

Socio-ecological outcomes assessment readme

In parallel to the interactive stock assessment model, the One Ocean Hub team have been developing a detailed 'outcomes assessment' that considers the *whole system* effects of a fisheries management decision. This analysis draws upon the varied knowledge and research of the wider OOH team of around 40 people from Ghana, South Africa and the UK including sociologists, anthropologists, fisheries scientists, ecologists, and law and politics researchers.

The premise of this assessment is that fish stocks in West African waters are exploited by a range of fleets, each of which is important to different degrees for a number of socio-cultural, political, ecological, and economic factors. Fish stocks in Ghanaian waters are currently heavily over-exploited and, to secure fisheries production and all the benefits it provides into the future, reductions to fishing effort must happen. There are a huge number of ways for Ghanaian authorities and fishers to achieve this goal, but it remains incredibly complex for an individual to understand the *whole system* outcomes associated with different effort reduction scenarios. This tool presents a relativistic perspective of the change in 25 outcomes associated with a change in fishing effort of any combination of the 12 fleets implemented in the stock assessment. Scores are derived through a combination of a fleet's overall contribution to catches, and its relationship (positive or negative) with a specific outcome. For instance, a reduction in the availability of jobs in the fisheries sector negatively affects social deprivation and welfare costs, but the change in outcome is more severe in scenarios where artisanal fleets experience a greater reduction in effort.

The analysis is presented in relative terms, compared with 'status quo' (all fleets maintain 2021 levels of fishing effort) and 'All fleets -50%' (where all fleets reduce effort by 50% against 2021 levels, by 5% per year over ten years). The latter scenario is a general approximation of the change required to achieve maximum sustainable yield across the twelve assessed species, but there are many other combinations of fleet effort reductions that could also achieve the same goal. Neither of these scenarios are intended to represent advice to fisheries managers.

This tool remains a subject of ongoing research and is intended to provide a guide to managers to quickly investigate how fisheries management decisions compare. It is not a substitute for any level of stakeholder consultation, and instead serves to give a basis to identify key areas of cost or benefit associated with any given scenario.

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