

## **Chapter 3**

### **QUALITY ASSURANCE**

The actual data collection programs for the MRFSS telephone and intercept surveys are contracted out by the NMFS to private companies, with KCA Research Division of David C. Cox & Associates (KCA) having the contract for both surveys in 1993-1995. The details concerning the survey procedures and quality assurance are outlined by the NMFS in the Marine Recreational Fishery Statistics Survey Procedures Manual.

#### **Telephone Survey**

The dialing sample for the telephone survey is stratified by county within each state and by 5-digit blocks of working residential numbers within each county. A national sample frame of blocks of telephone working numbers in coastal county households has been developed under past MRFSS contracts. Each block must have had at least one residential number assigned to be included in the sample frame. Blocks are identified by the first five digits of every telephone number within each area code. The fourth and fifth digits are often designated for business or residential use, so blocks including business numbers can be screened out of the sample frame for more efficient dialing. Unassigned blocks have also been eliminated from the sample frame. The sample frame is maintained on a continuing basis through the use of current telephone directories, reverse directories (sorted by blocks instead of names), and information from telephone companies.

The last two digits of the telephone numbers to be dialed are generated randomly. This approach ensures that all telephone households, even those with unlisted numbers, are eligible to be reached in the survey. Duplicate telephone numbers must be screened out of the generated set of random numbers for each wave; however, with replacement sampling across waves, it is possible that in sparsely populated counties households will be contacted that have been interviewed during previous waves. Special tracking procedures are used to ensure that no more than one percent of the households contacted are included in the sample frame more than once during the year.

To screen for residential households and their eligibility for interviews at least five attempts are made to contact a household member for each number. These attempts are distributed across daytime and evening hours on both weekdays and weekend days. At least five additional attempts are made to reach eligible anglers in each household. The percentage of "no answer" or "busy" results are not to exceed 10 percent of the total calls attempted in any subregion.

The contractor utilizes an automated sample management system to increase the accuracy and efficiency of data collection. County samples are automatically spread over the dialing period to prevent cluster effects, and target quotas by county are automatically monitored by the system.

Interviews are conducted using a computer-assisted telephone interviewing system which includes "skip patterns" in question sequencing and "snap backs" for illogical question responses. These assist the interviewer in following the questionnaire and in identification of invalid or illogical

data. Further advantages of this quality assurance system include built-in range-checking and cross-referencing of response variables, as well as the elimination of a separate key-entry step.

An extensive training session is held for all personnel who have not worked on the survey in previous waves. This training covers general telephone interviewing procedures as well as procedures specific to the MRFSS. Training sessions include a general overview of the background, purpose, and design of the MRFSS, as well as an item-by-item explanation of the data collection instruments and a review of all materials used in conduct of the interview. All trainees must conduct practice interviews with supervisors to allow first-hand criticism of their interviewing technique.

Project supervisors oversee the operation of the telephone household survey. Supervisors validate 10 percent of each interviewer's work through both monitoring of interviews in progress and recontact of interviewed respondents. In interview monitoring, the supervisor listens to an interview in progress and records the respondent's answers on a second questionnaire. Following the interview, the two questionnaires are compared and any discrepancies resolved. During re-contact of respondents the supervisor attempts to verify that the interview took place and that the interviewer responses were coded correctly.

Supervisors review all completed questionnaires for completeness and accuracy on a daily basis during the dialing period. Any apparent mistakes or inconsistencies are checked with interviewers and, if necessary, the respondent is recontacted to clarify an answer. Respondents who report an abnormally high number of trips (greater than the 95<sup>th</sup> percentile for each wave, state, and mode calculated from the five most recent years of data, exclusive of the current year) are recontacted for verification.

### **Intercept Survey**

The actual sites to be sampled in the intercept survey are randomly selected according to fishing activity from a master list of all marine fishing locations in each state, called the site register. Fishing pressure is estimated for each site by mode of fishing, month, and weekend versus weekday fishing, and is a scaled value representing the average number of anglers using that site on a weekend day. The site register is continuously updated using feedback from intercept interviewers, field supervisors, and state fisheries personnel. The fishing pressure information is used in the selection process so that the more heavily used sites have a higher probability of selection. All sites with a scaled pressure value from "0" to "7", inclusive, are eligible for assignment. Sites are selected randomly with non-uniform probability based on angling pressure.

Within each state, a base level of intercepts is allocated for each unique wave and mode combination to assure that sufficient data is available to produce estimates. These base levels are 30 intercepts in the shore and private/rental boat modes and 45 intercepts in the party charter boat mode. The higher base level in the party charter boat mode was chosen to reduce the clustering effect for this mode due to the high proportion of group catches. Further allocations beyond this base level are proportional to three-year historical mean fishing effort by mode and wave.

Sites are randomly assigned to a date within a wave, with more intercepts targeted for weekend days due to increased recreational fishing effort during this time. The required ratio of weekend to weekday intercepts is 60:40. Sites are assigned throughout each wave and between months within each wave on the basis of monthly pressure estimates. This requirement is intended to ensure that sampling is geographically and temporally distributed in relation to fishing activity.

Prior to MRFSS training, field interviewers must be able to identify on sight the 20 most frequently occurring species in his/her geographic sampling area. Interviewers are also tested for their ability to correctly fill out forms and look up codes in manuals. Initial testing also verifies the interviewer's aptitude for successfully interviewing anglers. Interviewers who successfully pass the initial fish identification test are trained in proper procedures for conducting the intercept interview. Training programs are designed to ensure quality and consistency of site selection and visitation procedures, interviewing methods, and coding and editing.

Additional testing and training of prospective interviewers is conducted in the field by a field supervisor. Each new interviewer is observed in the field during one of his/her first three assignments and at least once during each successive six-month period following their initial field observation.

A minimum of the first 100 coding forms from each new interviewer is reviewed for accuracy, completeness, legibility, and consistency of coding. Supervision by KCA includes overall supervision by the project manager, regional oversight by two marine biologists, and state-wide supervision by either state or regional representatives (Figure 9). Oversight by the regional representatives includes weekly phone contacts with individual interviewers, on-site visits to evaluate interviewer performance, and quarterly survey review meetings.

Intercept survey data is key-punched using a DBASE III key-entry program, with built-in range checks on all variables, data checks for correspondence between variables, and flagging of unusual fish records having possible geographic distribution and weight-per-length errors. Further data checks are performed using a SAS error-checking program, a review of downloaded fish records, and a detailed review of preliminary species-specific catch estimates. The review of individual fish records includes checks for correct taxonomic and species level fish identification, confirmation of species geographic distribution, and checks for appropriate gear type, disposition of catch, number caught, weight/length measurements, and primary area of fishing.

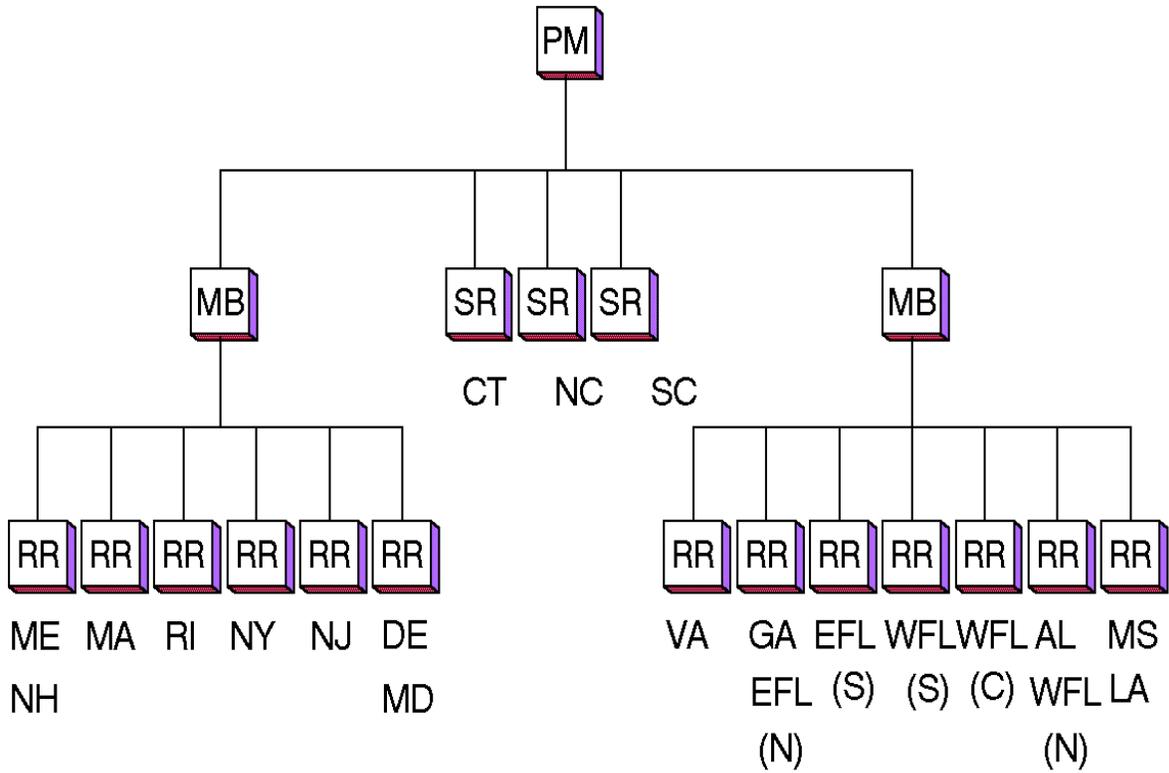


Figure 8. Supervisory organization of MRFSS intercept survey interviewers by KCA Research Division, David C. Cox & Associates (KCA).