

Responses to OMB Comments regarding survey “Perception of marine debris by users of commercial fishing gear in the Core Sound Area, North Carolina.”

(comments are in black, responses are in blue).

The convenience sampling and snowball sampling strategies are highly unorthodox, but the supporting statement claims that they will make the survey more representative. Please explain how breaking the random sample and making personal networks and work habits more important in the selection criterion leads to a more representative sample.

We have no access to the NC Division of Marine Fishermen list of commercial or recreational license-holders due to privacy policies. Therefore, a truly random sample to population is not feasible (OMB Supporting Statement, p. 9). We have no access to personal contact information with which to contact license holders via phone or mail. However, in this small community, there are strong social networks. Babbie (2007) indicates that snowball sampling is “appropriate when the members of a special population are difficult to locate” and is used primarily for exploratory purposes, both of which fit the objective of this survey. Due to the difficulty in locating the population, we believe that a combination sampling approach as described will provide the most effective approach possible to locating the target population in the absence of contact information.

The survey is quite long, particularly for small business owners. It needs to be tightened up to avoid partial responses.

What makes it long is asking series of questions both for marine debris (MD) and derelict fishing gear (DFG). We are particularly interested in learning whether the target population distinguishes any similarities and differences between the two. The respondents are informed of their ability to skip questions they do not want to answer.

We have tightened the survey in questions 9, 11 and 16, in which we have consolidated types of DFG into categories by type of fishing. We have reworded 20a and deleted 20b. We have also deleted questions 14 and 17.

What is the particular expertise of these fishermen that makes them suited to this survey?

The expertise of commercial/RCGL fishermen is particularly suited to this survey for the following reasons. First, these fishermen are the major stakeholders and the primary users of this relatively remote geographic area. Proportionally, they spend more time on the water than any other user group and directly utilize the marine resource in a hands-on manner for professional or recreational reasons. Time on the water (including water’s edge) in a small boat (>50feet, often >20feet in this area) working with fishing gear could be proportionally related to the possibility of encountering marine debris and/or DFG. Therefore, they are particularly suited to sharing their observations on occurrence and potential impacts marine debris and derelict fishing gear in the geographic area (which is one of the points of the survey). Second, we are interested in derelict fishing gear as a specific, particular type of marine debris, and fishermen are the primary users of fishing gear. In this marine location, as in others, it is likely that if marine debris or DFG is considered a problem by the fishermen, they may feel the impacts are from fishermen using other gear types. It is possible that either marine debris, DFG, or both, impacts the livelihood of these fishermen. We ask in the survey about perceptions on potential livelihood impacts, potential environmental impacts, and for their ideas on suggestions for reduction methods (if needed). Finally, in this geographic area, a historical and continuous cultural heritage is tied to fishing: fishermen represent an important source of traditional and local ecological knowledge, which would provide context to perceptions on whether/how this issue impacts their livelihood and suggestions for potential management actions (if needed).

What are the research questions that would require knowing, for example, the number of days and people that use a particular type of gear?

Number of days and people using a particular type of gear is intended to quantify the experience of the users. It will help us identify sub-groups within the target population and will provide information about what geographic areas the fishermen frequent (ie open water, nearshore) due to the marine zoning in place by the NC Division of Marine Fisheries. Amount of time of the water, type of fishing, and location in the marine environment may be correlated with how much debris/DFG the fishermen might encounter.

Are there questions presented here that are better answered by trained scientists or observers?

A scientific ecological study in 2007-2009 was implemented in this geographic area to investigate marine debris distribution and impacts within the same geographic area (OMB Supporting Statement , p. 3). However, scientists are not the primary users or stakeholders of this area. We intend for this survey to provide information on perceptions held by the primary group of users and stakeholders, fishermen. The two studies will provide different aspects of information to guide management decisions and outreach. If the perceptions do not match with physical science results, that emphasizes the need for education. If perceptions and physical science results do agree, that emphasizes the need for management action.

Question 7 and 11: what qualifies the fishermen to make this evaluation?

We are asking the fishermen for their perceptions, not their expertise. They have considerable ecological knowledge from extensive exposure to the marine environment. We want to know what they think is out there in terms of marine debris/DFG and what they think contributes to causes of marine debris/DFG.

Question 13 and 16: what is the "marine environment?"

We have reworded the "marine environment" to "the marine habitat and organisms within it (e.g. water, shore, vegetation, fish, birds, crabs, turtles, other organisms)" in Questions 13 and 16.

Does a commercial fisherman agree, or would they be evaluating the debris effect on their livelihood?

Question 12, 15, 18 specifically address the impacts of marine debris/DFG on the commercial fishermen's fishing practices. Question 18 may be answered in terms of livelihood.

How do you expect "What type of impact" to be answered?

We have reworded this question to "please explain response"

Expected responses range from "no impact" to "it creates new habitat for fish to live in" to "it is good/bad for my fishing/ livelihood." This question gives the respondent latitude to express his opinion if s/he feels that a question was not addressed specifically.

Question 14 and 17: probability questions are difficult for the public to answer. What is the likelihood that a particular piece of debris causes an impact? The options to answer are frequency metrics, so it would appear that the question is closer to how often do you observe the following. These are very different questions. Re: questions on new habitats and toxins, how would the fisherman know? On what basis would the answer they provide be useful?

We have removed these questions.

Question 18: these questions should be limited to the fisherman's experience. In the very least, human health effects go well beyond.

We are asking for 'perceptions' and opinions, not expertise: if the physical science doesn't match up with perceptions, then education is needed. If the physical science and perceptions do match up, then there is a supported management issue. The question particularly asks how they "feel". We want to know if the respondent makes connections between marine debris (or DFG) and human health issues in the area: water quality, oyster bed closures, mercury poisoning, etc. As seafood suppliers, they are aware of specific connections between the oceans and human health.

Question 19: has sea level rise been separately documented in the survey area? If not, the question is misleading and invites spurious observations.

The sea level rise option has been removed.

Question 20a and 20b: these follow-up questions are confusing. Are you asking them to provide anecdotal evidence to support their observations? What if more debris and less fishing gear?

We have reworded 20a and deleted 20b in an effort to increase clarity of intent and tighten the survey. We are asking for a historical context to their observations. We are asking for perceptions to benefit outreach and education.

Question 21: reword to "What do you do when . . ." and Question 22: Do not ask someone to speculate as to the motivations for others' actions.

Both #21 and 22 are worded to help eliminate the "interviewer effect". This wording is intended to take the onus off the respondent on a personal level and avoid putting the respondent on the spot regarding sensitive activities. We are looking for what is considered "common practice." In social science methodology, this technique is used to reveal more truthful information. We have reworded question 22 to allow the latitude for the respondent to respond from his own viewpoint or from that of others, depending on the respondent's comfort factor.

References

Babbie, E. (2007) *The Practice of Social Research*. 11th ed. Belmont, CA, Thomson-Wadsworth.