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Building capacity in assessment for the sustainable management of marine and inland fisheries

1. The FAO biennial publication “The State of Fisheries and Aquaculture” (SOFIA) reports the state of global marine capture fisheries and it is apparent that the overall trend in the state of the world’s fish stocks is one of increasing exploitation and an increase in the number of overfished stocks.

THE NEED TO IMPROVE REPORTING

2. Despite a global picture of stagnating catch and increasing numbers of overfished stocks, the recorded landings from the two main fishing areas (57 and 71 comprising Eastern Indian Ocean and Western Central Pacific) indicate that the trends in marine capture fisheries has been one of steady growth.

3. Analysis at the national level provides a mixed picture. In general, coastal fishery resources in most APFIC countries are heavily fished and often show signs of over-exploitation. This is especially the case in areas close to population centres and for fishery products in demand by the rapidly-growing Asian economies. Increasing global seafood demand adds to this as some of these countries target resources for export, leading to further overfishing.

4. FAO reported a global inland fisheries catch of 11.92 million tonnes in 2018, representing 12.7 percent of total global capture fishery production. The Asian region (excluding China) has the highest inland fishery catch representing 46 percent of the global total. China contributes an additional 18 percent to this. There are plausible reasons to consider that the total global inland fishery catch figure may be an underestimate. Overall, inland fisheries represent 24 percent of the total regional marine and inland fishery catch (APFIC/21/Inf 8).

5. In the absence of a management framework and systematic monitoring, catch statistics do not typically provide a particularly reliable indication of the status of fisheries, merely an estimate of their contribution to food supply. The national production figure does not therefore provide much insight to the status of those fisheries that contribute to the production. Additional data such as

survey data, or length frequency of the sampled catch would be important to examine and relate to the life history characteristics of the species studied. This would probably give us an estimate of exploitation on the resource.

6. Long-term trend analyses of national catches are also weak indicators of how well fisheries are managed and the sustainability of the fishing pressure. There are considerable challenges to deriving even an indication of the level of production from many important marine and inland fisheries, let alone detailed assessments as to the condition of the fisheries.

7. This problem is compounded by limited detail in the composition of the catches and rather high level of “nei” (unidentified species) in the catch reports and there is a general need to improve reporting in capture fisheries across the region.

CAPACITY TO ASSESS MARINE FISH STOCKS

8. The FAO SOFIA global marine fishery assessment is based on a sample of fish stocks, some of which are scientifically assessed, whilst others rely on expert knowledge. A little less than half of global marine catch comes from stocks that are scientifically assessed, and these data have been compiled in the RAM Legacy Database that is available online.

9. This graph shows the major fishing countries of the world with a circle representing the total reported landings. The green shading represents the proportion of landings from that country that are from stocks that have public assessments of their status.

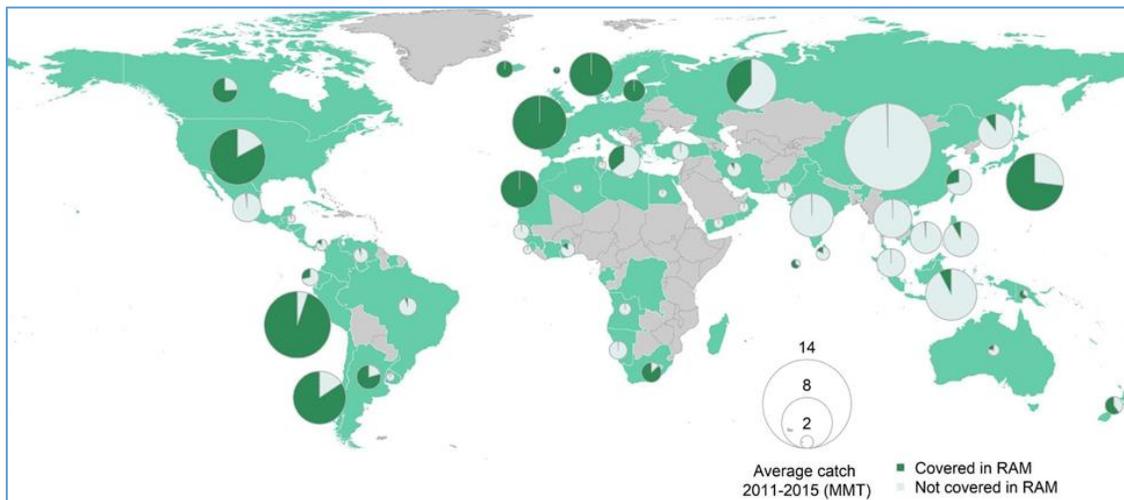


Figure 1: Source of assessed stocks globally and how they relate to production, note SE Asia has a large number of landings but very few stock assessments (source from Ray Hilborn, University of Washington, Seattle, WA (USA)).

10. It can be seen that the majority of catch is assessed in Europe, Northwest Africa, North America, the largest South American countries, South Africa and Japan. Despite the importance of fisheries to the Asian economies, scientific monitoring and management of capture fisheries are modest, with most stocks lacking modern scientific stock assessments. This is illustrated in Figure 1 by the large circles with little green in South and Southeast Asia, the source of 48 percent of the world’s marine capture fisheries.

11. This means that whilst there are apparent increases in the landings from marine capture fisheries, there may be less confidence in the state of the stocks that underpin these fisheries.

Without reliable stock assessments, it is impossible to determine whether fish populations are overexploited or, potentially, underexploited relative to their ability to support sustainable yields.

12. The analytical approaches for assessing stock status are often difficult and there is limited resourcing and capacity in many countries in the region. Thailand, Indonesia, India and China are changing their approaches to improve the assessment of some of their important stocks. However, there remains a strong need for far more comprehensive monitoring of marine fish stocks in the region, particularly those which are not covered by RFMO agreements.

INLAND FISHERY ASSESSMENT

13. Inland fisheries are typically characterized as small-scale, remote, dispersed and informal; these characteristics present challenges when monitoring and evaluating fish catches. This means that validation of actual catches is extremely difficult without a comprehensive national inland fishery monitoring system. Typically, if there is any monitoring of inland fisheries, only the major landing sites (e.g. reservoirs and large waterbodies, or large trap fisheries) in the fisheries are monitored. Dispersed catches from smaller fisheries and extensive floodplain fisheries are generally estimated using crude approximation methods or simply rely on local or expert opinion.

14. The remote and informal nature of much of the inland fishery sector also creates difficulty in capturing the social and economic contributions from surveys. Fisheries-related activities are often undertaken as part of a diversified livelihood strategy, at times of need and away from home, and such activities are difficult to capture reliably in survey questions. As a result, significant portions of fish catches are often under-reported and the true value of the sector to society is often invisible.

15. Assessing the status of individual fisheries may provide a clearer picture of how well the world's inland fisheries are managed, as well as their health or status. One possible way to derive an aggregate picture of the state of the world's inland fisheries resources is to review the state of major inland fishery basins. If these are tracked over time, it should be possible to see the trend in the number of basins across a number of fishery-relevant indicators (e.g. environmental drivers and fisheries production).

16. Within a country, inland fisheries take place across a wide range of resources and areas and gains in one type of fishery may be offset by losses in another (e.g. declining river and floodplain fisheries production may be balanced or even outweighed by increasing production from stocked waterbodies). This requires monitoring across a range of waterbody and fishery types.

CONCLUSION

17. Without effective fishery catch estimates and routine stock assessments, it is impossible to determine whether fish populations are overexploited or, potentially, underexploited relative to their ability to support sustainable yields. Development of monitoring and assessment capacity remains a pressing need for marine fishery management in the Asian region and an important requirement for supporting inland capture fishery management in many water bodies.

18. FAO places a high priority on building capacity in these regions and is collaborating with multiple partners and countries to improve assessment of marine fisheries in the region. With improving regional cooperation there is greater understanding of the urgency of managing marine and inland fisheries more effectively, but this will take time and requires the policy vision and investment to achieve results.

19. There is potential to develop a capacity building programme or initiatives through the sub-regional approaches of the FAO GEF projects within the APFIC region. Funding through projects and capacity building in cooperation with regional fishery organizations executing sub-regional projects and national fishery agencies would be a priority focus.

SUGGESTED ACTION BY THE COMMISSION

20. The Commission is invited to discuss the proposal for a capacity building in fishery assessment in marine and inland waters and indicate if this is of national interest.

21. Indicate the importance of improving the detail of reporting, especially reducing “nei” reports and also better understand the contributions of unmonitored small-scale fisheries.