

Request for Proposals
Mid-Atlantic Fishery Management Council

Development of a Quantitative Stock Assessment for Black Sea Bass

The Mid-Atlantic Fishery Management Council (Council) is seeking a highly qualified contractor to facilitate the development of a quantitative stock assessment for the northern black sea bass stock (*Centropristis striata*) to support management of the black sea bass fishery.

Background

The northern black sea bass stock (BSB), which supports important commercial and recreational fisheries from North Carolina to Maine, is managed jointly by the Council and Atlantic States Marine Fisheries Commission (ASMFC) under the Summer Flounder, Scup and Black Sea Bass FMP. This stock has been assessed nine times since the early-1980s through the Northeast Stock Assessment Workshop process, most recently at SARC 53 (2012). That assessment, developed jointly by the Southern Demersal Working Group and ASMFC Technical Committee, was found to be unacceptable for management use (i.e., for use in setting of annual catch limits). Among the concerns raised by the SARC and the Council's SSC were the ability of the proposed model to adequately address the life history of BSB (protogynous hermaphroditism), the inability of the fishery independent abundance indices to track cohorts, concerns about documentation of age length-keys, and the apparent spatial heterogeneity of the stock. In recent years the Council has set annual catch limits for this stock based on ABC recommendations developed by its SSC using *ad hoc* "data poor" methods (i.e., average catch methods). The Council is seeking a highly qualified stock assessment scientist to participate in the development of a new population dynamics model to support the quantitative assessment of this important stock.

Benchmark Assessment Development

The failure of the most recent BSB stock assessment to pass independent peer review within the Northeast Stock Assessment Workshop process has confounded efforts by the Council's SSC to apply the Council's ABC control rule framework and risk policy to the setting of annual catch limits for BSB. The Council is seeking a qualified stock assessment scientist, on behalf of the Council, to participate in the development of a new quantitative stock assessment for BSB which addresses the concerns raised about the stock assessment model developed for review at SARC 53. The researcher will be required to work collaboratively with stock assessment scientists at the NEFSC and the ASMFC Technical Committee to facilitate the development of a stock assessment model which will ultimately form the basis for setting annual catch limits for BSB, including (but not limited to) forward projecting statistical catch-at-age and catch-at-length models. Final model configurations should provide statistically robust estimates of past and current fishing mortality rates, spawning stock biomass, recruitment, and stock productivity for spatial sub-components of the stock which can then be compared to appropriate biological reference points for stock status determination and specification of ABC within the Council's ABC

and risk policy framework. The exploration and evaluation of existing or new modelling approaches should be based on and address issues raised at SARC 53.

Role of the Contractor and Deliverables

The contractor, working collaboratively with Northeast Fisheries Science Center (NEFSC), Council and ASMFC staff, and the ASMFC Technical Committee, will:

1. Attend and participate in data and modelling meetings with NEFSC and ASMFC Stock Assessment Scientists (tentative schedule of meetings attached).
2. Provide modeling advice and analytical expertise in the development of a stock dynamics estimation model through:
 - a. direct interaction with NEFSC, MAFMC, and ASMFC staff;
 - b. technical analyses that support data analysis, model development and implementation; and
 - c. a report in the form of a technical memorandum that details recommendations based on these interactions and analyses.

Qualifications of Contractor

The contractor should have demonstrated expertise in the use of modern programming languages including ADMB and R. The successful bidder will also have knowledge of advanced statistical methods, including Bayesian methods. A working knowledge of management strategy evaluation and risk analysis methods is highly desirable. The contractor should also have an understanding of the biological processes inherent in hermaphroditic fish species. Finally, it is essential that the contractor have an understanding of the limitations imposed by data collection methods including the resolution of commercial landings data, discard estimation, recreational catch estimates, and selectivity of fishery independent sampling gear.

Schedule

Development of the new benchmark assessment for BSB is scheduled to begin in June 2015 and the BSB assessment will be reviewed, subject to approval by the NRCC, by the SARC in December of 2016. The researcher will provide the Council with the draft Technical Memorandum by October 1, 2016 detailing the recommendations and evaluation provided by the contractor and used by the NEFSC stock assessment scientists to develop the new model that addresses the issues raised at SARC 53 and by the MAFMC SSC.

Contacts and Submission Deadline

Proposals must be submitted by May 29, 2015 to rfp@mafmc.org or mail to Dr. Chris Moore, Executive Director, Mid-Atlantic Fishery Management Council, 800 North State Street, Suite 201, Dover, DE 19901. Proposals must include a detailed budget including specification of an hourly

rate and total number of hours required to complete the deliverables based on the schedule of data and assessment meetings provided and the amount of technical work required. The proposal should also include a description of the contractor's qualifications and related work experience. The contractor will be required to attend all scheduled assessment meetings and to meet periodically with NEFSC assessment scientists located at the Northeast Fisheries Science Center. All travel costs while attending the associated assessment meetings incurred by the contractor will be reimbursed by the Council based on the Council's travel reimbursement policy.

Attachment 1. Black Sea Bass Assessment Schedule

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| Data Workshop | June 2015 | 5 days |
| Modelling Workshop 1 | Fall 2015 | 5 days |
| Modelling Workshop 2 | Spring 2016 | 5 days |
| Meet with NEFSC and ASMFC scientists as necessary | 2015-2016 | 15 days |
| Total | | 30 days |