HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON INTERNATIONAL INCLUDING EASTERN PACIFIC OCEAN SWORDFISH STATUS, REPORT OF THE NORTH PACIFIC ALBACORE MANAGEMENT STRATEGY EVALUATION WORKSHOP AND RECOMMENDATIONS FOR THE 12TH NORTHERN COMMITTEE MEETING

The Inter-American Tropical Tuna Commission (IATTC) is holding its annual meeting during June 20 – July 1, 2016, and the Highly Migratory Species Management Team (HMSMT) notes the United States has submitted six proposals for consideration. Due to coincidental timing of the IATTC meeting with the June 2016 Pacific Fishery Management Council (Council) meeting, the HMSMT is not commenting on those proposals.

Council Response to Swordfish Overfishing Determination

As noted in the Situation Summary (Agenda Item D.2), the Council is required to respond by mid-July to the National Marine Fisheries Service (NMFS) status determination memo (dated July 14, 2015) to the Council that the Eastern Pacific Ocean (EPO) stock of North Pacific swordfish is subject to overfishing; in contrast, the Western and Central North Pacific Ocean (WCNPO) stock is not subject to overfishing. Note that neither stock is overfished. Magnuson-Stevens Act Section 304(i) requires that the Council (1) "develop domestic regulations to address the relative impact of fishing vessels of the United States…" and (2) "for international actions that will end overfishing in the fishery…taking into account the relative impact of vessels of other nations and vessels of the United States on the relevant stock."

The Exclusive Economic Zones (EEZs) of the U.S. West Coast and Pacific Islands both fall within the geographic range for the WCNPO stock, as it was defined in the 2014 assessment. As stated in the NMFS status determination notification to the Council, there were no catches by the U.S. West Coast fleet within the geographic range of the EPO stock in 2012. Therefore, the HMSMT recommends the Council include the following statement in its response to the status determination notice:

> The Pacific Fishery Management Council (Council) notes that there is no known impact of U.S. West Coast fishing vessels on the Eastern Pacific Ocean (EPO) stock of swordfish (i.e., the stock experiencing overfishing). As stated in the July 14, 2015, status determination notice from NMFS to the Council, there were no catches by the U.S. West Coast fleet within the geographic range of the EPO stock in 2012. Therefore, the Council recommends no new domestic regulations to address the relative impact of U.S. West Coast vessels. The Council does, however, recommend that the U.S. Section to the IATTC support measures that eliminate overfishing, by reducing fishing mortality.

North Pacific Albacore Management Strategy Evaluation Workshop

On May 12, the Highly Migratory Species Advisory Subpanel (HMSAS) and HMSMT held a joint webinar to discuss management objectives in advance of an International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) Management Strategy Evaluation (MSE) workshop held May 24 – 25, 2016. This webinar also served to inform Ms. Cyreis Schmitt, HMSMT, and Dr. Kit Dahl, Council staff, who attended the workshop. A report of the workshop was distributed by Dr. John Holmes, ISC Albacore Working Group (ALBWG) Chair, but is marked not for distribution because it needs to be reviewed by both the ISC Plenary and the Northern Committee (NC) first.

Workshop participants hailed from Canada, Chinese Taipei, Japan, United States, IATTC and Western and Central Pacific Fisheries Commission (WCPFC). U.S. participation included individuals from NMFS, the Council, the west coast albacore fishery, and the University of Washington. The workshop identified objectives to characterize management strategies. A set of management objectives for MSE typically consists of 5-10 objectives that capture all important aspects of a particular management strategy, that are understandable and concise, and that are sensitive in distinguishing among alternative strategies. Management strategies for evaluation also need to be measurable using performance indicators.

Five objectives were proposed for the initial MSE by workshop participants (Table 1) after reviewing preliminary input received from NC member countries at WCPFC12 in December 2015 (see Agenda Item F.4, Attachment 2, March 2016). The ALBWG proposed the sixth objective in Table 1 to facilitate evaluations of target reference points as requested by the NC. Some participants had difficulty with the concept of risk and how it would be operationalized in an MSE process. The ALBWG Chair noted that further work will be needed to communicate risk in an appropriate way to managers and stakeholders.

Workshop participants agreed that a 30-year period should be used for the MSE because it corresponds to two generations of Pacific albacore. A long time frame is required to test the robustness of candidate harvest control rules to uncertainty. A longer time frame is more likely to capture rare events in the averaging of variability and is particularly important if robustness to events such as regime shifts is important for management strategies. Consequently a longer averaging period is preferable. It is worth noting that MSE simulations are not projections of the future as are done in a stock assessment.

The table below lists the management objectives identified by workshop participants along with associated quantities and performance indicators that each objective would be tested against.

Table 1. Management Objectives for the North Pacific Albacore stock identified at the May 2016 ISC Workshop.

Objective	Quantity	Proposed Performance Indicators
1. Maintain SSB above the limit reference point	• $20\%SSB_{0\ F=0}$ • $14\%SSB_0$ F=0 (calculated as (1-M)*SSB20%) • $SSB_{0.5R0}$, where h = 0.75 (IATTC SAC)	• SSBcurrent/LRP
2. Maintain the total biomass, with reasonable variability (x%), around the average depletion level in the recent 10 years of the latest stock assessment	• Total biomass is estimated as average depletion level for final 10 years (2006-2015) in the 2017 stock assessment • Variability in depletion is estimated from the historical period (1966-2015)	• Median depletion current year /Depletion(10 yr avg) • Historical CV (1966-2014)/Current depletion CV (over 30 years)
3. Maintain harvest ratios by fishery (fraction of the SSB harvested) at current average	• Current average ratio last 10 years (2006-2015) in 2017 stock assessment • Reasonable variability is CV estimated from fishing intensity plot (late 1990s-present)	• Median current harvest ratio (1-SPR)i/Average 1-SPR (10 years)i, where i = fishery • Historical CV/current CV (over 30 years)
4. Maintain catches by fishery above average historical catch	• Average catch by fishery, 1981-2010 (30 year average corresponding to the current normal period).	• Current total catch/average historical catch • Current median catch/historical median (by fishery) • Historical CV of catch/Current CV of catch (by fishery)
5. Limit the magnitude of change to effort or catch to < 15% at any one time due to management actions by fishery		• % change due to HCR between years • % years change due to HCR < 15% within a run
6. Maintain F at the target value with reasonable variability*** **Proposed by the ALBWG to facilitate performance evaluation of target reference points in the MSE as requested by NC12.	• Various potential target values previously suggested by NC • Will include variability around the target value, estimated from historical data.	• Ftarget/Fcurrent

Recommendations to the NC

The NC to the WCPFC will meet August 29 – September 2, 2016. Discussions at the NC meeting are expected to include future management of Pacific bluefin tuna in the Western and Central Pacific Ocean. The IATTC scientific staff noted at the Scientific Advisory Committee meeting in May 2016 (see SAC-07-05d) that their main concerns about the stock are: "(1) the extremely low levels of spawning biomass, (2) uncertainty about how recruitment is related to the spawning biomass, and (3) two out of the last three recruitments are at the lowest levels observed since 1980…" The IATTC scientific staff, therefore, recommended additional protections for the spawning population. The HMSMT supports additional conservation measures and a long-term rebuilding plan, including additional reductions on harvest of spawning adults, and adoption of reference points and harvest control rules.

Furthermore, the NC Work Program for 2016 (see NC11 Summary Report) included plans to hold a joint meeting with the IATTC. The HMSMT suggests the U.S. Section to the IATTC continue to explore this option at an upcoming IATTC meeting.

HMSMT Recommendations to the Council

- Include the HMSMT draft response for EPO swordfish overfishing determination in the Council's recommendation to the Departments of State and Commerce.
- The IATTC meets with WCPFC and NC to advance a Pacific-wide approach to rebuilding Pacific bluefin tuna.
- The U.S. Delegation to the WCPFC encourages the NC and WCPFC to adopt additional conservation measures for spawning adults of Pacific bluefin tuna.
- The U.S. Delegation to the WCPFC encourages the NC and ISC Plenary to approve the albacore MSE objectives and associated elements in the workshop report for initial analyses. As results of these initial analyses are evaluated, additional objectives and/or elements may be recommended for consideration and analysis in the future.

PFMC
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