Management strategies for new or lightly exploited fisheries

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Summary
Management strategies for new or lightly exploited fisheries allow for an improved enhancement of food security or long-term employment security, or export income in developing countries. These management practices are detailed through the methodologies used. Acknowledgement comments and the fact that the technology is an output from the Renewable Natural Resources Research strategy funded by the UK Department for International Development (DFID), is also highlighted.

Description
New or lightly exploited fisheries represent an invaluable opportunity for developing countries, either for enhancing food security or for securing long-term employment, or export income. However, there is usually very limited data available for these fisheries. Any assessment of the stocks will therefore be highly uncertain, and could lead to the stocks becoming overexploited before this can be detected in stock assessments.

1. Methodology
The methodology for the assessment of new or lightly exploited fisheries in developing countries accounts for uncertainty and makes statistical use of all available information, updating and refining it as more information is obtained from the fishery. Results obtained using this assessment method are also suitable for use in formal decision analyses, in which the risks associated with different potential fishery development strategies can be properly assessed. The results from the application of these methods indicate that effort controls can provide higher yields than catch controls (up to 40 percent greater in the Namibian orange roughy fishery), for the same level of risk of stock depletion. The project found that effort based management using Bayesian assessment techniques and incorporating suitable precautionary decision rules can lead to sound sustainable management of new or developing fisheries.

2. Stock assessment methodology
2.1 The development of a Bayesian stock assessment methodology
- It incorporates and integrates sparse data from diverse sources.
- It estimates resource abundance and its potential responses to exploitation as the fishery proceeds.
- It explicitly accounts for uncertainty in estimates of abundance and trends in abundance.
- It quantitatively evaluates the potential consequences of alternative fishing down policies.
• It provides precautionary fishery management advice so that total allowable catch options to be adopted have an acceptably low risk of depleting the resource below the msy level.
• It is sufficiently transparent, understandable and credible to the various parties to the fishery management system.

The methodology is outlined in the technical report by Mrag (1999) and by Mcalister and Kirkwood (1998a and 1998b), as well as in additional scientific publications cited below.

2.2 Policy requirements
A supportive policy environment is essential if management recommendations arising from application of the methodology are to be adopted.

3. Health and safety
The researchers, their institutions or this website cannot be held responsible for any damage resulting from the use of the materials or methods described here. The application or use of treatments, processes and technologies is the sole responsibility of the user.

3.1 DFID disclaimer
This technology is an output from the Renewable Natural Resources Research strategy funded by the UK Department for International Development (DFID), for the benefit of developing countries. The views expressed are not necessarily those of DFID.

3.2 Acknowledgements
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4. Further reading

4.1 e-Resources

For further information on the project, its publications, staff and collaborating organisations, see: www.fmsp.org.uk Select “Search Projects Database” Select “Project List” Select project “R6437”.

5. Objectives fulfilled by the project
5.1 Resource use efficiency
This technology prevents the overexploitation of stocks.
5.2 Pro-poor technology
This technology allows for enhanced food security and long-term employment and export income security. However, there is usually very limited data available for these fisheries.