SUPPORTING STATEMENT
SOCIO-ECONOMIC SURVEYS OF VESSEL OWNERS AND CREW IN NEW ENGLAND AND MID-ATLANTIC FISHERIES
OMB CONTROL NO. 0648-XXXX

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g. establishments, State and local governmental units, households, or persons) in the universe and the corresponding sample are to be provided in tabular form. The tabulation must also include expected response rates for the collection as a whole. If the collection has been conducted before, provide the actual response rate achieved.

Target and Sampling Populations

Table 4 provides the definitions of the target and sampling populations for each survey.

Table 1 - Target and Sampling Population Definitions

Category	Owner Survey	Crew Survey
Target population – The population that the survey effort is interested in collecting data about.	• Individuals or entities that own fishing vessels operating in the Northeast or Mid-Atlantic states.	• Individuals who work as crew on commercial fishing vessels operating in the Northeast or Mid-Atlantic states.
Sampling population – The set of individuals from which the sample units are drawn.	• Individuals or entities whose names which are listed as vessel owners.	• Individual crew members that can be encountered on the public areas of docks.

Population and Sample Sizes

Both surveys will be stratified by fishery. The set of fisheries that will be used to stratify the sample is provided in Table 5. Table 5 also provides estimates of the populations and sample sizes for the first year for both surveys and expected response rates for both surveys. Details on how sample sizes were estimated are provided under Part B, Question 2 below. The total sample size for owners survey is targeted to be 769 in the first year and the sample size for the crew survey is targeted to be 1,330 in the first year. As noted above, SSB will collect the full sample size in the first year and then (approximately) half of the first-year sample size in the second and third years. The sample selected each year, however, will be independent of samples collected in other years (i.e., SSB will not be collecting data from the same individuals over time unless those individuals are randomly selected in different years). In the second and third years SSB will collect data from one half of the fisheries in each year. The per-year sample sizes and the annualized sample size are presented in Table 6.

Table 2 - Populations and First Year Sample Sizes, By Fishery, and Expected Response Rate for Owner and Crew Surveys

Fishery		Owners		Crew	
		Population [a]	Sample Size [b]	Population [c]	Sample Size [b]
Black Sea Bass		60	34	506	66
Herring and mackerel		25	19	509	66
Lobster		506	66	4,229	75
Monkfish		82	40	917	70
Multispecies, large mesh	common/other	55	32	487	65
	sector	243	58	3,045	75
Multispecies, small mesh		20	16	281	60
Red crab		5	5	143	50
Scallop, general category IFQ		151	51	2,180	75
Scallop, general category non-IFQ		148	50	3,875	75
Scallop, limited access		193	55	5,114	75
Scup		23	18	219	56
Skate		23	18	290	60
Spiny dogfish		45	29	341	62
Squid, Illex		10	9	273	59
Squid, Loligo		42	27	534	66
Summer Flounder		178	53	1,563	75
Surf clam/ocean quahog		64	35	1,084	71
Tilefish		15	13	132	48
Inactive	common/other	1,245	42	-	-
	sector	266	37	-	-
Non federally managed fishery	common/other	427	39	3,869	42
	sector	50	23	409	39
Totals		**3,876**	**769**	**30,000**	**1,330**
Expected Response Rate		**70%**		**90%**	

[a] The population for owners reflects the number of vessels in each fishery. Since owners can own more than one vessel, this number overestimates the number of owners in the Northeast. Work is currently underway at the Northeast Fisheries Science Center to develop definitive linkages between vessels and owners. Data from that effort should be available to use to develop a sampling frame for the first year implementation of this survey. Vessels were placed in a fishery based on revenues in 2010. If a vessel was inactive in 2010, 2009 revenues were used and if inactive in 2009 also, 2008 revenues were used. If a vessel was inactive in 2008-2010, then it was placed in an "inactive" category.

[b] Details on the calculation of sample size can be found under Section B, Question 2 below.

[c] The population of crew for each fishery was estimated by distributing an estimated 30,000 crew in the Northeast and Mid-Atlantic states across the fisheries based on information on the number of crew required for each vessel. Attachment A provides details on this estimate.

Table 3 - Total Sample Sizes per Year and Annualized Sample Size

Survey Year	*Owners Survey*	*Crew Survey*
First year	769	1,330
Second year	385	665
Third year	385	665
Annualized [a]	**513**	**887**

[a] Calculated by summing the sample sizes over the three years and dividing by three.

Response Rates

SSB expects that response for the owners survey to be 70 percent and for the crew survey to be close to 90 percent. For the owners survey, SSB will use Don Dillman's Tailored Design Method (TDM) to mail surveys (Dillman, 1999). The TDM approach involves multiple points of contact with potential respondents to maximize response rates. SSB's estimate of 70 percent response is based on work done by its contractor in which it has obtained response rates of 70 percent or higher for mail surveys.

SSB's estimate for the crew survey is based on previous work conducted by Richard Pollnac in which a 90 percent response rate was achieved in an intercept survey of crew in New England.[1]

Sample Selection

To select the sample of owners, SSB will use a systematic sampling approach. Each stratum will be sorted by the owner's listed state. Next, SSB will determine the sampling interval by dividing the total number in each stratum by the sample size to be selected. For example, with a sample of 20 respondents and a population of N owners, the sampling interval would be $k = N/20$. SSB will then select a random number between 1 and k which becomes the starting point for the sampling process. SSB would then select every k^{th} potential respondent beginning at the randomly selected starting point in the sorted list. For example, if the random number selected as the start point was 3, then SSB would select respondent numbers 3, $3 + k$, $3 + 2k$, etc. Sorting by the state will allow for proportional representation of states within the sample.

Respondents for the crew survey will be selected using a cluster sample design. After stratification, the first selection process will involve randomly selecting ports. To ensure that "active" ports are selected, SSB will select using a probability proportional to size (PPS) approach. Specifically, under a PPS approach a port's probability of being selected into the sample is related to the "size" of the port with larger ports being more likely to be selected into the sample. The PPS approach is necessary to ensure that selected ports are more active and thus, more likely to result in completed crew surveys. For this study, the size of the port should be measured by some factor that is correlated with the availability of crew at the port. NMFS is currently reviewing available data to determine the best factor to use. One limiting concern is that the factor chosen to select upon should not itself be correlated with fisheries (e.g., selection based on the factor would lead to over-selection of ports that concentrated among a specific set

[1] This response rate is based on a project entitled "Job Satisfaction, Well-being and Change in New England Fishing Communities" coordinated by Richard Pollnac at the University of Rhode Island.

of fisheries). Once ports are selected, SSB will place interviewers at ports and crew will be recruited to take the survey as they are identified.

The number of ports selected in the crew survey will depend on the implementation costs and the distribution of fisheries by port:

- Higher **implementation costs** will lead to fewer ports being selected. One key aspect of implementation is the rate at which surveys would be completed (e.g., number of completes per day per interviewer on site). As noted in Section B, question 4, SSB is conducting a small-scale pilot to better assess implementation costs, logistics, and completion rates.

- Uniform **distribution of fisheries across ports** will lead to fewer ports being selected. In order to collect data from all fisheries identified in Table 5 above, SSB will need to visit ports that represent all fisheries. If fisheries tend to uniformly distributed across ports (i.e., most ports involve most fisheries), then fewer ports would need to be visited. However, if fisheries tend to be concentrated at port (i.e., some ports concentrate on some fisheries while other ports concentrate on other fisheries), the more fisheries will need to be visited.

SSB expect to select between 10 and 20 ports to visit at various times and days as part of this project, with the exact number to be determined as data on fishery distribution by port are examined and following the small-scale pilot discussed under Part B, Question 4.

2. Describe the procedures for the collection, including: the statistical methodology for stratification and sample selection; the estimation procedure; the degree of accuracy needed for the purpose described in the justification; any unusual problems requiring specialized sampling procedures; and any use of periodic (less frequent than annual) data collection cycles to reduce burden.

Sample Size and Accuracy

SSB has selected an unadjusted sample size of 75 units (owners or crew) per stratum for most fisheries. For some strata where less precise information is needed, SSB relaxed the accuracy requirements and needs only 42 units for each of those strata. Each of these per stratum values was adjusted using the finite population correction. The process for developing these per stratum values is discussed, along with the implications for accuracy, in the remainder of this section.

In setting sample size, three statistical criteria need to be considered:

- **Confidence** represents the confidence interval around estimates derived from the sample. Confidence is generally set at 95 or 90 percent in socio-economics studies. For deriving sample size estimates, SSB used 90 percent.

- The **power** of a statistical test is the probability of correctly rejecting a false hypothesis. In more practical terms, it is the probability of detecting a change or difference in some variable in a *sample* when that change or difference has actually occurred in the *population*. SSB used 80 percent power to define a sample size. Setting power at 80

percent is rather strong and will increase sample size relative to standard hypothesis testing. However, standard hypothesis testing sets power at 50 percent by default. Thus, under a standard hypothesis test, there is only a 50-50 chance of detecting effects within a sample that have actually occurred in the population.[2]

- **Precision (accuracy)** concerns the amount of sampling error that one is willing to accept. With very large samples, one can be fairly certain that estimates derived from the sample are close to the population values. The key questions from this survey are in terms of five point scales. For the five point scale questions, each point on the scale is assigned a value of one to five to transform the scale into numeric value. The five point scale questions are almost all part of groups of questions that together form an index. The indices are the key pieces of information with respect to the five point scales and thus, precision should be set in terms of the indices. Each index varies in terms of the number of components (i.e., five point scale questions that comprise it). To account for this, SSB performed sample size calculations for detecting changes in averaged index values over time.[3]

Another consideration is the type of comparisons that are being made. SSB will be tracking trends within a fishery by comparing one data collection to others. This has two implications. First, SSB used sample size formulas that reflect comparing one sample to another. Second, SSB set levels of precision at the fishery level.

In settling on a sample size, SSB considered a series of tabulations that provided estimated sample sizes for various levels of accuracy. The tabulations were based on Jacob Cohen's (1988) power analysis calculations for sample size for detecting difference in mean values between two samples.[4] The formula used to calculate potential sample size was derived from Cohen's book:

$$\frac{\qquad}{\qquad}$$

where n_0 is the initial sample size, 1,237 is a value derived from Table 2.4 in Cohen's book, and d is the difference between the two means divided by the standard deviation. In order to calculate sample sizes for the index questions it is necessary to have an estimate of the standard deviation for the indices to use in the value d. SSB was provided with data from researchers at East Carolina University for similar five point indices. These data are presented in Attachment B. The data in Attachment B reflect two indices, both comprised of nine questions. When the indices are divided by the number of components (nine in each case), the standard deviations for the two indices are 0.646 and 0.7. For calculating sample sizes, SSB used a standard deviation of 0.9 to be conservative.

Table 7 provides samples sizes for five levels of accuracy. Accuracy is defined as the difference between the averaged index value between two implementations of the survey (e.g., between year one and year two). For example, to have an 80 percent change of detecting a 0.2 point

[2] Using power above 50 percent necessitates the use of power analysis to set sample sizes (Cohen, 1988).
[3] The averaged index value is the index value divided by the number of questions in the index. For example, an index comprised of eight five point scale questions can take on values that range from 8 to 40 for each respondent. Dividing by eight provides an average value for this index and transforms the index back to a range of 1 to 5.
[4] Jacob Cohen, 1988. *Statistical power analysis for the behavioral sciences*, Lawrence Erlbaum Associates, Chapter 2.

difference on a five point scale between two implementations of the survey, assuming the change actually occurred in the population, would require selecting 252 units from each stratum.[5]

Table 4 - Per Stratum Sample Sizes for Detecting Various Changes in a Five Point Scale

Difference in mean index value	*Sample size per stratum*
0.1	1,003
0.2	252
0.3	113
0.4	64
0.5	42

In selecting 75 units per stratum SSB considered both cost (number of sample units needed) and the accuracy that could be obtained. In short, SSB considered a value of 75 units as an acceptable balance between cost and accuracy. Inverting the above formula for $n_0 = 75$ resulted in an estimated precision of 0.36 – 037 units on five point scale. Thus, with these sample sizes, there is an 80 percent chance that a change of 0.36 – 0.37 units on a five point scale in the sample (for a specific fishery) will be detected as a statistically significant change if the change actually occurred in the population.

As noted above, however, less precise information is needed for some strata. These included owners in the "inactive" stratum and owners and crew in the non-Federally managed fisheries. SSB determined that data were needed from these categories, but not at the level of precision needed for other fisheries. For these, SSB determined that a precision of 0.5 units on the five points scale was sufficient.

Finally, SSB adjusted these sample size estimates using the finite population correction (FPC). The FPC is defined as:

$$\frac{\quad}{\quad}$$

where N is the population. The FPC was applied to any stratum where the sample size exceeded five percent of the population. The FPC-adjusted sample sizes for each stratum appear in Table 5.

Unusual Problems

No unusual problems are expected to be encountered.

[5] As noted above, these values are based on the above formula using 0.9 as the standard deviation in the value *d*.

Use of Periodic Collection Cycle

As noted in Section A, question 5, the survey will involve collecting data from all fisheries in the first year and then collecting data from half of the fisheries every other year. Thus, all fisheries will have data collected at least every other year following the first. SSB may collect annual data from fisheries where more frequent data would be needed to support policy decision (e.g., fisheries that may be considered "priority"). However, for most fisheries, data would only be collected every other year following the first year.

3. Describe the methods used to maximize response rates and to deal with nonresponse. The accuracy and reliability of the information collected must be shown to be adequate for the intended uses. For collections based on sampling, a special justification must be provided if they will not yield "reliable" data that can be generalized to the universe studied.

Both surveys

For both surveys, SSB has employed the following practices to maximize response rate:

- Survey length—SSB has limited the length of the survey to ensure it can be completed in a reasonable amount of time.

- Best-practices design—SSB has employed an expert survey firm that employs best practices in survey design. These best practices take into account question sequencing, wording, and graphic elements on the survey.

Owners survey

To maximize response rate in the owners survey, SSB will use Dillman's TDM. The TDM in a mail survey context involves multiple points of contact with potential respondents to improve response. The following procedure will be used in the owners survey:

- *Pre-notification letter*—Each owner selected as part of the sample will be sent a pre-notification letter to inform them of the upcoming survey. The letter will explain the need for the survey and how responding to the survey will provide valuable information to NOAA.

- *Survey mail-out*—One week following the pre-notification letter, each owner selected as part of the sample will receive a version of survey instrument and a cover letter. The cover letter will explain the importance of the survey and how responding to the survey will provide valuable information to NOAA. The mail-out package will also contain a self-addressed stamped envelope (SASE) for returning the survey to SSB.

- *Reminder postcard*—Approximately 1-2 weeks following the first survey mail-out a reminder postcard will be sent to those that have not responded. The postcard will provide contact information (phone and email) to respondents to get a replacement copy of the instrument if needed.

- *Replacement survey mail-out*—Approximately two weeks following the reminder postcard, SSB will mail out a second version of the survey (with a SASE) to those that have not responded. The survey will arrive with a cover letter explaining that a second version is being provided to ensure the survey was not lost and once again stress the importance of responding.

Following these steps, SSB will determine the number of replacements that need to be selected from the sample. The replacement would replace those that have not responded within two weeks of receiving the replacement survey mail-out.

In addition to the pre-notification letter, SSB also plans to perform outreach regarding the survey. This will include advertising the survey in local publications (e.g., *Commercial Fishing News*) and writing a guest editorial in *Commercial Fishing News* that describes the value of responding to the survey.

Dealing with Nonresponse in the owners survey

As noted under Section B, Question 1, SSB expects that the owners survey will have a response rate of 70 percent. In order to ensure that the resulting data are not biased due to nonresponse, SSB will perform a nonresponse analysis. The analysis will include comparing the data collected through the survey to previously collected data. SSB will compare the data collected under this effort to three sets of the available data:

- SSB collected data on owners and crew in 2000 that included demographic information on the owners.[6] That survey resulted in a response rate of 78 percent. SSB can use those data to assess the extent to which the sample that responded was significantly different from those that responded to the 2000 survey effort.

- The sampling frame will be constructed from data maintained by NOAA's Northeast Fisheries Science Center. These data have information on boat size, permits, and home ports. SSB can use these data to compare to the data that are collected though the survey to assess whether the sample that responded were significantly different from those that did not respond.

- The Gulf of Maine Research Institute (GMRI) has performed a number of surveys and other research projects that have involved collecting data on socioeconomics aspects related to fisheries management.[7] Some of these surveys contain information on demographics related to owners that SSB can use to assess whether the sample that responded were significantly different from the sample that responded to the GMRI research projects.

[6] http://www.nefsc.noaa.gov/nefsc/publications/tm/tm164/tm164.pdf.
[7] http://gmri.org/community/display.asp?a=5&b=16&c=171.

Crew survey

The crew survey will be implemented as an intercept approach where interviewers will intercept crew at the docks. A random intercept survey is being used to maximize response rates and is a method used for studies of hard-to-find individuals (Miller et.al., 1997) such as crew, who may not have a permanent address or phone number or may live aboard the vessel on which they work (Kitner, 2006). A study similar to this one involved a 90 percent response rate from 350 fishermen New England in 2009 and 2010.[8]

To improve response rates, surveys will be conducted in-person when possible. Face-to-face interviews are an effective method for the collection of information from people such as illiterate individuals who may not be able to participate using other methods (Bernard, 2006:256). Face-to- face interviews also make it possible to probe for more in-depth answers and clarify respondent questions (Bernard, 2006:256). In addition, the individuals participating in the research have the opportunity to communicate with the researcher and provide additional information that is useful to the overall objectives of the study. If more than one crew member is available and willing to take the survey, then the interviewer may hand out the survey with a clip board and pen and wait for the respondents to take the survey, answering questions if needed.

Prior to the implementation of the survey, interviewers will explain that the survey is anonymous, participation is voluntary and that the interview can be stopped at any point. It will also be explained that participants can skip questions they do not want to answer.

4. Describe any tests of procedures or methods to be undertaken. Tests are encouraged as effective means to refine collections, but if ten or more test respondents are involved OMB must give prior approval.

SSB has a contract in place to perform small (less than nine respondents) scale pilots of the methods and instruments involved in this data collection. Table 8 provides a summary of these potential pilots.

Table 5 - Pilots Being Conducted to Assess Methods and Survey Instrument

Pilot	*Description*	*Objectives*
Crew survey – interviews with crew at ports	The crew survey will be implemented as an intercept survey where interviewers travel to randomly selected ports to find crew. Thus, there is a need to understand how well this approach would work and to develop information that can be used in estimating the cost of collecting data in this manner. This pilot will involve collecting up to nine responses from crew at two ports selected for convenience. SSB's subcontractor will go through the survey with each respondent and then ask a set of follow-on questions.	• Determine the time it would take to complete the survey using the intercept, read-out approach. • Assess how well the intercept approach may work for identifying and completing surveys, including identifying any best practices or lessons learned. • Assess how well the survey questions will work in the field. • Develop information that can be used to estimate costs for full implementation, including: o Completion rate per day o Time to complete each survey

[8] See footnote 1 above.

Pilot	*Description*	*Objectives*
Crew survey – interviews with port agents and harbor commissioners	As noted above, the crew survey will be an intercept approach. Thus, there is a need to understand the most effective way to implement this approach. To increase our understanding, SSB's subcontractor will perform a series of interviews with harbor commissioner and port agents. These interviews will focus on implementation issues related to the crew survey.	• Determine the best times of the year and day to perform an intercept survey of crew at ports. • Explore possible implementation issues that may arise in (1) getting access to ports and (2) identifying and recruiting crew to take part.
Owners survey	The owner survey will be a mail survey. The owner pilot will be used to assess the survey questions and the extent to which anonymity will be an issue for response rates. To stay within PRA requirements, SSB's subcontractor will interview nine or fewer ship owners.	• Assess how well the survey questions will work when implemented by discussing the questions with owners. • Assess whether a lack of anonymity to NMFS would lead to reduced response from ship owners. • Assess how well a mail survey would work among owners, including whether (1) the appropriate owner to answer the questions (i.e., a decision maker) would be reached by a mail survey and (2) owners would be available and willing to answer a mail survey.

5. Provide the name and telephone number of individuals consulted on the statistical aspects of the design, and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

SSB has contracted with the following to develop and review the survey. SSB has made no determination at this point on who would be involved in collecting and analyzing the data outside of SSB staff.

Name and Affiliation	**Phone**	**Email**
Lou Nadeau, Eastern Research Group, Inc.	781-674-7316	Lou.nadeau@erg.com
David Loomis, East Carolina University	252-737-4263	loomisd@ecu.edu
Richard Pollnac University of Rhode Island	401-874-5107	Pollnac3@gmail.com

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Miller, K.W., L.B. Wilder, F.A. Stillman, D.M. Becker (1997) The feasibility of a street intercept survey method in an African-American community. *American Journal of Public Health* 87(4): 665-658.

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Attachment A

Estimated Crew Population

The total crew population in the Northeast Region is estimated to be 30,000. This number is derived from previous work that SSB has done with IMPLAN (Minnesota IMPLAN Group, 2008 IMPLAN System (data and software), 1725 Tower Drive West Suite 140, Stillwater, MN 55082 www.implan.com) . Although a total number is available, the number per fishery is not. SSB used data on vessels and crew per vessel to develop a set of percentages to allocate the 30,000 total. First, SSB used data on the value of fish caught to assign vessels to fisheries. A vessel was assigned to a fishery based on its value of total catch in 2010. If the vessel was inactive in 2010, then 2009 data were used and if inactive in 2009 also, then 2008 data were used. A vessel inactive from 2008-2010 was placed in the inactive category. These per-fishery vessel numbers appear in Table A-1. A total crew based on the data available to SSB was used to calculate a number of crew in each fishery to calculate a percentage for each fishery. These data reflect average crew sizes for the different fisheries, but cannot be used in estimating total crew population for a fishery. These data are also in Table A-1. These crew numbers were then converted to a percent distribution (Table A-1) and then the 30,000 total was allocated across the fisheries using this percent distribution (last column Table A-1).

Table A-1. Calculation of Crew Population By Fishery

Fishery		Number of Vessels	Total crew number for use in allocation	Crew, percent of total	Crew population (30,000 total allocated by percentages)
Black Sea Bass		60	115	1.7%	506
Herring and mackerel		25	116	1.7%	509
Lobster		506	963	14.1%	4,229
Monkfish		82	209	3.1%	917
Multispecies, large mesh	common/other	55	111	1.6%	487
	sector	243	693	10.2%	3,045
Multispecies, small mesh		20	64	0.9%	281
Red crab		5	32	0.5%	143
Scallop, general category IFQ		151	496	7.3%	2,180
Scallop, general category non-IFQ		148	882	12.9%	3,875
Scallop, limited access		193	1,165	17.0%	5,114
Scup		23	50	0.7%	219
Skate		23	66	1.0%	290
Spiny dogfish		45	78	1.1%	341
Squid, Illex		10	62	0.9%	273
Squid, Loligo		42	122	1.8%	534
Summer Flounder		178	356	5.2%	1,563
Surf clam/ocean qhahog		64	247	3.6%	1,084
Tilefish		15	30	0.4%	132
Inactive	common/other	1,245	Not available		-
	sector	266	Not available		-
Non federally managed fishery	common/other	427	881	12.9%	3,869
	sector	50	93	1.4%	409
Total		**3,876**	**6,832**	**100.0%**	**30,000**

Attachment B

Data Provided by East Carolina University For Estimating Variance of a Five-Point Scale

Background

The following presents two example indexes based on real data. The subjects in the study were SCUBA divers and snorkelers. The first index is based on specialization theory, and the second is based on mediated interaction (which is basically the extent to which a person makes use of various sources of information). Each scale consists of nine items, each item with five possible responses (5-point Likert type scale). The individual items, means and standard deviations (SDs) are provided in each table. The nine individual items are then summed into a cumulative index ranging from 9 to 45, with the mean and SD of that index provided in each table. Finally the cumulative index for each is segmented into five levels (the final index; i.e., converted back to a five point scale), with the mean and SD of that index provided.

Many of the variances for the individual items are below 1.2. The median variance among this set of items is 1.22. Thus, 1.22 may be a good estimate of variance for this study. However, there are several that exceed 1.2. Additionally, if no items are correlated with one another, then the variance of the index would be simply the sum of the variances. However, in each index below if we sum the variances of the individual items; it is 3-4 times lower than that index variance. Thus, to adjust for this in this study, ERG multiplied the assumed variance of 1.2 by eight (our assumed index item size) and then inflated by a factor of 3.5 to adjust for inter-item correlations.

SCUBA Diver Information Index:

Information Items	**N**	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Var**
Item 1	965	1	5	4	1.114	1.24
Item 2	955	1	5	3.19	1.272	1.62
Item 3	954	1	5	1.98	1.099	1.21
Item 4	951	1	5	2.15	1.145	1.31
Item 5	940	1	5	1.7	0.966	0.93
Item 6	955	1	5	3.9	1.121	1.26
Item 7	943	1	5	1.73	1.194	1.43
Item 8	955	1	5	1.73	1.049	1.10
Item 9	953	1	5	1.39	0.801	0.64
Cumulative Index	917	9	45	21.71	5.817	33.84
Final Index (five subgroups)	917	1	5	2.41	0.646	0.42

Snorkeler Information Index:

Information Items	**N**	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Var.**
Item 1	598	1	5	3.23	1.451	2.11
Item 2	592	1	5	1.73	1.082	1.17
Item 3	595	1	5	1.84	1.133	1.28
Item 4	589	1	5	1.87	1.172	1.37
Item 5	582	1	5	1.73	1.054	1.11
Item 6	586	1	5	2.74	1.439	2.07
Item 7	585	1	5	1.16	0.548	0.30
Item 8	593	1	5	1.6	1.005	1.01
Item 9	592	1	5	1.34	0.777	0.60
Cumulative Index	561	9	45	17.09	6.297	39.65
Final Index (five subgroups)	561	1	5	1.9	0.7	0.49