

**Review of *Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities***

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# **Review of Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities<sup>1</sup>**

Prepared by Richard B. Pollnac  
Departments of Marine Affairs & Anthropology  
University of Rhode Island

## **EXECUTIVE SUMMARY**

The report provides an excellent rapid assessment of the impacts of hurricane Katrina on Gulf of Mexico coastal fishing communities. The main element detracting from its achievement of a top ranking, in terms of excellence, is the lack of sufficient information concerning selection of representative communities. The contractor states the criteria used, but fails to provide explicit population data justifying the selection. Sample representativeness is a key element influencing confidence in the ability to generalize to communities outside the sample. These questions concerning “representativeness” of the sample coastal fishing communities could be resolved if IAI could provide a table, in the text or preferably in an appendix that includes available summary data for each community in the universe (all coastal fishing communities impacted by Katrina). The summary data should include available data concerning the criteria used for sample community selection. This information should be available to IAI since they used it for selection of communities.

In addition, failure to provide information including percent (qualified) of specific responses, especially in overview statements, is also regrettable, especially considering the large number of key informants used. This critique could be corrected by referring to field notes and noting the proportion of informants providing specific responses as appropriate. In this aspect, however, the report is similar to many other rapid assessments.

Given the immensity and broad coverage of the report, the criticisms presented in the body of this review regarding apparent errors, interpretation questions and presentation of information impact only a minority of the vast amount of information presented. Overall, it is an excellent report.

## **BACKGROUND AND DESCRIPTION OF REVIEW ACTIVITIES**

The reviewer was provided with (1) the original Statement of Work for Impact Assessment, Inc., and (2) the *Final Technical Report, Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities*. The reviewer read both of these documents, made notes and prepared the following report during the time period 5 to 12 December 2006.

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<sup>1</sup> Impact Assessment, Inc. 2006 *Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities*. Final Technical Report submitted to Southeast Regional Office, NMFS, NOAA.

## COMMENTS

**Overview** This overview briefly addresses eleven criteria suggested for use in evaluation of rapid assessment procedures.<sup>2</sup> Specific comments on various points are made in following subsections. **1)** The aim of the study is clearly presented in the first section of the Impact Assessment, Inc. (IAI) final technical report (FTR) reviewed here. **2)** In terms of subjectivity, IAI clearly describe their background with respect to previous work along the Gulf Coast, and the principal investigator, J.S. Petterson, is well known among fishery social scientists for the work he has conducted in coastal areas of the United States. **3)** There is no explicit field research guideline, but it is implicitly presented throughout Section IIA of the report along with a time frame in table 2, page 6. **4)** Recruitment and training of research assistants is not presented in the report. In the acknowledgements IAI mentions Professor Moore, and his University of West Florida public history graduate students and an IAI field team (which are named) but presents no indication of recruitment and training methods except to note that they “developed and tested research protocols during an initial phase of fieldwork under the instruction of senior IAI staff.” (IAI 2006:6). **5)** Information on and rationale for data collection methods used is presented and justified in Section IIA. **6)** Techniques used for selection of research sites were not clearly presented in the report (see specific comments on methods below); hence, raising the question as to their representativeness. **7)** Informant selection techniques were adequately described (Section IIA) as using the usual techniques (e.g., snowball or network sampling). **8)** Credibility (as defined by Utarini, et al. 2000) is difficult to ascertain in any study and especially difficult under the conditions the IAI field team faced. Their statement,

“we relied on four crossvalidating methods of data collection: (1) interviews with knowledgeable residents, (2) public and private information sources such as phone directories, waterfront planning documents, and information from chambers of commerce, (3) previous research conducted by IAI, and (4) field observation and attendance at local meetings and other venues” (IAI 2006:5)

suggests that, overall, they followed accepted procedures for insuring “credible” information. **9)** Analysis methods were not clearly described (see detailed comments below). **10)** The report was overall well written except for a few minor points discussed in the specific points below. **11)** Ethical research procedures were reported as being used (see section on confidentiality on page 5, Section IIA).

**Specific points (a) *Is the rapid ethnographic assessment methodology used scientifically sound?*** Overall, as sketched in the overview presented above, the methods are scientifically sound, *and it falls within the range of accepted rapid social assessment approaches used in the United States.*

**(a1)** Nevertheless, as indicated in point 6 of the overview there are some questions concerning the site selection techniques used. Although we are provided with criteria used in selecting the “representative sample” e.g.,

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<sup>2</sup> Utarini, A., A. Winkvist & G.H. Pelto. 2001. Appraising studies in health using rapid assessment procedures (RAP): Eleven critical criteria. *Human Organization* 60(4):390-400.

“A representative sampling strategy was used to select the study communities, as based on the following variable factors: (a) local social, economic, and demographic conditions and attributes, (b) historic and ongoing community involvement in marine fisheries, and (c) local physical environmental and social effects resulting from Hurricane Katrina.” (IAI 2006:2)

No data were presented on these variables to indicate that the sample is truly representative. All we have is the author’s statement that according to these criteria the sample is representative. Also, while the Statement of Work<sup>3</sup> (SOW) stated that,

“While the focus will center on communities in which prior community profiles have been prepared by the team, the study effort will not be limited only to those communities but will consider any and all coastal fishing communities significantly affected by the hurricane.” (SOW: page 1)

the “representative sample” was composed of only 38 out of an unmentioned number of communities. Although the report notes that the previous profiles prepared by IAI included “...335 towns and cities across the Gulf of Mexico,” (IAI 2006:2) we are not told how many were impacted by Katrina, the number from which it is assumed that the sample communities were drawn. Further, footnote 2, page 3 notes,

“Certain communities in the hurricane-affected areas were not included in the current study for practical-logistical reasons. Such constraints were significant in some cases, such as in New Orleans, where the magnitude of devastation rendered fieldwork dangerous and impractical, if not impossible.” (IAI 2006:3)

But, we don’t know how characteristics of places not included differ from the “sample” ports.

*Recommendation:* These questions concerning “representativeness” of the sample coastal fishing communities could be resolved if IAI could provide a table, in the text or preferably in an appendix that includes available summary data for each community in the universe (all coastal fishing communities impacted by Katrina). The summary data should include available data concerning the criteria used for sample community selection. This information should be available to IAI since they used it for selection of communities.

**(a2)** There is almost no information concerning the number of impacted crew members. Use of census statistics that include farming, fishing and forestry does not provide a good estimate of fishery employment. The number of permits is also a poor method, especially since one person could hold permits for different fisheries.

*Recommendation:* One would think that an assessment could use interviews to obtain average crew sizes for different vessel/fishing types and use this information to calculate crew employment.

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<sup>3</sup> Socioeconomic Research in Fishing Communities Affected By Katrina. (Statement of Work document provided to reviewer with no source or date).

**(b) Are the fishing community social and infrastructure impact data and analyses presented in the report consistent with the methodology described in the report?** For the most part the data and analyses are consistent with the methodology, but I have some questions with regard to apparent errors, interpretation and presentation of some of the data and information.

**(b1) Apparent errors: Bottom of Page 14** Terrebonne gained population, not lost population, if Table 5 is correct.

Page 30 The authors write “Between 2001 and 2005, inclusive, commercial landings in Louisiana had an average ex-vessel value of \$294 million (Table 8).” Table 8 does not have 2005 data (yet they say “inclusive”), and the 5-year average figure given in table 8 is \$328,919. Where does the “\$294” come from? If they have the 2005 data why are those data not in the table? The same type of comment applies to tables 57 and 88 (P129 & 194). Do they have 2005 data that were not included in the table? The mean for the values for 2001-2004 in table 88 is \$38,686.5 which rounds to 39 million, not the 38 million mentioned in the text. The same test applied to table 57 results in an even larger difference. The table numbers don’t match the text. Further, in table 88, if you cross-check its numbers with the ones in table 89, you will see that the rounding is correct (under .5 round down) for 2000, 2001, & 2002, but incorrect for 2004.

Page 35 If \$29,698,771 (table 13, p36) is rounded properly, the \$29 million in the last sentence of p35 should be \$30 million.

Page 137 There are some numbers in the report that either do not add-up or the text is not clear. The authors write,

“Mississippi ranked first in small, medium, and large food-sized catfish production, raising 161,900 pounds in 2005. In comparison, Arkansas, which ranked second for catfish production, produced 52,360 pounds of farmed catfish, all sizes, in this same year (USDA 2005). Figure 60 maps the location of fish hatcheries and fish farms in Mississippi....Mississippi produces 75 percent of all domestically farmed catfish in the nation on 109,000 acres of farmland. This industry has an average value of \$224 million per year.” (IAI 2006:137).

\$224 million divided by 162 thousand pounds equals \$1383 per pound of catfish. Does this average value include the price of the ponds, or was 2005 an extremely unproductive year? Or, should the figure be 162 million pounds? Also, are there 109 thousand acres of ponds (for Alabama, they report water acres of fish ponds P200), or are the ponds occupying only a very small proportion of the “farmland”? If there are 109 thousand acres of ponds, each pond acre is producing less than one pound of catfish. There were other parts of the report with suspect numbers, but in those cases, I attributed the differences to some abuse of or my misunderstanding of the so-called “multiplier effect”. I am not an economist, but the example provided here needs explanation since it is so out of line.

*Table 93 (Page 198)* gives a figure of 908,191 pounds of oyster landings for Alabama in 2004. Where does the much lower figure in the following quotation come from?

“This slight increase in value despite the decrease in overall landings likely results from the increased demand for and price surge of Alabama oysters following the closure of state oyster beds in Mississippi and Louisiana after Hurricanes Katrina and Rita. However, it is also worth noting that the figure for total landings in Alabama in 2005 (22,275 lbs.) was still below that for 2004 (26,559 lbs.)...” (IAI 2006:211).

I noticed this because I wanted to check the high value of oyster landings in Nov-Dec 2005. This lower figure is repeated on P226:

“...it is also worth noting that the figure for total landings in Alabama in 2005 (22,275 lbs.) was still below that for 2004 (26,559 lbs.)...” (IAI 2006:226).

What is correct, the table or the text?

**(b2) *Interpretation questions Page 42*** Is it possible that individuals could have more than one federal permit as well as a state license for commercial fishing? If so, the 8433 participants for 2004 may be an over estimate. I am assuming that crew were not included in these license & permit based estimates. This comment applies to other places where permits are used to indicate participation.

*Page 122* The authors write that “An estimated 250 guide boat operators in Louisiana are out of work as of mid-November (Robertson 2005).”(IAI 2006:122). This figure seems to be accepted with no evaluation of source methodology. Was this a guess? This is followed by, “Fishing guides in mid-coastal Terrebonne and Lafourche Parishes are faring better. One charter boat guide in Houma asserts that fishing guides and marinas in these parishes have been absorbing the bulk of the recreational fishing business in Louisiana, given the infrastructure and habitat damage sustained across the rest of the coast (Robertson 2005)” (IAI 2006:122) with no reason provided for the differential response. An explanation should be provided.

*Page 233* The authors write,

“...Although capacities vary extensively, the fuel tank of a distant water trawl vessel (~80 feet in length) often holds in the range of 20,000 gallons of fuel. Fueling such a vessel in 2000 would have cost in the range of \$3,000...” (IAI 2006:233)

Did diesel fuel really cost 15 cents a gallon on the Gulf Coast in 2000? It cost a lot more than that in New England in 2000.

**(b3) *Presentation of information*** In the acknowledgements the authors write,

“...the members of the research team wish to acknowledge the unflinching and generous participation of over 2,000 field informants, businessmen, fishermen, and municipal, parish, county, state, and federal government officials.” (IAI 2006:Acknowledgements)

And in the text of the report, they write,

“Much of the primary source data was obtained through formal and informal interview methods, and through observation while in the study communities. During initial field site visits, study teams engaged willing participants in informal, open-ended interviews. A snowball or network sampling technique was subsequently used to identify respondents knowledgeable of factors and issues pertinent for purposes of description and assessment. Once rapport was developed with key informants, additional interviews were arranged and conducted at their convenience. Research participants included persons in the harvesting, processing, and distribution sectors of the region's commercial fisheries, persons involved in the recreational fishing industry, government officials, and local residents not directly involved in the fishing industry. Over 450 interviews were conducted in the affected region, including 150 interviews with captains and crew in the harvesting sector. (IAI 2006:4-5)

I am not sure which figure is correct for field informants (2,000 or “over 450”), but with such a large number (average more than 10 per community), it seems that the researchers could provide percent of key informants making statements (with the caveat that the sample is not random) rather than ordinal qualifiers like few, many, most, etc. that are found throughout the paper. In many cases a percent would be more informative than the ordinal qualifier; e.g., “The trend of decline notwithstanding, many long-time commercial fishery participants are reluctant to leave the only life they have ever known.” (IAI 2006:245) could have been presented as: *The trend of decline notwithstanding, XX percent of the long-time commercial fishery participants in our non-random sample noted that they are reluctant to leave the only life they have ever known.*

Also, isn't it possible to count offloading facilities, net makers and seafood markets? Why do we find values like 9-12, 3-5 and 4-5 in table 97? (IAI 2006:222)

***(c) The report provides comparable pre- and post-impact, fisheries-focused social and infrastructure data at the state level for the states of Alabama, Mississippi, and Louisiana.***

***(d) The report provides comparable pre- and post-impact, fisheries-focused social and infrastructure information at the community level for affected communities for the states of Alabama, Mississippi, and Louisiana.***

***(e) The report's conclusions are supported by and consistent with the data and their analysis as described in the report.***

***TYPOS noticed while reading the paper:***

page 1 “lead” should be “led”.

Above figure 2 20034 should be 2004

P14 “bur” should be “but”

P20 line 5 “as well” should be “as well as”

P48 2<sup>nd</sup> paragraph from bottom “gust” should be “gusts”

P141 Is “tarpin” supposed to be “tarpon”? Or is it a fish I haven't encountered?

P183 “in tact” should be “intact”.  
P186 “idustry” should be “industry”.

## **CONCLUSIONS AND RECOMMENDATIONS**

The report provides an excellent rapid assessment of the impacts of hurricane Katrina on Gulf of Mexico coastal fishing communities. The main element detracting from its achievement of a top ranking in terms of excellence is the lack of sufficient information concerning selection of representative communities. The contractor states the criteria used, but fails to provide explicit population data justifying the selection. Sample representativeness is a key element influencing confidence in the ability to generalize to communities outside the sample. Additionally, failure to provide information including percent (qualified) of specific responses, especially in overview statements, is also regrettable, especially considering the large number of key informants used. In this aspect, however, the report is similar to many other rapid assessments.

Recommendations for improving these aspects of the report are provided in the comments section of this review. Given the immensity of the report, the apparent errors, questions about interpretation, and comments on the presentation of information impact only a minority of the vast amount of information presented. Overall, it is an excellent report.

## APPENDIX 1

### REFERENCES CITED

Anon. N.D. Socioeconomic Research in Fishing Communities Affected By Katrina. (Statement of Work document provided to reviewer with no source or date).

Impact Assessment, Inc. 2006 *Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities*. Final Technical Report submitted to Southeast Regional Office, NMFS, NOAA.

Utarini, A., A. Winkvist & G.H. Pelto. 2001 Appraising studies in health using rapid assessment procedures (RAP): Eleven critical criteria. *Human Organization* 60(4):390-400.

## APPENDIX 2

### **Consulting Agreement between the University of Miami and Richard Pollnac STATEMENT OF WORK**

#### **CIE Review of report on "Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities"**

The NOAA/NMFS Office of Science and Technology/Division of Economic and Social Analysis in collaboration with NOAA/NMFS Southeast Regional Office commissioned an assessment of the impacts of Hurricane Katrina on the most heavily impacted Gulf of Mexico fishing communities in Louisiana, Mississippi, and Alabama. The Final Technical Report *Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities* has been completed. The review by the CIE of this report is in partial fulfillment of the requirements set out in the Information Quality Act (IQA). The IQA requires independent review of influential federal documents.

The goals of the review are to evaluate whether the document meets accepted scientific practices for rapid ethnographic assessment, and to provide recommendations for improving future rapid assessments of fishing communities damaged by natural disasters like those occurring in the 2005 hurricane season. The document consists of an introductory chapter providing an overview of the problem, research methods used to conduct the assessment, and a broad overview of both regional fishing industry and demographic trends on the eve of Hurricane Katrina. This is followed by six chapters assessing in detail the impacts of Katrina in Louisiana, Mississippi, and Alabama fishing communities. The report concludes with a chapter that discusses challenges to recovery, and a final brief chapter of interim conclusions. The report is approximately 276 pages in length, of which approximately 165 pages is 12 point, single spaced text, including references. The remaining 111 pages are photos, figures and tables.

#### **Background**

The Gulf of Mexico is home to a significant share of the U.S. fishing industry, representing 20% of commercial fishing, and 30% of salt water recreational fishing. Local residents also participate to an unknown, but probably significant extent in salt water subsistence fishing. The agency recognized that it was important to assess the extent of storm damage to fishing industry infrastructure and to the communities in which it was located as the seriousness and geographical extent of the storm became evident. This report addresses these impacts. The assessment was to be based on rapid ethnographic assessment using a combination of standard ethnographic field techniques including participant observation; intensive interviews with fishing industry participants from various industry sectors including commercial harvest, processing, distribution, recreational for hire, and others; enumeration of fishing infrastructure; creation of GIS maps; and use of data and reports on storm damage produced by others. Surveys based on random sampling were precluded under the circumstances. Separate reports by others were commissioned to assess economic impacts.

Since 2002, NOAA Fisheries has conducted research on the fishing communities of all five states bordering the Gulf of Mexico. As a result of this effort, NOAA Fisheries had gained substantial knowledge and familiarity with the fishing communities in the area impacted by Hurricane Katrina. Reports on Gulf of Mexico fishing communities that included analysis of secondary data such as licenses, permits, landings data, and GIS maps which physically located fishing-dependent businesses, infrastructure and, in some instances, the homes of fishermen were completed during 2004 and 2005 before Katrina struck. These reports contained the most complete and current baseline data available on fishing communities in the Gulf of Mexico in August 2005. Using these reports as *Time 1 Assessments*, field teams returned to the storm damaged areas to do *Time 2 Assessments* of the condition of the damaged fishing communities. Because of their intimate knowledge of the region's fishing communities based in their work compiling the baseline data, the contract research firm that had just completed the baseline community reports was asked to do the assessment.

The assessment need was current and critical, requiring researchers to enter the affected Gulf communities as soon as possible, visually evaluate the damage, and conduct interviews with fishermen and others in fishing-dependent businesses to determine the extent of hurricane damage. They began data collection activities in September 2005, ceasing data collection in May 2006. Thirty-eight communities distributed across 10 parishes and counties in three states were assessed; each was visited up to three different times --first during the fall/early winter 2005/2006, then during the mid/late winter 2006, and finally during mid/late spring 2006.

### **Reviewer Responsibilities**

The Center of Independent Experts (CIE) shall provide three expert reviewers. Each reviewer's duties shall require a maximum of seven days of effort, including time to read relevant documents and to produce an individual written report consisting of their comments and recommendations. No travel is required, so each reviewer shall work from their home location. Each reviewer's report shall reflect his/her area(s) of expertise, and no consensus opinion (or report) will be required. Further, each reviewer shall only comment on sections within his/her area of expertise.

Expertise needed to review the *Final Technical Report* is social science expertise (primarily anthropological and sociological) in community-level rapid social impact assessments of areas damaged by sudden natural and/or man-made disasters, e.g., those caused by major storms like hurricanes or tornados, those caused by tsunamis or other sources of flooding, or those caused by major oil spills. Reviewers should be knowledgeable about rapid assessment processes in general, and rapid ethnographic assessment in particular (e.g., Leonard Bickman and Debra J. Rog, *Handbook of Applied Social Research Methods*, Thousand Oaks, CA: Sage, 1997; James Beebe, *Rapid Assessment Process*, Walnut Creek, CA: Altamira Press, 2001; Adi Utarini, AnnaWinkvist, and Gretel H. Pelto, "Appraising studies in health using rapid assessment procedures (RAP): Eleven critical criteria", *Human Organization*, Vol. 60 (4): 390-400

(2001); Setha M. Low, Dana H. Taplin, and Mike Lamb, "Battery Park City: An Ethnographic Field Study of the Community Impact of 9/11", *Urban Affairs Review*, Vol. 40 (5): 655-682 (2005). Familiarity with the marine fishing industry and fishing communities is desirable.

The documents supplied to the reviewers shall consist of the (1) original Statement of Work for Impact Assessment, Inc., and the (2) *Final Technical Report, Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities*. The reviewers shall become familiar with the research plan and the background documents.

### Specific Reviewer Tasks and Schedule

1. Read the Statement of Work for Impact Assessment, Inc.
2. Read and assess the *Final Technical Report, Preliminary Assessment of the Impacts of Hurricane Katrina on Gulf of Mexico Coastal Fishing Communities*.
3. Specific points to be addressed in the reviewers' reports include:
  - (a) Is the rapid ethnographic assessment methodology used scientifically sound? Does it fall within the range of accepted rapid social assessment approaches used in the United States? If not, provide recommendations for improvement with attention to future rapid assessment studies
  - (b) Are the fishing community social and infrastructure impact data and analyses presented in the report consistent with the methodology described in the report? If not, provide recommendations for improving the data and/or the analyses with attention to future rapid assessment studies.
  - (c) Does the report provide comparable pre- and post-impact, fisheries-focused social and infrastructure data at the state level for the states of Alabama, Mississippi, and Louisiana? If not, recommend improvements.
  - (d) Does the report provide comparable pre- and post-impact, fisheries-focused social and infrastructure information at the community level for affected communities for the states of Alabama, Mississippi, and Louisiana? If not, provide recommendations for improvement.
  - (e) Are the report's conclusions supported by and consistent with the data and their analysis as described in the report? If not, provide recommendations for improvement.

5. No later than December 12<sup>4</sup>, 2006, submit a written report<sup>5</sup> to the CIE that addresses the points in item 3 above. See Annex I for additional details on the report outline. Each report shall be sent to Dr. David Sampson, via email at [david.sampson@oregonstate.edu](mailto:david.sampson@oregonstate.edu), and to Mr. Manoj Shivlani, via email at [mshivlani@rsmas.miami.edu](mailto:mshivlani@rsmas.miami.edu).

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<sup>4</sup> This date was changed due to late receipt of material by Richard Pollnac. The new date was approved via telephone conversation with Mr. Manoj Shivlani on 4 December 2006.

<sup>5</sup> Each written report will undergo an internal CIE review before it is considered final.

## **ANNEX I: REPORT GENERATION AND PROCEDURAL ITEMS**

1. The report should be prefaced with an executive summary of comments and/or recommendations.
2. The main body of the report should consist of a background, description of review activities, summary of comments, and conclusions/recommendations.
3. The report should also include as separate appendices the bibliography of materials provided by the Center for Independent Experts, including any additional literature cited, and a copy of the Statement of Work.

Please refer to the following website for additional information on report generation:  
<http://www.rsmas.miami.edu/groups/cie/cierevrep.htm>

Budget:

1) Salary (7 days at \$600 per day)	\$4,200.00
<b>Total</b>	<b>\$4,200.00</b>