

**Deepwater Horizon NRDA  
Lost Human Use Assessment Plan  
Advanced Funding Claim**

July 20, 2012

**Overview**

On April 20, 2010, an explosion occurred on the Deepwater Horizon (DWH) oil rig in the Gulf of Mexico, approximately 50 miles southeast of the Mississippi Delta. Following the explosion and fire, the rig sank, leading to the rupture of a pipe and the subsequent release of oil. This oil has impacted natural resources in many locations in the Gulf of Mexico. As a result, the natural resource Trustees (i.e., state and federal agencies and federally recognized tribes) initiated a natural resource damage assessment (NRDA). As part of this assessment, the National Oceanic and Atmospheric Administration (NOAA) contracted with a nationally known NRDA consulting firm and a team of experts to conduct work to characterize and quantify public human use losses resulting from the oil spill.

This assessment plan (AP) applies to both the direct use/recreation assessment and the total value assessment being conducted by the natural resource Trustees and covers a period of 24 months, from January 1, 2013 through December 31, 2014. The assessment is being implemented as part of the NRDA to quantify the economic value of direct/recreational services that have been lost as a result of the DWH oil spill and to quantify the total value (both direct/recreational use and passive use) lost as a result of the DWH oil spill. All work is being conducted in a manner consistent with the Oil Pollution Act (OPA) and the OPA NRDA Regulations.

The activities described herein encompass a variety of efforts for estimating the diminished use and lost value from the DWH oil spill. These efforts are a continuation of previous work, which began in May, 2010 and include surveys of recreational activities, investigations of possible approaches for estimating lost total value and initiation of those approaches, and background studies on economic activity related to marine recreation and total value. For direct/recreational use losses, the focus will be on three sectors: boating and boat-based fishing, shoreline fishing, and shoreline use. Additional work on the impacts of the spill on tourism and consumer prices for seafood are also undergoing evaluation.

## **Standards of Performance**

Because all work performed under the work plan must meet high standards of professional performance and technical rigor, highly qualified and experienced experts will design and implement the work. Work products will be developed to meet or exceed generally accepted technical standards, methods, and procedures used in the field of natural resource valuation.

This AP describes activities that will be performed over a 24-month period, and as such the activities and budget outlined below are subject to modification based on information obtained during the course of the assessment and the evolution of the spill incident and its impacts on natural resources.

## **General Approach to the Study**

The estimation of lost value involves four general information-collection efforts: determination of direct use/recreational use under spill-impacted conditions; determination of baseline recreational use; assessment of the value of lost and diminished recreation trips; and assessment of the lost total value (both direct/recreational and passive use).

At this time, it is anticipated that direct/recreational use sampling will conclude at the end of 2012 or in early 2013. As more information becomes available, the onsite sampling effort will be adjusted as appropriate. Through review of the collected onsite data, experts will determine the impact on recreational use resulting from the spill by comparing estimated spill impact time periods with estimated baseline time periods. The next effort involves assessing the value of recreational trips lost, as well as the diminution in the value of trips that are taken in other than baseline conditions. This work will be the continuation of the recreation assessment that is already underway, with continuing development and implementation of appropriate strategies for assessing baseline use and valuing lost recreation. The total value assessment activities are also the continuation of the ongoing total value assessment.

The AP involves the following activities, which are described in more detail below:

- Complete onsite sampling efforts
- Complete valuation studies, including an approach to valuation that would be applicable to each major category of recreation, i.e. boating and boat-based fishing, shoreline fishing, and shoreline use other than fishing
- Continue to investigate approaches to the quantification of lost trips and valuation of specialized recreational activities and estimate the quantities of lost trips.
- Continue to identify and acquire studies and datasets that provide supporting information on the levels of recreational use

- Investigate baseline use and information that can be used to characterize a return to baseline conditions
- Perform a study of multiple-day recreation trips and investigate the best approaches to the valuation of these trips
- Investigate trends in economic activity related to recreation and the relationship of these trends to the pattern of activities observed in the onsite sampling
- Continue development of the draft total value survey instrument(s)
- Continue testing of the draft total value instrument(s)
- Undertake total value literature reviews and studies
- Complete total value survey administration
- Retain experts, including peer reviewers, as necessary
- Continue to follow chain of custody and QA/QC data and information handling procedures.

### **Team Development, Management, and Support**

The Trustees have assembled a team of highly skilled and experienced professionals/experts in the fields of environmental and natural resource economics, survey research, econometrics and other social sciences, and NRDA. The team may be augmented, as necessary, to address specific needs. The work of the experts will be rigorously peer reviewed.

Stratus Consulting will provide technical, managerial, and administrative support for conducting the NRDA and producing deliverables. To allow for efficient management of the team, team members will be assigned to specific subject areas for which they will provide direct support. Subject-area teams will be adjusted, as necessary, to meet the overall schedule and goals of the assessment. Stratus will ensure team organization and communications, conduct team meetings and communicate with NOAA and team members. The focus of this effort is to ensure the efficient use of experts and to ensure regular communication within the expert consulting team and with the co-trustees.

### **Categories of Lost Direct Use/Recreation Being Assessed**

#### **Direct Use/Recreation**

Each major category of the recreational lost use assessment is listed below:

- Boating and boat-based fishing
- Shoreline fishing
- Shoreline use (other than fishing)

There will be additional assessment studies that will continue in this phase of the direct use/recreation assessment. These additional recreation studies will focus on

continuing to develop information to support the assessment of the major recreation categories. We anticipate commissioning focused papers to address specific topics in some of these assessment areas. The additional studies are as follows:

Valuation

Supplemental baseline

Secondary support  
data

Other recreational  
activities

### **Specific Direct Use/Recreation Assessment Tasks**

#### ***Task 1: Complete onsite data collection and analysis in support of the assessment of recreational human use impacts***

The onsite sampling conducted under this task has involved counts and interviews to assess recreational use for boating and boat-based fishing, shoreline fishing, and shoreline use. During this phase of the assessment, the Trustees anticipate concluding onsite field sampling throughout coastal areas of Louisiana, Mississippi, Alabama, and Florida. The primary focus during this phase of the assessment will be on preparation and analysis of data collected during the onsite field work in those four states.

#### ***Task 2: Update database of literature and existing datasets on human uses of affected natural resources***

This work includes collecting and reviewing additional supporting information from existing sources. Secondary support data include a variety of sources of regularly gathered data from markets, governments, and other sources that might provide insight on the spatial and temporal extents of the spill. This information will be used to support the primary data collection effort.

During the prior phase of this work, the Trustees developed a database of existing data and literature for recreational use in the Gulf coast states. The Trustees and their experts will continue to update this database as needed. This work will include acquiring related datasets as needed, an ongoing literature review, and communicating findings.

#### ***Task 3: Monitor impacts on other direct human uses of impacted natural resources***

The Trustees will continue to collect data and information concerning impacts on other direct human uses of impacted natural resources and maintain it according to

current trustee chain-of-custody and data storage protocols. We will continue to collect information on recreational site closures and commercial fishing closure notices and changes that occur to these closures because of re-oiling, response actions, or other DWH-related activity.

***Task 4: Develop and implement a framework for consistent assessment and valuation of major recreational activities***

The Trustees' expert team has investigated various valuation approaches that are suitable for the three major recreational activities being assessed: boating and boat-based fishing, shoreline fishing, and shoreline use. This framework will reflect the needs of valuation for litigation. Identified valuation studies have been initiated and will be completed during this phase of the assessment.

Based on the findings from previous work, and the activities described above, the Trustees' experts will complete survey-based approaches/methodologies for estimating lost human use. Approaches may include telephone, mail, in-person, or web-based surveys. The Trustees' experts will also review and analyze the data collected under Task 1, consider existing data collected under Task 2, and evaluate data provided from aerial overflights conducted by the responsible party for its use in this task of assessing and valuing impacts to major recreational activities.

***Task 5: Evaluate approaches for addressing multiple-day trips***

In studies of recreational demand and use, multiple-day trips often require separate analysis. The Trustees' experts will continue to evaluate the literature and will complete an analysis of the value of multiple-day trips.

***Task 6: Continue evaluation of baseline recreational use***

This task involves the compilation of information on the socioeconomic conditions surrounding the DWH oil spill, including affected demographics and the extent of spill effects and will include the need to:

- Evaluate the applicability of information developed in the previous tasks for determining baseline use.
- Investigate supporting documentation, including consumer expenditures and impacts on tourism markets:

*Consumer expenditures:* The Trustees' experts have conducted an initial investigation of the sensitivity of budget shares, described in the Consumer Expenditure Survey (CES), to movements in the real business cycle. The Trustees' experts are now in the process of evaluating performing empirical work in order to analyze the available CES data with respect to the business cycles. Analysis will incorporate

regional influences (i.e., Gulf region versus the rest of the United States).

*Tourism impacts:* The Trustees' experts have investigated the potential impacts of tourism disruptions on the markets for hotel rooms, vacation rental property, and home sales in the southeastern United States. During this phase of the work, Trustees' experts will continue to evaluate the results of this investigation and will incorporate them into the recreation assessment report(s) described below.

### ***Task 7: Evaluation of the benefit transfer literature***

This task is a part of valuation study planning. A literature review of available benefit-transfer approaches and studies has been completed. The Trustees' experts will continue to evaluate the potential application of the findings from this literature review in the assessment of direct/recreational use losses and values.

### ***Task 8: Preparation of final recreational use assessment reports and claim submittal***

This task will result in the development of final assessment and expert reports for the direct use/recreation assessment. These reports will summarize the analyses completed in Tasks 1 through 7 above and help form the basis for the Trustees' claim for damages/compensatory restoration.

## **Total Value Assessment**

The total value assessment will estimate the value of lost passive and direct use of the injured natural resources. Major tasks include focus group script and other instrument development activities, including survey instrument testing, survey administration, data management and analyses, econometric/statistical modeling, report writing and peer review. Focused research in support of the total value assessment will address economic and econometric theory, psychology, judgment, and decision-making associated with the development and implementation of the survey instrument and analysis of the data and interpretation of results.

### **Specific Total Value Assessment Tasks**

#### ***Task 9: Develop total value survey instrument***

The Trustees will continue to develop a technically feasible and defensible approach to address the specific valuation questions using stated preference methods. We will continue to perform the following sub-activities to develop the final survey instrument:

- Develop focus group materials and plan for and conduct focus groups
- Consult with NOAA and other experts to develop injury descriptions

- Develop draft survey instruments
- Test draft survey instruments, including in focus groups, one-on-one interviews, pilot and large scale pretests

***Task 10: Complete total value survey administration and sampling plan and final survey instrument***

During this phase of the project we will complete the overall pilot and final survey administration plans, draft final interviewer training materials, and an initial and final survey sampling plan. Specific activities in this task include:

- Complete an overall survey administration and implementation plan and schedule
- Complete draft and final interviewer training materials and conduct trainings
- Complete overall sampling plans for remaining pilot and final surveys
- Complete pilot and final survey instruments

***Task 11: Evaluate need for supporting total value economic studies***

The Trustees will evaluate the need for specific economic studies to support the overall valuation approach. During this task we anticipate conducting the following activities:

- Identify specific supporting economic and other possible social science studies to be investigated
- Complete literature reviews of pertinent economic theory and econometric methods
- Develop specific study designs and plans as necessary
- Communicate with the NOAA team on completion of identified studies

***Task 12: Implement final survey and analyze collected data and prepare reports***

This task will support the collection and analysis of all final data collection, including development of econometric/statistical models, and preparation of expert and technical reports required to support presentation of the Trustees' claim for damages/compensatory restoration.

Specific activities include:

- Final survey administration
- Complete double-key entry of data
- Provide data quality assurance/quality control (QA/QC)
- Implement appropriate data archive protocols
- Develop final analytical datasets
- Analyze final datasets
- Write reports
- Conduct peer review

## **Anticipated Deliverables**

The following deliverables will be prepared as needed:

- Periodic reports (oral and/or written) on counts of major recreational activities
- Ongoing updates on surveys undertaken
- Survey sampling and QA/QC plans
- Draft and final survey instruments for each survey conducted
- Report on the additional recreational activities covered
- Direct use/recreation assessment and expert reports or portions thereof
- Total value assessment and expert reports or portions thereof
- Documents associated with settlement negotiations
- Coordination calls and meetings.

# Deepwater Horizon Lost Human Use Advanced Funding Budget

January 1, 2013 through December 31, 2014

Direct Use Costs (\$000s)										Total Value Costs (\$000s)					
Task:	1	2	3	4	5	6	7	8	Totals	Task:	9	10	11	12	Totals
<b>Quarter 1</b>										<b>Quarter 1</b>					
NOAA staff	\$40	\$30	\$10	\$60	\$10	\$20	\$10	\$20	\$201	NOAA staff	\$46	\$31	\$15	\$62	\$154
Consultants/Contracts	\$598	\$120	\$120	\$1,196	\$120	\$120	\$120	\$0	\$2,393	Consultants/Contracts	\$1,108	\$277	\$277	\$1,108	\$2,770
Travel	\$58	\$7	\$7	\$29	\$15	\$22	\$7	\$0	\$145	Travel	\$28	\$2	\$2	\$8	\$40
<b>Total</b>	<b>\$696</b>	<b>\$157</b>	<b>\$137</b>	<b>\$1,286</b>	<b>\$144</b>	<b>\$161</b>	<b>\$137</b>	<b>\$20</b>	<b>\$2,739</b>	<b>Total</b>	<b>\$1,182</b>	<b>\$310</b>	<b>\$294</b>	<b>\$1,178</b>	<b>\$2,964</b>
<b>Quarter 2</b>										<b>Quarter 2</b>					
NOAA staff	\$40	\$20	\$10	\$60	\$10	\$20	\$10	\$30	\$201	NOAA staff	\$46	\$31	\$15	\$62	\$154
Consultants/Contracts	\$418	\$105	\$105	\$1,045	\$105	\$105	\$105	\$105	\$2,090	Consultants/Contracts	\$1,108	\$277	\$277	\$1,108	\$2,770
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$6	\$2	\$2	\$30	\$40
<b>Total</b>	<b>\$472</b>	<b>\$129</b>	<b>\$119</b>	<b>\$1,129</b>	<b>\$124</b>	<b>\$144</b>	<b>\$119</b>	<b>\$149</b>	<b>\$2,386</b>	<b>Total</b>	<b>\$1,160</b>	<b>\$310</b>	<b>\$294</b>	<b>\$1,200</b>	<b>\$2,964</b>
<b>Quarter 3</b>										<b>Quarter 3</b>					
NOAA staff	\$40	\$20	\$10	\$60	\$10	\$20	\$10	\$30	\$201	NOAA staff	\$46	\$31	\$15	\$62	\$154
Consultants/Contracts	\$410	\$103	\$103	\$1,025	\$103	\$103	\$103	\$103	\$2,050	Consultants/Contracts	\$1,108	\$277	\$277	\$1,108	\$2,770
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$6	\$2	\$2	\$30	\$40
<b>Total</b>	<b>\$464</b>	<b>\$127</b>	<b>\$117</b>	<b>\$1,109</b>	<b>\$122</b>	<b>\$142</b>	<b>\$117</b>	<b>\$147</b>	<b>\$2,346</b>	<b>Total</b>	<b>\$1,160</b>	<b>\$310</b>	<b>\$294</b>	<b>\$1,200</b>	<b>\$2,964</b>
<b>Quarter 4</b>										<b>Quarter 4</b>					
NOAA staff	\$40	\$20	\$10	\$60	\$10	\$20	\$10	30.15	\$201	NOAA staff	\$46	\$31	\$15	\$62	\$154
Consultants/Contracts	\$206	\$69	\$69	\$688	\$69	\$69	\$69	\$138	\$1,375	Consultants/Contracts	\$1,108	\$277	\$277	\$1,108	\$2,770
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$6	\$2	\$2	\$30	\$40
<b>Total</b>	<b>\$261</b>	<b>\$94</b>	<b>\$84</b>	<b>\$772</b>	<b>\$88</b>	<b>\$108</b>	<b>\$84</b>	<b>\$182</b>	<b>\$1,671</b>	<b>Total</b>	<b>\$1,160</b>	<b>\$310</b>	<b>\$294</b>	<b>\$1,200</b>	<b>\$2,964</b>
<b>Quarter 5</b>										<b>Quarter 5</b>					
NOAA staff	\$30	\$20	\$10	\$60	\$0	\$30	\$0	\$50	\$201	NOAA staff	\$44	\$30	\$15	\$59	\$148
Consultants/Contracts	\$138	\$69	\$69	\$481	\$0	\$69	\$0	\$550	\$1,375	Consultants/Contracts	\$1,108	\$277	\$277	\$1,108	\$2,770
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$6	\$2	\$2	\$30	\$40
<b>Total</b>	<b>\$182</b>	<b>\$94</b>	<b>\$84</b>	<b>\$565</b>	<b>\$10</b>	<b>\$118</b>	<b>\$5</b>	<b>\$615</b>	<b>\$1,671</b>	<b>Total</b>	<b>\$1,158</b>	<b>\$309</b>	<b>\$294</b>	<b>\$1,197</b>	<b>\$2,958</b>
<b>Quarter 6</b>										<b>Quarter 6</b>					
NOAA staff	\$30	\$20	\$10	\$50	\$0	\$30	\$0	\$60	\$201	NOAA staff	\$44	\$30	\$15	\$59	\$148
Consultants/Contracts	\$138	\$69	\$69	\$344	\$0	\$69	\$0	\$689	\$1,378	Consultants/Contracts	\$180	\$720	\$180	\$720	\$1,800
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$6	\$2	\$2	\$30	\$40
<b>Total</b>	<b>\$182</b>	<b>\$94</b>	<b>\$84</b>	<b>\$418</b>	<b>\$10</b>	<b>\$118</b>	<b>\$5</b>	<b>\$763</b>	<b>\$1,674</b>	<b>Total</b>	<b>\$230</b>	<b>\$752</b>	<b>\$197</b>	<b>\$809</b>	<b>\$1,988</b>
<b>Quarter 7</b>										<b>Quarter 7</b>					
NOAA staff	\$20	\$20	\$10	\$30	\$0	\$30	\$0	\$90	\$201	NOAA staff	\$57	\$33	\$16	\$57	\$163
Consultants/Contracts	\$145	\$72	\$72	\$217	\$0	\$72	\$0	\$867	\$1,445	Consultants/Contracts	\$396	\$396	\$158	\$633	\$1,583
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$5	\$2	\$2	\$23	\$30
<b>Total</b>	<b>\$179</b>	<b>\$97</b>	<b>\$87</b>	<b>\$271</b>	<b>\$10</b>	<b>\$121</b>	<b>\$5</b>	<b>\$972</b>	<b>\$1,741</b>	<b>Total</b>	<b>\$457</b>	<b>\$430</b>	<b>\$176</b>	<b>\$713</b>	<b>\$1,776</b>
<b>Quarter 8</b>										<b>Quarter 8</b>					
NOAA staff	\$10	\$20	\$10	\$20	\$0	\$30	\$0	\$111	\$201	NOAA staff	\$57	\$24	\$8	\$73	\$163
Consultants/Contracts	\$136	\$68	\$68	\$68	\$0	\$68	\$0	\$952	\$1,360	Consultants/Contracts	\$326	\$261	\$65	\$652	\$1,304
Travel	\$14	\$5	\$5	\$24	\$10	\$19	\$5	\$14	\$95	Travel	\$5	\$2	\$2	\$23	\$30
<b>Total</b>	<b>\$160</b>	<b>\$93</b>	<b>\$83</b>	<b>\$112</b>	<b>\$10</b>	<b>\$117</b>	<b>\$5</b>	<b>\$1,077</b>	<b>\$1,656</b>	<b>Total</b>	<b>\$387</b>	<b>\$287</b>	<b>\$75</b>	<b>\$748</b>	<b>\$1,497</b>
<b>All Quarters</b>										<b>All Quarters</b>					
NOAA staff	\$251	\$171	\$80	\$402	\$40	\$201	\$40	\$422	\$1,608	NOAA staff	\$388	\$239	\$116	\$495	\$1,238
Consultants/Contracts	\$2,188	\$673	\$673	\$5,064	\$395	\$673	\$395	\$3,402	\$13,465	Consultants/Contracts	\$6,442	\$2,761	\$1,788	\$7,545	\$18,536
Travel	\$158	\$41	\$41	\$195	\$81	\$155	\$41	\$100	\$810	Travel	\$67	\$15	\$15	\$203	\$300
<b>Total</b>	<b>\$2,346</b>	<b>\$714</b>	<b>\$714</b>	<b>\$5,259</b>	<b>\$476</b>	<b>\$828</b>	<b>\$436</b>	<b>\$3,502</b>	<b>\$15,883</b>	<b>Total</b>	<b>\$6,509</b>	<b>\$2,776</b>	<b>\$1,803</b>	<b>\$7,748</b>	<b>\$20,074</b>

**Total (All Tasks) (\$000s)**

Direct Use	\$15,883	NOAA Labor Breakdown													
Total Value	\$20,074	Task	1	2	3	4	5	6	7	8	9	10	11	12	Total
Total	\$35,957	Hours	1,625	1,105	520	2,600	260	1,300	260	2,730	2,380	1,470	710	3,040	18,000