CONSIDERATIONS AND COMMENTS BY THE IATTC SCIENTIFIC STAFF PERTAINING TO PROPOSAL CoP19 PROP. 37 TO INCLUDE CARCHARHINIDAE SPECIES IN APPENDIX II OF THE CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)

At its 100th meeting, in August 2022, the Inter-American Tropical Tuna Commission (IATTC) considered the question of blue sharks (*Prionace glauca*) in response to the strong concern expressed by several of its members regarding the proposed inclusion of that species in i Appendix II of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). There was a there was a general agreement in the Commission on asking the IATTC scientific staff to send all the information and data that it may have on this species to the CITES secretariat.

This document contains therefore a series of considerations and comments by the IATTC scientific staff on the blue shark, *Prionace glauca*, as a species member of the family Carcharhinidae (requiem sharks) with its constituent species proposed to be included in Appendix II in accordance with Article II paragraph 2(a) of the Convention and satisfying Criterion A and B in Annex 2a of Resolution Conf. 9.24 (Rev. CoP17).

ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT AT THE IATTC

1. The Inter-American Tropical Tuna Commission (IATTC) is one of five of the world's tuna Regional Fisheries Management Organizations (RFMO) and is responsible for the management of tuna fisheries in the eastern Pacific Ocean (EPO). Through the adoption of the Antigua Convention—entering into force in 2010—the IATTC is one of the few RFMOs that has actively pursued an ecosystem approach to the management of their tuna fisheries by explicitly recognizing the need to manage the potentially negative ecological and environmental impacts of EPO tuna fishery activities concomitantly with ensuring the sustainability of target tuna and tuna-like species covered by the Convention. For example, Article VII 1(f) required the IATTC to "*adopt, as necessary, conservation and management measures and recommendations for species belonging to the same ecosystem and that are affected by fishing for, or dependent on or associated with, the fish stocks covered by this Convention, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened*". The most obvious ecological impacts in EPO tuna fisheries pertain to non-target species (i.e., "bycatch") that occupy similar habitats and have comparable susceptibility to fishing gear interaction as target species, such as pelagic sharks.
2. In a direct effort to address shark sustainability in the EPO, the IATTC has implemented resolutions for sharks since 2005 (C-05-03) and currently has six active resolutions pertaining to shark conservation and management (C-05-03; C-11-10; C-16-04; C-16-05; C-19-06; C-21-06), two of which pertain specifically to carcharhinid sharks, including silky shark (C-21-06) and oceanic white tip shark (C-11-10). Collectively, these resolutions, among other instruments, mandate bans or restrictions on catches, finning, use of wire leaders, and recommend mitigation measures and best handling and release practices for captured sharks.
3. To ensure that the scientific activities of the IATTC Secretariat are transparent and

developed to fulfill the objectives of the Convention, in 2018 the Commission adopted a 5-years Strategic Science Plan (SSP), within which explicit goals are to "*evaluate the ecological impacts of tuna fisheries"* and to "*develop analytical tools to identify and prioritize species at risk*", both of which include sharks. Progress on these ecological goals is presented annually in the *Ecological Considerations* report that reports upon on, and monitors, the catches of individual non-tuna species, including sharks, but also outputs from an ecosystem model to monitor the structure and function of the EPO ecosystem as a whole. The fleet of large purse seine vessels (>363 mt) has had 100% observer coverage since mandated in 1993 (Agreement on the International Dolphin Conservation Program) and data show annual catches of blue shark to be consistently small (<2 t) in 1993–2021 (SAC-13-10). Catches of blue sharks by the industrial longline fleet are higher than for purse seine but have also remained stable ranging between 10,728–15,080. As a result, there has not been an immediate conservation concern initiated by either a sudden or ongoing decline in blue shark catches.

PROGRESS ON SHARK ASSESSMENT RESEARCH AND DATA COLLECTION AT THE IATTC

4. Availability of sufficiently reliable catch time series is a common impediment to undertaking conventional stock assessments for bycatch species, including sharks. This is due to various factors including low observer coverage for many fisheries, low frequency of capture, taxonomic ambiguity, and early in situ release for conservation or economic reasons. Despite the data limitations for sharks, the IATTC scientific staff have used existing and developed novel best available scientific methodologies to continue to abide by Antigua Convention Article IV (2) Application of the Precautionary Approach that "*The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures*". Ecological Risk Assessments (ERA) for EPO tuna fisheries have been conducted since 2010 (SAC-01-15; SAC-07-07b; SAC-08-17d) have included all prominent shark species, including blue shark, as a means to assess shark sustainability and prioritize the most vulnerable species for mitigation, data collection, monitoring or specific research or management until data provision on catches of sharks (and other bycatch species) continues to improve to ultimately facilitate conventional stock assessment. The most recent ERA, conducted in 2022 (SAC-13-11), employed the new quantitative EASI-Fish (Ecological Assessment of the Sustainable Impacts by Fisheries) ERA approach (Griffiths et al. 2019)—developed by IATTC scientific staff—to assess the vulnerability of 32 shark species caught by industrial purse-seine and longline as well as artisanal longline and gillnet fisheries in the IATTC Convention Area. When conventional stock assessments are not available for any particular shark species, the IATTC will continue to rely on tools such as EASI-fish to prioritize species for data collection, research and management.

5. Since 2014, the IATTC staff has carried out extensive collaborative research with OSPESCA and IATTC's Central American CPCs to develop a robust sampling methodology to improve data collection for sharks in Central American States bordering the EPO. After almost 7 years (2015–2021), this work, funded by the FAO-GEF ABNJ project, IATTC capacity building fund, and the European Union, was completed in December 2021. A summary of the project's final results is available SAC-11-13. As a result of this high volume of work, sampling designs for shark data collection in Central America have been developed and the implementation of a long-term sampling program in Central America is under consideration by IATTC. Also, a second phase of the ABNJ project (TUNA 2) is

about to initiate at IATTC which consists of expanding the shark data collection improvements achieved in Central America to other Members of the IATTC.

THE BLUE SHARK AS ONE OF THE MOST PRODUCTIVE SHARKS WITH NO CONCERNS ABOUT STOCK STATUS

6. Scientific research has confirmed the blue shark is one of the most productive sharks, especially among the pelagic species (Aires-da-Silva and Gallucci, 2007). Blue sharks are highly productive with an age at 50% maturity of 5–6 years, and an annual reproductive cycle where an average of 35 pups are produced (ISC, 2022). This life history strategy is characterized by an estimated stock-recruitment relationship (*h*) of 0.588, which is considerably higher than other pelagic shark species such as shortfin mako ($h < 0.36$) (Cortés et al. 2010) and silky shark ($h = 0.342–0.489$) (Rice & Harley 2013).

7. This high capacity for population growth ranked *P. glauca* third in a meta-analysis involving 38 shark species (Cortés 2002). Another meta-analysis (Smith et al. 1998) ranked the blue shark seventh among 26 shark species when the estimates population rebound potential were compared.

8. As for other several shark species commonly caught in tuna fisheries, particularly for those that are retained, the quality of the blue shark catch data has improved significantly over the past decades. Consequently, at least four stock assessments have been conducted for blue shark in the Pacific Ocean since 2014, three for the north Pacific stock (ISC, 2014; ISC, 2017; ISC, 2022) and one for the southwest Pacific stock (Neubauer et al. 2021). A new stock assessment is underway for the southeast Pacific stock in collaboration between IATTC and CPPS. All assessments used F_{MSY} and SB_{MSY} reference points to conclude that the respective stocks are not overfished nor experiencing overfishing and that this status was predicted to be the case since the mid-1990s (ISC, 2022). The long-term sustainability of these two putative stocks in the Pacific and their catches by tuna fisheries appear to be a direct result of their wide niche breadth that allows the species to occupy tropical to temperate waters and epipelagic to mesopelagic regimes (Druon et al. 2022), which together, provides spatio-temporal refuges that reduces their interactions with fisheries, including tuna fisheries. Therefore, given the available biological and assessment information, as detailed above, one could wonder upon which scientific basis conservation measures additional to those already in place and implemented by RFMOs and coastal states might be justified.

THE BLUE SHARK AS ONE OF THE MOST DISTINGUISHED SPECIES

9. CoP19 Prop. 37 purports that "…every member of the family Carcharhinidae is a visual lookalike for at least one fin position…", which would result in "visual separation of CITES listed species from non-CITES listed species would be impossible". Although we agree that this may be the case for some carcharhinid species, it is the opinion of the IATTC's scientific staff that these statements are not correct, at least for the most frequently traded species, such as blue shark. Blue shark is one of the most easily distinguished species either as fresh, frozen or dry whole specimens, dressed carcasses, or as separated fins. On the basis of blue shark alone, it is clear that not all species of Carcharhinidae are taxonomic "lookalikes", and therefore all species do not require listing under Appendix II.

CONCLUSION

The IATTC scientific staff sees little scientific support to the inclusion of the blue shark (*Prionace glauca*) among the species of Carcharhinidae proposed to be listed in Appendix II of CITES. 6. Scientific research has shown the blue shark as one of the most productive sharks, especially among the pelagic species. Conventional stock assessments are available for the blue shark in various oceans of the world, including the Pacific Ocean, and these show no sustainability concerns for the blue shark. Furthermore, the argument that "…every member of the family Carcharhinidae is a visual lookalike for at least one fin position…" should not apply to the blue shark as the species is one of the most distinguishable shark species even in processed form. Significant improvements on shark data collection and scientific research have been made at IATTC over recent years, most importantly those under the GEF-ABNJ funded work in Central America since 2014 that have greatly improved our knowledge of carcharhinid sharks and their vulnerability to artisanal and industrial fisheries. This knowledge will further improve with the recent expansion of the ABNJ program to include other Member states of the IATTC. The IATTC staff is concerned that listing the blue shark in Appendix II of CITES in scientifically unwarranted and may potentially discourage the strengthening of shark data collection efforts in the EPO and ultimately compromise scientific initiatives to assess the long-term sustainability of shark species and to develop and implement conservation and management measures as may be appropriate.

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