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COMPLETION REPORT

Project Title: 2005 Fishery Independent Scup Survey of Eight Selected Hard Bottom Areas in Southern New England Waters

Project number: 04RSA-003 NA05NMF4541097

Project period: May 1, 2005 to November 30, 2005

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Introduction:
Unvented scup traps were fished on six hard bottom areas in Southern New England (SNE) waters during the summer of 2005. Approximately 5300 scup, of all sizes, were captured in the unvented traps. The length frequency distribution of the catch was recorded and submitted to scientist at The University of Rhode Island (URI). Comparisons of the NMFS trawl data and results of the unvented trap study will be presented in the final progress report submitted by URI.

Purpose:
The project is designed to collect data on scup, which inhabit the hard bottom areas in SNE and compare the length frequency distribution in the unvented traps to the catch in the NMFS trawl survey. This project has been funded because of the major uncertainties noted in the 2002 scup assessment. Specifically, the 2002 scup assessment noted that the current level of sampling, and general lack of information on scup, impedes the development of an analytical assessment of the population. In particular, the lack of older animals in the NMFS survey is a major source of uncertainty in evaluating the status of the population and hinders the development of mortality estimates.

Approach:
A fishery independent scup survey of twelve separate hard bottom sites was completed in SNE. Two commercial vessels conducted the fieldwork and the URI leads efforts in regards data analysis and preparation of the final report. Staff from the RI Department of Environmental Management, Division of Fish and Wildlife collaborated with the project and assisted in the data analysis. Scup were collected from each site utilizing standard fish traps (2 x 2 x 2 foot) made with 1½ x 1½ inch coated wire mesh with double entry wire heads. Traps were unvented in order to retain all size classes of scup. The sampling protocol required that the commercial vessels take 15 traps to each sampling site once during each four-week sampling cycle. Traps were baited with clams, which fish quickly, and set on the sampling site. A one-hour soak time was utilized throughout the project. The date, area, depth, and catch were recorded utilizing standard NMFS Sea Sampling protocols. Each scup was measured for total length. After recording the catch in each trap, the gear was re-baited and reset within 200 yards of the original site. Thereafter, traps were re-hauled following the same protocol, thus 30 trap hauls were completed on each sample site once each four-week cycle. This same

sampling format was followed every four weeks from June 15th through October 15th, for five complete cycles. The final report will discuss the differences between the data collected in the ventless trap study and the data collected as part of the standard NMFS finfish trawl and State surveys.

Results:
The project resulted in the collection of fishery independent data on the scup population during the summer months when they are located on hard bottom and unavailable to existing NMFS and state survey gear. The fieldwork portion of project has been completed for the year. Approximately 5300 scup were measured in 2005 as compared to 2341 fish in 2004 (when the initial project began). The raw data has been provided to the URI staff. A completion report and analysis of the data will be prepared by the staff at URI and distributed to NMFS consistent with the contract. The URI has also been paid $3500 for report preparation and analysis, as specified in the funding proposal.

Project goals and objectives were achieved in that 5300 scup measurements were collected from the twelve hard bottom sites in SNE. Although the number of fish measured during the year was less than the vessel operators expected, the number of fish measured was almost twice as large as collected during 2004. In spite of the success of this years project the program encountered several unanticipated problems which can be eliminated with minor changes in the project design.

- First, the scup seemed to be widely distributed this year, instead of being concentrated during the summer months in the inshore sampling areas. During 2005, scup were caught in the inshore harbors and river out to approximately 35 miles off the coast.
- The density of scup was far lower on the sampling stations than during prior years. Both fishermen have fished in these areas for years and the low densities were uncharacteristic for the summer period. This was particularly true of the western sampling locations at the mouth of Buzzards Bay. The project design changes implemented during 2005 substantially increased the geographic coverage of the research and minimized the problems caused due to this population shift to the eastern zone.
- Both of the fishermen again had problems sampling during mid-October due to horrendous weather. This occurred last year and we dropped the sampling scheduled for November and reallocated that effort to the eastern end of the Bay during the good weather period. In addition, this year the scup migrated out of the inshore areas three weeks prior to their customary migratory timeline due to an early cold front.
- During 2005, the short soak time for the ventless traps had a major negative impact on the catch rates. Historically short soak times, with rapid re-hauling, have been effective ways to harvest scup in large numbers, but that situation has changed. As an example, both of these fishermen have previously caught up to 2500 lbs of legal size scup in as short a period of time as three hours. For reasons that no one can explain, that situation no longer exists. Longer soak times of one or two days are now the rule in the commercial fishery. A further example of this

point may be useful. Both fishermen involved in the project took a NMFS employee on a tagging cruise in 2005. In both cases, the fishermen set gear for one and two day soaks times prior to the tagging trip. As they only tagged large fish, the majority of the catch not tagged. In one case, the NMFS employee tagged 450 scup for the day and in the other tagged 350. These catch rates are at least triple the catch rates in the experimental gear which utilized the one hour soak time.

- Finally, sampling on the spawning grounds had limited success. Three out of the four sampling cycles did not produce any fish. This was the first year that any sampling had been done in the spawning areas, and it is a recent addition to the project. During 2005, most of the fish in these areas were in deep water and caught with black sea bass gear. Due to high currents, it was nearly impossible for the standard cube scup trap (the experimental gear) to tend bottom. The experimental gear most likely only fished for a short time period and most likely at slack tide, if at all. In contrast, black sea bass gear fished in the spawning area, during the same period for one or two night sets, had comparatively high catch rates of large and small scup.

Changes for 2006:

We are proposing the following minor project design changes in 2006, in order to improve project results, as was done in 2005.

- Allow the fishermen to use one and or two night sets of the experimental gear. Either the gear will be hauled on a one or two-night set, whichever catches the larges number of scup. The set over days will be recorded so that the data may be standardized for the analysis. This change alone could conceivably double the number of fish captured by the project.
- Allow the mid–October sampling to take place on October 1. This should avoid some of the weather related problems and ensure that the project samples the migratory component of the population.
- The 2005 spawning site-sampling program was the first time the project had attempted to characterize the length frequency on the spawning grounds. Four days of sampling are allocated to this component of the project. The fisherman who conducts the project in the eastern zone has requested that he be allowed to use a standardized black sea bass trap instead of the traditional scup cube trap. The reasons and justification for this change are noted above. This change will not increase the gear in the water as the fisherman already fishes black sea bass gear on these sites. He will only need to cover his escape vents and bait the traps.

- The cooperating fisherman believed that this change in project design could produce substantial numbers of scup during the spawning period. This proposal interjects uncertainty into this component of the project results and analysis. However, the spawning component of the project was a recent addition to the program per the request of NMFS, and is a minor aspect of the overall project. Given the fact that three out of four sampling trips with scup traps yielded no

scup, there is little data to compromise. This aspect of the program is very experimental at this stage of the research. The other option is to drop the spawning survey from the project. Given the small amount of effort expended, it may be far more valuable to let the fisherman test his theory, and judge the outcome by the results.

As a final point, please note that if these changes are incorporated into the 2006 project that the number of sites and stations remains the same as in the approved project. The only difference is that the fishermen involved will incur additional travel expenses, since they will have to visit each site twice per month instead of once. There are no proposed changes to the budget.