MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

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Christopher M. Moore, Ph.D.
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MEMORANDUM

DATE: January 27, 2011

TO: Research Set Aside Committee

FROM: Rich Seagraves

SUBJECT: RSA Committee Meeting

The primary focus of the upcoming RSA meeting in New Bern will be an update by staff of our evaluation of the RSA Program. Enclosed for your review and comment is a draft of the Program Evaluation Narrative which outlines the general approach we are taking. Thanks and I look forward to working with you in New Bern.

Mid-Atlantic Fishery Management Council
Research Set-Aside Program
MISSION STATEMENT

GOAL: The goal of the Research Set Aside (RSA) Program is to fund scientific research that provides information to improve the conservation and management of fishery resources under the purview of the Mid-Atlantic Fishery Management Council and those managed jointly with the Atlantic States Marine Fisheries Commission (ASMFC).

CORE PRINCIPLES: Recognizing the capabilities that both the scientific community and fishing industry can bring to the program, fisheries research funded under the RSA Program shall:

1. Directly address deficiencies in the information necessary for improved management of commercial and recreational fisheries through topic specific projects and the development and testing of prototype data collection/monitoring programs;

2. When possible and appropriate, be conducted cooperatively between the scientific community and the fishing industry;

3. Be of sufficient scientific/technical merit to meet the requirements set forth in the guidelines for National Standard 2 of the Magnuson-Stevens Act. Availability and distribution of research data shall be in accordance with existing applicable National Marine Fisheries Service (NMFS) and other federal regulations and procedures;

4. Be completed in a cost effective and timely manner;

5. Where appropriate, be conducted in cooperation with other management partners (e.g., Northeast Cooperative Research Program, Councils, NMFS, and ASMFC).

Mid-Atlantic Fishery Management Council
Research Set Aside (RSA) Program Evaluation Narrative
Draft

The Mid-Atlantic RSA Program was developed by the Council to fund scientific research conducted cooperatively with the fishing industry as a means to address data and information needs to improve management of the resources under its purview. The concept was to set aside a portion of the annual quotas for managed species (with the exception of ocean quahogs, surf clams spiny dogfish) and to fund scientific research projects through the utilization of the value or direct sale of "research quota". Framework Adjustment 1 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP), Atlantic Mackerel, Squid, and Butterfish FMP, Bluefish FMP, and Tilefish FMP was approved in 2001 and established a procedure through which RSA quotas were set-aside as part of the Council's annual quota-setting process. The set-asides may range between 0 and 3 percent of each species total allowable landings (TAL).

This program became operational in 2002 and funded 26 research projects through the period 2002-2009. The estimated total value of the species set aside and made available to fund these projects during this timeframe was approximately $9.1 million. The actual total estimated research and compensation values for the same period for those projects were $4.7 and $4.4 million, respectively. Thus, the Council has made a significant investment in terms of foregone harvest to fund research to address information gaps/needs for management of these resources. The primary purpose of this program evaluation is to determine if the benefits received from the research conducted to date are sufficient to justify their overall cost.

Framework for RSA Program Evaluation

MAFMC staff is currently evaluating the efficacy of the Council's RSA Program to answer two fundamental questions. First, has the RSA Program been successful in meeting its goals and objectives? Secondly, how effective has the administration of the RSA Program been and how can it be improved?

Part I: Evaluation of RSA program results relative to overall goals and objectives

Part I of the program evaluation relates primarily to how effectively the scientific research conducted using RSA funds has addressed the research and management needs articulated by the Council. This question will be addressed by consideration of the following:

1. RSA research needs identified annually since program inception (attachment 1)

2. RSA projects approved and funded by year (attachment 2)

3. Comparison of research needs articulated by the Council versus projects funded using RSA quota (In other words, has there been a disconnect between research needs and the research actually funded?)

4. On a project by project basis, did each funded project provide results of sufficient scientific merit such that they could be used for management and/or resource assessment? For each project for which the answer is no, characterize the reasons for failure

5. For projects which passed peer review, did the research results of the project ultimately result in tangible management measures or inform the Council during the formulation of management measures?

6. For projects where the answer is no under # 5 above, evaluate the primary reasons why the results could or were not translated into management measures or were not informative to the assessment and/or management process

Based on a stepwise evaluation of each project funded based on the framework described above, Staff will provide an overall evaluation of the efficacy of the RSA program in meeting its primary objectives. Implicit in this exercise will be an evaluation of the process for review of the projects prior to approval and funding as well as the process for technical review after completion. In addition, the process by which results are incorporated into stock assessment and/or management programs will be evaluated and potential remedial alternatives or improvements will be identified.

Part II: Administrative Issues

In addition to an evaluation of how well the RSA program has performed relative to science and management goals, the program evaluation will include the identification of significant administrative issues which need to be addressed and an exploration of potential remedies or alternative solutions. These include but are not limited to:

1. Issues related to or created by the use of the auction process to generate RSA funds

2. Single year v multi year RSA specifications

3. EFP permit issues/bottlenecks

4. Competitive grant process v. alternative cooperative research models

5. Other.

Attachment 1

2002 FINAL RSA Program Research Priorities as Published in RFP FR Notice:

Federal Register / Vol. 66, No. 143 / Wednesday, July 25, 2001 / Notices

I. Project Funding Priorities

The Council and NOAA will give priority to funding research proposals in the following areas identified as research priorities by the Council and Commission for the 2002 fishing year (not listed in order of priority):

1. Bycatch and discard reduction concerning: (a) Distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (b) gear modifications in the Loligo squid fishery to reduce scup bycatch; and (c) discard studies in the Loligo and scup fisheries;

2. Mesh and gear selectivity focusing on: (a) The examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; and (f) the development of threshold triggers based on gear and fishery characteristics;

3. Fishing impacts on habitat pertaining to: (a) Mobile gear impacts on tilefish burrows; (b) identification of scup spawning areas and scup larvae settlement areas in coastal/estuarine waters; and (c) identification of benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas;

4. Cooperative stock assessment surveys focusing on: (a) The use of hydro-acoustic methods to determine abundance of Atlantic mackerel; and (b) cooperative stock assessment surveys in the summer flounder fishery;

5. Improved recreational fishery data focusing on: (a) Research to enhance the overall knowledge of the recreational fishery; and (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; and

2003 FINAL RSA Research Priorities

as published in:

Federal Register: March 25, 2002 (Volume 67, Number 57)]
[Notices]
[Page 13602-13606]

I. Project Funding Priorities

The Council and NOAA will give priority to funding research proposals in the following areas identified as research priorities by the Council and Commission for the 2003 fishing year (not listed in order of priority):

1. Bycatch and discard reduction concerning: (a) Distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (b) gear modifications in the Loligo squid fishery to reduce scup and other species bycatch; (c) discard studies in the Loligo and scup fisheries; and (d) better estimates of recreational discards in the summer flounder, scup, black sea bass and bluefish fisheries;

2. Mesh and gear selectivity focusing on: (a) The examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; (f) the development of threshold triggers based on gear and fishery characteristics; (g) evaluation of various pot vent sizes for black sea bass; (h) estimation of mortality of black sea bass left in pots during the closed season; (i) evaluation of fishery management actions, e.g., do closures have a net positive effect on fishing mortality by postponing such mortality, or do they simply allow for concentration of resources such that when the seasons open the consequent fishing effort offsets the mortality reductions that occurred during the closure; and (j) mesh retention studies of 2-1/2 (6.35 cm), 2-3/4 (6.985 cm), and 3-inch (7.63 cm) mesh for butterfish;

3. Fishing impacts on habitat pertaining to: (a) Mobile gear impacts on tilefish burrows; (b) scup spawning areas and scup larvae settlement areas in coastal/estuarine waters; (c) benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas; and (d) mapping of spawning areas and egg mop areas for Loligo;

4. Cooperative stock assessment surveys focusing on: (a) The use of alternative industry assessment methods to determine abundance of Atlantic mackerel; (b) the summer flounder fishery; (c) surveys for summer flounder in areas not traditionally sampled by the North East Fisheries Science Center gear; (d) side-by-side comparisons for summer flounder and scup of commercial and NEFSC survey gear; (e) better survey information for bluefish; (f) tagging studies of bluefish movements; and (g) DNA analysis for stock descriptions of Atlantic bluefish and Atlantic mackerel;

5. Improved recreational fishery data focusing on: (a) Research to enhance the overall knowledge of the recreational fishery; (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; (c) studies of bluefish hooking mortality by size of fish; and (d) tagging studies with break-away hooks for movement of tilefish.

6. Other: (a) Evaluation of redirection of fishing effort with area closures for black sea bass; (b) evaluation of whether artificial reefs increase the productivity of black sea bass or simply concentrate the resource; and (c) evaluation of the mixing of Illex and Loligo in September and October.

2004 FINAL RSA Research Priorities

as published in:

[Federal Register: January 27, 2003 (Volume 68, Number 17)]
[Notices]
[Page 3864-3869]

I. Project Funding Priorities

The Council and NOAA will give priority to funding research proposals in the following areas identified as research priorities by the Council and Commission for the 2004 fishing year (not listed in order of priority):

1. Bycatch and discard reduction concerning: (a) distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (b) gear modifications in the Loligo squid fishery to reduce scup and other species bycatch; (c) discard studies in the Loligo and scup fisheries; (d) better estimates of recreational discards in the summer flounder, scup, black sea bass, and bluefish fisheries; or (e) ways to decrease discards associated with increases in size limits.

2. Mesh and gear selectivity focusing on: (a) the examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; (f) the development of threshold triggers based on gear and fishery characteristics; (g) evaluation of various pot vent sizes and shapes for black sea bass and scup; (h) estimation of mortality of black sea bass left in pots during the closed season; and (i) mesh retention studies of 2 1/2-inch (6.35-cm), 2 3/4-inch (6.99-cm), and 3-inch (7.63-cm) mesh for butterfish.

3. Fishing impacts on habitat pertaining to: (a) mobile gear impacts on tilefish burrows; (b) scup spawning areas and scup larval settlement areas in coastal/estuarine waters; (c) benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas; (d) mapping of spawning areas and egg mop areas for Loligo squid; and (e) further delineation of essential fish habitat (EFH), particularly in nursery areas for summer flounder, scup, and black sea bass, as well as the potential for possible gear impacts to this EFH.

4. Cooperative stock assessment surveys focusing on: (a) the use of alternative industry assessment methods to determine abundance of Atlantic mackerel; (b) the summer flounder fishery; (c) surveys for summer flounder in areas not traditionally sampled by NMFS Northeast Fisheries Science Center (NEFSC) gear; (d) side-by-side comparisons for summer flounder and scup of commercial and NEFSC survey gear; (e) better survey information for bluefish; (f) tagging studies of bluefish movements; and (g) DNA analysis for stock descriptions of Atlantic bluefish and Atlantic mackerel.

5. Improved recreational fishery data focusing on: (a) research to enhance the overall knowledge of the recreational fishery; (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; (c) studies of bluefish, summer flounder, scup, and black sea bass hooking mortality by size of fish and the compliance

with the regulations for these species; and (d) tagging studies with break-away hooks for movement of tilefish.

6. Other: (a) an evaluation of redirection of fishing effort with area closures for black sea bass; (b) an evaluation of whether artificial reefs increase the productivity of black sea bass or simply concentrate the resource; (c) an evaluation of the mixing of Illex and Loligo squid in September and October; (d) increased and more representative sea sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught (needed to adequately characterize the length composition of the discards); (e) better estimates of discard mortality for the recreational and commercial fisheries (by gear type) for each species of Council-managed fish; (f) a study of summer flounder fecundity and why recruitment appears low as the resource is being rebuilt; (g) a study to develop optimum sampling levels to estimate discards of summer flounder, scup, and black sea bass; (h) increased and more representative port sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught; (i) development of fishery independent surveys and expansion of existing surveys to capture all sizes and age classes of summer flounder, scup, and black sea bass in order to develop independent catch-at-age and catch per unit effort data; (j) expansion of age sampling of summer flounder, scup, and black sea bass from commercial and recreational catches, with special emphasis on collection of large specimens; (k) quantification of the percentage of commercial fishery trips that had discards but no landings, and evaluation of how such trips contribute to the total commercial fishery discard estimate; and (l) evaluation of fishery management actions, e.g., do closures have a net positive effect on fishing mortality by postponing such mortality, or do they simply allow for concentration of resources such that when the seasons open the consequent fishing effort offsets the mortality reductions that occurred during the closure?

2005 FINAL RSA Research Priorities

As published in notice of 03-09-2004

Program Priorities

Projects funded under an RSA allocation (or award) must enhance understanding of the fishery resource or contribute to the body of information on which management decisions are made. Research, as well as additional fishing voyages to obtain fish for compensation, may be conducted, as specified in the EFP or LOA, as applicable, in or outside of a closed area, within the time frame of a commercial quota closure, and onboard a fishing or other type of vessel, including recreational and/or commercial vessels.

The Council and NMFS will give priority to funding research proposals in the following areas identified as research priorities by the Council and Atlantic States Marine Fisheries Commission (Commission) for the 2005 fishing year (not listed in order of priority):

1. Bycatch and discard reduction concerning: (a) Distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (b) gear modifications in the Loligo squid fishery to reduce scup and other species bycatch; (c) discard studies in the Loligo and scup fisheries; (d) better estimates of recreational discards in the summer flounder, scup, black sea bass, and bluefish fisheries; (e) ways to decrease discards associated with increases in size limits; (f) gear modifications in the scallop fishery to reduce bycatch of summer flounder; or (g) studies on incidental catch and discard mortality of spiny dogfish in the directed fisheries of other Mid-Atlantic framework species, with emphasis on the following gears: Gillnets, trawls, and hook and line.

2. Mesh and gear selectivity focusing on: (a) The examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; (f) the development of threshold triggers based on gear and fishery characteristics; (g) evaluation of various pot vent sizes and shapes for black sea bass and scup; (h) estimation of mortality of black sea bass left in pots during the closed season; and (I) mesh retention studies of 2 ½-inch (6.35-cm), 2 3/4-inch (6.99-cm), and 3-inch (7.63-cm) mesh for butterfish.

3. Fishing impacts on habitat pertaining to: (a) Mobile gear impacts on tilefish burrows; (b) scup spawning areas and scup larval settlement areas in coastal/estuarine waters; (c) benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas; (d) mapping of spawning areas and egg mop areas for Loligo squid; and (e) further delineation of essential fish habitat (EFH), particularly in nursery areas for summer flounder, scup, and black sea bass, as well as the potential for possible gear impacts to this EFH.

4. Cooperative stock assessment surveys focusing on: (a) The use of alternative industry assessment methods to determine abundance of Atlantic mackerel; (b) the summer flounder fishery; (c) surveys for summer flounder in areas not traditionally sampled by NMFS Northeast Fisheries Science Center (NEFSC) gear; (d) side-by-side comparisons for summer flounder and scup of commercial and NEFSC survey gear; (e) better survey information for bluefish; (f) tagging studies of bluefish movements; and (g) DNA analysis for stock descriptions of Atlantic bluefish and Atlantic mackerel.

5. Improved recreational fishery data focusing on: (a) Research to enhance the overall knowledge of the recreational fishery; (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; (c) studies of bluefish, summer flounder, scup, and black sea bass hooking mortality by size of fish and the compliance with the regulations for these species; and (d) tagging studies with break-away hooks for movement of tilefish.

6. Other: (a) An evaluation of redirection of fishing effort with area closures for black sea bass; (b) an evaluation of whether artificial reefs increase the productivity of black sea bass or simply concentrate the resource; (c) an evaluation of the mixing of Illex and Loligo squid in September and October; (d) increased and more representative sea sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught (needed to adequately characterize the length composition of the discards); (e) better estimates of discard mortality for the recreational and commercial fisheries (by gear type) for each species of Council-managed fish; (f) a study of summer flounder fecundity and why recruitment appears low as the resource is being rebuilt; (g) a study to develop optimum sampling levels to estimate discards of summer flounder, scup, and black sea bass; (h) increased and more representative port sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught; (i) development of fishery independent surveys and expansion of existing surveys to capture all sizes and age classes of summer flounder, scup, and black sea bass in order to develop independent catch-at-age and catch per unit effort data; (j) expansion of age sampling of summer flounder, scup, and black sea bass from commercial and recreational catches, with special emphasis on collection of large specimens; (k) quantification of the percentage of commercial fishery trips that had discards but no landings, and evaluation of how such trips contribute to the total commercial fishery discard estimate; and (l) evaluation of fishery management actions, e.g., do closures have a net positive effect on fishing mortality by postponing such mortality, or do they simply allow for concentration of resources such that when the seasons open the consequent fishing effort offsets the mortality reductions that occurred during the closure?

2006 FINAL RSA Program Priorities

As published in final, corrected notice of 04-21-2005.

Program Priorities

Projects funded under an RSA allocation (or award) must enhance understanding of the fishery resource or contribute to the body of information on which management decisions are made. Research and additional fishing voyages to obtain fish for compensation, may be conducted as specified in the Experimental Fishing Permit (EFP) or Letter or Acknowledgement (LOA), as applicable, in or outside of a closed area, within the time frame of a commercial quota closure, and onboard a fishing or other type of vessel including recreational and/or commercial vessels.

The Council and NMFS will give priority to funding research proposals in the following areas identified as research priorities by the Council and Atlantic States Marine Fisheries Commission (Commission) for the 2006 fishing year. **Of these research areas special consideration, in the form of a 5 point bonus, (see Section V A. 6) will be given to specific target areas (Priorities 1a-d, 2a-d) considered highest priority by the Council.**

The numbering of priorities is not intended to indicate preference of one priority over another.

2006 RSA Program Research Needs and Priorities:

Program Priority 1: Bycatch and discard reduction concerning: (a) Ways to decrease discards associated with increases in size limits; or (b) studies on incidental catch and discard mortality of spiny dogfish in the directed fisheries of other Mid-Atlantic RSA species, with emphasis on the following gears - Gillnets, trawls, and hook and line; (c) distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (d) gear modifications in the Loligo squid fishery to reduce scup and other species bycatch; (e) discard studies in the Loligo and scup fisheries; and (f) better estimates of recreational discards in the summer flounder, scup, black sea bass, and bluefish fisheries.

Program Priority 2: Improved recreational fishery data focusing on: (a) Research to enhance the overall knowledge of the recreational fishery; (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; (c) studies of bluefish, summer flounder, scup, and black sea bass hooking mortality by size of fish and compliance with the regulations for these species; or (d) efforts to augment, supplement, or verify existing Marine Recreational Fishery Statistical Survey (MRFSS) data.

Program Priority 3: Mesh and gear selectivity focusing on: (a) The examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; (f) the development of threshold triggers based on gear and fishery characteristics; and (g) estimation of mortality of black sea bass left in pots during the closed season.

Program Priority 4: Fishing impacts on habitat pertaining to: (a) Mobile gear impacts on tilefish burrows; (b) scup spawning areas and scup larval settlement areas in coastal/estuarine waters; (c) benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas; (d) mapping of spawning areas and egg mop areas for Loligo squid; and (e) further delineation of essential fish habitat (EFH), particularly in nursery areas for summer flounder, scup, and black sea bass, as well as the potential for possible gear impacts to this EFH.

Program Priority 5: Cooperative stock assessment surveys focusing on: (a) The summer flounder fishery; (b) surveys for summer flounder in areas not traditionally sampled by NMFS Northeast Fisheries Science Center (NEFSC) gear; (c) side-by-side comparisons for summer flounder and scup of commercial and NEFSC survey gear; (d) better survey information for bluefish; (e) tagging studies of bluefish movements; and (f) DNA analysis for stock descriptions of Atlantic bluefish.

Program Priority 6: Tagging studies to determine seasonal movements and/or mortality estimates by age of various species.

Program Priority 7: Other: (a) An evaluation of redirection of fishing effort with area closures for black sea bass; (b) an evaluation of whether artificial reefs increase the productivity of black sea bass or simply concentrate the resource; (c) an evaluation of the mixing of Illex and Loligo squid in September and October; (d) increased and more representative sea sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught (needed to adequately characterize the length composition of the discards); (e) better estimates of discard mortality for the recreational and commercial fisheries (by gear type) for each species of Council-managed fish; (f) a study of summer flounder fecundity and why recruitment appears low as the resource is being rebuilt; (g) a study to develop optimum sampling levels to estimate discards of summer flounder, scup, and black sea bass; (h) increased and more representative port sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught; (i) development of fishery independent surveys and expansion of existing surveys to capture all sizes and age classes of summer flounder, scup, and black sea bass in order to develop independent catch-at-age and catch per unit effort data; (j) expansion of age sampling of summer flounder, scup, and black sea bass from commercial and recreational catches, with special emphasis on collection of large specimens; (k) quantification of the percentage of commercial fishery trips that had discards but no landings, and evaluation of how such trips contribute to the total commercial fishery discard estimate; (l) evaluation of fishery management actions, e.g., do closures have a net positive effect on fishing mortality by postponing such mortality, or do they simply allow for concentration of resources such that when the seasons open the consequent fishing effort offsets the mortality reductions that occurred during the closure; (m) tagging studies with break-away hooks for movement of tilefish; and (n) social science research to determine what levels of fines or other sanctions (loss of fishing privileges, etc.) it actually takes to effect behavioral changes to help prevent deliberate illegal activities.

2007 FINAL RSA Program Priorities

Projects funded under an RSA allocation (or award) must enhance understanding of the fishery resource or contribute to the body of information on which management decisions are made. Research and additional fishing voyages to obtain fish for compensation may be conducted as specified in an Exempted Fishing Permit (EFP) or Letter or Acknowledgement (LOA), as applicable, in or outside of a closed area, within the time frame of a commercial quota closure, and onboard a fishing or other type of vessel including recreational and/or commercial vessels.

The Council and NMFS will give priority to funding research proposals in the following areas identified as research priorities by the Council and Atlantic States Marine Fisheries Commission (Commission) for the 2007 fishing year. Of these research areas, special consideration, in the form of a 5-point bonus, (see Section V A. 1) will be given to specific target areas (Priorities 1a-b, 2a-d in **bold**) considered highest priority by the Council.

The numbering or sequence of priorities in the sections below is not otherwise intended to indicate preference of one priority over another.

2007 RSA Program Research Needs and Priorities:
Program Priority 1: Bycatch and discard reduction concerning: (a) Ways to decrease discards associated with increases in fish minimum restrictions; (b) studies on incidental catch and discard mortality of spiny dogfish in the directed fisheries of other Mid-Atlantic RSA species, with emphasis on the following gears - gillnets, trawls, and hook and line; (c) distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery; (d) gear modifications in the *Loligo* squid fishery to reduce bycatch of scup and other species; (e) discard studies in the *Loligo* and scup fisheries; and (f) better estimates of recreational discards in the summer flounder, scup, black sea bass, and bluefish fisheries.

Program Priority 2: Improved recreational fishery data focusing on: (a) Research to enhance the overall knowledge of the recreational fishery; (b) statistical models to evaluate the effectiveness of recreational management measures and/or data collection process; (c) studies of bluefish, summer flounder, scup, and black sea bass hooking mortality, by size of fish, and compliance with the regulations for these species; and (d) efforts to validate or institute proof of concept for alternative approaches to existing Marine Recreational Fishery Statistical Survey data.

Program Priority 3: Mesh and gear selectivity focusing on: (a) The examination of summer flounder catch composition in small-mesh net fisheries within the summer flounder small-mesh exemption area; (b) summer flounder mesh selectivity studies; (c) scup mesh selectivity; (d) squid mesh selectivity; (e) black sea bass mesh selectivity; (f) the development of threshold triggers based on gear and fishery characteristics; and (g) estimation of mortality of black sea bass left in pots during the closed season.

Program Priority 4: Fishing impacts on habitat pertaining to: (a) Mobile gear impacts on tilefish burrows; (b) scup spawning areas and scup larval settlement areas in coastal/estuarine waters; (c) benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas; (d) mapping of spawning areas and egg mop areas for *Loligo* squid; and (e) further delineation of essential fish habitat (EFH), particularly in nursery areas for summer flounder, scup, and black sea bass, as well as the potential for possible gear impacts to this EFH.

Program Priority 5: Cooperative stock assessment surveys focusing on: (a) The summer flounder fishery; (b) surveys for Mid-Atlantic managed species in areas not traditionally sampled by NMFS Northeast Fisheries Science Center (NEFSC) gear, or that improve survey resolution; (c) side-by-side comparisons for summer flounder and scup commercial and NEFSC survey gear; (d) better survey information for bluefish; (e) tagging studies of bluefish movements; and (f) DNA analysis for stock descriptions of Atlantic bluefish.

Program Priority 6: Tagging studies to determine seasonal movements and/or mortality estimates by age of various species.

Program Priority 7: Other: (a) An evaluation of redirection of fishing effort with area closures for black sea bass; (b) an evaluation of whether artificial reefs increase the productivity of black sea bass or simply concentrate the resource; (c) an evaluation of the mixing of *Illex* and *Loligo* squid in September and October; (d) increased and more representative sea sampling of the various fisheries in which summer flounder, scup, and black sea bass are caught (needed to adequately characterize the length composition of the discards); (e) better estimates of discard mortality for the recreational and commercial fisheries (by gear type) for each species of Council-managed fish; (f) a study of summer flounder fecundity and why recruitment appears low as the resource is being rebuilt; (g) a study to develop optimum sampling levels to estimate discards of summer flounder, scup, and black sea bass; (h) industry proof of concept demonstrating ability of cooperating dealers to collect necessary biological samples from landed catch; (i) development of fishery independent surveys and expansion of existing surveys to capture all sizes and age classes of summer flounder, scup, and black sea bass in order to develop independent catch-at-age and catch per unit effort data; (j) expansion of age sampling of summer flounder, scup, and black sea bass from commercial and recreational catches, with special emphasis on collection of large specimens; (k) quantification of the percentage of commercial fishery trips that had discards but no landings, and evaluation of how such trips contribute to the total commercial fishery discard estimate; (l) evaluation of fishery management actions, e.g., do closures have a net positive effect on fishing mortality by postponing such mortality, or do they simply allow for concentration of resources such that when the seasons open the consequent fishing effort offsets the mortality reductions that occurred during the closure; (m) tagging studies with break-away hooks for movement of tilefish; and (n) social science research to determine what levels of fines or other sanctions (loss of fishing privileges, etc.) it actually takes to effect behavioral changes to help prevent deliberate illegal activities.

2008 Mid-Atlantic RSA Program Research Priorities

FINAL Version last updated: 11-01-2006

Bold with * indicates items that are considered a high priority.

Species Issues

Tilefish: Otter trawl fishery & Longline fishery

1. *** Survey of tilefish stocks in statistical areas of the historic range of the tilefish fishery (areas of concern are statistical areas 622, 525, and 626) that are not now showing landings to identify fishable concentrations of tilefish.**
2. *** Effect of hook size on tilefish size selectivity in the longline fishery.**
3. *** Develop indices for tilefish recruitment.**
4. Determine age composition of the tilefish stock.

Scup:

1. *** Estimate the components of scup total annual mortality (natural, commercial landings, recreational landings, commercial discards, & recreational discards).**
2. *** Develop indices for scup recruitment.**
3. *** Re-evaluate biological reference points.**
4. Estimate scup discards by gear type, trimester, and on an annual basis.
5. Develop an indexing procedure for large scup and relate its relationship to indices of abundance for scup.

Black Sea Bass:

1. *** Develop a framework for using historical black sea bass landings to impute stock size.**
2. *** Develop indices for black sea bass recruitment.**
3. Examine statistical properties of black sea bass survey data.
4. Develop an indexing procedure for black sea bass.
5. Verify age structure of black sea bass stock.
6. Re-evaluate black sea bass biological reference points.
7. Estimate black sea bass mortality when left in pots.
8. Evaluate redirection of fishing effort with area closures for black sea bass.
9. Evaluate artificial reefs for productivity versus concentration of black sea bass.
10. Research the likelihood of spatial differences in fishing mortality rate.

Summer Flounder:

1. Estimate and verify the following components of summer flounder total annual mortality:
    a. Natural mortality by sex and age
    b. Commercial Fisheries
        i. Landings by geographic region
        ii. Discard mortality
            1. Lengths
            2. Ages
            3. Predation
    c. Recreational (for-hire fishery, private boats, and shore fishing)
        i. Landings by geographic region
        ii. Discard mortality
            1. Lengths

2. Ages
3. Predation

2. Define distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery.
3. Determine summer flounder sex ratios, fecundity, and age and sex specific maturity percentages.
4. Compare otoliths versus scales to determine summer flounder population age structure.
    a. Enhance data exchanges between NEFSC, state agencies and academic institutions.
    b. Complete NEFSC age comparison between otoliths and scales for summer flounder.
    c. Develop a long-term protocol to sample otoliths from summer flounder in recreational and commercial fisheries.
    d. Develop a protocol to correct scale aging with otolith aging in summer flounder.

Loligo Squid:

1. Test gear modifications in the *Loligo* squid fishery to reduce bycatch of scup and other species.
2. Discard studies in the *Loligo* and scup fisheries.

Bluefish:

1. Develop bluefish index surveys.
2. Conduct bluefish tagging studies to evaluate movements.
3. DNA analysis for stock descriptions of bluefish.

Multi-species issues:

1. Spiny Dogfish:
    a. Studies on incidental catch and discard mortality of spiny dogfish in the directed fisheries of other Mid-Atlantic RSA species, with emphasis on the following gears: gillnets, trawls, and hook-and-line.
    b. Gear development project for a male-only dogfish fishery.
    c. Identify the seasonal composition of spiny dogfish diets utilizing techniques that assure identification of mid-Atlantic managed species.
    d. Identify and evaluate factors that reduced recruitment over the last seven years; for example smaller female size or skewed sex ratio.
2. Recreational Fishing
    a. Develop statistical models that evaluate the effectiveness of recreational management measures or data collection processes.
    b. Estimate recreational discards and hooking mortality by fish size in the summer flounder, scup, black sea bass, and bluefish fisheries.
        i. Reducing bycatch mortality in the recreational fishery for these species through the use of non-offset circle hooks; methods to reduce mortality in fish that are being discarded by recreational anglers because they are below the minimum size limit. Comparative studies on catchability and mortality reduction with non-offset circle hooks and j hooks [or similar] for the following Mid-Atlantic species: black sea bass, bluefish, scup, summer flounder, and tilefish.
        ii. Estimate compliance with minimum size limit and creel limit regulations.
    c. Human dimension survey of marine recreational anglers to characterize values, preferences, and satisfaction with their fishing experiences.

3. Cooperative stock assessment surveys
    a. Supplemental finfish trawl survey.
    b. Evaluate the mixing of *Illex* and *Loligo* squid in September and October.
    c. Estimate commercial discard mortality by gear type and species.

d. Develop fishery-independent surveys and expansions of existing surveys to capture all sizes and age classes of summer flounder, scup, and black sea bass in order to develop independent catch-at-age and catch-per-unit-effort data.
e. Expand age sampling of summer flounder, scup, and black sea bass from commercial and recreational catches, with special emphasis on collection of large specimens.
f. Calibration studies with new survey vessels.

4. New Fishery Techniques
    a. Develop a proof-of-concept technique for a commercial jig fishery.

Habitat issues:

1. Evaluate current and water temperature trend effects on fish distribution and recruitment.
2. Map spawning areas and egg mop areas for *Loligo* squid.
3. Delineate nursery areas or areas of concentration, particularly nursery areas for juvenile summer flounder, scup, and black sea bass.
4. Fishing impacts on habitat
    a. Assess mobile gear impacts on tilefish burrows.
    b. Identify gear impacts on the benthic habitat of juvenile and adult black sea bass, and scup offshore wintering areas.
    c. Define gear impacts on essential fish habitat.

2009 Mid-Atlantic RSA Program Research Priorities

Loligo Squid and Butterfish Interactions

- Mesh selectivity study of butterfish and secondarily for other species caught in *Loligo* nets during winter and summer/early fall.
- Test gear modifications in the *Loligo* squid fishery to reduce bycatch of butterfish and other species.

Illex Squid

- Determine size and age-at-maturity and growth parameters for *Illex* squid.

Summer Flounder

- Define distinctions between regulatory discards and bycatch attributed to gear, including mesh selectivity and/or overall gear design in the summer flounder fishery.
- Evaluate mortality of large fish released in the summer flounder offshore trawl fishery.
- Evaluate size and bag limits in the recreational fishery for summer flounder.

Black Sea Bass

- Estimate black sea bass mortality when left in pots (moderate priority).
- Develop indices for black sea bass recruitment (proof of concept).
- Verify age structure of black sea bass.

Scup

- Estimate the components of scup total annual mortality (natural, commercial landings, recreational landings, commercial discards, & recreational discards).
- Develop indices for scup recruitment (proof of concept).

Bluefish

- Develop bluefish index surveys (proof of concept).

C. Program Authority

Issuing grants is consistent with sections 303(b)(11), 402(e), and 404(c) of the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C.1853(b)(11), 16 U.S.C. 1881a(e), and 16 U.S.C. 1881(c), respectively.

The award of a set-aside from the TAL of selected species resulted from the approval of Framework 1 to the Atlantic Mackerel, Squid, and Butterfish; Summer Flounder, Scup, and Black Sea Bass; and Atlantic Bluefish Fishery Management Plans FMPs; and the RSA provisions of the Tilefish FMP. Framework 1 established a procedure through which RSA amounts are set annually as part of the Council quota-setting process (66 FR 42156, August 10, 2001), and codified in regulations at CFR 648.21(g).

Research Priority List for 2010 RSA Program

NMFS Edited Final Draft of 11-10-2008

Spanning Multiple Species
- Fishery independent surveys for all Mid-Atlantic species, especially in the near shore zone (as provided by the Northeast Area Monitoring and Assessment Program-NEAMAP).

***Loligo* Squid and Butterfish Interactions**
- Evaluate potential improvements to observer sampling procedures on large catches of squid/butterfish.

- Mesh selectivity studies involving Loligo squid retention and butterfish escapement (both summer and winter).

- Test gear modifications (in addition to mesh size) in the Loligo squid fishery to reduce bycatch of butterfish and other species. One example would be the use of 'Fishing Circle Mesh.'

- Study mortality rates of Loligo squid that pass through trawl mesh.

Summer Flounder
- Evaluate the size distribution of discarded fish in the summer flounder recreational fishery by sex.

Bluefish
- Develop bluefish index surveys (proof of concept).

Black Sea Bass
- Develop indices for black sea bass recruitment (proof of concept).

- Verify age structure of black sea bass.

- Study changes in sex ratio as a function of age and size; evaluate the sizes of territories in relation to mating or reproduction.

Scup
- Develop indices for scup recruitment (proof of concept).

- Estimate the components of scup total annual mortality (natural, commercial landings, recreational landings, commercial discards, & recreational discards).

***Illex* squid**
- Determine size and age-at-maturity and growth parameters for *Illex* squid.

Mid-Atlantic Council RSA Program Research Priority List - Multi-Year Specification Starting in 2011

Committee Version approved by full Council on: 8/6/2009

Spanning Multiple Species

- Fishery independent surveys for all Mid-Atlantic species, especially in the near shore zone (as provided by the Northeast Area Monitoring and Assessment Program-NEAMAP).

Interactions Between *Loligo* Squid, Butterfish, Atlantic Mackerel & River Herring

- Evaluate potential improvements to observer sampling procedures on catches of butterfish and River Herring in the *Loligo* fishery, and River Herring in the mackerel fishery.
- Mesh selectivity studies involving *Loligo* squid retention and butterfish escapement (both summer and winter).
- Test gear modifications (in addition to mesh size) in the *Loligo* squid fishery to reduce bycatch of butterfish and other species. One example would be the use of 'Fishing Circle Mesh.'
- Study mortality rates of *Loligo* squid that pass through trawl mesh.
- Use of videography in documenting *Loligo* catches without any or minimal butterfish by-catch.

Summer Flounder

- Evaluate the size distribution of landed and discarded fish in the summer flounder recreational fishery by sex. This could be considered for all catch components, which would include the commercial fishery.

Bluefish

- Evaluate amount and length frequency of discards from the commercial and recreational fisheries.
- Collect size and age composition of the fisheries by gear type and statistical area.
- Initiate fishery-dependent and independent sampling of offshore populations of bluefish during the winter months (consider migration, seasonal fisheries and unique selectivity patterns resulting in a bimodal partial recruitment pattern; consider if the migratory pattern results in several recruitment events).
- Develop bluefish index surveys (proof of concept), including abundance/biomass trend estimates for the offshore populations in winter.

Black Sea Bass

- Validate methods used to age black sea bass (scales vs. otoliths).
- Studies focused on life history and reproductive behaviors such as changes in sex ratio as a function of age and size or the evaluation of the sizes of territories in relation to mating or reproduction.
- Increase age sampling across all components of the commercial and recreational fisheries.
- Increase sea sampling to verify information from commercial logbooks toward providing better estimates of discards.
- Develop a fixed gear survey of black sea bass similar to the one developed for scup.

Scup

- Develop indices for scup ages 2+.

- Estimate the fishery components used to calculate scup mortality (commercial and recreational landings, and discards).
- Expand age sampling of scup from commercial and recreational catches, with special emphasis on the aging of large specimens.

***Illex* squid**

- Determine size and age-at-maturity and growth parameters for *Illex* squid.

FINAL Mid-Atlantic Council RSA Program
2012 Research Priority List - Multi-Year Specification
(as approved by Council on August 19, 2010)

Spanning Multiple Species
- Fishery independent surveys for all Mid-Atlantic species, especially in the near shore zone (as provided by the Northeast Area Monitoring and Assessment Program-NEAMAP).

Interactions Between *Loligo* Squid, Butterfish, Atlantic Mackerel & River Herring
- Evaluate potential improvements to observer sampling procedures on catches of butterfish and River Herring in the *Loligo* fishery, and River Herring in the mackerel fishery.
- Mesh selectivity studies involving *Loligo* squid retention and butterfish escapement (both summer and winter).
- Test gear modifications (in addition to mesh size) in the *Loligo* squid fishery to reduce bycatch of butterfish and other species. One example would be the use of 'Fishing Circle Mesh.'
- Study mortality rates of *Loligo* squid that pass through trawl mesh.
- Use of videography in documenting *Loligo* catches without any or minimal butterfish bycatch.
- Investigate accuracy and precision of observer monitoring of (at-sea and/or port) catches of butterfish, river herrings, and shads in the Atlantic mackerel and squid fisheries.

Summer Flounder
- Evaluate the size distribution of landed and discarded fish in the summer flounder recreational fishery by sex. This could be considered for all catch components, which would include the commercial fishery.

Bluefish
- Evaluate amount and length frequency of discards from the commercial and recreational fisheries.
- Collect size and age composition of the fisheries by gear type and statistical area.
- Initiate fishery-dependent and independent sampling of offshore populations of bluefish during the winter months (consider migration, seasonal fisheries and unique selectivity patterns resulting in a bimodal partial recruitment pattern; consider if the migratory pattern results in several recruitment events).
- Develop bluefish index surveys (proof of concept), including abundance/biomass trend estimates for the offshore populations in winter.

Black Sea Bass
- Validate methods used to age black sea bass (scales vs. otoliths).
- Studies focused on life history and reproductive behaviors such as changes in sex ratio as a function of age and size or the evaluation of the sizes of territories in relation to mating or reproduction.
- Increase age sampling across all components of the commercial and recreational fisheries.
- Increase sea sampling to verify information from commercial logbooks toward providing better estimates of discards.
- Develop a fixed gear survey of black sea bass similar to the one developed for scup.

Scup

- Develop indices for scup ages 2+.
- Estimate the fishery components used to calculate scup mortality (commercial and recreational landings, and discards).
- Expand age sampling of scup from commercial and recreational catches, with special emphasis on the aging of large specimens.

***Illex* squid**

- Determine size and age-at-maturity and growth parameters for *Illex* squid.

Tilefish

- Effect of hook size on tilefish size selectivity in the longline fishery.

Attachment 2

Mid-Atlantic RSA

Number of Projects	Fishing Year								
Project Category	2002	2003	2004	2005	2006	2007	2008	2009	Grand Total
Conservation Engineering	3	2	1	1	1	1			9
Discard Mortality						1	1	1	3
Management Strategies					1				1
Monitoring		1	2	2	2	2	2	2	13
Grand Total	3	3	3	3	4	4	3	3	26

Sum of Est. Total Value	Fishing Year								
Project Category	2002	2003	2004	2005	2006	2007	2008	2009	Grand Total
Conservation Engineering	$215,331	$214,861	$110,825	$578,084	$77,681	$522,749			$1,719,531
Discard Mortality						$284,800	$148,719	$376,650	$810,169
Management Strategies					$321,691				$321,691
Monitoring		$478,202	$757,344	$908,342	$960,381	$1,211,705	$574,040	$1,384,920	$6,274,934
Grand Total	$215,331	$693,063	$868,169	$1,486,426	$1,359,753	$2,019,254	$722,759	$1,761,570	$9,126,325

Sum of Est. Research Value	Fishing Year								
Project Category	2002	2003	2004	2005	2006	2007	2008	2009	Grand Total
Conservation Engineering	$90,994	$79,720	$97,240	$262,787	$18,079	$318,673			$867,493
Discard Mortality						$161,992	$110,554	$339,903	$612,449
Management Strategies					$171,684				$171,684
Monitoring		$78,258	$237,995	$396,853	$421,046	$531,859	$381,660	$965,759	$3,013,430
Grand Total	$90,994	$157,978	$335,235	$659,640	$610,809	$1,012,524	$492,214	$1,305,662	$4,665,056

Sum of Est. Compensation Value	Fishing Year								
Project Category	2002	2003	2004	2005	2006	2007	2008	2009	Grand Total
Conservation Engineering	$124,366	$135,141	$13,585	$315,297	$59,602	$204,076			$852,067
Discard Mortality						$122,808	$38,165	$36,747	$197,720
Management Strategies					$150,007				$150,007
Monitoring		$397,887	$519,349	$511,486	$539,335	$637,682	$192,380	$419,161	$3,217,280
Grand Total	$124,366	$533,028	$532,934	$826,783	$748,944	$964,566	$230,545	$455,908	$4,417,074