

# **Atlantic States Marine Fisheries Commission**

## **Stock Assessment Training Program Guidance Document**



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## **Background and Rationale**

Stock assessments and population modeling activities lie at the core of the science-based fisheries management program administered through the Atlantic States Marine Fisheries Commission (ASMFC). Given the diverse background of the many scientists contributing to ASMFC stock assessments, dedicated training opportunities are needed to increase scientists' understanding of stock assessment techniques as well as to help keep stock assessment scientists up to date with the latest advances in their field.

Recognizing that not all participants in the ASMFC stock assessment process are trained/dedicated stock assessment biologists, the ASMFC began supporting scientists from member agencies to attend stock assessment training courses in 1997 in order to promote constructive participation by all participants. An introductory training course, based on a series of three "pilot" training courses through the USFWS National Conservation Training Center and University of Rhode Island, was formalized with the publication of the Fisheries Stock Assessment User's Manual (ASMFC 2000) and is offered biennially by ASMFC. Since that time, more than ten topic-specific intermediate and advanced workshops have been offered periodically through the ASMFC Stock Assessment Training Program (SATP), covering topics such as fish tagging, standardizing abundance indices, and age-structured modeling.

Despite the success of these workshops, no formal guidance document for the SATP exists. To date, the SATP has been implemented and expanded upon on an ad-hoc basis with limited consideration for overall program design, structure, and function. This has resulted in program inefficiency, limiting the potential benefits to ASMFC and its member states.

The purpose of this document is to formalize the design and administration of the SATP, including definition of the program's mission, goals, and expectations. A formalized program design captured in this guidance document will improve the functionality of the program and lead to greater benefits to ASMFC, its member agencies, and science based fishery management of Atlantic coast resources.

## **Mission**

The mission of the ASMFC's Stock Assessment Training Program (SATP) is to promote meaningful participation by agency scientists in the ASMFC stock assessment process by enhancing the quantitative stock assessment capabilities of ASMFC Technical Committees and Stock Assessment Subcommittee members and their support staff. Successful accomplishment of this mission will also benefit other fishery management bodies (states, NMFS, Councils) and their respective stock assessment processes.

To fulfill this mission, the SATP has two main priorities:

- 1) Provide introductory and intermediate training in stock assessment concepts and methods to increase proficiency of fishery scientists with limited formal stock

assessment training. Workshops would include background theory and practical application of statistical methods and modeling techniques for analyzing fisheries data.

- 2) Maintain the use of quality stock assessment methodology in the Commission's stock assessment process by providing continuing education opportunities for stock assessment scientists through advanced stock assessment workshops. Workshops might include specialized courses in specific stock assessment models/packages or programming languages, and workshops on recent issues in stock assessment approaches and techniques.

The SATP may serve to nurture the interests and skills of biologists who wish to pursue a career in stock assessment. However, it is not intended to train staff with no formal background to the level of an experienced stock assessment scientist.

### **Program structure**

The ASMFC's SATP is designed to provide specialized training and continuing education at the introductory, intermediate, and advanced levels. Each training level has a distinct target audience, goals and objectives, expected outcomes, and schedule of workshop offerings.

#### **Introductory:**

Goal: Introduce fisheries scientists to the basics of population dynamics and stock assessment theory in preparation for current or future participation on ASMFC Technical Committees.

Objectives: 1) Provide hands-on opportunities for scientists to learn the basics of stock assessment theory, modeling, and programming. 2) Provide scientists with the theoretical context necessary to understand and participate in Technical Committee discussions regarding stock assessment methods and results.

Target audience: Scientists with a background in fisheries, ecology, or natural resource science and statistics who are (or will be) required to work on ASMFC managed species, but who have little to no background in stock assessment techniques.

Expected Outcomes: Participants will gain the knowledge, skills, and practical experience necessary to serve on ASMFC Technical Committees. Participants are expected to actively participate on or provide support for current members of Technical Committees (as needed), including discussions regarding stock assessment methods and results.

Offerings: Course typically offered biennially.

**Intermediate:**

Goal: Advance fisheries scientists overall ability to understand, review, and contribute to the data preparation and stock assessment modeling activities performed during a stock assessment.

Objectives: 1) Provide practical, hands-on opportunities for scientists to advance their understanding of current stock assessment theory and modeling/programming methods, and their application with real data sets. 2) Provide participants with an overview of the Commission's mission, committee structure, and management process, with emphasis on how these relate to the ASMFC stock assessment process.

Target audience: Scientists currently serving on (or in training to serve on) Technical Committees and Stock Assessment Subcommittees who wish to contribute more fully to the stock assessment process; scientists who have attended the introductory training course and/or meet all pre-requisites for a given course.

Expected Outcomes: Participants will gain the knowledge, skills, and practical experience necessary to help perform data preparation and basic stock assessment modeling activities, as well as provide a knowledgeable review of draft assessment reports. Participants are expected to be able to actively participate in (identify, conduct, review) analytical tasks of technical committees and stock assessment subcommittees.

Offerings: Typically one workshop is offered each year; often offered as a series of workshops over a 1-3 year period.

**Advanced:**

Goals: 1) Ensure that scientists conducting ASMFC stock assessments are trained in current stock assessment methods and are familiar with recent advances in the field. 2) Advance overall level of science being conducted by the Commission.

Objectives: 1) Provide hands-on opportunities for scientists to learn the latest advances in stock assessment theory, modeling, and programming. 2) Provide an interactive forum for scientists to explore and discuss different stock assessment approaches.

Target audience: Scientists with a significant understanding of stock assessment principles such that they would be qualified to assume major responsibility in preparing stock assessment reports or other major analyses. Scientists who either serve on ASMFC Stock Assessment Subcommittees or who have the potential to in the near future and who meet all pre-requisites for a given course.

Expected Outcomes: 1) Participants will gain an in-depth, practical understanding of specific stock assessment/modeling/programming techniques that can be applied to future stock assessments. 2) Participants will network and share experiences, modeling techniques, and programming code. 3) Participants will be expected to regularly participate in data analysis and the development of stock assessment models, including serving as a lead analyst.

Offerings: Typically one workshop is offered each year.

## **Program implementation**

Implementation of and subsequent changes to the ASMFC SATP, as outlined in this Guidance Document, are subject to approval by the ISFMP Policy Board. The ASMFC Assessment Science Committee (ASC) is responsible for implementing the SATP, with the assistance of ASMFC staff as outlined below.

- ASC will annually identify a prioritized list of workshop offerings and topics for intermediate and advanced workshops. The prioritized list will be presented to the ISFMP Policy Board for funding consideration.
- The ASC SATP Subcommittee (composed of 3 rotating ASC members) under direction of the Subcommittee Chair will develop an overall workshop description, workshop-specific goals, prerequisites, and a draft agenda/syllabus for each approved (*i.e.* funded) workshop. The subcommittee will also identify a list of potential instructors who are knowledgeable in the topic(s) being covered.
- Staff will contact potential instructors, work with instructors to develop finalized agendas, and select dates and a location for each workshop.
- Once workshop specifics are established, staff will prepare and distribute a workshop announcement that will include a workshop description, agenda, a nomination form, and a list of prerequisites and software/computer requirements.
- State directors will receive workshop announcements and will have the option to nominate personnel from their agency to attend the workshop. ASC and Management and Science Committee members will receive copies of this announcement.
- Nomination forms will require each nominee to briefly list how they meet the workshop prerequisites. Staff will collect and organize nomination forms.
- The ASC SATP Subcommittee and ASMFC stock assessment staff will review all nomination forms and identify nominees who do not meet workshop prerequisites.
  - If a nominee does not meet the workshop prerequisites, he or she will be contacted by staff and warned that they may find the course too difficult. He or she will also be informed of other workshops being offered in the future that may be more appropriate given their background and experience.
- Travel costs for approved participants will be reimbursed as follows:
  - ASMFC will reimburse travel costs for one nominee from each state.

- ASMFC will reimburse travel costs for a second participant from the SATP Subcommittee Chair's state.
- If state agency personnel serve as instructors, ASMFC will reimburse travel costs for one additional participant from the instructor's state.
- Any additional workshop slots available after the registration deadline has passed will be made available on a "first come, first served" basis and travel will be covered by the participant's agency.
- Staff will ensure workshop meeting/lodging space and travel arrangements are organized and communicated to participants. They will also handle all logistics for the meeting.
- All workshop participants should expect to arrive at the workshop with the required software loaded on a Windows laptop. Workshops are typically 2- to 5-day intensives including 8 or more hours of lectures, hands-on exercises, homework, and presentation by both instructors and participants. Some workshops may require preparatory work as well.
- Following the workshop, staff will distribute, collect, and summarize evaluation forms. These forms will be made available to the ASC to review at their next meeting. When possible, staff will collect all workshop materials and make them available along with a video archive of workshop presentations for member agency personnel who cannot attend a given workshop.
- Staff and SATP Subcommittee chair will provide updates to full ASC and other bodies as appropriate following each workshop.

## **Literature Cited**

ASMFC. 2000. Fisheries Stock Assessment User's Manual. SR69