**Alternative Methods for Surveying and Estimating Released Catch**

**MRIP Released Catch Work Group (2008-2009)**

**Suggested Analyses and Pilot Studies**

1. **Comparison of observed and self-reported released catch by anglers fishing on headboats**

The current Atlantic Coast At-Sea Survey of angler catches on headboats assigns interviewers to collect data on a probability sample of specific headboat fishing trips. The interviewer boards each selected trip and collects catch data for all angers who fish on the trip. During the trip, the interviewer randomly selects a subset of anglers to directly observe and record data on any fish that those anglers catch and release during the trip. In addition, the interviewer identifies each fish at the species level and seeks to obtain a length measurement on the fish before the angler releases it. When all anglers have finished fishing and the boat is returning to the dock, the interviewer completes interviews with all of the anglers who fished on the trip to obtain data on their catches. For those anglers who were not directly observed during the trip, the interviewer is only able to directly observe, identify and count the fish that the angler kept. The interviewer asks each of those anglers to recall and report the species and numbers of fish that they caught and released during the trip. This gives us two different categories of angler trip interviews for each sampled headbooat trip – angler trips with directly observed released catch (observed trips) and angler trips with self-reported released catch (self-reported trips). The kept catch is directly observed by the interviewer for all anglers who fished on each sampled trip.

The suggested analysis is to compare the released catch data obtained from observed trips with the released catch data obtained from angler self-reports. Comparisons can be made both within each trip, as well as across all sampled headboat trips. The comparisons can also be made both within and across all state/wave sampling strata. Comparisons can be made for total numbers of released fish of all species, as well as for total numbers of released catch by species.

A very preliminary analysis of this type was conducted by Eric Newburger in 2009. That analysis only looked at Atlantic coast data collected in 2006 and 2007. A more thorough analysis could now be conducted using many more years of data.

1. **Prescriptive Surveys for Angler Recall of Released Catch**

Current access point surveys collect data on released catch by intercepting and interviewing anglers at the end of their fishing day and asking them to recall and report the kinds and numbers of fish they caught and released during that day of fishing. An alternative approach would be to intercept anglers at assigned access points before they start a day of fishing and notify them that they will be asked to recall and report their released catch if they are intercepted again at the end of their fishing day. This “prescriptive” approach could potentially improve the angler’s ability to accurately recall their released catch when interviewed at the end of their fishing day.

It is recommended that three different approaches be used to collect angler reported data on released catch through a given access point survey design. One approach would be the current approach to simply intercept anglers at the end of their fishing day and ask them to recall and report the kinds and numbers of fish they caught and released. Anglers intercepted and interviewed through this approach represent a “control group”. A second approach would intercept anglers at the assigned access point before they start a day of fishing and tell them that they will be asked to report to report the kinds and numbers of fish they caught and released if they are intercepted again at the end of their fishing day. Anglers intercepted and later interviewed following this approach would represent “experimental group 1”. A third approach would also intercept anglers before they start a day of fishing and ask them to record the kinds and numbers of fish they catch and release on a standard form provided by the interviewer that they can then return to the interviewer if they are intercepted again at the end of their fishing day. Anglers intercepted and later interviewed following this approach would represent “experimental group 2”. Estimates of the mean numbers of fish caught and released can then be generated for each group. Those estimates would then be compared to see if there are statistically significant differences among the three groups. The three groups to be compared could be sampled separately or they could be randomly assigned within each access point assignment.

This study would enable evaluation of possible differences in angler reports between prescriptive and non-prescriptive approaches, as well as between prescriptive approaches with and without the use of a data collection form. The expectations are as follows: (1) a prescriptive approach could potentially improve the accuracy of angler recall of the kinds and numbers of their released catches; and (2) a prescriptive approach that asks anglers to record their released catches on a standard form could potentially improve their accuracy of recall over a prescriptive approach that does not provide a data collection form.

An additional consideration would be to provide a disposable camera to each angler who is asked to record their released catch on a standard form. The interviewer would ask the angler to photograph each fish before releasing it and then would retrieve the camera when intercepting and interviewing the angler at the end of the fishing day.

This may be difficult to implement if anglers are starting and ending their day of fishing at very different times of the day. It will be easier to implement in situations where most anglers start their fishing day within a given 2-3 hour period and end it within a later 2-3 hour period. Otherwise, interviewers will have to be on-site throughout the day to be sure they can intercept all anglers using the site both before and after their fishing trip.

1. **Comparison of observed and self-reported released catch by anglers fishing on man-made shore structures**

The current access point surveys of anglers fishing on man-made shore structures assign interviewers to collect data via probability sampling of fishing access points and specific time intervals. The sample unit is essentially a specific site-time combination. During the assigned time interval at the assigned site an interviewer intercepts and interviews anglers who have finished their day of fishing to collect catch data. The interviewer asks to directly observe, identify, and count the catch that the angler has kept and ask the angler to report the kinds and numbers of fish he/she caught and released.

This study would send a two interviewers out to complete a random selected subset of assignments. The first interviewer would conduct interviews in the typical manner as described above. These interviews would be considered “angler self-reports” of released catch. The second interviewer would locate near a randomly selected subset of anglers at the site and would ask to directly observe their fishing for the day. This second interviewer would interview each of the anglers in the selected subset and would directly observe, identify, count, and record all fish caught by the selected subset of anglers, including those that are released. The second interviewer would also obtain length measurements on at least a subsample of the fish caught and released. This second set of interviews would be considered “direct observations” of released catch. The first interviewer would avoid interviewing any of the anglers who were already interviewed by the second interviewer.

Estimates of the mean numbers of fish caught and released of each species would be produced for both the angler self-report interviews and the direct observation interviews. Estimates could be produced and compared both within and across site-day assignments to test for statistically significant differences in the means for total catch, as well as the means for catch by species.