



# China Sustainable Seafood Assessment (CSSA)

## Fishery



*[Species]*  
*[Fishing Method]*

*CSSA Team/Name of Author*

December 2023

## Statement

In the assessment of all species, the China Sustainable Seafood Assessment (CSSA) team will strictly follow the assessment criteria and refer to the latest, impartial and objective scientific data. Common sources of reference for evaluation data include literature review, official materials, objective and unbiased media reports, data obtained from field research, and expert interviews. Inevitably, many fisheries face the problem of lacking robust data, and some data are not publicly available, which may affect the assessment results to some extent. The CSSA team is committed to carrying out the assessment and evaluation of the species objectively and impartially, basing on respecting objective facts, making maximum use of open data, and relying on rigorous scrutiny of experts. The results of the species assessment do not represent the opinion of any particular expert, scholar, etc.. The CSSA team has the right to the final interpretation of the assessment results.

# Content

<b>Introduction</b>	<b>4</b>
<b>Executive Summary</b>	<b>4</b>
<b>Species Profile</b>	<b>4</b>
<b>FULL ASSESSMENT</b>	<b>4</b>
<b>Criterion 1: Impact on Target Species</b>	<b>4</b>
Status of resources	4
Fishing level	4
<b>Criterion 2: Impact on Non-target Species</b>	<b>5</b>
Bycatch of other concurrently harvested species and Threatened, Endangered, Protected (ETP) species	5
<b>Criterion 3: Control Impact on Ecosystem</b>	<b>5</b>
The effect of fishing gear	5
Ecosystem-based fisheries management	6
<b>Criterion 4: Management and Implementation</b>	<b>6</b>
Fishery management plans for target species	6
Fisheries management system	7
<b>Acknowledgement</b>	<b>7</b>
<b>Reference</b>	<b>8</b>

# Introduction

China is the world's largest fishing country, and also has a large consumer market for aquatic products. The food choices we make determine the present and future of our marine and freshwater ecosystems. In order to cultivate a new generation of responsible seafood foodies, Qingdao Marine Conservation Society (QMCS) has launched the China Sustainable Seafood Assessment (CSSA) project to customize scientific and interesting sustainable seafood consumption guides for domestic consumers. We hope that by raising public awareness and promoting changes in consumer behavior, we can use the power of the market to force industrial transformation and make a lasting contribution to the continuous improvement of the health of China's marine and freshwater ecosystem.

## Executive Summary

*Briefly summarize the assessment results in 1-3 paragraphs.*

## Species Profile

*Briefly describe the assessed species.*

# FULL ASSESSMENT

## Criterion 1: Impact on Target Species

### Status of resources

*Assessing the current resource status of the target species, whether the stock is maintained at a level that does not affect resource recovery or stock productivity (i.e., referring to BMSY or other relevant fishery management reference indicators), and whether more up-to-date and more comprehensive resource evaluation are available. Assessing whether the resource biomass is maintained above the sustainable harvest levels (target and limiting reference points).*

### Fishing level

*Assessing whether the current fishing effort (fishing mortality) is maintained at an appropriate level that is sustainable for the target species population (using the lower limit of the maximum sustainable yield, the appropriate Spawning Potential Ratio (SPR), or other alternative parameters as references). Fishing mortality includes death resulting from fishing operation, either directly or indirectly (including cases where deaths are caused by fishing but the dead individuals are not landed, and post-release deaths), as well as from recreational, subsistence fishing, etc. , which also contributes to mortality of*

the species.

*For fisheries which have limited data, the fishing level can be extrapolated from the scale of the fishing fleet, hours of operation, and changes in stock resource structure. When the target species is a short-life-cycle, fast-growing species and abundant data related to the stock resource exists, it is permissible, within reasonable limits, to set harvest levels higher than in fisheries for species that are traditionally slower-growing or lack systematic data on resource status. It is to be noted that the impact on other species up the food chain should be considered when assessing short-lived species at the lower trophic level.*

## **Criterion 2: Impact on Non-target Species**

### **Bycatch of other concurrently harvested species and Threatened, Endangered, Protected (ETP) species**

*Based on the reality that non-selective gear fishery for multiple species is common in China, the definition of bycatch in China is the catch of other major economic species, discards with no economic value (e.g., jellyfish), and ETP species. This assessment mainly focuses on the impacts of the target species fisheries on other major economic species and ETP species. The bycatch species can be injured and discarded to death, resulting in a reduction of bycatch species wild population. It's important to assess the impacts of target fisheries on these species' natural resources.*

*Assessing the resource status of key bycatch species ( $\geq 10\%$  of total catch) to capture the stocks status and the impact of the target fishery on their resource levels (refer to criterion 1). In addition, if the fishery involves ETP species bycatch or injury, the extent to which the fishery affects ETP species also needs to be considered. It could be difficult to obtain information or data related to bycatch or ETPs from some fisheries, a literature-based inferential assessment can be made using the SFW Unknown Bycatch Matrix. Fishing gears with higher selectivity and sustainable fishing operation can effectively reduce negative impacts on both resources and ecosystems.*

## **Criterion 3: Control Impact on Ecosystem**

### **The effect of fishing gear**

*The impacts on marine ecosystems vary between gear types, from inshore hand nets, which have little environmental impact, to bottom trawling/harrowing, which has a greater environmental impact, to operations that may damage important yet vulnerable benthic ecosystems (e.g., coral reefs, seagrass beds, submarine volcanoes, etc.). To this end, it is necessary to adopt corresponding conservation measures, such as the designation of specific marine protected areas, avoidance of fishing operation in areas with vulnerable benthic ecosystems, and improvement of fishing gear to mitigate environmental damages or ETP bycatch.*

*Assesses the impacts of fishing gear on the ecosystem (including the local habitat), the fishing frequency/intensity, and whether there are improved measures or tools to mitigate the ecosystem damage of fishing gear/operation. Sustainable fisheries utilize highly selective and environmentally friendly fishing gear to harvest fishery resources. Commonly vulnerable benthic ecosystems include deep-sea coral communities, seagrass beds, sponge beds, coral reefs, and kelp forests.*

## **Ecosystem-based fisheries management**

*Assesses whether the objective of fishery-related management measures is to protect ecosystem functions and maintain the ecological niche functions of key species, whether management incorporates the latest technologies, whether it ensures the participation of various stakeholders, whether it takes into account the relationship between fishery and the ecosystem, and whether the structural functions of the ecosystem are intact and stable. As for alien species, assessing their distribution and figuring out control measures to prevent spread or affecting native species. It is worth noting that many areas have not established fisheries monitoring and management systems based on ecosystem management yet. In this context, assessing whether the harvested species have negative impacts on ecosystem functioning, particularly on the food chain, and the ecological niche function of the caught species, as alternative indicators. Moreover, assessing whether current fisheries management and monitoring systems can take into account the above factors and apply them in practice (e.g., spatial management of specific species, etc.).*

## **Criterion 4: Management and Implementation**

### **Fishery management plans for target species**

*Assessing the coverage of current fisheries management plans, whether the content includes comprehensive management plans for catch control, fishing rights, regulating fishing vessels, monitoring and assessment of resources, precautionary measures, and ecosystem-based fisheries management. Assessing whether there are effective management plans for irrational fishing behaviors such as the catch of juvenile fish and egg-carrying population, as well as catch discards. Assessing whether there are measures to protect ecological resources and monitor ecosystem integrity, such as the protection of vulnerable species, the evaluation of resource status, the establishment of a relevant monitoring network and a code of best practice (voluntary or mandatory), and the mitigation of the impacts of the relevant gears on the ecosystems. The purpose of this criterion is to learn about how well current fisheries management covers the target fisheries. In the absence of appropriate management, the target fishery may have undesirable outcomes such as resource declination.*

*There is also a need to assess whether the relevant management plans are implemented. Note that when the assessed species is distributed within a narrow range and a local management plan exists, the local management plan should be considered; when the assessed species is nationally distributed, the national fishery management plan should be taken into account. If the assessment results reveal regional variations in the formation/implementation of relevant management plans, this should also be stated.*

## **Fisheries management system**

*The existence and effective implementation of relevant fisheries enforcement management (e.g., fishing practices, fishery resources, ports and fishing vessels, aquatic environment, etc.) for species involved in the fishery (including target and bycatch species) need to be assessed. Assessing whether current management strategies take into account resource uncertainty for the target species, the impacts of other factors (e.g., the environment) on the target species biomass, possible changes in fishing effort, and whether fisheries management is effective in preventing negative impact on the assessed resource, especially for species of concern (poor stock status). Assessing the existence of appropriate scientific research, up-to-date enforcement regulations, and incorporation of stakeholder inputs to form a sound fisheries management system. Ideally, fisheries management should use independent, up-to-date resource assessment, or other methods to obtain information on the status of resources and ecosystem impacts, to develop and implement comprehensive management measures. In order to ensure that fisheries management takes into account the livelihood of the next generation and avoids any irreversible negative impacts on resources and ecosystems*

*When it is found that there is a lack of management data related to resource assessment or designated fisheries management measures, common and precautionary management measures that are conducive to the conservation of the fishery resources, such as limiting the maximum or minimum allowable catch size, fishing closures in specific areas, and other relevant information which may be chosen as alternatives to make up for the lack of targeted resource management. However, it is worth noting that further assessment is needed to confirm the effectiveness of such generic management measures for the management of specific species.*

## **Acknowledgement**

The CSSA team sincerely thanks XXX/XXX organization for providing scientific and professional feedback for this report.

## Reference