

Informing and improving stock assessments with marine habitat information

Churchill B. Grimes*, Stephen Ralston, John C. Field, Brian Wells, and Mary M. Yoklavich
SWFSC, Santa Cruz, CA

Habitat degradation and destruction have long been recognized as among the principal causes of declining marine fish stocks. However, it was not until the 1996 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act that NMFS was given statutory responsibility to incorporate habitat considerations into Fishery Management Plans. Since that time the use of habitat information by scientists to inform and improve stock assessments has proceeded at a slow pace. For this presentation we define habitat as the space in which any life stage of fish species live as defined by any relevant physical and biological variables. For example, pelagic habitat might be described by such variables as upwelling, Ekman transport, sea surface temperature, chlorophyll concentration, and ocean environmental indices (e.g. the Pacific Decadal Oscillation or El Niño-Southern Oscillation), and benthic habitat by substratum type (e.g. rock, clay, or reef), bottom temperature, depth, and vegetative cover (e.g. kelp or seagrass). Several species and habitat types will be used as examples of how habitat variables affect distribution, growth, recruitment, and natural and fishing mortality and potentially could be used to improve stock assessments.

Are we running out of fish? And where will they live?

Steven A. Murawski

Director, Scientific Programs and Chief Science Advisor, Silver Spring, MD

NOAA Fisheries Service is responsible for managing the nation's marine fisheries, and for providing the best available science upon which management decisions must be based. Recovery of depleted fishery populations has become a consistent and increasingly important theme in national and international environmental negotiations and commitments regarding sustainability. We are not running out of fish, but we recognize that there are real concerns to be addressed for sustaining our fisheries in the future, and for increasing the economic and social benefits we obtain from them. We know that many of stocks are being sustainably fished, but that quite a few are not. We also know what we do not know. The U.S. Ocean Policy Task Force specifically has called for the "protection, maintenance, and restoration of populations and essential habitats supporting fisheries, protected species, ecosystems, and biological diversity" to support ecosystems as one of its priority objectives. More and better data, and more broadly based management approaches for managing our nation's marine ecosystems, are needed. It is clear that if we are to recover the majority of stocks classified world-wide as "overfished", it will take a more holistic, adaptive and ecosystem-based approach to fishery recovery that incorporates trophic dynamics, habitat protection and restoration, and climate effects, and is sensitive to life history and previous impacts of fisheries on stock resilience. Science supporting the implementation of ecosystem-based principles chiefly requires information on species interactions, climate-species relationships, and habitat-species dependencies. Basic habitat information including where important habitat is located and its condition are lacking for many species, and traditional assessment methods can not be used for many stocks due to habitat challenges. In addition, these basic categories of habitat science are needed to conduct integrated ecosystem assessments, which are poised to boost the successful application of ecosystem-based management (EBM). Without such information, environmentalists urge precautionary management, while existing use sectors demand more specificity in the issues to be considered under the EBM rubric, as well as an accounting of how current management fails to address important issues. A new, more effective, consistent, and politically supported stock recovery paradigm is necessary if society is to eventually meet its articulated sustainability goals for global fisheries.

PROCEEDINGS

11TH NATIONAL STOCK ASSESSMENT WORKSHOP

Characterization of Scientific Uncertainty in Assessments to Improve Determination of Acceptable Biological Catches (ABCs)

JOINT SESSION OF THE NATIONAL STOCK AND HABITAT ASSESSMENT WORKSHOPS

Incorporating Habitat Information in Stock Assessments

1ST NATIONAL HABITAT ASSESSMENT WORKSHOP

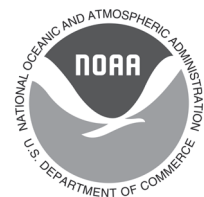
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