SFA engages in the study of the impact of a seasonal dFAD closure on the Seychelles economy

With the recent decision taken by the Indian Ocean Tuna Commission (IOTC) regarding a 72-day closure of drifting fish aggregating devices (dFADs) for the tuna fishery, a study was undertaken to assess the potential short and medium-term macroeconomic impacts of the seasonal closure for the Indian Ocean Tuna fishery, using Seychelles as a case study.

The findings of the paper recently published in the *npj Ocean Sustainability* online journal by a group of authors, of which SFA's very own Mr. Sharif Antoine formed part, revealed that the seasonal closure could potentially lead to a shortage of fish supply in areas reliant on tuna and other rippling effects on other activities and institutions.

Drifting fish aggregating devices (dFADs) have become a cause of concern in the global tuna fishery due to their massive usage in the oceans. They significantly contribute to the growing fishing capacity of industrial purse seiners but also have negative externalities. These externalities include bycatch of endangered and protected species such as pelagic sharks, loss at sea after sinking or stranding, leading to increased marine pollution and habitat degradation.

To address this issue, in February 2023, the Indian Ocean Tuna Commission (IOTC), which is responsible for tuna management in the Indian Ocean, adopted Resolution 23/02 to create a 72-day seasonal dFAD closure from July 2024. However, one-third of the IOTC members objected to this resolution causing the conservation management measure to be non-binding.

Even though members are not bound by the measure, the authors recognized the importance of analyzing its macroeconomic impact on a small island country, particularly in the tuna fishery. The study found that beyond the catch level and landings, the whole value chain of tuna fishery could be affected by the conservation measures and, in turn, propagate the downturn effects on the entire economy.

In the context of Seychelles, the closure would result in the tuna cannery plant to be shutdown between two and six weeks, corresponding to a drop in activity between 4% and 12%. Using a hypothetical worst-case scenario as an example, the cannery would be closed for six weeks every year

from 2019, resulting in a 12% drop in canned tuna exports, which account for the bulk of the country's foreign sales. The analysis suggests that over a 7-year span the decline in canned tuna exports would result in a fall of 8.8% in real gross domestic product, a 10% decline in total real exports of which exports of fish products would fall by a staggering 33%.

Additionally, we see a progressive rising trend in public debt from 0.1% to 4.4% over the seven years. This reduction in exports also negatively impacts other drivers of aggregate demand, such as household consumption, investment, and government spending, making the entire domestic economy reliant on foreign visitors and tourist activities. Consequently, the economy would become more dependent on tourism, which has shown its vulnerability during the recent pandemic crisis. This would increase the country's vulnerability to new shocks, such as pandemics or international crises.

"Fundamentally, assessing environmental aspects of the extraction of our shared natural resource is paramount to achieving sustainability and longevity. While this may be true, it is of equal importance to also provide insight beyond the ecological impacts of fisheries management.", Mr Antoine states. He adds that this study aims to bridge this gap by highlighting the importance of considering the social and economic aspects in sustainable fisheries management as it showcases the potential consequences of regulation on our small island economy. "While the intention of such measures is to curb overcapacity in our tuna fishery, as a trade-off we have shown that it leads to a net negative benefit to our economy.", says Mr. Antoine.

"The tools and techniques used in this paper provide a revolutionary approach to planning policies and measures that promote optimum allocation of resources. With the model's applicability, the country can also utilize this approach not just in fisheries but other sectors such as tourism, medical, infrastructure, etc….'" adds Mr. Antoine

The paper titled ***Macroeconomic impact of an international fishery regulation on a small island country*** can be found online on the following site https://doi.org/10.1038/s44183-024-00054-w