



December 2nd 2020

Submission by the Australian Coral Reef Society to the Department of Agriculture, Water and the Environment regarding:

Commonwealth Coral Sea Fishery – report for export approval

Key recommendations:

- The *Commonwealth Coral Sea Fishery* upholds the CITES listings of the black teatfish (*Holothuria whitmaei*) and white teatfish (*Holothuria fuscogilva*).
- The black teatfish fishery is not approved for Wildlife Trade Operation.
- The white teatfish fishery is not approved for Wildlife Trade Operation.
- The Australian Fisheries Management Authority's Observer Program is considered for sea cucumbers within the *Commonwealth Coral Sea Fishery*.
- Management considers antagonistic effects of ocean warming on winter spawning.

The Australian Coral Reef Society (ACRS) has played an active role in coral reef research and conservation since 1922. The Society is the world's oldest organisation of scientists and conservationists studying coral reefs. A great proportion of ACRS members conduct research in Australia's Coral Sea territory. We take this opportunity to comment on the *Commonwealth Coral Sea Fishery (CSF)*, which requires approval for ongoing export. As a result of the current expertise of our Society Council, we focus our comments primarily on the black and white teatfish, or sea cucumber, fisheries.

The *CSF* was declared an approved Wildlife Trade Operation (WTO) until 18 December 2020 under the EPBC Act. Reassessment of the *CSF* is required to continue export, including a specific Non-Detriment Finding for four species (or groups) listed under CITES; the Humphead Maori wrasse (*Cheilinus undulates*), all Acroporidae corals, and more recently, the black teatfish (BT; *Holothuria whitmaei*) and white teatfish (WT; *H. fuscogilva*). We bring particular attention to the 'teatfish' group within the sea cucumber sector of the *CSF*. Based on current scientific consensus, the ACRS advises the Department of Agriculture, Water and the Environment to strongly reconsider the harvest of teatfish for export.

The ACRS strongly supports the CITES listings and protection of both teatfish species, which have been listed as Endangered (*H. whitmaei*) and Vulnerable (*H. fuscogilva*) on the IUCN Red List of Threatened Species for ~6 years (Conand et al. 2014). Both the IUCN and CITES listings provide evidence that teatfish are exceptionally vulnerable to fisheries pressure, globally. BT and WT have a low reproductive capacity, slow growth, and thus, low recovery rates (Uthicke et al. 2004). In 2013, the IUCN listed BT as Endangered as its populations had declined by 60–90% across ~70% of its global range (Conand et al. 2013a). Similarly, the WT (Vulnerable) experienced population declines of 60–80% across ~30% of its global range (Conand et al. 2013b). These declines are likely greater today as both species continue to be fished worldwide (FAO 2019).

Sea cucumbers, including the BT and WT, are ecologically important organisms that reduce anoxia and algal overgrowth on coral reefs (Michio et al. 2003; Lee et al. 2018) through bioturbation and carbonate processing (Purcell et al. 2016). The important roles that commercially exploited sea



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cucumbers play in ecosystem functioning will be substantially reduced, and ultimately lost, if their populations are comprised by overfishing (Eriksson & Byrne 2015; Purcell et al. 2016).

The *CSF* is regarded as a “low data” fishery as there is a lack of local survey and assessment information (Dowling et al. 2008). From logbook and catch rate data in 2000–2001, the *CSF* showed a significant decline in the number of target sea cucumbers, including BT and WT (Hunter et al. 2002). Consequently, in 2002, the Total Allowable Catch (TAC) for BT and WT was reduced to 1 and 4 tonnes, respectively. While these TACs are highly conservative, scientific surveys of teatfish populations have never been conducted in the Coral Sea. In addition, there is no requirement for observers in the sea cucumber sector of the *CSF* under the Australian Fisheries Management Authority’s (AFMA) Observer Program. This means there are no baseline data on the density of teatfish in the Coral Sea, nor observer data to assist and inform AFMA of densities, catch quotas and changing baselines for target and non-target species.

The TACs of teatfish in the *CSF* are based on survey data from the GBR (Benzie & Uthicke 2003), not the Coral Sea. Fisheries in the Coral Sea are particularly sensitive as the available habitat is highly fragmented, small populations are spatially dispersed, with limited connectivity. Therefore, sources of recruitment are fewer than those on the large contiguous reefs of the GBR. Even on the GBR, population recovery of teatfish is slow, and overfishing of BT to ~25% of natural levels (Uthicke and Benzie 2001) resulted in a fisheries closure for two decades (1999–2018). Once fished, population recovery is dependent on the remaining density of reproductive adults and life-history parameters, which are largely unknown for most species of sea cucumber (Friedman et al. 2011), including the species of concern here. The slow growth (<200 g y⁻¹), density-dependent reproduction (Allee effect) and poor recruitment of teatfish (Uthicke et al. 2004) renders them susceptible to overfishing, particularly in disconnected regions like the Coral Sea (Benzie & Uthicke 2003).

Illegal fishing in Australia’s Coral Sea territory can undermine sustainable practices within the *CSF*. In 2017, a foreign fishing vessel had almost 20 tonnes of live sea cucumber estimated to be worth AUD\$250,000 (Skewes 2017). This vessel alone represented 133% of the WT TAC and 77% of the BT TAC for the entire *CSF*. Moreover, 75% of WT and 90% of BT were below the minimum size limit for sea cucumber fisheries in the Coral Sea and GBR (Skewes 2017). This poses significant risk to the sustainability of sea cucumber fisheries in the Coral Sea, critically for the two CITES-listed teatfish species. Illegal fishing effort is often highly concentrated with significant impacts on local populations.

Given the susceptibility of teatfish to overfishing and consequent CITES listing, any export of WT and BT from the *CSF* is strongly advised against. The CITES listing for all three teatfish species (including one not present on the Coral Sea, *H. nobilis*) was granted because of their identifiable morphology (i.e. ‘teats’) (FAO 2019). Complete protection of all three teatfish, as recommended in the CITES Appendix II listing, is advised to reduce misidentification and black-market trade among teatfish species, which already poses significant threat to the sustainability of the sea cucumber *CSF* (Skewes 2017).

Rising average sea temperatures should also be factored into considerations for the management of this fishery, as this will impact spawning windows and success. As reported in the 2019 Great Barrier Reef Outlook Report (pg 231):

“[Teatfish] spawn in winter and when water is cooler and have low recruitment rates. In 2015, the BT was assessed as one of the most vulnerable key Torres Strait fisheries species to a variety of climate



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change pressures. This is due to its limited mobility, high exposure to warmer waters on the shallow reef areas and generally low adaptive capacity (Johnson and Welch 2016). Any rise in water temperature is likely to restrict or prevent spawning (Welch et al. 2014), undermining the resilience of this species and the important nutrient cycling process it performs.”

The IUCN and CITES listings of BT and WT reflect global declines in their densities. Overfishing in the early 2000s led to highly conservative reductions in TACs for BT and WT in the Coral Sea, but scientific and observer data are still not available to determine the effectiveness of these measures almost two-decades later. Moreover, extreme cases of illegal harvest pose significant threats to the sustainability of the *CSF*. The ACRS strongly advise that the CITES listings of both teatfish (*H. whitmaei* and *H. fuscogilva*) are upheld to afford the full protection of these species without export approval. Given global patterns of serial depletion in sea cucumber fisheries (Eriksson and Byrne 2015), the CITES listings for both species of teatfish provides an important opportunity to lead by example in the conservation and protection of species at global risk.

The ACRS is happy to provide additional information as required.

Sincerely,

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