



90th Meeting of the Scientific and Statistical Committee

Honolulu, Hawaii 96813

October 18-20, 2005

7. Pelagics Fisheries

A. International Fisheries Management

1. IATTC

Rick Deriso presented a summary of the IATTC mid-year meeting in Lanzarote. The meeting developed resolutions on seabirds, trophic ecology, and resolution on North Pacific albacore tuna, finning of sharks, trade measures for compliance monitoring, financing and IUU fishing. Deriso also added that the stock assessment presented on Eastern Pacific bigeye tuna (BET) at the meeting indicated that spawning biomass is lower than that generating MSY and fishing mortality (F) is too high. Further, management measures currently implemented by IATTC were not enough to reduce significantly

Kitty Simonds added that the US attempted to modify the US longline bigeye tuna quota from 150 to 250 mt, but this was blocked by Korea, despite the US position that US position this tiny quota was difficult to monitor. Apparently the US does not have a mechanism for rapid monitoring of catches. Monitoring of the US fleet is conducted through logbooks. However, foreign fleets make daily radio reports to their parent companies and they are able to provide timely monthly summaries of their catches to IATTC.

2. WCPFC/Science Committee

Bob Skillman gave overview of WCPFC Science Committee (SC) meeting. The most recent assessment of BET shows that it is being subjected to overfishing, and that F needs to be reduced. For yellowfin tuna (YFT) assessment also showed overfishing is occurring but not yet overfished, similar to the situation with BET. Assessments for skipjack (SKJ) and South Pacific albacore (ALB) showed that stocks were in good shape. Much of the meeting was spent examining 14 management scenarios which WCPFC gave to SPC to analyse. The 14 scenarios with several sub-options were used in conjunction with the current stock assessment model to make 5 and 10 year projections into the future. Much of the meeting was spent on looking at impacts. Keeping the fishery at current levels would not be sustainable for YFT or BET, however, two measures would result in increasing spawning stock biomass and catches for BET while a total of 8 options would accomplish this for YFT.

Management options for YFT and BET

Keith Bigelow gives a presentation on the various management scenarios for BET and YFT, referred to by Bob Skillman in his overview of the SC meeting. Reductions in longline/catch effort have an immediate and significant impact on BET adult biomass. Switching from log/FAD to unassociated school sets was the most effective purse seine measure investigated in the case of BET. For yellowfin, a simulated 50% reduction in log/FAD set catchability provided somewhat greater biomass gains. Quarterly closures in individual regions were not particularly effective when effort is allowed to transfer to the neighboring region during the closure (the possible exception being longline closures in region 4 in the case of bigeye). A feature of the catch-based projections for both bigeye and yellowfin was the continued decline in the abundance in region 3 toward zero.

WCPO stock assessment for BET and YFT

Pierre Kleiber presented the stock assessments on which the management scenarios discussed by Keith Bigelow were based. Kleiber stated that fishing mortality for YFT is near to or above the MSY level, and it is likely that overfishing is occurring. The same result was also obtained for BET. In both cases, biomasses are expected to decline below the MSY level at current effort levels unless recruitment remains above average

3. PIRO International Division Activities

CK gives an extensive summary of the the PIRO international division activities . The most significant items were two meetings held in Japan during September between Japn and the USA. The first of these was to look at agenda items for the second WCPFC meeting, while the second was concerned with the WCPFC Northern Committee. Northern Committee potential members will have a meeting on the December 10th, prior to the WCPFC plenary to discuss issues such as albacore. Any agreement reached at this meeting will be taken to the Northern Committee proper which is expected to be formed during the second WCPFC meeting.

There was general agreement on issues to put on table for the second WCPFC session. This included the establishment of a VMS program and establishing a WCPFC observer program. Some nations are also advocating that agreement be reached on boarding and inspection provisions. Other issues agreed upon for WCPFC2 were the conservation of BET and YFT, conservation of turtles and sharks, fishing capacity, data collection, northern albacore (but this may be the preserve of northern committee), and the establishment of a mechanism for cooperating with the IATTC. Also under discussion will be a potential future catch allocation mechanism for members and non-members. The US has undertaken to draft background papers for the WCPFC meeting on fishing capacity, fishery data, VMS, bigeye and yellowfin, turtles, sharks, observers, and northern albacore. The papers will be a compilation of various facts without any suggestions for proposals. The WCPFC Secretariat has suggested it may float management proposals for sharks and northern albacore. The US will also discuss these issues with with other nations to see if they have proposals. PIRO is conducting public meetings in California and Hawaii to solicit public input.

Karnella also reported on other meetings and initiatives with which the international division is involved. These included a recent meeting on fishing capacity in Washington DC and the South Pacific Tuna Treaty consultations which will hold an informal meeting in November, followed by the formal consultation in Honolulu in 2006. There are currently 14 US vessels operating in treaty zone although the US purse seine industry is developing joint agreements with Taiwan to increase the number of vessels operating under treaty.

Karnella finished his presentation by reviewing the various Pacific Islands and SE Asia turtle project being supported by PIRO. These include projects in Guam, FSM, PNG, Solomon Islands, Indonesia, New Caledonia and the Marshall Islands.

4. EPO Yellowfin Stock Condition

Rick Deriso presented a summary of the most recent assessment of Eastern Pacific YFT. The estimate of current Spawning Biomass Ratio is less than that required to produce average MSY (AMSY) but its confidence intervals encompass the AMSY. The recent fishing mortality rates are 20% above those required to produce AMSY. Increasing the average weight of the yellowfin caught could substantially increase AMSY. There have been two different productivity regimes, and the levels of AMSY and the biomass required to produce AMSY may differ between the regimes. The results are more pessimistic if a stock-recruitment relationship is assumed.

5. North Pacific Albacore Stock Condition

Keith Bigelow summarized the most recent assessment for North Pacific albacore. Several assessments were generated based around a matrix of high and low ocean productivity and high and low fishing mortalities. As might be expected a combination of high fishing mortality and low oceanic productivity would result in a substantial decline in albacore biomass.

B. HI Swordfish Fishery Certificates (ACTION ITEM)

Paul Dalzell made a brief presentation on alternatives to the current management measures for the Hawaii-based swordfish longline fishery. The swordfish segment of the Hawaii longline fishery was reopened in April 2004, following an amendment to the Pelagics Fishery Management Plan to introduce new technology for turtle conservation. The FMP amendment required all longliners fishing for swordfish, employing shallow (< 30 m) sets, to use 18/0 circle hooks with a 10 degree offset, and mackerel type bait. This hook and bait combination has been shown to markedly reduce catches of endangered loggerhead and leatherback turtles. As an added precaution, a 'hard' cap on the allowable number of interactions with loggerhead and leatherback turtles was also included in the amendment. If the swordfish targeting fleet caught more than 16 leatherback and 17 loggerhead turtles in any calendar year, then the swordfish fishery would close for the remainder of the year. In addition, a cap was placed on the annual volume of fishing effort, of 2,120 sets, for the swordfish targeting segment of the Hawaii-based longline fishery. The number of sets was divided equally among all fishermen expressing an interest in targeting swordfish, with each set being accorded a unique numbered certificate, which had to be reported when used. Finally, all vessels targeting swordfish were obliged to

carry an observer to record any turtle interactions. Few swordfish sets were made in 2004, but in 2005 the fishery began operating in earnest. As of August 15, 2005, the swordfish fleet had a total of 7 interactions with leatherback turtles and 9 loggerhead interactions, with about 80% of the number of longline sets used up. Given the success of these management measures in greatly reducing turtle interactions, particularly the hard cap on turtle interactions, there may be no need to maintain a cap on swordfish directed fishing effort. Moreover, the administration of the 2,120 longline sets (50% of the historical level of swordfish effort) is a substantial burden on the National Marine Fisheries Service for little to no conservation gains for turtles, given the incentive to fishermen to minimize interactions afforded by the caps on loggerhead and leatherback turtles, and the success of the hook/bait combination in reducing turtle captures. Consequently, the Council is proposing to amend the Pelagics FMP to remove the cap on shallow set fishing effort while maintaining the turtle caps and other measures to conserve turtles.

However, the SSC felt it was premature to be looking at altering the current management framework for the fishery. The turtle takes were at about 50% of the hard caps with two thirds of the allowable longline effort expended in the fishery. Even increasing the effort cap to 75 % of the historical average risked reaching the hard caps with the remaining effort. **Consequently, the SSC recommends that no action be taken at this time concerning the cap on the number of sets for the swordfish fishery segment of the Hawaii longline fishery.**

B.' Potential modification of longline seabird mitigation measures

Paul Dalzell presented information concerning a recent proposed rule published by NMFS (July 13, 2005) on longline-seabird mitigation. These measures were developed by the Council and reviewed by the SSC at previous meetings. However comments received by NMFS on the proposed rule indicated that modification of some aspects of the proposed measures should be considered based on recent observer and experimental observations. Under the proposed rule, seabird mitigation measures would be required for Hawaii-based vessels using shallow-set longline gear at all times, and for Hawaii-based vessels using deep-set longline gear when fishing north of 23 deg N latitude. Operators of shallow-setting longline vessels electing not to side-set would continue to be required to use thawed, blue dyed bait, to start and complete the setting process during the nighttime (specifically to begin deployment of the gear no earlier than one hour after local sunset and to finish deployment no later than local sunrise), and to strategically discard fish offal (i.e. on the opposite side from where the longline is being set). Under the proposed rule they would also be required to employ a bird scaring or tori line in addition to the above measures.

Recent analyses of information collected by Federal observers (required on all Hawaii-based shallow-setting longline vessels) in the first half of 2005 found that seabird interaction rates during this time period were less than 10% of the historical average. This appears to be due to the night setting requirement established in 2004 and is consistent with earlier research results. In light of this information, comments were received questioning the need to deploy tori lines on shallow-setting vessels that are currently required to set at night. The Council will therefore consider action to modify the proposed rule to remove the tori line requirement for these vessels.

Under the proposed rule, 60 g (2.1 oz) weights would be required within one meter of each hook when side-setting. Comments received during the development of the amendment and on the proposed rule indicated that there were serious safety concerns about the required use of these relatively large weights, although such weights are currently used on some vessels. Commenters stated that fishery participants can be and have been seriously injured or killed when struck by longline weights ricocheting from snapped lines. Although the original trials which led to the development of the amendment employed 60 g weights, subsequent research found that the sink rates of 40g and 60g weights differ by only a tenth of a second, suggesting that the 45 g weights which are most commonly employed in the Hawaii-based longline fishery would not affect the efficacy of side-setting in minimizing seabird interactions.

Following discussion, **the SSC recommended that the final rule on seabirds for Hawaii longline fishery be published as written reflecting the following changes:**

- **no requirement to use tori lines at night;**
- **no requirement to use weights when side-setting at night;**
- **and a requirement that all other side-setting be conducted with 45 g weights.**

The SSC also encourages further research on factors such as weight and weight location on hook sink rates

C. FAD Management combined with E. MHI Longline Buffer Zones

Paul Dalzell explained to the SSC that at its June meeting the Council asked the Council staff to look at data and suggest alternatives for the request by Big Island Fishermen to modify the seasonal reduction of the longline exclusion zone. This request is driven by interactions between private FAD (PFADs) handline fishermen operating out of Hilo during the winter bigeye run, who are deploying PFADs at increasing distances from Hilo and interaction with longliners fishing between 25 and 50 nm from the coast.

The SSC suggested further data analysis comparisons of only October-January months within the proposed area versus outside (not all year outside). The additional analysis should also show handline catch for October – January, especially in the proposed closed area. Additional data analysis should also look longline effort in 2004, especially the 5-7 longliners that have landed in Hilo.

D. Definition of Shortlines vs. Longlines

Paul Dalzell presented information on the development of short longline or shortline fishing in Hawaii and Guam. The Hawaii shortline fishery is targeting bigeye and monchong on seamounts and FADs, while the Guam fishery is targeting sharks on banks and seamounts. These fisheries are largely unregulated compared to conventional pelagic longline fisheries, especially with respect to bycatch and protected species interactions. **The SSC is concerned about the expansion of short longline (<1nm) fishing (shortlines) targeting tuna and monchong in**

Hawaii and sharks in Guam. Further, the SSC recommends that the Council continue to closely monitor developments in these fisheries.

F. American Samoa FAD Closures

Paul Dalzell gave a presentation on an initiative which stemmed from a recommendation from the June Council meeting. At the June meeting the Council requested staff to look at the potential for implementing 5 nm longline exclusion zones around FADs deployed around Tutuila, American Samoa. This action was generated by concerns that troll fishing CPUEs around Tutuila have declined since the advent of the longline fishery. In discussion by the SSC, it was noted that it may be difficult to make closures around ephemeral objects like FADs. Moreover, this was an allocation issue and was better discussed by the Council.

G. Update on HI Longline Biological Opinion

Brandee Gerkee gave a presentation on recent BiOp for the deep set tuna longline fishery, which concluded that the fishery presented no jeopardy to the continued existence of sea turtles and marine mammals.

The SSC noted that this BiOp was a great improvement over those developed in previous years for the Hawaii longline fishery. The SSC also commented that because the North Pacific humpback whale population is increasing at 7% annually, and the eastern Pacific olive ridley population at 12% per year it is likely that consultations may have to be reinitiated within the three year period covered by the BiOp due to probable increased interactions. The SSC is also concerned that the Council's conservation projects are not explicitly accounted for in the biological opinion's risk analysis, and that this omission may constitute a disincentive for continuing non-fishery related marine turtle conservation.

H. Hawaii Longline Fisheries Quarterly Report

Russell Ito presented on the second quarter report for the Hawaii longline fishery. Swordfish CPUES in 2005 were at almost record levels in the swordfish targeting segment of the fishery, but with much lower CPUES for blue shark. There was also a rising trend for monchong taken by the fishery as a whole. This generated the following recommendation.

The SSC recommends that stock assessments be conducted on species such as monchong, wahoo and mahimahi. ECOSIM modeling suggests that decreases of the biomass of large predators may lead to an increase in smaller predators such as skipjack, and possibly mahimahi and wahoo.

The SSC continued to express concern about the expected number of hooks versus the fleet size for the limited entry program. The SSC deliberated on whether hooks are the relevant measure of effort? It was suggested that sets may be a better effort measure or the distance of habitat swept by the gear.

The SSC requests that a review be presented at the next meeting on how the Hawaii longline limited entry program vessel cap was established, and what was the projected number of hooks for this vessel limit.

I. American Samoa Pelagic Research Projects

Keith Bigelow presented modeling work being conducted by PIFSC on albacore in the South Pacific, while Reka Domos made a complementary presentation on the oceanographic effects on albacore CPUE in American Samoa EEZ. It appears that there is a connection between albacore CPUE and the strength of the SECC and sea surface height in the EEZ.

In view of the ecosystem approach to management, the SSC encourages the Council to pursue its previous recommendation for a workshop with countries bordering American Samoa on issues of mutual concern such as longline fisheries for albacore.

J. Plan Team Recommendations

Keith Bigelow presented the following Pelagic Plan Team recommendations:

- 1. The Pelagic Plan team (PPT) recommends that Council staff look at the consequences to US WCPO fisheries of rolling back fishing effort to 1999 levels (as proposed in resolution from MHL C5) in terms of catches of BET, YFT & other PMUS.**
- 2. With regard to international management of WCPO fisheries, the PPT suggests that a 15% reduction in total effort and/or redirection of purse seine effort from FADs to free swimming tuna schools. Such measures should be implemented because projections suggest that they will lead to stock recovery of both BET and YFT in a 5-10 year period.**
- 3. The PPT recommends making changes to seabird mitigation regulations as proposed in the Council's discussion paper**
- 4. The PPT recommends exploring options to change the fishing effort allocation for the Hawaii based shallow set longline fishery. Among the issues to consider include:**
 - Swordfish shallow set effort allocation (certificates) to be increased or unconstrained, with loggerhead and leatherback caps unchanged.**
 - The potential for changing the allocation period from calendar year to reflect the actual swordfish fishing season (October to September).**
 - Option of carrying over effort certificates to the following allocation period when turtle caps are not exceeded (turtle caps would not change).**
 - Implications to NMFS observer program**

- **Survey fishing industry, fishermen and buyers about proposed changes.**

With respect to the PPT recommendations:

- **The SSC declined to comment on recommendation 1.**
- **The SSC concurred with recommendation 2 and recommended that the Council strongly encourage the US delegation to RFMOs (WCPFC & IATTC) to advocate for the adoption of such measures.**
- **The SSC did not comment on PPT recommendations 3 and 4, having generated their own recommendations on these items for the Council.**



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Protected Species

A. Longline mitigation research

The SSC heard updates on longline mitigation research currently being conducted by Chris Boggs regarding international collaborations and hook experiments in Latin America and Asia in tuna longline fisheries. Preliminary results indicate that size 16/0 hooks show promise in terms of BET catch. Ecuador project results are also encouraging. The SSC expressed some concerns about the quality of the data from these various experiments and asked that Chris follow up with verification of methods and results.

B. Third International Fishers Forum

The SSC heard a brief presentation from Paul Dalzell on the International Tuna Fishers Conference on Responsible Fisheries and the Third International Fishers Forum that convened July 25-29, 2005 in Yokohama, Japan.

C. Malaysia Longline Bycatch Workshop

The SSC heard about the Malaysia Longline Bycatch Workshop, convened by the Marine Research Foundation, WWF and Conservation International - supported by NOAA Fisheries and the Council - in Kota Kinabalu, Malaysia September 26-30, 2005, that was aimed at improving communication and collaboration among specialists involved in the mitigation of bycatch from longline fishing. The SSC is interested to see completed products as a result of this meeting, including: 1) a framework or "roadmap" document under which future research and collaboration among researchers of the key animal groups (turtles, seabirds, sharks and cetaceans) will ensue to result in improved conservation initiatives, and 2) a mathematical model based on existing mitigation measures intended for fisheries managers to assist in decision making.

D. Turtle Conservation Program Update

The SSC was provided with brief updates from Irene Kinan regarding the Council's turtle conservation program including, new collaborations, new contracts (e.g., expansion of the nesting beach project in Papua New Guinea), the contractual hire of an anthropologist to undertake a social baseline study in PNG to ensure the success and long-term stability of the turtle projects in this area, and new publications such as the proceedings of the second *Western Pacific Sea Turtle Cooperative Research and Management Workshop*. Additionally a brief

discussion ensued regarding the Council's conservation measures and their incorporation in the recently completed Biological Opinion for the Deep-set fishery. The SSC expressed concern that the Council's conservation projects are not explicitly accounted for in the biological opinion's risk analysis, and that this omission may constitute a disincentive for continuing non-fishery related marine turtle conservation.

The SSC encourages the Council to fund projects that quantify the benefits of conservation measures (e.g., recovery of turtle populations and associated economic and social benefits).

E. Economics of Sea Turtle Conservation

The SSC heard Dr. Heidi Gjertsen's report on the Economics of Sea Turtle Conservation and eagerly anticipates additional results and findings as they materialize, and evaluation of the effectiveness of conservation projects. The SSC notes that the completion of this work will directly contribute to improved success of turtle conservation efforts in the Pacific region.

F. Green Sea Turtle Harvest Potential

The SSC was provided with a scientific summary by Dr. Milani Chaloupka of the methods and model utilized in the development of his paper regarding the stock status and harvest potential of Hawaiian green sea turtles. Dr. Chaloupka stressed that the paper is intended to provide informed public policy discussion based on published data, utilizing models in the public domain. Results indicate that the Hawaiian green turtle stock is currently estimated to be ca. 83% of pre-exploitation stock biomass with an intrinsic growth rate ca. 5.4% pa. The author showed that it is possible, using Bayesian state-space modelling, to derive useful demographic information for an exploited long-lived marine species despite limited data availability, and that the once-depleted Hawaiian green sea turtle stock is now well on the way to recovery and a limited harvest could be demographically feasible.

G. Cetacean Research Workshop

The SSC heard a brief presentation from Jason Baker regarding a recent Cetacean workshop that convened to review information, identify gaps in knowledge and identify research needs and priorities to help direct future research efforts for the conservation and management of cetaceans in the Pacific Islands Region. Jason also provided a brief summary as to how the research priorities outlined during the workshop are being implemented by Dave Johnson, PIFSC newly hired cetacean biologist.



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Insular Fisheries

A. Bottomfish Management

Mark Mitsuyasu, Council staff, presented an overview of the May 05 Secretarial designation of overfishing in the Main Hawaiian Islands bottomfish fishery, noted a need for a 15% reduction in fishing mortality, and reviewed the alternatives developed for the fishery. Tony Beeching, Council staff, presented an overview of the preliminary results and analysis of the targeted survey of MHI bottomfish fishermen.

Chris Kelley, HURL, presented some of the new habitat data based on the multi-beam sonar surveys and noted that the statewide survey was nearly completed with some additional work scheduled for the big island.

The SSC noted that while effort appeared to be declining in the fishery, conditions could change rapidly. Some SSC members expressed reservations about alternatives 5, 6 and 7 quota management and ITQ because of the uncertainties in the stock assessment (targeted CPUE adjustments as highliners leave the fishery) and in the data reporting (especially for recreational fishermen).

B. Black Coral Management

Joshua DeMello, Council staff, presented the SSC with the following management options for the management of black coral:

1. No Action
2. Eliminate the minimum base diameter requirement
3. Eliminate the minimum height requirement
4. Eliminate the exemption
5. Eliminate the exemption and base diameter requirement
6. Eliminate the exemption and height requirement
7. No black coral harvest

DeMello said that alternative 5 was the Plan Team's choice, alternative 7 was the SSC's previous choice, and the Council, upon discussions at its last Council meeting and testimony from fishermen and scientists chose alternative 4 as their preferred alternative. The SSC had discussions on this issue and heard from Rick Grigg and Frank Parrish of the Precious Corals Plan Team.

Grigg said that a moratorium on black coral harvest is ill advised right now and that increasing the reproduction cushion is the best option at this time. He advised the SSC that past and current research suggests that an increase in the minimum harvest size would allow the resource to increase recruitment and at the same time allow the fishery to continue. Parrish reported to the SSC that a future black coral workshop bringing together scientists, managers, fishers, and industry, would look into developing a protected area for black corals and other black coral issues.

The SSC did not oppose the Council's preferred alternative but was concerned about the effects of both harvesting and *Carijoa riisei* on the black coral resource. They agreed that scientific monitoring and research needed to continue. The SSC supported the idea of a black coral workshop to develop protected areas.

C. Crustaceans Management

1. NWHI Lobster Stock Assessment

Gerard DiNardo gave a brief introduction to the NWHI lobster stock assessment and said that the lobster model was currently being reviewed by an expert panel and the results would be presented to the SSC when it was made available.

Steve Martell presented an overview of the lobster stock assessment. Although the results were not presented, Martell presented the SSC with how the model was created but said that environmental variability as well as current tagging data were not included in the model.

2. MHI Lobster Fishery Assessment

Kevin Kelly presented a MHI lobster fishery assessment that he had worked on for the Council and HDAR. His findings showed a change in gear use from traps to hand harvest and that Maui had the largest catch of lobsters. Among his recommendations, was to get the data on the recreational component of the MHI lobster fishery, which may be just as high as or greater than the commercial catch.

3. Crustaceans Plan Team Report

DiNardo presented the plan team report. He reported that the plan team heard the same presentations and reviewed previous recommendations. DiNardo also mentioned discussions about *Heterocarpus* that the plan team and reported that those fishermen that

were taking the shrimp are reporting and monitoring is occurring in that fishery. There were no recommendations from the plan team.

D. Public Comment

There was no public comment.

E. SSC Discussion and Recommendations

In regards to Bottomfish:

The SSC notes that the closure of Penguin and Middle Banks is the only purely federal alternative that appears to meet the mandated 15% reduction in fishing mortality. However, this alternative alone concentrates the impact on Molokai and Oahu fishermen. Therefore the SSC recommends that Council consider a combination of alternatives 3 and 4: seasonal closures and a partial closure of Penguin Bank based on new habitat data. To be effective, this alternative requires state and federal cooperation. Should such cooperation not be forthcoming, full closure of Penguin and Middle Banks would be necessary. The SSC notes, given seasonal weather patterns, that a precautionary extended summer closure for MHI [may to September] will be more effective than a 3 month closure in reducing the number of days available for bottomfishing. Area closures may change following state review of their effectiveness based on new habitat data. Furthermore, the current statistical reporting areas make it difficult to identify catches made on the edges of Penguin Bank.

The SSC also supports alternative 2, developing federal regulations that mirror and support the state's restricted fishing areas [RFAs]. This alternative may improve enforcement and reporting, but alone will not achieve the mandated 15% reduction in fishing mortality. The SSC has gone on record supporting registration and reporting for all fishing in federal waters.

In regards to Precious Corals:

The SSC is not opposed to the Council's preferred alternative (Alt. 4) for management of black coral; however, this alternative is less restrictive than the moratorium previously recommended by the SSC (Alt.7). The SSC continues to be concerned about the effects of decreased recruitment on black coral resources by both harvest and *Carijoa* and encourages continued close monitoring of the resource.

The SSC also supports the Council's proposed workshop for black coral harvesters and managers to identify and designate protected areas for black corals.



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Ecosystems and Habitat

A. Western Pacific Fishery Ecosystem Plans

Jarad Makaiau provided an overview of the development of place-based fishery ecosystem plans (FEP) for the Western Pacific Region. He stated that the purpose of developing these FEPs is to establish the framework under which the Council will manage fishery resources, and begin the integration and implementation of ecosystem approaches to management for each ecosystem under its jurisdiction. He emphasized that the development of FEPs must be initiated through an incremental, collaborative and adaptive management process. For this reason, a multi-step approach is being used.

Makaiau stated that at this time, the FEPs will not establish any new fishery management regulations, rather they will consolidate existing FMP fishery regulations under the appropriate Archipelagic FEP. He noted that an adaptive management approach will be used to further advance the implementation of ecosystem science and principles in FEPs and future fishery management actions are anticipated as information becomes available.

He then said a draft programmatic environmental impact statement is being prepared which analyzes various alternatives for boundary delineations and designation of management unit species for each FEPs. Additionally, the PEIS includes options on how the Council could restructure its advisory bodies and increase coordination at the regional and international levels.

Makaiau then provided a description of the draft preliminary preferred alternatives for FEPs, the FEP objectives and boundaries, Management Unit Species, advisory body structure, and regional and international coordination.

Fishery Ecosystem Plans

He said that the specific measures being considered by the Council at this time would establish five FEPs: (1) American Samoa Archipelago FEP; (2) Hawaiian Archipelago FEP; (3) Mariana Archipelago FEP; (4) US Pacific Remote Island Area FEP; and (5) Pacific Pelagic FEP.

1. FEP Objectives

Makaiau read the 10 draft objectives for FEPs. He noted that the 10 draft objectives incorporate the objectives developed by the Council for the five existing fishery management plans. He added that the objectives also integrate the national standards of the Magnuson-Stevens Act and also some of the principles of ecosystem approaches to management identified by NOAA and the Ecosystem Principles Advisory Panel.

Members of the SSC noted that the objective 6 encouraging “voluntary compliance with regulations” is an oxymoron and suggested revisions to the language.

2. FEP Boundaries

Makaiau stated that for the Mariana Archipelago, Hawaiian Archipelago, American Samoa Archipelago and US PRIA FEPs, the FEP boundary includes all waters and associated marine resources within the EEZ surrounding those areas. He stressed that this boundary is for management purposes but will not prevent the Council from considering other factors affecting resources from outside the FEP boundary in its management decision. Although Pacific Pelagic resources are found within the FEP Boundaries of these areas, Pacific Pelagic fishery resources will be managed separately under the Pacific Pelagic FEP.

For the Pacific Pelagic FEP, the FEP Boundary the Pelagic FEP encompasses all areas of pelagic fishing operations in the EEZ or on the high seas, for any domestic vessels that:

- a. fish for, possess, or transship Pelagic Management Unit Species within the EEZ waters of the Western Pacific Region; or
- b. land Pelagic Management Unit Species within the states, territories, commonwealths or unincorporated U.S. island possessions of the Western Pacific Region.

There was discussion on whether or not the term demersal should be included in the titles of the Archipelagic FEP to explicitly let the general public know that these plans are intended to manage demersal fishery resources and not pelagic resources. It was noted that humans are an important part of the ecosystem and not necessarily bound to demersal habitats. It was also noted that it is not clear what the term demersal means or whether the current FMP fisheries are demersal fisheries.

3. Management Unit Species

Makaiau said that under the Magnuson-Stevens Act, all fishery management plans must include species to be managed under those plans. He noted that the five existing FMPs all have designated a number of MUS which have been approved by NMFS. For now, FEPs must to comply with all provisions of Magnuson-Stevens Act and will need to identify species which are to be managed under the FEPs. He noted that the preliminary preferred approach will be to define FEP MUS as the current MUS believed to be present within the FEP boundary.

There was general consensus that the MUS lists in the draft FEPs may not be as accurate and that there is a need to consult with museum collections or other sources. Makaiaiu responded that the FEP MUS lists are being reviewed by Plan Team members from each island area.

There was further discussion that it is inappropriate that FEP MUS be comprised of species that are “believed” to be present within the boundary of an FEP area. Some suggested that FEP MUS should be comprised of species that are “known to be present” within the boundary of an FEP area.

There was a suggestion that the local names appropriate to the FEP area be included in the listing of Management Unit Species.

Makaiaiu then explained the restructuring of Council Advisory Bodies. He said that the preliminary preferred alternative is to establish two Plan Teams, a Pelagic FEP Plan Team and an Archipelago FEP Plan Team. Under this scheme, the Pelagic FEP Plan Team would maintain the same structure, meeting format and responsibilities, as the Pelagic Plan Team. The Archipelago FEP Plan Team however, will be substantively different from the current FMP plan teams in structure, meeting format and responsibility.

In terms of composition, the Archipelagic Plan Team membership will be expanded to include broad expertise in the following disciplines: Fish Stock Assessment, Habitat, Oceanography, Modeling, Socio-economics, GIS, Marine Ecology, and Ecosystem Dynamics.

With respect to structure, the Archipelagic Plan Team will be structured in a manner that would enable sub-panels to be established based on fishery (e.g. Crustacean Sub-panel, Coral Reef Ecosystem Sub-Panel, Precious Coral Sub-Panel and Bottomfish Sub-Panel) or based on area (e.g. Mariana Sub-Panel, Hawaii Sub-Panel, American Samoa Sub-Panel, US PRIA Sub-Panel).

Makaiaiu stated that identification of individual members or meeting formats have not yet been thoroughly developed. However, he noted that this structure would be similar to that of the Council’s existing Advisory Panels which are sector based (e.g. commercial, recreational, subsistence) with a minimum of two members representing each island area.

Using this approach will enable more flexibility to convene Plan Team on cross cutting issues for a particular fishery (i.e. Pacific wide bottomfish issue), or discuss fishery ecosystem issues for a particular area.

Several members noted that the structure and membership of the Archipelago FEP Plan Team deserved considerable thought to develop the flexibility to use the available fishery advisory talent most efficiently and to provide opportunities for interaction among members of various team to share ideas and encourage sharing of expertise among the team.

A suggestion was made that the Annual Reports for each fishery be consolidated under one report for each island area.

Some members also felt that it was important that a taxonomist and biologists be included on Plan Teams as species linkages will become more important in subsequent phases of the ecosystem approach.

Makaiau then described the new proposed structure for the Council’s Advisory Panel. Under the proposed advisory structure, each Advisory Panel includes would have two members to represent the area’s commercial, recreational and subsistence fisheries, as well as two additional members (fishermen or other interested parties) who are knowledgeable about the area’s ecosystems and habitat. The exception is the Mariana FEP which has four members to each group -- two to represent the Guam and two to represent the Northern Mariana Islands (see table below). The Hawaii FEP Advisory Panel would address issues pertaining to fishing in the PRIA due to the lack of a permanent population and because such PRIA fishing has primarily originated from Hawaii. The FEP Advisory Panels meet at the direction of the Council to provide continuing and detailed participation by members representing various fishery sectors and the general public.

Proposed Council Advisory Panel Structure

	Samoa FEP	Hawaii FEP	Mariana FEP	Pelagic FEP
Commercial Representatives	2 members	2 members	4 members	2 members
Recreational Representatives	2 members	2 members	4 members	2 members
Subsistence Representatives	2 members	2 members	4 members	2 members
Ecosystems & Habitat Representatives	2 members	2 members	4 members	2 members

A suggestion was made that each archipelago area should weigh in on the number of representatives to the Commercial, Recreational, Subsistence and Ecosystems and Habitat sub-panels.

Makaiau stated that no changes are being proposed on the composition of the SSC at this time.

Several members of the SSC noted that future implementation of ecosystem approaches will likely involve modeling and suggested that the Council should consider the empanelment of an expert in ecosystem modeling to the SSC in the future.

Makaiau went on to say that the recent recommendations of the US Commission on Ocean Policy, Pew Ocean Commission and the President’s Ocean Action Plan all call for the establishment of regional ecosystem councils to coordinate actions of federal agencies with oversight of activities affecting ocean environment. He noted that no formal national directive has yet emerged however, a number of Regional Fishery Management Councils, states and federal agencies have already been working to increase coordination among each other. The Council is also pursuing efforts to increase broader collaborations and is proposing to establish Regional Ecosystem Council Committees for each inhabited area (American Samoa, Hawaii, and the Mariana Archipelago). He noted that the Regional Ecosystem Council

Committees will be advisory to the Council only and will be comprised of invited representatives from Federal, state, and local government agencies, businesses and non-governmental organizations that have responsibility or interest in land-based and non-fishing activities that potentially affect the area's marine environment.

A concern was raised that the Council should carefully select membership to its Regional Ecosystem Council Committees. Membership should include individuals that are knowledgeable in marine resource conservation and management issues as well as fisheries issues.

Makaiau concluded the presentation on the Council's intent to increase international coordination with neighboring nations of island areas in the Western Pacific Region. He said this will likely be in the form of more international meetings, forums and workshops.

There was discussion on the meaning of "healthy and productive ecosystems" used in Objective 1 of the FEPs. Several SSC members had concerns with uses such terms which are undefined and politically weighted and the use of medical terms for ecosystems are not appropriate as ecosystems never die. Furthermore, defining such terms could be problematic depending on particular desired ecosystems states. Consensus was to leave the terms in for now, but that their future use should be examined or defined.

There were questions if new MSY reference points will need to be developed or will the Council rely on the existing reference points defined in the FMPs. It was stated that the existing reference points and control rules defined in the FMPs will be maintained but as future implementation occurs, these will need to be re-examined on an area specific basis.

There there was general consensus on support of the incremental approach taken, as well as objectives, FEP boundaries, MUS lists, Advisory Structure.

B. Mariana FEP Pilot Project

1. Ecosystem Indicators

Judith Amesbury of Micronesian Archaeological Research Services gave a talk titled 'Monitoring & Forecasting Ecological Change in the Marianas Archipelago'. The presentation provided a brief overview of the geologic distinction of the two island arcs of the Archipelago, population demographics of the islands over time, and a brief timeline of environmental perturbations impacting the Marianas including typhoons, earthquakes and El Nino events.

Amesbury noted that five major categorical influences impacting the Mariana Archipelago ecosystem were reviewed, including military, immigration, economics, fishing events and environmental impacts such as typhoons, earthquakes, and El Nino events. She also noted that previous monitoring systems often proved insufficient for monitoring ecological change, providing either entirely temporal or spatial data, but rarely both. A 30-year monitoring history of sedimentation rates at Fouha Bay, Guam was provided as an example. A number of temporal 'snapshots' over a 30-year period provided differing explanations for the increased levels of

sedimentation observed there. Recently, archaeological evidence suggested sedimentation in this area has been increasing over a 2,000-year period.

Amesbury provided suggestions for ecological indicators for managers in the Marianas Archipelago to monitor. These included fish runs such as *atulai* (bigeye scad), which may reflect larger ecosystem perturbations or changes such as El Nino and typhoons, fish refuges that would serve as control areas to human influences, changes in the diets of island people including immigration consumption, and locally produced versus imported consumption.

In closing, Amesbury suggested two recommendations to enhance future monitoring efforts;

- a. Prepare a model for the structure and content of Mariana Fisheries Ecosystem Plan.
- b. Collect data to predict effects of El Nino patterns on ecosystem dynamics.

A brief discussion ensued regarding the inclusion of typhoons in recommendation number two. Amesbury said that typhoons were originally excluded due to the difficulty in predicting them, and it was agreed to include them.

Members looked forward to reviewing further developments of the Marianas Fisheries Ecosystem Plan Pilot Project.

2. Inshore Community Initiatives

Paul Bartram provided a brief progress report on the Marianas Archipelago Pilot Project. The presentation included a synopsis of the scope of work, emphasizing the community-based approach, and included a short list of initiatives provided by Guam and CNMI communities.

3. Offshore Bank Management

John Gourley of Micronesian Environmental Services presented a talk on a Mariana Archipelago Community Initiative Project by Guam regarding a proposed community management approach in managing the bottom-fishery on the offshore banks to the south of Guam. He provided the process used in selecting the southern banks, as opposed to other bottom-fish areas where Guam bottom-fishers were active, including the banks between Guam and Rota, in the CNMI north of Rota, and the West Mariana Ridge. The management of the fishery will be headed by a Guam fishing community with assistance from the University of Guam. He suggested that the Council could provide logistical and scientific support. He added that enforcement would occur via community awareness and peer-pressure. Federal regulations would not be imposed.

A short discussion ensued regarding the feasibility of this proposal, including community 'buy-in', changes over time to the peer group, and enforcement based solely on peer pressure. Although peer pressure would initially be used for enforcement purposes, it is possible that contemporary forms of enforcement would be required.

There was general support for this Guam Community Initiative and members looked forward to monitoring its development over time.

C. Draft Coral Reef Annual Report

James Hawhee presented a draft on the development of Guam's Coral Reef Ecosystem Annual Report. The process would involve two levels of analysis. Level I would include typical data collected from the creel survey such as catch, effort and CPUE. Level II analysis would utilize results of Level I analysis and generate catch, effort, and CPUE for at the trophic and family levels. Hawhee outlined the process used in assigning trophic levels to species.

Data from the Guam Creel Survey was used as the official time series. However, the problem of obtaining a reference point for CPUE was raised, as the reef fishery has presumably been significantly depleted prior to the initiation of the Guam creel survey in 1985. Hawhee suggested that perhaps results from the Zeller et al. report, or some estimate prior to 1985, be used as the CPUE reference point. Hawhee noted that the inherent high variability of the creel survey data, as well as the high degree of uncertainty in the results from Zeller et al, confound the use of either of these estimates as a baseline reference point.

A discussion followed pertaining to the use of aggregating reef fish CPUE estimates at the family and trophic level, as catchability within family or trophic groupings would be expected to vary by species. This might result in assigning an overfished label derived from a clumped-species analysis to a particular species. Even though the Coral Reef Ecosystem Plan Team and SSC had requested an analysis of the CPUE by trophic level, concerns still exist with respect to aggregating species in analyses, and it was suggested that perhaps it would be better to identify a few key species and utilize those species as ecosystem indicators. Variability in effort and catch were stated as impediments to this approach in American Samoa. Additionally, influencing environmental conditions were not considered in the creel data.

Members of the SSC generally supported the progress made to date, and encouraged consideration of approaches other than the use of reconstructed catch, as generated by Zeller et al., in determining a CPUE reference point for the coral reef fishery in Guam.

D. Reconstruction of Coral Reef and Bottomfish Catches

Jarad Makaiau presented the report by Zeller, Booth and Pauly titled "Reconstruction of coral reef- and bottom-fisheries catches for U.S. Pacific Islands, 1950 to 2002." Makaiau provided a brief timeline of the origins of the project, the spatial and temporal coverage of the project, a brief overview of the methodological approach including data assumptions and data checks.

He said that the authors broke the reconstruction down into discrete time periods pertaining to the availability of data sources per jurisdiction. Makaiau then provided the conclusions of the report, which suggested that coral and bottom fisheries in the Western Pacific had declined by 69.8% from 1950 to 2002.

A list of jurisdiction-specific concerns regarding the approach, data used, and conclusions was then presented. These concerns included the use of the terms 'overfishing' and 'overfished', which have specific meaning under MSA, references that cited overfishing or overfished that were taken out of context or not presented in the context of a formal stock assessment, the need

to obtain more references for each time period, the lack of mention of factors other than fishing that impact the coral and bottom fisheries which affect motivation for catches; environmental events such as typhoons and El Nino, changes in diet preferences and lifestyles, and the small number of data sources used to generate the catch point estimations.

An extended discussion revealed concerns with the methodology employed in the reconstruction, primarily the use of an assumed per capita consumed rate within discrete time periods, the lack of statistical justification in the analysis, and the lack of clear description of the interpolation method used. An example from American Samoa indicated that decreases in catch coincided with decreases in effort, due to an increase in importation of cheaper reef fish from western Samoa and a change in lifestyle, but not a documented decrease in reef fish abundance.

The assumption of reef fish as a preferred food fish was also raised as it was pointed out that many Polynesian cultures preferred tuna, and archaeological evidence from Micronesian middens contained pelagic fish bones and fish hooks that used for pelagic fishing. Concern was also raised over the release of this document, and potential outfall from it.

Several SSC members expressed significant caution in interpreting the results of the Zeller et al report, the use of assumed per capita rates of fish consumption within reconstructed time periods, the lack of consideration of non-fishing events that impact coral reef fisheries (e.g. typhoons), influences of changes in diet and lifestyle to coral reef landings, the assumption of indigenous preference for reef fish over pelagics, the incomplete literature search and insufficient communication with local jurisdictions.

For example, the draft report purports significant declines of deep-water bottomfish species in Guam between 1950 and 1980s. However, the existence of the deep-water bottomfish fishery resource was only realized in the late 1970s. Therefore, the reconstructed catch abundance of deep-water bottomfish prior to 1970 is significantly over inflated and inaccurately concludes that the current catch abundance in 200 is an order of magnitude less than what it was in 1950.

Furthermore, some members were very concerned over how the results of the report will be construed by the broader scientific community and non-governmental organizations, and how such impressions will impact the management of coral and bottom fish resources at the local level.

E. National Academy of Science Ecosystem Panel

Western Pacific Fisheries and Science Center Director Sam Pooley provided the SSC with an informational presentation regarding current external review of NOAA's Research and Science Enterprise, as motivated by a recent NOAA Research Review Team Report, and facilitated by an internal Ecosystem Task Team. The review is addressing the current organization structure with regard to NOAA Ecosystem Research, and raises the question as to whether a change in the current organizational structure would increase the efficacy of Ecosystem Research.

Pooley also pointed out recent legal challenges on the East Coast will probably result in Joint Institutes being competitively out bid by larger firms and conglomerates.

F. Joint Plan Team Recommendations

Jarad Makaiau presented draft recommendations from recent Joint Plan Team Meeting regarding the Development of Fishery Ecosystem Plans.

Regarding the Development of Fishery Ecosystem Plans, the Joint Plan Teams:

1. Supports the multi-step approach to implement ecosystem approaches to complement single species and multi-species approaches to fisheries management in the Western Pacific Region and recommends the Council work with the PIFSC and other partners to continue to build the science and develop the tools needed to improve ecosystem management goals, objectives, programs and decisions.
2. Recommended the Council continue to refine FEP objectives that are appropriate for each FEP area.
3. Recommended Objective 6 be changed to read: *“To conserve and appropriately manage and co-manage protected species, habitats and areas.”*
4. Endorsed the FEP boundary delineation approach identified in the Archipelagic FEPs and the Pacific Pelagic FEP.
5. Recommended Johnston Atoll be included in the US Pacific Remote Island FEP for the following reasons:
 - a. Johnston Atoll is geo-physically separated from the Hawaiian Archipelago;
 - b. The marine fauna of Johnston Atoll includes many species not found in the Hawaiian Islands.
 - c. Johnston Atoll is an uninhabited remote pacific island and (with the exception of Wake Island) is similarly managed as a National Wildlife Refuge.
6. Endorsed the MUS designations as the current MUS believed to be present within the boundary of each FEP.
7. Expressed concerns about establishment of a single archipelagic FEP plan team and recommended the Council consider a layered approach to the structure and composition of the Plan Teams which corresponds to the Archipelagic FEPs and maximizes expertise and efficiency while minimizing logistical constraints.

The Joint Plan Teams further recommended the Council include a specific goal to build greater local capacity. For example, where students and island residents can attend plan team meetings and learn about fisheries management.

8. Supported the establishment of regional ecosystem advisory committees comprised Federal, state, and local government agencies, businesses and non-governmental organizations.
9. Recommend that the regional ecosystem advisory committees be established in each island area and whenever possible, include representatives of similar existing advisory committees and utilize the findings of these committees to avoid duplication.
10. Supports the Councils initiative to increase international coordination with SPC, SPREP nations, whose EEZs are adjacent to the US EEZ in the Pacific. For example, FSM, Kiribati, and Tokelau (NZ) etc.
11. Based on concerns regarding politically weighted terms regarding the characterization of the ecosystem such as ecological health and/or ecosystem integrity, the Joint Plan Team recommended the Council carefully consider their choice of terms and explicitly define these terms if they are to be used.

To the extent practicable, development of the definitions should be based on a facilitated, community-based and scientifically informed process for deciding the desired state of the fisheries ecosystem.

Regarding the Mariana Archipelago FEP Pilot Project, the Joint Plan Teams:

12. Supports the community based pilot project initiative and proposals to obtain fisheries data to augment the existing voluntary data collection program currently in place.

The Joint Plan Team recommends the Council ensure that local resource agencies are fully integrated in these Council community-based projects from the beginning.

G. Public Comment

No public comments were given

H. Discussion and Recommendation (DRAFT)

1. **Regarding Western Pacific Fishery Ecosystem Plans, the SSC endorses the draft recommendations of the Joint Plan Team subject to the following modifications:**
 - a. **Objective 6 (Plan Team recommendation #3) be reworded to “To manage and co-manage protected species, protected habitats and protected areas.”**
 - b. **Plan Team recommendation 6 be reworded so that FEP MUS be defined as the currently codified MUS species recognized as endemic, indigenous or successfully introduced within the FEP boundary.**

2. The SSC recommends that Objective 8 of the Draft FEPs be reworded to read: “To encourage and support compliance and enforcement with all applicable local and federal fishery regulations.”
3. The SSC also recommends that the local names appropriate to the FEP areas be included in the listing of Management Unit Species.
4. Regarding the Mariana FEP Pilot Project the SSC supports the community based pilot project initiatives.
5. Regarding the Draft Coral Reef Ecosystem Annual Report, the SSC supports the progress made to date and encourages the future investigation of a range of approaches to determining reference points for the coral reef fisheries in Guam.
6. Regarding the report entitled “Reconstruction of Coral Reef and Bottomfish Catches in the US Pacific Islands: 1950-2002,” the SSC recommends that the report be amended to explicitly acknowledge in the Executive Summary the following:

“This document attempts to reconstruct fish catches based on very limited data and thus required broad interpolation of disparate data and relied upon bold assumptions. The document does not consider other factors which affect per capita catches of marine resources such as extensive shoreline development and habitat alterations, environmental changes due to typhoons and ENSO phenomena, changes in lifestyle and diets, the shift in preferences for western food sources and increased availability of cheaper seafood imports from foreign sources.”

Additionally, the SSC recommends that the report be amended to include as an appendix, the written concerns expressed by the local resource management agencies and the Council’s Scientific and Statistical Committee. This appendix should address the shortcomings of the report including the lack of clear documentation of the statistical methods, the incomplete literature search, and the lack of appropriate communication with local jurisdictions to obtain accurate information.

The SSC further notes that the words “overfished” and “overfishing” have specific legal meaning under the Magnuson-Stevens Act and are defined in the FMPs under the MSA. Use of these words in the publication does not conform to these definitions. As used in the report, these words are meaningless unless there is a proven relationship between estimated catches and abundance coupled with recognized fishery analysis.