

Reflections on Application of “Precautionary Approach”

Latest stock assessment of bigeye in the Western and Central Pacific Ocean (WCPO) which was conducted in August this year showed a drastic change in stock status, i.e., the long lasting red light status (overfishing is occurring and the stock is overfished) was suddenly shed and the green light sign is indicated for not just recent years but the whole period subject to assessments. This is puzzling and raises concerns about whether and/or how the precautionary approach (PA) had been considered and/or applied in this stock assessment. Let me start with a brief introduction of the background of the PA and then touch on problems included in this stock assessment in connection with the PA.

The spread of the PA concept seems to have started in the early 1990s. Around that period, due to rapid development of fisheries, detrimental effects of excessive fishing practices became more and more evident. This necessitated creation of international rules that would direct whole fisheries to ensure careful and sustainable use of fishery resources. The principle of the PA was adopted at the UNCED (United Nations Conference on Environment and Development) in 1992. Thereafter, in 1995, the Swedish Government in cooperation with FAO convened an expert technical consultation on the application of the PA to fishery management. Among many scientists invited from around the world, only I was invited from Japan. With respect to this consultation there was a strong wariness in Japan that depending on the outcomes, application of the PA might impede fishing activities in an excessive and unreasonable manner.

However, the outcome was generally well balanced and thereafter, the concept of the PA developed at that consultation meeting was included in the relevant provisions of the “FAO Code of Conduct for responsible fisheries”.

Referring to concept of the PA, the following principle is commonly accepted, i.e., “the larger uncertainty is recognized, the more restrictive utilization of the fishery resources concerned should be conducted”. How was this common sense treated in the latest bigeye stock assessment? This is what I am concerned about. The latest stock assessment on bigeye tuna, made in August 2017 by the Scientific Committee (SC) of the Western and Central Pacific Fisheries Commission (WCPFC) concluded that the stock had been in a healthy condition for a period up to the present time. This dramatically changed the view obtained from previous assessments that the stock remained in the red light zone for many years, that is, the stock had been overfished and overfishing had been occurring. According to the SC Summary Report, this sudden change was caused chiefly by two factors, i) the introduction of a new growth curve and ii) the change in areal divisions for the assessment

analysis. I will not argue about these changes in this article due to limited space available but simply mention that there were a lot of doubts expressed in the SC discussions about the suitability for these changes and treatment made with these changes. Rather, I would like to call your attention to the fact that the SC itself emphasizes there are significantly larger uncertainties in the new assessment compared with previous assessments.

As already mentioned, the principle of the PA guides us to respect the concept that the larger the uncertainty that is recognized, the more careful and conservative use of the resources should be made for the sake of safety of the fish stocks and fisheries concerned. The fact that SC suddenly concluded a change in the stock assessment to an overly optimistic view while it admitted the large uncertainties included in the assessment is totally inconsistent with the prevailing concept of the PA. Therefore, the SC should not have changed the view of the stock condition until concerns about the major uncertainties are adequately resolved.

Table 10.2 1: Key management quantities for the reference case models used for the WCPO bigeye tuna stock assessments in 2010, 2011, and the current assessment (2014). [WCPFC - SC10 - 2014 / SA - WP - 01 Rev 1 " STOCKASSESSMENT OF BIGEYE TUNA IN THE WESTERN AND CENTRAL PACIFIC OCEAN"]

Management quantity	Base case 2010 [Ref.case-2010]	Base case 2011 [Ref.case-2011]	Base case 2014 [Ref.case-2014]
MSY (mt)	73,840	76,760	108,520
$F_{current} / F_{MSY}$	1.41	1.46	1.57
$S_{B_{latest}} / S_{B_{F=0}}$	0.16	0.21	0.16

Table BET-2.: Summary of reference points over the 72 models in the structural uncertainty grid where the models using the new growth function are given three times the weighting of the models using the old growth function. Note that $S_{B_{recent}}/S_{B_{F=0}}$ is calculated where $S_{B_{recent}}$ is the mean SB over 2012-2015 instead of 2011-2014 (used in the stock assessment report), at the request of the Scientific Committee.

	Mean	Median	Min	10%	90%	Max
MSY (mt)	156,765	158,040	124,120	137,644	180,656	204,040
F_{recent} / F_{MSY}	0.89	0.83	0.54	0.61	1.32	1.76
$S_{B_{latest}} / S_{B_{F=0}}$	0.34	0.37	0.08	0.15	0.46	0.49