

# Marine Resource Education Program

## Overview

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The Marine Resource Education Program strives to meet several important objectives as a professional development program for the fishing industry. First, we aim to substantially increase the number of individuals working in New England fisheries, either at sea or in shore-side support services, who are comfortable navigating the fishery science and management arena. One mechanism to achieve this is to foster leadership capable of promoting trust in the management processes. We hope to break down historical barriers to cooperation, forge new areas of involvement for fishermen in the regulatory system, and fully engage the industry in the development of the best available science.

While it is crucial for fishermen to understand the science and management tools used to regulate their industry, of equal importance is the need to deepen the familiarity of policy and science professionals with the workings of the fishing community. The Marine Resource Education Program is a sturdy bridge over the gap among fishermen, scientists and managers. It brings these diverse disciplines together in a neutral setting, providing an opportunity to explore both differences and common goals outside of the regulatory forum.

## Program Goals

- To bring fishermen, scientists and managers together in a neutral setting outside the regulatory process.
- To increase the number of people at work in New England fisheries who are comfortable working with the fishery data and management systems.
- To help policy makers and scientists become more familiar with the inner working of the fishing community.
- To increase the number of fishermen involved in collaborative research and pursuit of best available science.
- To develop leadership and promote trust.

The MREP curriculum has been to serve the needs of fishermen and relevant stakeholders. The program covers two topic areas: a three-day Fishery Science Module, followed by a three-day Fishery Management Module. The format for both modules creates an open dialogue among participants and presenters in which they explore ways of fostering cooperation among fishermen, scientists and managers.

Feedback from Fishermen:

This was a GREAT experience for anyone involved (or getting involved) in this management process.

Require anyone with a federal permit to attend the program. Too many people don't understand the process!

The time had come for this program. This should be a mandatory experience for NMFS, NEFMC and fishing industry members.

Excellent program and very necessary as it becomes more important for fishermen to speak the language of fisheries management.

# Curriculum

The Marine Resource Education Program curriculum is disseminated in two separate components: Fisheries Science and Fisheries Management. Each three day module provides the fundamentals of several disciplines relevant to fisheries science and management. Each section is taught by an expert in that discipline, and might be a New England Fishery Management Council staff member, a manager from the National Marine Fisheries Service, a scientist from the Northeast Fisheries Science Center, or a university professor. All of the presenters are familiar with the MREP program and its goals and many return year after year because they value and enjoy the opportunity to interact with the fishing community.

## Fisheries Science

The Fisheries Science module provides foundational principles of oceanography and population biology as well as survey sampling techniques, statistical methods, stock assessments, models and their uses. Ecosystem-based scientific principles are outlined, and provide a strong link to the management module. Also included in this module is a discussion on gear design and innovation, which often provides a great deal of learning for all involved, as participants explain their gear to each other, and trade ideas about improved designs. Select the following link to view the complete Science agenda. [MREP Science Agenda](#)

Select one of the following links to view the individual Science presentations. [Concepts in Population Biology Sampling, Statistics & Surveys](#) [Stock Assessments and Modeling](#) [General Oceanography](#) [Fishing Gear Operation and Innovations](#) [Science & Ecosystem-Based Management](#) [Collaborative Research](#)

## Fisheries Management

A complex web of agencies and legislation governs the fishing industry. The Fisheries Management module provides participants with the tools needed to effectively contribute to policy development through the Council process. The module gives an overview of relevant legislation, the federal management process under the Fishery Management Council system and the Atlantic States Marine Fisheries Commission, as well as the roles of economic and social sciences, the Coast Guard, and Congress in fisheries management. Alternative ways for fishermen to initiate management solutions, including training in consensus building and negotiation skills, are also covered.

The class size is kept to approximately twenty participants, comprised of fifteen fishermen and five participants from related marine professions, including industry associations, shoreside services, environmental organizations, science or management institutions. Classes start promptly each morning and participants are encouraged to stay at the conference center. Active commercial fishermen are reimbursed for their expenses. Select the following link to view the complete Management agenda. [MREP Management Agenda](#)

Select one of the following links to view the individual Management presentations.

[Overview of Agencies that Manage Fisheries and Federal Fisheries Management](#) [New England Fisheries Management Council Process](#) [How the Federal Regulatory Process Works](#) [Attending a Council Meeting](#) [Sustainable Fisheries What are the big issues?](#) [United States Coast Guard](#) [The Role of Science in Management](#)



## **Management Curriculum:**

### Overview of Agencies that Manage Fisheries and Federal Fisheries Management - McHale-Legal Framework

#### *Key Concepts:*

- Atlantic States Marine Fisheries Commission, New England Fisheries Management Council and State Agencies
- Roles and responsibilities of the various agencies
- Jurisdictions and legal authorities
- National Marine Fisheries Service (NMFS) - roles and responsibilities
- Magnuson Stevens Act /Sustainable Fisheries Act
- National Standards
- Other federal legislation

### New England Fisheries Management Council Process – Patty Fiorelli

#### *Key Concepts:*

- How the New England Fisheries Management Council (NEFMC) works
- Types of Council actions
- Roles of the Committees, Advisory Panels, and Plan Development

### How the Federal Regulatory Process Works - McHale-Reg Process

#### *Key Concepts:*

- “Black Box” review
- National Environmental Policy Act (NEPA) review
- Implementation of the FMP – ineffective or unintended results

### Attending a Council Meeting – John Williamson

#### *Key Concepts:*

- Understanding the flow of the meeting
- Roberts Rules of Order (How to craft a motion, the power of the second, etc.)
- How to be an effective participant – tricks of the trade

### Negotiation Skills – Laura Taylor-Singer

#### *Key Concepts:*

- Know your alternatives (best alternative to a negotiated agreement)
- Interests versus position

### Negotiation Role Play

#### *Key Concepts:*

- Integrative vs. distributive bargaining
- Consensus building
- Bringing an effective coalition to the table



Sustainable Fisheries – What are the big issues? - Paul Howard

*Goal:* To examine current issues confronting the NEFMC.

*Key Concepts:*

- Ending overfishing
- Protecting habitat
- Eliminating over-capitalization and excess capacity
- Bycatch reduction
- Impact of the Magnuson-Stevens Reauthorization Act on the NEFMC

United States Coast Guard – Lt. Rula Deisher

*Key Concepts:*

- Operation Guardian
- USCG input in the regulatory process
- Are regulations enforceable?
- Challenges for the future

The Role of Science in Management - Frank Almeida

*Key concepts:*

- How traditional scientific method can conflict with the expectations of fishermen and others and how this can impact the assessment process.
- Dealing with uncertainty in assessments
- What to expect out of peer review

The Role of Congress in the Management of Fish

*Key concepts:*

- How Committees operate – Senate Commerce Sub-Committee – Oceans, Fisheries & Coast Guard
- Magnuson Act Reauthorization and its implementation
- Communicating with Congress



Select title to view the Power Point Presentation:

## Science Curriculum

### Concepts in Population Biology - William Overholtz

*Key Concepts:*

- Definitions: Growth, Recruitment, Mortality, etc.
- Population Models
- Age Structure
- Reproductive Biology
- Stock Concepts (unit stock, spawning stock, recruits, stock-recruitment, etc.)
- Other Terms (distribution, migration, spawning, primary production, temperature, etc.)

### Sampling, Statistics & Surveys - William Overholtz

*Key Concepts:*

- The why and how of statistics and sampling
- Description and demonstration of sampling protocols
- Data bases
- Research vessel surveys

### Stock Assessments and Modeling - William Overholtz

*Key concepts:*

- The how and why of modeling
- Models - Surplus Production, Virtual Population Analysis (VPA), etc.
- Biological Reference Points
- Stock Assessment Review Committee (SARC)

### General Oceanography – David Townsend

*Key concepts:*

- Currents
- Climate
- Weather systems

### Fishing Gear Operation and Innovations – Arne Carr and Chris Glass

*Key concepts:*

- History of gear development
- Fish behavior in relation to gear
- Types of gear in use

### Science & Ecosystem-Based Management – Michael Forgarty

*Key concepts:*

- Monitoring the ecosystem
- Ecosystem drivers



- Fueling the ecosystem
- Modeling the ecosystem

Collaborative Research – Troy Hartley

*Key concepts:*

- Funding mechanics (RFP process, review, etc.)
- Other opportunities available
- Experiences from participants