SUPPORTING STATEMENT
ECONOMIC PERFORMANCE IN THE COMMERCIAL STONE CRAB AND LOBSTER FISHERIES IN FLORIDA
OMB CONTROL NO.: 0648-xxxx

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

(If your collection does not employ statistical methods, just say that and delete the following five questions from the format.)

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.

Florida stone crab and spiny lobster fisheries:

The following table presents numbers of fishermen and landings for the stone crab and lobster fisheries in Florida, by county of landing during 2004. Corresponding data for 2005 were incomplete as of May 2006 when data were obtained from the Florida Trip Ticket database.

The stone crab fishery occurs primarily from Monroe County (i.e., the Florida Keys) and northward along the west coast of Florida. Fishermen in Monroe, Collier, Pinellas and Citrus counties account for approximately 80% of total landings of stone crab. The lobster fishery occurs primarily from Monroe County and northward along the east coast of Florida. Fishermen

in Monroe and Miami-Dade Counties account for approximately 97% of total landings of lobsters.

Commercial fishermen in Monroe County, including stone crab and lobster fishermen, were surveyed previously in studies sponsored by NOAA's National Ocean Service (OMB Control No.: 0648-0534). The proposed study will not duplicate these efforts. Instead, it will focus on stone crab and lobster fishermen in west coast counties and the Miami River area in Miami-Dade County, which encompass the bulk of the stone crab and lobster fishery other than in Monroe County. Study results will be presented as pertaining only to those areas that actually were sampled.

FISHERMEN WHO LANDED STONE CRABS AND/OR LOBSTERS IN FLORIDA, BY COUNTY IN 2004									
FL TRIP TICKET DATA OBTAINED ON MAY 26, 2006									
STATE	COUNTY	PEOPLE WITH STONE CRAB	PCT	POUNDS STONE CRAB	PCT	PEOPLE WITH LOBSTER	PCT	POUNDS LOBSTERS	PCT
FL East	Nassau	3	0.2%	193	0.0%	1	0.1%	228	0.0%
	Duval	5	0.4%	140	0.0%	9	0.8%	3,911	0.1%
	St. Johns	5	0.4%	602	0.0%	2	0.2%	585	0.0%
	Volusia	11	0.8%	3,117	0.1%	13	1.2%	3,827	0.1%

	Flagler	1	0.1%	121	0.0%	0	0.0%	0	0.0%
	Brevard	19	1.5%	2,005	0.1%	19	1.7%	10,106	0.2%
	Indian River	0	0.0%	0	0.0%	9	0.8%	1,887	0.0%
	St. Lucie	4	0.3%	144	0.0%	4	0.4%	676	0.0%
	Martin	1	0.1%	127	0.0%	19	1.7%	8,470	0.2%
	Palm Beach	1	0.1%	30	0.0%	48	4.3%	54,127	1.1%
	Broward	9	0.7%	1,422	0.0%	37	3.3%	28,788	0.6%
	Miami-Dade	42	3.2%	25,641	0.9%	98	8.8%	328,696	6.6%
FL West	Monroe	503	38.8%	1,073,971	35.8%	820	74.0%	4,514,450	90.6%
	Collier	104	8.0%	687,242	22.9%	4	0.4%	22,128	0.4%
	Lee	69	5.3%	104,511	3.5%	3	0.3%	41	0.0%
	Charlotte	38	2.9%	17,772	0.6%	0	0.0%	0	0.0%
	Sarasota	25	1.9%	48,511	1.6%	0	0.0%	0	0.0%
	Manatee	47	3.6%	113,329	3.8%	0	0.0%	0	0.0%
	Hillsborough	11	0.8%	3,066	0.1%	2	0.2%	86	0.0%
	Pinellas	150	11.6%	325,493	10.9%	8	0.7%	5,632	0.1%
	Pasco	29	2.2%	20,781	0.7%	1	0.1%	20	0.0%
	Hernando	21	1.6%	17,024	0.6%	1	0.1%	301	0.0%
	Citrus	68	5.2%	315,147	10.5%	0	0.0%	0	0.0%
	Levy	29	2.2%	55,576	1.9%	0	0.0%	0	0.0%
	Dixie	64	4.9%	90,522	3.0%	0	0.0%	0	0.0%
	Taylor	12	0.9%	15,775	0.5%	0	0.0%	0	0.0%
	Wakulla	19	1.5%	74,845	2.5%	5	0.5%	478	0.0%
	Franklin	3	0.2%	2,494	0.1%	3	0.3%	222	0.0%
	Bay	2	0.2%	75	0.0%	1	0.1%	10	0.0%
	Walton	0	0.0%	0	0.0%	1	0.1%	126	0.0%
	Okaloosa	3	0.2%	33	0.0%	0	0.0%	0	0.0%
TOTAL				2,999,705	100.0%			4,984,794	100.0%

Potential Respondent Universe:

The potential respondent universe will be derived from lists of owners of trap certificates for the stone crab and lobster fisheries in Florida. These lists will be obtained from the State of Florida in late spring 2007 to insure that the respondent universe is as up-to-date as possible. A preliminary respondent universe based on data from the Florida Trip Ticket program is presented below, but this source would not be current enough to use as a respondent universe for sampling purposes.

Based on data for 2004, there were 770 fishermen who landed stone crab and/or lobsters in the study area. Some fishermen landed stone crabs and/or lobsters in more than one county. The table below tabulates only one occurrence for each fisherman according to the county in which the plurality of pounds were landed. However, pounds are tabulated in the county of landing. The column labeled 'People with SPL' includes 644 fishermen who landed stone crab only, 94 fishermen who landed lobsters only, and 32 fishermen who landed both stone crab and lobsters. The number of potential respondents in the final respondent universe probably will differ and will reflect entry into the fishery and exit out of the fishery between 2004 and late spring 2007.

PRELIMINARY POTENTIAL RESPONDENT UNIVERSE FOR SURVEY OF STONE CRAB AND LOBSTER FISHERMEN, BY COUNTY IN 2004					
FL TRIP TICKET DATA OBTAINED ON MAY 26, 2006					
STATE	**COUNTY**	**PEOPLE WITH SPL**	**PCT**	**POUNDS STONE CRAB / LOBSTER**	**PCT**
FL East	Miami-Dade	113	14.7%	354,336	15.6%
FL West	Collier	103	13.4%	709,370	31.2%
	Lee	69	9.0%	104,552	4.6%
	Charlotte	30	3.9%	17,772	0.8%
	Sarasota	20	2.6%	48,511	2.1%
	Manatee	45	5.8%	113,329	5.0%
	Hillsborough	6	0.8%	3,151	0.1%
	Pinellas	150	19.5%	331,124	14.6%
	Pasco	18	2.3%	20,801	0.9%
	Hernando	19	2.5%	17,325	0.8%
	Citrus	64	8.3%	315,147	13.8%
	Levy	27	3.5%	55,576	2.4%
	Dixie	61	7.9%	90,522	4.0%
	Taylor	9	1.2%	15,775	0.7%
	Wakulla	24	3.1%	75,323	3.3%
	Franklin	6	0.8%	2,716	0.1%
	Bay	3	0.4%	85	0.0%
	Walton	0	0.0%	126	0.0%
	Okaloosa	3	0.4%	33	0.0%
TOTAL		770	100.0%	2,275,572	100.0%

Allocation of Sampling Effort by Area:

The distribution of annual landings per fisherman is skewed, with a relatively small number of fishermen accounting for a disproportionately large share of total landings. This phenomenon occurs because fishermen are heterogeneous in their experiences and abilities, and because the local abundance of stone crabs and lobsters is not uniform across all fishing areas. A simple random sample of fishermen would result in a relatively large number of low-volume fishermen and a relatively small number of high-volume fishermen. However, regulations probably would have their greatest effect on high-volume fishermen. Therefore, the proposed sampling plan is output-based rather than a simple random sample of fishermen as a means of assuring a more balanced representation of high-volume and low-volume fishermen in the final sample.

The previous table indicates that Collier, Pinellas, Citrus and Miami-Dade counties together account for approximately 75% of total annual landings of stone crab and lobster. The sampling plan divides the study area into five geographic areas: the four primary counties and a fifth area defined as all other counties combined. The number of fishermen to be sampled in each area will be proportional to each area's contribution to total landings for all areas combined. Hence, Collier, Citrus and Miami-Dade Counties will be over-represented in the final sample when compared to their relative contributions to the total number of fishermen, and Pinellas and Other

counties will be under-represented. Based on these data, Collier County would be allocated 31.2% of the interviews although it has only 13.4% of the fishermen. Similarly, the Other region would be allocated 24.9% of the interviews although it has 44.2% of the fishermen.

The final allocation of sampling effort will be based on data to be compiled in late spring 2007. Florida Trip Ticket data will be used if data for 2006 are reasonably complete. If data are not complete, then the allocation of effort will be based on the distribution of ownership of trap certificates by county as a proxy for landings.

PRELIMINARY ALLOCATION OF SAMPLING EFFORT BY AREA IN 2004

FL TRIP TICKET DATA OBTAINED ON MAY 26, 2006

SAMPLING AREA	POUNDS STONE CRAB / LOBSTER	PERCENT
Miami-Dade	354,336	15.6%
Collier	709,370	31.2%
Pinellas	331,124	14.6%
Citrus	315,147	13.8%
Other	565,595	24.9%
TOTAL	2,275,572	100.0%

Expected Response Rate:

Fishermen will be randomly selected to be interviewed, with the probability of selection differing among sampling areas. The desired number of interviews in an area is the product of the total number of interviews for the entire project and the percent of interviews in each area. The probability of selection is the ratio of the desired number of interviews in each area divided by the total number of fishermen in that area.

It is recognized that for a variety of reasons we will not be able to complete interviews with all fishermen who are randomly selected for inclusion in the study. Therefore, the sampling plan includes an allowance for non-response. The expected response rate of 76% is equal to the response rate that was realized in the previously cited survey of commercial fishermen in the Florida Keys (OMB Control No.: 0648-0534), which included fishermen that would be in our respondent universe if they had not already been surveyed. In that survey, researchers completed 298 interviews from 391 commercial fishermen who were contacted.

We believe that 76% is a realistic expectation because it was achieved in a recently completed survey by the same researchers who will conduct the proposed study, with a questionnaire that included some of the same questions as on the proposed questionnaire, and on a respondent universe that covered the same fisheries and fishing practices as utilized by potential respondents

in the proposed study. These researchers have been selected for the proposed survey based on their familiarity with local fishing communities and practices in Florida and their experience in administering these types of intercept surveys. Nevertheless, we plan several actions to maximize response rates, including

a. Publicizing the survey: Local industry organizations and State and federal port agents will be contacted to provide a cooperative "umbrella". The primary benefit of this step is to minimize unfavorable misinformation based on rumors that may develop as the interviewing progresses. Interviewers can offer these sources as references for the validity and importance of the study.
b. Using experienced and qualified interviewers: Manoj Shivlani has conducted numerous surveys of commercial fishermen in the Florida Keys and the US Caribbean, and has established a rapport with the fishing community that encourages participation and cooperation with his research.
c. Training interviewers about the purposes of this survey, how the data will be used, and the importance of obtaining all the necessary data and in the detail required: The questionnaire will be reviewed, question-by-question, to ensure that each interviewer understands the intent of each one and knows whether a response to a question is in the proper context and makes sense. Manoj Shivlani will stress the importance of checking responses to key questions with respondents during and after the interview to make sure numbers add up and to provide respondents with a second chance to see if they make sense.
d. Emphasizing the confidentiality of responses to assure respondents that information that identifies an individual with their responses will not be released.

The analysis of data will include a comparison of Florida Trip Ticket data for respondents and non-respondents to determine if non-respondents differ from respondents in terms of their reported fishing effort and landings.

Sampling Plan:

We have contracted with Manoj Shivlani at the University of Miami Rosenstiel School of Marine and Atmospheric Science to conduct between 150 and 175 interviews with stone crab and lobster fishermen. The preliminary sampling plan in the table below is based on the maximum of 175 interviews, and includes an expected overall response rate of 76%. Therefore, approximately 230 contacts with fishermen will be required to yield 175 completed interviews. (Columns in the table below add to 231 contacts and 174 interviews because information is rounded to the nearest integer.) The preliminary sampling plan includes 27 interviews in Miami-Dade County, 55 interviews in Collier County, 26 interviews in Pinellas County, 24 interviews in Citrus County, and 43 interviews elsewhere. Sampling intensity will be greatest in Collier and Citrus Counties where average landings per fisherman are greatest, and will be lowest in Pinellas County and Other areas where average landings are lowest. The selection probabilities will be used to weight individual observations in all analyses that combine data across sampling areas.

The final sampling plan will be established during the late spring 2007, with the number of fishermen in each county to be determined by the locations of fishermen who own trap certificates.

PRELIMINARY SAMPLING PLAN BASED N A 76% RESPONSE RATE						
FL TRIP TICKET DATA OBTAINED ON MAY 26, 2006						
SAMPLING AREA	PEOPLE WITH SPL	POUNDS STONE CRAB / LOBSTER	PCT	NUMBER OF CONTACTS	EXPECTED NUMBER OF INTERVIEWS	SELECTION PROBABILITY
Miami-Dade	113	354,336	15.6%	36	27	24.1%
Collier	103	709,370	31.2%	72	55	53.0%
Pinellas	150	331,124	14.6%	34	25	17.0%
Citrus	64	315,147	13.8%	32	24	37.9%
Other	340	565,595	24.9%	57	43	12.8%
TOTAL	770	2,275,572	100.0%	231	174	22.7%

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.

The potential respondent universe will be stratified by area with unequal selection probabilities, as discussed in Part B, response #1. Members within each stratum will be assigned numbers from a uniform random number generator and then sorted according to number. Contact information for the first X members within each stratum will be provided to the research team, where X differs by stratum and refers to the number of fishermen to be contacted. Interviewers will make up to 8 attempts to contact each fisherman on the contact list, although more than 8

contacts will be attempted if the interviewer has the opportunity to do so before funding is exhausted.

Stratum means and totals and population means and totals will be estimated with the aid of standard statistical texts such as Cochran[1] (1963) and Thompson[2] (1992). More complex analyses of cost data using econometric regression techniques will be explored.

This is a one-time survey, although we anticipate the need to collect updated data every 5-10 years, with the periodicity of the data collection determined by the degree to which economic conditions and harvesting costs in the fishery change over time and the frequency with which management plans are amended. See Part A, response #6.

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.

[1] Cochran, William G. 1963. Sampling Techniques (second edition). John Wiley & Sons, Inc. New York, 413p.
[2] Thompson, Steven K. 1992. Sampling. John Wiley & Sons, Inc. New York, 343p.

Commercial fishermen may be difficult to contact because of their unstructured work schedules, with fishing activity dependent on suitable weather conditions and regulated season openings and closures.

Several steps will be taken to maximize response rates. A contractor has been selected for his survey experience and familiarity with local fishing communities and practices in Florida. The personal interview format is preferred for this data collection over electronic reporting, mail or telephone surveys as a method of achieving better response rates and more accurate data because interviewers in face-to-face interviews can establish a better rapport with respondents. Trained interviewers will conduct in-person surveys at times and places that are convenient to fishermen as a means of minimizing potential disruptions to fishermen's fishing practices. Other methods used to maximize response rates are discussed in Part B, response #1.

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.

Many of the questions in the proposed data collection were successfully used in a previous data collection (OMB Control No.: 0648-0534) by NOAA's National Ocean Service and Thomas J. Murray & Associates, who interviewed fishermen in the Florida Keys where the bulk of the lobster fishery and a large portion of the stone crab fishery is located. Manoj Shivlani led the interviewing effort for Thomas J. Murray & Associates and will lead the interview team for the proposed data collection. The proposed questionnaire is an abbreviated and modified form of the previous questionnaire. Mr. Shivlani plans to pre-test the proposed survey instrument in the field with 9 or fewer fishermen.

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.

James Waters, industry economist employed by the SEFSC, identified the preliminary sampling universe to be studied and prepared the preliminary sampling design. He can be contacted by telephone at 252-728-8710 or by e-mail at Jim.Waters@noaa.gov. Data will be used primarily in analyses of proposed regulations by economists employed by the SEFSC (e.g., Waters) and the Gulf of Mexico Fishery Management Council.

Manoj Shivlani, research associate employed by the University of Miami Rosenstiel School of Marine and Atmospheric Science, will lead the research team of interviewers that will contact fishermen, conduct interviews, and enter the resulting data into a database for use by the SEFSC. He can be contracted by telephone at (305) 421-4608 or by e-mail at mshivlani@rsmas.miami.edu. He has consulted with us during the development of the proposed questionnaire and sampling design.