPFC Ecosystem and Bycatch Working Group after a decade of service.

4. WCPFC Northern Committee

Tom Graham, NMFS PIRO, reported on the WCPFC Northern Committee seventh meeting. He noted the ongoing concerns about the lack of an up to date stock assessment for North Pacific striped marlin

5. WCPFC Technical and Compliance Committee

Council staff provided a summary of the seventh meeting of the WCPFC Technical and Compliance Committee. A major agenda item was the need to develop a new conservation and management measure for tropical tunas to replace CMM 2008-01 which expires this year. Keith Bigelow, Pelagic Plan Team Chair, presented a summary of presentations given by the SPC-OFP which made stock status projections in 2021 based on stock condition and fisheries in 2009 and 2010. The 2010 projection produced a more optimistic outcome, with bigeye no longer being subject to overfishing

The SSC discussed the potential new tuna conservation and management measure, in particular the methodology for selecting the appropriate base year or years for current fisheries status and for future projections.

The SSC concluded that the choice of a time-frame to serve as a basis for making projections of future stock conditions or for defining a “current” state of the fishery is more complicated than simply picking a particular base year. The SSC recommends that a thorough investigation be conducted by the science provider to the WCPFC to determine an appropriate base time-frame in the context of the western Pacific tuna fisheries.

6. IATTC 82nd Meeting

SSC member Rick Deriso presented a summary of the 82nd IATTC meeting, noting that a record number of resolutions were adopted, including a tuna conservation and management measure and a ban on the retention of oceanic white tip sharks.

7. North Pacific Regional Fishery Management Organization First Preparatory Conference

Rini Ghosh, NMFS PIRO, presented on the first preparatory conference for a new RFMO in the North Pacific dealing with those stocks not currently covered by international fishery management arrangements, such as seamount groundfish, certain small pelagic fish and squid. This first meeting dealt primarily with institutional arrangements.



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7. Protected Species

A. Loggerhead Turtle Final Listing Rule and New Biological Opinion

Pat Opay, PIRO staff, described the final rule, which determined that 4 distinct population segments (DPS) of loggerheads are threatened and 5 DPS are endangered (including the North Pacific and South Pacific DPS). A new BiOp will be finalized on January 27, 2012.

The SSC noted that PIRO is using a 2006 NOAA tech memo NMFS-OPR-29 as the best available science. Council staff said that newer information is now available; PIRO said it will discuss what constitutes best available information. Therefore because estimates could change, they want to use the most accurate rates possible. Some SSC members who attended the workshop leading to the 2006 tech memo were surprised to see the results as described in the tech memo. It was noted that there has been much discussion of the tagging data used in the workshop and a more comprehensive understanding has emerged. A post hooking mortality webinar workshop is being organized by NMFS-PIFSC from mid-November 2011.

The SSC recommends that the Council be represented in the proposed upcoming post-hooking mortality workshop (webinar) being organized by NMFS-PIFSC in mid-November 2011.

When Council staff asked how the process will address incidental takes by other fisheries, PIRO responded that they would make every effort to consider those takes. They are working with observer program and international fisheries. SSC asked where does the US policy stand regarding offsets? PIRO responded that offsets had not been used or seriously pursued in marine settings, although they had been applied in terrestrial settings. However, Council staff noted that marine setting offsets had been used once in 2000 (not in Hawaii), when nesting beach protection measures were taken into account in a signed BiOp. PIRO is working with PIFSC scientists to determine what appropriate models would be used in the BiOP but these have yet to be identified.

Chris Boggs then discussed a climate change model which could be used in the BiOp analyses. The paper by Kyle Van Houtan and John Hailey found that oceanographic conditions and climatic variability strongly influenced loggerheads, explaining up to 88% of variability of loggerhead nesting in the AMO and PDO regions. Long term climate trends suggest that these effects will lead to a decline in Pacific nesting turtles (but an increase in Atlantic nesting turtles). Therefore the climate trends so should be considered in any baseline analysis for any future projections of loggerhead populations.

B. False Killer Whale Take Reduction Plan Proposed Rule and Take Reduction Team Meeting

Erin Oleson from NMFS PIFSC provided an update on the draft 2011 false killer whale stock assessment report, which was published a month ago in the Federal Register and is still open for public comment.

Nancy Young of PIRO described the proposed FKW Take Reduction Plan and July 2011 FKW Take Reduction Team meeting. The proposed rule public comment period just ended on October 17. The next step is to develop a final rule in which comments received would be taken into consideration.

The proposed take reduction plan's regulatory measures include 8 measures that apply to the Hawaii deep set longline fishery. One of the requirements is for weak circle hooks that are currently not manufactured, so an appropriate time line for implementation will be needed. Another measure is to eliminate the seasonal contraction of the MHI longline fishing prohibited area. There is also a southern exclusion zone within which deep set longline fishing would be prohibited for varying lengths of time if FKW bycatch thresholds are reached.

The SSC Subcommittee on the False Killer Whale Take Reduction Plan gave a presentation on its findings on the southern exclusion zone closure trigger. The Subcommittee proposed an alternative trigger calculation that is similar in intent but easier to measure and implement. This proposal involves a simple graphical means to monitor the FKW mortality and serious injuries each year against the PBR baseline. The proposal also includes a five-year period of grace for the industry. The Subcommittee also discussed ways to improve the estimation of the PBR, especially estimates of the minimum abundance measure used to derive PBR. In this light, the Subcommittee also suggested a more thorough consideration by NMFS of the analysis by Professor Ray Hilborn (University of Washington), which proposes a PBR of 133 FKWs compared to a PBR of 2.5 proposed by the NMFS 2010 SAR for false killer whales.

The SSC recommends that the Council forward the SSC Subcommittee's paper to PIRO, with explanatory text and a cover letter, as an alternative management regime for the southern exclusion zone. The SSC further recommends that NMFS forward their apparent concerns about the Hilborn analysis of the FKW Potential Biological Removals (PBR) to Professor Hilborn for him to provide a considered response. In addition, the SSC recommends that a Bayesian approach analogous to the Hilborn analysis be further explored by NMFS.

C. Proposed 2012 List of Fisheries and Draft 2011 Stock Assessment Report

Nancy Young of PIRO described the MMPA list of fisheries for 2012, which uses 3 categories to classify all commercial fisheries based on level of incidental serious injuries and mortalities of marine mammals. The proposed rule was published June 28, 2011 and included the reclassification of Hawaii troll and charter fisheries from Cat III to II due to alleged mortality

and serious injury of pantropical spotted dolphins in association with these fisheries. The SSC noted that a very small proportion of troll anglers fish in association with dolphin pods. Moreover they do not drive their boats through dolphin pods but fish ahead of dolphins, and this behavior shouldn't be extrapolated to the whole small boat fleet.

The SSC also noted that the PIRO proposed rule focuses mainly on characterizing the troll and charter fisheries but provides little, if any, empirical information on the stock status and trends for the pantropical spotted dolphin populations exposed to such fisheries.

The SSC recommends that better demographic and population abundance data of pantropical spotted dolphins be collected to improve monitoring of population trends and to strengthen risk assessments. These improvements will contribute to more scientifically-based management. The SSC further recommends that more accurate operational data be collected on the Hawaii small-boat pelagic fisheries before finalizing the proposed rule.

D. Analysis of Leatherback Turtle Bycatch Patterns in the Hawaii Longline Fishery

PIFSC scientist Don Kobayashi reported on ongoing efforts to apply the loggerhead TurtleWatch product to leatherback interactions. However, leatherbacks in this region don't appear to be as influenced by temperature fronts as are loggerheads. Therefore, the method may not be directly transferable to leatherbacks. The Center will continue to seek alternative methods for identifying leatherback zones, perhaps related to foraging habitats.