STRATUS CONSULTING

Study of the Economic Benefits of Right Whale Protection in the Northwest Atlantic: Phase 1, Part 2 Report

Final Report

Prepared for:

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

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Acronyms and Abbreviations

CITES	Convention on International Trade in Endangered Species
CVM	contingent valuation method
ESA	Endangered Species Act
GSS	General Social Survey
MMPA	Marine Mammal Protection Act
NARW	North Atlantic right whale
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
OMB	Office of Management and Budget
POE	probability of extinction
PRA	Paperwork Reduction Act
QA/QC	quality assurance/quality control
RUM	Random Utility Modeling
S&T	Office of Science and Technology
SP	stated preference
T&E	threatened and endangered
WTP	willingness to pay

1. Introduction

1.1 Background

This report identifies efforts to support the National Marine Fisheries Service/Northeast Fisheries Science Center's (NMFS/NEFSC's) need to measure the benefits of alternative management actions to protect North Atlantic right whales (NARWs), which are currently protected under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Except for the North Pacific right whale, the NARW is the most endangered of the U.S. large whale species (Clapham et al., 1999).

NMFS, within the National Oceanic and Atmospheric Administration (NOAA), has primary responsibility for management activities to protect the NARW. NMFS is currently considering alternative regulatory actions designed to protect the NARW. Proposed regulations may require ships to travel at slower speeds and possibly also to avoid areas where NARWs are known to congregate. Other proposed regulations would require changes in commercial fishing gear or locations. The National Environmental Policy Act (NEPA) and Executive Order 12866 require that social and economic analyses be conducted when federal agencies propose new regulations.

To understand the potential economic benefits associated with the protection of the NARW through these proposed regulatory actions, the NEFSC, located within the NMFS, contracted with Stratus Consulting to conduct a multiyear study of the public's preferences for alternative NARW protection measures, including estimating the total value of the protection alternatives. "Total economic values include all the several kinds of economic values that have been identified by economists. Total economic value is the willingness to pay (WTP) for a change in the state of the world" (National Research Council, 1999, p. 90).[1] The overall study is divided into three phases. Phase 1 is development and pretesting of a survey instrument. Phase 2 is data collection through the implementation of the designed survey. Phase 3 is analysis of data collected in Phase 2 and reporting on the overall project findings. This report summarizes the efforts undertaken during the second part of Phase 1 (Part 2 of Phase 1).

1. In addition to the requirements of the various federal laws and policy options to protect the NARW, economic analysis can play an important role in evaluating the acceptability and implications of alternative policies. Several key decisions surrounding right whale protection and recovery can be better informed through the evaluation of the public value for right whale protection. These key issues include how the public views the various options associated with protecting right whales from death and increased probability of extinction and the public's understanding of the effectiveness of the various protection options.

1.1.1 North Atlantic right whale background

People hunted NARWs extensively over many decades, which decimated the NARW population. Because of past hunting, the right whale was the first whale species to receive international protection. In addition to protection under the ESA and MMPA, the NARW is protected by the International Whaling Commission and the U.N. Convention on International Trade in Endangered Species (CITES).

The most recent stock assessment report, based on peer-reviewed estimates, found the minimum population size of individually-recognized NARWs was about 325 individuals in 2002 with a mean growth rate for 1990-2002 of 1.8% per year (Waring et al., 2009). Fujiwara and Caswell (2001) found that the probability of extinction (POE) for the NARW in the next 200 years is greater than zero. In other words, extinction during the next two centuries is a possibility. Modeling work using right whale sightings data prior to 1998 found a POE of 50% for the NARW population during the next 200 years. These NARWs inhabit coastal or shelf waters, ranging from winter calving areas off the southeastern United States to summer feeding grounds off New England and north to the Bay of Fundy and the Scotian Shelf (NMFS, 2005).

Two primary sources cause injury to and mortality of the NARW: ship strikes and entanglements in commercial fishing gear (Kraus, 1990; Knowlton and Kraus, 2001; Moore et al., 2005; NMFS, 2005; Marine Mammal Commission, 2006). A recent estimate shows that between 2002 and 2006, about 3.8 right whales were killed and seriously injured each year due to ship strikes and entanglements. Of these, 2.4 were attributed to ship strikes and 1.4 were attributed to entanglements (Glass et al., 2008). The NARW recovery plan has four criteria that must be met to ensure the long-term viability of the species. That is, the NARW status can change from endangered to threatened if the population increases to approximately 650 animals. This is based on a 2% annual growth rate over 35 years (NMFS, 2005).

1.1.2 Current management efforts

NMFS is charged with protecting the NARW by implementing management actions to allow the species to recover (69 FR 53040). A NARW recovery plan is in place (60 FR 53040; NMFS, 2005), and several management actions have been taken (e.g., 71 FR 36299, 70 FR 35894). In 2008, NMFS implemented additional actions to reduce ship strikes (73 FR 60173).

Current measures by the NMFS to reduce ship-whale collisions include voluntary avoidance and speed reduction measures. New regulations in effect December 9, 2008 “implement speed restrictions of no more than 10 knots, which applies to all vessels 65 ft or greater in overall length in certain locations and at certain times of the year along the coast of the U.S. Atlantic seaboard” (73 FR 60173). Ships are prohibited from approaching within 500 yards (460 meters)

of NARWs (69 FR 69536). Aircraft surveys are used to locate NARWs; those locations are provided to vessels and voluntary speed advisories are issued through NOAA-based communications, such as those of the National Weather Service. Ships are also requested to report whale sightings. The National Ocean Service (NOS) updates and publishes charts with hazard areas identified, including NARW areas occupied. Recently, shipping lanes into Boston harbor have been shifted to decrease the risk of ship-whale collisions (NOAA Fisheries Service, 2008).

Managers of the U.S. lobster and gillnet fisheries have implemented measures to reduce entanglements. Under 1994 amendments to the MMPA, NMFS established an Atlantic Large Whale Take Reduction Team to address whale mortality resulting from fixed gear entanglements. Measures currently in force include Seasonal Area Closures (67 FR 1142), Dynamic Area Closures (67 FR 1133), and required modifications of gear to make the waters safer for all whales (68 FR 51195).

1.1.3 Summary

NARW protection is linked to fishery and ship traffic regulations. Policymakers must comply with several federal laws and executive orders in addition to the ESA and MMPA, including Executive Order 12866 (58 FR 51735), which requires regulatory agencies to consider costs and benefits in deciding among alternative regulatory actions. Additional regulations and mandates (e.g., NEPA) require federal agencies (in this case NMFS) to conduct social and economic analyses when they propose new regulations.

This report describes how Stratus Consulting and experts at NMFS and the NEFSC developed a survey instrument for pretesting during Part 2 of Phase 1 based on the findings from Phase 1, Year 1.

1.2 Summary of Phase 1, Year 1 Activities

In the first year of the project – the predesign stage – Stratus Consulting developed an understanding of the public's views and opinions regarding the protection of NARWs. The broad objectives of Phase 1, Year 1 were to (1) review, evaluate, and summarize information on the current and potential future status of the NARW; and (2) present that information to focus groups drawn from the general public to assess the public's current understanding of the NARW and their opinions on potential alternatives to protect the NARW in the future. This information allowed us to judge the feasibility of applying stated preference (SP) methods to assess the benefits of regulatory proposals. The specific actions undertaken during this year of the project to address the objectives were:

- Review literature relevant to valuation of NARW protection
- Develop focus group materials
- Conduct focus groups.

After exploring the technical feasibility of later steps to achieve the study goals, the research team accomplished the following tasks.

Task 1: Assessed the level of knowledge and interest among U.S. residents in large whales in general and the NARW in particular. This included an assessment of how knowledge and interest vary across the United States.

Task 2: Developed and tested materials to inform U.S. residents about NARW biology and status, problems currently confronting the species, and measures to reduce NARW mortality. These materials were based on what people knew already (Task 1) and formed the foundation for developing valuation scenarios. Text, photographs, drawings, and diagrams were all useful for this purpose.

Task 3: Investigated the extent to which uncertainty about NARW recovery is a significant factor in people's attitudes and values for protection of the species. Materials for possible use in the SP survey included the probability of NARW extinction as one parameter.

Task 4: Used information provided by NOAA to describe the effects of NARW protection measures on other large whales and assessed the potential relevance of these effects to valuation of the protection measures.

Task 5: Developed and tested contingent valuation exercises on small numbers of U.S. residents. This was the initial qualitative measure of the potential values people may hold for NARW protection. It helped us assess whether values might be positive for significant numbers of U.S. residents and, if so, the feasibility of conventional contingent valuation methods (CVMs) to estimate the total value of the full implementation alternative. It also provided preliminary information on the range of values for NARW protection that would be needed to design the pretest survey.

Task 6: Developed and tested stated-choice valuation exercises on a small number of U.S. residents. This provided additional insights into the values for NARW protection and helped us evaluate the feasibility of using stated-choice questions to value the benefits of various combinations of management measures involving ships and fishing.

Task 7: Combined what has been learned in addressing Tasks 1-6 to arrive at empirically based recommendations regarding the overall feasibility of using SP methods (e.g., contingent valuation and/or stated-choice questions). SP methods are needed to estimate the total values that would follow from various combinations of possible management options.

Task 8: Since proceeding to the pretest was recommended, results from Year 1 were used to craft a draft survey instrument, develop a comprehensive study plan for Phase 1 (Part 2), and complete other tasks needed for this report.

These efforts resulted in a refined set of materials that were used to design a survey instrument during Part 2 of Phase 1 of the project. Results of these activities are the focus of subsequent chapters of this report.

1.3 Report Structure

Chapter 2 of this report reviews the Phase 1, Part 2 activities, which include development and refinement of the survey instrument for the pretest. Chapter 3 summarizes the results and findings from Phase 1, Part 2. Chapter 4 outlines the proposed future activities.

2. Summary of Phase 1, Part 2 Activities

2.1 Introduction

This chapter details the Phase 1, Part 2 activities for the NARW valuation project. The activities build on our efforts and findings from Year 1 of the project. In Part 2, we refined and tested the survey instrument by conducting six more focus groups and several cognitive interviews, and prepared the Paperwork Reduction Act (PRA) paperwork to the Office of Management and Budget (OMB) for approval. Section 2.2 describes how the survey instrument was developed using focus groups, cognitive interviews, scientific review, and other input. Section 2.3 discusses the OMB survey approval process and its relevance to the right whale survey.

2.2 Background on Stated Choice Approach to Valuation

2.2.1 Use of stated choice questions

Stated choice methods are useful tools to better understand the public's preferences and values for environmental amenities that are not traded in markets (U.S. OMB, 2003). While there is some use of NARWs via whale watching, protection of them has a large public good component. Stated choice methods will allow respondents to evaluate a wide range of outcomes (from possible restrictions on fishing and/or ships speed) within a total valuation framework, which allows for a full range of possible values. The total valuation framework accommodates both market and nonmarket values and use and nonuse or passive use values.

2.2.2 Question format

Stated choice methods are well established in the literature on environmental economics. This approach evolved from conjoint analysis, a method used extensively in marketing and transportation research (Louviere et al., 2000).[1] Conjoint analysis requires respondents to rank or rate multiple alternatives whereby each alternative is characterized by multiple characteristics (e.g., Johnson et al., 1995; Roe et al., 1996; Holmes and Adamowicz, 2003). Choice questions require respondents to choose the most preferred alternative from multiple alternative goods

1. Cattin and Wittink (1982) and Wittink and Cattin (1989) survey the commercial use of conjoint analysis, which is widespread. For survey articles and reviews of conjoint analysis, see Louviere (1988, 1992), Green and Srinivasan (1990), and Batsell and Louviere (1991). Transportation planners use choice questions to determine how commuters would respond to a new mode of transportation or a change in an existing mode. Hensher (1994) overviews choice questions applied in transportation.

(i.e., a choice set), whereby the alternatives within a choice set are differentiated by their characteristics. In our variant of stated choice questions, respondents are also asked to choose their least preferred alternative out of a set of three alternatives.

Choice and rating questions characterize the alternatives in terms of a small number of characteristics. For example, Opaluch et al. (1993) characterize noxious facilities in terms of seven characteristics; Adamowicz et al. (1997) use six characteristics to describe recreational hunting sites; Johnson and Desvousges (1997) use nine characteristics to describe electricity generation scenarios; Mathews et al. (1997) use seven characteristics to describe fishing sites; Morey et al. (2002a) use six characteristics to describe mountain bike sites; and Morey et al. (2002b) use two characteristics to characterize monument preservation programs.

2.2.3 Choice questions

The nature of the choice being made is one of the many desirable aspects of stated choice questions. Choosing the most preferred alternative from some set of alternatives is a common experience. Morikawa et al. (1990) noted that responses to choice questions often contain useful information on tradeoffs among characteristics. Quoting from the recreational fishing study of Mathews et al. (1997), "stated choice models provide valuable information for restoration decisions by identifying the characteristics that matter to anglers and the relative importance of different characteristics that might be included in a fishing restoration program." Johnson et al. (1995) note, "The process of evaluating a series of pair-wise comparisons of attribute profiles encourages respondents to explore their preferences for various attribute combinations." Choice questions encourage respondents to concentrate on tradeoffs between characteristics rather than to take a position for or against an initiative or policy. Adamowicz et al. (1998) note that the repeated nature of choice questions makes it difficult to behave strategically.

As mentioned previously, choice questions allow for the construction of goods characterized by characteristic or attribute levels that currently do not exist. This feature is particularly useful in marketing studies when the purpose is to estimate preferences for proposed goods whereby various characteristics can be manipulated in arriving at final product designs.[2] For example, Beggs et al. (1981) assess characteristics that affect the potential demand for electric cars. Similarly, researchers estimating the value of environmental goods are often valuing a good or condition that does not currently exist (e.g., restrictions on ship speeds in NARW critical habitat areas).

2. Louviere (1994) provides an overview of choice questions applied in marketing.

Choice questions, rankings, and ratings are increasingly used to estimate the value of environmental goods. For example, Magat et al. (1988) and Viscusi et al. (1991) estimate the value of reducing health risks; Adamowicz et al. (1994, 1999, 2004), Breffle et al. (2006), and Morey et al. (2002a) estimate recreational site choice models for moose hunting, fishing, and mountain biking; Breffle and Rowe (2002) estimate the value of broad ecosystem attributes (e.g., water quality, wetlands habitat); Adamowicz et al. (1998) estimate the value of enhancing the population of a threatened species; Layton and Brown (1998) estimate the value of mitigating forest loss resulting from global climate change; and Morey et al. (2002b) estimate WTP for monument preservation in Washington, DC. In each of these studies, a price (e.g., tax or a measure of travel costs) is included as one of the characteristics of each alternative so that preferences for other characteristics can be measured in terms of dollars. Other examples of choice questions to value environmental commodities include Swait et al. (1998), who compare prevention versus compensation programs for oil spills, and Mathews et al. (1997) and Ruby et al. (1998) who ask anglers to choose between two saltwater fishing sites as a function of their characteristics.

2.2.4 Ratings

Alternatively, a number of environmental studies have used ratings, in which survey respondents rate the degree to which they prefer one alternative to another. For example, Opaluch et al. (1993) and Kline and Wichelns (1996) develop a utility index for the characteristics associated with potential noxious facility sites and farmland preservation, respectively. Johnson and Desvousges (1997) estimate WTP for various electricity generation scenarios using a rating scale in which respondents indicate their strength of preference for one of two alternatives within each choice set. Other environmental examples include Rae (1983), Lareau and Rae (1998), Krupnick and Cropper (1992), Gan and Luzar (1993), and Mackenzie (1993). Adamowicz et al. (1999) provide an overview of choice and ranking experiments applied to environmental valuation, and argue that choice questions better predict actual choices than do rating questions because choice questions mimic the real choices individuals are continuously required to make, whereas individuals rank and rate much less often.[3]

2.2.5 Questionnaire development

Focus groups conducted during the design phase of this project showed that a solid foundation exists for the application of stated choice methods to the valuation of NARW protection along the U.S. Atlantic Coast. While participants needed information about NARWs and management alternatives before they felt equipped to answer the choice questions, they were eager to learn

3. See, for example, Louviere and Woodward (1983), Louviere (1988), and Elrod et al. (1992).

about the whales and most found what they learned to be personally relevant. Few found the materials we presented to them burdensome. As we refined our information handouts, subjects consistently demonstrated that they could retain the large amounts of information given them and apply it in the choice questions. Once they had the information in front of them, they responded as one might expect. Some were immediately concerned about the fate of the whales and favored new regulations even if it cost them money, and others felt that whale protection should receive a low priority relative to other issues they felt were more pressing. Those on the eastern and western seaboards (Boston, Hartford, Baltimore, Jacksonville, Seattle, Portland) tended to have more knowledge about whales and more interest in the NARW.

In the middle of the country (Denver), participants seemed less informed, but many were still interested. On the West Coast (Seattle, Portland), interest in marine issues was similar to what we found on the East Coast, but several participants expressed higher priorities for issues nearer to home. Once the choice questions took their current form, most people were able to work through them fairly quickly. When confronted with the first choice question, they tended to pause and study what we were asking, but later choice questions were completed quickly. Occasionally, we noted participants who became confused, not recognizing, for example, that we wanted them to designate both their most and least preferred alternatives, but such problems were rare. We checked for inconsistencies in responses across the three choice questions and found very few.

2.2.6 Experimental design for the pretest

The choice questions will work as follows (see Question 10 in the pretest instrument, for an example): there will be three choice questions in each version of the survey. Experience indicates that three choice questions provide a reasonable balance between our desire for more data and potential respondent fatigue. The use of three choice questions, each with three alternative levels of regulation, also allows for a full ranking of the alternatives. Each alternative will be defined in terms of four attributes: the NARW POE, the number of NARWs saved per year on average (#NARW), the number of other whales saved per year on average (#OW), and the annual cost to the respondent's household in higher prices for imported goods and federal taxes (COST). For each choice question, respondents will be asked to choose their most preferred and least preferred alternatives. The first alternative will always be the no action or "status quo" alternative, symbolized here by SQ. Since nothing more is done to protect the whales under SQ, its additional cost to the respondents is zero.

Other alternatives (action alternatives) that will appear in the different choice questions will be designated here as Partial Plans A and B (PPA and PPB), which involve different combinations of doing more and spending more, and the Full Plan (the maximum amount of protection; symbolized by FP). Each choice question asks respondents to compare SQ and two action

alternatives and to select their most preferred and least preferred alternatives. Succeeding choice questions ask respondents to compare different combinations of the action alternatives with SQ. Including the SQ alternative in all the choice questions allows respondents always to opt out of doing more and spending more. Additionally, including three alternatives in each choice question provides increased statistical efficiency by providing a complete ranking of the alternatives from most to least preferred. The use of three alternatives in each choice question has been tested in other surveys and in our focus groups, and has been found to work well with respondents.

Each version of the survey is internally consistent. That is, each version has the same POE, #NARW, #OW, and COST for SQ, PPA, PPB, and FP wherever they appear in the choice questions. Also, partial plans almost always result in higher POE, lower #NARW, lower #OW, and lower COST than the FP. Respondents are not asked to change what they are assuming about the levels of the attributes associated with each alternative as they work through the choice questions. This makes answering the questions simpler and less confusing for them.

At the same time, the attributes (POE, #NARW, #OW, COST) associated with each alternative (SQ, PPA, PPB, FP) can be varied across survey versions (except that NARWs saved, other whales saved, and costs are always zero under SQ). The challenge in experimental design is to choose attribute levels across versions to maintain internal consistency within versions and minimize co-linearity across versions. Minimizing co-linearity greatly facilitates statistical analysis and eventual value estimation.

The pretest has three goals:

1. To test whether the survey instrument works well under field conditions

2. To test whether our current range of values for COST adequately captures the range of values respondents hold for the alternatives and to revise the range of the cost attribute for the main survey

3. To collect data for a simple statistical model to estimate attribute coefficients to update the experimental design for the main survey.

To provide variability in the data, but limit the number of overall versions and administration complexity, we selected six versions, each with an FP, PPA, and PPB, as well as the SQ. The attributes and associated levels are presented in Table 2.1.

The rationale behind selecting these particular attribute levels in each version is described below.

Table 2.1. Proposed pretest versions

Version	SQ POE	FP/PPA/PPB	POE	#NARW	#OW	COST
A	50	FP	5	4	2	50
A	50	PPB	25	2	4	25
A	50	PPA	25	1	0	5
B	50	FP	5	4	2	50
B	50	PPB	5	2	1	25
B	50	PPA	25	1	4	50
C	50	FP	5	8	12	100
C	50	PPB	25	2	4	25
C	50	PPA	25	1	0	5
D	10	FP	1	8	12	100
D	10	PPB	5	4	2	50
D	10	PPA	5	4	8	75
E	10	FP	1	12	24	200
E	10	PPB	5	4	2	50
E	10	PPA	5	4	8	100
F	10	FP	1	4	2	50
F	10	PPB	5	4	0	50
F	10	PPA	5	2	2	25

Status quo

To understand how respondents' answers may differ based on the status quo POE, we selected versions with different values for the status quo POE. We investigate two levels of status quo POE (50% and 10%). These levels bound the status quo POE expected to be used in the main survey.

Right whales

Respondents may place values on saving individual NARWs beyond the effects on the change in POE. We included alternatives (in separate versions) where the number of individual NARWs saved and COST are changed. By holding the change in other variables constant, we can investigate whether individuals are willing to pay more for a greater number of NARWs saved all else equal.

Other whales

Actions to save NARWs may also benefit other whales. We want to evaluate both whether respondents find these changes plausible, and whether respondents find it credible that a policy may save more or fewer other whales compared to the number of NARWs saved. To evaluate these two possibilities, we included at least one alternative per version that have other whales saved greater than NARWs saved and one alternative with fewer other whales saved than NARWs saved.

Bid amounts

Bid amounts should span most of the likely range in which individuals are willing to pay to improve the attributes in the survey. To ensure that the range we will use in the main survey reflects the range of values most respondents hold, we will test a fairly large range of bid amounts in the pretest, including one alternative (FP of version F) that combines the maximum improvements in all attributes with the annual cost of $200.

2.3 Development and Refinement of Survey Instrument for Pretest

The research team followed standard survey design procedures, including qualitative testing in focus groups, to develop an effective pretest survey instrument. Phase I was divided into six steps. Steps 1 and 2, and part of Step 3 (eight rounds of focus groups), were completed in Year 1. The remaining steps were completed in Part 2:

- Step 1: Survey concept formulation
- Step 2: Review of existing literature
- Step 3: Focus groups
- Step 4: Design of survey instrument
- Step 5: One-on-one interviews
- Step 6: Internal and external reviews.

Each of these steps are discussed in detail below.

2.3.1 Step 1: Survey concept formulation

We refined the overall study goals in the early stages of the project through interviews with key stakeholder groups, including resource managers and scientists at a workshop held by the Protected Species Branch at the NEFSC in Woods Hole, Massachusetts in November 2005. These initial interviews allowed us to identify the main goals of the survey and potential uses of

the study results. At critical points throughout the study, we continue to update the key stakeholders on the status of the study and ask for their suggestions and advice.

2.3.2 Step 2: Review of existing literature

We conducted a thorough review of the literature on SP methods and applications to endangered species. The results of this effort showed that there are significant gaps in the current understanding of the public benefits of protecting the NARW through additional management actions.

2.3.3 Step 3: Focus groups

We used the focus groups to develop basic survey concepts and refine the research team's understanding of (1) the general population's experience with, familiarity with, and understanding of issues related to NARWs and other marine mammals as they may be affected by management actions; and (2) the functions and services the whales provide. In these groups, we explored individuals' preferences for different management options or scenarios and the types of values they have. These focus groups helped define the types and amount of information necessary for respondents to effectively understand the range of NARW protection and improvement options being developed. Using the results of these focus groups, we developed the draft survey instrument.

We conducted five rounds of structured interviews in a focus group setting – with two sessions per round and seven to nine participants per session – at different locations across the United States between February 2005 and July 2006. Focus groups in Year 1 were conducted in Boston, Denver, Seattle, and Jacksonville. Focus groups in Part 2 were conducted in Hartford and Baltimore. These locations were chosen to represent the diversity of people's views across the Unite States, including the Northwest, Northeast, Southeast, and Midwest. For a particular session, focus group respondents were chosen to represent a mix of ages and education levels. We interviewed a total of 102 people in Phase 1, which includes 67 people in Year 1 and 35 people in Part 2 (see Appendix C for a full report of focus groups in Part 2). The focus group sessions progressed from open-ended discussions on concepts and ideas about endangered species protection and knowledge of right whales to the use of structured materials to investigate specific issues and attitudes for the instrument development. Each of the focus group sessions built upon results of the previous sessions to revise, refine, and further develop the overall survey materials. Thus, materials were revised and modified between each session. The discussions in each of the sessions were structured to investigate specific areas of the survey information and seek ways to improve the survey.

We conducted two rounds of one-on-one interviews in Baltimore, Maryland, with 17 participants (eight in the first round and nine in the second round). These one-on-ones were conducted in a pen and paper format to represent a mail mode administration. The moderator left the room while people completed the survey instrument, then returned for a series of debriefing questions. The debriefing questions were administered to evaluate specific sections of the survey or wording issues. This format provides individual responses to specific sections of the survey.

2.3.4 Step 4: Design of survey instrument

Based on what we learned from scientists and stakeholders as well as the focus groups, we drafted the materials that went into the pretest instrument. Because most people are not very familiar with the NARW, we had to carefully design the information they would need to make informed choices in the valuation exercises and test this information in the focus groups. We also began to design the questions needed to generate the data for valuation, including both stated choice questions and the questions for other variables to be included in the survey.

2.3.5 Step 5: One-on-one interviews

We then conducted two rounds of one-on-one interviews in Portland, Oregon, with 11 participants total (six in the first round and five in the second round). These interviews were also conducted in a pen and paper format to represent a mail mode administration. During these interviews, the participants were encouraged to write any comments or suggestions in the margin of the survey as a reminder for the debriefing discussion. Subjects were invited to a facility and proceed with the survey much as they would at home. Give the intense one-on-one nature of the interviews, the interviews lasted anywhere from 30 to 90 minutes.

After they completed the survey, one-on-one interviews were conducted to debrief each subject on any issues in the survey. This step more closely resembled implementation of the actual survey under field conditions, but allowed for immediate and focused feedback on the survey. Again, necessary revisions to the survey were made between rounds of one-on-ones.

2.3.6 Step 6: Internal and external reviews

The survey instrument and related materials (e.g., underlying theory, experimental design) underwent internal and external peer reviews (see Appendix E). Internal peer review of the experimental design of the survey instrument consisted of review and evaluation by Dr. Robert Rowe of Stratus Consulting Inc., Dr. Roger Tourangeau of the Joint Program in Survey

Methodology at the Universities of Maryland and Michigan, and Dr. Barbara Kanninen.[4] Additionally, economists from the NOAA Fisheries Office of Science and Technology (S&T) provided internal review on the instrument (see Appendix E). To ensure that the scientific information we provided to survey participants was up-to-date and accurate, scientists at the NEFSC and other scientists and stakeholders reviewed all scientific information in the survey. Two rounds of formal external peer reviews by two outside experts in nonmarket valuation, Professor Trudy Ann Cameron of the University of Oregon and Professor Richard Carson of the University of California at San Diego, were conducted (see Appendix E). The first review was conducted after completion of the focus groups and an interim report of Year 1 findings, and the second review was conducted prior to finalizing the pretest instrument. It is anticipated that peer review will continue throughout Phases 2 and 3.

The S&T economists who provided internal review on the survey instrument had five categories of comments, which include survey length, information effects, use of color photographs and leading language, defining attributes as percentages, and questions regarding information validity. Appendix E discusses these comments in more detail, including our responses.

The external review by Drs. Cameron and Carson also highlighted some areas in the survey that could be improved, such as reorganizing and refining the text of the survey. A full discussion of these comments is included in Appendix E.

2.4 Development of OMB Review Package

Before implementation of the pretest instrument, OMB review and approval of the survey was required in accordance with the PRA. Along with the draft survey instrument, Part 2 activities included development of materials to support the OMB review. These materials include discussion about the motivation of the overall survey format, survey question justification, and information that places this survey in the context of other, similar types of surveys already conducted. The OMB review package is presented in Appendix B.

We consulted with survey implementation firms capable of administering the pretest and final surveys in our selected mode to estimate costs for developing the survey sample frame, recruiting respondents, and implementing the pretest and final surveys. This information is required for the application for OMB approval. We have worked with several different survey research firms in the past, and the survey research firm that both is cost-effective and has the ability to provide results of the highest quality will be chosen with input from the NEFSC Project Manager.

4. Dr. Kanninen is currently an independent consultant on statistical design for choice experiments and econometrics based in Falls Church, Virginia.

Although OMB review can be extensive, we have successfully navigated these reviews before, most recently for the Stellar sea lion survey. And although there is a limited "official" 60-day period in which OMB is required to respond to the requested review, it is currently their practice to take much longer for surveys of this type. Early discussion with OMB can help facilitate this review process, but the nature of this study (using SP methods designed to estimate nonuse values) is likely to trigger an increased level of scrutiny during the review. In anticipation of this review, during the Phase 1 (Year 1) activities, the team clearly documented and supported their decisions throughout the survey development and study plan activities.

Currently the review package is waiting to be formally presented to OMB by NOAA.

3. Summary of Results and Findings

3.1 Focus Groups and Interviews

During Year 2, we completed the qualitative research begun in Year 1, including additional focus groups and one-on-one interviews with subjects who had completed the survey on their own. Our overall findings from the qualitative phase of the project (Phase 1) included[1]:

1. People are aware of whales and care about what happens to them both as individual animals and as species that could become extinct because of human activities. Their interest is not limited to the NARW. To the extent that measures to protect the NARW from mortality due to ship strikes and gear entanglements would benefit other North Atlantic whales, these effects needed to be included in the survey.

2. Most members of the public have little or no knowledge of the NARW as a distinct species. To a large extent, what sets the NARW apart from other North Atlantic whales is its nearness to extinction. We hypothesize that the public has significant values for preventing the deaths of individual whales along the U.S. East Coast regardless of the species and even if the POE of any of the species is not affected by the reduced mortality. We also hypothesize that preventing mortality of NARWs has extra value if it reduces the probability of its extinction.

3. Since most members of the public have little or no knowledge at all of the NARW, we had to include detailed information about the NARW in the draft survey. Finding 1 above meant that basic information on other endangered whales of the North Atlantic was also needed. This information was necessary to give subjects a foundation for making informed decisions in the stated choice questions. While substantial amounts of information needed to be included in the survey instrument, subjects in focus groups and interviews reported that they found learning about whales enjoyable and did not find reading and comprehending the information to be difficult.

4. Most of the people we dealt with in the focus groups and interviews viewed a population of 300 NARWs as "small" and a cause for concern. We had no trouble convincing people that the NARW is in danger of extinction. On the other hand, this makes developing a survey version where the POE is zero even if nothing more is done a more formidable challenge. More will be said on this point in Section 3.3.

1. For more details on several of these points, see Chapter 7 of the Phase 1, Year 1 report.

5. Most people can, at least in a basic manner, deal with probabilities of extinction. They know, for example, that 1% is a lot lower than 50%. And they can usually give you a definition (e.g., "50% is one chance in two"). Based on the focus groups, we judged that probabilities of extinction can be successfully used in the stated choice questions.

6. A potential trouble spot for us was that measures to reduce the mortality of NARWs would also reduce the mortality of other whales. The misconception that cropped up went something like this: "If humpback and sei whales are endangered and if they are being lost to ship collisions and fishing gear, won't that increase the likelihood that they will become extinct? Hence, the measures to reduce right whale mortality must also affect the probability that other species of whales will become extinct." However, during survey development and in focus groups, information was developed so that we were successful in explaining that so long as whaling is banned, these other species are doing well, can stand some losses to ships and fishing gear, and still grow in numbers. The current version of the survey effectively addresses this issue.

7. Focus group members often spontaneously came up with possible threats to the NARW that are not in keeping with current thinking among scientists. Examples are pollution, lack of food supply, and beaching (which is not a problem for the NARW). Also, the public tends to think that loss of a species like the NARW would cause major harm to the North Atlantic Ocean's ecosystem. Accordingly, we explicitly addressed these misconceptions in the survey.

8. We found that a stated choice approach was both feasible and appropriate in this case. A simpler contingent valuation approach was considered, but was rejected in order to provide final results that would give NOAA greater flexibility to conduct future policy analyses.

9. We learned that subjects can deal with at least three choice questions, each of which involved three programmatic alternatives: the status quo (no-action) alternative and two action alternatives. The status quo alternative would not affect whale mortality, chances of NARW extinction, or the price and taxes paid by the respondent. The action alternatives would (1) reduce the number of NARWs lost to ship accidents and/or fishing gear, (2) reduce the chances of NARW extinction, (3) reduce the number of other whales lost to ship accidents and/or fishing gear, and (4) increase the prices and taxes paid by subjects, all by amounts that were specified.

10. Most subjects did not discriminate much between steps to address ship collisions and those to address fishing gear. The effects on whale mortality, probability of NARW extinction, and taxes and prices were of much more concern.

11. We learned that to achieve study goals, a national survey was warranted. We found that the effects of shipping and fishing on whales along the eastern seaboard of the United States and Canada are of concern to many members of the public coast-to-coast. We were able to observe an expected decline in interest as the distance to the Atlantic Ocean increased, but even in places like Denver, Seattle, and Portland, Oregon, many people hold positive values for reducing whale mortality and the likelihood of NARW extinction.

3.2 Pretest Instrument Overview

Results of the focus groups and interviews were used to draft the pretest instrument. Further refinements were made as a result of the internal and external peer-reviews described in detail in Chapter 2. The overall survey, which is reproduced in Appendix A, is divided into 11 sections. Below we describe the individual sections of the survey and explain their purposes.

Section 1: Survey set-up

Section 1 provides an initial explanation of the purpose of the survey and explains why the respondent's opinions are needed. It explicitly identifies NOAA as the U.S. government agency funding the survey. The NOAA logo is prominently displayed on the first page of the survey. Research indicates that including sponsorship improves overall response rates (Dillman, 2007). At the bottom of the first page, we inform the respondents that their participation is voluntary.

Section 2: Instructions/warm-up

Question 1 ("We are faced with many problems in this country, none of which can be solved easily or inexpensively. Below are some of these problems. For each one, please indicate whether you think we are spending too much money on it, too little money, or about the right amount.") is from the General Social Survey (GSS) and has been placed at the beginning of the survey to (1) get respondents comfortable with the survey and to (2) provide information to help evaluate potential differences between the respondents and the general public. Initial results from other ongoing surveys Stratus Consulting is conducting for environmental goods show that the responses to these questions track well with the most recent (2006) GSS data. The GSS questions can be used as one indicator of how representative survey respondents are of the general population represented in the GSS survey. For the pretest, we do not expect our survey responses to match closely with the GSS because we are not ensuring a probability based sample of returned surveys, rather we are including the questions in the pretest as part of the overall survey design.

Section 3: Background on whales

The introduction to whales contains basic information about whales in general (e.g., they are mammals and hence bear live young and breathe air) and the five species of endangered whales found near the U.S. Atlantic Coast. The concept of endangered species is introduced and defined. As further context for considering the NARW, the numbers and types of different organisms listed as threatened and endangered (T&E) under the ESA (including the number of whale species listed) are described and the actions the ESA requires the federal government to take to protect T&E species explained.

Question 2 asks respondents about their general reaction to the ESA. This question provides a starting point for thinking about T&E species, and it sets a tone of neutrality by allowing positive and negative reactions right from the start.

Question 3 asks how many times respondents have read about or seen television programs about whales. Question 4 then asks whether respondents have ever gone whale watching to see whales in their natural environment. We also provide a table to illustrate the differences between the five endangered species of large whales found along the U.S. Atlantic Coast. The table provides information about each species population, length, lifespan, and number of years between calves.

Section 4: More background on North Atlantic right whales

This section describes NARWs' feeding preferences, calving frequency, and seasonal migration patterns. It provides several reasons why NARWs are the most endangered whale in the region (e.g., population levels are lower, other whales are recovering since the ban of whaling but the NARW population is not increasing). Additionally, this section provides information on other species of right whales: the North Pacific right whale stocks and the southern right whale.

To properly value NARWs, it is vital to accurately define the good (e.g., the resource being valued) and to provide the context within which it exists to ensure that respondents fully understand what they are being asked to value. Part of the process of providing context for valuation involves discussing how other whale species, including humpback, sei, and fin whales, may also benefit from management options intended to protect NARWs. These other whales inhabit some of the same areas as the NARW and are killed and injured by ships and fishing gear.

Section 4 closes with a question asking whether respondents had heard of NARWs before the survey (Question 5).

Section 5: Threats to the North Atlantic right whale

This section begins by reemphasizing the endangered status of NARWs (e.g., they still have not recovered since the ban on whaling) and reiterating that only 300 of them exist today. The informational portion of this section ends with the reasons scientists believe NARWs have not recovered (i.e., ship strikes and fishing gear entanglements), despite the whaling ban.

Question 6 follows the introduction to Section 5. We ask respondents whether they agree or disagree with two statements: (1) protecting endangered species is important to me, and (2) protecting endangered whales should receive a higher priority than protecting endangered plants and animals few people have heard about. This question uses a Likert scale that ranges from "definitely agree" to "definitely disagree."

After Question 6, we inform respondents that ships sometimes hit the whales, which can cause injury or death. Keeping to the facts, we also tell them that many different types of ships are involved in these accidents; ship traffic along our eastern seaboard is growing; newer ships travel faster, which may make it harder for whales to get out of the way; and ship collisions are expected to be a continuing threat to NARWs in the future.

On the next page, respondents will learn about fishing gear entanglements. In order to present the entire story, we tell respondents that most of the time whales tangled in fishing gear break free from the gear and survive, but sometimes they cannot break free, making breathing and swimming more difficult and eventually causing death. For instance, the wounds from gear have become infected and caused death.

We conclude this page with a text box discussing other possible problems for NARWs, such as pollution, food supply, and beaching. During focus groups, these plausible causes of whale mortality were repeatedly mentioned. Hence, we need to let respondents know that they are not the reason for the NARW's lack of progress toward recovery.

Finally, we provide respondents with information on why humpback, fin, and sei whales are included in the rest of the survey. We explain that the threats to NARWs (i.e., ship strikes and fishing gear entanglements) also affect these other whales, though to a lesser degree. In addition, we point out that NARW protection measures will also protect other whales.

Realizing that we have provided respondents with a lot of information, we give them an opportunity to let us know how well we have communicated with them. In Question 7, we ask respondents seven true/false questions, with "don't know" as an option. We encourage them to look back through the information to answer the questions, so as not to make them feel like they are being tested.

We used several pictures throughout this section to give respondents a visual representation of the NARWs and the threats that are being explained in the text. The first picture shows a NARW mother and calf. The next picture shows two NARWs close to a passing ship with containers of cargo. Following this picture, we explain ship strikes. Finally, two pictures depict NARWs entangled in fishing gear and are followed by information on fishing gear entanglements.

Section 6: Survival prospects for the North Atlantic right whale

In order for people to make an informed decision about how they value the protection of NARWs, they need to know the whales' likelihood of survival given current management measures. We tell respondents scientists estimate that collisions with ships and entanglements in fishing gear are still killing at least 14 NARWs, on average, each year. We then describe how scientific modeling is used to predict, based on how many whales continue to be killed, the chances of extinction of the NARW in the next 200 years. The bullets below this statement give respondents more context for thinking about the chances of extinction, explaining why it is necessary to think on a longer time horizon, and how if one looks only at a 100-year time horizon, scientists would not expect extinction. Actually, there is considerable scientific uncertainty about the POE under various scenarios. Hence, to allow economists at NOAA to adapt to new results from the modeling in the future, different probabilities of extinction will be used in different versions of the survey. The "experimental design" for the pretest, which is included in Appendix B of this report, includes a range of extinction probabilities with and without implementation of policy measure to address ship strikes and fishing gear entanglements.

Section 7: Effects of ships and fishing gear on other whales

In this section, we turn to the effects of ship collisions and gear entanglements on other whales. We provide respondents with NOAA's best estimates of how many other whales are being killed and explain why mortality at this level is unlikely to affect the survival chances of the other whale species.

Our research team needs to know how respondents are reacting to the information we have given them. In Question 8, we ask them to tell us if they agree with several aspects of the story. The responses will be on a scale from 1 to 5: a 1 indicates "definitely agree" and a 5 indicates "definitely disagree."

Section 8: Possible new regulations to protect North Atlantic right whales

In Section 8, we inform respondents about current and possible future regulations for ships and fishing gear along the U.S. East Coast. For ships, new regulations might entail mandatory speed limits in some areas and requirements for ships to avoid other areas all together. For fishing,

many areas would be closed to fishing during times of the year when whales are present and new gear that is safer for whales would be required throughout the NARW's habitat. Respondents are then told how many NARWs and other whales would be saved if these new regulations were implemented. They are also told the chances of NARW extinction if the new regulations are implemented. Whales saved and chances of extinction will be varied as part of the experimental design, as described in Appendix B.

This section ends with a discussion about other possible solutions to prevent the deaths of NARWs and other whales (i.e., sonar, radar, satellites, or noise makers). These possible solutions were raised often in the focus groups, and so we needed to explain why they do not apply to the NARW situation.

Section 9: Should we do more to protect the North Atlantic right whale?

In this section, respondents confront the central issue of the survey: whether or not more should be done to protect the NARW. We tell them that some people favor more protection and others do not. Drawing on what focus group participants told us, we list some reasons why people favor more protection (e.g., whales have a right to live, avoid deaths of other whales). Then, we give some reasons why others oppose more protection (e.g., because the nation has higher priorities, NARWs are of limited direct usefulness to humankind, cost). The purpose of this material is to assure those who might support more protection, and especially those who might oppose it, that doing so is acceptable and that we need to hear from people with all points of views.

We then pause to clear up one misconception we heard repeatedly in the focus groups. People would often tell us that we as a society should do more to save the NARW because their extinction would seriously harm the ecosystems of the North Atlantic. We clarify this misconception by telling respondents that the ecosystem effects are likely to be small if NARWs become extinct and explain why the effects are small (e.g., huge ecosystem with only a few whales surviving). Section 8 closes with Question 9, a few agree-disagree statements to gauge the impact of ecosystem impact information on respondents.

Section 10: Which alternative do you prefer?

Section 10 begins by introducing the payment vehicle for the valuation exercise: higher prices for imported goods and higher federal taxes. We provide respondents with instructions for completing the stated choice questions. This is followed by three stated choice questions (Questions 10, 11, and 12). Question 13 asks how difficult respondents felt it was to answer the choice questions. Questions 14 through 17 are a series of debriefing questions to determine how respondents interpreted the material presented. This information will be useful in the statistical modeling efforts to help categorize respondents. Question 18 consists of a series of items

designed to give us a better understanding of how respondents reacted to the information and choice questions.

Section 11: About you and your household

This final section consists of 11 questions, H1-H11, which cover the sociodemographic variables. Results can be used as explanatory variables in the SP models, for comparing the sample to the population (coverage or sampling bias), and for comparing respondents to nonrespondents (nonresponse bias). To the extent possible, the questions and response categories parallel those used by the Census Bureau to allow the most direct comparisons.

Question H8 asks for the number of listed phone numbers in the household. This information is useful for understanding the probability that the household was chosen for the follow-up sample needed to assess nonresponse bias. The plan for assessing nonresponse bias is included in the OMB supporting statement in Appendix B.

3.3 OMB Supporting Statement

Once the pretest instrument was drafted, the team turned its attention to helping NOAA gain authorization to conduct the pretest. Current thinking at OMB is that such authorization is required under the PRA. OMB review of surveys like this are very detailed and demanding, and it was important to go into this review with an effective presentation of the case. The supporting statement is included as Appendix B of this report. In the interest of paperwork reduction, we were able to keep the length to only 52 pages.

The first major section of the supporting statement focuses on the justification for the survey. It begins by reviewing the current status of the NARW and current management efforts. It goes on to explain that, because NARW protection is linked to fishery and ship traffic regulations, policymakers must comply with several federal laws and executive orders including ESA, MMPA, and Executive Order 12866 (58 FR 51735), which requires regulatory agencies to consider costs and benefits in deciding among alternative regulatory actions. The economic benefits from measures to protect the NARW stem primarily from the non-consumptive values people attribute to the whales. Information on these benefits is currently unavailable, yet such information is needed for decision-makers to fully understand the tradeoffs involved in choosing between protection alternatives. Existing studies do not provide an adequate basis for evaluating the benefits of NARW protection.

We next explained that the pretest would involve a mail survey of an initial sample of approximately 500 U.S. households. Proposed survey procedures and a summary of the process of designing the pretest survey were presented.

The case for using a stated choice framework for valuation was then presented. While there is some use of NARWs via whale watching, protection of them has a large public good component. Stated choice methods would allow respondents to evaluate a wide range of outcomes (from possible restrictions on fishing and/or ships speed) within a total valuation framework, which would allow for a full range of possible values. The total valuation framework used in our study would accommodate both market and nonmarket values and use and nonuse or passive use values.

The experimental design for the pretest was then described. Experience indicated that three choice questions provide a reasonable balance between our desire for more data and potential respondent fatigue. The use of three choice questions, each with three alternative levels of regulation, would also allow for a full ranking of the alternatives. Each alternative would be defined in terms of four attributes, the chances of NARW extinction, the number of NARWs saved per year on average, the number of other whales saved per year on average, and the annual cost to the respondent's household in higher prices for imported goods and federal taxes. The first alternative would always be the no action or "status quo" alternative. Since nothing more would be done to protect the whales under the status quo, its additional cost to the respondents would be zero.

Other alternatives (action alternatives) that would appear in the different choice questions would be designated as Partial Plans A and B, which would involve different combinations of doing more and spending more, and the Full Plan (the maximum amount of protection). Each of the three choice questions would ask the respondents to compare the status quo and two action plans, which would vary across the three questions in each survey version and across the different survey version. The challenge in experimental design was to choose attribute levels across versions to maintain internal consistency within versions and minimize co-linearity across versions. A total of six versions of the survey instrument were proposed.

A series of standard OMB questions were then addressed: Are illustrations to be used? Who will be involved in administering the survey? How does the survey comply with NOAA Information Quality Guidelines? Etc.

Part of the review process involves a *Federal Register* notice to solicit public comments, and the supporting statement provided a summary of the public comments received and the research team's responses.

Part of our efforts to gain a satisfactory response rate was to provide payments to subjects for completing the survey. OMB requires that this be justified. We also estimated the number of burden hours required of our respondents to complete the survey. In addition, we provided survey cost estimates and described plans for publication of results.

The final major section of the supporting statement addressed statistical issues such as sampling, how potential nonresponse bias will be evaluated, and how the data will be analyzed.

3.4 Conclusions

The Stratus Consulting researchers have followed standard procedures for designing a pretest survey to elicit the public's preferences for alternative NARW protection measures, including estimating the total value of the protection alternatives. They conducted focus groups and one-on-one interviews involving 130 members of the public to refine the pretest instrument. Additionally, they worked with scientists to ensure accurate representation of the facts presented in the survey. The survey was further refined though both internal and external reviews. All this was combined to produce a high-quality survey, data from which could cast important new light on the benefits of measures to reduce mortality of the NARW and other North Atlantic whales.

As a final step before survey administration, the Stratus Consulting researchers prepared a Supporting Statement for submission to OMB to seek approval of the pretest survey. This Supporting Statement provided justification for implementing the survey and outlined the plan for administering the pretest survey, for analyzing the pretest data, for addressing nonresponse bias, and for completing the final survey, including data analysis and report writing. Once the Stratus Consulting researchers receive support from NOAA and approval from OMB, they can bring this important project to the next step down the path to completion.

4. Proposed Future Activities

In this chapter we present activities that could be undertaken to complete Phase 2 of the Right Whale project. We first describe steps necessary to develop and test a survey instrument that would allow for an evaluation of WTP for the protection of the NARW when the POE due to entanglements and ship strikes is equal to zero. We then discuss steps necessary to implement the developed survey instruments and report findings.

4.1 Development of a Probability of Extinction Equal to Zero Survey Instrument

New modeling efforts of anthropogenic losses to the population based on ship strikes and entanglements suggest a substantially lower POE estimate with a higher likelihood that the POE of the NARW within the next 200 years is close to zero (POE = 0). The current survey instrument is based on a positive POE over the same time period. To investigate the public's WTP to prevent NARW losses with a baseline scenario of POE = 0, we will need to develop and implement an alternative survey instrument. We anticipate that the current instrument could be modified to adapt to a POE = 0 scenario utilizing the majority of the survey development work to date.

A POE = 0 survey instrument would measure people's willingness to save individual animals independent of any effect on the overall status of the population. Results from focus groups indicated that people do have a measurable positive value for protecting individual whales.

An alternative survey instrument will be necessary because this change is a fundamental adjustment to the underlying baseline (POE > 0) presented in the current instrument. One of the critical factors in the overall reliability of SP survey data is that the respondents took the scientific information and policy options seriously. Because of the difference in the baseline presented to respondents, POE > 0 vs. POE = 0, we believe that presentation of both possibilities to the same respondents in the choice tasks would undermine the credibility of the scientific information that forms the basis of the survey. We therefore propose that two distinct but parallel instruments be developed and implemented.

In Appendix D we include a draft version of the POE = 0 survey instrument, based on untested modifications to the main survey instrument presented in Appendix A. As can be seen, large portions of the POE = 0 instrument are transferable to the main instrument.

One significant question that will need to be addressed is whether or not the NARW would still be on the endangered species list under a POE = 0 scenario in the next 200 years. This is an important issue because of the discussion on endangered species presented in one of the early sections of the survey. Under a POE = 0 scenario, the NARW will not directly meet the definition of an endangered species although it may still be kept on the endangered species list due to its small population size. Presentation of the status of the NARW was reworked to address this subject.

There is potentially an additional benefit of developing these two survey instruments. In recent OMB reviews of similar nonmarket valuation surveys using choice experiments, OMB has requested that the agency develop some type of external "scope" test to help validate the results. The POE > 0 and POE = 0 instruments could be used as an external scope test.[1]

External scope validation is the idea that individuals should be willing to pay less for a smaller benefit all else being equal. The protection of the NARW under a POE = 0 baseline could likely be conceived as a smaller benefit, and therefore produce a smaller WTP all else being equal. However, the public's interpretation and evaluation of such a change would need to be evaluated through testing in focus groups and one-on-one settings to confirm.

Implementing the POE = 0 survey instrument in conjunction with the POE > 0 instrument will require a decision on either increasing the overall sample size or reducing the expected precision of the results. Result precision is directly related to sample size. Splitting the same sample size across these two versions of the survey will reduce precision. We will undertake a simple power analysis test to the hypothesis that the H0: $WTP_{POE > 0} > WTP_{POE = 0}$.

The POE = 0 instrument could be included in the revised OMB submission for pretesting.

4.2 Pretest Implementation

We have already prepared the supporting statement for OMB approval to implement the pretest instrument where POE > 0. If a POE = 0 instrument is developed, we would modify the existing OMB supporting statement for approval to implement concurrently with the POE > 0 instrument. Once approved by OMB, the pretest would be administered in a mail survey mode. A pretest is commonly implemented to evaluate survey administration under field conditions. The main goal

1. A scope test is used to determine if respondents' WTP is sensitive to the overall size of the injury. A critical factor in this external scope test is that respondents view the differences (POE = 0, POE > 0) as meaningful and significant. We would anticipate that the larger differences (POE = 50 vs. POE = 0) would be seen as meaningful and significant; however, this is an empirical question that would need to be evaluated in focus groups.

of this pretest is to evaluate the overall survey administration process. Specific data analysis will focus on overall survey implementation. The initial mailing will go out to a sample of 500 U.S. households. The initial sample matched list (address and phone numbers) will be purchased from an existing sample supplier such as Survey Sampling Inc. or Experian Inc. The overall survey administration will follow the Dillman survey administration processes (Dillman, 2007). In the pretest administration, there will be between three and six contacts with the potential respondents:

- Initial contact letter
- First survey instrument mailing
- Thank you/reminder postcard
- Second survey instrument mailing
- Reminder phone call/initial nonresponse follow-up call
- Nonresponse follow-up phone call.

The total number of contacts depends on whether the respondent returns the first survey instrument or if he/she is ultimately part of the final nonresponse follow-up phone call effort.

The initial contact letter will notify the participants that a survey will be arriving shortly. The cover letter in the survey package will solicit the participation of an adult head of the household to complete the included survey. Two weeks after the initial mailing, a follow-up postcard will be sent to the full sample (except for names and addresses thus far determined to be invalid), thanking those who have responded and urging those who have not to please do so. One week after that, we will send out a second survey and cover letter to one-half of those who have not yet returned a completed survey.

During this time, we will phone the other half of the unresolved cases to encourage them to return a completed survey and ascertain whether they need an additional survey mailed to their home. During this call, if the respondent indicates that they are not going to return the survey, we will undertake a short phone survey to collect some basic demographic information and responses to the GSS questions in the survey. Thus, the phone follow-up serves the dual purpose of increasing the number of mail responses and gathering information needed to estimate the potential impact of nonresponse.

Households that need a replacement questionnaire will be identified and sent a new one. The second mailing will also go out to nonrespondents who could not be contacted by phone. Finally, we will complete approximately 50 nonresponse follow-up phone surveys from households sampled that did not return a survey, and did not complete a nonresponse follow-up call in the previous round.

We expect these procedures will yield an ultimate survey response rate of at least 50% of the valid names and addresses. An expected rate of invalid address is about 15%. Hence, these procedures should yield about 200 useable surveys: $0.5 \times (0.85 \times 500) = 213$.

4.3 Revisions to Survey Instrument(s) and Implementation Plan and Development of OMB Supporting Information

Next, the survey instrument(s) and implementation plan will be revised based on pretest results and NOAA and peer review, and we will make the necessary changes for full study implementation. This effort will include:

- Final wording revisions
- Revisions to survey graphics
- Additional one-on-one interviews (depending on degree of survey changes)
- Revision to supporting statement and implementation plan as provided to OMB for review of main survey administration
- Submission of OMB supporting statement for approval of main survey administration.

4.4 Implementation of Main Survey Instrument

After approval by OMB, the survey will be implemented to a representative sample, a clean dataset will be developed, and the models estimated. While some decisions on the survey implementation mode cannot be made until after OMB approval and pretesting, we anticipate that the survey will be administered by mail. Included in the design for the final survey is a follow-up nonresponse survey or analysis to address any potential issues raised by OMB on survey response issues. Also included in the design are steps to address potential issues raised by OMB such as item nonresponse and sample representativeness.

The specific objectives include:

- Revise the survey instrument based on the pretest and peer-review results
- Administer a full-scale survey
- Implement a smaller subsample survey to test for nonresponse bias
- Code and clean the data and develop summary statistics
- Develop WTP models
- Report project results.

4.4.1 Survey implementation

The current survey instrument is designed for mail administration. The implementation design includes the possibility that the main survey sample will be augmented with additional subsamples to address specific OMB issues.

Basic procedures in the main survey implementation include:

- Use of mail mode based on cleaned sample frame list
- Main sample frame: general population of U.S. households age 18 and over
- Target of 1,500 completes of main survey instrument
- Incentives will be provided to respondents.

4.4.2 Subsampling nonresponse survey implementation

There may potentially be the need to conduct a subsampling study directed at addressing specific issues raised by OMB such as potential nonresponse bias or for over-sampling of specific regions. Such a follow-up study could be administered either through additional mail surveys or phone surveys based on matched phone numbers to the original mail sample.

4.4.3 Data coding/cleaning quality assurance/quality control

This effort will be post-data collection coding, cleaning, and quality assurance/quality control (QA/QC) activities. Survey data, including comments recorded by respondents as they fill out the survey, will be entered exactly as written/provided. Comments will be coded into specific categories. All data will undergo QA/QC checks including variable range, valid answers, and completeness to ensure reliability of the collected data. These checks will be developed through computer code scripts to allow complete tracking of data manipulations from the original data set to the final data set for analysis. A codebook of variable names will be developed, along with the raw and cleaned data sets in both hardcopy and electronic format.

4.4.4 Initial data analysis

This activity includes continued data preparation and data QA/QC and initial data analysis, including (1) summary statistics, (2) review and categorizing open-ended text responses, (3) identification and coding of subgroups, and (4) evaluation of potential choice question nonresponses and protest responses based on other survey responses. Summary statistics, including frequencies, means, medians, standard errors, and selected correlations and cross-tabulations, for all respondents and key subgroups, will be developed.

4.4.5 Initial model estimation

Initial model estimation steps include:

- Initial WTP model estimation
- Comparison of survey data results with similar surveys
- Evaluation of the need for survey nonresponse correction efforts
- Development of peer-review materials.

Multiple WTP model variants will be evaluated. The basic modeling effort will use a Random Utility Modeling (RUM) framework. The need for and benefits of estimating more complex models will be evaluated based on the specific limitations of previously estimated models. Differences in subpopulations may be addressed through specific model variables and/or separate models. Model results will be used to evaluate alternative protection scenarios, and potential trade-offs between alternative protection and restoration options.

The need to undertake a separate effort to correct for any identified survey nonresponse effects on the overall WTP estimates will be evaluated at this time. A first approach to nonresponse correction will be to undertake statistical correction of the survey sample using Heckman correction methods.

4.5 Peer Review

Preliminary WTP model results will be documented for peer-review.

4.6 Final Model Estimation

Based on the initial modeling efforts and peer-review, initial models will be revised.

A final report will be prepared.

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A. Current Survey Instrument

Survey Management Information

Survey instrument tracking number: _____

Survey Version: Version A

Date initial contact letter sent out: _____
Date initial survey sent out: _____
Date follow-up post card sent out: _____
Date second survey sent out: _____
Date initial phone contact: _____

Disposition of

Survey:
☐ **Returned – Completed, Date _____**
☐ **Returned – Not Completed, Date _____**
☐ **Not Returned**

Phone Interview:
Interview conducted on _____
☐ **Phone interview completed**
☐ **Phone interview not completed**

Data Entered on: _____
Data QC by: _____

MANAGEMENT OPTIONS FOR THE NORTH ATLANTIC RIGHT WHALE – WHAT IS YOUR OPINION?

The North Atlantic right whale is an endangered species that inhabits the waters near the East Coast of the United States. The federal government is considering options to increase protection of this species. Because this would end up costing U.S. households more money, the government is interested in the views of U.S. households about whether some type of increased protection should be undertaken. Therefore, we need to hear from a cross-section of U.S. households so your opinions can be considered along with information from scientists and managers.

Do not be concerned if you are not familiar with this issue: we will provide you with information to help you answer the questions.

Your participation in this survey is voluntary. Your name and address will be kept separate from your responses and not disclosed. Only your responses will be provided to the researchers for analysis.

This survey is funded by the National Oceanic and Atmospheric Administration, a U.S. government agency charged with making decisions about the North Atlantic right whale.

The material in this survey is based on the best available information from government, university, and industry scientists.

Survey Tracking Number_____ OMB Control Number_____ Expiration Date 00/00/2008

DRAFT

Q1 We are faced with many problems in this country, none of which can be solved easily or inexpensively. Below are some of these problems. For each one, please indicate whether you think we are spending too little money on it, about the right amount, or too much money on it.

Please check one box for each row.

	We are spending:		
	Too little ▼	About the right amount ▼	Too much ▼
The space exploration program	☐	☐	☐
Improving and protecting the environment	☐	☐	☐
Improving and protecting the nation's health	☐	☐	☐
Solving the problems of big cities	☐	☐	☐
Halting the rising crime rate	☐	☐	☐
Dealing with drug addiction	☐	☐	☐
Improving the nation's education system	☐	☐	☐
Reducing air and water pollution	☐	☐	☐
Saving endangered animals and plants	☐	☐	☐

Background on Whales

Here is some general information about whales.

- Several different whale species inhabit all the major oceans of the world.
- Whales are mammals. Unlike fish, whales are warm-blooded and bear live young.
- Whales breathe air through openings on the tops of their heads, which are often called "blow holes."

Including the North Atlantic right whale, there are five (5) endangered species of whales that are seen, at least occasionally, near the U.S. Atlantic Coast.

Endangered species are protected under the U.S. Endangered Species Act. According to the act:

> An endangered species is a plant or animal species that is in danger of going extinct in the areas where it normally lives unless actions are taken to protect it. [1]

There currently are 68 mammals, 75 birds, 75 fish, 191 other species such as reptiles and insects, and 598 plants in the United States listed as endangered under the Endangered Species Act.

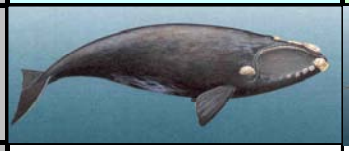
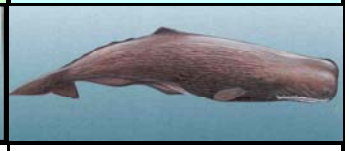
There are 11 whale species on the Endangered Species list including the 5 species near the Atlantic Coast.

The federal government places whales on the Endangered Species Act to protect them from whaling and to protect the places where they live.

Q2 When you think of the Endangered Species Act, how positive or negative is your general reaction? *Circle the number of your answer.*

1 Mostly positive
2 Somewhat positive
3 Neither positive or negative
4 Somewhat negative
5 Mostly negative

Endangered Whales of the U.S. North Atlantic[2]

Species	North Atlantic Right Whale	Fin Whale	Sei Whale	Humpback Whale	Sperm Whale
					
Population in North Atlantic U.S. waters	About 300	About 3,000	About 1,000	About 1,000	About 5,000
Length	About 55 feet (adults) 15 feet (at birth)	About 80 feet (adults) 21 feet (at birth)	About 60 feet (adults) 15 feet (at birth)	About 50 feet (adults) 16 feet (at birth)	About 60 feet (adults) 13 feet (at birth)
Lifespan	About 70 years	About 90 years	About 70 years	About 50 years	About 70 years
Number of years between calves	3-6 years	2-3 years	2-3 years	2-3 years	3-6 years

Q3 **How often, if at all, have you read about whales or seen TV programs about them?** *Check one answer only.*

- ☐ Never
- ☐ Once or twice
- ☐ Three or four times
- ☐ Five times or more

Q4 **How often, if at all, have you gone whale watching to see whales in their natural environment**? *Check one answer only.*

- ☐ Never
- ☐ Once
- ☐ 2-4 times
- ☐ 5-10 times
- ☐ More than 10 times

If you have gone whale watching, please tell us where you have gone.
Check all that apply

- ☐ U.S. Atlantic Waters
- ☐ U.S. Gulf of Mexico
- ☐ U.S. Pacific Waters (including Alaska and Hawaii)
- ☐ Other. Where?

_____

_____

More Background on North Atlantic Right Whales

Some additional facts about North Atlantic right whales:

- Right whales do not eat fish, but only eat plankton (which are very small animals in the ocean).
- In summer, most North Atlantic right whales are near New England and southeastern Canada, feeding and raising their young.
- After migrating along the U.S. Atlantic Coast, most of the pregnant females and some younger whales winter in the coastal waters of South Carolina, Georgia, and Florida

Among all the species in the table above, the North Atlantic right whale is considered the most in danger of extinction.

- The other whale species, fin, sei, humpback and sperm, have larger populations.
- The population of North Atlantic right whales is not increasing;[3] we will talk about the reasons for this in the next section.

Some whales from these other species inhabit the same areas as the North Atlantic right whale. For this reason, these other whales will be considered again later in the survey.

In addition to the North Atlantic right whale, there are three other species of right whales. Two of these other species live in the North Pacific ocean, and one of them lives in the oceans of the southern hemisphere. Their habitats do not overlap and they do not interbreed with North Atlantic right whales.

The **western Pacific** right whale lives along the coast of Russia. Scientists know less about this population and estimate that there are between 100 to 300 individuals.[4]

The **eastern Pacific** right whale is found off the coast of Alaska and the Pacific Coast of Canada. The total number of individuals identified in the Alaska/Canadian population is 23. Because there are so few animals left, the eastern Pacific right whale is very likely to become extinct in the next 100 years. [5]

The **southern** right whales are found only in the Southern Hemisphere, far from the United States. They do not come into U.S. waters. Their population is about 7,500 individuals and appears to be increasing. They are not listed as an endangered species.[6]

Our study focuses on the North Atlantic right whale

Q5 **Had you ever heard about the North Atlantic right whale before this survey?** *Please check the box for your answer.*

- ☐ Yes
- ☐ No

Threats to the North Atlantic Right Whale

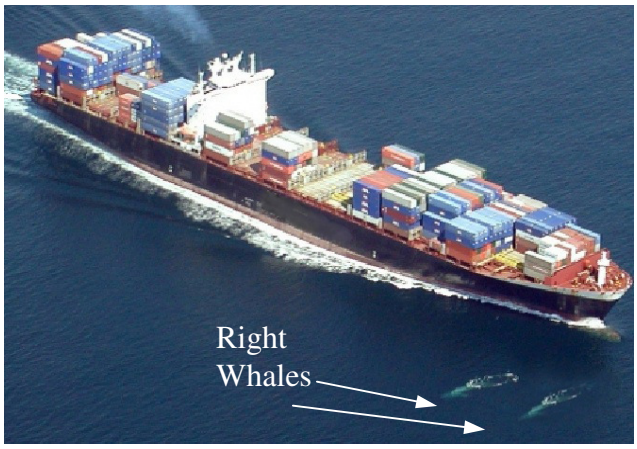
North Atlantic right whale mother and calf

The North Atlantic right whale is listed as an endangered species.

- Currently, there are only about 300 North Atlantic right whales. [7]
- Historically, there were thousands of North Atlantic right whales, but whaling drastically reduced the size of the population. [8]
- Despite the fact that right whales have not been hunted since 1935, the population has not returned to historical levels. [9]
- Scientists believe that North Atlantic right whale numbers have not recovered because too many whales are being killed in collisions with ships and by entanglement in fishing gear. [10]

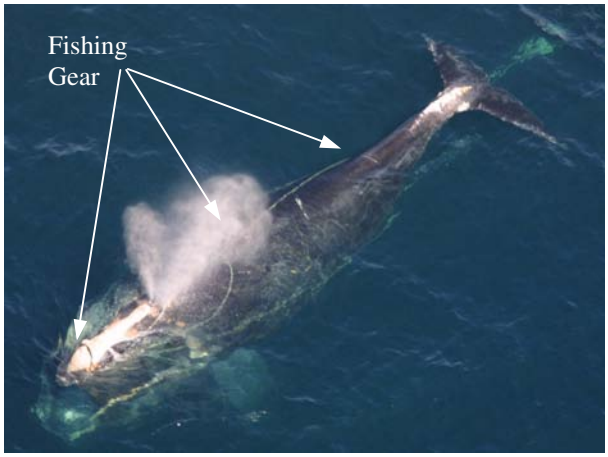
Q6 How much do you agree or disagree with the following statements?
Please check one box for each statement.

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
Protecting endangered species is important to me.	☐	☐	☐	☐	☐
All plants and animals deserve equal protection whether many people have heard of them or not.	☐	☐	☐	☐	☐



The pictures above show whales close to passing ships.

- Sometimes, whales are struck and injured or killed by ships. [11]
- Ship traffic along our eastern seaboard is growing. [12]
- Newer ships travel faster, which may make it harder for whales to get out of the way.
- Ship collisions are expected to cause deaths of North Atlantic right whales in the future.[13]



These pictures show North Atlantic right whales entangled in fishing gear.

- Whales often get tangled in fishing gear, but usually they break free and survive. [14]
- Sometimes whales get tangled in gear, but cannot break free. When this happens, they may die.
- Fishing gear is expected to cause deaths of North Atlantic right whales in the future. [15]

Because some other whale species, such as humpback, fin and sei whales, inhabit the same areas as North Atlantic right whales, the same ships and fishing gear that can cause death to North Atlantic right whales also occasionally kill some of these other whales. [16]

Other Possible Problems

People often ask us about possible problems other than collisions with ships and entanglements in fishing gear:

- Pollution: Scientists are continuing to investigate, but so far there is no evidence that pollution is a serious problem for North Atlantic right whales.
- Food supply: Lack of food does not seem to be a factor; supplies of plankton appear to be more than adequate to support a larger population of North Atlantic right whales.
- Beaching: While some whale species occasionally beach themselves and die, North Atlantic right whales do not seem to do this.

Q7 We have presented you with a lot of information. To see how well we are communicating this information to you, please answer the True-False questions below. Don't be embarrassed if you don't know an answer. Just circle DK for "Don't Know" and go on to the next question. Feel free to look back if you want to review the information already provided. *For each statement, circle T for True, F for False, or DK for Don't Know.*

T	F	DK	There is only one species of right whale in the North Atlantic Ocean.
T	F	DK	North Atlantic right whales feed on fish.
T	F	DK	The North Atlantic right whale is endangered because of pollution.
T	F	DK	Currently, North Atlantic right whales are not being lost to whaling
T	F	DK	Mature female North Atlantic right whales normally bear one calf every other year.
T	F	DK	Several endangered species of whales inhabit the North Atlantic Ocean.
T	F	DK	All whales that become entangled in fishing gear will ultimately die as a result.

Survival Prospects for the North Atlantic Right Whale

Despite efforts to protect North Atlantic right whales, scientists estimate that collisions with ships and entanglements in fishing gear are still killing at least 14 North Atlantic right whales, on average, each year. [17]

Scientists use computer models to predict that if this many whales continue to be killed, the chances of extinction of the North Atlantic right whale in the next 200 years is about 50%. [18]

- It is necessary to think about such long time spans because whales live so long and reproduce so slowly.
- Results from computer models are stated in terms of chance of extinction, much like when weather forecasters predict the chance of rain or snow in percentage terms.
- Even though ship collisions and fishing gear will continue to take their toll, enough North Atlantic right whales survive and reproduce to make extinction in the next 100 years very unlikely.
- But in 200 years, as North Atlantic right whales continue to die from collisions with ships and natural causes, the chance of extinction go up to 50%.

Effects of Ships and Fishing Gear on Other Whales

In the same areas where the North Atlantic right whales live, humpback, fin, and sei whales are also lost to ships and fishing gear. Scientists estimate that a total of 14 of these whales are lost each year. [19]

- These losses will not have a significant effect on the chances of extinction for these other species.
- Despite these losses, these other whale populations appear to be growing.
- These whales are kept on the endangered species list to protect them from additional losses.
- Scientists say that, as long as whaling continues to be banned, the chances of extinction for these other species is very low even if they are occasionally killed by collisions with ships or entanglement in fishing gear along the U.S. East Coast. [20]

Q8 We would like would like to know your views about the following statements. Please tell us whether you definitely disagree, somewhat disagree, neither disagree or agree, somewhat agree, or definitely agree with each of the following statements. *Please check one box for each statement.*

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
I found it confusing to think about the chances of extinction in percentage terms.	☐	☐	☐	☐	☐
200 years is too long a time period for me to think about.	☐	☐	☐	☐	☐
A chance of extinction of 50% in 200 years is not large enough to worry about now.	☐	☐	☐	☐	☐
The chances that the North Atlantic right whale will become extinct in 200 years must really be greater than 50%.	☐	☐	☐	☐	☐

Possible New Regulations To Protect North Atlantic Right Whales

Additional regulations on ships and fishing gear are being proposed that would reduce whale deaths and improve the North Atlantic right whale's chances of survival. [21]

For ships along the U.S. East Coast:

- Current regulations:
  - Ships are encouraged to avoid areas where there are high concentrations of North Atlantic right whales, but compliance is voluntary.
  - Ships are requested to slow down in some areas when whales are present, but compliance is voluntary.
- Proposed new regulations to reduce North Atlantic right whale deaths due to ships:
  - Ships would be banned in some areas where there are especially high concentrations of North Atlantic right whales.
  - In other areas where North Atlantic right whales are not so highly concentrated, there would be mandatory speed limits.

For fishing gear along the U.S. East Coast:

- Current regulations:
  - A few areas are closed to fishing when whales are present.
  - Some of the gear used in right whale habitat areas is safe for whales.
- Proposed new regulations to reduce North Atlantic right whale deaths due to fishing gear:
  - Many more areas would be closed to fishing during times of the year when North Atlantic right whales are concentrated there.
  - New gear that is safer for whales would be required to be used in all of the North Atlantic right whale's habitat.

If fully implemented, scientists estimate that the proposed new regulations to aid the North Atlantic right whale would:

- Prevent the death of four (4) North Atlantic right whales per year on average. [22]
- Reduce to 5% the chance of extinction of the North Atlantic right whale within the next 200 years. [23]
- Prevent the death of a total of two (2) humpback, fin, and sei whales per year on average, but remember that this would not affect the chances that these other whales will become extinct in the next 200 years. [24]

25

People sometimes wonder: Why not use <u>sonar, radar, satellites, or noise makers</u> to help the whales?

- Because of waves, sonar and radar do not work well in locating whales near the surface of the water where they are most vulnerable.
- Satellites are of little help because of cloud cover, the large area that would have to be surveyed, and the fact that whales stay underwater for long periods.
- Scientists tried to find ways to make sounds to frighten whales away from ships and fishing gear, but so far they have failed.
- Researchers are continuing to seek new technologies to aid the whales.

Should We Do More to Protect the North Atlantic Right Whale?

People have different opinions about how much should be done to protect the North Atlantic right whale. Some people think that the North Atlantic right whale should get further protection because:

- it is a magnificent part of wild nature;
- whales have a right to live;
- they would like to see North Atlantic right whales or have others see them in the future;
- deaths of other whales would also be avoided.

Others think that further protection is not desirable because:

- we, as a nation, have many higher priorities than protecting an endangered species of whales like this;
- we cannot afford to spend much on preserving species that are of such limited direct usefulness to humans;
- there is a 50% chance that the North Atlantic right whale will survive even if nothing more is done;
- the other whale species do not need this protection to survive.

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Would extinction of the North Atlantic right whale lead to serious harm to the ecosystem of the North Atlantic Ocean?

- The population of North Atlantic right whales has already been greatly reduced from previous levels, so any ecosystem changes are likely to have happened already.
- The ecosystem of the North Atlantic is huge, and North Atlantic right whales inhabit only a small portion of this ecosystem.
- Scientists have concluded that loss of the remaining North Atlantic right whales would have only minor additional ecological effects.
- For example, the populations of the plankton that right whales feed on are so large that they are not affected significantly by right whales.

Q9 For each statement below, please indicate whether you definitely disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or definitely disagree.

Please check one box for each statement.

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
I trust scientists when they say that extinction of the North Atlantic right whale would not cause serious additional ecological problems in the North Atlantic Ocean.	☐	☐	☐	☐	☐
I believe that technology, such as radar or noise makers, should be able to solve the problem of ships hitting whales.	☐	☐	☐	☐	☐

Which Alternative Do You Prefer?

In considering alternatives to give North Atlantic right whales more protection, government officials must assess not only the effects on the whales but also the costs to people like you.

- Prices paid by you as a consumer would increase.
  - Prices for imported goods, including cars, clothing, food, oil, and other items, will increase since ships will have to spend more time at sea and pay extra fuel costs.
  - If we close certain areas to fishing and require new gear that is safer for whales, this will increase the prices you pay for fish products.
- Your taxes would also increase.
  - Many of the costs to enforce new regulations on ships and commercial fishing will have to be paid by taxpayers.
  - Tax money will also be needed to support research on new fishing gear that is safer for whales and to better monitor and report whale locations.

As you consider the costs in the questions asked below, please bear in mind:

- This would be a permanent increase in prices and taxes, since the new regulations would continue to be in force.
- If you spend money for whale protection, it will not be available to buy other things, including protection for other species.

The tables on the next pages will allow you to compare the effects of alternative plans to protect the North Atlantic right whale, including the cost to your household in higher prices and taxes.

Different plans will use different protection methods. Some plans may use more shipping regulations and other plans may use more fishing regulations. In addition, different plans may result in different numbers of North Atlantic right whales and other whales saved.

As an example, this table compares the effects of three alternative plans to protect the North Atlantic right whale, including the cost to your household in higher prices and taxes.

	No New Actions	Full Plan	Partial Plan A
Chances of North Atlantic right whale extinction (200 years)	**50%**	**5%**	**25%**
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**

The "No New Actions" column shows the results of current regulations. Since nothing more would be done to protect the whales:

- The chances of North Atlantic right whale extinction would stay at 50%.
- Deaths of North Atlantic right whales and other whales would not be reduced.
- There would be no additional costs to your household.

The "Full Plan" column shows what would be expected to happen if all the steps to protect North Atlantic right whales outlined above were implemented.

- The chance of North Atlantic right whale going extinct would fall to 5%.
- On average, four (4) North Atlantic right whales and two (2) other whales would be saved each year.
- The cost to your household would be $50 per year.

The "Partial Plan A" column shows the results for the whales and costs if we do less and spend less on North Atlantic right whale protection than under the Full Plan.

- The chance of North Atlantic right whale going extinct would be 25%.
- Fewer right whales and other whales would be saved.
- The cost to your household would be $5 per year.

EXAMPLE

The table on this page is exactly like the one you just looked at except that it has space at the bottom to indicated which alternative is most preferred and which is least preferred.

In this EXAMPLE, if your most preferred alternative was "No New Action" you would have put a check mark in the box indicated below. If your least preferred alternative was the "Full Plan", then you would have put a check mark in that box as indicated.

	No New Actions	Full Plan	Partial Plan A
Chances of North Atlantic right whale extinction (in 200 years)	**50%**	**5%**	**25%**
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**
Most preferred alternative →	☑	☐	☐
Least preferred alternative →	☐	☑	☐

On the next few pages, you will be asked to provide YOUR choices of YOUR most and least preferred alternatives.

Q10 The table on this page is exactly like the one you just looked at except that it has space at the bottom for you to give us your opinions on the three alternatives.

We would like you to tell us which of these alternatives (No New Actions, the Full Plan, or Partial Plan A) you most prefer and which alternative you least prefer.

- There are no right or wrong answers to these questions. Some people may choose the No New Actions as their most or least preferred, while others may choose the Full Plan or Partial Plan A.
- Additional costs to your household in higher prices and taxes each year would be permanent.

Below, please check which of the alternatives you most prefer *and* which you least prefer.

	No New Actions	Full Plan	Partial Plan A
Chances of North Atlantic right whale extinction (in 200 years)	**50%**	**5%**	**25%**
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Just to make sure we were clear, you should have checked one box in the "Most preferred alternative" row, and one box, from a different column, in the "Least preferred alternative" row.

Q11 **This question is similar to the one you just answered except a different partial alternative, Partial Plan B, now appears in the last column. Plan B would do more than Plan A but would also cost more.** *Again, please check off which alternative you most prefer and which you least prefer.*

	No New Actions	**Full Plan**	**Partial Plan B**
Chances of North Atlantic right whale extinction (in 200 years)	**50%**	**5%**	**25%**
Average number of North Atlantic right whales saved per year	**0**	**4**	**2**
Average number of other whales saved per year	**0**	**2**	**4**
Additional annual cost to your household	**$0**	**$50**	**$25**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Q12 **The next question is like the two you just answered except that now we ask you to compare No New Actions, Partial Plan A, and Partial Plan B. Again, please check off which alternative you most prefer *and* which you least prefer.**

	No New Actions	Partial Plan A	Partial Plan B
Chances of North Atlantic right whale extinction (in 200 years)	**50%**	**25%**	**25%**
Average number of North Atlantic right whales saved per year	**0**	**1**	**2**
Average number of other whales saved per year	**0**	**0**	**4**
Additional annual cost to your household	**$0**	**$5**	**$25**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Q13 **The last three questions are asked to obtain public input for decision makers to consider along with information from scientists and managers. These types of questions are difficult for some people and not so difficult for others.**

How difficult was it for you to make a choice in questions Q10, Q11, and Q12 of which alternatives you most and least preferred?

Extremely difficult	Very difficult	Moderately difficult	Slightly difficult	Not at all difficult
☐	☐	☐	☐	☐

Please think back to Questions Q10, Q11, and Q12, where we asked you to consider which alternatives you most and least preferred.

We are interested in what you were thinking about the information we provided when you answered those questions.

Q14 When you chose your most preferred programs, did you think that your household would pay the higher tax amount stated, or did you think you would pay more than that amount, or less than that amount? *Circle the number of the answer that applies to you.*

1. The amount stated.

2. More than the amount.

3. I thought Less than the amount.

Q15. **When you chose your most preferred programs, did you think the chances of North Atlantic right whale becoming extinct in 200 years were about 50%, or did you think it was more than 50% or less than 50%?** *Circle the number of the answer that applies to you.*

1. About 50%.

2. More than 50%.

3. Less than 50%.

Q16 We told you that if the Full Plan is implemented, the chances of extinction of the North Atlantic right whale in 200 years would be 1%. When you chose your most preferred program, did you think the chances of extinction under the Full Plan were about 1%, more than 1%, or less than 1%? *Circle the number of the answer that applies to you.*

1. About 1%.

2. More than 1%.

3. Less than 1%.

Q17 For each program you considered, we told you how many other whales — humpback, fin, and sei whales — would be saved. When you chose your most preferred program, did you think the numbers of other whales that would be saved were about what we said, more that what we said, or less that what we said? *Circle the number of the answer that applies to you.*

1. About what you said.

2. More than what you said.

3. Less than what you said.

Q18 We would like to learn more about how you reacted to the questions that asked you to choose which alternatives you most and least preferred. From strongly disagree to strongly agree, how do you feel about these statements? *Please check one box for each statement.*

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
Cost should not be a factor when protecting the environment.....	☐	☐	☐	☐	☐
There was not enough information for me to make informed decisions about protecting the North Atlantic right whale.....	☐	☐	☐	☐	☐
I took very seriously the questions asking me to choose between alternative plans	☐	☐	☐	☐	☐
I was concerned that the government could not actually implement these kinds of changes to ship traffic and fishing gear	☐	☐	☐	☐	☐
I would like to help the whales, but I can't afford to pay much	☐	☐	☐	☐	☐
I am opposed to this sort of question.....	☐	☐	☐	☐	☐
If other whales, such as humpback, fin, and sei whales, are saved, then this will improve their chances of survival	☐	☐	☐	☐	☐
The public's views should be important when the government chooses how to protect the North Atlantic right whale.....	☐	☐	☐	☐	☐
The United States should place a high priority on protecting species like the North Atlantic right whale even if I have to help pay part of the costs of protection.....	☐	☐	☐	☐	☐
If ships and fishermen cause problems for whales, then ship owners and fishermen, not I, should have to pay to fix the problem	☐	☐	☐	☐	☐
Allowing commercial fishermen to make a living is more important than saving whales.....	☐	☐	☐	☐	☐
I believe that it is important to save individual North Atlantic right whales even if it would not change the chances that the species will go extinct.....	☐	☐	☐	☐	☐

About You and Your Household

Below are some standard questions like those asked in the U.S. Census. Your answers will be used to compare our survey respondents with the U.S. population. Your responses will be kept confidential and separate from your name and address. Your personal information will not be sold to or shared with anyone. Material identifying you will be destroyed at the end of the study.

H1 **Are you male or female?** 1 Male 2 Female

H2 **In what year were you born?** 19____

H3 **How many people live in your household? _____**
Please indicate how many people in each age group.
If none for a category please write "0."

_____Under 18 _____18 to 35 _____36 to 60 _____Over 60

H4 **Which of the following best describes your employment status?**
Circle the number or numbers that best fit your employment status.

1 Employed full-time
2 Employed part-time
3 Homemaker
4 Student
5 Retired
6 Currently unemployed
7 Other
*(please specify)*_____

H5 **Have you or a family member been employed in the commercial fishing or shipping industry?** *Circle the number of your answer*

1 Yes
2 No
3 Don't know

H6 **On another subject, would you say you think of yourself as not an environmentalist at all, slightly an environmentalist, a moderate environmentalist, a strong environmentalist, or a very strong environmentalist?**

Circle the number of your answer

1 Not an environmentalist at all
2 Slightly an environmentalist
3 A moderate environmentalist
4 A strong environmentalist
5 A very strong environmentalist

H7 What is the highest degree or level of school you have completed?
Circle the number of your answer.

1 Less than 9th grade
2 12th grade, NO DIPLOMA
3 High School Graduate (Diploma or equivalent GED)
4 Associate degree (for example: AA, AS) or technical school
5 Bachelor's degree (for example: BA, BS)
6 Master's degree (for example: MA, MS, MEng, Med, MBA)
7 Professional degree (for example: MD, DDS, DVM, LLB, JD)
8 Doctorate degree (for example: PhD, EdD)

H8 How many listed telephone numbers, including cell phones, does your household have?
_____ listed telephone numbers

NOTE: Please answer BOTH Questions H9 and H10.

H9 Are you Spanish/Hispanic/Latino? *Circle **No** if you are not Spanish/Hispanic/Latino.*

1 **No**, not Spanish/Hispanic/Latino
2 Yes, Mexican, Mexican American, Chicano
3 Yes, Puerto Rican
4 Yes, Cuban
5 Yes, other Spanish/Hispanic/Latino _____

H10 Which of the following best describes your race? *Circle one or more.*

1 White
2 Black, African American, Negro
3 American Indian or Alaska Native
4 Asian Indian
5 Chinese
6 Filipino
7 Japanese
8 Korean
9 Vietnamese
10 Native Hawaiian
11 Guamanian or Chamorro
12 Samoan
13 Other Asian _____
14 Other Pacific Islander _____
15 Other _____

H11 What was your household income (before taxes) in 2008 from all sources, including wages, salaries, pensions, Social Security, savings accounts, investments, and other sources? *Circle one number.*

1	Less than $10,000	7	$60,000 to $79,999
2	$10,000 to $19,999	8	$80,000 to $99,999
3	$20,000 to $29,999	9	$100,000 to $124,999
4	$30,000 to $39,999	10	$125,000 to $149,999
5	$40,000 to $49,999	11	$150,000 to $200,000
6	$50,000 to $59,999	12	$200,000 or more

Thank you very much for your time.

Please use the space below to provide us with any other comments you would like to make.

Comments

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[1] ESA Sec 3 (6)
[2] Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley (eds.). 2006. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2005*. NOAA Technical Memorandum. NMFS NE 194.
[3] Ibid
[4] Brownell, R.L., P.J. Clapham, T. Miyashita, and T. Kasuya. 2001. Conservation status of North Pacific right whales. *J. Cetacean Res. Manage.* (Special Issue) 2:269-286.
[5] Wade, P., M. Heide-Jorgensen, K. Shelden, J. Barlow, J. Carretta, J. Durban, R. LeDuc, L. Munger, S. Rankin, A. Sauter, and C. Stinchcomb. 2006. Acoustic detection and satellite-tracking leads to discovery of rare concentration of endangered North Pacific right whales. *Biology Letters* (April) 2:417-419.
[6] Baillie, J., C. Hilton-Taylor, and S. Stuart (eds.). 2004. *IUCN Red List of Threatened Species: A Global Species Assessment*. IUCN Publications Services Unit, Cambridge, UK.
[7] Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley (eds.). 2006. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2005*. NOAA Technical Memorandum. NMFS NE 194.
[8] Reeves, R.R. 2001. Overview of catch history, historic abundance and distribution of right whales in the western North Atlantic and in Cintra Bay, West Africa. *J. Cetacean Res. Manage.* (Special Issues) 2:187-192. Reeves, R. and T. Smith. 2003. A Taxonomy of World Whaling: Operations, Eras, and Data.. Northeast Fisheries Science Center Ref. Doc. 03-12. August.
[9] Ibid
[10] NMFS. 2005. Recovery Plan for the North Atlantic Right Whale *Eubalaena glacialis*. NMFS Office of Protected Resources, Silver Spring, MD.
[11] Nelson, M., M. Garron, R. Merrick, R. Pace, and T. Cole. 2007. Mortality and serious injury determinations for baleen whale stocks along the United States eastern seaboard and adjacent Canadian Maritimes, 2001-2005. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 07-05. February.
[12] Waters, J., R. Mayer, and D. Kriebel. 2000. Shipping Trend Analysis – Draft Report. Department of Naval Architecture and Ocean Engineering, Annapolis, MD, prepared for Institute for Water Resources, U.S. Army Corps of Engineers, Alexandria, VA. September. Available: http://www.iwr.usace.army.mil/searchresults.cfml. Accessed August 28, 2007.
[13] NMFS. 2005. Recovery Plan for the North Atlantic Right Whale *Eubalaena glacialis*. NMFS Office of Protected Resources, Silver Spring, MD.

[14] Nelson, M., M. Garron, R. Merrick, R. Pace, and T. Cole. 2007. Mortality and serious injury determinations for baleen whale stocks along the United States eastern seaboard and adjacent Canadian Maritimes, 2001-2005. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 07-05. February.
[15] NMFS. 2005. Recovery Plan for the North Atlantic Right Whale *Eubalaena glacialis*. NMFS Office of Protected Resources, Silver Spring, MD.
[16] Nelson, M., M. Garron, R. Merrick, R. Pace, and T. Cole. 2007. Mortality and serious injury determinations for baleen whale stocks along the United States eastern seaboard and adjacent Canadian Maritimes, 2001-2005. U.S. Department of Commerce, Northeast Fisheries Science Center Reference Document 07-05. February.
[17] According to Fujiwara and Caswell's model (Fujiwara, M. and H. Caswell. 2001. Demography of the endangered North Atlantic right whale. *Nature* 414:537-541.), the probability of the NARW going extinct in 200 years is 52%. Model results show the average total annual mortality is 20 NARWs. Right Whales (*Eubalaena* spp.) appear to have adult natural mortality rates between 1% and 3%, with most estimates suggesting a value close to 2% (Best, P. and H. Kishino. 1998. Estimating natural mortality rate in reproductively active female southern right whales, *Eubalaena Austrails*. *Marine Mammal Science* 14(4):738-749.). In this survey, natural mortality is assumed between 1-2% of the population. Therefore, approximately 3 to 6 NARWs (=300 NARW population * (1% or 2%)) die of natural causes each year. Therefore, most mortality must result from anthropogenic causes.
[18] Ibid
[19] Based on 2001-2005 data (Nelson *et. al.*, 2007), the observed human mortality per year for other whales was 7 (=4.2 humpback + 2.4 Fin + 0.4 Sei whales). Modeling exercises on these other large whale populations are not available. Observed mortality data is known to be a subset of the total mortality. Therefore we assume the number of other whales lost due to human causes is a multiple of the observed mortalities. That is, in this survey the "total" number of large whales lost annually to anthropogenic causes is twice the "observed" mortality or 14 (=7 observed mortalities × 2). A range of values will be tested across surveys.
[20] Waring, G.T., E. Josephson, C.P. Fairfield, and K. Maze-Foley (eds.). 2006. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2005*. NOAA Technical Memorandum. NMFS NE 194.
[21] Available at: http://www.nero.noaa.gov/prot_res/
[22] Fujiwara and Caswell's (2001) model predicts that if total mortality were reduced from 20 to 16 NARWs, the probability of extinction would be reduced to 0.3% in 200 years. Therefore, if we save 4 NARWs from human caused mortalities each year the population will not go extinct
[23] Note the 5% chance of extinction is one of the variables that changes with each survey version.
[24] Modeling exercises on these other large whale populations are not available. We assume the number of other whales saved to be a 50%, 100% and 200% multiplier of the number of right whales saved. That is, if the number of right whales saved is 4, then we will test 2, 4 and 8 other whales saved.
[25] Our objective here is to let the respondent know these technical solutions are not currently available.
[26] (a) According to Clapham and Link (Clapham, P. and J. Link. 2006. Whales, whaling and ecosystems in the North Atlantic. In *Whales, Whaling and Ecosystems,* J. Estes (ed.). University of Chicago Press, IL. pp. 241-250.): "Any ecosystem changes brought about by the large-scale removal of right whales would have occurred well before 1900, would be difficult to document, and would have been superseded by major ecosystem perturbations since." (b) Jason Link, NEFSC, personal communication. (c) Clapham and Link (Clapham, P. and J. Link. 2006. Whales, whaling and ecosystems in the North Atlantic. In *Whales, Whaling and Ecosystems,* J. Estes (ed.). University of Chicago Press, IL. pp. 241-250.) also state: "… the unprecedented resurgence of herring and mackerel may be a limiting factor for right whales in terms of food competition."

B. OMB Supporting Statement (includes response to comments federal register notices)

Supporting Statement for Paperwork Reduction Act Submission:

North Atlantic Right Whale Economic Benefit Study

Pretest Implementation

OMB CONTROL No.

U.S. Department of Commerce

National Ocean and Atmospheric Administration

National Marine Fisheries Service

Northeast Fisheries Science Center

Protected Species Branch

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September 20, 2007

Table of Contents

A. JUSTIFICATION

This is a proposal to pretest a survey. The survey is designed to estimate the benefits of increased protection of the North Atlantic right whale (*Eubalena glacialis*). The pretest is an essential step in designing a final survey to estimate benefits from both regulations currently being proposed and regulations that may be proposed in the future.

This information collection request is for the pretest that will precede the implementation of the main survey. The pretest will provide researchers with feedback to evaluate the survey instrument. In particular, the pretest will gather a sufficient number of responses to evaluate the adequacy of the information presented, reliability, internal consistency, response variability, and other properties of the survey. Further development of the survey cannot proceed without the pretest.

1. Explain the circumstances that make the collection of information necessary.

The pretest survey instrument uses stated preference methods to estimate benefits. The proposed pretest would be administered to a sample of U.S. households. The research is being conducted by Dr. Kathryn Bisack of the Northeast Fisheries Center, National Marine Fisheries Service (NMFS) in cooperation with David Chapman and Dr. Richard Bishop of Stratus Consulting Inc. of Boulder, CO, and Washington, DC.

Threats to North Atlantic right whales

The Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA) mandate protection of North Atlantic right whales (NARWs). As a result of past whaling that devastated its populations, right whales were first protected by the 1931 Convention for the Regulation of Whaling, which took effect in 1935. In 1949, the International Convention for the Regulation of Whaling (which established the International Whaling Commission) protected right whales from commercial whaling. In U.S. waters, right whales were determined to be in danger of extinction in all or a significant portion of their range. This was due to commercial overutilization. They were listed as endangered under the Endangered Species Conservation Act (the precursor to the ESA) in June of 1970.

Except for the North Pacific right whale, the NARW is the most endangered of the U.S. large whale species (Clapham et al. 1999). The population was estimated to be about 306 individuals in 2001, based on a census of individual whales identified using photo-identification techniques (Waring et al., 2006).

The remaining NARWs inhabit coastal or shelf waters, ranging from winter calving areas off the southeastern United States to summer feeding grounds off New England and north to the Bay of Fundy and the Scotian Shelf (NMFS, 2005). The two primary sources of human-caused mortality are ship collisions and entanglements in fishing gear. NARWs are most vulnerable to ship strikes while they are on or near the surface of the water. NARWs can also become entangled in fishing gear, which can lead to lethal injuries.

Current management efforts

NMFS is the primary agency responsible for the protection of marine mammals, including whales. Hence, NMFS is charged with protecting the NARW by implementing management actions to allow the species to recover (69 FR 53040). A NARW recovery plan is in place (60 FR 53040; NMFS, 2005), and several management actions have been taken (e.g., 71 FR 36299, 70 FR 35894). Additional actions are being contemplated by NMFS to protect and aid the recovery of the NARW and presented in the Draft Environmental Impact Statement. (see, Appendix A for excerpt on proposed management actions).

Current measures by the NMFS to reduce ship-whale collisions include voluntary avoidance and speed reduction measures. Ships are prohibited from approaching within 500 yards (460 m) of NARWs (69 FR 69536). Aircraft surveys are used to locate NARWs; those locations are provided to vessels and voluntary speed advisories are issued through NOAA-based communications, such as those of the National Weather Service. Ships are also requested to report whale sightings. The National Ocean Service (NOS) updates and publishes charts with hazard areas identified, including NARW areas. Regional recovery plan implementation teams (as provided under ESA) have been established. NARW grant programs are also available for research. Recently, shipping lanes into Boston harbor have been shifted to decrease the risk of ship-whale collisions.[1]

Managers of the U.S. lobster and gillnet fisheries have implemented measures to reduce entanglements. Under 1994 amendments to the MMPA, NMFS established Take Reduction Teams to address whale mortality resulting from gear entanglements. Measures currently in force include Seasonal Area Closures (67 FR 1142), Dynamic Area Closures (67 FR 1133), and required modifications of gear to make the waters safer for all whales (68 FR 51195).

Although these measures have been in place for some time, the NARW has not recovered and extinction may occur if deaths from whale-ship collisions and gear entanglements are not reduced. The NMFS has recently proposed a new regulation that would implement speed restrictions on vessels 65 ft (19.8 m) or greater in overall length in certain locations and at certain

1. http://www.nmfs.noaa.gov/pr/shipstrike/.

times of the year along the U.S. Atlantic seaboard. This proposed regulation would reduce the likelihood of ship strikes that cause deaths and serious injuries to NARWs (71 FR 36299).

When deciding future management actions, policymakers need to balance ESA and MMPA goals of protecting NARWs against providing for sustainable and economically viable fisheries under the Magnuson-Stevens Fishery Conservation Act (P.L. 94-265), as well as laws related to ships including the Ports and Waterways Safety Act of 1972 (PWSA) and the Regulatory Flexibility Act of 1980 (see Appendix B for more discussion of relevant laws).

Future management options

Because NARW protection is linked to fishery and ship traffic regulations, policymakers must comply with several federal laws and executive orders in addition to the ESA and MMPA, including Executive Order 12866 (58 FR 51735), which requires regulatory agencies to consider costs and benefits in deciding among alternative regulatory actions. Additional regulations and mandates [e.g., the National Environmental Policy Act (NEPA)] require federal agencies (in this case the NMFS) to conduct social and economic analyses when they propose new regulations.

The economic benefits from measures to protect the NARW stem primarily from the non-consumptive values people attribute to the whales. Information on these benefits is currently unavailable, yet such information is needed for decision-makers to fully understand the tradeoffs involved in choosing between protection alternatives. Results of the complete national survey, based on the proposed pretest, will put NMFS in a position to make more informed choices by weighing the public's value for whale protection against costs to industry and others (e.g., the public).

This study is needed because there currently is no adequate research base to estimate the benefits of NARW protection. Most of the benefits (if any) from new regulations will be delivered outside the market system. Initial investigations during development of the pretest survey suggest that many Americans have nonuse or passive use values for whales including the NARW. Many focus group participants say that they would be willing to pay something for further protection because the NARW is a magnificent part of wild nature, because it has a right to continue to exist, because they would like to see NARWs in the future and/or have others be able to see them, and other reasons. Stated preference methods are the only way to measure these benefits, including use and nonuse values.

Background literature

We have found only three U.S. studies that have addressed the benefits of whale protection using stated preference methods. All three studies used one stated preference approach, the contingent valuation method (CVM). Hageman (1985) conducted a survey of California residents to determine their willingness to pay (WTP) to prevent grey and blue whale populations from

dropping from 16,000 to 1,300. The results indicated that California households were willing to pay $27 (1984 dollars) annually on average to avoid such a reduction. Samples and Hollyer (1990) surveyed Hawaii residents to value humpback whales. On average, Hawaiian households' WTP a one-time fee to prevent the loss of humpback whales in Hawaii ranged from $125 to $142 (1990 dollars), depending on the survey method (Samples and Hollyer, 1990). Loomis and Larson (1994) used CVM to evaluate the WTP of California households and visitors to the state for increases in grey whale populations. Average WTP ranged from $16 to $18 (1994 dollars), depending on what was assumed.

These studies do not provide a basis for valuing NARW protection. They are all older, and much progress has been made in stated preference methods since they were done. CVM, as applied in these three studies, allows the valuation of only one policy alternative. We intend to use a different stated preferences method (so-called stated choice or conjoint method), which will give NMFS analysts more flexibility in the number of policy alternatives they can evaluate. All three existing whale studies involved surveys of people in only one state and hence do not provide the national values needed for benefit-cost analysis by a federal agency. None of the studies involve households in the eastern United States where benefits of NARW protection are likely to be the largest.

Values for threatened and endangered species

Nor can we draw on the broader literature dealing with the benefits from protecting other threatened and endangered (T&E) species or wildlife viewing to make NARW management decisions. To date, over 30 studies have employed CVM to estimate the economic value of one or more T&E species. Loomis and White (1996) conducted a meta-analysis of 20 T&E (and rare) species valuation studies and found that annual WTP to protect rare and T&E species ranged from $6 to $95. Much of the variation they found in WTP values could be explained by the type of species valued (e.g., whether it is a mammal or bird), by the change in T&E population being valued, and by whether the individual responding to the survey has interacted with the species (e.g., a user of the resource).

T&E species valuation studies can be categorized into two groups: *aggregate* species valuation studies and *disaggregate* species valuation studies. The former type of study asks respondents to value a group of T&E species, or a group of species that include T&E species, as a whole. These studies yield WTP estimates that cannot be assigned to any constituent species within the group of species valued. An example of this type of study is Olsen et al. (1991), which involved estimating WTP to protect salmon and steelhead in the Pacific Northwest. The resulting welfare values cannot be divided among the different salmon species in the region, or separated from the WTP to protect steelhead. Similarly, economic values estimated by Berrens et al. (2000) for protecting 11 T&E fish species in New Mexico, and Ekstrand and Loomis (1998) for protecting

all 62 T&E species in the Four Corners region of the United States cannot be disaggregated to identify values of individual species.

The individual T&E species valued in disaggregate species valuation studies range from "charismatic megafauna" like owls (Rubin et al., 1991; Hagen et al., 1992; Loomis and Ekstrand, 1997, 1998; Giraud et al., 1999), wolves (Duffield, 1992), and bald eagles (Boyle and Bishop, 1987; Swanson, 1996; Stevens et al., 1991, 1994), to lesser known species such as the striped shiner (Boyle and Bishop, 1987) and the silvery minnow (Berrens et al., 2000). Looking beyond the previously mentioned valuation studies of whales [Hageman (1985), Samples and Hollyer (1990), Loomis and Larson (1994)], we were able to find only two studies of the public's WTP for protecting T&E marine mammals in the United States.[2] These include Giraud et al. (2002) and Solomon et al. (2004).

Studies that apply CVM solely to wildlife viewing (e.g., Clayton and Mendelson, 1993) are unlikely to fully capture the values of species. The evidence from the studies they examined indicates that active use values, such as wildlife viewing, make up a small portion (7-12%) of a household's total WTP for the preservation/protection of a species (see also Hageman, 1985; and Stevens et al., 1991). While there is some variation in the nonuse values relative to total values, nonuse values commonly account for nearly 90% of the total WTP for the protection of a species. Our study will be conducted in a total valuation framework that will account for both active and passive (nonuse) use values.

Our conclusion after reviewing this literature is that there is insufficient literature of direct relevance to support benefit estimation by benefits transfer. Hence, gathering primary data on values associated with NARW protection is justified.

2. Explain how, by whom, how frequently, and for what purpose the information will be used. If the information collected will be disseminated to the public or used to support information that will be disseminated to the public, then explain how the collection complies with applicable NOAA Information Quality Guidelines.

How the information will be collected

The information collection consists of implementing a mail survey on an initial sample of approximately 500 U.S. households. We will mail 500 questionnaires to members of the sample and will make follow-up contacts to encourage response from participants (see Pretest Administration on page 24 for details). Among the follow-up efforts will be a telephone contact

2. There are several studies that value species in other countries (Fredman, 1995; White et al., 1997; Langford et al., 1998; Jakobsson and Dragun, 2001; Macmillan et al., 2002; Kontoleon and Swanson, 2003), including one that values the Mediterranean monk seal, which is critically endangered in Europe (Langford et al., 1998).

with those sample households for whom we have telephone numbers. We will obtain selected survey information during this telephone follow-up to aid in evaluating potential non-response effects on the overall survey.

The overall study effort involves three main phases:

- Phase 1: Pre-design and survey instrument design,
- Phase 2: Full survey implementation, and
- Phase 3: Final analyses of survey data and final report.

The first task in Phase 1, the current phase, incorporated an extensive review of existing literature and structured interviews. The results of the interviews provide qualitative data on the public's views and attitudes toward NARW protection and allow the research team to develop, test and refine versions of the pretest survey instrument.[3] Phase 1 also includes implementation of a pretest survey following approval by the Office of Management and Budget (OMB).

Phase 2 of the project includes the refinement of the survey instrument based on pretest results, administration of the survey instrument to a full-scale, representative, national sample (hereafter referred to as the main survey), and development of a cleaned dataset of the survey results along with summary statistics. Phase 3 includes the analysis of the survey data, including estimation of values for people's WTP for NARW protection and development of a final study report.

Only details relating primarily to Phase 1 are presented below, since this application is to conduct the Phase 1 pretest. After the pretest has been completed, we will submit another application for OMB approval to conduct the main survey.

Development of pretest survey instrument

The research team followed standard survey design procedures, including qualitative testing in focus groups, to develop an effective survey instrument. Phase I was divided into five steps.

Step 1. Survey concept formulation. We refined the overall study goals in early stages of the project through interviews with key stakeholder groups, including resource managers and scientists at a workshop held by the Protected Species Branch at the Northeast Fisheries Science

3. It is important to note that the results of structured interviews are qualitative in nature and should not be considered fully representative of the public at large. While efforts were made to find representative participants for each session, the small number of participants limits the ability to draw conclusions about the public at large.

Center in Woods Hole, MA. These initial interviews allowed us to identify the main goals of the survey and potential uses of the study results. At critical points throughout the study, we continue to update the key stakeholders on the status of the study and ask for their suggestions and advice.

Step 2. Review of existing literature. We conducted a thorough review of the literature on stated preference methods and applications to endangered species. The results of this effort, as discussed above show that there are significant gaps in the current understanding of the public benefits of protecting the NARW through additional management actions.

Step 3. Focus groups. Seven rounds of structured interviews in a focus group setting, with two sessions each and seven to nine participants per session, were conducted at different locations across the United States including: Boston, MA; Denver, CO; Seattle, WA; Jacksonville, FL; Baltimore, MD; Hartford, CT; and Portland, OR. The focus group sessions progressed from open ended discussions on concepts and ideas about endangered species protection and knowledge of right whales to the use of structured materials to investigate specific issues and attitude for the instrument development. Each of the focus group session built upon results of the previous sessions to revised, refine and further develop the overall survey materials. Thus, materials were revised and modified between each session. The discussions in each of the sessions were structured to investigate specific areas of the survey information and modified between sessions based on previous sessions. We used the focus groups to develop basic survey concepts and refine the research team's understanding of the general population's (1) experience with, (2) familiarity with, and (3) understanding of issues related to NARWs and other marine mammals as they may be affected by management actions, and the functions and services the whales provide. In these groups, we explored individuals' preferences for different management options or scenarios and the types of values they have. These focus groups helped define the types and amount of information necessary for respondents to effectively understand the range of NARW protection and improvement options being developed. Using the results of these focus groups, we developed the draft survey instrument.

Step 4. Design of survey instrument. Based on what we learned from scientists and stakeholders as well as the focus groups, we drafted materials for the instrument and tested these materials in focus groups. Because most people are not very familiar with the NARW, we had to carefully design the information they would need to make informed choices in the valuation exercises and test this information in the focus groups. We also began to design the questions needed to generate the data for valuation, including both stated choice questions and the questions for other variables to be included in the survey. Results from each round of focus groups were reviewed and the materials were revised as the survey took shape and became the pretest instrument (presented in Appendix C).

Step 5. Peer review and review by scientists. The scientific information presented in the survey, as well as the survey instrument design and supporting information was peer reviewed. The survey instrument and related materials (e.g., underlying theory, experimental design) underwent internal and external peer reviews. Internal peer review of the experimental design of the survey instrument consisted of review and evaluation by Dr. Robert Rowe of Stratus Consulting Inc. and Dr. Roger Tourangeau of the Joint Program in Survey Methodology at the Universities of Maryland and Michigan and Dr. Barbara Kanninen[4]. To ensure that the scientific information we provided to survey participants was up-to-date and accurate, scientists at the Northeastern Fisheries Science Center and other scientists and stakeholders reviewed all scientific information in the survey. Two rounds of formal external peer reviews by two outside experts in nonmarket valuation, Professor Trudy Ann Cameron of the University of Oregon and Professor Richard Carson of the University of California at San Diego, were conducted. The first review was conducted after completion of the focus groups and an interim report of year 1 findings, and the second review was prior to finalizing the pretest instrument. It is anticipated that peer review will continue throughout Phases 2 and 3.

Based on the results of the survey design and review process, the research team believes that the survey instrument is ready to be pretested.

The pretest survey instrument

The overall survey is divided into 11 sections. Below we describe the purpose of the individual sections of the survey.

Section 1: Survey set-up

Section 1 provides an initial explanation of the purpose of the survey and explains why the respondent's opinions are needed. It explicitly identifies NOAA as the U.S. government agency funding the survey. The NOAA logo will be prominently displayed on the first page of the survey. At the bottom of the first page, we inform the respondents that their participation is voluntary.

Section 2: Instructions/warm-up

Question 1 ("We are faced with many problems in this country, none of which can be solved easily or inexpensively. Below are some of these problems. For each one, please indicate whether you think we are spending too much money on it, too little money, or about the right amount.") is from the General Social Survey (GSS) and has been placed at the beginning of the

[4] Dr. Kanninen is currently an independent consultant on statistical design for choice experiments and econometrics based in Falls Church VA.

survey to (1) get respondents comfortable with the survey and to (2) provide information to help evaluate potential differences between the respondents and the general public. Initial result from other on-going surveys Stratus Consulting is conducting for environmental goods show that the responses to these questions track well with the most recent (2006) GSS data. The GSS questions can be used as one indicator of how representative survey respondents are of the general population represented in the GSS survey. For the pretest, we do not expect our survey responses to match closely with the GSS because we are not ensuring a probability based sample of returned surveys, rather we are including the questions in the pretest as part of the overall survey design.

Section 3: Background on whales

The introduction to whales contains basic information about whales in general (e.g., they are mammals and hence bear live young and breathe air, etc.) and the five species of endangered whales found near the U.S. Atlantic Coast. The concept of endangered species is introduced and defined. As further context for considering the NARW, the numbers and types of different organisms listed as T&E under the ESA (including the number of whale species listed) are described and the actions the ESA requires the federal government to take to protect T&E species explained.

Question 2 asks respondents about their general reaction to the ESA. This question provides a starting point for thinking about T&E species, and it sets a tone of neutrality by allowing positive and negative reactions right from the start.

Question 3 asks how many times respondents have read about or seen TV programs about whales. Question 4 then asks whether respondents have ever gone whale watching to see whales in their natural environment. We also provide a table to illustrate the differences between the five endangered species of large whales found along the U.S. Atlantic Coast. The table provides information about each species population, length, lifespan, and number of years between calves.

Section 4: More background on North Atlantic right whales

This section describes NARWs' feeding preferences, calving frequency, and seasonal migration patterns. It provides several reasons why NARWs are the most endangered whale in the region (e.g., population levels are lower, other whales are recovering since the ban of whaling but the NARW population is not increasing). Additionally, this section provides information on other species of RWs: the North Pacific right whale stocks and the southern right whale.

To properly value NARWs, it is vital to accurately define the good (e.g., the resource being valued) and to provide the context within which it exists to ensure that respondents fully understand what they are being asked to value. Part of the process of providing context for

valuation involves discussing how other whale species, including humpback, sei, and fin whales, may also benefit from management options intended to protect NARWs. These other whales inhabit some of the same areas as the NARW and are killed and injured by ships and fishing gear.

Section 4 closes with a question asking whether respondents had heard of NARWs before the survey (Question 5).

Section 5: Threats to the North Atlantic right whale

This section begins by reemphasizing the endangered status of NARWs (e.g. they still have not recovered since the ban on whaling) and reiterating that only 300 of them exist today. The informational portion of this section ends with the reasons scientists believe NARWs have not recovered (i.e., ship strikes and fishing gear entanglements), despite the whaling ban.

Question 6 follows the introduction to Section 5. We ask respondents whether they agree or disagree with two statements: (1) protecting endangered species is important to me, and (2) protecting endangered whales should receive a higher priority than protecting endangered plants and animals few people have heard about. This question uses a Likert scale that ranges from "definitely agree" to "definitely disagree".

After Question 6, we inform respondents that ships sometimes hit the whales, which can cause injury or death. Keeping to the facts, we also tell them that many different types of ships are involved in these accidents; ship traffic along our eastern seaboard is growing; newer ships travel faster, which may make it harder for whales to get out of the way; and ship collisions are expected to be a continuing threat to NARWs in the future.

On the next page, respondents will learn about fishing gear entanglements. In order to present the entire story, we tell respondents that most of the time whales tangled in fishing gear break free from the gear and survive, but sometimes they cannot break free, making breathing and swimming more difficult and eventually causing death. For instance, the wounds from gear have become infected and caused death.

We conclude this page with a text box discussing other possible problems for NARWs, such as pollution, food supply, and beaching. During focus groups, these plausible causes of whale mortality were repeatedly mentioned. Hence, we need to let respondents know that they are not the reason for the NARW's lack of progress toward recovery.

Finally, we provide respondents with information on why humpback, fin, and sei whales are included in the rest of the survey. We explain that the threats to NARWs (ship strikes and fishing gear entanglements) also affect these other whales, though to a lesser degree. In addition, we address inquiries that NARW protection measures will also protect other whales.

Realizing that we have provided respondents with a lot of information, we give them an opportunity to let us know how well we have communicated to them. In Question 7, we ask respondents seven true/false questions, with "don't know" as an option. We encourage them to look back through the information to answer the questions, so as not to make them feel like they are being tested.

We used several pictures throughout this section to give respondents a visual representation of the NARWs and the threats that are being explained in the text. The first picture shows a NARW mother and calf. The next picture shows two NARWs close to a passing ship with containers of cargo. Following this picture, we explain ship strikes. Finally, two pictures depict NARWs entangled in fishing gear and are followed by information on fishing gear entanglements.

Section 6: Survival prospects for the North Atlantic right whale

In order for people to make an informed decision about how they value the protection of NARWs, they need to know the whales' likelihood of survival given current management measures. We tell respondents scientists estimate that collisions with ships and entanglements in fishing gear are still killing at least 14 NARWs, on average, each year. We then describe how scientific modeling is used to predict, based on how many whales continue to be killed, the chances of extinction of the NARW in the next 200 years. The bullets below this statement give respondents more context for thinking about the chances of extinction, explaining why it is necessary to think on a longer time horizon, and how if one looks only at a 100-year time horizon, scientists would not expect extinction. Actually, there is considerable scientific uncertainty about the probability of extinction under various scenarios. Hence, to allow economists at NOAA to adapt to new results from the modeling in the future, different probabilities of extinction will be used in different versions of the survey. See the section on "Experimental Design for the Pretest" below to see how this will be implemented in a limited manner in the pretest.

Section 7: Effects of ships and fishing gear on other whales

In this section, we turn to the effects of ship collisions and gear entanglements on other whales. We provide respondents with our best estimates of how many other whales are being killed and explain why mortality at this level is unlikely to affect the survival chances of the other whale species.

Our research team needs to know how respondents are reacting to the information we have given them. In Question 8, we ask them to tell us if they agree with several aspects of the story. The responses will be on a scale from 1 to 5: a 1 indicates "definitely agree" and a 5 indicates "definitely disagree."

Section 8: Possible new regulations to protect North Atlantic right whales

In Section 8, we inform respondents about current and possible future regulations for ships and fishing gear along the U.S. East Coast. For ships, new regulations might entail mandatory speed limits in some areas and requirements for ships to avoid other areas all together. For fishing, many areas would be closed to fishing during times of the year when whales are present and new gear that is safer for whales would be required throughout the NARW's habitat. Respondents are then told how many NARWs and other whales would be saved if these new regulations were implemented. They are also told the chances of NARW extinction if the new regulations are implemented. Whales saved and chances of extinction will be varied as part of the experimental design as described in the Experimental Design section below.

This section ends with a discussion about other possible solutions to prevent the deaths of NARWs and other whales (i.e., sonar, radar, satellites, or noise makers). These possible solutions were raised often in the focus groups, so we needed to explain why they do not apply to the NARW situation.

Section 9: Should we do more to protect the North Atlantic right whale?

In this section, respondents confront the central issue of the survey: whether or not more should be done to protect the NARW. We tell them that some people favor more protection and others do not. Drawing on what focus group participants told us, we list some reasons why people favor more protection (e.g., whales have a right to live, avoid deaths of other whales). Then, we give some reasons why others oppose more protection (e.g., because the nation has higher priorities, NARWs are of limited direct usefulness to humankind, cost). The purpose of this material is to assure those who might support more protection, and especially those who might oppose it, that doing so is acceptable and that we need to hear from people with both points of views.

We then pause to clear up one misconception we heard repeatedly in the focus groups. People would often tell us that we as a society should do more to save the NARW because their extinction would seriously harm the ecosystems of the North Atlantic. We clarify this misconception by telling respondents that the ecosystem effects are likely to be small if NARWs become extinct and explain why the effects are small (e.g., huge ecosystem with only a few whales surviving). Section 8 closes with Question 9, a couple of agree-disagree statements to gauge the impact of ecosystem impact information on respondents.

Section 10: Which alternative do you prefer?

Section 10 begins by introducing the payment vehicle for the valuation exercise: higher prices for imported goods and higher federal taxes. We provide respondents with instructions for completing the stated choice questions. This is followed by three stated choice questions (Questions 10, 11, and 12). See the section below on experimental design. Question 13 asks how

difficult respondents felt it was to answer the choice questions. Questions 14 through 17 are a series of debriefing questions to determine how respondents interpreted the material presented. This information will be useful in the statistical modeling efforts to help categorize respondents. Question 18 consists of a series of items designed to give us a better understanding of how respondents reacted to the information and choice questions.

Section 11: About you and your household

This final section consists of 11 questions, H1-H11, which covers the sociodemographic variables. Results can be used as explanatory variables in the stated preference models, for comparing the sample to the population (coverage or sampling bias), and for comparing respondents to nonrespondents (nonresponse bias). To the extent possible, the questions and response categories parallel those used by the Census Bureau to allow the most direct comparisons.

Question H8 asks for the number of listed telephone numbers in the household. This information is useful for understanding the probability that the household was chosen for the follow up sample.

Use of stated choice questions

Stated choice methods are useful tools to better understand the public's preferences and values for environmental amenities that are not traded in markets (U.S. OMB, 2003). While there is some use of NARWs via whale watching, protection of them has a large public good component. Stated choice methods will allow respondents to evaluate a wide range of outcomes (from possible restrictions on fishing and/or ships speed) within a total valuation framework, which allows for a full range of possible values. The total valuation framework accommodates both market and nonmarket values and use and nonuse or passive use values.

Question format

Stated choice methods are well established in the literature on environmental economics. This approach evolved from conjoint analysis, a method used extensively in marketing and transportation research (Louviere et al., 2000).[5] Conjoint analysis requires respondents to rank or rate multiple alternatives whereby each alternative is characterized by multiple characteristics

5. Cattin and Wittink (1982) and Wittink and Cattin (1989) survey the commercial use of conjoint analysis, which is widespread. For survey articles and reviews of conjoint analysis, see Louviere (1988, 1992), Green and Srinivasan (1990), and Batsell and Louviere (1991). Transportation planners use choice questions to determine how commuters would respond to a new mode of transportation or a change in an existing mode. Hensher (1994) overviews choice questions applied in transportation.

(e.g., Johnson et al., 1995; Roe et al., 1996; Holmes and Adamowicz, 2003). Choice questions require respondents to choose the most preferred alternative from multiple alternative goods (i.e., a choice set), whereby the alternatives within a choice set is differentiated by their characteristics. In our variant of stated choice questions, respondents are also asked to choose their least preferred alternative out of a set of three alternatives.

Choice questions

The nature of the choice being made is one of the many desirable aspects of stated choice questions. Choosing the most preferred alternative from some set of alternatives is a common experience. Morikawa et al. (1990) noted that responses to choice questions often contain useful information on tradeoffs among characteristics. Quoting from the recreational fishing study of Mathews et al. (1997), "stated choice models provide valuable information for restoration decisions by identifying the characteristics that matter to anglers and the relative importance of different characteristics that might be included in a fishing restoration program." Johnson et al. (1995) note, "The process of evaluating a series of pair-wise comparisons of attribute profiles encourages respondents to explore their preferences for various attribute combinations." Choice questions encourage respondents to concentrate on tradeoffs between characteristics rather than to take a position for or against an initiative or policy. Adamowicz et al. (1998a) note that the repeated nature of choice questions makes it difficult to behave strategically.

As mentioned previously, choice questions allow for the construction of goods characterized by characteristic or attribute levels that currently do not exist. This feature is particularly useful in marketing studies when the purpose is to estimate preferences for proposed goods whereby various characteristics can be manipulated in arriving at final product designs.[6] For example, Beggs et al. (1981) assess the potential demand for electric cars. Similarly, researchers estimating the value of environmental goods are often valuing a good or condition that does not currently exist (e.g., restrictions on ship speeds in NARW critical habitat areas).

Choice questions, rankings, and ratings are increasingly used to estimate the value of environmental goods. For example, Magat et al. (1988) and Viscusi et al. (1991) estimate the value of reducing health risks; Adamowicz et al. (1994, 1998b, 2004), Breffle et al. (2005), and Morey et al. (1999a) estimate recreational site choice models for moose hunting, fishing, and mountain biking; Breffle and Rowe (2002) estimate the value of broad ecosystem attributes (e.g., water quality, wetlands habitat); Adamowicz et al. (1998a) estimate the value of enhancing the population of a threatened species; Layton and Brown (1998) estimate the value of mitigating forest loss resulting from global climate change; and Morey et al. (1999b) estimate WTP for monument preservation in Washington, DC. In each of these studies, a price (e.g., tax or a

6. Louviere (1994) provides an overview of choice questions applied in marketing.

measure of travel costs) is included as one of the characteristics of each alternative so that preferences for other characteristics can be measured in terms of dollars. Other examples of choice questions to value environmental commodities include Swait et al. (1998), who compare prevention versus compensation programs for oil spills, and Mathews et al. (1997) and Ruby et al. (1998) who ask anglers to choose between two saltwater fishing sites as a function of their characteristics.

Ratings

Alternatively, a number of environmental studies have used ratings, in which survey respondents rate the degree to which they prefer one alternative to another. For example, Opaluch et al. (1993) and Kline and Wichelns (1996) develop a utility index for the characteristics associated with potential noxious facility sites and farmland preservation, respectively. Johnson and Desvousges (1997) estimate WTP for various electricity generation scenarios using a rating scale in which respondents indicate their strength of preference for one of two alternatives within each choice set. Other environmental examples include Rae (1983), Lareau and Rae (1998), Krupnick and Cropper (1992), Gan and Luzar (1993), and Mackenzie (1993). Adamowicz et al. (1998b) provide an overview of choice and ranking experiments applied to environmental valuation, and argue that choice questions better predict actual choices than do rating questions because choice questions mimic the real choices individuals are continuously required to make, whereas individuals rank and rate much less often.[7]

Choice and rating questions characterize the alternatives in terms of a small number of characteristics. For example, Opaluch et al. (1993) characterize noxious facilities in terms of seven characteristics; Adamowicz et al. (1997) use six characteristics to describe recreational hunting sites; Johnson and Desvousges (1997) use nine characteristics to describe electricity generation scenarios; Mathews et al. (1997) use seven characteristics to describe fishing sites; Morey et al. (1999a) use six characteristics to describe mountain bike sites; and Morey et al. (1999b) use two characteristics to characterize monument preservation programs.

Questionnaire development

Focus groups conducted during the design phase of this project showed that a solid foundation exists for the application of stated choice methods to the valuation of NARW protection along the U.S. Atlantic Coast. While participants needed information about NARWs and management alternatives before they felt equipped to answer the choice questions, they were eager to learn about the whales and most found what they learned to be personally relevant. Few found the materials we presented to them burdensome. As we refined our information handouts, subjects

7. See, for example, Louviere and Woodward (1983), Louviere (1988), and Elrod et al. (1992).

consistently demonstrated that they could retain the large amounts of information given them and apply it in the choice questions. Once they had the information in front of them, they responded as one might expect. Some were immediately concerned about the fate of the whales and favored new regulations even if it cost them money, and others felt that whale protection should receive a low priority relative to other issues they felt were more pressing. Those on the eastern and western seaboard (Boston, Hartford, Baltimore, Jacksonville, Seattle, Portland) tended to have more knowledge about whales and more interest in the NARW.

In the middle of the country (Denver), participants seemed less informed, but many were still interested. On the West Coast (Seattle, Portland), interest in marine issues was similar to what we found on the East Coast, but several participants expressed higher priorities for issues nearer to home. Once the choice questions took their current form, most people were able to work through them fairly quickly. When confronted with the first choice question, they tended to pause and study what we were asking, but later choice questions were completed quickly. Occasionally, we noted participants who became confused, not recognizing, for example, that we wanted them to designate both their most and least preferred alternatives, but such problems were rare. We checked for inconsistencies in responses across the three choice questions and found very few.

Experimental design for the pretest

The choice questions will work as follows (see Question 10 in the pretest instrument, for an example): there will be three choice questions in each version of the survey. Experience indicates that three choice questions provide a reasonable balance between our desire for more data and potential respondent fatigue. The use of three choice questions, each with three alternative levels of regulation, also allows for a full ranking of the alternatives. Each alternative will be defined in terms of four attributes, the chances of NARW extinction (POE), the number of NARWs saved per year on average (#NARW), the number of other whales saved per year on average (#OW), and the annual cost to the respondent's household in higher prices for imported goods and federal taxes (COST). For each choice question, respondents will be asked to choose their most preferred and least preferred alternatives. The first alternative will always be the no action or "status quo" alternative, symbolized here by SQ. Since nothing more is done to protect the whales under SQ, its additional cost to the respondents is zero.

Other alternatives (action alternatives) that will appear in the different choice questions will be designated here as Partial Plans A and B (PPA and PPB), which involve different combinations of doing more and spending more, and the Full Plan (the maximum amount of protection; symbolized by FP). Each choice question asks respondents to compare SQ and two action alternatives and to select their most preferred and least preferred alternatives. Succeeding choice questions ask respondents to compare different combinations of the action alternatives with SQ. Including the SQ alternative in all the choice questions allows respondents always to opt out of

doing more and spending more. Additionally, including three alternatives in each choice question provides increased statistical efficiency by providing a complete ranking of the alternatives from most to least preferred. The use of three alternatives in each choice question has been tested in other surveys, and in our focus groups, and has been found to work well with respondents.

Each version of the survey is internally consistent. That is, each version has the same POE, #NARW, #OW, and COST for SQ, PPA, PPB, and FP wherever they appear in the choice questions. Also, partial plans always result in higher POE, lower #NARW, lower #OW, and lower COST than the Full Plan. Respondents are not asked to change what they are assuming about the levels of the attributes associated with each alternative as they work through the choice questions. This makes answering the questions simpler and less confusing for them.

At the same time, the attributes (POE, #NARW, #OW, COST) associated with each alternative (SQ, PPA, PPB, FP) can be varied across survey versions (except that NARWs saved, other whales saved, and costs are always zero under SQ). The challenge in experimental design is to choose attribute levels across versions to maintain internal consistency within versions and minimize co-linearity across versions. Minimizing co-linearity greatly facilitates statistical analysis and eventual value estimation.

The pretest has three goals:

1. To test whether the survey instrument works well under field conditions.

2. To test whether our current range of values for COST adequately captures the range of values respondents hold for the alternatives and to revise the range of the cost attribute for the main survey.

3. To collect data for a simple statistical model to estimate attribute coefficients to update the experimental design for the main survey.

To provide variability in the data, but limit the number of overall versions and administration complexity, we selected six versions, each with a Full Plan (FP), Partial Plan A (PPA), and Partial Plan B (PPB), as well as the status quo (SQ). The attributes and associated levels are presented in Table 1.

Table 1. Proposed pretest versions

Version	SQ POE	FP/PPA/PPB	POE	#NARW	#OW	COST
A	50	FP	5	4	2	50
A	50	PPB	25	2	4	25
A	50	PPA	25	1	0	5
B	50	FP	5	4	2	50
B	50	PPB	5	2	1	25
B	50	PPA	25	1	4	50
C	50	FP	5	8	12	100
C	50	PPB	25	2	4	25
C	50	PPA	25	1	0	5
D	10	FP	1	8	12	100
D	10	PPB	5	4	2	50
D	10	PPA	5	4	8	75
E	10	FP	1	12	24	200
E	10	PPB	5	4	2	50
E	10	PPA	5	4	8	100
F	10	FP	1	4	2	50
F	10	PPB	5	4	0	50
F	10	PPA	5	2	2	25

The rationale behind selecting these particular attribute levels in each version is described below.

Status quo

To understand how respondents' answers may differ based on the status quo POE, we selected versions with different values for the status quo POE. We investigate two levels of status quo POE (50% and 10%) These levels bound the status quo POE expected to be used in the main survey.

Right whales

Respondents may place values on saving individual NARWs beyond the effects on the change in POE. We included alternatives (in separate versions) where the number of individual NARWs saved and COST are changed. By holding the change in other variables constant, we can

investigate whether individuals are willing to pay more for a greater number of NARWs saved all else equal.

Other whales

Actions to save NARWs may also benefit other whales. We want to evaluate both whether respondents find these changes plausible, and whether respondents find it credible that a policy may save more or fewer other whales compared to the number of NARWs saved. To evaluate these two possibilities, we included at least one alternative per version that have other whales saved greater than NARWs saved and one alternative with fewer other whales saved than NARWs saved.

Bid amounts

Bid amounts should span most of the likely range in which individuals are willing to pay to improve the attributes in the survey. To ensure that the range we use in the main survey reflects the range of values most respondents hold, we plan to test a fairly large range of bid amounts in the pretest, including one alternative (FP of version F) that combines the maximum improvements in all attributes with the annual cost of $200.

Pretest administration

The pretest will be administered in mail mode. The initial mailing will go out to a sample of 500 U.S. households. The initial sample matched list (address and phone numbers) will be purchased from an existing sample supplier such as Survey Sampling Inc, or Experian Inc. The overall survey administration will follow the Dillman survey administration processes (Dillman 2007). In the pretest administration, there will be between three and six contacts with the potential respondents:

- Initial contact letter
- First survey instrument mailing
- Thank You / Reminder postcard
- Second survey instrument mailing
- Reminder phone call / Initial Non-response follow-up call
- Non-response follow-up phone call

The total number of contacts depends on whether the respondent returns the first survey instrument or if he/she is ultimately part of the final non-response follow-up phone call effort.

The initial contact letter will notify participants that a survey will be arriving shortly. The cover letter will solicit the participation of an adult head of the household to complete the included survey (see Appendix F. Two weeks after the initial mailing, a follow-up postcard will be sent to the full sample (except for names and addresses thus far determined to be invalid) thanking those who have responded and urging those who have not to please do so. One week after that, we will send out a second survey and cover letter to one half of those who have not yet returned a completed survey.

During this time, we will phone the other half of the unresolved cases to encourage them to return a completed survey and identify if they need an additional survey mailed to their home. During this call, if the respondent indicated that they are not going to return the survey, we will undertake a short phone survey to collect some basic demographic information and responses to the GSS questions in the survey. Thus, the telephone follow-up serves the dual purpose of increasing the number of mail responses and gathering information needed to estimate the potential impact of nonresponse.

Households that need a replacement questionnaire will be identified and sent a new one. The second mailing will also go out to nonrespondents who could not be contacted by telephone. Finally, we will complete approximately 50 non-response follow-up phone surveys from households sampled from those that have not returned a survey, and did not complete a non-response follow-up call in the previous round.

We expect these procedures will yield an ultimate survey response rate of at least 50% of the valid names and addresses. An expected rate of invalid address is about 15%. Hence, these procedures should yield about 200 useable surveys: 0.5 x (0.85 x 500) = 213.

Use of illustrations

Illustrations to be used in the survey are presented in Appendix D.

Participants in the development and administration of the information collection

Dr. Bisack is located at the Northeast Fisheries Science Center. She contacts scientists and managers from the region on a continuing basis to clarify study goals, solicit comments on the survey, and ask questions about the science and management alternatives. She has also been heavily involved with the research team, including members from Stratus Consulting, attending meetings and focus groups and helping in revisions of the evolving survey instrument. The entire team met with scientists, managers, and stakeholders at two two-day meetings in Woods Hole.

Frequency of the information collection

No continuing information collection efforts are contemplated once the pretest survey and the main survey are completed.

Purpose

As explained in the Justification section, the purpose of data collection is to pretest a survey designed to estimate the benefits of increased protection of the NARW. Results from the main survey will support efforts by NMFS to consider the tradeoffs between the benefits to the U.S. society of more stringent NARW protection regulations and the costs to industry and the public of proposed regulations. This will help NMFS make more informed decisions and meet legal requirements to consider such tradeoffs.

How Collection Complies with NOAA Information Quality Guidelines

Utility

The overall study goals were refined in the early stages of the project through interviews with key stakeholder groups, including federal and state resource managers. These initial interviews allowed us to identify key information needs and potential uses of the study results. At critical points throughout the study, we continued to update the key stakeholders on the status of the study, ensuring that all information developed from this project will be transparent to all members of the public.

The information developed in this project will support management of NARWs by federal, state, and other agencies. Specifically, this project will provide estimates of the benefits of increased protection of the NARW from a national sample of U.S. households.

The pretest will allow NOAA to further refine the survey instrument for the full survey implementation to improve information presentation, reliability, internal consistency, response variability, and other properties of a newly developed survey. It will ensure that the information obtained from the full survey is of the highest quality.

Objectivity

In developing the survey instrument, we are following state-of-the-art practices. Focus groups, cognitive interviews, scientific fact peer review, and peer review of survey sample design, question wording, the balance of information provided (acquiesce bias or leading people to adopt a certain position) and nonmarket economic valuation methods have been conducted while designing the current survey instrument. Internal and external peer reviews have been conducted on all project products (e.g., survey instruments, sample designs, analyses, and reports). Peer

review will ensure that the information collected is accurate, reliable, and unbiased; and that the information reported to the public is accurate, clear, complete, and unbiased. In our answer to the section on "By Whom," we detail the internal and external peer reviewers.

Integrity

Each participant will see a statement on the first page of the survey that states:

> Your participation in this survey is voluntary. Your name and address will be kept separate from your responses and not disclosed. Only your responses will be provided to the researchers for analysis.

It is anticipated that the information collected will be disseminated to the public or used to support publicly disseminated information. As explained in the preceding paragraphs, the information has utility. NFMS will retain control over the information and safeguard it from improper access, modification, and destruction, consistent with NOAA standards of confidentiality, privacy, and electronic information. The information collection is designed to yield data that meet all applicable information quality guidelines. Prior to dissemination, the information will be subjected to quality control measures and a predissemination review pursuant to Section 515 of Public Law 106-554.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological techniques or other forms of information technology.

The pretest survey will not utilize any specialized information technology.

4. Describe efforts to identify duplication.

This data collection does not duplicate any known activities of any federal agencies or others. The review of the literature presented in the Justification section shows that no similar studies have been performed in the recent past. We have been unable to find any comparable studies currently in progress.

5. If the collection of information involves small business or other small entities, describe the methods used to minimize burden.

The collection does not involve small businesses or other small identities.

6. Describe the consequences to the Federal program or policy activities if the collection is not conducted or conducted less frequently.

As explained above, without this project, NMFS will be unable to quantify the benefits to the public when considering proposals to increase protection of the NARW. Hence, NMFS will be unable make fully informed decisions about these proposals and will be unable to conduct the preferred analyses required by federal law and the Administrative Code.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with OMB guidelines.

The collection is consistent with OMB guidelines.

8. Provide a copy of the PRA Federal Register notice that solicited public comments on the information collection prior to submission. Summarize the public comments received in response to that notice and describe the actions taken by the agency in response to those comments. Describe the efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

A *Federal Register* notice (FRN) was published on September 19, 2006, and the comment period closed on November 20, 2006. Comments and responses are included as a supplementary document as well as described below.

Ten comment letters from 10 different individuals or organizations were received during the public comment period for the Federal Register Notice (71 FR 54798, September 19, 2006). Two additional individuals requested and received copies of the draft survey instrument but did not provide comments. Comments were requested to address four issues: "(a) Whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information shall have practical utility; (b) the accuracy of the agency's estimate of the burden (including hours and cost) of the proposed collection of information; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on respondents, including through the use of automated collection techniques or other forms of information technology" (71 FR 54798, September 19, 2006). All the comments focused on the first three issues. The comments are summarized below based, on the order the issues were presented in the FRN.

Comment 1: All 10 commenters indicated that they did not believe the proposed survey (including the pretest) was necessary for NMFS to perform its function to protect the NARW under the ESA and MMPA. That is, the commenters did not believe the survey addressed NMFS' statutory obligation to protect endangered species. Commenters noted that protecting

ESA listed species, such as the NARW, is not an option. Commenters felt that the information collected was unlikely to have practical utility for rulemaking efforts. One commenter supported the assessment of public benefits from NARW preservation, but did not think the survey did so as it only measured WTP.

Response 1: The commenters are correct that the ESA requires NMFS to takes steps to recover the NARW, and the survey does not collect information that would directly aid in this end. NMFS is very aware of this responsibility, and the results of this survey cannot reduce that responsibility. However, the agency is subject to a number of other authorities including Executive Order 12866 and the Regulatory Flexibility Act (1980), and must complete a Regulatory Impact Review (RIR) to address aspects of those regulations. The preferred means of analysis for an RIR is to compare alternative actions based on impacts on Net National Benefits (NNB), which is the difference between economic benefits and costs. Determining NNB requires a measure of both the benefits and the costs of an action; in the absence of a measure of benefits the analysis examines cost-effectiveness (i.e., minimize cost for a given level of "benefit" measured qualitatively). This survey will allow for the economic benefits of NARW protection to be included in the analysis, allowing the agency to perform its functions better. The results of a more complete NNB analysis would not remove the agency's obligation under the ESA but may allow for more informed decisions. The results of the survey can put NMFS in a more favorable position to choose measures that balance the benefits of protection to NARWs with the costs.

With regard to the survey measuring only WTP, economic benefits are measured by changes in consumer and producer surpluses. Consumer surplus is essentially the sum of the WTP of all individuals for a good or service, less the price of attaining that good/service. In the case of the NARW, benefits may arise from non-extractive uses (e.g., whale-watching), indirect values (e.g., NARW role in ecosystem function), options values for deferred consumption and other non-use values to ensure survival of the species. For the NARW, it is believed that the principle value to the U.S. public is non-use; the means to gather information on such values is stated preference surveys such as the proposed survey. This survey will capture the total economic value of NARW protection, although we will not be able to separate out use and indirect values. It may be appropriate to undertake an additional project to measure use values; however, this is likely a very small portion of the total economic value of the NARW. In the case of indirect values, there is a lack of information on the role of the NARW in terms of ecosystem function, so respondents are not prompted to incorporate this aspect within their values.

Comment 2: Two commenters indicated that the time burden for completion of the survey would exceed the 35 minutes indicated in the FRN. Consequently, they believed that the response rate would be low (except for those with a vested interest in the topic) and would bias the results. One commenter indicated the survey would take 45 minutes to complete, while the other

indicated that their contacts felt it was too long. Both commenters noted that there was too much background information for the actual number of questions within the survey.

Response 2: At the last round of focus groups, the survey was tested and the average time was approximately 30-35 minutes. While those with an interest in NARW may be more inclined to respond to the survey, so too may those who feel burdened by regulations for various reasons. Some of the questions in the survey allow for this potential to be tested.

Respondents are presented with a lot of potentially new information in the survey. Some of the information, in particular the description of the regulations, has been simplified to reduce the information burden. We tested the various versions of the survey design on 125 focus group participants to determine just how much information respondents might need to make an informed decision. Earlier versions of the survey contained significantly more information on several areas (e.g., regulation specifics, location of the NARW habitat); however, focus group participants indicated that much of this information was not relevant to their decision. Key factors were whether something could be done to protect NARWs and the degree of impact of the regulations on the survival and deaths of the NARW.

The researchers who developed the survey instrument have followed best practices in terms of stated preference survey development. They used focus groups and one-on-one interviews extensively to determine the degree of comprehension by members of the U.S. public. Focus group participants consistently indicated that they found the survey balanced, without a bias toward either for or against protection. This is critical to the development of economic benefit values that are defensible and comparable to cost values.

Comment 3: With regard to the quality and clarity of the proposed survey instrument, six commenters had specific concerns. The two commenters that stated the survey was too long also indicated that it did not contain enough information. The following sub-comments summarize the concerns and responses specifically focused on the draft survey provided to the commenters.

Sub-comment 3a: The opening statement of the survey indicates the federal government is considering additional protection measures for the NARW and the survey was requesting the opinions from U.S. households. Four commenters indicated that this wording was inappropriate as the survey focuses on measuring the public's WTP for NARW protection, rather than opinions.

Response to 3a: By placing a statement regarding WTP on the first page, some participants may not read the survey for various reasons. Alternatively, the current approach (format) educates the participant about the problem prior to presenting the WTP questions. Attitudinal questions throughout the survey are used to gauge individuals' opinions on protection.

Sub-comment 3b: The first question within the survey asks respondents to indicate if they feel the federal government is spending too much, the right amount, or too little on a range of issues including the environment, crime, and health. Four commenters indicated the statements were inaccurate, the question was not part of the NOAA mandate, and/or the question was inappropriate for the survey.

Response to 3b: This question is an attitudinal question and is used in other national surveys. The responses to this question allow the respondents of the NARW survey to be compared to those from other surveys for validation purposes.

Sub-comment 3c: Background information was provided on whales and the ESA. One commenter suggested the actual wording of the ESA be used to describe federal government responsibilities with regard to endangered species protection.

Response to 3c: Using the ESA text verbatim would detract from the information without adding understanding.

Sub-comment 3d: Background information was provided on the NARW, including food sources, migration paths, and the other species of right whales (Northern Pacific and Southern). Reference was also made to other large whales that inhabit the North Atlantic Ocean, with particular reference to humpback whales. One commenter noted that references to the Northern Pacific right whale needed to be clarified. Two commenters indicated that including humpback whales within the discussion could cause confusion.

Response to 3d: With regard to the information on North Pacific right whales, the information was clarified and expanded based on published sources and communication with leading scientists.

Concerning the inclusion of humpback whales, the principle focus of the survey is a determination of the public's WTP for additional NARW protection. However, during focus group interviews, participants recognized that measures to protect the NARW would also, potentially, increase protection for other large whales. This protection may provide additional benefits to U.S. households. To separate this benefit from that derived from NARW protection, the inclusion of other whales (for which humpbacks are a proxy) was necessary. However, the inclusion of this attribute within the survey will not allow for an accurate measure of the public's WTP for humpback whales. Measuring the public's WTP for multiple species would place a much higher burden on respondents, which did not seem appropriate at this time. Thus, the project cannot claim to measure economic benefits for any species beyond the NARW. However, to reduce confusion with regard to specific reference to humpback whales, the reference has been changed to "other whales" throughout the survey.

Comment 3e: The section describing threats to the NARW included information on the estimated population (approximately 300), their lack of recovery despite a ban on whaling, how ships and fishing gear can cause death of NARWs, indicated that there is less impact on other whale populations from ships and gear, and addressed the lack of impact from other factors such as food availability and pollution. Six commenters disagreed with the data presented or felt the presentation of the information was biased.

i) *Comment:* One commenter felt a more recent population estimate of 396, with its associated caveats, should be used rather than 300.

Response: The population number is based on the published peer-reviewed NMFS Stock Assessment Report (NOAA NMFS, 2007); the current minimum value is 306, without a coefficient of variation. Should the number change, the survey will be updated accordingly.

ii) *Comment:* One commenter indicated that a ban on whaling does not exist due to ongoing scientific whaling; another commenter noted that the ban on NARW hunting came into effect in 1935 rather than 1951.

Response: The survey is directed toward U.S. issues, and there has been a ban on all commercial whaling within the U.S. jurisdiction. The inadvertent error in the date when NARW hunting was banned was corrected in the revised draft survey.

iii) *Comment:* Prior to detailing the threats, there was an attitudinal question regarding endangered species. One commenter noted that the wording did not allow individuals to separate their feelings for plants versus animals.

Response: The purpose of this question is to determine the degree to which respondents are concerned about all endangered species, not just whales. Focus group participants did not have a concern with the wording, and it remains unchanged.

iv) *Comment:* Regarding the section on ship strikes, one commenter suggested the term "ship accidents" be replaced with "ship collisions" throughout the survey. One commenter indicated that the section did not capture ship strikes by small vessels, while another commenter indicated the section did not highlight that bigger ships are more deadly to NARWs.

Response: The term "ship accident" was replaced with "ship collision" throughout the survey. The survey states: "Many different kinds of ships are involved in these accidents." Technically, "different kinds of ships" could describe the various ship lengths, small and large.

v) *Comment:* Two commenters suggested the gear entanglement section should provide additional details on the impacts of chronic gear wounds that cause pain and death.

Response: The survey is designed to estimate the economic value of protection and attempts to minimize emotional responses. While people do include emotions in their decision process, the objective of the survey is to minimize this behavior to maintain a balanced survey. The survey must not be seen as being in favor of or opposed to protection, but must allow the respondent to choose. Focus group participants consistently indicated that they found the survey balanced, without a bias toward either protection or not. This is critical to the development of economic benefit values that are defensible and comparable to cost values.

vi) *Comment:* One commenter felt that the discussion of threats from ship strikes and gear entanglements was unbalanced; the ship section focused on vessels and gear section on whales; also, the ship section showed whales near a vessel while the gear section showed gear around the whale.

Response: Modifications to the wording in the draft survey were undertaken to create a more balanced presentation. With regard to the images, those used were the best and least biased located by the survey development team. Earlier versions of the survey had a picture of a NARW near fishing gear, however, focus group participants did not understood the image. Graphic images (e.g., propeller scars, dead whales) were not included to minimize the perception of bias, and to minimize the emotional response of survey respondents.

vii) *Comment:* Four commenters stated that the scientific evidence suggests that food supply, and perhaps pollution, may impact the reproductive success of the NARW.

Response: The survey development team relied on leading ecology experts to provide responses to focus group participants concerns regarding other factors that may be limiting recovery by the NARW. The statements are simplified responses to complex issues, and thus may omit some of the nuances identified by the commenters. This is unavoidable in a survey designed for the general public.

viii) *Comment:* Two commenters noted research that suggests fin whales are the most common whales to be struck by ships, and thus, had concerns with the statement that ships and gear that kill NARWs and humpbacks "only rarely cause the deaths of these other species."

Response: While the statement in the early draft version of the survey was supported by published data, the statement of concern was removed during a revision of the draft survey. The statement was refocused to indicate that other whales also face

threats from ships and fishing gear; however, their populations are relatively healthy based on current stock assessments.

Comment 3f: The section on survival prospects for the NARW described the number of anthropogenic deaths, the extinction probability and how it was modeled, and indicated that in contrast to NARWs, the humpback whale population was doing well. One commenter felt the species risk of extinction was higher than described in the survey and humpback whales were not "doing well." Two commenters had concerns with the estimate for number of NARWs dying due to ship strikes and gear entanglements, one that it was too low and one that it differed from that in the Stock Assessment Report (SAR).

Response 3f: The section on humpback whales was rewritten to include all other large whales in the U.S. Atlantic. The reference to other whales, including humpback whales, "doing very well" remains and is based on NMFS peer-reviewed SARs. The number of anthropogenic deaths of NARWs and humpback whales was based on preliminary modeling work by whale biologists, which used the sightings data rather than the mortality data in the SAR. The estimate of deaths in the draft survey may be changed based on updated and peer-reviewed results of the modeling exercises.

Comment 3g: The section on possible new regulations to protect NARWs provided brief descriptions of current and proposed regulations for the shipping and fishing industries, the reduction in whale deaths and extinction risk if all the proposed regulations where implemented, and discussed why technological alternatives (e.g., sonar) were not feasible at this time. Two commenters felt that the proposed rules described were not innovative enough to save the NARW from extinction. Two commenters felt the description of the current regulations was inaccurate, and two commenters felt the proposed rules did not reflect regulation currently under review. Two commenters felt the wording in the survey did not make it clear that predictions for number of whale deaths prevented and change in extinction risk were hypothetical.

Response 3g: In regard to the description of current and proposed regulations, the survey was kept very general in terms of research and management options to allow room for innovative research that can be adopted. The purpose of the descriptions of the proposed regulations was to illustrate how far regulation *could* go to protect the NARW, and include ideas that have been raised by various parties interested in the protection of the NARW. These are not meant to describe regulations *currently* proposed by NMFS. In the focus groups, participants did not seem concerned as to whether or not the "proposed new regulations" were in the works or with the details of the regulations; rather they wanted to know if regulations could have an impact on survival of the NARW.

The description of regulations was simplified as the survey is intended for the general public. This is done for a number of reasons. First, the regulations are very complex and have limited

relevance, other than to those directly affected. Second, much of the public is more concerned with the outcome of the regulation (i.e., amount of protection) than the details of who will be affected and exactly where. Third, we do not want respondents to create, mentally, cost avoidance measures based on details of a plan.

The section on shipping industry regulations was rewritten to accurately reflect current and potential regulations, and to make it more balanced when compared to the fishing industry regulations.

With regard to the hypothetical nature of the predicted regulatory outcomes, the use of hypothetical policy or regulatory options is a standard component of stated preference surveys. For statistical estimation purposes, in a conjoint survey such as this one, a range of regulatory options and outcomes must be presented to estimate the WTP value. In the survey instrument, this was done using the current regulations, the "full plan" which would include all the proposed new regulations and partial variants of the "full plan" (partial plan A and B). In the focus groups, participants indicated that their understanding of the "full plan" was whatever it would take to reduce the number of human induced deaths of NARWs by the given amount. Similarly, the partial plans included whatever was necessary to reduce the number of deaths by the values given. The details of the regulations were unimportant to them, and they understood that the regulations would not happen immediately (i.e., proposed). The reduction in the number of NARW deaths indicated that the "full plan" is based on population models, i.e., how many NARW deaths would need to be prevented to reduce the level of extinction to a very low level (1%).

Comment 3h: Prior to the WTP choice questions, a section reviewed some of the reasons people may or may not be willing to pay more to protect the NARW, summarized the current scientific understanding of the potential impact on the North Atlantic Ocean ecosystem from extinction of the NARW, and presented a series of statements asking respondents to indicate their level of agreement. Three commenters felt the summary of ecological impacts was misleading and did not address concerns with loss of biodiversity and other factors. Four commenters expressed concern with the wording of the option statements.

Response 3h: Concerning the ecosystem impacts of a complete loss of NARWs, the statement is based on discussions with some of the top ecosystem scientists at the New England Fisheries Science Center (NEFSC). They believe that there would not be a cascade effect from the loss of the remaining NARWs as most changes have already occurred. This information was included to address focus group participants' concerns that the NARW may be a keystone species in the marine ecosystem.

Concerning the attitudinal questions, these help us identify groups of people to better estimate the WTP function, but are not the main drivers of the WTP estimates; those are the choice

questions. The objective of the survey is to develop a defensible estimate of household's WTP for NARW protection. There are a number of issues in developing a defensible estimate. This includes making sure people really understand that there are consequences to their decision, that they are facing income constraints, and that there are other options/substitutes out there. The questions help reinforce those issues to respondents.

Comment 3i: The WTP choice questions asked survey respondents to consider the status quo, a full plan, and two partial plans over the course of three choice questions. The attributes included the number of NARW deaths prevented, the number of humpback whale deaths prevented, the risk of extinction for NARWs, and annual cost. Four commenters indicated that there would not be additional costs to the public from regulation, as funds would be reallocated. Another commenter indicated that to say there was no cost associated with the status quo was inaccurate. Two commenters were concerned that the wording in the questions was unclear, in particular that survey respondents would not understand that proposed regulations were hypothetical, the time frame of 200 years, or the extinction risk.

Response 3i: Concerning the issue of costs, if one assumes the current budget deficit in the United States indicates that taxpayer dollars are fully utilized, additional protection will have to come from an increase in taxes by either current or future taxpayers. More generally, however, shifting funds from one program to another involves an opportunity cost; that is, what is the next best use of the funds? In addition, some protection measures may increase costs to the shipping and/or fishing industries, which could increase consumer prices. The cost of current regulations (i.e., status quo) has presumably been incorporated into existing expenditures. As such, there are no *additional* costs from maintaining the status quo.

The 125 focus group participants were used to gauge the degree of comprehension with respect to the question attributes. They were comfortable with the explanation of extinction risk and viewed the proposed regulations as possibilities and not certainties. The participants also seemed able to deal with the 200-year timeframe, thinking of it in terms of 3-4 generations of humans.

Comment 3j: The final section of the survey was composed of demographic questions. Two commenters felt personal information should not be collected – in particular, income – and that requesting it would lower the response rate. One commenter felt that respondents with links to the shipping or fishing industries and conservation organizations should be identified by questions in this section.

Response 3j: The answers to the demographic questions allow the survey results from a sample of the population to be expanded to a national estimate based on Census Data, and thus income categories are important. Additional questions were included in the demographic section to allow respondents to identify themselves with the fishing or shipping industry and as an environmentalist.

9. Explain any decisions to provide payments or gifts to respondents, other than renumeration of contractors or grantees.

Inclusion of an incentive acts as a sign of goodwill on the part of the study sponsors and encourages reciprocity of that goodwill by the respondent. Singer (2002) provides a comprehensive review of the use of incentives in surveys. She notes that giving respondents a small financial incentive (even a token amount) in the first mailing increases response rates in mail-based surveys and is cost-effective. Such prepaid incentives are more effective than larger promised incentives that are contingent on completion of the questionnaire. In tests conducted by Lesser et al. (1999), including a $2 incentive in a mailing with four contact points was shown to increase response rates by an additional 19 to 31 percentage points. Thus, even a small upfront incentive is typically more cost-effective than additional follow-up steps.

There are several reasons why we believe inclusion of both a financial incentive and follow-up contacts will be needed to reach desired response rates. First, the survey is about an unfamiliar issue to many Americans. As such, the chance that respondents will not be motivated to complete the survey is higher than for a survey on a more familiar subject (such as a survey of licensed anglers about managing local fishing sites). Second, although every attempt is being made to ensure the survey is easy to read, understand, and complete, the amount of information the survey needs to present and the number of questions it needs to ask mean that the pretest instrument must be 25 pages, which requires more respondent efforts than many surveys.

We propose an honorarium of $10 be included in the initial mailing. Results from a pilot survey in another, similar project at Stratus Consulting (dealing with Stellar sea lions and conducted under OMB Control No.: 0648-0511) indicated that a $10 incentive led to a statistically significant higher response rate compared to the $2 and $5 treatments. The $10 incentive achieved a 57% response rate whereas the $5 achieved a 49% response rate and the $2 incentive achieved only a 35% response rate. While these results are based on relatively small sample sizes, they do indicate that a $10 incentive will likely increase response rates. Moreover, the $10 incentive sample had lower item non-responses . In order to plan for steps to assess nonresponse bias in the main survey, we need to know how well the $10 incentive will work here.

10. Describe any assurance of confidentiality provided to the respondent and the basis for assurance in statute, regulation, or agency policy.

In the cover letter accompanying each mailing, respondents will be told that their responses are voluntary, their identity will be separated from their responses, and material related to their identity will be destroyed upon the conclusion of the study. The cover page of the survey will also include the following statement:

Your participation in this survey is voluntary. Your name and address will be kept separate from your responses and not disclosed. Only your responses will be provided to the researchers for analysis.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

There are no questions of a sensitive nature asked in the survey.

12. Provide an estimate in hours of the burden of the collection of information.

The pretest mail survey will be sent to a random sample of approximately 500 addresses. The random sample will be purchased from a reputable survey sample company such as Survey Sampling, International[8]. Based on previous experience, up to 15% of these samples will have bad or unusable addresses, which means the number of households receiving the survey will be approximately 425. We expect a final response rate of approximately 50% (of the valid sample) based on surveys recently conducted using similar methods, leading to 213 households returning completed surveys. Our experience has been that respondents typically complete the survey in about 30 minutes. As a result, those ultimately completing the survey are expected to contribute up to 107 hours to the overall hour burden for the pretest.

As described in the section on "Pretest Administration," we will attempt to contact a sample of households by telephone to encourage respondents to complete and return the survey. We expect this phone contact to take approximately 5 minutes. This phone call will have two potential outcomes. Households that indicate they will complete the survey and need a replacement questionnaire will be identified and sent a new one. Households that indicate they will not be completing the survey will be requested to complete a short set of non-response follow-up questions. The telephone interview is expected to take five minutes on average to complete, and we expect to reach and complete this interview with approximately ninety-five households (50 who will be sent another survey to complete and 45 who complete the non-response interview) at this stage. This will add an additional 8 hours of burden (4.2 plus 3.8).

[8] We collected information about the national sampling frames of several candidate vendors including Acxiom, Experian, Survey Sampling Int'l (SSI), Genesys, and USPS. All had high population coverage rates (85% to 95%), but varied in the methods used to assemble lists and in the percent of their population with telephone numbers. SSI mail samples, available in the U.S., are drawn by accessing the largest available national database of U.S. households. These data are collected from white-page telephone directories from across the country and supplemented with other proprietary information sources. When using SSI mail samples, researchers can expect a deliverable rate of approximately 85%. Of the vendors evaluated, only SSI did not remove households from their sampling frame that were in the National Do Not Call Registry (which does not apply to research surveys).

The final contact is a second round of the non-response follow-up phone interview. From a sample of the remaining unresolved cases, we will complete non-response interviews (NRFUs) with an additional 25 households. Again, this phone call is estimated to last approximately 5 minutes, for an additional 2.1 burden hours.

Total completed non-response follow-up interviews will be approximately 70 with a total burden for the non-response follow-up interviews of approximately 6 hours (3.8 hours from first set of calls + 2.1 hours for second set of calls).

The total hours of burden for the pretest, as summarized in Table 2, is estimated to be 117 hours.

Table 2. Expected burden hours for pretest survey

Survey instrument	Estimated number of respondents	Estimated number of responses	Estimated time per response (minutes)	Estimated total annual burden hours (hours)
Mail survey	213	213	30	107
Telephone call (followed by re-mailing of survey)	50	50	5	4
Telephone Survey – complete NRFU interview	70	70	5	6
Totals	283	333		117

13. Provide an estimate of the total annual cost burden to respondents or record-keepers resulting from the collection (excluding the value of the burden hours in #12 above).

No additional cost burden will be imposed on respondents aside from the burden hours indicated above.

14. Provide estimates of annualized cost to the Federal government.

Once the main survey is completed, this effort will not involve any continuing costs to the federal government. The total cost of background information development, survey instrument design, survey implementation, data analysis and reporting is $330,277.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of OMB 83-I.

This is a new collection.

16. For collections whose results will be published, outline the plans for publication.

A final report on the pretest will be prepared and submitted to NMFS. The report will document the sampling procedures and response rates and provide statistical summaries (i.e., means, variances, and frequency distributions) of data collected in the survey. This pretest report will include an analysis of the strengths and weaknesses of the pretest instrument and a plan to revise it in preparation for the main survey. We do not anticipate any other publications from the pretest.

17. If seeking approval not to display the expiration date for OMB approval on the information collection, explain the reasons why display would be inappropriate.

This item is not applicable, as the expiration date for OMB approval of the information collection will be shown on the survey.

18. Explain each exception to the certification statement identified in Item 19 of the OMB 83-I.

There are no exceptions to Item 19 of the OMB Form 83-I.

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 collections as a whole. If the collection has been conducted before, provide the actual response rate achieved.

This application is for the pretest only.

The potential respondent universe is all U.S. households (approximately 106 million according to the 2000 Census). A random sample of approximately 500 U.S. households will be used for the pretest. There is an expected 85% deliverable rate given current averages for mail sample lists. For the collection as a whole, a response rate of approximately 50% of deliverable surveys is anticipated. This is the response rate estimate is based on the Steller Sea Lion pilot pretest implementation treatment employing a $10 monetary incentive.

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

Sample frame and sample selection

The survey will use a random sample of approximately 500 households purchased from a professional sampling vendor. The advance letter and cover letter accompanying the initial mailing will solicit the participation of an adult male or female head of household to complete the survey. Up to 15% of the purchased sample may be invalid.

Survey responses to the pretest will be used to estimate a valuation model using a random utility-based multinomial choice model to assess the set of attributes as contributors to the respondents' preferences for protecting NARWs. Given the expected response rates, the sample sizes described above should be sufficiently large for this pretest effort to develop a simple model for data analysis. This provides a sufficient amount of observations for pretest purposes.

Evidence of representativeness of samples

For this pretest effort, we do not anticipate that the returned sample will be representative of the general U.S. population.

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.

Numerous steps have been and will be taken to maximize response rates and deal with nonresponse behavior. These efforts are described below.

Maximizing response rates

The first step in achieving a high response rate is to develop an appealing questionnaire that is easy for respondents to complete. Significant efforts have been spent on developing a good survey instrument. Experts on economic survey design and stated preference techniques were hired to assist in the design and testing of the survey. The current survey instrument has also benefited from input on earlier versions from several focus groups and one-on-one interviews (verbal protocols and cognitive interviews), peer review by experts in survey design and nonmarket valuation, and by scientists who study NARWs, other marine mammals, and fisheries. In the focus groups and interviews, the information presented was tested to ensure key concepts and terms were understood, figures and graphics (color and black and white) were tested for proper comprehension and appearance, and key economic and design issues were evaluated. In addition, cognitive interviews were used to ensure the survey instrument was not too technical, used words people could understand, and was a comfortable length and easy to complete. The result is a high-quality and professional-looking survey instrument.

Dillman Total Design Method

The implementation techniques that will be employed are consistent with methods that maximize response rates. Implementation of the mail survey will follow the Dillman Tailored Design Method (2007), which consists of multiple contacts. The specific set of contacts that will be employed is the following (see Appendix F):

1. A **prenotice letter** will be sent to notify respondents a few days prior to the questionnaire arriving. This will be the first contact for households in the sample.

2. An **initial mailing** will be sent a few days after the advance letter. Each mailing will contain a personalized cover letter, questionnaire, and a pre-addressed stamped return envelope. The initial mailing will also include a $10 incentive.

3. A **follow-up thank you/reminder postcard** will be mailed 5 to 7 days following the initial mailing.

4. A **second mailing** will be sent using USPS certified mailing to one-half of the individuals who have not returned the survey to date.

5. **An initial phone call** will be attempted to encourage response with the other half of the sample who were not sent a second mailing automatically. Individuals needing an additional copy of the survey will be sent one with another cover letter and return envelope.

6. **A follow-up phone call** will be attempted as part of the nonresponse follow-up study**.**

Use of Incentives

As mentioned in the response to Question 9, we propose to include an honorarium of $10 in the survey initial mailing. Results from a pilot survey in another, similar project at Stratus Consulting (dealing with Stellar sea lions and conducted under OMB Control No.: 0648-0511) indicated that a $10 incentive led to a statistically higher response rate compared to the $2 and $5 treatments. Moreover, the $10 incentive was the only one to achieve a response rate over 50%. These results are consistent with the literature sited in Question 9 on the use of incentives to increase response rates In order to plan for steps to assess non-response bias in the main survey, we need to know how well the $10 incentive will work here.

Nonrespondents

For the pretest we plan to undertake a number of steps to follow-up with nonrespondents as an overall test of the survey design and implementation. We do not plan to undertake a formal non-response bias evaluation and correction in the pretest effort since the sample size is small. A full, formal analysis of potential nonresponse biases will be conducted as part of the main survey.

To better understand why pretest nonrespondents did not return the survey and to determine if there are systematic differences between respondents and nonrespondents, those contacted in follow-up telephone call(s) and identified as nonrespondents will be asked a few questions to gauge their reasons for not responding to the mail survey. These include select socioeconomic and demographic classification questions and a few attitudinal questions. Information collected from nonrespondents will aid in improving the main survey implementation and to plan steps to correct for nonresponse bias in the main survey.

Specific steps that will be employed to address nonresponse bias, including:

- As a first step, demographic characteristics collected from respondents and nonrespondents will be used in two comparisons: a comparison of respondents to nonrespondents and a comparison of respondents to U.S. Census data. For respondents, age, gender, income, and education information will be available from the completed

survey. The same information will be available from nonrespondents who participate in the telephone interview. A comparison of the demographic differences may indicate how respondents and nonrespondents differ with respect to these characteristics. We will also compare demographic information for survey respondents with U.S. Census data to evaluate sample representativeness on observable data.

- A parallel type of comparison will be made with respect to answers to the attitudinal questions asked of respondents and nonrespondents. One of these questions is the General Social Survey question (Question 1 in the mail surveys). The distribution of responses to this question by respondents and nonrespondents will be evaluated for the two groups and compared with the GSS survey results for the most recent occurrence of this question.

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.

This pretest includes a test of the sample respondents to the GSS survey responses on the questions of the level of government spending. This test will help to better understand calibration of survey respondents to non-market valuation to the general public.

This pretest also includes a test of effectiveness of follow-up methods to encourage completion of the survey instrument. After the postcard reminder step, it is common to mail another survey to all unresolved cases. In this pretest, we plan to divide these unresolved cases into two samples, one which will receive a second mailing, and the other that will receive a phone call to encourage completion, or if the household indicates they will not be completing the survey, conduct a small non-response follow-up survey. This small test will help design methods to increase response rates for the main survey administration.

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.

Several individuals were consulted on the statistical aspects of the design:

Dr. Robert Rowe
Chairman of the Board
Stratus Consulting Inc.
(303) 381-8000

Dr. Roger Tourangeau
Director, Joint Program in Survey Methodology
University of Maryland and
Senior Research Scientist, Survey Research Center
University of Michigan

Stratus Consulting Inc., will administer the pretest in-house.

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C. Part 2 Focus Groups and One-on-One Interviews

C.1 Background

Appendix C describes findings from Phase 1, Part 2 focus groups and one-on-one interviews where subjects filled out surveys on their own and then were debriefed. Through this process, we were able to learn about:

- People's level of interest in the NARW and how interest varies across the country
- The level of knowledge of a cross-section of people about whales in general and the NARW in particular
- How much information subjects need to allow them to deal effectively with SP questions
- How people respond to referendum and stated-choice questions
- How people respond to alternative payment vehicles.

Each focus group session had a maximum of nine participants drawn from the general local population. Professional market research firms recruited participants and provided facilities to conduct the focus groups. Copies of recruiting screeners and summary of participants' responses are provided in Section C.5

We conducted two focus groups each in Hartford and Baltimore. In Portland, we conducted two rounds of one-on-one interviews where subjects filled out the survey on their own and then were debriefed by members of the research team. The locations were selected to represent various subregions of the nation. The sections below describe the findings from the focus groups and one-on-one interviews in detail.

C.2 Hartford Focus Groups

Two rounds of focus groups were conducted in Hartford on March 6, 2007. A total of 18 people participated in these groups (nine per round). The purpose of the Hartford focus groups was to help refine the survey instrument for further pretesting and one-on-one interviews.

Conducting a SP survey by mail requires subjects to read substantial amounts of material. Hence these focus groups were constructed around a set of handouts that participants read before group discussions. We used handouts similar to those used in the later focus groups in Year 1. Handout

1 introduced general background material on NARWs, other species of right whales, and other large whales in the North Atlantic Ocean. Handout 2 presented materials on NARW life history, population size and trends, and its status as an endangered species. It then introduced ship strikes and fishing gear entanglements as the major anthropogenic sources of NARW mortality. Handout 3 described ship strike mortality in more detail and introduced area closures and mandatory slowdowns as management measures to address the problem. It then described the entanglement problem in more detail and introduced areas closed to fishing and more whale-friendly fishing gear as management measures. Handout 4 described steps that could be taken to increase the chances of survival for NARWs, as well as three alternative management plans. Handout 5 showed participants more specifics about the three management alternatives (e.g., cost of implementation) that could reduce extinction probability of NARWs and mortality of other whales in the area. Each handout was discussed after the participants finished reading and answering written questions.

The only difference in the groups was the information provided in Handout 4. The first group (Group A) received Handout 4A, a more detailed version of the three management alternatives. The second group (Group B) received Handout 4B, and more streamlined version of the three management alternatives.

Below we provide a more detailed discussion about how participants responded to each of the handouts, including a copy of the handout for reference.

C.2.1 Handout 1 discussion

The main purpose of Handout 1 was to introduce large whales, emphasizing those that inhabit the North Atlantic. In addition, this information provided early warm-up activities to develop an open group dynamic for later discussion. Early rounds of the focus groups indicated that people needed this information to provide context for understanding the status of the NARW and potential benefits of management actions. The pictures and the large table of whale facts were designed to meet the requests of earlier focus group participants for more detailed background information.

The primary challenge we faced moving into Part 2 was the sheer volume of material in the matrix of whale facts. It turned out, however, that focus groups participants did fine with the matrix. People liked the information and the way it was presented. The matrix easily covered general information about whales and no one felt overburdened with too much information. Most people found whales interesting and don't find it burdensome to learn more about them. The question we dealt with in Part 2 was whether potential respondents in the context of a mail survey would feel the same way.

C.2.2 Handout 1

Handout 1 First name: _____

About North Atlantic Whales

Whales are found in all the oceans of the world, including the Atlantic and Pacific waters of the United States. Our study focuses mostly on one whale species, the North Atlantic right whale. Before we tell you more about them, we would like you to know some basic facts about other large whales that regularly spend time in the North Atlantic Ocean.

Please read the following information carefully and answer the questions at the end.

Like whales everywhere, North Atlantic whales are mammals.

- Unlike fish, whales are warm-blooded and bear live young.
- Whales breathe air through openings on the tops of their heads, which are often called "blow holes."
- Some large whales live up to 70 years and longer.
- Females are about 10 years old when they can bear their first calf.
- Mothers typically nurse their calves for about one year.

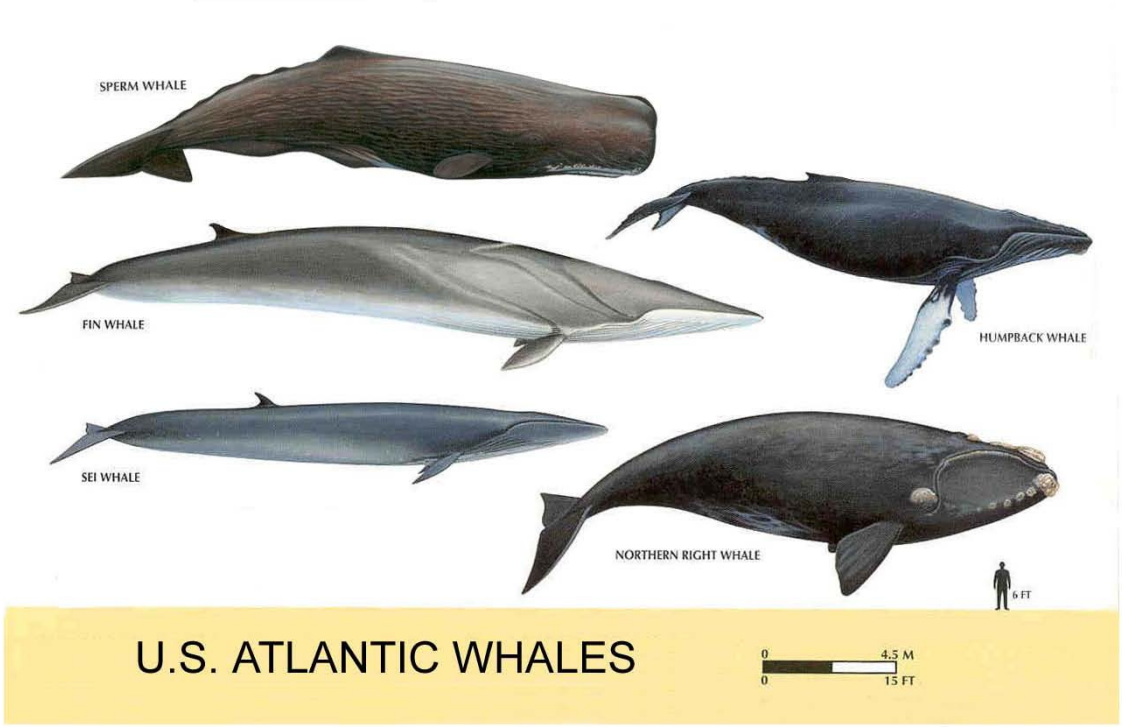
The next page shows pictures of large whales that inhabit the North Atlantic Ocean. All the whales shown here, including the North Atlantic right whale, are endangered species. An endangered species is a plant or animal species that is in danger of going extinct in the areas where it normally lives.

The table on the page following the pictures summarizes important facts about these whales.

FG-5 1

Handout 1

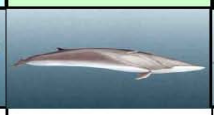
Endangered Large Whales of the U.S. North Atlantic



FG-5 2

Handout 1

Some Whales of the U.S. North Atlantic

Species	North Atlantic Right Whale	Fin Whale	Sei Whale	Humpback Whale	Sperm Whale
					
Population in North Atlantic U.S. waters	About 300	About 3,000	Unknown (at least 1,000)	About 1,000	About 5,000
Length	Up to 60 feet (adults) 15 feet (at birth)	Up to 80 feet (adults) 21 feet (at birth)	Up to 60 feet (adults) 15 feet (at birth)	Up to 50 feet (adults) 16 feet (at birth)	Up to 60 feet (adults) 13 feet (at birth)
Weight	60-80 tons	70 tons	30 tons	40 tons	20-50 tons
Lifespan	Up to 70 years	Up to 90 years	Up to 70 years	Up to 50 years	About 70 years
Number of years between calf	5 years	2-3 years	2-3 years	2-3 years	3-6 years

FG-5 3

Handout 1

In addition to the North Atlantic right whale, there are two other species of right whales: the North Pacific right whale and the Southern right whale. They live in other oceans and their habitats do not overlap. Since they are each a unique species, they cannot interbreed with North Atlantic right whales.

1. **North Pacific right whales are found near Alaska and the Pacific Coast of Canada.**
   - It is also an endangered species; the total number inhabiting U.S. waters is somewhere between 10 and 100.
   - Additional North Pacific right whales exist along the coast of Russia, but little is known about them.
   - Scientists are considering steps that might help the North Pacific right whale, but there may be little that can be done to prevent its extinction.

2. **Southern right whales are found only in the Southern Hemisphere, far from the United States.**
   - They do not come into U.S. waters, their populations are stable, and they are not listed as an endangered species. They will not be considered further in our study.

Handout 1

1. **We mentioned that the whales being discussed are endangered species. We would like to know how you react to this information. On a scale of 1 to 5, where 1 indicates "definitely disagree" and 5 indicates "definitely agree," please tell us whether you agree or disagree with each of the following statements (please circle number).**

	Definitely disagree	Somewhat disagree	No opinion	Somewhat agree	Definitely agree
1. When I hear that a species is endangered, to me that means that it will very likely go extinct soon unless more is done to help it.	1	2	3	4	5
2. I'm not too worried about the possible extinction of one whale species.	1	2	3	4	5
3. I was surprised to learn that so many species of whales are endangered.	1	2	3	4	5
4. I think that, in general, too much money is being spent trying to preserve endangered species of plants and animals.	1	2	3	4	5
5. There are other more important issues facing the United States than saving whale species.	1	2	3	4	5
6. Extinction of species is unfortunate, but there is not much we can do about it.	1	2	3	4	5
7. Knowing that there are two other species of right whales makes me less concerned about the possible extinction of the North Atlantic right whales.	1	2	3	4	5
8. When species become extinct, the ecosystems of which they were a part are likely to encounter serious problems.	1	2	3	4	5
9. I am concerned not only about the species going extinct, but the loss of individual whales.	1	2	3	4	5

FG-5 5

C.2.3 Handout 2 discussion

The main purpose of Handout 2 was to tell people more about NARWs, including how and what they eat, how long they live, at what age they reproduce, etc. It contains a map of areas where NARWs live during different times of the year. This gives people a sense of the geographic range of NARWs. Page 2 of the handout begins to describe the NARWs status as an endangered species and what that means in terms of the probability of extinction in the next 200 years. Probability of extinction is an important concept in this survey, and we wanted to make sure focus group participants all received and understood the same story about it.

The handout then describes the two main sources of NARW mortality: ship strikes and fishing gear entanglements. Based on previous focus groups, we added a discussion about alternative sources of NARW mortality. These include pollution, lack of food, and beaching.

In the initial rounds of the focus groups, respondents consistently asked for more information on why we as a society should try to save the NARW. In a way, they were asking a direct and natural question, but sometimes they seemed to be surprised that we were not selling whale preservation harder. Page 4 of Handout 2 was updated since the Jacksonville groups in an attempt to address these issues. We tried to present a balanced view, stressing that some people argue that the right whale should be saved, but others think we, as a nation, have many higher priorities.

Revisions of Handout 2 done in preparation for the Harford groups addressed two issues. First, many members of earlier groups assumed that the populations of NARWs must be declining. Second, they wanted to believe that extinction of the NARW would lead to serious ecological problems. We made considerable progress in communicating what we wanted subjects to know, although some subjects in Hartford held the opposite views despite what they were told.

C.2.4 Handout 2

Handout 2 First Name: _____

Focus of Our Study: The North Atlantic Right Whale

Picture of North Atlantic right whale mother and calf

Some facts about North Atlantic right whales:

- Adults are up to 60 feet long and can weigh 80 tons.
- Newborn calves are 10 to 15 feet long and weigh about 1 ton.
- They have structures in their mouths, called "baleen," used to filter small plankton (very small animals) from the water; plankton are their only food; they do not eat fish.

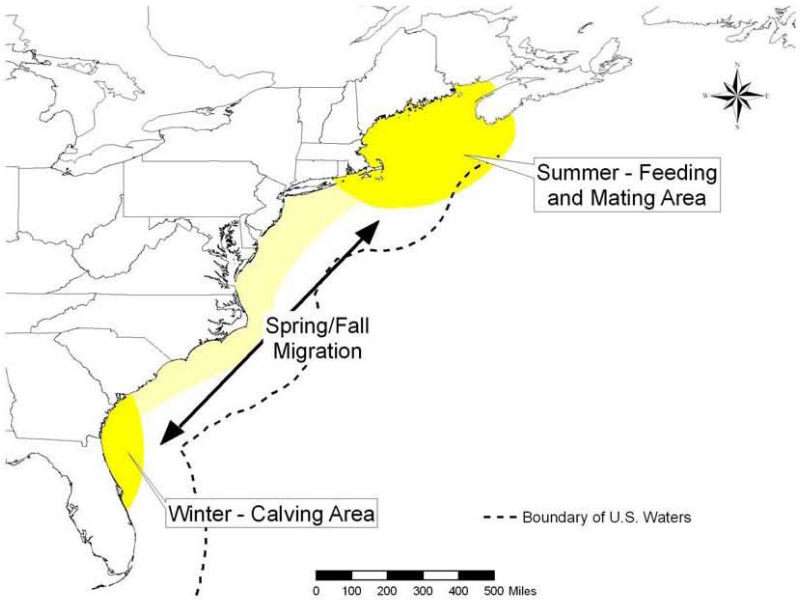
The population of right whales in the North Atlantic changes very slowly.

- Right whales are known to live for 70 years or more.
- Females mature slowly, requiring 10 or more years to reach sexual maturity.
- Right whales bear only one calf at a time; about 3 to 6 years normally elapse between calves.
- Because right whales live so long and reproduce so slowly, the population changes very slowly.

FG-5 1

Handout 2

More About North Atlantic Right Whales



This map shows <u>areas where North Atlantic right whales live</u>.

- In summer, most of the North Atlantic right whales are near New England and southeastern Canada, feeding, raising their young, and mating.
- In the spring and fall, the whales migrate along the U.S. East Coast between the summer and winter areas.
- In winter, most of the females and younger ones, are off the coast of Georgia and Florida to calve and spend the winter.
- Not all the whales that spend the summer near New England and Canada migrate to the coast off Georgia and Florida.
- Scientists are not sure where some of the other right whales, mostly males, spend the late fall and winter.

FG-5 2

Handout 2

The North Atlantic right whale is currently listed as an endangered species.

- There are currently only about 300 North Atlantic right whales.
- Historically, there were many thousands of right whales in the North Atlantic but whaling drastically reduced the population.
- Despite a ban on whaling since 1951, the population of North Atlantic right whales has not shown the recovery scientists would have expected.
- Scientists have concluded that there is about a 20% chance (1 chance in 5) that the North Atlantic right whale will become extinct in the next 200 years.
- There is little chance that the North Atlantic right whale will become extinct within the next 100 years because there are currently females bearing young and right whales live so long.

Deaths of whales due to being struck by large ships and getting tangled in commercial fishing gear are the main reasons why the right whale population is not recovering.

- Sometimes whales are struck by large ships, which causes some whales to die.
- Some whales become entangled in fishing gear and some die or are seriously injured as a result.
- The amount of ship traffic and fishing gear along the East Coast has greatly increased in recent years.
- We will discuss ship accidents and fishing gear entanglements in more detail in the next handouts.

Other Possible Problems

People often ask us about possible problems other than ship accidents and entanglements in fishing gear:

- Pollution: Scientists are continuing to investigate, but so far there is no evidence that pollution is a serious problem for right whales.
- Food supply: Lack of food does not seem to be a factor; supplies of plankton appear to be more than adequate to support a larger population of right whales.
- Beaching: Some whale species occasionally beach themselves and die, but right whales do not do so.

FG-5 3

Handout 2

Should Something Be Done to Protect the North Atlantic Right Whales?

Should we try to save the North Atlantic right whale from extinction?

- People disagree on the answer to this question.
- Some people argue that the right whale should be saved because it is a magnificent part of wild nature, because whales have a right to live, or because they would like to see right whales or have others see them in the future.
- Others argue that we, as a nation, have many higher priorities than saving species like this; they argue we cannot afford to spend much on preserving species that are now of such limited direct usefulness to humans.

Scientists do <u>not</u> believe that extinction of the right whale would cause serious problems for the ecosystem in the North Atlantic Ocean.

- The ecosystem of the North Atlantic is very different than it was when there were thousands of right whales.
- There are so few right whales left that any ecological effects of them going extinct has probably already happened.
- The few right whales that remain have little effect on the ecosystem. For example, the populations of the plankton that right whales feed on are not affected by right whale consumption.

1. **We have presented you with a lot of information. Below are some True-False questions. This is <u>not</u> a test like those you took in school. Instead, this is a test of how well <u>we</u> are communicating information to you. Don't be embarrassed if you don't know an answer. That will just tell us that we need to work harder to communicate the information more clearly. Feel free to look back if you want to review the information in this handout or Handout 1.**
Circle T or F or Don't Know (DK) for each statement.

T F DK There is only one species of right whale in the North Atlantic Ocean.

T F DK Right whales feed on fish.

T F DK The North Atlantic right whale is endangered because of pollution.

T F DK Currently, right whales are <u>not</u> being lost to whaling.

T F DK A female right whale bears young every other year.

T F DK That the North Atlantic right whale is listed as endangered means that it will almost certainly become extinct in the next 200 years.

T F DK Scientists figure that even if nothing is done to help them, the chances that the North Atlantic right whale will survive over the next 200 years is about 80%.

Handout 2

2. **On a scale of 1 to 5, where 1 indicates "definitely disagree" and 5 indicates "definitely agree," please tell us whether you agree or disagree with each of the following statements (please circle number).**

	Definitely disagree	Somewhat disagree	No opinion	Somewhat agree	Definitely agree
1. I am having trouble remembering what you have told me about the whales.	1	2	3	4	5
2. I had a hard time understanding what you meant when you talked about chances of extinction.	1	2	3	4	5
3. I don't think scientists really have much of an idea how likely it is that a species like the North Atlantic right whale will become extinct.	1	2	3	4	5
4. I trust scientists when they say that extinction of the right whale would not cause serious ecological problems in the North Atlantic Ocean.	1	2	3	4	5
5. The United States should place a high priority on saving species like the North Atlantic right whale even if I have to help pay part of the costs of protection.	1	2	3	4	5
6. If ships and fishermen cause problems for whales, then they, not I, should have to pay to fix the problem.	1	2	3	4	5
7. I don't think we have the right to drive a species like the North Atlantic right whale to extinction.	1	2	3	4	5
8. Surely pollution or lack of food must be bigger threats to right whale survival than ship accidents and entanglement in fishing gear.	1	2	3	4	5

Handout 2

3. **Toward the end of the written material, we stated, "Scientists do <u>not</u> believe that extinction of the right whale would cause serious problems for the ecosystems in the North Atlantic Ocean." Do you find this statement believable? Why or why not?**

C.2.5 Handout 3 discussion

Handout 3 describes the mechanisms by which NARWs are injured by ships and by fishing gear. Starting with ships, it says that ship traffic is growing and newer ships are traveling faster. Fishing gear, on the other hand, is expected to remain constant in the years to come. On page 2, participants learn about how many whales are killed, on average, due to ship strikes and fishing gear entanglements. In order to present a clearer story about NARW mortality, we told them that these numbers are not exact and that it can be difficult to determine the cause of death. Next, participants learn that the population of NARWs cannot increase with current levels of anthropogenic and natural mortality and that there is a 20% changes of extinction in the next 200 years.

Following this discussion, participants filled out a series of true or false statements to help us understand what they were thinking about the information provided to them. They were then asked to state how much they agree or disagree with some statements we presented in the handout.

The pictures were mainly designed to add interest and make the situation more real. Even though pictures of NARWs entangled in fishing gear evokes a more emotional response from people, we decided to use this instead of using pictures of fishing gear apparatus. We tried to use a picture of a whale entangled that would not evoke as much of an emotional response.

C.2.6 Handout 3

Handout 3 First Name: _____

How Ships and Fishing Gear Contribute to Right Whale Deaths

The picture above shows whales close to a passing ship loaded with containers of cargo.

- Had these whales been much closer, they could have been injured or killed by this ship.

Ship traffic along our eastern seaboard is growing.

- For example, the number of container ships traveling to the eastern seaboard is expected to more than double by 2020.
- Also, newer ships travel faster, which may make it harder for whales to get out of the way.
- Hence, unless steps are taken to reduce right whale deaths due to ship collisions, the number killed seems likely to increase in future years.

FG-5 1

Handout 3

The picture above shows a right whale that is tangled in ropes from fishing gear.

- Often, whales tangled in fishing gear can break free and survive.
- In fact, some types of gear are now required that allow whales to break free more easily.
- But occasionally, whales cannot break free of the fishing gear, making it hard for them to swim and breathe and sometimes leads to their death.
- Also, getting tangled in fishing gear can wound them, resulting in infections that sometimes lead to their death.

The amount of fishing gear in areas inhabited by whales is expected to be about constant.

- Hence, fishing gear is expected to be a continuing cause of right whale deaths.

FG-5 2

Handout 3

Scientists believe that at least six (6) right whales are killed, on average, each year due to collisions with ships and entanglements in fishing gear.

- The exact number is hard to determine with precision.
- Not all dead whales are found.
- When a dead right whale is discovered, the cause of death cannot always be determined because of decomposition and other reasons.
- This is why we say that the number of deaths per year is at least six.

Combined with deaths from natural causes, so many whales are being lost each year that the population cannot increase.

- Because surviving right whales can live for a long time and there is some reproduction each year, chances are that it will not go extinct any time soon.
- But, research shows that unless deaths due to collisions with ships and entanglements in fishing gear are reduced, there is a 20% chance (1 chance in 5) of extinction in the next 200 years.

1. **Here are some more of the true-false questions to help us understand how well we have communicated.**
Circle T or F or Don't Know (DK) for each statement.

T	F	DK	Ship traffic along the U.S. Atlantic Coast is increasing.
T	F	DK	Nearly all whales that become entangled in fishing gear die as a result.
T	F	DK	The North Atlantic right whale will probably not become extinct any time soon even if nothing more is done to help it.
T	F	DK	No more than six whales are killed on average each year by ship accidents and fishing gear entanglements.
T	F	DK	Faster ships are more dangerous to whales.
T	F	DK	Some types of gear are now required that allow whales to break free more easily.

Handout 3

2. **Toward the end of this handout, we told you that unless more is done, there is a 20% chance that the North Atlantic right whale will go extinct in the next 200 years. We would like to know how you reacted to this information. On a scale of 1 to 5, where 1 indicates "definitely disagree" and 5 indicates "definitely agree," please tell us whether you agree or disagree with each of the following statements (please circle answer).**

	Definitely disagree	Somewhat disagree	No opinion	Somewhat agree	Definitely agree
1. I found talking in percentage terms about the chances of extinction confusing.	1	2	3	4	5
2. Discussing in percentage terms the chances that the right whale will become extinct helped me to understand the situation better.	1	2	3	4	5
3. That the chances of extinction of the North Atlantic right whale are only 20% surprised me.	1	2	3	4	5
4. 200 years is too long a time period for me to think about.	1	2	3	4	5
5. A 20% chance of extinction in 200 years doesn't seem important enough to justify doing something now.	1	2	3	4	5
6. Surely with all the whales being killed due to ship accidents and fishing gear entanglements, the chances that the North Atlantic right whale will go extinct must be greater than 20%.	1	2	3	4	5
7. Telling me that the chances of extinction are 1 chance in 5 helped me understand what you meant by 20% chance of extinction.	1	2	3	4	5

Handout 3

3. **Please use the space below to record any questions you have about how whales are killed from collisions with ships and entanglement in fishing gear.**

FG-5 5

C.2.7 Handout 4 discussion

Based on previous focus group testing, we decided to split Handout 4 into two separate handouts: Handout 4A and 4B. The first group received the more detailed handout (4A), and the second group received a more streamlined handout (4B). Handout 4A (the detailed handout) begins with a statement about the purpose of the study. The grey box on the first page tells participants about the current protection measures in place for NARWs. It then introduces the four management alternatives, which are termed No Additional Action (the status quo), Full Plan, Intermediate Plan A, and Intermediate Plan B. We describe the Full Plan, Intermediate Plan A, and Intermediate Plan B and asked participants to tell us whether they had any questions about the differences between the plans. Only one person asked for further clarification. This person asked about the difference in the implementation costs for each plan. The next section explains other benefits of reducing human-caused mortality of NARW for other large whales like the humpback whale.

The top of page 4 reminds people about the consequences of no action: a 20% chance that the NARW will go extinct in 200 years. It then describes the consequences of implementing the other alternative plans. As a check to see how well we communicated information to participants, we asked a series of fill-in-the-blank questions followed by several open-ended questions and a series of agree-disagree questions.

Handout 4B contains a condensed subset of the facts presented in Handout 4A.

C.2.8 Handout 4A

Handout 4 First Name: _____

Steps that Might Be Taken to Increase the Right Whale's Chances of Survival

The purpose of this study is to help public officials understand how a cross-section of Americans feel about alternatives to improve the right whale's chances of survival.

Below we refer to alternative plans to protect North Atlantic right whales as the "Full Plan," "Intermediate Plan A," and "Intermediate Plan B." The "No Action Alternative" of doing nothing more to protect the right whales than the current protection measures described is also being considered.

Current Protection Measures

Before we tell you about some alternative plans to give North Atlantic right whales additional protection, we need to tell you more about what is <u>already</u> being done.

To reduce deaths from <u>ships</u>:

- Airplanes are used to sight locations of high densities of right whales
- Notification of high density areas are broadcast to nearby ships
- Ships are asked to voluntarily slow down in areas of high concentrations of right whales.

To reduce <u>fishing gear entanglements</u>:

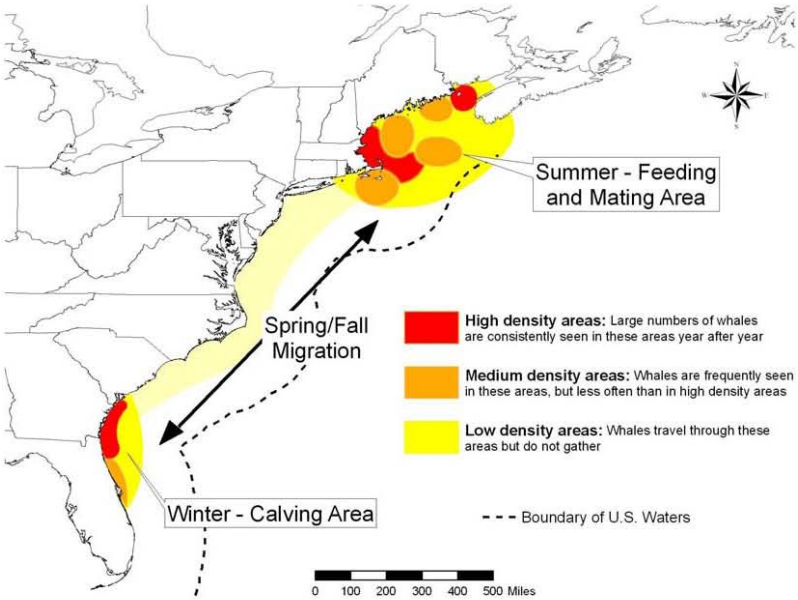
- Some restrictions on the type of fishing gear to be used in high density areas are in place
- Use of gear safer for whales – ropes that break easier, fewer ropes in the water – is voluntary.

- The Full Plan would greatly reduce right whale deaths from ship accidents and entanglements, but would be the most costly to implement
- Intermediate Plans A and B would do less for the whales but would also cost less than the Full Plan.

The map below will help you understand what is being proposed. It is like the map you saw in Handout 1 except that here shading indicates areas of high, medium, and low right whale densities.

FG-5a 1

Handout 4



The Full Plan

The Full Plan would involve new regulations on fishing and shipping.

To reduce whale deaths due to ship accidents:

- Ships would be banned from most areas of high and medium whale densities; now ships are allowed to go where they want except for traffic controls in and around harbors.
- Ships would be required to slow down in areas of low whale density; now slowing down is voluntary.

To reduce whale deaths from fishing gear entanglements:

- Only fishing with gear safe for whales could continue to be used in high, medium, or low-density areas where North Atlantic right whales are found.
- Fishing gear that is dangerous to whales would be banned; currently such bans exist in only a few areas.

FG-5a 2

Handout 4

Intermediate Plan A

Intermediate Plan A would involve less stringent regulations on ships and fishing than the Full Plan.

To reduce whale deaths due to ship accidents:

- Ships would be banned in areas of high whale density.
- Ships would be required to slow down in areas of medium and low whale densities.

To reduce whale deaths from fishing gear entanglements:

- Fishing gear that is dangerous to whales would be banned only in areas of high whale density.
- Fishing with gear safe for whales could continue to be used in these high density areas.
- In areas of medium and low whale densities, most kinds of fishing gear would be allowed.

Intermediate Plan B

Intermediate Plan B would involve the least stringent regulations on ships and fishing.

To reduce whale deaths due to ship accidents:

- Ships would be required to slow down in areas of high, medium, and low whale densities.
- Ships would not be banned from any areas.

To reduce whale deaths from fishing gear entanglements:

- In areas of high, medium, and low whale densities, gear that whales can break away from more easily would be required.
- While safer than the gear currently used, this gear would still pose some risk to the whales.

FG-5a 3

Handout 4

1. **Do you have any questions about the differences between the Full Plan and the two intermediate plans? Yes____ No_____**

If Yes, please explain:

_____

_____

_____

Actions to reduce ship accidents and fishing gear entanglements would also reduce losses of other whales in the North Atlantic. However, these measures are considered much <u>less important to the survival of other whale species</u>.

- Humpback whales are occasionally lost to ship accidents and entanglements in this area, but scientists believe the species can withstand these losses.
- Many thousands of humpback whales live in the North Atlantic and other oceans and their numbers are thought to be increasing despite occasional losses to ships, fishing gear, and other causes.
- Other large whales of the Northwestern Atlantic, including sperm, sei, and fin whales, tend to live farther out in the ocean and measures to help right whales would not affect them very much.

The table below summarizes estimates of the effects on whales of each of the alternatives currently being considered. While there is uncertainty about what the exact effects will actually be, the table represents the best estimates of scientists at this time.

	No Additional Action	Intermediate Plan A	Intermediate Plan B	Full Plan
Chances of right whale extinction (200 years)	20% (1 chance in 5)	10% (1 chance in 10)	5% (1 chance in 20)	1% (1 chance in 100)
Average number of right whales saved per year	0	2	4	6
Average number of humpback and other whales saved per year	0	1-2	2-3	4

FG-5a 4

Handout 4

If no additional actions are taken, scientists predict that:

- The number of right whales and other whales killed because of ship collisions and entanglements will remain at current levels.
- There is a 20% chance that the North Atlantic right whale will go extinct within 200 years.

On the other hand, if the "Full Plan" as depicted on the extreme right hand side of the table above is adopted:

- Very restrictive regulations would be placed on ships and fishing gear.
- Scientists estimate that this plan may save about six (6) right whales and four (4) other whales each year on average.
- Under the "Full Plan," the estimated chance of extinction in the next 200 years would fall to 1% (1 chance in 100).
- Note that even if this very restrictive plan were implemented, there would still be a small chance that the North Atlantic right whale would go extinct in 200 years.

Intermediate Plans A and B would be less restrictive than the Full Plan, but would do less to protect the whales.

2. **Again, we want to see how well we have communicated information to you. Please try to fill in the answer to each of the following questions. Look back at the information in this handout if you like. If you do not know an answer, don't worry. Just go to the next question.**

1. **In addition to reducing deaths of right whales, further regulations on fishing gear and ships along the U.S. Atlantic Coast also would reduce deaths of _____ whales from these causes.**
2. **The chances of extinction of the North Atlantic right whale under the Full Plan would be about _____ %.**
3. **Under Intermediate Plan B, _____ right whales would be saved each year from death due to ship accidents and gear entanglements.**
4. **The chances of extinction of the North Atlantic right whale under the No Action Alternative would be about _____ %.**
5. **If the chance of extinction of a species over 200 years is 10%, then the chance that it will survive for 200 years must be _____%.**
6. **A chance of extinction of 1% is equivalent to 1 chance in _____.**

Handout 4

3. **If we were to ask you right now which of the alternatives described above you would most favor, do you have enough information to feel confident of your answer?**

_____ Yes. If yes, which alternative would you favor and why?

_____

_____

_____

_____

_____ No. If no, what else would you need to know?

_____

_____

_____

_____

_____

4. **On a scale of 1 to 5, where 1 indicates "definitely disagree" and 5 indicates "definitely agree," please tell us whether you agree or disagree with each of the following statement (please circle answer).**

	Definitely disagree	Somewhat disagree	No opinion	Somewhat agree	Definitely agree
1. Describing the effects of the plans in terms of survival chances stated as percentages was hard for me to understand.	1	2	3	4	5
2. The way you presented them, I found it hard to think about so many alternatives.	1	2	3	4	5
3. That humpback whales would also be saved by new regulations is important to me.	1	2	3	4	5
4. I am only interested in the chance of the species going extinct, not on the number of individual whales saved.	1	2	3	4	5
5. I am concerned about the economic effects of new regulations on commercial fishermen.	1	2	3	4	5
6. I am concerned about the economic effects of new regulations on shipping companies.	1	2	3	4	5

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C.2.9 Handout 4B

Handout 4 First Name: _____

Steps that Might Be Taken to Increase the Right Whale's Chances of Survival

The purpose of this study is to help public officials understand how a cross-section of Americans feel about alternatives to improve the right whale's chances of survival.

Below we refer to alternative plans to protect North Atlantic right whales as the "Full Plan," "Intermediate Plan A," and "Intermediate Plan B." The "No Action Alternative" of doing nothing more to protect the right whales than the current protection measures described is also being considered.

Some steps are already being taken to protect right whales.

- Aircraft are used to keep track of where the whales are located.
- Ships are asked to voluntarily slow down when whales are known to be present.
- Ships, including whale watching vessels, are forbidden from intentionally approaching right whales.
- Some steps have been taken to make fishing gear safer for whales.

As stated in the previous handout, with no additional actions, about six (6) whales a year die from shipping and fishing related accidents, and there is a 20% chance that the North Atlantic right whale will go extinct in 200 years.

Scientists and public officials have identified several additional actions to reduce the number of deaths of North Atlantic right whales from ship accidents and fishing gear entanglements.

- Speed limits could be set for ships in areas where whales are found.
- Ships could be required to go around areas where whales are known to gather.
- More fishermen could be required to use gear designed to make it easier for entangled whales to break free.
- Gear that might entangle whales could be banned in areas where whales gather.

These additional actions to reduce ship accidents and fishing gear entanglements would also reduce losses of other whales in the North Atlantic, but these measures are considered much <u>less important to the survival of other whale species</u>.

The table below summarizes estimates of the effects on whales of each of the alternatives currently being considered. While there is uncertainty about what the exact effects will actually be, the table represents the best estimates of scientists at this time.

FG-5b

Handout 4

	No Additional Action	Intermediate Plan A	Intermediate Plan B	Full Plan
Chances of right whale extinction (200 years)	20% (1 chance in 5)	10% (1 chance in 10)	5% (1 chance in 20)	1% (1 chance in 100)
Average number of right whales saved per year	0	2	4	6
Average number of humpback and other whales saved per year	0	1-2	2-3	4

If no additional actions are taken, scientists predict that:

- The number of right whales and other whales killed because of ship collisions and entanglements will remain at current levels.
- There is a 20% chance that the North Atlantic right whale will go extinct within 200 years.

On the other hand, if the "Full Plan" as depicted on the extreme right hand side of the table above is adopted:

- Very restrictive regulations would be placed on ships and fishing gear.
- Scientists estimate that this plan may save about six (6) right whales and four (4) other whales each year on average.
- Under the "Full Plan," the estimated chance of extinction in the next 200 years would fall to 1% (1 chance in 100).
- Note that even if this very restrictive plan were implemented, there would still be a small chance that the North Atlantic right whale would go extinct in 200 years.

Intermediate Plans A and B would be less restrictive than the Full Plan, but would do less to protect the whales.

Handout 4

1. **Again, we want to see how well we have communicated information to you. Please try to fill in the answer to each of the following questions. Look back at the information in this handout if you like. If you do not know an answer, don't worry. Just go to the next question.**

   1. **In addition to reducing deaths of right whales, further regulations on fishing gear and ships along the U.S. Atlantic Coast also would reduce deaths of _____ whales from these causes.**
   2. **The chances of extinction of the North Atlantic right whale under the Full Plan would be about _____ %.**
   3. **Under Intermediate Plan B, _____ right whales would be saved each year from death due to ship accidents and gear entanglements.**
   4. **The chances of extinction of the North Atlantic right whale under the No Action Alternative would be about _____ %.**
   5. **If the chance of extinction of a species over 200 years is 10%, then the chance that it will survive for 200 years must be _____%.**
   6. **A chance of extinction of 1% is equivalent to 1 chance in _____.**

2. **If we were to ask you right now which of the alternatives described above you would most favor, do you have enough information to feel confident of your answer.**

   _____ Yes. If yes, which alternative would you favor and why?

   _____

   _____

   _____

   _____

   _____ No. If no, what else would you need to know?

   _____

   _____

   _____

   _____

   _____

FG-5b

Handout 4

3. **On a scale of 1 to 5, where 1 indicates "definitely disagree" and 5 indicates "definitely agree," please tell us whether you agree or disagree with each of the following statement (please circle answer).**

	Definitely disagree	Somewhat disagree	No opinion	Somewhat agree	Definitely agree
1. Describing the effects of the plans in terms of survival chances stated as percentages was hard for me to understand.	1	2	3	4	5
2. The way you presented them, I found it hard to think about so many alternatives.	1	2	3	4	5
3. That humpback whales would also be saved by new regulations is important to me.	1	2	3	4	5
4. I am only interested in the chance of the species going extinct, not on the number of individual whales saved.	1	2	3	4	5
5. I am concerned about the economic effects of new regulations on commercial fishermen.	1	2	3	4	5
6. I am concerned about the economic effects of new regulations on shipping companies.	1	2	3	4	5

FG-5b

C.2.10 Handout 5 discussion

Handout 5 introduces the tradeoff between additional protection and increased costs to participant's households for the three management alternatives presented in Handout 4. It explains how new regulations on the shipping industry would increase the prices people pay for imported goods and how new regulations on the commercial fishing industry would increase the prices people pay for fish products. Most importantly, people learn that new regulations would also increase taxes.

The format we adopted here for the choice questions matches that used in some of our other recent studies. Alternative A is always the no-action alternative and always involves zero cost. Alternatives B and C offer increased management at a cost. Subjects are asked to designate their most and least preferred among the three alternatives. We have found from past research that this format works well, provided we carefully lay out the instructions. Following each of the choice questions, we ask participants to state why they chose the most and least preferred alternatives.

Our pretest instrument will include more detailed instructions and examples than were necessary in the focus groups. As in earlier application of this approach, nearly all participants in the Hartford Groups seemed to feel comfortable with the approach by the time they finish their first choice question and had no trouble finishing a total of three choice questions. In the final survey, different versions of the questionnaire can vary the attribute levels and costs in Alternatives B and C using conventional design procedures that will produce data amenable to econometric analysis within a standard random utility framework.

C.2.11 Handout 5

Handout 5 First name: _____

Would Doing More to Protect Right Whales Be Worth It to You?

In considering the alternatives described in Handout 4, government officials must assess not only the effects on the whales but also how much each of the proposals would cost people like you.

Please read the material below carefully and then consider how much right whale protection would be worth to you.

If new regulations on shipping are implemented, the prices you pay for imported goods will increase.

- U.S. consumers now enjoy many products, including cars, clothing, food, oil, and other items that are imported from other countries using ships.
- If ships are required to slow down, they will have to spend more time at sea, driving up their costs.
- It will cost even more if some areas are closed to ships altogether, since they will have to spend even more time at sea and use more fuel to deliver their goods to East Coast ports.
- Shipping companies will pass these extra costs along to consumers of imported goods.

If new regulations on commercial fishing are implemented, the prices you pay for fish products will increase.

- Requiring new fishing gear to reduce whale entanglements will cost fishermen money and they will have to pass these costs along to consumers.
- Closing areas to fishing would cost even more because this will lead to reduced supplies of fish, driving up seafood prices at food stores and restaurants.

If these new regulations are implemented, your taxes would also increase.

- To regulate ships and fishing effectively, public officials need to keep better track of where the whales are; this will require expensive aircraft flights and other equipment to locate whales, paid for from federal income taxes.
- Federal taxpayers would also have to cover the costs of research to find new types of fishing gear and test it at sea.
- Once new regulations on shipping and fishing are in place, additional law enforcement paid for by taxpayers will be needed to make sure ships and fishermen do their parts to implement the new requirements.

FG-5 1

Handout 5

Important Instructions

Please read carefully before answering the next questions.

Your responses to this survey will help public officials decide how many steps, if any, to implement to protect the North Atlantic right whales.

- The next questions will ask you your opinion of three alternative protection programs.
- First, the No Action Alternative is presented.
- Then, the Full Plan and one Intermediate Alternative are also shown.
- The effects of each alternative are summarized in a form like the table you saw in Handout 4.
- Each alternative will also involve a different cost to your household in increased prices and taxes. Since the No Action Alternative involves doing nothing more than is currently done, it would cost you nothing more. The other alternatives will involve higher costs.
- Costs would be incurred by your household each year over the indefinite future.
- You will be asked to choose which alternative (No Action, the Full Plan, and or an Intermediate Plan) you most prefer and which you least prefer.
- There is no right or wrong answer to these questions. Some people may choose the No Action Alternative as their most or least preferred, while others may choose the Full Plan or an Intermediate Plan.
- Any of the tax money you commit would be used exclusively to help protect the North Atlantic right whale through airplane surveys, research on safer fishing gear, and enforcement activities described above.

In answering the next questions, please remember that if any of the alternatives are implemented, your household would not have the amount of money specified to spend on other goods and services or other environmental causes.

Handout 5

1. **Please consider the three alternatives listed below. Check off which alternative you most prefer and which you least prefer.**

	No Action	Full Plan	Intermediate Plan B
Chances of right whale extinction (200 years)	20% (1 chance in 5)	1% (1 chance in 100)	10% (1 chance in 10)
Average number of right whales saved per year	0	6	2
Average number of humpback and other whales saved per year	0	4	1-2
Cost to your household each year	0	$60	$5
Most preferred alternative	☐	☐	☐
Least preferred alternative	☐	☐	☐

2. **In the space provided below, please tell us why you chose the alternatives as most and least preferred.**

FG-5 3

Handout 5

3. **This question is just like the one you just answered except that Intermediate Alternative A now apprears in the last column. Again, please check off which alternative you most prefer and which you least prefer.**

	No Action	Full Plan	Intermediate Plan A
Chances of right whale extinction (200 years)	20% (1 chance in 5)	1% (1 chance in 100)	5% (1 chance in 20)
Average number of right whales saved per year	0	6	4
Average number of humpback and other whales saved per year	0	4	2-3
Cost to your household each year	0	$60	$15
Most preferred alternative	☐	☐	☐
Least preferred alternative	☐	☐	☐

FG-5 4

Handout 5

4. **In this question we have substituted Intermediate Plan B for the Full Plan. Again, please check off which alternative you most prefer and which you least prefer.**

	No Action	Intermediate Plan A	Intermediate Plan B
Chances of right whale extinction (200 years)	20% (1 chance in 5)	5% (1 chance in 20)	10% (1 chance in 10)
Average number of right whales saved per year	0	4	2
Average number of humpback and other whales saved per year	0	2-3	1-2
Cost to your household each year	0	$15	$5
Most preferred alternative	☐	☐	☐
Least preferred alternative	☐	☐	☐

FG-5 5

Handout 5

5. Please consider each of the following statements. ***Check off all items that apply to you.***

- ☐ I had a difficult time deciding which alternatives to choose.
- ☐ I am very confident that my household would really be willing to pay the amount in the alternatives I chose.
- ☐ I chose an alternative with a positive amount, but I probably would not really pay anything.
- ☐ I am strongly opposed to new taxes and that influenced my response.
- ☐ I object to this sort of question.
- ☐ I feel others should pay and that influenced my answer.
- ☐ I would like to help the whales, but I can't afford to pay much.
- ☐ Saving endangered species like the right whale is not a high priority with me.
- ☐ I think the alternatives I chose would be well worth it if it will help the right whales.

6. **Did you feel like you needed more information before you could do a good job of answering the questions that asked you to choose which alternative you most and least preferred?**

- ☐ **No. I had sufficient information to make a decision.**
- ☐ **Yes. (Please use the space below to tell us what additional information would have been helpful to you.)**

_____

_____

_____

_____

_____

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Handout 5

7. **Please use the space below to provide us with any final thoughts you have about our research and how we can design a good survey.**

C.3 Baltimore Focus Groups

The two Baltimore focus groups were conducted by David Chapman on May 11, 2006. These groups were actually conducted in a group setting with eight participants in Group A and nine participants in Group B. The purpose of the Baltimore focus groups was to simply test the full survey instrument to make sure it was ready for pretesting rather than to make additional changes.

The sessions were designed to mimic a self-administered mail survey. After the moderator introduced the ground rules and the ice breaker exercise, he left the room to allow participants to fill out a draft of the survey. The moderator asked participants to write down any comments in the blank space on the side of the text and informed them that there would be a discussion following the interview to talk about what participants were thinking while taking the survey.

We tested two versions of the survey instrument. Group A received a version that talked about the probability of extinction in terms of a 20% chance of extinction and specifically referenced the NARW instead of using the generic term 'right whale.' Group B, on the other hand, received a version that talked about the probability of extinction in terms of one chance in two that right whales will go extinct and used the generic term 'right whale' instead of NARW.

One important finding emerged from these groups: the presentation of the POE as a percentage rather than a chance was more understandable to respondents. Overall, people seemed to understand the survey instrument and were able to make informed decisions about the choice questions.

C.4 Portland One-on-one Interviews

The survey instrument tested in Portland was changed from the version used in Baltimore based on continuing collaboration with NOAA scientists. The major change was to highlight how the proposed plans could benefit humpback whales in addition to NARWs.

Two rounds of one-on-one interviews were conducted in Portland by Richard Bishop, David Chapman, and Kathryn Bisack on July 11, 2006. The purpose of the Portland one-on-one interviews was to make sure the instrument was ready for a pretest. We tested two different versions of the survey instrument. Version A told participants that the chance of extinction for the NARW is 20% over the next 200 years. Version B told participants that the chance of extinction is 50% over the next 200 years.

Based on findings from the Baltimore focus groups and the Portland one-on-one interviews, we found that the presentation of the probability of extinction in terms of percentages was most understandable to people.

C.5 Recruitment Screener

C.5.1 Hartford focus groups

Right Whale Focus Group: Recruitment Screener 11/26/2008

RIGHT WHALE FOCUS GROUPS
RECRUITMENT SCREENER: Hartford, CT

Notes on recruitment, per agreement:

- *Recruit respondents for Tuesday, March 7, 2006 for minimum of 2 groups of 9 respondents.*
- *No more than two individuals in each group from age category 4 and 5. Participants should be roughly distributed across age categories 1-3 based on Census distribution*
- *Participants should have limited (none in the last 6 months) or no focus group/interview experience*
- *No more than two individuals in each group from education category # 5 and no participants from education category 1 or 6. Participants should be roughly distributed across education categories 2-5 based on Census distribution*
- *No participants who's household income exceeds $75,000 per year. Participants should be roughly distributed across income categories 1-5 based on Census distribution*

Recruit per attached schedule. Track # of attempts, no contacts, refusals, and acceptances.

INTRO. Hello, may I speak with **[Contact name]**? My name is **[caller's name]** and I am calling from **[name of firm]**, a professional research firm. We are conducting a study of people's opinions on public policy issues in the United States. This will take only a few minutes *(if asked: 3-4 minutes).*

Q1. Are you 20 years of age or older?

1. No, Less than 20 years of age ----------> Continue to Q2
2. Yes, 20 or more years of age ---------> Continue to Q3

Q2. Is there someone in your household I may speak to who is 20 years of age or older?

1. No ----------> *Thank and TERMINATE*
2. Yes ----------> Ask to have that person put on the phone

(GO BACK TO **INTRO**)

Q3. We'd like your opinion on some policy issues in the United States. I am going to read 7 items. For each item, compared to what is being done now in the United States, please tell me whether you think we should be doing less, doing about the same, or doing more.

	Do less	About the same	Do more	DK/R
Make government more efficient	1	2	3	9
Improve education	1	2	3	9
Improve roads and highways	1	2	3	9
Encourage economic growth and jobs	1	2	3	9
Clean up air and water pollution	1	2	3	9
Protect threatened and endangered species	1	2	3	9
Protecting ocean ecosystems	1	2	3	9

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On Tuesday, March 7, 2006, we will be holding interview sessions to obtain people's opinions on policy issues such as the ones we just asked about. This usually takes about two hours. To thank people for giving us their time to share their opinions, we will be giving participants $50 at the end of the discussion. Your household was randomly chosen to participate through a scientific process in order to obtain a good mix of opinions. I want to stress that this is not a marketing or sales call.

<< Did respondent self-terminate at this point?
1 No (continue)
2 Yes (end of data) >>>>
3

Before I tell you more about the interviews, I'd like to ask you a few questions about yourself and your household. Answering these questions should take only a couple minutes and all answers will be kept confidential.

BACKGROUND, IF NEEDED IN RESPONSE TO QUESTIONS:
>> At these interviews, we will have you complete a survey on public policy issues that addresses one of the above topics. Then you will discuss the survey with a research team member. The survey and discussion take most people about one hour. We are not advised which topic any individual will address.
>> This is for research and is not sales or marketing related in any way. There are no right or wrong answers to the survey.
>> To get different opinions, we want to talk with people from a wide variety of backgrounds and experiences.

Q4. Which of the following broad categories best describes your age? (READ LIST)
1. 20 to 24 years old *<to match with Census categories>*
2. 25 to 44 years old
3. 45 to 64 years old
4. 65 to 74 years old --> *{NO MORE THAN 20% TOTAL RECRUITS*
5. Over 74 years old --> *FROM THESE TWO GROUPS}*
6. REFUSED

Q5. Which of the following best describes the highest level of education you have completed?
1. 8 years or less of school
2. 9 to 12 years of school (high school)
3. Some college or technical school
4. Completed technical school or an associates degree program
5. Completed four year college degree
6. Some or completed graduate school work

9. REFUSED

Q5a. Into which of the following groups does your total annual household income fall before taxes?

1. Under $25,000
2. $25,000 - $35,000
3. $50,000 - $79,000
4. $35,000 - $50,000
5. $50,000 – $75,000
6. More than $75,000

Q6. Do you feel comfortable reading and discussing materials in English?

1. No --------> *Thank and TERMINATE*
2. Yes --------> Continue to Q7

Q7. ***RECORD RESPONDENT'S GENDER*** *<Need a mix>*

1. *Male*
2. *Female*

Q8. Do you, or does any member of your household, work for a.... *(READ LIST)*

		Yes	No
1	**Federal government agency**	**1**	**2**
	If yes----> What Department or Agency?		
	If NOAA, NMFS,.. Thank and TERMINATE	*1*	*2*
	Notes: (NOAA = National Oceanic and Atmospheric Administration) (NMFS = National Marine Fisheries Service)		
2	**Commercial fishing company**	**1**	**2**
	If yes----> *Thank and TERMINATE*		
3	**Market research firm**	**1**	**2**
	If yes----> *Thank and TERMINATE*		

Q9. Have you participated in any focus groups or interviews at a survey center within the last 6 months?

1. No -------> Continue.
2. Yes -------> *Thank and TERMINATE.* "Thank you for your time, these interviews are open only to individuals who have not recently participated in a focus group or interviews at a survey center."

CONTINUE RECRUIT

9. REFUSED

Q5a. Into which of the following groups does your total annual household income fall before taxes?

1. Under $25,000
2. $25,000 - $35,000
3. $50,000 - $79,000
4. $35,000 - $50,000
5. $50,000 – $75,000
6. More than $75,000

Q6. Do you feel comfortable reading and discussing materials in English?

1. No --------> *Thank and TERMINATE*
2. Yes --------> Continue to Q7

Q7. ***RECORD RESPONDENT'S GENDER*** *<Need a mix>*

1. *Male*
2. *Female*

Q8. Do you, or does any member of your household, work for a.... *(READ LIST)*

		Yes	No
1	**Federal government agency**	**1**	**2**
	If yes----> What Department or Agency?		
	If NOAA, NMFS,.. Thank and TERMINATE	*1*	*2*
	Notes: (NOAA = National Oceanic and Atmospheric Administration) (NMFS = National Marine Fisheries Service)		
2	**Commercial fishing company**	**1**	**2**
	If yes----> *Thank and TERMINATE*		
3	**Market research firm**	**1**	**2**
	If yes----> *Thank and TERMINATE*		

Q9. Have you participated in any focus groups or interviews at a survey center within the last 6 months?

1. No -------> Continue.
2. Yes -------> *Thank and TERMINATE.* "Thank you for your time, these interviews are open only to individuals who have not recently participated in a focus group or interviews at a survey center."

CONTINUE RECRUIT

Right Whale Focus Group: Recruitment Screener 11/26/2008

Q10. As I mentioned earlier, we are doing surveys to obtain people's opinions on public policy issues in the United States. You will complete a survey on a public policy issue and discuss the survey with a research team member in a group of about 9 people. This usually takes about 2 hours and we will pay you $50 for your time.

I would like to stress that these sessions are for research purposes only. You will not be asked to buy anything and you will not receive any marketing calls as a result of participating in one of these sessions.

The study will take place at [FILL IN NAME OF RESEARCH FACILITY]. The facility is located at [ADDRESS]. We are scheduling two groups; the first begins at 5:30 pm, the second at 8 pm. Which time would work best for you?

9. RESPONDENT REFUSED --> Thank and terminate.

Thank you. We will be mailing you a confirmation letter with directions to the facility. We will also give you a reminder call the day before the study. If you need glasses for reading, be sure to bring them with you. Also, we are not able to provide childcare during this time, so please make other arrangements if needed.

Since we are recruiting only a small number of people for these interviews, your participation is very important to us. We will send you a letter to remind you of the date, time, and location of the interview, and directions on how to get to the <*site*>. If for some reason you cannot make this time, please call us at XXX.XXX.XXXX and let us know so that we might find a replacement.

Name: _____

Address: _____

_____

_____

Phone Number: ( ) _____

Thank you for agreeing to share your opinions!

If you have questions before the focus group meets, please call **[ENTER APPROPRIATE NAME FOR CONTACT PERSON]** at **[ENTER APPROPRIATE CONTACT PHONE NUMBER]**.

C.5.2 Baltimore focus groups

Right Whale Focus Group: Recruitment Screener 11/26/2008

RIGHT WHALE FOCUS GROUPS
RECRUITMENT SCREENER: Baltimore, MD

Notes on recruitment, per agreement:

- *Recruit respondents for Monday, May 15, 2006 for 2 groups with a minimum 9 respondents in each group.*
- ***Age Distribution**: See Q4 for specific details. Participants should be roughly distributed across age categories based on Census distribution*
- ***Education Distribution**: See Q5 for specific details. Participants should be roughly distributed across education categories based on Census distribution*
- ***Income Distribution**: See Q5a for specific details. Participants should be roughly distributed across income categories based on Census distribution*
- *Participants should have limited (none in the last 9 months) or no focus group/interview experience*

Track # of attempts, no contacts, refusals, and acceptances.

INTRO. Hello, may I speak with **[Contact name]**? My name is **[__caller's name__]** and I am calling from **[__name of firm__]**, a professional research firm. We are conducting a study of people's opinions on public policy issues in the United States. This will take only a few minutes *(if asked: 3-4 minutes)*.

Q1. Are you 20 years of age or older?
1. No, Less than 20 years of age ----------> Continue to Q2
2. Yes, 20 or more years of age ---------> Continue to Q3

Q2. Is there someone in your household I may speak to who is 20 years of age or older?
1. No ----------> *Thank and TERMINATE*
2. Yes ----------> Ask to have that person put on the phone

(GO BACK TO **INTRO**)

Q3. We'd like your opinion on some policy issues in the United States. I am going to read 7 items. For each item, compared to what is being done now in the United States, please tell me whether you think we should be doing less, doing about the same, or doing more.

	Do less	About the same	Do more	DK/R
Make government more efficient	1	2	3	9
Improve education	1	2	3	9
Improve roads and highways	1	2	3	9
Encourage economic growth and jobs	1	2	3	9
Clean up air and water pollution	1	2	3	9
Protect threatened and endangered species	1	2	3	9

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Right Whale Focus Group: Recruitment Screener 11/26/2008

Protecting ocean ecosystems 1 2 3 9

On Monday, May 15, 2006, we will be holding interview sessions to obtain people's opinions on policy issues such as the ones we just asked about. This usually takes about two hours. To thank people for giving us their time to share their opinions, we will be giving participants $60 at the end of the discussion. Your household was randomly chosen to participate through a scientific process in order to obtain a good mix of opinions. I want to stress that this is not a marketing or sales call.

<< Did respondent self-terminate at this point?
1 No (continue)
2 Yes (end of data) >>>>
3

Before I tell you more about the interviews, I'd like to ask you a few questions about yourself and your household. Answering these questions should take only a couple minutes and all answers will be kept confidential.

BACKGROUND, IF NEEDED IN RESPONSE TO QUESTIONS:
>> At these interviews, we will have you complete a survey on public policy issues that addresses one of the above topics. Then you will discuss the survey with a research team member. The survey and discussion take most people about one hour. We are not advised which topic any individual will address.
>> This is for research and is not sales or marketing related in any way. There are no right or wrong answers to the survey.
>> To get different opinions, we want to talk with people from a wide variety of backgrounds and experiences.

Q4. Which of the following broad categories best describes your age? (READ LIST)
1. 20 to 24 years old *<to match with Census categories>*
2. 25 to 44 years old
3. 45 to 64 years old
4. 65 to 74 years old --> *{NO MORE THAN 20% TOTAL RECRUITS*
5. Over 74 years old --> *FROM THESE TWO GROUPS}*
6. REFUSED

Q5. Which of the following best describes the highest level of education you have completed? *<to match with Census categories>*
1. 8 years or less of school
2. 9 to 12 years of school (high school)
3. Some college or technical school
4. Completed technical school or an associates degree program
5. Completed four year college degree---> *{NO MORE THAN 20%*
6. Some or completed graduate school work ---> *TOTAL FROM THESE*
9. REFUSED *TWO GROUPS}*

Right Whale Focus Group: Recruitment Screener 11/26/2008

Q5a. Into which of the following groups does your total annual household income fall before taxes? *<to match with Census categories>*

1. Less than $25,000
2. $26,000 - $35,000
3. $36,000 - $50,000
4. $51,000 - $75,000---> *{NO MORE THAN 20% TOTAL FROM THESE*
5. More than $75,000---> *GROUPS}*

Q6. Do you feel comfortable reading and discussing materials in English?

1. No --------> *Thank and TERMINATE*
2. Yes --------> Continue to Q7

Q7. ***RECORD RESPONDENT'S GENDER*** *<Need a mix>*

1. *Male*
2. *Female*

Q8. Do you, or does any member of your household, work for a.... *(READ LIST)*

		Yes	No
1	**Federal government agency**	**1**	**2**
	If yes----> What Department or Agency?		
	If NOAA, NMFS,.. Thank and TERMINATE	*1*	*2*
	Notes: (NOAA = National Oceanic and Atmospheric Administration) (NMFS = National Marine Fisheries Service)		
2	**Commercial fishing company**	**1**	**2**
	If yes----> *Thank and TERMINATE*		
3	**Market research firm**	**1**	**2**
	If yes----> *Thank and TERMINATE*		

Q9. Have you participated in any focus groups or interviews at a survey center within the last 9 months?

1. No -------> Continue.
2. Yes -------> *Thank and TERMINATE*. "Thank you for your time, these interviews are open only to individuals who have not recently participated in a focus group or interviews at a survey center."

CONTINUE RECRUIT

Q10. As I mentioned earlier, we are doing surveys to obtain people's opinions on public policy issues in the United States. You will complete a survey on a public policy issue and

discuss the survey with a research team member in a group of about 9 people. This usually takes about 2 hours and we will pay you $60 for your time.

I would like to stress that these sessions are for research purposes only. You will not be asked to buy anything and you will not receive any marketing calls as a result of participating in one of these sessions.

The study will take place at [FILL IN NAME OF RESEARCH FACILITY]. The facility is located at [ADDRESS]. We are scheduling two groups; the first begins at 5:30 pm, the second at 8 pm. Which time would work best for you?

9. RESPONDENT REFUSED --> Thank and terminate.

Thank you. We will be mailing you a confirmation letter with directions to the facility. We will also give you a reminder call the day before the study. If you need glasses for reading, be sure to bring them with you. Also, we are not able to provide childcare during this time, so please make other arrangements if needed.

Since we are recruiting only a small number of people for these interviews, your participation is very important to us. We will send you a letter to remind you of the date, time, and location of the interview, and directions on how to get to the <*site*>. If for some reason you cannot make this time, please call us at XXX.XXX.XXXX and let us know so that we might find a replacement.

Name: _____

Address: _____

_____

_____

Phone Number: ( ) _____

Thank you for agreeing to share your opinions!

If you have questions before the focus group meets, please call **[ENTER APPROPRIATE NAME FOR CONTACT PERSON]** at **[ENTER APPROPRIATE CONTACT PHONE NUMBER]**.

C.5.3 Portland one-on-one interviews

Right Whale Focus Group: Recruitment Screener 11/26/2008

RIGHT WHALE FOCUS GROUPS
RECRUITMENT SCREENER: Portland, OR

Notes on recruitment, per agreement:

- *Recruit respondents for Tuesday, July 11, 2006 for 9 respondents.*
- ***Age Distribution**: See Q4 for specific details. Participants should be roughly distributed across age categories based on Census distribution*
- ***Education Distribution**: See Q5 for specific details. Participants should be roughly distributed across education categories based on Census distribution*
- ***Income Distribution**: See Q5a for specific details. Participants should be roughly distributed across income categories based on Census distribution*
- *Participants should have limited (none in the last 9 months) or no focus group/interview experience*

Track # of attempts, no contacts, refusals, and acceptances.

INTRO. Hello, may I speak with **[Contact name]**? My name is **[__caller's name__]** and I am calling from **[__name of firm__]**, a professional research firm. We are conducting a study of people's opinions on public policy issues in the United States. This will take only a few minutes *(if asked: 3-4 minutes)*.

Q1. Are you 20 years of age or older?
1. No, Less than 20 years of age ----------> Continue to Q2
2. Yes, 20 or more years of age ---------> Continue to Q3

Q2. Is there someone in your household I may speak to who is 20 years of age or older?
1. No ----------> *Thank and TERMINATE*
2. Yes ----------> Ask to have that person put on the phone

(GO BACK TO **INTRO**)

Q3. We'd like your opinion on some policy issues in the United States. I am going to read 7 items. For each item, compared to what is being done now in the United States, please tell me whether you think we should be doing less, doing about the same, or doing more.

	Do less	About the same	Do more	DK/R
Make government more efficient	1	2	3	9
Improve education	1	2	3	9
Improve roads and highways	1	2	3	9
Encourage economic growth and jobs	1	2	3	9
Clean up air and water pollution	1	2	3	9
Protect threatened and endangered species	1	2	3	9
Protecting ocean ecosystems	1	2	3	9

Page 1 of 4

Right Whale Focus Group: Recruitment Screener 11/26/2008

On Tuesday, July 11, 2006, we will be holding interview sessions to obtain people's opinions on policy issues such as the ones we just asked about. This usually takes about two hours. To thank people for giving us their time to share their opinions, we will be giving participants $60 at the end of the discussion. Your household was randomly chosen to participate through a scientific process in order to obtain a good mix of opinions. I want to stress that this is not a marketing or sales call.

<< Did respondent self-terminate at this point?

1. No *(continue)*
2. Yes *(end of data) >>>>*

Before I tell you more about the interviews, I'd like to ask you a few questions about yourself and your household. Answering these questions should take only a couple minutes and all answers will be kept confidential.

BACKGROUND, IF NEEDED IN RESPONSE TO QUESTIONS:
>> At these interviews, we will have you complete a survey on public policy issues that addresses one of the above topics. Then you will discuss the survey with a research team member. The survey and discussion take most people about one hour. We are not advised which topic any individual will address.
>> This is for research and is not sales or marketing related in any way. There are no right or wrong answers to the survey.
>> To get different opinions, we want to talk with people from a wide variety of backgrounds and experiences.

Q4. Which of the following broad categories best describes your age? (READ LIST)

1. 20 to 24 years old *<to match with Census categories>*
2. 25 to 44 years old
3. 45 to 64 years old
4. 65 to 74 years old --> *{NO MORE THAN 20% TOTAL RECRUITS*
5. Over 74 years old --> *FROM THESE TWO GROUPS}*
6. REFUSED

Q5. Which of the following best describes the highest level of education you have completed?

1. 8 years or less of school *<to match with Census categories>*
2. 9 to 12 years of school (high school)
3. Some college or technical school
4. Completed technical school or an associates degree program
5. Completed four year college degree--->*{NO MORE THAN 20% TOTAL*
6. Some or completed graduate school work --->*FROM THESE TWO GROUPS}*
7. REFUSED

Right Whale Focus Group: Recruitment Screener 11/26/2008

Q5a. Into which of the following groups does your total annual household income fall before taxes? *<to match with Census categories>*

1. Less than $25,000
2. $26,000 - $35,000
3. $36,000 - $50,000
4. $51,000 - $75,000---> *{NO MORE THAN 20% TOTAL FROM THESE*
5. More than $75,000---> *GROUPS}*

Q6. Do you feel comfortable reading and discussing materials in English?

1. No --------> *Thank and TERMINATE*
2. Yes --------> Continue to Q7

Q7. ***RECORD RESPONDENT'S GENDER*** *<Need a mix>*

1. Male
2. Female

Q8. Do you, or does any member of your household, work for a.... *(READ LIST)*

		Yes	No
1.	**Federal government agency**	**1**	**2**
	If yes----> What Department or Agency?		
	If NOAA or NMFS, Thank and TERMINATE	*1*	*2*
	Notes: (NOAA = National Oceanic and Atmospheric Administration) *(NMFS = National Marine Fisheries Service)*		
2.	**Commercial fishing company**	**1**	**2**
	If yes----> *Thank and TERMINATE*		
3.	**Market research firm**	**1**	**2**
	If yes----> *Thank and TERMINATE*		

Q9. Have you participated in any focus groups or interviews at a survey center within the last 9 months?

1. No -------> Continue.
2. Yes -------> *Thank and TERMINATE.* "Thank you for your time, these interviews are open only to individuals who have not recently participated in a focus group or interviews at a survey center."

CONTINUE RECRUIT

Q10. As I mentioned earlier, we are doing surveys to obtain people's opinions on public policy issues in the United States. You will complete a survey on a public policy issue and discuss the survey with a research team member. This usually takes about 2 hours and we will pay you $60 for your time.

I would like to stress that these sessions are for research purposes only. You will not be asked to buy anything and you will not receive any marketing calls as a result of participating in one of these sessions.

The study will take place at [FILL IN NAME OF RESEARCH FACILITY]. The facility is located at [ADDRESS]. We are scheduling two groups; the first begins at 5:30 p.m., the second at 8 p.m. Which time would work best for you?

RESPONDENT REFUSED --> *Thank and TERMINATE.*

If a time is chosen:

Thank you. We will be mailing you a confirmation letter with directions to the facility. We will also give you a reminder call the day before the study. If you need glasses for reading, be sure to bring them with you. Also, we are not able to provide childcare during this time, so please make other arrangements if needed.

Since we are recruiting only a small number of people for these interviews, your participation is very important to us. We will send you a letter to remind you of the date, time, and location of the interview, and directions on how to get to the <*site*>. If for some reason you cannot make this time, please call us at XXX.XXX.XXXX and let us know so that we might find a replacement.

Name: _____

Address: _____

_____

_____

Phone Number: ( ) _____

Thank you for agreeing to share your opinions!

If you have questions before the focus group meets, please call **[ENTER APPROPRIATE NAME FOR CONTACT PERSON]** at **[ENTER APPROPRIATE CONTACT PHONE NUMBER]**.

D. Probability of Extinction = 0 Instrument Revisions

DRAFT

MANAGEMENT OPTIONS FOR THE NORTH ATLANTIC RIGHT WHALE – WHAT IS YOUR OPINION?

The North Atlantic right whale inhabits the waters near the East Coast of the United States. The federal government is considering options to increase protection of this species. Because this would end up costing U.S. households more money, the government is interested in the views of U.S. households about whether some type of increased protection should be undertaken. Therefore, we need to hear from a cross-section of U.S. households so your opinions can be considered along with information from scientists and managers.

Do not be concerned if you are not familiar with this issue: we will provide you with information to help you answer the questions.

Your participation in this survey is voluntary. Your name and address will be kept separate from your responses and not disclosed. Only your responses will be provided to the researchers for analysis.

This survey is funded by the National Oceanic and Atmospheric Administration, a U.S. government agency charged with making decisions about the North Atlantic right whale.

The material in this survey is based on the best available information from government, university, and industry scientists.

OMB Control Number_____ Expiration Date 00/00/2008

Q1 We are faced with many problems in this country, none of which can be solved easily or inexpensively. Below are some of these problems. For each one, please indicate whether you think we are spending too little money on it, about the right amount, or too much money on it.

Please check one box for each row.

	We are spending:		
	Too little ▼	About the right amount ▼	Too much ▼
The space exploration program	☐	☐	☐
Improving and protecting the environment	☐	☐	☐
Improving and protecting the nation's health	☐	☐	☐
Solving the problems of big cities	☐	☐	☐
Halting the rising crime rate	☐	☐	☐
Dealing with drug addiction	☐	☐	☐
Improving the nation's education system	☐	☐	☐
Reducing air and water pollution	☐	☐	☐
Saving endangered animals and plants	☐	☐	☐

Background on Whales

Here is some general information about whales.

- Several different whale species inhabit all the major oceans of the world.
- Whales are mammals. Unlike fish, whales are warm-blooded and bear live young.
- Whales breathe air through openings on the tops of their heads, which are often called "blow holes."

Some species are protected under the U.S. Endangered Species Act. According to the act:

An endangered species is a plant or animal species that is in danger of going extinct in the areas where it normally lives unless actions are taken to protect it.

Including the North Atlantic right whale, there are five (5) endangered species of whales that are seen, at least occasionally, near the U.S. Atlantic Coast.

There currently are 68 mammals, 75 birds, 75 fish, 191 other species such as reptiles and insects, and 598 plants in the United States listed as endangered under the Endangered Species Act.

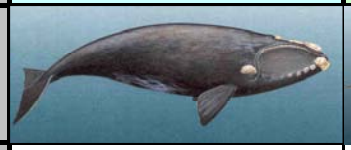
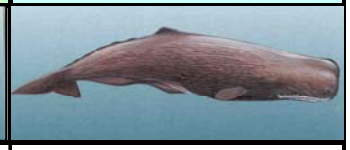
There are 11 whale species on the Endangered Species list including the 5 species near the Atlantic Coast.

The federal government places whales on the Endangered Species Act to protect them from whaling and to protect the places where they live.

Q2 **When you think of the Endangered Species Act, how positive or negative is your general reaction?** *Circle the number of your answer.*

1 Mostly positive
2 Somewhat positive
3 Neither positive or negative
4 Somewhat negative
5 Mostly negative

Endangered Whales of the U.S. North Atlantic

Species	North Atlantic Right Whale	Fin Whale	Sei Whale	Humpback Whale	Sperm Whale
					
Population in North Atlantic U.S. waters	About 300	About 3,000	At least 1,000	About 1,000	About 5,000
Length	About 55 feet (adults) 15 feet (at birth)	About 80 feet (adults) 21 feet (at birth)	About 60 feet (adults) 15 feet (at birth)	About 50 feet (adults) 16 feet (at birth)	About 60 feet (adults) 13 feet (at birth)
Lifespan	About 70 years	About 90 years	About 70 years	About 50 years	About 70 years
Number of years between calves	3-6 years	2-3 years	2-3 years	2-3 years	3-6 years

Q3 How often, if at all, have you read about whales or seen TV programs about them?
Check one answer only.

- ☐ Never
- ☐ Once or twice
- ☐ Three or four times
- ☐ Five times or more

Q4 **How often, if at all, have you gone whale watching to see whales in their natural environment?**
Check one answer only.

- ☐ Never
- ☐ Once
- ☐ 2-4 times
- ☐ 5-10 times
- ☐ More than 10 times

If you have gone whale watching, please tell us where you have gone.
Check all that apply

- ☐ U.S. Atlantic Waters
- ☐ U.S. Gulf of Mexico
- ☐ U.S. Pacific Waters (including Alaska and Hawaii)
- ☐ Other. Where?

_____

_____

More Background on North Atlantic Right Whales

Some additional facts about North Atlantic right whales:

- Right whales do not eat fish, but only eat plankton (which are very small animals in the ocean).
- In summer, most North Atlantic right whales are near New England and southeastern Canada, feeding and raising their young.
- After migrating along the U.S. Atlantic Coast, most of the pregnant females and some younger whales winter in the coastal waters of South Carolina, Georgia, and Florida
- Historically, there were thousands of North Atlantic right whales, but whaling drastically reduced the size of the population. Whaling has been banned since 1935.
- Commercial whaling for North Atlantic right

While the North Atlantic right whale is still on the Endangered Species list, it is doing well these days.

- The North Atlantic right whale's population is stable at about 300 whales; in fact, the population may be increasing slowly.
- The Endangered Species Act and international treaties forbid the killing of North Atlantic right whales. These laws protect them from whaling.
- If this protection were withdrawn and whaling began, the North Atlantic right whale would likely become extinct in a few years.
- Hence, the North Atlantic right whale is kept on the Endangered Species list.

The other whale species, fin, sei, humpback and sperm, have even larger populations and are also not expected to become extinct so long as whaling is forbidden.

Some whales from these other species inhabit the same areas as the North Atlantic right whale. For this reason, these other whales will be considered again later in the survey.

In addition to the North Atlantic right whale, there are three other species of right whales. Two of these other species live in the North Pacific ocean, and one of them lives in the oceans of the southern hemisphere. Their habitats do not overlap and they do not interbreed with North Atlantic right whales.

The **western Pacific** right whale lives along the coast of Russia. Scientists know less about this population and estimate that there are between 100 to 300 individuals.

The **eastern Pacific** right whale is found off the coast of Alaska and the Pacific Coast of Canada. The total number of individuals identified in the Alaska/Canadian population is 23. Because there are so few animals left, the eastern Pacific right whale is very likely to become extinct in the next 100 years.

The **southern** right whales are found only in the Southern Hemisphere, far from the United States. They do not come into U.S. waters, their populations are increasing, and they are not listed as an endangered species.

Our study focuses on the North Atlantic right whale

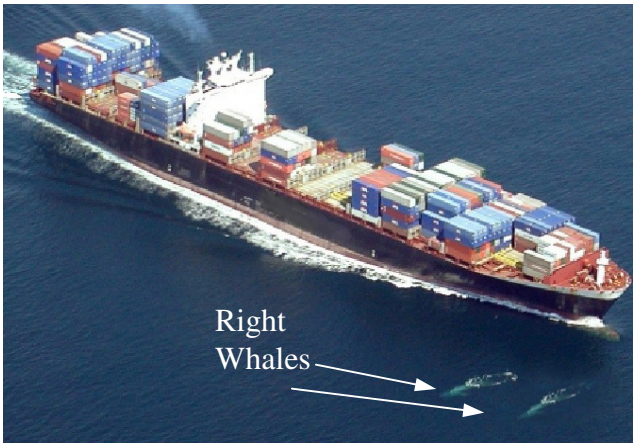
Q5 Had you every heard about the North Atlantic right whale before this survey? *Please check the box for your answer.*

- ☐ Yes
- ☐ No

Threats to the North Atlantic Right Whale

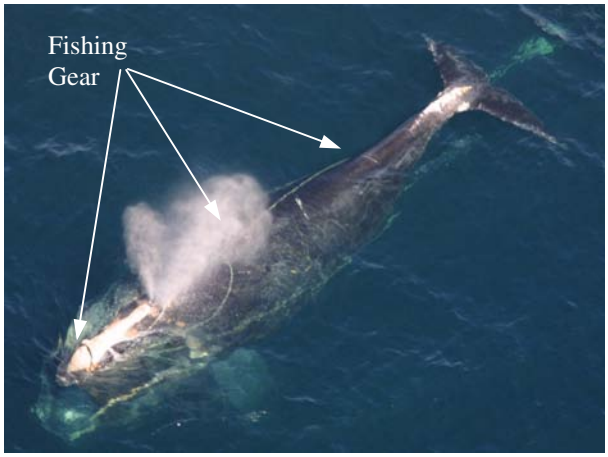
North Atlantic right whale mother and calf

Though losses are not large enough to cause extinction, some North Atlantic right whales continue to be killed in collisions with ships and by entanglement is fishing gear.



The pictures above show whales close to passing ships.

- Sometimes, whales are struck and injured or killed by ships.
- Ship traffic along our eastern seaboard is growing.
- Newer ships travel faster, which may make it harder for whales to get out of the way.
- Ship collisions are expected to cause deaths of North Atlantic right whales in the future.



These pictures show North Atlantic right whales entangled in fishing gear.

- Whales often get tangled in fishing gear, but usually they break free and survive.
- Sometimes whales get tangled in gear, but cannot break free. When this happens, they may die.
- Fishing gear is expected to cause deaths of North Atlantic right whales in the future.

Because some other whale species, such as humpback, fin and sei, inhabit the same areas as North Atlantic right whales, the same ships and fishing gear that can cause death to North Atlantic right whales also occasionally kill some of these other whales.

Other Possible Problems

People often ask us about possible problems other than collisions with ships and entanglements in fishing gear:

- Pollution: Scientists are continuing to investigate, but so far there is no evidence that pollution is a serious problem for North Atlantic right whales.
- Food supply: Lack of food does not seem to be a factor; supplies of plankton appear to be more than adequate to support a larger population of North Atlantic right whales.
- Beaching: Some whale species occasionally beach themselves and die, North Atlantic right whales do not seem to do this.

Q7 **We have presented you with a lot of information. To see how well we are communicating this information to you, please answer the True-False questions below. Don't be embarrassed if you don't know an answer. Just circle DK for "Don't Know" and go on to the next question. Feel free to look back if you want to review the information already provided.** *For each statement, circle T for True, F for False, or DK for Don't Know.*

T	F	DK	There is only one species of right whale in the North Atlantic Ocean.
T	F	DK	North Atlantic right whales feed on fish.
T	F	DK	The North Atlantic right whale is endangered because of pollution.
T	F	DK	Currently, North Atlantic right whales are not being lost to whaling
T	F	DK	The population of North Atlantic right whales is stable or perhaps growing despite occasional deaths due to ship accidents and entanglements in fishing gear.
T	F	DK	Several endangered species of whales inhabit the North Atlantic Ocean.
T	F	DK	All whales that become entangled in fishing gear will ultimately die as a result.

Effects of Ships and Fishing Gear on North Atlantic Right Whales

Despite efforts to protect North Atlantic right whales, scientists estimate that collisions with ships and entanglements in fishing gear are still killing at least 14 North Atlantic right whales, on average, each year.

Scientists use computer models to predict the effects of these losses on the North Atlantic right whale's chances of extinction.

- Even though ship collisions and fishing gear will continue to take their toll, enough North Atlantic right whales survive and reproduce each year to keep their population level stable and avoid the possibility of extinction.
- So long as the North Atlantic right whale is protected from whaling, its future looks bright.

Effects of Ships and Fishing Gear on Other Whales

In the same areas where the North Atlantic right whales live, humpback, fin, and sei whales are also lost to ships and fishing gear. Scientists estimate that a total of about 14 of these whales are lost each year.

-
- Despite these losses, these other whale populations are doing very well.
- Scientists say that, as long as whaling continues to be banned, these populations are not in danger of becoming extinct.
- These populations are kept on the endangered species list to prevent whaling.

Q8 We would like would like to know your views about the following statements. Please tell us whether you definitely disagree, somewhat disagree, neither disagree or agree, somewhat agree, or definitely agree with each of the following statements.
Please check one box for each statement.

	Definitely disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Definitely agree
I can accept the losses of whales to ship collisions and fishing gear so long as the North Atlantic right whale does not become extinct as a result.	☐	☐	☐	☐	☐
The chances that the North Atlantic right whale will become extinct must really be greater than what scientist predict using computer models.	☐	☐	☐	☐	☐

Possible New Regulations To Protect North Atlantic Right Whales

Additional regulations on ships and fishing gear are being proposed that would reduce whale deaths.

For ships along the U.S. East Coast:

- Current regulations:
  - Ships are encouraged to avoid areas where there are high concentrations of North Atlantic right whales, but compliance is voluntary.
  - Ships are requested to slow down in some areas when whales are present, but compliance is voluntary.
- Proposed new regulations to reduce North Atlantic right whale deaths due to ships:
  - Ships would be banned in some areas where there are especially high concentrations of North Atlantic right whales.
  - In some other areas where North Atlantic right whales are not so highly concentrated, mandatory speed limits would be enforced.

For fishing gear along the U.S. East Coast:

- Current regulations:
  - Only a few areas are closed to fishing when whales are present.
  - Gear that is safer for whales is required in only a few fisheries.
- Proposed new regulations to reduce North Atlantic right whale deaths due to fishing gear:
  - Many more areas would be closed to fishing during times of the year when North Atlantic whales are concentrated there.
  - New gear that is safer for whales would be required to be used in all of the North Atlantic right whale's habitat.

If fully implemented, scientists estimate that the proposed new regulations to aid the North Atlantic right whale would:

- Prevent the death of four (4) North Atlantic right whales per year on average.
- Prevent the death of a total of about two (2) humpback, fin, and sei whales per year.
- Remember extinction of any of these whale species is very unlikely even if new regulations are not enacted.

People sometimes wonder: Why not use <u>sonar, radar, satellites, or noise makers</u> to help the whales?

- Because of waves, sonar and radar do not work well in locating objects near the surface of the water where whales are most vulnerable.
- Satellites are of little help because of cloud cover, the large area that would have to be surveyed, and the fact that whales stay underwater for long periods.
- Scientists tried to find ways to make sounds to frighten whales away from ships and fishing gear, but so far they have failed.
- Researchers are continuing to seek new technologies to aid the whales.

Should We Do More to Protect the North Atlantic Right Whale?

People have different opinions about how much should be done to protect the North Atlantic right whale. Some people think that the North Atlantic right whale should get further protection because:

- it is a magnificent part of wild nature;
- whales have a right to live;
- they would like to see them or have others see them in the future;
- deaths of other whales would also be avoided.

Others think that further protection is not desirable because:

- we, as a nation, have many higher priorities than protecting whales that are unlikely to become extinct;
- we cannot afford to spend much on protecting animals that are of such limited direct usefulness to humans;
- the North Atlantic right whale will survive even if nothing more is done;
- the other whale species do not need this protection to survive.

The continuing loss of some North Atlantic right whales will not harm the ecosystem of the North Atlantic Ocean.

- The ecosystem of the North Atlantic is huge, and North Atlantic right whales inhabit only a small portion of this ecosystem.
- Scientists have concluded that continuing losses of North Atlantic right whales due to ship collisions and entanglement in fishing gear would have only minor ecological effects.
- For example, the populations of the plankton that right whales feed on are so large that they are not affected significantly by right whales.

Q9 For each statement below, please indicate whether you definitely disagree, somewhat disagree, neither disagree nor agree, somewhat agree, or definitely disagree.

Please check one box for each statement.

	Definitely disagree	**Somewhat disagree**	**Neither disagree nor agree**	**Somewhat agree**	**Definitely agree**
I trust scientists when they say that continuing losses of North Atlantic right whale would not cause serious ecological problems in the North Atlantic Ocean.	☐	☐	☐	☐	☐
I think it is logical to expect that continuing losses of the North Atlantic right whales will do serious harm to the ecosystem of the Atlantic Ocean.	☐	☐	☐	☐	☐

Which Alternative Do You Prefer?

In considering alternatives to give North Atlantic right whales more protection, government officials must assess not only the effects on the whales but also the costs to people like you.

- Prices paid by you as a consumer would increase.
  - Prices for imported goods, including cars, clothing, food, oil, and other items, will increase since ships will have to spend more time at sea and pay extra fuel costs.
  - If we close certain areas to fishing and require new gear that is safer for whales, this will increase the prices you pay for fish products.
- Your taxes would also increase.
  - Many of the costs to enforce new regulations on ships and commercial fishing will have to be paid by taxpayers.
  - Tax money will also be needed to support research on new fishing gear that is safer for whales and to better monitor, and report, whale locations.

As you consider the costs in the questions asked below, please bear in mind:

- This would be a permanent increase in higher prices and taxes, since the new regulations would continue to be in force.
- If you spend money for whale protection, it will not be available to buy other things, including protection for other species.

The tables on the next pages will allow you to compare the effects of alternative plans to protect the North Atlantic right whale, including the cost to your household in higher prices and taxes.

Different plans will use different protection methods. Some plans may use more shipping regulations and other plans may use more fishing regulations. In addition, different plans may result in different numbers of North Atlantic right whales and other whales saved.

As you answer the questions below, remember that, provided whaling continues to be banned, the North Atlantic right whale will not become extinct even if nothing more is done to protect them.

As an example, this table compares the effects of three alternative plans to protect the North Atlantic right whale, including the cost to your household in higher prices and taxes.

	No New Actions	Full Plan	Partial Plan A
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**

The "No New Actions" column shows the results of current regulations. Since nothing more would be done to protect the whales:

- Deaths of North Atlantic right whales and other whales would not be reduced.
- There would be no additional costs to your household.

The "Full Plan" column shows what would be expected to happen if all the steps to protect North Atlantic right whales outlined above were implemented.

- On average, four (4) North Atlantic right whales and two (2) other whales would be saved each year.
- The cost to your household would be $50 per year.

The "Partial Plan A" column shows the results for the whales and costs if we do less and spend less on North Atlantic right whale protection than under the Full Plan.

- Fewer North Atlantic right whales and other whales would be saved.
- The cost to your household would be $5 per year.

EXAMPLE

The table on this page is exactly like the one you just looked at except that it has space at the bottom to indicated which alternative is most preferred and which is least preferred.

In this EXAMPLE, if your most preferred alternative was "No New Action" you would have put a check mark in the box indicated below. If your least preferred alternative was the "Full Plan", then you would have put a check mark in that box as indicated.

	No New Actions	Full Plan	Partial Plan A
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**
Most preferred alternative →	☑	☐	☐
Least preferred alternative →	☐	☑	☐

On the next few pages, you will be asked to provide YOUR choices of YOUR most and least preferred alternatives.

Q10 The table on this page is exactly like the one you just looked at except that it has space at the bottom for you to give us your opinions on the three alternatives.

We would like you to tell us which of these alternatives (No New Actions, the Full Plan, or Partial Plan A) you most prefer and which you least prefer.

- There are no right or wrong answers to these questions. Some people may choose the No New Actions as their most or least preferred, while others may choose the Full Plan or Partial Plan A.
- Additional costs to your household in higher prices and taxes each year would be permanent.

Below, please check which of the alternatives you most prefer *and* which you least prefer.

	No New Actions	Full Plan	Partial Plan A
Average number of North Atlantic right whales saved per year	**0**	**4**	**1**
Average number of other whales saved per year	**0**	**2**	**0**
Additional annual cost to your household	**$0**	**$50**	**$5**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Just to make sure we were clear, you should have checked one box in the "Most preferred alternative" row, and one box, from a different column, in the "Least preferred alternative" row.

Q11 **This question is similar to the one you just answered except a different partial alternative, Partial Plan B, now appears in the last column. Plan B would do more than Plan A but would also cost more.** *Again, please check off which alternative you most prefer and which you least prefer***.**

	No New Actions	**Full Plan**	**Partial Plan B**
Average number of North Atlantic right whales saved per year	**0**	**4**	**2**
Average number of other whales saved per year	**0**	**2**	**4**
Additional <u>annual cost</u> to your household	**$0**	**$50**	**$25**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Q12 The next question is like the two you just answered except that now we ask you to compare No New Actions, Partial Plan A, and Partial Plan B. Again, please check off which alternative you most prefer *and* which you least prefer.

	No New Actions	Partial Plan A	Partial Plan B
Average number of North Atlantic right whales saved per year	**0**	**1**	**2**
Average number of other whales saved per year	**0**	**0**	**4**
Additional annual cost to your household	**$0**	**$5**	**$25**
Most preferred alternative →	☐	☐	☐
Least preferred alternative →	☐	☐	☐

Q13 The last three questions are asked to obtain public input for decision makers to consider along with information from scientists and managers. These types of questions are difficult for some people and not so difficult for others.

How difficult was it for you to answer Q10, Q11, and Q12?

Check the box with the best answer.

Extremely difficult	Very difficult	Moderately difficult	Slightly difficult	Not at all difficult
☐	☐	☐	☐	☐

Please think back to Questions Q10, Q11, and Q12 where we asked you to consider which alternatives you most and least preferred.

We are interested in what you were thinking about the information we provided when you answered those questions.

Q14. When you chose your most preferred programs, did you think that your household would pay the higher tax amount stated, or did you think you would pay more than that amount, or less than that amount? *Circle the number of the answer that applies to you.*

1. The amount stated.

2. More than the amount.

3. Less than the amount.

Q15. When you chose your most preferred programs, did you think the chances of the North Atlantic right whale becoming extinct even without additional protection were not likely at all, moderately likely, or extremely likely? *Circle the number of the answer that applies to you.*

1. Not likely at all.

2. Moderately likely.

3. Extremely likely.

Q16. For each program you considered, we told you how many other whales — humpback, fin, and sei whales — would be saved. When you chose your most preferred programs, did you think the numbers of other whales that would be saved were about what we said, more than what we said, or less than what we said? *Circle the number of the answer that applies to you.*

1. About what you said.

2. More than what you said.

3. Less than what you said.

Q17. We would like to learn more about how you reacted to the questions that asked you to choose which alternatives you most and least preferred. From strongly disagree to strongly agree, how do you feel about these statements?
Please check one box for each statement.

	Strongly disagree	Somewhat disagree	Neither disagree nor agree	Somewhat agree	Strongly agree
Cost should not be a factor when protecting the environment	☐	☐	☐	☐	☐
There was not enough information for me to make informed decisions about protecting the North Atlantic right whale	☐	☐	☐	☐	☐
I took very seriously the questions asking me to choose between alternative plans	☐	☐	☐	☐	☐
I was concerned that the government could not actually implement these kinds of changes to ship traffic and fishing gear	☐	☐	☐	☐	☐
I would like to help the whales, but I can't afford to pay much	☐	☐	☐	☐	☐
I am opposed to this sort of question	☐	☐	☐	☐	☐
If other whales, such as humpback, fin, and sei whales, are saved, then this will improve their chances of survival	☐	☐	☐	☐	☐
The public's views should be important when the government chooses how to protect the North Atlantic right whale	☐	☐	☐	☐	☐
The United States should place a high priority on protecting animals like the North Atlantic right whale even if I have to help pay part of the costs of protection	☐	☐	☐	☐	☐
If ships and fishermen cause problems for whales, then ship owners and fishermen, not I, should have to pay to fix the problem	☐	☐	☐	☐	☐
I believe that it is important to save individual North Atlantic right whales even if it would not change the chances that the species will go extinct	☐	☐	☐	☐	☐

About You and Your Household

Below are some standard questions like those asked in the U.S. Census. Your answers will be used to compare our survey respondents with the U.S. population. Your responses will be kept confidential and separate from your name and address. Your personal information will not be sold to or shared with anyone. Material identifying you will be destroyed at the end of the study.

H1 **Are you male or female?** 1 Male 2 Female

H2 **In what year were you born?** 19____

H3 **How many people live in your household? _____**

Please indicate how many people in each age group.
If none for a category please write "0."

_____Under 18 _____18 to 35 _____36 to 60 _____Over 60

H4 **Which of the following best describes your employment status?**
Circle the number or numbers that best fit your employment status.

1 Employed full-time
2 Employed part-time
3 Homemaker
4 Student
5 Retired
6 Currently unemployed
7 Other
*(please specify)*_____

H5 **Have you or a family member been employed in the commercial fishing or shipping industry?** *Circle the number of your answer*

1 Yes
2 No
3 Don't know

H6 On another subject. would you say you think of yourself as not an environmentalist at all, slightly an environmentalist, a moderate environmentalist, a strong environmentalist, or a very strong environmentalist?

Circle the number of your answer

1. Not an environmentalist at all
2. Slightly an environmentalist
3. A moderate environmentalist
4. A strong environmentalist
5. A very strong environmentalist

H7 What is the highest grade or level of school you have completed?
Circle the number of your answer.

1	Less than 9th grade	5	Bachelor's degree (for example: BA, BS)
2	12th grade, NO DIPLOMA	6	Master's degree (for example: MA, MS, MEng, Med, MBA)
3	High School Graduate (Diploma or equivalent GED)	7	Professional degree (for example: MD, DDS, DVM, LLB, JD)
4	Associate degree (for example: AA, AS) or technical school	8	Doctorate degree (for example: PhD, EdD)

H8 How many listed telephone numbers, including cell phones, does your household have?
_____ listed telephone numbers

NOTE: Please answer BOTH Questions H9 and H10.

H9 Are you Spanish/Hispanic/Latino? *Circle **No** if you are not Spanish/Hispanic/Latino.*

1 **No**, not Spanish/Hispanic/Latino
2 Yes, Mexican, Mexican American, Chicano
3 Yes, Puerto Rican
4 Yes, Cuban
5 Yes, other Spanish/Hispanic/Latino _____

H10 Which of the following best describes your race? *Circle one or more.*

1 White
2 Black, African American, Negro
3 American Indian or Alaska Native
4 Asian Indian
5 Chinese
6 Filipino
7 Japanese
8 Korean
9 Vietnamese
10 Native Hawaiian
11 Guamanian or Chamorro
12 Samoan
13 Other Asian _____
14 Other Pacific Islander _____
15 Other _____

H11 What was your household income (before taxes) in 2008 from all sources, including wages, salaries, pensions, Social Security, savings accounts, investments, and other sources? *Circle one number.*

1 Less than $10,000
2 $10,000 to $19,999
3 $20,000 to $29,999
4 $30,000 to $39,999
5 $40,000 to $49,999
6 $50,000 to $59,999
7 $60,000 to $79,999
8 $80,000 to $99,999
9 $100,000 to $124,999
10 $125,000 to $149,999
11 $150,000 to $200,000
12 $200,000 or more

Thank you for your time.

Please use the space below to provide us with any other comments you would like to make.

E. Peer Review Comments

E.1 NOAA Internal Review with Responses

Below is the response to the five concerns raised in an April 11, 2008 memorandum from S&T economists regarding the design of the pretest survey instrument. These comments are based on an older version of the survey instrument and not the one included in this report.

While the team believes it addressed the majority of potential biases in the survey, the team anticipated gathering additional information from a planned national pretest. Below we provide detailed responses to the issues raised by S&T economists, based on the research conducted to date.

E.1.1 *Issue:* Survey length

Response: The research team acknowledges that at 29 pages, the instrument is long compared to some surveys. However, appropriate length is survey specific. Practice dictates that a survey should be as long as necessary to describe the good (NARW protection), substitutes (other whales), the cost (higher prices and taxes), and necessary cautions and caveats (e.g., budget constraint, uncertainty).

During the focus groups and interviews, participants consistently indicated that the current instrument was engaging and that the length was appropriate to the complexity of the problem. The layout of the instrument incorporated significant white space, pictures, and questions to minimized participant overload. During the interviews, participants completed the survey in 20-30 minutes. Whales have a salience with people and when participants were debriefed, they clearly stated that they thought the information was interesting, informative, and useful.

Survey length may reduce the overall response rate to the final survey or cause respondents to skip some of the questions. Recognizing that we paid participants in focus groups and other sessions for their time, the planned pretest was critical to determining whether survey length would adversely affect the response rate in the general population and for checking for the potential for nonresponse bias. Additionally, the survey was to include a financial incentive ($10), which has been shown to increase response rates (Dillman, 2007).

E.1.2 *Issue:* Information effects

Response: Information effects, also called information bias, can come about for a number of reasons including biased information, wrong information, and information overload. During focus groups and interviews, respondents consistently stated that the information did not appear to be biased either toward or against protection, suggesting that the information is not presented in a biased fashion. Responses by participants both for and against protection supported these statements. As well, the survey information is based on the best available scientific information, and as such is not "wrong."

The S&T economists' comments, which focused on the "vast amount of information" in the survey, suggests the potential for information overload by participants. In part, such a problem may be the result of incorporating additional information to highlight the realism of the valuation scenario. According to Mitchell and Carson (1989) in such a situation, the respondents ignore important information and instead focus on unimportant information in determining their WTP value (p. 216). In such cases, uncertain respondents may incorporate valuation-neutral information as cues to their WTP response, and thus the WTP estimate may be biased.

Potential strategies to address possible information overload include extensive pretesting of the design in focus groups, interviews, and mini-survey implementation (i.e., the planned pretest). Both focus groups and interviews were used extensively to reduce the amount of information presented to the minimum that still allowed participants to fully grasp the scenario. A second way to minimize the potential for bias in responses is to allow uncertain respondents the opportunity to say, "I don't know." This is used extensively in the survey instrument for opinion questions and in the WTP choices, which allows for a status quo choice.

As mentioned above, focus group and interview participants consistently indicated that the survey held their attention. As well, during the debriefs, participants were able to articulate their reasons for choices for and against protection and those decisions were based on salient information in the survey.

E.1.3 *Issue:* Color photographs and leading language

Response: Concerns regarding leading language are addressed above.

There are two principle concerns with the use of photographs (color or otherwise) in a contingent valuation survey. First, respondents may be sidetracked by something in the picture that is not relevant to the survey. To address this concern, the team took great care to locate photographs that focused on the issue of concern and contained no extraneous information. Study subjects were explicitly asked about their reaction to the photographs during focus groups and interviews to avoid this sort of problem.

The second concern, and the one of most concern to the team, is that photographs may bias WTP values. As some public comments indicated, both ship strike and entanglement deaths may be quiet gruesome. The research team chose to use photographs that that were not so graphic but did show such incidents can and do happen. Under the conditions that respondents value protecting individual whales from these types of injuries, our use of less graphic pictures will provide a conservative estimate of the public's willingness to pay to prevent such injuries. Photographs were deemed necessary as some respondents were unclear how ship strikes or entanglements could occur, or if they did occur.

E.1.4 *Issue:* Attributes defined as percentages

Response: As with other aspects of the survey, the team tested the use of percentages in focus groups and interviews. Respondents did not have a problem with the use of percentages. The external reviewers, who have experience in the use of percentage attributes in contingent valuation studies, stated the percentages were presented in an appropriate manner. Both the external reviewers provided direction and caution with analysis and interpretation of the results, and team intends to use this advice as well as that in the literature to inform its analysis when the survey is undertaken.

E.1.5 *Issue:* Questions on information validity

Response: We are unclear to what the concern is. The comment states:

"The practice of repetitively questioning respondents about whether they trust the validity of the information provided in the survey coupled with the placement of these questions towards the middle of the survey."

We believe the reviewers are referring to the agree or disagree question with two statements. One statement deals with the impact of NARW extinction of the ecosystem and the other with deterrence and detection technology. Focus group participants repeatedly raised both issues; however, some participants did not accept the answers provided by the best available science. Identifying these individuals in the survey sample is important. Attaching ecosystem values to the NARW when they do not appear to exist could bias responses upward, while a belief that technology could reduce deaths could bias a response downward. Placing the question at the end of the survey would be inappropriate given the amount of information and number of questions that follow. Other agree-disagree statements that may relate to validity are at the end of the survey.

As we are unclear which questions are of particular concern to this reviewer, we would appreciate additional detail regarding this concern.

E.2 Peer Reviews of Professors Cameron and Carson with Responses

Below we detail changes made to the pretest instrument based on peer-review by Drs. Carson and Cameron. We first discuss "big issues" then go through individual changes. Again, these comments refer to an older version of the survey instrument. The instrument included in Appendix A of this report incorporates these changes.

E.2.1 Big issues

Comment: There was some talk about adding more alternative partial plans, rather than just the two in the current version.

Response: This proposal deserves further consideration after the pretest, but we think it is better not to take such a major step at this time.

Comment: Question 13 is to some degree an odd question as it is unclear why someone should not be confident of their answers nor how you really use the information from this question. You could add some words to change the question in a way that defined confidence related to: (a) their knowledge, (b) how well they understood the questions, (c) how likely they would be able to actually pay, or (d) how likely it might be that they would want to change some of their answers.

Response: We incorporated this advice in the current survey instrument by converting the "confidence" question into a "difficulty" question.

Comment: Ask Q9 just before demographic questions.

Response: Q9 had some parts that did not fit well after the demographic questions. We took parts that fit there and blended them into the Agree-Disagree Questions that come just before the demographic questions. Two items remain in Q9 that do not seem to cause any problems at its previous location. These two items include:

1. I trust scientists when they say that extinction of the North Atlantic right whale would not cause serious additional ecological problems in the North Atlantic Ocean

2. I believe that technology, such as radar or noise makers, should be able to solve the problem of ships hitting whales.

Comment: It seems odd that you would list only a subset of the major "public goods" that are provided through tax dollars and regulations in the US. At the very least, there should be a line for "**Other (please explain) _____**." In particular, if you are listing things that different people might now view as either (a.) essential, or (b.) a waste of money, it seems like "The war in Iraq" might be right up there. Etc.

Response: The first question is drawn from the GSS, a periodic survey of the U.S. population, We want to keep our version as close to the GSS as possible for later comparisons. To address this comment, we added some environmental items to GSS question. Also note that GSS uses the word "problems" rather than "issues" – we have made this change

Comment: Professor Cameron worried about a "compromise effect" with three-alternative choice questions. This effect is a tendency to choose a partial plan rather than no action so as to appear to do something.

Response: We agreed during a phone conversation to continue with three alternatives. It may be possible to test for this effect in the main survey, and we should talk about it again.

Comment: Convert the "are you an environmentalist" question to have more answer categories.

Response: We did this using the exact question from Montrose survey, which is in many ways considered by many to be one of the finest SP surveys ever done.

Comment: We discussed at some length the possibility of debriefing questions after each choice question to form the basis for corrections of scenario adjustments.

Response: We beefed up the debriefing question after the choice questions. See questions Q14-Q17 in Appendix A.

E.2.2 Specific comments from Dr. Carson

Comment: Do you want a don't know category for the GSS questions?

Response: For a mail survey, we think it is better not to use a "Don't know," since it will make it easier for us to compare our results with the GSS. (The GSS interviewers do not explicitly offer a "Don't know" option. They only use it if when subjects spontaneously respond in this way.)

Comment: Q1, my understanding is that the crime rate has been falling. This should probably be changed to something more neutral like "reducing the crime rate."

Response: We left this as is to be consistent with the GSS.

Comment: Q2, not clear what exactly this is asking by whether the ESA is positive or negative. I could see asking if it is effective or ineffective (working well/not working).

Response: Our recommendation is that we leave this alone for the pretest in order to maintain comparability with the Stellar sea lion survey. We will talk this over with Dr. Rowe and consider revisions in the main survey.

Comment: Q3: After "How often" add the words in the past ___ year(s) …" to the beginning of the question where I would suggest something like 5 years. Delete the lines that go with the question as they don't relate to the question.

Response: Not sure this is wise. Why should five or ten years matter? Our goal is to gauge how interested they may be in whale protection. It seems to us that whether they have ever gone whale watching is the thing we are after. Lines have been deleted.

Comment: Above Q5, is it possible to say anything about whether the populations of the other whales are increasing, decreasing, staying the same or even something weaker like most of the other endangered species are increasing/staying the same? The information here seems cut short given the next statement (The population …).

Response: As of this writing, this question has not been resolved. We will work with NOAA after the pretest to address it.

Comment: In the following statement, "not returned to historic levels," the wording is a little odd. Is the population currently decreasing? If so, one could add language to this effect on the end of this statement.

Response: We see his point, but we worked long and hard on this wording including consideration of science inputs, and it may be the best we can do.

Comment: P9: Add a new bullet under the first sentence which states what percentage of right whales are killed by shipping.

Response: As of this writing, this question has not been resolved. We will work with NOAA after the pretest to address it.

Comment: Under the third bullet add a new bullet which states what percentage of right whales are killed by fishing nets.

Response: As of this writing, this question has not been resolved. We will work with NOAA after the pretest to address it.

Comment: More generally it is unclear what the purpose of asking this question. If this is going to be a mail survey it will be impossible to go back and repeat information like you could in an in-person survey. This information might be useful for a pilot but a different direction you could go is to have all of the answers be false and tell respondents afterwards that all of the answers are false and if they answered true they should go back reread that part of the questionnaire.

Response: We hope there is more to it than encouraging them to re-read stuff. We also need to build a case for the respondents having read and understood the information. We think these should stay in at least through the pretest.

Comment: Q9: Question six does not make sense as it has been stated that saving the whales **will** reduce the chances of the whales becoming extinct; (this question would work if the "will not" was changed to a "would not."

Response: Interesting point. We changed it to would, which seems to address this concern while maintaining our original intention.

Comment: H8: With the proliferation of cell phones, it seems more relevant to ask how many phone numbers are attached to land lines are in the household and how many different cell phone numbers the household has. It also might be useful to find out if the household had a computer hooked to the internet.

Response: We tried to address this issue by underscoring "listed."

E.2.3 Specific comments from Dr. Cameron

Comment: Instead of saying "on it" twice, could you say "For each one, please indicate if you think the amount of money we are spending is too much, about the right amount, or too little."

Response: Our goal here is to follow the exact wording in the GSS interviewers used.

Comment: At the end of the discussion about the Eastern Pacific right whale, try "There are so few animals left in this group that its likelihood of extinction in the next 100 years is high."

Response: We reworked the sentence to read, "Because there are so few animals left, the likelihood of extinction in the next 100 years is high."

Comment: What if the person indicates that they have not previously "heard about" right whales? What if they then state that they agree with the statement "Protecting endangered whales should receive a higher priority than protecting endangered plants and animals few people have heard about." How might the answers be different if instead you had used the statement "All plants and

animals deserve equal protection under the Endangered Species act." What use do you plan to make of these opinions?

Response: Originally, this statement read, "Protecting endangered whales should receive a higher priority than protecting endangered plants and animals few people have heard about." We changed it to the following: "All plants and animals deserve equal protection whether many people have heard of them or not."

Comment: Need to rework the following statements. Here are some suggestions:

> "Often, whales tangled in fishing gear [manage to] break free and survive."
>
> "Sometimes[,] whales tangled in [fishing] gear[ ] cannot break free[,] and [they] die.
>
> [S]ome other whale species, such as the…North Atlantic right whales, [so] the same ships and …."

Response: Drs. Carson and Cameron had a similar comment. We modified these statements as follows:

> "Whales often get tangled in fishing gear, but usually they break free and survive."
>
> "Sometimes whales get tangled in gear, but cannot break free. When this happens, they may die."
>
> "Fishing gear is expected to be a continuing threat to North Atlantic right whales in the future."

Comment: "*Beaching*: Some whale species occasionally beach themselves and die. Right whales [are not known to do this]." {Can it be said affirmatively that they never do this, or just that it is extremely uncommon for these whales?}

Response: We modified this statement as follows:

> "*Beaching*: While some whale species occasionally beach themselves and die, right whales do not seem to do this."

Comment: Throughout, it sounds better to use "the chance[ ] of extinction" rather than "the chance[s] of extinction."

Response: We disagree with this comment. Chances makes more sense to us as it is used in the instrument.

Comment: The statements in the table associated with Q8 appear to be first-person statements. Could you drop the "to me to be" part of the third statement, changing it to:

> "A chance of extinction of 50% in 200 years [seems too small] to worry about now."

Response: We worked on this question based on comments from both reviewers.

> "But in 200 years, as North Atlantic right whales continue to die from collisions with ships and natural causes, the chance of extinction *go up to 50%*."

Comment: {Each statement except the third begins with a verb.} Could you use:

> "[*Produce no change*] in the chance[ ] of extinction…."

Response: We changed this bullet in response to Dr. Carson's comment, and we think this change addresses Dr. Cameron's concern. We combined two of the bullets. It now reads:

> "*Prevent the death of two (2)* humpback, fin, and sei whales per year on average, but remember that this would not affect the chances that these other whales will become extinct in the next 200 years."

Comment: "[Due to the presence of waves], sonar and radar do not [easily locate] objects [right near] the surface of the water[,] where whales are [the] most vulnerable."

Response: Dr. Cameron, being Canadian, may have been trained in more traditional English. We don't think most Americans would say "right near" for example. As before, we don't think most Americans will be bothered by "because." In fact we like it here for emphasis.

Comment: "…we, as a nation, have many higher priorities than protection [one] endangered species of whale[;]"

Response: "Protecting" seems much more active than "protections of" so we kept our original wording.

Comment: "…we cannot afford to spend much on preserving [a] species that [is] of such limited direct usefulness to humans;"

Response: Species is both the singular and plural form. We intended it as plural here.

Comment: "…current forecasts of the [chance of extinction for the North Atlantic right whale seem very low [to some people];"

Response: We agree that this sentence needed to be reworked. Below is the new wording:

> "There is a 50% chance that the North Atlantic right whale will survive even if nothing more is done."

Comment: Consider the first statement: "We, as a nation, have many higher priorities than protecting a species like this." You have just fed them this reason for not protecting North Atlantic right whales. Are you "leading the witness?"

Response: We are not sure about this comment. We thought we were simply asking them whether they agreed with those holding this view. We left it, but we will think about it again.

Comment: "I believe that the information presented about North Atlantic right whales is [reasonably complete and accurate]."

Response: We have removed the statement from the survey instrument.

Comment: "[If we close certain] areas to fishing[, and require] new gear that is safer for whales, [this] will increase the prices you pay for [fish-based products including fish for human consumption, animal food, and fertilizer]."

Response: We incorporated the wording changes in the first part of this comment. We left the simpler wording at the end of the bullet.

> "If we close certain areas to fishing and require new gear that is safer for whales, this will increase the prices you pay for fish products."

Comment: Some people mentally adjust the stated costs (i.e., because they don't eat fish, or they believe that they always "Buy American" and with therefore be unaffected by shipping costs). Some do not believe that we can accurately predict, for their special case, what the costs of the program will be.

Response: We added an additional question, Q14, to deal with this issue. See the text below:

> "We told you what the cost to your household would be for each of the plans. Did you think the costs to your household would be about what we said they would be, or did you think they would be more or less? *Circle the number of the answer that applies to you*."

Comment: Is it strictly true that the U.S. Census asks these same questions, verbatim?

Response: Good point. Not all of these questions were asked in the Census. We modified the lead to say that. "**Below are some standard questions like those asked in the U.S. Census**." We made changes to race and education questions to map with census.

Comment: I live with other people "in a house," rather than "in different age groups." This question would be clearer if it read: "Including yourself, how many people in your household are in each of the following age groups? (if none, please write 0 rather than leaving the space blank)"

Response: We need to follow the exact wording in the Census. We changed the question as follows:

> How many people live in your household? _____
>
> Please indicate how many people in each age group.
>
> If none for a category please write "0."
>
> Under 18 18 to 35 36 to 60 Over 60

Comment: Does it really matter if they leave a category blank? Will you disqualify their answers if they leave a group blank rather than writing in the number 0?

Response: We wouldn't think so. We doubt any great harm would be done to the data to interpret blanks as zeroes.

Comment: For H4, should they circle as many descriptions as apply, or should the select the "best match?"

Response: We changed the question so that they can circle more than one answer.

Comment: How do you plan to use the information on listed telephone numbers? Could you gain some valuable data for other researchers to cite if you collected both the number of listed phone numbers and the number of unlisted phone numbers, perhaps in a matrix with the number of land lines and mobile numbers in the household?

Response: We changed the text of the question as follows:

> "How many listed telephone numbers, including cell phones, does your household have?"

Comment: Should you perhaps encourage respondents to include income from all sources including pensions, alimony, child support, etc. The best possible income measure makes it easier to consider specifications which are nonlinear in net income. Verify that the break-points in the income brackets match either the short-form or the long-form Census brackets. I got into trouble on a small local survey because income brackets are aggregated at the county level, relative to the state or national levels (for confidentiality).

Response: We verified the break points and changed the wording of the income question as follows:

> "What was your household income (before taxes) in 2006 from all sources, including wages, salaries, pensions, Social Security, savings accounts, investments, and other sources?"

Comment: It would be immensely valuable to be able to compare the share of respondents in the fishing and shipping industries with the real percentages in these industries in the general population. The census will not be as specific. It certainly does not ask directly "Have you or a family member been employed in the commercial fishing or shipping industry?" It would be easiest to figure out what proportion fit into the federal categories if you ask the question the same way the census does. It depends on how you plan to use this information…for weighting the overall sample, or simply as a control that influences marginal utilities or reveals distributional preferences.

Response: There are unlikely to be very many, so we think we should keep it simple.

Comment: This implies that ships will have to spend more time at sea and pay extra fuel costs. Are ships like cars, where optimal MPG is at 55 mph? If ships had to go slower, would their fuel costs be higher or lower? Or does the extra fuel cost stem from the great distances required to avoid areas where NARW are likely to be found?

Response: Good question at one level, but as long as respondents believe it costs more, do we care? Also, wouldn't we be willing to assume that they optimize now?

Comment: The survey instrument introduces the idea: "Different plans will use different protection methods. Some plans may use [tougher] shipping regulations and other plans may use [tougher] fishing regulations…." If we fail to ask any questions about what our respondents assume about unstated attributes of the choice scenarios we ask them to consider, we can naively conclude that these other "circumstances of choice" are identical for all respondents. It might be prudent to quiz respondents about implicit auxiliary conditions that they were assuming during their choices.

Response: We worked on this series of questions and broke them apart into four separate questions. See Q14-Q17 in Appendix A.

Comment: I'm in the middle of a project that shows huge differences in WTP for climate change as a function of the individual's sense of who should be responsible, interacting with specific distributions of domestic and international costs. It can also be shown that opinions about responsibility are related to other observable variables, such as income (and therefore probably to position along the liberal/conservative spectrum as well).

The two separate questions about involvement in either of these industries would then allow an assessment of possible reasons why some people may have a self-interest in protecting one industry or the other. Showing that people who have a self-interest in protecting one or the other or both of these industries are willing to pay less for right whale protection would be plausible and would enhance the construct validity of the estimates. WTP for protection will depend on both observable and unobservable heterogeneity.

Response: We agree in principle, but will we have enough people in the two industries to make this relevant? Pretest results will help evaluate whether we should try to follow up on this comment.

Comment: Will you have access to the addresses of respondents? Have you planned to conduct a rigorous assessment of systematic response/nonresponse patterns? How will you correct your estimating specifications for non-constant response propensities across your sample? You are welcome to my 2000 Census Tract Factors, if you can map the addresses to the corresponding census tracts from the 2000 Census. This is possible using the StreetMap utilities in ArcGIS (or their descendants).

Response: We will likely have to do something like this for the main survey, but we hope we can get out of it for the pretest.

Comment: With "mail-merge" utilities, and an Excel file to contain the randomized strings to be substituted into each field, each survey instrument can be unique. (E.g., our general population climate survey involved over 8,000 paper survey instruments, where it was entirely possible that no two instruments were identical. This was possible, however, because we sent out only 200 instruments each week, over the course of a year.)

Response: We are doubtful that we can do much with this. Making each survey unique *and internally consistent*, seems like a tall order unless we are missing something.

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