
Sustainability Indicators in Marine Capture Fisheries

By

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Declaration

This thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the Thesis. To the best of my knowledge and belief, this thesis contains no material previously published or written by another person except where due acknowledgement is made in the text.

Tavis William Potts

20.3.2004

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Abstract

This thesis examines the development of sustainability indicator systems (SIS) as a tool to implement the concept of sustainability into fisheries management. This research focuses upon the identification and evolution of these systems, their application as a management tool, and their response to problems in fisheries sustainability. The thesis presents a series of ten case studies that outline differing approaches to developing SIS in marine capture fisheries. These national, regional and non-government case studies provide an opportunity to strategically assess and evaluate the use of SIS in fisheries management.

The United Nations Conference on Environment and Development in 1992 addressed sustainable development as a means to satisfy the needs of human societies within the constraints presented by natural systems. Over the last ten years, sustainable development has been adopted by local, regional, national, and international institutions and instruments. Implementing and operationalising the concept of sustainable development has, however provided significant challenges.

Marine capture fisheries witnessed rapid development in the second half of the 20th Century. As pressure increases on capture fisheries, it is important that measures are introduced to ensure sustainable use of such fisheries. These measures include methodologies and frameworks for the assessment and management of fisheries incorporating biological, environmental, economic and socio-political relationships – the core of sustainable development. This thesis examines the viability of sustainability indicators as a tool for assessing progress towards sustainability. Indicator systems have been implemented across a range of fisheries jurisdictions with varying degrees of success.

In assessing SIS in practice, several key components were distilled from the case studies and the assessment framework. The research demonstrates that SIS are used in national environmental reporting and fisheries specific systems across a range of legal and policy contexts, can link directly to the fisheries management process, and focus at the scale of fishery operations. Target species indicators are well advanced in SIS practice, ecosystem indicators are being rapidly developed and tested, and socio-economic and governance indicators require further progress. In terms of addressing sustainability outcomes, SIS are shown to facilitate scientific and policy coordination, increase transparency, accountability and co-management, increase the participation of environmental and non-government organisations, and provide the structure to implement ecosystem based management and precautionary approaches. While some SIS have been successful in developing measurement frameworks, criteria, objectives and indicators and adapting to specific policy contexts, further progress is required in developing reporting protocols, visualisation tools and aggregation methods.

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*If we could first know where we are, and
whither we are tending, we could better
judge what to do, and how to do it...*

- Abraham Lincoln

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