Well managed fisheries:
An annotated bibliography on best practices in fisheries management

Articles, reviews


Concise analysis of problems and some currently popular management approaches (ITQs, marine protected areas), and suggestions for the future. Concise review of recent literature. Existence of a competent management authority, a formally adopted management strategy with predefined rules for what to do in different circumstances, and incentives based on fishers’ rights are key to successful fisheries management.


Authoritative review of fisheries and fisheries management since the 1800s, including a chronological summary, a review of advances in assessment, management and control of fisheries, recent issues and concerns, and perspectives for management in the future. Among many useful suggestions the authors note the need for evaluation of the effectiveness and cost-effectiveness of existing management systems, note that management may increasingly be of “exploitation windows” in time and space, and point to the need to resolve issues in ecosystem management, conservation of marine biodiversity, and management of shared and straddling stocks.

Caddy, J. F. and J. C. Seijo. 2005. This is more difficult than we thought! the responsibility of scientists, managers and stakeholders to mitigate the unsustainability of marine fisheries. Phil. Trans. R. Soc. B 360: 59-75.

Identifies a number of issues needing attention based on recent fisheries management experience: the basic unpredictability of fishery systems, their instability under exploitation, the need to expand use of spatial management tools, the need for managers and stakeholders to absorb the lessons of science, the need to keep spawning biomass high. Concludes that conserving ecosystem values, conserving intergenerational equity, and exercising enlightened self-interest (in that order) should be our priorities; at present we are attempting to implement the last.


Summary of the many international agreements and conventions which have been placing new requirements on fishery management agencies for the past several decades. Although these have been motivated by real environmental problems and represent a positive contribution toward their solution, “collectively they form a large, often confusing and potentially overwhelming set of recommendations and requirements” putting fishery management agencies under severe pressure.

Review of issues and problems related to ecosystem aspects of fisheries management with synthetic diagnosis (scientific, management, socioeconomic aspects) and a series of conclusions and recommendations. Central conclusion is that reduction in fishing mortality is the most immediate ecosystem-based approach to sustaining fisheries; recommends adoption of an ecosystem-based approach aimed at rebuilding and sustaining populations, species, communities and ecosystems. Recommendations are provided in 8 areas related to the book’s theme.


Author’s summary of conclusions from the case studies and papers in a compilation on successful fisheries management. Includes a concise summary of key factors for success in fisheries management, although the need to respect biological limits is not mentioned.


Title is misleading: this is a review of fisheries science methods concluding with a discussion of their limits and a plea for emphasizing institutional, participatory and social aspects of management. The review of fisheries science does not show strong understanding of the approaches and should be read critically.


Good recent analysis of the problems of conflicting objectives and suggestions for resolving these, although not as much detail is provided on defining success.


Proposes that success be defined relative to biological, economic, social and political objectives; summarises 6 elements of success (based on FAO “unsustainability” workshops) and some tools for sustainable management; suggests that the path toward sustainability will be different for wealthy countries with strong central governments, for small-scale fisheries in countries without strong central governments, and for international fisheries. An overall conclusion is that proven tools exist but that these can only be applied when governance is strong.


Based on definitions of economic success (“indications of profitability such as high values placed on licences or other forms of access privilege”) and failure (“wide-spread concern or government assistance to struggling fishermen”), examples of failures and successes in fisheries management are provided. Biological failure (“stock has been reduced to very low levels, at which long-term yield is much lower than possible”) is also defined. Concludes that the incentive structure is central, although a sound incentive structure is not necessarily sufficient for good management. Identifies the need for evaluation of biological and economic successes and failures in fisheries management.

Famous paper, dated but well worth reading if only to recollect Larkin’s unmatched English style and clarity of thought. Farsighted in identifying biological issues other than MSY for management to deal with.


Comprehensive background on operations of RFMOs and a summary of recommended best practices for conservation and management of fish stocks. The summary is very long (12 pp), comprehensive and general, and more based on theory than on current practice; probably of limited usefulness for practical fisheries management.


Comprehensive, authoritative overview of state of fisheries management and science in the mid-1990s; introductory article to Proceedings of the 2nd World Fisheries Congress. Becoming dated but very useful summary.


The fourth Larkin lecture at University of British Columbia refers back to Larkin (1977) and argues for MSY as a limit rather than a target. The overall conclusion is that levels of fishing effort must be reduced substantially to achieve sustainable fisheries.


Argues that single-species management has not really been practiced, and that actually implementing it would take us a long way to achieving success in fisheries management.


Despite the suggested focus in the title this paper is broadly applicable to fisheries management. It contrasts “stock assessment driven” with “management objective driven” approaches to fisheries management, suggesting that the latter will be more successful. As with Stephenson and Lane (1995) the paper calls for a focus on management rather than on a specific aspect such as biology.

An rare example of a paper explicitly addressing what is “well-managed” and arguing for measurement criteria to judge success or failure of fisheries management. Nice list of criteria for judging fisheries management in an inshore fishery, focusing on biological (target species) and institutional dimensions.


Brief summary of operations of RFMOs and some recommendations for implementing ecosystem-based management and the precautionary approach, noting that measures have been widely identified but little implemented. Does not explicitly deal with best practices and practical implementation.


Argues that a major reason for fisheries resource crises is the lack of an institutionalised evaluation procedure and the lack of capacity for systemic learning. Suggests a simple evaluation framework for fisheries management based on a simple model of how fisheries work. Under this model flaws can be categorised (and evaluation standards devised) in four areas: diagnostics, intervention, objectives, and policy making. A thought-provoking and potentially valuable paper in leading to successful fisheries management.


Assessment of DFO’s performance on conservation based on 12 case studies, concluding with an identification of key issues and recommendations for addressing these. Overall the assessment is negative and cases may have been chosen to illustrate problems (demonstrable successes, of which there are some in this region, are not included). However some positive achievements are identified and the focus on case studies and ways forward makes this a useful document for improving fisheries management.

SIFAR (Support Unit for International Fisheries and Aquatic Research) 2004. The nature of success in fisheries management. Good Management Practice in Sustainable Fisheries, Policy Brief 1, 4 pp. Available at http://www.onefish.org/servlet/CDSServlet?status=ND0yMTM1MTkmnj1FbiYzMs1kb2N1bWVudHMmMzc9a29Z

The first in a series of 15 policy briefs on successful fisheries management prepared for the World Bank by T. Bostock, P. Manning, S. Cunningham, A. Neiland and E. Bennett, this is an excellent short summary of what “success” in fisheries management means, highlighting the multi-dimensional nature of success (social, economic, biological and other issues). Other briefs in the series address institutional capacity, dealing with complexity and change, cooperation, resource rent, policy frameworks, and assessing and improving fisheries management performance. The focus is on non-biological aspects of fisheries management and biological aspects are not treated in detail. This series does not appear to be published other than on the “onefish” web site which is unfortunate given its overall quality.

Calls for greater focus on fisheries management science as a separate discipline from fisheries science, to integrate biological considerations with economic and social factors. Development of management objectives is essential, while modelling as in operational research might help in making decisions requiring tradeoffs between the various factors to be optimised.


Review of issues and a series of recommendations for fisheries management on the Pacific coast of Canada, emphasizing solutions to problems based on what has been found to work. Brief review of some successful fisheries on Canada’s Pacific coast. Ten recommendations for sustainable fisheries management are accompanied by examples of successful implementation of each from different parts of the world.


Brief review of experience with adaptive management, ie using new management approaches as an experient and adapting based on results. The conclusion is that this approach has not generally succeeded, primarily because of lack of resources to carry out experiments, lack of will to make changes, and lack of leadership.

Compilations


Papers on a wide range of topics from a symposium.


Collection of authored papers on aspects of ITQs including general perspectives, implementation practices and issues.


Collection of authored papers in a peer-reviewed journal on aspects of ecosystem-based management: marine protected areas (Browman and Stergiou), the “ecoscope” (Cury) as an approach to ecosystem-based management, incentive-based approaches (Hilborn), the ecosystem approach to fisheries (Jennings), shifting perspective after repetitive depletions and mismanagement (Lotze), a defence of existing approaches in confronting real problems (Mace), implementing an ecosystem approach to fisheries (Sissenwine and Muraswki), and new policy directions (Zeller and Pauly).

Series of authored papers emphasizing social sciences aspects of fisheries management. Sections on social dimensions of fisheries policy, alternative property rights systems, social institutions and fisheries management, local and regional dimensions of fisheries policy, fisheries in a global food system.


Authored papers on aspects of fisheries management with an introduction by the editor (Cochrane) outlining general principles and objectives of fisheries management, largely based on FAO manuals and references. Chapters on regulation of fishing gear (Bjordal), area and time restrictions (Hall), management of catch and effort (Pope), use of scientific information (Cochrane), use rights (Charles), partnerships (Pinkerton), monitoring control and surveillance (Bergh and Davies) and design and implementation of management plans (Die).


Compilation of a wide range of case studies of successfully managed fisheries: Pacific halibut, Mauritanian Fish Trading Company, co-management in Shetland, community-based management in India, self regulation in Sénégal, Namibian hake, Australian northern prawn plus a literature review on success in fisheries management and a concluding summary. Criteria for selecting “successful” fisheries not clear but much useful information and experience summarized.


The first of three FAO workshops on unsustainability in fisheries. The report identifies factors of unsustainability: inappropriate incentives, high demand for limited resources, poverty and lack of alternatives, complexity and inadequate knowledge, lack of governance, interactions of the fishery sector with other sectors and with the environment. Measures to be taken to address these factors of unsustainability are also outlined.


The second of the three FAO “unsustainability” workshops examined case studies (included) of four types of fisheries (large volume small pelagics, tuna and tuna-like species, large volume demersals, coastal fisheries) and draws conclusions on why management fails. Good governance, secure tenure rights, capacity building and sharing of knowledge, a blend of a conservation perspective and a social and economic perspective, further progress on implementing international instruments, and maintaining the will to make management decisions are significant in addressing unsustainability. Recommendations for managing each of the fishery types examined are provided.

The third of three FAO “unsustainability” workshops examined a series of discussion papers (included) on various themes related to sustainability of fisheries. Building on the earlier identification of factors of unsustainability and approaches to addressing these, the workshop came to several overall conclusions. Overcoming transition costs to improve sustainability is a key barrier and must be addressed; making improvements on one dimension of sustainability can lead to costs on another; fisheries management should be flexible and responsive to respond to the inevitable changes; management options (including the exact form of rights allocation) are highly case-specific; participatory decision-making, although desirable, can impede rapid decision-making, so agreed control rules are important.


Collection of authored papers mainly on political and governance aspects of fisheries management emphasizing European countries. The initial chapter (“Fishing: a Defence of Politics” by T. S. Gray) is a good summary of the problems of fisheries management from a political point of view.


Collection of authored papers on participatory fisheries governance, including case studies from specific areas (see Case Studies) and summary articles (theory; role of NGOs, the media, science; issues related to science and local ecological knowledge; summary including three central themes).


Collection of authored chapters emphasizing the institutional and participatory aspects of fisheries management, with an introduction (Defeo et al. cited elsewhere) and a concluding chapter summarizing recommendations and ways forward (McClanahan and Castilla, “Healing Fisheries”). Most of the book is devoted to descriptions of management initiatives and arrangements in specific small- and medium-scale fisheries (see “Case studies”).


A collection of papers on fisheries management issues in Canada (companion to Parsons 1993), covering historical aspects, management of specific fisheries (see “Case Studies”), Arctic fisheries, fish habitat, aquaculture, straddling stocks, scientific advice, policy development.


A collection of papers from a symposium.

Papers on a wide range of topics from a symposium.


Collection of authored papers on ecosystem aspects of fisheries management from the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem (2001). Includes an introductory section of reviews on fishery management and ecosystems, sections on dynamics of marine ecosystems, on impacts of fisheries on marine ecosystems, and on incorporating ecosystem considerations in fisheries management. State of the art reference on this topic; more useful than most collections of symposium papers because the chapters were solicited and are in a somewhat consistent format.

Case studies


Individually authored case studies of Pacific halibut, Mauritanian Fish Trading Company, co-management in Shetland, community-based management in India, self regulation in Sénégal, Namibian hake, Australian northern prawn.


The second of the three FAO "unsustainability" workshops examined case studies (included in the volume) of four types of fisheries: large volume small pelagics (southeast Atlantic, Chile), tuna and tuna-like species (overviews of biology and management), large volume demersals (British Columbian rockfish trawl, north Atlantic, Gulf of Thailand) and coastal fisheries (Italy, west Africa, general developing countries). Inevitably the case studies are in somewhat inconsistent formats but many interesting lessons are included. General conclusions and recommendations both for the specific fishery types and overall are provided in the report.


Collection of authored papers on participatory fisheries governance, including case studies on governance in the North Sea, in the EU, in Dutch beam trawl fisheries, in the New England groundfish fishery, in inshore fisheries of England and Wales, in fisheries science in Canada.

Individually authored chapters on issues and achievements in management of small-scale and artisanal fisheries (marine benthic invertebrates in Chile; sea urchin in Chile; commercial dive fisheries in Argentine Patagonia; coastal areas in the Philippines; marine and estuarine subsistence fisheries in South Africa; Tanga, northern Tanzania; Kenyan coral reef fisheries; marine hunting on the Great Barrier Reef) and meso-scale fisheries (Australia’s northern prawn fishery; western rock lobster in Australia; hoki, New Zealand; community-based fisheries in the Canadian Maritimes).


Individually authored case studies on management of lobster, Atlantic herring, Atlantic salmon, Gulf of St. Lawrence snow crab, Pacific salmon, British Columbia herring.


Brief (3-4 pp) descriptions of 12 cases in relation to 8 “core challenges” to effectiveness of DFO: groundfish/rockfish conservation areas policy; sablefish quota fishery; Rivers Inlet/Smith Inlet sockeye fishery; Cultus Lake/Sakinaw Lake sockeye; west coast of Vancouver Island Aquatic Management Board; Georgia Strait coho salmon; establishment of Oceans Act Marine Protected Areas; salmon aquaculture – sea lice research; Okanagan First Nation – Skaha Lake cooperative effort; salmonid enhancement; sea cucumber; freshwater habitat.

**Certification schemes**


Comprehensive information on the principal eco-labelling scheme currently active.


A general summary of certification and eco-labelling schemes in the context of ISO certification and international trade regulation mechanisms, and a description of the Marine Stewardship Council certification scheme and current issues with that scheme.


One of several “simple” consumer information schemes, categorizing specific products as “red” (avoid), “yellow” (some concerns), or “green” (best choice). Criteria used to categorize products are not easy to find on the site but are the same as for the Monterey Bay Aquarium “Seafood Watch” system. Assessments of some species or groups are published on the site outlining the rationale for rating.
**Textbooks, manuals, monographs**


A strategic approach to fisheries management focusing on small-scale fisheries but with lessons for all fisheries. Summary of key concepts; sections on planning and objectives, information, the fishery management process, community-based approaches to management. Clearly written and oriented toward management, provides detailed guidance in a number of areas.


A handbook aimed at providing information, raising awareness and providing encouragement for community-based fisheries management, with an intended audience including fish harvesters, community groups, First Nations, aboriginal organizations, fisheries managers, government managers and scientists. Sections on concepts in community-based fisheries management and on specific management activities such as access arrangements, planning, research, harvest management, compliance and enforcement, organizational development, managing conflict, policy development.


A concise, well-organized text mainly of historical interest now but with many timeless insights. Includes sections on the problem of fishery management, the biological basis of management, objectives of management, and techniques of management, as well as two case studies (Antarctic whaling, North Atlantic trawl fisheries) and notes on international fisheries management. Emphasis on biological aspects.


Comprehensive text on topic in title, good source book on fish biodiversity issues, international and national initiatives. Lack of differentiation between marine and freshwater systems makes use somewhat difficult.


Basic textbook emphasizing biological issues (ecology and ecosystems, species biology, fishing and fishers, stock assessment) and with a final chapter on fisheries management including the management process and actions, involving stakeholders, controls to protect ecosystems, compliance and enforcement.

Dated but fairly comprehensive text consisting of authored chapters on characteristics of fisheries, principles of management, and management of fisheries in specific ecosystems (lakes, streams, coastal areas, oceans). Chapter on “Objectives of Management” (Larkin) comes in the middle and includes an interesting discussion of the need to move from an MSY approach to considering multiple objectives and options. Emphasis on biological aspects but with chapters on the human dimension, systems principles, planning and policy, fisheries economics.


A comprehensive review of fisheries management in Canada to the early 1990s with considerable material on fisheries management more generally and numerous examples of fisheries management in action. Sections on objectives, techniques, fishery science, managing common property, international dimensions and fisheries management in countries other than Canada, habitat management, science and fisheries management, enforcement.


A handbook for those wishing to implement co-management approaches to fishery management, with a focus on community-based management in developing countries but good insights for management work with fisheries communities everywhere. Sections on techniques for working with communities, community organization, participatory research, education and capacity development, developing and implementing co-management plans, conflict management.


Emphasis on the biological aspects of fisheries management, with an introduction on objectives and tradeoffs which includes some consideration of economic, social and institutional issues. Sections on concepts in population dynamics and harvest regulation, single-species models, modelling spatial patterns, food web monitoring to assess ecological impacts, strategies for ecosystem management.