

## ADDENDUM 2

**ADDITIONAL COMMENTS ON THE PROPOSAL FOR THE INCLUSION OF  
THE TOPE SHARK (*Galeorhinus galeus*)  
IN APPENDIX II OF THE CONVENTION  
UNEP/CMS/COP13/Doc.27.1.10**

*(Submitted by the European Union)*

The following provides a brief synthesis and update of the migratory nature and conservation/population status of Tope populations. In addition, it should be noted that the proposal has been supported by the IUCN Shark Specialist Group.

### **North-east Atlantic**

Migratory nature: Several scientific studies have highlighted that Tope undertake seasonal, latitudinal migrations, ranging from the British Isles to North-west Africa and the Mediterranean (Holden & Horrod, 1979; Collocca et al., 2019; Thorburn et al., 2019). Hence, this migration crosses jurisdictional boundaries, and the seasonal nature would indicate it being predictable and cyclical. These studies have also shown that the longer-distance migrations have generally related to mature female Topes, and so can be viewed as representing a significant part of the population.

There have also been documented movements from European shelf seas to the Azores, thus indicating that Topes are capable of oceanic excursions. However, it is uncertain whether such movements relate to 'cyclical and predictable' migrations, or if they relate to a significant proportion of the population.

Conservation status: ICES has been unable to evaluate population status for the stock. The European Red List for marine fishes lists tope as Vulnerable, indicating that it is not in a favourable conservation status.

International cooperation: Given the movements of tope between the ICES, GFCM and CECAF areas, there is a need for cooperation for understanding population status and for sustainable exploitation.

### **South-west Atlantic**

Migratory nature: Topes are known to undertake seasonal, latitudinal migrations, across the waters of Brazil, Uruguay and Argentina (Elías et al., 2005; Jaureguizar et al., 2018). Therefore, the species crosses the jurisdictional boundaries between these three nations in a predictable and cyclical manner.

Conservation status: Exploratory analyses of relative abundance have indicated a decline in this population (Elías et al., 2005) and the IUCN has listed this population as Critically Endangered.

International cooperation: Given the movements of tope between three range states in this area, there is a need for cooperation between different national bodies for understanding population status.

### **South-east Pacific**

The status of Topes in the south-eastern Pacific is uncertain, with genetic studies indicating that samples from Chile are similar to those from Argentina (Bester-van der Merwe et al., 2017). Given the uncertainty as to whether Tope in this region are connected to other populations, it is not considered in detail here.

## North-east Pacific

Migratory nature: Topes (with early studies in this region referring to soupfin shark) are suspected to undertake latitudinal migrations, with known movements between Canada and the USA (Holts, 1988), and potentially to Mexico.

Conservation status: This stock was overfished in the 1940s (Holts, 1988), and there have been limited studies on this species since then. Whilst there have been signals that the status of the species has improved (Pondella & Allen, 2008), the current status is somewhat uncertain.

International cooperation: Given the movements of tope between neighbouring Range States in this area, there is a need for cooperation between different national bodies for understanding population status.

## Southern Africa

Migratory nature: There are no published studies on the migrations and movements of tope around southern Africa, although it is known to occur in the waters of South Africa and Namibia.

Conservation status: There are no published studies on the status of tope around southern Africa, although it has been suggested to be fully exploited (Bitalo et al., 2015), and thus potentially may be of unfavourable status.

International cooperation: Given that the Tope is data limited in this area, there is a need to better understand the population status between neighbouring nations.

## Australasia

Migratory nature: There have been extensive tagging programmes for tope (generally referred to as school shark in this area) in both the waters of southern Australia and New Zealand. Whilst the majority of recaptured tope have been from the same national waters, there is known to be mixing between the two areas (Hurst et al., 1999; Brown et al., 2000; Francis, 2010; McMillan et al., 2018).

For example, Hurst et al. (1999) reported that of 3,950 Topes tagged in New Zealand waters, 207 (5.2 per cent; 203 (5.1 per cent) with recapture location) were recaptured, with 20 of these (9.9 per cent of those with recapture information) reported from Australian waters. Francis (2010) provided updated information on tag-recapture of individuals tagged in New Zealand and found “*After more than 5 years at liberty, 8 per cent of males and 19 per cent of females had moved to Australia*”. Francis (2010) concluded in reference to school sharks, “a significant proportion eventually moved to Australia. From the tagging evidence, there is probably a single biological stock in the New Zealand EEZ”. Whilst based on limited data, recent electronic tagging studies of pregnant female Topes conducted in southern Australia have also reported movements across the Tasman Sea (n = 11 successful tag retrievals; 1 (9.1 per cent) moving to New Zealand). Furthermore, return movements of Topes between these areas have also been observed (Brown et al., 2000).

Whilst genetic studies have indicated some differences between Australian and New Zealand Tope, the wider Australasian population is genetically dissimilar to others (Bester-van der Merwe et al., 2017). Using SNP analysis Devloo-Delva et al. (2019) found “*fine-scale reproductive connectivity between Australian and New Zealand school sharks*” indicating contemporary movement of individuals and reproductive exchange.

In summary, there are known movements of tope between Australia and New Zealand, with studies indicating as much as 19 per cent of recaptured Tope being returned from the adjacent jurisdiction. Given that these movements include pregnant females, this may be considered a significant part of the population, when viewed in the context of population productivity and in allowing genetic mixing.

**Conservation status:** The recent shark assessment report published by the Australian Department of Agriculture and Water Resources (ABARES) considers school shark to be ‘overfished’ (<https://www.agriculture.gov.au/sites/default/files/siteco/lectiondocuments/abares/shark-assessment-report-2018.pdf>). Recent assessments indicate that “Assessments since 1991 have consistently estimated that the School Shark stock is less than 20 per cent of the unfished biomass” and that the southern Australia stock is categorized as ‘depleted’ (<https://www.fish.gov.au/report/182-School-Shark-2018>).

Within Australia, the Threatened Species Scientific Committee “judges that the species is eligible for listing as endangered and as conservation dependent under the EPBC Act” (<http://www.environment.gov.au/biodiversity/threatened/species/pubs/68453-listing-advice.pdf>).

**International cooperation:** There is ongoing management for Topes in the waters of Australia and New Zealand. It is also recognized that the Australasian population has been subject to intensive biological and fishery investigations. Whilst the New Zealand and South Australian stocks may be considered separate for assessment purposes, the known movements of pregnant females across the Tasman Sea, recognition of up to 19 per cent of tagged females moving between jurisdictions, and that Topes may be taken in offshore fisheries indicates that continued collaboration between Australia and New Zealand would be beneficial to the conservation of the species. Furthermore, the knowledge of fishery scientists in these nations could usefully be shared with other range states for the global population.

## Synthesis

There are five (or six) broad populations of Topes. Whilst data relating to the migratory nature and conservation status are not available for each of these areas, the overall patterns are:

- (i) Topes undertake seasonal migrations, often latitudinally, in shelf seas. This is based on published tagging studies (North-east Atlantic, South-west Atlantic, Australasia) and the seasonality of fisheries.
  - These migrations are of a magnitude that involve tope crossing jurisdictional boundaries.
  - The seasonal nature indicates that these migrations are cyclical and predictable.
  - The fact that mature female topes in particular undertake the longer-distance movements, possibly relating to reproductive requirements, indicates that the migration should be regarded as relating to a significant proportion of the population.
- (ii) There have been documented movements from shelf seas into the high seas (e.g. movements from mainland Europe to the Azores), thus indicating that Topes are capable of oceanic excursions. However, it is acknowledged that it is uncertain whether such movements relate to ‘cyclical and predictable’ migrations, or if they relate to a significant proportion of the population.
- (iii) The Tope is listed by the IUCN as Vulnerable (globally). Whilst the statuses of many of the populations are uncertain, the North-east Pacific stock was depleted in the 1940s, and recent stock assessments for Topes off southern Australia indicate the stock is both depleted and overfished. Hence, Topes (both globally and regionally) are in an unfavourable conservation status.
- (iv) Given that Topes move between neighbouring jurisdictions in shelf seas (with some oceanic excursions), and so are taken in a range of artisanal and commercial fisheries in different management areas, international collaboration in relation to understanding stock dynamics and in managing fisheries.

## References

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