

SUPPLEMENTAL HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON NORTH PACIFIC ALBACORE PRECAUTIONARY MANAGEMENT FRAMEWORK

The Highly Migratory Species Management Team (HMSMT) Report under Agenda Item D.5.b focused on F-based reference points that had been considered by the International Scientific Committee on Tuna and Tuna-like Species in the North Pacific Ocean (ISC) Albacore Working Group and the Northern Committee (NC), however, the HMSMT notes that biomass reference points (B-limit and B-target) are needed to comply with the National Standard 1 Guideline. The HMSMT reiterates that selected B-limit reference points should be lower than B_{MSY} (or B_{MSY} proxy) to be consistent with the HMS Fishery Management Plan. Until an assessment-derived maximum sustainable yield is provided, a level 2 reference point, such as some fraction of unfished B, could be considered. The ISC Albacore Working Group is most knowledgeable about the productivity of the stock and the impacts of the fisheries on it, and is expected to recommend reference points to the ISC Plenary at its July 2013 meeting.

In the investigation of harvest control rules (HCR), different ‘functional forms’ of HCRs were considered based on the figures provided in the Berger et al. (2012) document to the Western and Central Pacific Fisheries Commission (WCPFC) on HCRs. The Berger et al. (2012) graphs shown in the HMSMT Report visualize the relationship between stock status and control measures such as F, catch, or effort. The HMSMT’s discussion focused on HCR relationships between B and F. Although the graphs were intended only to conceptualize these functional forms, it is important to distinguish the differences between F and catch-based measures. The HMSMT suggests that both of the HCRs presented in the Report could be useful in a precautionary framework for the management of albacore, with management based on either F or catch, although the more complex an HCR is, the more challenging it may be to implement.

Reference points chosen as HCR thresholds should consider all factors that explain variability in assessed stock levels including not only fishing mortality, but natural environmental variation and assessment uncertainty. HCRs should balance the biological risks of overfishing or overfished stocks against the costs of lost fishing opportunity or unnecessary management.

The HMSMT provided a summary of the general merits of catch- and effort-based control rules in their March 2013 Report on albacore management (March 2013 Agenda Item I.3.b, Supplemental HMSMT Report) and in the HMSMT Report under this agenda item. Despite not having an HCR for North Pacific (NP) albacore, the fishery has operated under conservation measures since the adoption of international measures to limit effort to 2002-04 levels (WCPFC CMM 2005-03, IATTC Resolution C-05-02). The WCPFC Northern Committee (NC) has begun compiling statistics on catch and effort for fisheries targeting NP albacore. The NC has been monitoring fishing effort with respect to 2002-2004 levels by collecting information by gear type on days fished and number of vessels fishing for NP albacore. At the recent Inter-American Tropical Tuna Commission (IATTC) meeting, a new resolution on North Pacific (NP) albacore requires comparable reporting.

Effort-based measures serve to limit fishing mortality indirectly based on the relationship between effort and catch. While some nations fishing for NP albacore, including the U.S., have demonstrated the ability to manage based on effort, it has become apparent at the international level that managing all NP albacore fisheries based on effort has been problematic for a number of reasons. There has been little appetite by most nations to agree on a common effort metric, and even the most basic form of data, such as vessels fishing or days fished, has been slow in coming. Furthermore, the submitted data have not been independently verified. The challenge with managing effort under the current resolutions is one of the reasons for the NC work plan to establish a precautionary management framework for NP albacore.

If a future stock assessment shows a need to reduce fishing mortality, catch or effort restrictions could be imposed. Using the simple linear HCR introduced in the HMSMT Report, if B is shown to be some level below the B-target, international managers could apply a catch limit to bring the catch level down to an associated level along the slope of the linear HCR or to some level that is considered sustainable based on the historical B time series. Catch limits could be adjusted iteratively based on the B trajectories of future assessments until annual B estimates remain around the B-target (i.e. the probability of B falling below B-target is approximately 50 percent). Similarly, if F is shown to be at some level above the F-target, catch restrictions could be imposed and adjusted iteratively until future assessments show that F estimates center around the F-target. Catch restrictions, in the form of quotas or total allowable catches could be applied equitably across fleets or may be more appropriately directed toward fleets having the greatest impact on the stock based on their patterns of selectivity. Likewise, the same example could be used for effort-based measures.

In conclusion, given that the effort information submitted to the NC is incomplete and the challenges with managing effort, it may be preferable to develop catch-based measures at the international level. The Council could incorporate some of the information in these HMSMT Reports in recommendations to the U.S. delegation for the upcoming NC meeting.

PFMC
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