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Towards Statistical Definition of Small-Scale Fisheries: an update on the use of a matrix scoring approach to the characterization of scale of fishing units

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Document Summary

This document updates a paper presented at the 27th Meeting of the FS, regarding a proposed approach for the characterization of Small Scale Fisheries to assist national management and enable inter-comparability of data and information on small-scale fisheries issues. The matrix scoring approach is primarily intended as a research tool and at the national level to better-identify and understand the nature of small-scale fishing operations. It is suitable for use in data poor situations and where structural statistical data is not available. With further testing and development, the matrix scoring approach might be used more systematically for national or regional analytical or reporting purposes.

CWP members are kindly invited to provide feedback on the proposed methodology and on the potential applicability in their region.

At the CWP 26th session (Rome, 2019), a matrix-scoring framework for characterizing the scale of fishing operations was presented. The background to why there is interest to characterize the scale of a particular fishing operation or fishery was also outlined. The primary issue is with regard to the potential to distinguish in a defensible and replicable manner, the characterizing of a fishing operation as “small-scale” or not.

The reasons for a fishery administration to need to specifically identify small-scale fishing (SSF) operations span the dimensions of governance (policy, legislation, access and tenure), economics (taxation, subsidies, special preferences) and fishery management (regulation, gears, zoning). There are broader implications beyond the national level, which relate to international policies and strategies, most notably the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines), but also SDG14b and international trade negotiations that relate to fisheries.

Many countries have already developed some form of definition of small-scale and large-scale fisheries in their fishery legislation or fishery policy, but these are specific to the national or regional context and are generally not inter-comparable and cannot be used to look at SSF in a regional or international context.

The issue of definition or characterization is further complicated by the application of varied terminology to the small scale sector (small-scale, artisanal, subsistence, aboriginal, coastal, nearshore, municipal) and the large-scale sectors (large-scale, commercial, semi-industrial, industrial). In some countries fishing units may be characterized into more than two categories, with the inclusion of one or more intermediate categories

National definitions of SSF and other scales are typically based on a limited set of quantitative metrics (such as vessel size and power, gear type, or area of operation). Such narrow quantitative characterizations have issues at the transition between SSF and larger scale and may exclude legitimate SSF fishers or enable larger scale vessels to be included as part the small-scale fleet. This may lead to dissatisfaction, conflict non compliance with fisheries regulations.

The wide heterogeneity of small-scale fisheries around the world challenges their inter-comparability between countries and without standard criteria that can be applied objectively, it is impossible to determine the separation between small-scale and large-scale fishing units at the regional or global level. .

There is no individual metric with a cut-off point that is capable of distinguishing between small-scale and larger-scale fishing activity. As such, the establishment of globally-endorsed, quantitative statistical definition seems unlikely.

Despite this, having a tool to characterize the scale of a fishing operation or fishery is often useful, and even necessary. It informs fisheries management, policy development, research and governance at national and regional levels, and contributes to improved global understanding of small-scale fisheries and their role.

The fishery characterization matrix approach presented at the 27th meeting of the CWP FS was an attempt to develop a systematic method for characterizing the scale of a fishery. The matrix is intended to enable the objective identification those fisheries or fishing operations that should be considered small-scale and in doing so, could then contribute to a better quantification of their numbers, catches and the issues that relate to their operations

Since the 27th Meeting of the FS, the matrix scoring approach has been applied within the “Illuminating Hidden Harvests” (IHH) global study of SSF. The IHH study commissioned case studies of SSF from 58 countries and the individual fisheries which were identified, were scored using the matrix. Importantly, the fisheries which were identified by the case study authors were those that we considered to be SSF within their national contexts.

The results of this analysis are currently being processed and could be specifically used to give an idea of which characteristics seem to be more typical of SSF and how homogeneous or heterogeneous these are likely to be.

Some preliminary findings of the study are as follows:

- Although each of the characteristics in the matrix (encompassing vessel types and gears, through harvesting operation, degree of organization, to the preservation and disposal of catch) was described across a range of scale from small to industrial (separated into four bands for each characteristic) , it was interesting. to note that some SSF scored in the higher bands for some characteristics.
- The matrix provides a standardized approach that can be applied to any fishery to understand where it lies along the continuum of small-scale to large scale fishing.
- The matrix approach is suitable for data-limited fisheries.
- There was quite a sizeable spread of scoring across the SSF described in the 58 cases studies, confirming there is a continuum of SSF.
- It can be inferred that lower scoring fishing units share many if not all of the characteristics of a small-scale fishery while higher scoring units have more of the characteristics of a large-scale fishery. In addition, by scoring each of the fishery characteristics using value ranges that can be informed from a variety of sources (e.g. from official censuses to expert elicitation)

- There were identifiable differences in characteristics (e.g. mechanization, engine power, paid crew, level of on-board chilling or preservation) between developed, developing and least developed countries.
- The total landings from non-mechanized and non-motorized marine SSF are low, compared to mechanized and motorized marine SSF. The reverse is true for inland SSF
- There were clear differences between inland and marine SSF, with inland SSF tending towards lower scoring across most characteristics.
- The matrix approach was able to highlight those fisheries which may be on the edge of small-scale and large-scale (i.e. a small vessel with a high-powered engine and large-scale level of fishing effort),
- The catch landed entered different value chains including exports and relatively little was expressly for household consumption.

The analysis of scores for different fishing units quickly yields a picture of whether there are clear cut-offs between distinctly small-scale fisheries and distinctly large-scale fisheries. It also enables the rapid identification of which characteristics determine this.

The advantage of this approach is that it is capable of accommodating the diverse characteristics of fishing units, whilst still providing a separation between small- and larger-scales. This approach helps to avoid some of the problems that arise with the inappropriate classification fishing operations that can emerge when relying on a single characteristic or a highly-constrained number of characteristics, such as gear and vessel length.

From the preliminary results of the IHH study, it is evident that rapid, and objective classification of fishing operations based on multiple characteristics is possible. This is of particular utility when confronted with situations where comprehensive, statistical fleet data may not be collected or available. The deeper analysis of the IHH data is expected to yield some more concrete conclusions regarding the utility of the matrix approach as a tool for identifying key features of SSF at national level, and potentially a means for broader harmonization at regional level. The current results also suggest that the matrix approach can provide a common framework for attributing a score to a fishing operation that links it to its scale of operation. However, regional differences and those between developed and developing countries means that agreement on a definitive cut-off score is likely to be contentious.