

---

# Marine Fisheries Stock Assessment Improvement Plan

---

Improving Fish Stock Assessments

Improving the Management of U.S. Marine Fisheries

Stock Assessment Activities Within the National Marine Fisheries Service

U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2010

An Assessment of Atlantic Bluefin Tuna

Fish Stock Assessments

Proceedings of the Seventh NMFS National Stock Assessment Workshop

Quantitative Fisheries Stock Assessment

Stock Assessment

Improving the Use of the "Best Scientific Information Available" Standard in Fisheries Management

Evaluation and Improvement of Fisheries Stock Assessment, from Data Collection to Modeling

Living Marine Resources

The status of marine fishery stock assessments in the Asian region and the potential for a network of practitioners

Review of Northeast Fishery Stock Assessments

Habitat Assessment Prioritization for Alaska Stocks

U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2010

U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments

Improving Fish Stock Assessments

Science and Its Role in the National Marine Fisheries Service

A Requirements Plan for Improving the Understanding of the Status of U.S. Protected Marine Species

US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2015

Marine Protected Areas

Review of the Marine Recreational Information Program

Ecosystem-Based Fisheries Management

Robust Methods for the Analysis of Images and Videos for Fisheries Stock Assessment

Operations Research and Management in Fishing

Pacific Groundfish

Stock Assessment

Marine Fisheries Stock Assessment Improvement Plan

National Marine Fisheries Service

MARINE FISHERIES STOCK ASSESSMENT IMPROVEMENT PLAN... U.S. DEPARTMENT OF COMMERCE... OCTOBER 2001

Improving the Collection, Management, and Use of Marine Fisheries Data

The Future of Fisheries Science in North America

Global Atlas of Marine Fisheries

Data-limited Research in Stock Assessment to Increase the Understanding of Fisheries Resources and Inform and Improve Management Efforts  
Stock Assessment for Fishery Management  
Quantitative Fish Dynamics  
Sustaining Marine Fisheries  
Estimating Natural Mortality in Stock Assessment Applications  
Recruiting Fishery Scientists

*Marine Fisheries Stock  
Assessment  
Improvement Plan*

*Downloaded from  
[archive.imba.com](http://archive.imba.com) by  
guest*

---

## **BRENNAN LAMBERT**

---

### **Improving Fish Stock Assessments**

National Academies Press

"Under the 1994 amendments of the Marine Mammal Protection Act (MMPA), the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) were required to generate stock assessment reports (SAR) for all marine mammal stocks in waters within the U.S. Exclusive Economic Zone (EEZ). The first reports for the Atlantic (includes the Gulf of Mexico) were published in July 1995 (Blaylock et al. 1995). The MMPA requires NMFS and USFWS to review these reports annually for strategic stocks of marine mammals and at least every 3 years for stocks determined to be non-strategic. The second edition of the SARs (1996 assessments) was published in October 1997 and contained all the previous reports, but major revisions and updating were only completed for strategic stocks (Waring et al. 1997). In subsequent annual reports, including this current 2010 edition, updated reports are indicated by the corresponding year date-stamp at the top right corner of the report and are included in the main body of the document. Stock assessments not updated in the current year are included, in full, in an appendix. Also included in

this report as appendices are; 1) a summary of serious injury/mortality estimates of marine mammals in observed U.S. fisheries (Appendix I), 2) a summary of NMFS records of large whale/human interactions examined for this assessment (Appendix II), 3) detailed fisheries information (Appendix III), 4) summary tables of abundance estimates generated over recent years and the surveys from which they are derived (Appendix IV), and 5) the first revision of the USFWS West Indian manatee assessments since 1995 (Appendix VI). Table 1 contains a summary, by species, of the information included in the stock assessments, and also indicates those that have been revised since the 2009 publication. A total of 21 of the Atlantic and Gulf of Mexico stock assessment reports were revised for 2010 ... The revised and new SARs include 18 strategic and 12 non-strategic stocks. This report was prepared by staff of the Northeast Fisheries Science Center (NEFSC) and Southeast Fisheries Science Center (SEFSC). NMFS staff presented the reports at the February 2010 meeting of the Atlantic Scientific Review Group (ASRG), and subsequent revisions were based on their contributions and constructive criticism. This is a working document and individual stock assessment reports will be updated as new information becomes available and as changes to marine mammal stocks and fisheries occur. The authors solicit

any new information or comments which would improve future stock assessment reports"--Executive summary.

**Improving the Management of U.S. Marine Fisheries** National Academies Press

Over eleven years have passed since the last NATO sponsored meeting on Fishing which took the form of a Conference held in Trondheim in 1979. The proceedings contained in this book consist of papers presented in support of an Advanced Study Institute on Operations Research and Management in Fishing held at P6voa de Varzim, Portugal from March 25 to April 7 1990. It was originally intended to use the five themes, Production Functions and Management; Marine Fish Stocks; Fisheries Models; Fish Farming and Miscellaneous. There were no contributions on Fish Processing and the Fish Farming papers were not original. It was also decided to group the papers on Fisheries Models and Marine Fish Stocks together which means the proceedings has four headings: - Opening Session - Production Functions and Management - Marine Fish Stocks and Fisheries Models - Miscellaneous The contributions give a broad and complete overview of historical approaches and of recent trends on research in different sectors of fisheries. Criteria for quota distribution and schemes based on conclusions drawn from models and methods are presented. Surveillance methods are described in relation to species conservation and catch improvement. Different levels of regulatory enforcement are discussed and the implications of new technologies are introduced. Applications of Expert Systems to stock assessment and efficiency improvement in field sampling are presented. Models for fleet dispatch

planning and fleet structure appraisal are introduced and procedures for operational capacity evaluation of fishery harbours are considered.

**Stock Assessment Activities Within the National Marine Fisheries Service** Springer Science & Business Media

This book really began in 1980 with our first microcomputer, an Apple II +. The great value of the Apple II + was that we could take the computer programs we had been building on mainframe and mini-computers, and make them available to the many fisheries biologists who also had Apple II + 's. About 6 months after we got our first Apple, John Glaister came through Vancouver and saw what we were doing and realized that his agency (New South Wales State Fisheries) had the same equipment and could run the same programs. John organized a training course in Australia where we showed about 25 Australian fisheries biologists how to use microcomputers to do many standard fisheries analyses. In the process of organizing this and subsequent courses we developed a series of lecture notes. Over the last 10 years these notes have evolved into the chapters of this book. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2010* National Academies Press

This publication contains guidelines for fish stock assessment and fishery management using the software tools and other outputs developed by the UK Department for International Development's Fisheries Management Science Programme (FMSP) from 1992 to 2004. It includes a CD-ROM with the installation files for each of the four FMSP software tools: LFDA (Length Frequency Data Analysis), CEDA (Catch Effort Data Analysis), YIELD and ParFish

(Participatory Fisheries Stock Assessment).

**An Assessment of Atlantic Bluefin Tuna** National Academies Press

The National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA) is responsible for collecting information on marine recreational angling. It does so principally through the Marine Recreational Information Program (MRIP), a survey program that consists of an in-person survey at fishing access sites and a mail survey, in addition to other complementary or alternative surveys. Data collected from anglers through MRIP supply fisheries managers with essential information for assessing fish stocks. In 2006, the National Research Council provided an evaluation of MRIP's predecessor, the Marine Recreational Fisheries Statistics Survey (MRFSS). That review, *Review of Recreational Fisheries Survey Methods*, presented conclusions and recommendations in six categories: sampling issues; statistical estimation issues; human dimensions; program management and support; communication and outreach; and general recommendations. After spending nearly a decade addressing the recommendations, NMFS requested another evaluation of its modified survey program (MRIP). This report, the result of that evaluation, serves as a 10-year progress report. It recognizes the progress that NMFS has made, including major improvements in the statistical soundness of its survey designs, and also highlights some remaining challenges and provides recommendations for addressing them. *Fish Stock Assessments* National Academies Press

Living Marine Resources provides a

thorough, up-to-date introduction to all aspects of fisheries science. This clearly written text offers insight into a topic of increasing importance--the wise utilization and management of sea fisheries to maximize production without exceeding their carrying capacity. Adoption of the approaches presented will improve the conservation and management of the many world fisheries that are suffering from years of inefficient practices. The book is divided into five sections, beginning with an introduction to the ocean environment and the various resource species. Part two examines fisheries biology, including age, growth, fecundity, and mortality, enabling readers to appreciate yield models designed to give estimates of maximum sustainable yield and maximum economic yield. The third part covers gear, methods, and landings and includes material on the handling and processing of seafood as well as aquaculture. In part four, yield models are presented to introduce students to theories on population dynamics, stock assessment, and management. The book concludes with coverage of recreational fisheries, including socioeconomic importance, catch and effort research, management techniques, and their interface with commercial fisheries. *Living Marine Resources* is an invaluable introduction to the subject for advanced undergraduate and graduate students of fisheries science. In addition, the material presented will be valuable to fishery and social scientists, fishery officers and administrators, and students in biology, engineering, economics, and law.

**Proceedings of the Seventh NMFS National Stock Assessment Workshop** Springer Science & Business Media

Fluctuations and declines in marine fish populations have caused growing concern among marine scientists, fisheries managers, commercial and recreational fishers, and the public. *Sustaining Marine Fisheries* explores the nature of marine ecosystems and the complex interacting factors that shape their productivity. The book documents the condition of marine fisheries today, highlighting species and geographic areas that are under particular stress. Challenges to achieving sustainability are discussed, and shortcomings of existing fisheries management and regulation are examined. The volume calls for fisheries management to adopt a broader ecosystem perspective that encompasses all relevant environmental and human influences. *Sustaining Marine Fisheries* offers new approaches to building workable fisheries management institutions, improving scientific data, and developing management tools. The book recommends ways to change current practices that encourage overexploitation of fish resources. It will be of special interest to marine policymakers and ecologists, fisheries regulators and managers, fisheries scientists and marine ecologists, fishers, and concerned individuals.

Quantitative Fisheries Stock Assessment  
DIANE Publishing

Responsible fisheries management is of increasing interest to the scientific community, resource managers, policy makers, stakeholders and the general public. Focusing solely on managing one species of fish stock at a time has become less of a viable option in addressing the problem. Incorporating more holistic considerations into fisheries management by addressing the trade-offs among the range of issues involved, such as ecological principles,

legal mandates and the interests of stakeholders, will hopefully challenge and shift the perception that doing ecosystem-based fisheries management is unfeasible. Demonstrating that EBFM is in fact feasible will have widespread impact, both in US and international waters. Using case studies, underlying philosophies and analytical approaches, this book brings together a range of interdisciplinary topics surrounding EBFM and considers these simultaneously, with an aim to provide tools for successful implementation and to further the debate on EBFM, ultimately hoping to foster enhanced living marine resource management.

Stock Assessment National Academy Press

The fields of fish population dynamics and stock assessment have seen major advances in the 1980s and 1990s, creating the need for a new synthesis. This text attempts that synthesis by presenting a contemporary approach for quantitative fisheries science that incorporates modern statistical and mathematical techniques. It emphasizes the link between biology and theory by explaining the assumptions inherent in the quantitative methods and models. The book covers key topics that are often overlooked in other texts, such as optimal harvesting, migratory stocks, and complex age and size-structured models. *Quantitative Fish Dynamics* is an ideal textbook for graduate and undergraduate courses in fish population dynamics and stock assessment. It is an indispensable reference work for fisheries scientists and others interested in conservation biology, fish and wildlife management, population ecology, and statistical applications.

**Improving the Use of the "Best Scientific Information Available"**

## Standard in Fisheries Management

Island Press

The significance of habitat to sustainable management of the Nation's fisheries was acknowledged by the U.S. Congress in 1996. The Magnuson-Stevens Fishery Conservation and Management Act was amended by the Sustainable Fisheries Act of 1996 to include provisions for defining Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity", applicable to all federally managed species and all of their life-history stages. The sheer magnitude of the EFH mandate and the general absence of dedicated funding prompted the agency to produce the Habitat Assessment Improvement Plan (HAIP) for marine fisheries. The HAIP had multiple objectives including the improvement and prioritization of habitat-science research activities related to stock assessments and EFH definitions. One of the key recommendations in the HAIP is that NMFS should develop criteria to prioritize stocks and geographic locations that would benefit from habitat assessments, meaning the process and products associated with consolidating, analyzing, and reporting the best available information on habitat characteristics relative to the population dynamics of fishery species and other living marine resources. This prompted formation of the national Habitat Assessment Prioritization Working Group (HAPWG) in 2011. The HAPWG developed national guidance for objectively scoring managed species/stocks on a standard set of rubrics. The prioritization process involved a sequential set of filters and scorable criteria intended to identify high, medium, and low priority stocks for future habitat assessments, both in

terms of value to EFH designations and to address habitat-related uncertainty in stock assessments. A coordination team representing the Alaska Fisheries Science Center, the Alaska Regional Office, and the NMFS Office of Science and Technology adapted the generic prioritization process to the specific circumstances in the Alaska Region, assembled data and references to support online scoring, and arranged for the lead stock assessment authors to score their stock(s) from among the assembled list of managed stocks. As a result, a total of 69 stocks or stock complexes were individually evaluated by the stock-assessment authors including six crab stocks and one rockfish complex that are managed by the State of Alaska and three non-target species that were added at the request of the NPFMC Groundfish Plan Team. Fourteen stocks each in the stock assessment and EFH themes were identified as high priorities for habitat assessments, based on predetermined scoring thresholds for the Alaska Region. Overall, 17 different stocks were given high-priority status in one or the other theme and 11 stocks were prioritized in both themes. Upon completion, an internal review was conducted to assess the process and develop recommendations for future habitat-prioritization exercises.

[doi:10.7289/V5/TM-AFSC-361

(<https://doi.org/10.7289/V5/TM-AFSC-361> )]

Evaluation and Improvement of Fisheries Stock Assessment, from Data Collection to Modeling CRC Press

The National Marine Fisheries Service (NMFS) is responsible for the stewardship of the nation's living marine resources and their habitat. As part of this charge, NMFS conducts stock

assessments of the abundance and composition of fish stocks in several bodies of water. At present, stock assessments rely heavily on human data-gathering and analysis. Automatic means of fish stock assessments are appealing because they offer the potential to improve efficiency and reduce human workload and perhaps develop higher-fidelity measurements. The use of images and video, when accompanied by appropriate statistical analyses of the inferred data, is of increasing importance for estimating the abundance of species and their age distributions. "Robust Methods for the Analysis of Images and Videos for Fisheries Stock Assessment" is the summary of a workshop convened by the National Research Council Committee on Applied and Theoretical Statistics to discuss analysis techniques for images and videos for fisheries stock assessment. Experts from diverse communities shared perspective about the most efficient path toward improved automation of visual information and discussed both near-term and long-term goals that can be achieved through research and development efforts. This report is a record of the presentations and discussions of this event.

Living Marine Resources National Academies Press

Because marine mammals (MM), such as whales and dolphins, often inhabit waters where commercial fishing occurs, they can become entangled in fishing gear, which may injure or kill them -- this is referred to as "incidental take." The MM Protection Act (MMPA) requires the Nat. Marine Fish. Serv. (NMFS) to establish take reduction teams for certain MM to develop measures to reduce their incidental takes. This report determines the extent to which NMFS:

(1) can identify the MM stocks that meet the MMPA's requirements for establishing such teams; (2) has established teams for those stocks that meet the requirements; (3) has met the MMPA's deadlines for the teams subject to them; and (4) evaluates the effectiveness of take reduction regulations.

The status of marine fishery stock assessments in the Asian region and the potential for a network of practitioners Cambridge University Press

Although the ocean and the resources within seem limitless, there is clear evidence that human impacts such as overfishing, habitat destruction, and pollution disrupt marine ecosystems and threaten the long-term productivity of the seas. Declining yields in many fisheries and decay of treasured marine habitats, such as coral reefs, has heightened interest in establishing a comprehensive system of marine protected areas (MPAs)-areas designated for special protection to enhance the management of marine resources. Therefore, there is an urgent need to evaluate how MPAs can be employed in the United States and internationally as tools to support specific conservation needs of marine and coastal waters. Marine Protected Areas compares conventional management of marine resources with proposals to augment these management strategies with a system of protected areas. The volume argues that implementation of MPAs should be incremental and adaptive, through the design of areas not only to conserve resources, but also to help us learn how to manage marine species more effectively.

Review of Northeast Fishery Stock Assessments National Academies Press  
The plan provided here is designed to

provide the basis for improving NOAA Fisheries' protected species stock assessment.

**Habitat Assessment Prioritization for Alaska Stocks** Food & Agriculture Org.

"Under the 1994 amendments of the Marine Mammal Protection Act (MMPA), the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) were required to generate stock assessment reports (SAR) for all marine mammal stocks in waters within the U.S. Exclusive Economic Zone (EEZ). The first reports for the Atlantic (includes the Gulf of Mexico) were published in July 1995 (Blaylock et al. 1995). The MMPA requires NMFS and USFWS to review these reports annually for strategic stocks of marine mammals and at least every 3 years for stocks determined to be non-strategic. The second edition of the SARs (1996 assessments) was published in October 1997 and contained all the previous reports, but major revisions and updating were only completed for strategic stocks (Waring et al. 1997). In subsequent annual reports, including this current 2010 edition, updated reports are indicated by the corresponding year date-stamp at the top right corner of the report and are included in the main body of the document. Stock assessments not updated in the current year are included, in full, in an appendix. Also included in this report as appendices are; 1) a summary of serious injury/mortality estimates of marine mammals in observed U.S. fisheries (Appendix I), 2) a summary of NMFS records of large whale/human interactions examined for this assessment (Appendix II), 3) detailed fisheries information (Appendix III), 4) summary tables of abundance

estimates generated over recent years and the surveys from which they are derived (Appendix IV), and 5) the first revision of the USFWS West Indian manatee assessments since 1995 (Appendix VI). Table 1 contains a summary, by species, of the information included in the stock assessments, and also indicates those that have been revised since the 2009 publication. A total of 21 of the Atlantic and Gulf of Mexico stock assessment reports were revised for 2010 ... The revised and new SARs include 18 strategic and 12 non-strategic stocks. This report was prepared by staff of the Northeast Fisheries Science Center (NEFSC) and Southeast Fisheries Science Center (SEFSC). NMFS staff presented the reports at the February 2010 meeting of the Atlantic Scientific Review Group (ASRG), and subsequent revisions were based on their contributions and constructive criticism. This is a working document and individual stock assessment reports will be updated as new information becomes available and as changes to marine mammal stocks and fisheries occur. The authors solicit any new information or comments which would improve future stock assessment reports"--Executive summary.

**U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments**

- **2010** National Academies Press  
The collapse of cod, flounder, and haddock fish stocks in the Northeast United States has caused widespread concern among managers and fishers in the United States and Canada. The diminishing stocks have forced managers to take strict regulatory measures. Numerous questions have been raised about the adequacy of stock assessment science used to evaluate the status of these stocks and the



appropriateness of the management measures taken. Based on these concerns, Congress mandated that a scientific review of the methodology and data used to evaluate these stocks be conducted. In this volume, the committee concludes that although there are improvements to be made in data collection, modeling uncertainty, and communicating between fishers, managers, and scientists, the scientific methods used in the Northeast stock assessments are sound.

Recommendations are made on how the stock assessment process can be improved.

U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments Frontiers Media SA

Congress has promoted fisheries science for over a century and its involvement in fisheries management took a great leap forward with passage of the Fisheries Conservation and Management Act of 1976. In the past decade, Congress has requested advice from the National Research Council (NRC) on both national issues (e.g., individual fishing quotas and community development quotas) and the assessments related to specific fisheries (Northeast groundfish). This report was produced, in part, in response to another congressional request, this time related to the assessments of the summer flounder stocks along the East Coast of the United States. Following the initial request, the NRC, National Marine Fisheries Service (NMFS), and congressional staff agreed to broaden the study into a more comprehensive review of marine fisheries data collection, management, and use.

**Improving Fish Stock Assessments** National Academies Press

The global fisheries sector in 2023 is now appreciably different compared to

that of the 1970s, as are the dominant fish stocks that comprise most of the current global landings, their location and modes of their exploitation. The fisheries of South and Southeast Asia have also changed over this period and alongside their changing nature, there has been the continuous evolution of the tools and the requirements for calculating and presenting global sustainability information. This has transformed ability to assess fish stocks, use data-poor methodologies, assess multispecies fisheries and also take into account some of the complex interactions between target and non-target species and related ecosystem effects. The countries of the South and Southeast Asia region have not reported the status of stocks in a comprehensive manner to FAO and there is a need to understand how to access existing information and also build capacity to assess the fisheries of the region using appropriate tools. This review provides thematic papers on stock assessment approaches and their application to the region. The country analysis describes the data sources and assessment methods currently being applied in national fishery management areas and in smaller regions. The review contains recommendations on the needs for capacity building and how improved regional networking can provide support to the greater understanding and application of new or improved methods of stock assessment in the region.

**Science and Its Role in the National Marine Fisheries Service** National Academies Press

NMFS has a difficult and complex task in managing U.S. marine fisheries. Despite some successes, too many stocks continue to decline. Over the past decade, several problems have been

identified that have contributed to the current dissatisfaction with how marine fisheries are managed. This dissatisfaction is evident from the large number of lawsuits filed by the fishing industry and environmental organizations. One central problem is overfishing. Overfishing issues have been discussed in a series of NRC reports, and these reports identify overcapitalization, and technological and gear improvements as some of the causes. The reports recommend ways to stem these problems and to advance the practice of fishery science at NMFS. This report reiterates some of these recommendations, and makes new recommendations to enhance the use of data and science for fisheries management.

*A Requirements Plan for Improving the Understanding of the Status of U.S.*

*Protected Marine Species* National Academies Press

*Stock Assessment: Quantitative Methods and Applications for Small Scale Fisheries* is a book about stock assessment as it is practiced. It focuses

on applications for small scale or artisanal fisheries in developing countries, however it is not limited in applicability to tropical waters and should also be considered a resource for students of temperate fishery management problems. It incorporates a careful sample design, various mathematical models as a basis for predicting consequences for stock exploitation, and discusses the impact of exploitation on non-targeted species. This was a unique concept involving a collaborative effort between U.S. and host country scientists to address issues of regional and global concern through innovative research. Unlike other books on stock assessment that show mathematical models, this is the only book of its kind that discusses how an assessment is carried out. It looks at the field as a whole and includes sampling, age determination and acoustics. The book represents the culmination of a nine-year program financed by the United States Agency for International Development to provide new or improved methods of stock assessment for artisanal fisheries.

Related with Marine Fisheries Stock Assessment Improvement Plan:

- Helpful Theorem In Math Nyt : [click here](#)