SCIENTIFIC REFLECTIONS FROM NORWAY RELATED TO THE MSE PROCESS ON ATLANTIC BLUEFIN TUNA

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SUMMARY

Merging the eastern and western stock of Atlantic bluefin tuna into one overall Trans-Atlantic Management Strategy Evaluation (MSE) is a huge step to take and involves a whole range of difficult and challenging scientific decisions to be made. We are concerned about whether the amount, quality and resolution of available data on ABFT in space and time are at the level which is needed to model EBFT and WBFT into one unified MSE framework. We question whether we have sufficient knowledge about the Trans-Atlantic mixing of ABFT to properly quantify this migration. We recommend that the Management Strategy Evaluation (MSE) with corresponding Harvest Control Rules (HCR) should be developed separately for EBFT and WBFT in ICCAT. The decision taken on this issue is highly relevant for the science, advice and management regime for both EBFT and WBFT in ICCAT in the future. Bearing in mind the consequences inadequate data on migration may have for stock assessment and management of each stock, we question whether building a joint model can be said to be in accordance with the Precautionary Approach.

RÉSUMÉ

La fusion des stocks de l'Est et de l'Ouest de thon rouge de l'Atlantique en une évaluation globale transatlantique de la stratégie de gestion (MSE) est une étape importante à franchir et implique une série de décisions scientifiques difficiles et exigeantes à prendre. Nous nous demandons si la quantité, la qualité et la résolution des données disponibles sur ABFT dans l'espace et le temps sont suffisantes pour modéliser EBFT et WBFT dans un cadre unifié de MSE. Nous nous demandons si nous avons suffisamment de connaissances sur le mélange transatlantique d'ABFT pour quantifier correctement cette migration. Nous recommandons que l'évaluation de la stratégie de gestion (MSE) avec les règles de contrôle de l'exploitation (HCR) correspondantes soit élaborée séparément pour EBFT et WBFT à l'ICCAT. La décision prise sur cette question est capitale pour la science, l'avis et le système de gestion de l'EBFT et du WBFT à l'ICCAT à l'avenir. Compte tenu des conséquences que des données inadéquates sur la migration peuvent avoir pour l'évaluation et la gestion de chaque stock, nous nous demandons si l'élaboration d'un modèle commun peut être considérée comme conforme à l'approche de précaution.

RESUMEN

La fusión del stock occidental y el oriental de atún rojo del Atlántico en una evaluación de estrategias de ordenación (MSE) transatlántica global es un enorme paso e implica tomar toda una gama de difíciles y exigentes decisiones científicas. Estamos preocupados por si la cantidad, calidad y resolución de los datos disponibles sobre el atún rojo del Atlántico en el espacio y el tiempo se encuentran al nivel necesario para modelar el EBFT y WBFT en un marco unificado de MSE. Nos preguntamos si tenemos los conocimientos suficientes acerca de la mezcla transatlántica del atún rojo del Atlántico para cuantificar adecuadamente esta migración. Recomendamos que la evaluación de estrategias de ordenación con las correspondientes normas de control de la captura (HCR) se desarrollen por separado para el EBFT y el WBFT en ICCAT. La decisión tomada respecto a este tema es muy importante para la ciencia, el asesoramiento y el régimen de ordenación tanto para el EBFT como para el WBFT en ICCAT en el futuro. Teniendo en cuenta las consecuencias que datos inadecuados de la migración podrían tener para la evaluación y ordenación de cada uno de los stocks, nos preguntamos si construir un modeloconjuntos podría considerarse conforme al enfoque precautorio.

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KEYWORDS

Atlantic bluefin tuna, eastern and western stock,
MSE, mixing, insufficient data, space and time, precautionary approach

1. Introduction

We have been following the development of the Management Strategy Evaluation (MSE) process and framework for Atlantic bluefin tuna in ICCAT closely over time, including the last two MSE webinars 10. December 2019 and 14. January 2020 with considerable interest.

Following the last webinar 14. January 2020, the MSE framework has now been developed into a complex MSE framework merging the eastern and western stock of Atlantic bluefin tuna into one overall Trans-Atlantic MSE. This is a huge step to take and involves a whole range of difficult and challenging scientific decisions to be made down the road. We are concerned about whether the amount, quality and resolution of available data on ABFT in space and time are at the level which is needed to model EBFT and WBFT into one unified MSE framework.

What do we know about the migration of Atlantic bluefin tuna?

We do not question that it is both relevant and intriguing to potentially include mixing between EBFT and WBFT within a unified MSE framework. This mixing influences the catches from each of the two stock components within their overall distribution area.

A biological feature of fish stocks which could be drawn into the discussion is what drives fish to migrate. Basically, when a fish population is small the need for long-distance migrations in search for e.g. available food resources may be small. This may be the case now for WBFT due to their low population size (ICCAT 2018; 2019). When a population is large, on the other hand, the need for long-distance migrations in search for food may indeed be high. This is basically what we have witnessed during the last 5-10 years in ICCAT, where the EBFT has been progressively expanding their distribution area and individuals are now after being absent for decades, migrating far north into the historically well-known feeding areas within the Norwegian Sea and along the Norwegian coast (ICCAT 2018; 2019).

The amount of data and scientific results on mixing and results obtained from individual origin studies of ABFT spawning areas have increased substantially within the ICCAT Grand Bluefin Year Program (GBYP), particularly during the last few years. This include various technological developments, e.g. from satellite and conventional acoustic tagging, state-of-the-art genetic methods and modern micro-chemistry analyses of otoliths. Nevertheless, we question whether we have sufficient data and knowledge about the Trans-Atlantic mixing of ABFT to be able to properly quantify this migration.

Consequently, we question whether the quantitative data available in ICCAT on the issue of mixing is comprehensive enough in space and time to be able to proceed with both the eastern and western stock within a unified MSE framework.

The consequences of erroneous assumptions about mixing

The WBFT has at present a low population size involving significant uncertainties in data and time series, with an annual Total Allowable Catch (TAC) of around 2000 tons. The WBFT has had a consistently low abundance with corresponding low catches during the last around 40 years, unfortunately with few signs of any scientific detectable rebuilding.

Following the discussion and obvious disagreement among international scientists in ICCAT on ABFT concerning the level, magnitude and quantification of mixing between EBFT and WBFT (as well as ABFT recruitment regimes among several other parameters), we are concerned about the possible consequences the scientific decision-making on this critical mixing issue may have on future management and exploitation level for EBFT and WBFT. We are particularly concerned about the risk concerning future WBFT management and exploitation level (TAC) given the pronounced sensitivity involved when different assumptions concerning percentages of mixing are included in

the MSE and their corresponding significant changes in WBFT stock size. A small change in the percentage of mixing, may have substantial consequences for the perceived stock size of WBFT. The risk of potential overfishing on the WBFT may thus be significant, if the percentage of mixing agreed upon is wrong and not representing the truth out there in the Atlantic Ocean.

Furthermore, ICCAT has now formally agreed on a new Convention text during the ICCAT Commission meeting in November 2019. A new Article IV is now added to the Convention, stating that the Commission and its Members shall act to apply the precautionary approach (PA) to fisheries management.

The United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations 1995) Article 6 "Applications of the precautionary approach" point 2 tells us:

"*States shall be more cautious when information is uncertain, unreliable and inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures*".

As mentioned, we do not believe data and knowledge is at a level which can defend a joint MSE model for WBFT and EBFT. Bearing in mind the consequences inadequate data on migration may have for stock assessment and management of each stock, we question whether building a joint model can be said to be in accordance with the PA.

Conclusion

We recommend for the time being that the Management Strategy Evaluation (MSE) with corresponding Harvest Control Rules (HCR) should be developed separately for EBFT and WBFT in ICCAT. The decision taken on this issue is highly relevant for the science, advice and management regime for both EBFT and WBFT in ICCAT in the future. We see it as an important long-term goal in ICCAT to further improve the quantitative scientific data and time series related to mixing between EBFT and WBFT. Future scientific evaluations should consider whether EBFT and WBFT should be developed into a unified MSE framework in the future.

References

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