SPC
Secretariat
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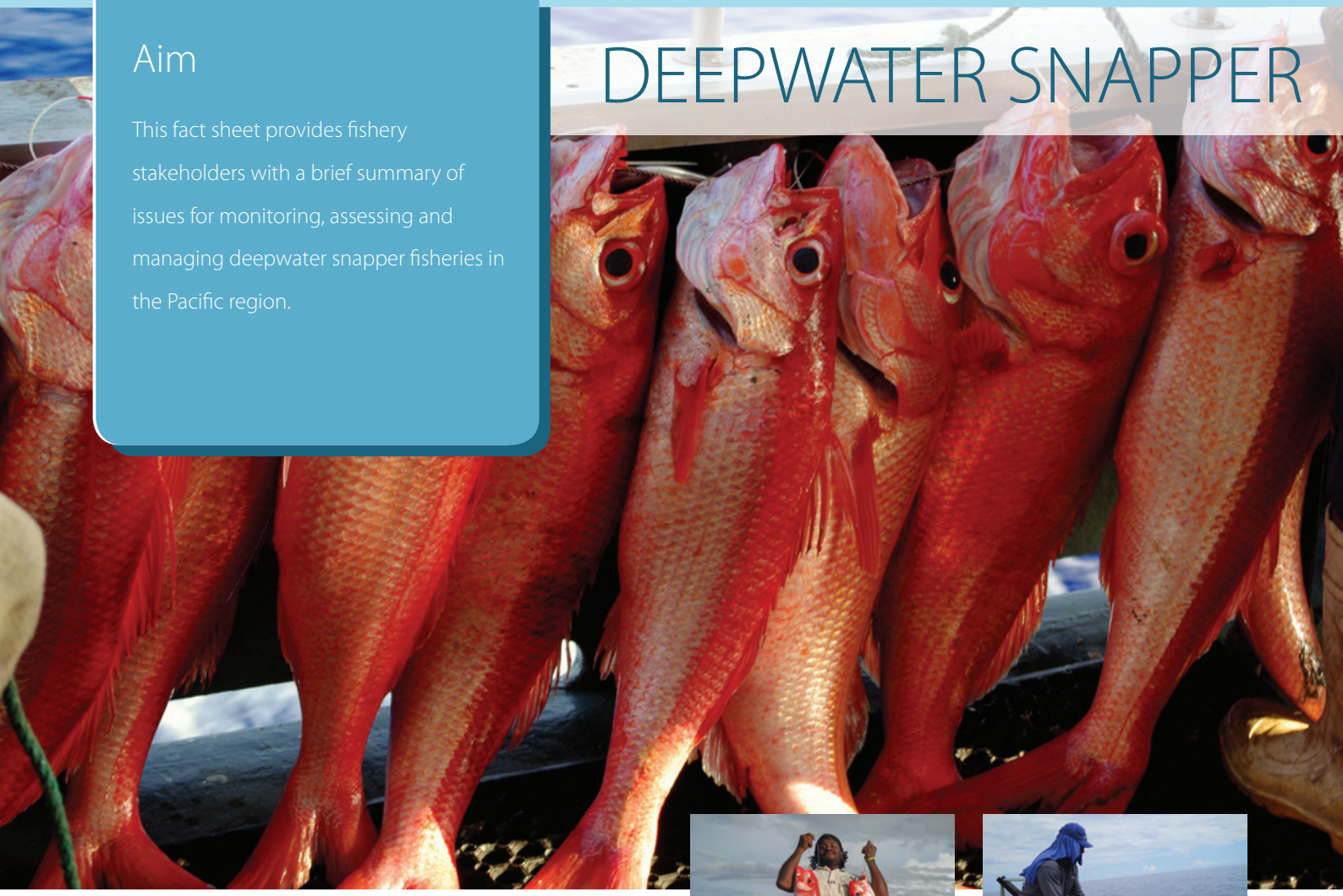
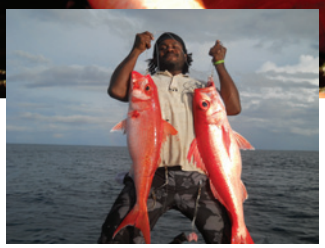
Community

DEEPWATER SNAPPER

Aim

This fact sheet provides fishery stakeholders with a brief summary of issues for monitoring, assessing and managing deepwater snapper fisheries in the Pacific region.





Management of deepwater snapper resources in Pacific Island countries and territories

Background

Deepwater snapper are a significant fisheries resource for many Pacific Island countries and territories (PICTs) where they support important domestic and export markets. However, there is a lack of management plans in most SPC member PICTs, except the US territories and Tonga, and a lack of information on the status of stocks that could be used to develop or further refine management plans.

The current approach to management, where it exists, is more reactive than proactive, which increases the chances of overexploitation and reduces stakeholder certainty in the fishery. Furthermore, fisheries managers have limited guidance on how they can manage the fisheries because there are no reliable estimates of what levels of catch and effort are economically or biologically sustainable.

Assessing stock status and monitoring management effectiveness

Conducting traditional stock assessments for deepwater snapper stocks is challenging and expensive. It requires intensive monitoring and the collection of detailed catch and effort data over time to estimate an 'index of abundance', and ultimately an estimate of stock size.

The characteristics of deepwater snapper fisheries create challenges for intensive monitoring and data collection because (i) most fishing operations consist of a single operator and it is difficult to ensure all fishers keep and report accurate fishing records, (ii) operators are typically spread across multiple islands and landing sites, making port-based monitoring complicated, and (iii) vessels are usually too small to accommodate observers for collecting data. Furthermore, the economic value of deepwater snapper fisheries is low in relation to the cost of conducting traditional stock assessments. However, monitoring and assessment are needed to provide sufficient information to assure governments that their policies are delivering sustainable fisheries. At an operational level, fishery managers need information to formulate and monitor such policy. This typically requires information on the level of harvest and effort that a particular region can sustain biologically and economically. This is typically at the seamount or reef scale for many deepwater snapper fisheries.

Previous assessments of deepwater snapper fisheries in the Pacific, where they have been completed, have focused on estimating the maximum sustainable yield (MSY). The concept behind estimating MSY is to determine whether current fishing rates, if maintained, will deplete the population to levels where the MSY cannot be attained. Although MSY can be estimated at almost any spatial scale, it has only been undertaken at the EEZ scale. Analyses at this scale are useful for governments to demonstrate that the fishery is satisfying certain ecological sustainability criteria, which in turn may increase the value of the fishery.

The use of MSY statistics to assist finer spatial scale management of deepwater snapper fisheries, however, is less practical for several reasons:

» Estimates of MSY are usually very uncertain and consequently, the relative fishing mortality estimated to achieve MSY is also uncertain. This uncertainty is typically so large that any estimate is not meaningful at the seamount scale, unless the data being analysed is very accurate and precise;

» The estimation of MSY assumes that the environment and fish population does not vary (i.e. it is generally a long-term average). Therefore, it ignores natural variation in population size and also the size, age and reproductive stage of individuals. Deepwater snapper populations and their environment are likely to be highly variable, so estimates of MSY may not reflect the true status of the population at a location in any given year. Hence, if management policy includes yearly restrictions on harvest by location, MSY is not likely to be an accurate measure for guiding managers on the level of restriction required;

» Fishing at MSY levels may actually produce undesirable effects for deepwater snapper fisheries. For example, while catches at MSY may remain sustainable, it is possible that catch rates would decline to levels that are not economically viable.

Need for alternative approaches

The development and implementation of alternative, low-cost approaches to monitoring and assessment will be essential to provide guidance to fisheries managers for improving the management of deepwater snapper fisheries. Furthermore, it is preferable that such methods allow a more adaptive approach to management where the signal from the monitoring directly informs a management decision.

SPC is developing rigorous and objective monitoring and assessment methods to ensure deepwater snapper fisheries in the region can be managed at biologically and economically sustainable levels. The approach that SPC is advocating is to integrate assessment methods that have been implemented successfully in other fisheries, including deepwater snapper fisheries in Australia, with a Management Procedure approach that links the assessment to the objectives of the fishery stakeholders. For more information and an example of how management procedures could be applied to deepwater snapper, please see the related fact sheet: 'Management Procedures for deepwater snapper resources in Pacific Island countries and territories'.

For more information

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