



**National Association of State Boating Law Administrators
Engineering, Reporting & Analysis Committee (ERAC)**

**Exploring the methodology, scope, and survey instruments of the
National Recreational Boating Survey – comments to the U.S. Coast Guard**

Initial report (August 2013)

The 2013 Charge C1

Review and assess the data and findings collected and released by the U.S. Coast Guard through the National Recreational Boating Survey

Overview

This charge was formulated to take advantage of the release of the national survey by reviewing and assessing the applicability of its data and findings to law enforcement and educational boating campaigns and programs.

However, during this committee cycle—while awaiting the initial release of 2011 data¹ and in anticipation of the official release of the 2012 files in late summer/early fall 2013—the charge team’s focus has been on refining its understanding of the methodology, scope, and survey instruments used in this important effort. The intent has been two-fold— to be in a better position to accurately and effectively interpret and convey the survey findings for NASBLA members, especially as the 2012 release will present exposure hours by state; and to offer the U.S. Coast Guard constructive input relevant both to the analysis of data collected to date and to the design of future surveys.

This initial charge report centers on the second purpose and presents comments that were submitted to the Chiefs of the USCG Boating Safety Division and Program Management Branch on March 22, 2013 and July 3, 2013.

¹ See an official report – **2011 National Recreational Boating Survey** – produced by the U.S. Coast Guard and available at www.uscgboating.org.

March 22, 2013

MEMORANDUM

To: Jeffrey Hoedt, Chief, Boating Safety Division
Donald Kerlin, Chief, Program Management Branch

From: Tamara Terry, Chair, NASBLA Engineering, Reporting & Analysis Committee (ERAC)

Re: National Recreational Boating Survey – initial comments from the committee regarding survey methodology, scope, instruments, and analysis of current and future data collections

For the 2013 committee cycle, ERAC has been charged with reviewing and assessing the data and findings of the National Recreational Boating Survey. It is an assignment closely aligned with ERAC's charter, and involves a topic area and data resource that, as you both well know, has generated a good amount of interest and anticipation—for a variety of reasons—among stakeholders in the boating safety community.

Late last fall, the ERAC team tasked with this charge was formulating its work plan for the cycle and awaiting release of the first waves of survey data and accompanying technical and methodological reports so that it could begin explorations in earnest. About that time, the group was advised of the issuance of the Federal Register notice signaling the Coast Guard's intent to submit an Information Collection Request to the OMB and its formal invitation for public comment on this extension.

Since ERAC had already established significant partnerships and lines of communication with the Coast Guard on other projects, the group's hope was that this "big dig" into the survey data, findings, and related methodologies might also yield suggestions that would make future surveys even more effective, efficient, and useful. As such, even at that early stage, the team did not want to let such an opportunity pass without commenting.

However, with the Coast Guard's decision to modify the collection schedule – and on the counsel of Dr. Philippe Gwet – the team decided to forego a submission to the Notice and instead opted for additional time to develop and present comments directly to the two of you for consideration as you make decisions on future iterations of this national survey.

I want to circle back to my mention of Dr. Gwet for a moment. Two Coast Guard staff, Susan Tomczuk and Rachel Warner, had already volunteered to serve on this ERAC charge team when it was formulated. While we have always expected solid, informed involvement from both of them, what we did not anticipate, but came to rely on and greatly appreciate, was the added participation of Dr. Gwet in our first three conference calls of the cycle. He has been thoroughly accommodating in answering our many questions about methodology. Working through Rachel, he also ensured our receipt of the 2011 raw data files and accompanying technical reports and copies of the survey instruments—all of this in order that we could provide more informed input.

Before presenting that input, I want to provide some additional context. First, these comments and suggestions were formulated through discussions with the charge team on Feb. 8, Feb. 22, and March 13, and additional conversations with the full ERAC committee during its in-person meeting on March 1. Second, while the primary emphasis of the committee charge is on the details and findings of the survey data and the related methodologies associated with the 2011 and 2012 collections—not on the issues surrounding the funding source for the next survey—several of the suggestions would impact efficiencies and presumably costs. Finally, and perhaps most important, the team intends to continue exploring the methodology, survey questions, and survey findings throughout this committee cycle, and likely beyond this cycle given the anticipated timing of the release of the 2012 data. As our explorations continue—and if past experience is a predictor—we are likely to have additional thoughts and recommendations for future action. So, while we hope that you find these initial comments useful at this time, we also hope that you will be receptive to future input from the committee.

Thank you for your consideration.

INITIAL COMMENTS REGARDING THE NATIONAL RECREATIONAL BOATING SURVEY

At the outset, we would like to acknowledge the value of the Survey. Prior to this Survey effort, registered recreational vessels have been used to set the denominator in calculating injury and fatality rates, and though many useful analyses were based on this convention, the rates did not account for the fact that not all vessels are required to be registered. Perhaps of more significance, we had lacked valid and consistent estimates of exposure hours that would allow us to assess, in a more accurate way, the effectiveness of efforts to reduce recreational boating injuries and fatalities.

The comments below are offered with the intent of enhancing the Survey and the quality of the resulting data.

With regard to the Survey Instruments (Mail and Telephone Questionnaires):

- The ERAC team would like to do a more thorough review of the survey questions used in the 2011 and 2012 collections and, through future correspondence or forums, possibly offer some comments to the Coast Guard regarding the relevance and merits of those questions (for example, the rationale for the collection or the need for the collection of specific items might have changed over time). As part of this exploration, the team would like to have the opportunity to review a chart (to be provided by Dr. Gwet) that depicts the origins and mapping of survey questions to data collected and also to involve other parties outside of this team in the formulation of such recommendations. (This team and the full committee understand that reducing the number of questions is unlikely to result in a significant reduction in survey cost; instead, the intent of such a review would be to assure that the questions being asked provide viable and valuable information for analysis and are the best use of the respondents' time in answering the survey questions.)

With regard to Survey Methodology:

- The ERAC team advises caution in decisions that would result in the elimination of a particular data collection method (for example, elimination of the mail survey in favor of telephone or electronic methods), which could potentially result in the loss of information from critical segment(s) of the boating population. At this time, from the current survey information available, it is not possible for the team to determine whether there are demographic differences between respondents of the

various survey methods; as a result, it is unclear what the impact would be of eliminating, for example, the mail survey and retaining only the phone survey. Before giving serious consideration to dropping a particular form of data collection, the team advises that the Coast Guard take steps to minimize or, at the least, understand the possible differences between these survey groups, both in terms of their response rate and their actual responses. To assist in this effort, it would be useful and appropriate to conduct a literature review on studies that identify the biases associated with the various collection methods. This team would be inclined to participate in these efforts as appropriate.

- If phone surveys continue to be used as a data collection method, either alone or in conjunction with other methods, the ERAC team would recommend the investigation of additional ways to reduce the number of non-working phone numbers in the sample. In the 2011 data reviewed by the team, for example, it was noted in Table 6.3 (Distribution of sample telephone numbers by disposition) of the 2011 National Recreational Boating Survey Technical Report (February 2013) that there were a total of 857,668 Non-working numbers in the telephone survey sample (008-Nonworking Number = 251,439; 075-DIALER-Nonworking Number = 606,229) amounting to 52 percent of the entire telephone survey sample (1,646,293). A reduction in the number of non-working numbers in the sample, if possible, would result in a significant increase in efficiency for the survey as a whole.
- The ERAC team recommends that estimates of possible biases, confidence levels, and precision levels be included in the survey findings and further, that these measures be used to guide the size and distribution of future survey efforts. These measures are invaluable in determining whether decreasing the sample size is possible, while still maintaining the level of precision required, and may lead to an ability to reduce the number of boaters/households being sampled in some areas of the nation dependent on the data expectations in those same areas. This is another area that this team would like to explore further.
- With regard to exposure hour calculations—currently expected to be represented nationally, regionally, and by state—the ERAC team recommends some consideration of refining the regional view of the data. Specifically, and if possible, this team would recommend additional consideration of the data by river systems, coastal versus inland, watersheds, and other local segregations of data in order to better understand recreational boating safety issues that transcend traditional state and regional borders.
- In order to increase efficiency, the ERAC team recommends that a thorough review of other survey efforts at the national level be conducted in order to ensure that there is no (or minimal) overlap or duplication of the data collected in the National Recreational Boating Survey and other survey collections already underway at the national level (one such example may be the U.S. Fish & Wildlife Service's National Survey of Fishing, Hunting, and Wildlife-Associated Recreation). This team understands that consideration of the corresponding methodologies on any other surveys would also be required to ensure that data being collected through other means meets the needs currently being filled by the National Recreational Boating Survey; however, garnering some survey details from other options already in place could serve to increase efficiency, and possibly even extend the scope of data collection on recreational boating safety issues, if available.
- Alternately, and in relation to the prior recommendation, the ERAC team suggests that the Coast Guard consider exploring additional partnerships—such as with the U.S. Fish & Wildlife Service—to consolidate data collection efforts where and when possible. For example, identifying the core questions and adding them to an established effort in lieu of doing separate surveys in the future.

- The ERAC team further suggests that the Coast Guard undertake a careful comparison of the results of the National Recreational Boating Survey with similar estimates from other surveys. This may help to reinforce confidence in the results of the Survey.

With regard to Survey Scope:

- In initial discussions with the team and the full committee, there was an expressed preference to ensure the ability of the survey to collect state-level data. The basis for this preference lies in the group's opinion of the *perceived* importance to the states in allowing them to see the influence of state-level campaigns and programs, as well as to perceive uniquely state-specific factors related to boat ownership, boating participation, and boating opinions based on unique economic, cultural, climatological, geographical and other state-specific variables. In addition, if the Coast Guard's intent is to ultimately align RBS funding with the measure of fatalities/100 million exposure hours, it is expected that most states would prefer to have the most accurate measure available for their particular state rather than to be "lumped in" with others in their particular region that may have differences in their constituents and practices. **However**, some of this is speculative in nature, and additional discussion with, and the collection of additional input from all NASBLA-member states is recommended and will be explored by this team to determine whether these perceptions are accurate for the body as a whole or only for selective states. The team also expects to have better insight into the value of the state-level exposure data after reviewing the 2012 survey data, which, we have been informed, is scheduled to be released later this summer. Again, in initial discussion at the team level and preliminary discussions with the full committee, the suggestion is that less frequent collection of data might be acceptable to mitigate the costs of achieving the desired level of sampling; however, this and other possible alternatives will also be explored with the NASBLA membership at large.

With regard to Survey Analysis:

- Especially, but not exclusively, in the event of less frequent collection of the data, the ERAC team recommends that the timing of the next survey be a consideration in both the analysis and reporting of the survey findings. The analyses of the resulting data—particularly in comparisons of the data to that of the 2011 and 2012 efforts—should factor in the unique economic, social, and climatic circumstances of those years in order to better understand any potential fluctuations in data trends brought on by issues outside the scope of factors affected by traditional recreational boating safety efforts.
- In reviewing the 2011 survey data, and through additional discussions with Coast Guard staff, the ERAC team identified two potential ways of calculating exposure hours. The key elements in these two different calculations are summed up below (simplified for ease of understanding by only including the key differences between the calculations notwithstanding the weighting and other components of the calculation):
 - Calculation of exposure hours using an average of the respondent-by-respondent datasets
 - OR
 - Calculation of exposure hours by multiplying the average of days-boaters-hours for the entire group (used by the Coast Guard in the reports reviewed by the group)

The team's primary concern is in any potential fluctuations in the results derived from the two different calculations. Per discussions with Coast Guard staff, the calculations will be explored to determine if there are significant fluctuations between the two methods.

Regardless of the final method used to determine exposure hours, it is this team's recommendation that there be consistency in the final calculation to maintain the legitimacy of the survey results.

- The ERAC team encourages the Coast Guard to consider consolidating certain steps in the survey process to provide for continuity and consistency. Specifically, it may be more advantageous in terms of coherency and understanding at all levels to have participating parties who are involved in developing questions and issues for the survey also be involved in the analysis (especially in linking data results to objectives and goals); this would help to ensure that details are not lost in translation. In effect, by knowing the history of the development of the survey measure, the analyst is in a better position to know of any caveats or limitations on the data derived.

July 3, 2013

MEMORANDUM

To: Jeffrey Hoedt, Chief, Boating Safety Division
Donald Kerlin, Chief, Program Management Branch

From: Tamara Terry, Chair, NASBLA Engineering, Reporting & Analysis Committee (ERAC)

Re: National Recreational Boating Survey – additional comments from the committee in follow-up to initial comments provided on March 22, 2013

ERAC continues to explore the National Recreational Boating Survey in its 2013 charge work. Thanks to valued assistance from your staff and the access to survey components and data, this ERAC charge team has been refining its knowledge and understanding of the survey with dual intent—for one, to be in a better position to convey and interpret the findings for NASBLA’s membership over the coming months; for another, to once again offer to the Coast Guard what we hope will be construed as constructive input that is relevant both to the analysis of data collected to date and to the design of future surveys. We recognize the importance of this survey and stand ready to offer additional clarification on the comments and recommendations already submitted or to assist in any additional efforts as requested.

This correspondence is in follow-up to the March 22, 2013 memorandum and focuses in on several of the key topics that we had identified for further work.

With regard to the Survey Instruments (Mail and Telephone Questionnaires)

- The ERAC charge team has completed a thorough review of the survey instruments used in the 2011 and 2012 surveys – specifically the Boat Survey, the Participation Survey, and the Trip Survey. The intention of the review, as outlined in our March comments, was 1) to provide our perspectives on the relevance of each of the questions (or in some cases groups of questions) in relation to the primary goals of the survey (i.e., collecting data needed to calculate exposure hours at the national and state levels), and 2) to identify questions on the survey that would benefit from revisions to enhance the reliability of the responses received or focus the data collected in a more useful manner. In our review, the team refrained from directly adjusting the actual questions as we understand such adjustments will be the responsibility of other Coast Guard-designated work group(s); instead, our comments are provided in summary form in Appendix A to this document. If you would like to review the more extensive markups the team completed for its own purposes and future reference, however, we would be happy to provide them to you upon request.

With regard to Survey Methodology

- With regard to our March recommendations that estimates of possible biases, confidence levels, and precision estimates associated with the survey be included in the survey findings, we were pleased to hear, through Dr. Gwet, that these will indeed be part of the survey reports in future iterations of the National Recreational Boating Survey. They are certainly very compelling and can offer additional insight into the data. This charge team maintains that these measures could and should be used to guide the size and distribution of future survey efforts as well. Toward that end, Appendix B of this correspondence outlines relevant data for the 2011 survey *for reference purposes only*. This team recognizes that the 2011 survey cycle was unique in its scope, and that formulation and comparison of these factors for the 2012 cycle may, in the end, be more relevant.
- Finally, with regard to our March recommendation that other survey efforts or partnerships be explored and leveraged to collect some of the data currently being collected through the National Recreational Boating Survey, this charge team compiled a short list of potential sources/partners; as a result of its review, the team is offering comments regarding the utility of each of those survey instruments in Appendix C of this correspondence. Although none of these additional sources is an exact mirror of the data being collected on the National Recreational Boating Survey, this team continues to support the idea of minimizing duplication of effort by garnering some of the non-primary data through other means already in existence.

With regard to 2012 Survey Data and Future Committee Efforts

Although these details provide a wrap-up of additional items suggested in our initial memo, we intend to continue our work in this area. Specifically, this team intends to continue to review the methodology and survey findings for 2012 when they become available later this summer, and share what we learn with the NASBLA Membership through various sources, including a planned *Small Craft Advisory* feature issue in January 2014.

With those plans in mind, please know that this team also stands ready – if called upon – to assist in refinements to the survey as the Coast Guard moves forward in this area as well.

Should you have any questions regarding the content of this memo or the related appendices, please do not hesitate to contact Deb Gona or myself.

Thank you for your consideration.

Appendix A

ERAC charge team assessment and comments - NRBS questions - Boat, Participation, and Trip Surveys

The initial memo from NASBLA's Engineering, Reporting & Analysis Committee (ERAC) to the Coast Guard on March 22, 2013, regarding the National Recreational Boating Survey (NRBS)¹ noted that the ERAC charge team tasked with assessing the survey findings planned to do a more thorough review of the questions that had been used to gather the data in the 2011 and 2012 collections.

The questionnaire review was intended to serve multiple purposes—to better understand the survey findings and interpretations that have been and will be presented in official reports issued by the Coast Guard; to improve ERAC's independent analyses of the survey data for the benefit of the NASBLA membership; and to formulate comments and recommendations for consideration by the Coast Guard as part of its ongoing evaluations of the relevance and merits of the questions and in anticipation of possible modifications to future surveys.

In a series of conference calls conducted from mid-April through late June 2013, the ERAC team discussed the basic questions associated with the Boat, Participation, and Trip versions of the survey instruments for 2011 and 2012 as had been made available to the team by Coast Guard staff. As part of the review, and for purposes of evaluating the relevance of the questions, the team focused on the goals of the NRBS and data that cannot otherwise be gathered or determined from other sources. Questions or modules of questions were roughly tagged and sorted as “*must have*”/“*need to know*” – with resulting data essential to fulfilling those goals – or as “*nice to have*”/“*nice to know*” – with resulting data likely to be helpful for a better understanding of recreational boating, but not essential to the NRBS primary goals. The context and placement of questions that were worded the same or similarly on more than one of the NRBS survey instruments made a difference in the team's assessment of their purpose and into which group they would be slotted.

However, in the team's assessment, some other questions or modules did not fall neatly into either category and were tagged as potentially being of “*questionable value*” — that is, by virtue of their wording, content, or approach, these items or modules were identified as likely to have yielded less reliable and lower quality data, or potentially to have even inadvertently affected survey completion rates. As such, *at this time and pending a more complete review when the 2012 data are released*, the team regards them—and possibly some of the “*nice to know*,” but not-essential-to-NRBS-goals questions—as candidates for substantial modification or deletion in future rounds. The team makes these recommendations with the understanding that deleting individual questions—or perhaps even blocks of questions—on future surveys is not likely to result in a significant reduction in survey costs; instead, the recommendations for deletion or revision are made with an eye toward potentially “freeing up” space on these surveys to accommodate other questions that might prove more valuable to the purposes of the NRBS, make better use of the respondents' time, and perhaps improve the quality of their responses.

The groupings are presented on the following pages. Under each grouping, only module labels or question types are listed, not the full questions.²

As applicable, comments, caveats, or suggestions regarding the module or question type(s) are presented in italics.

¹ March 22, 2013, National Recreational Boating Survey – initial comments from the committee regarding survey methodology, scope, instruments, and analysis of current and future data collections; from ERAC Chair Tammy Terry to Jeffrey Hoedt, Chief, Boating Safety Division, and Donald Kerlin, Chief, Program Management Branch.

² The charge team's markups of all of the questionnaires covered in this Summary are available upon request.

MUST HAVE/NEED TO KNOW – modules (blocks of questions) or specific question types identified as most critical for analysis and calculation of exposure rates or to fulfillment of other key goals of the NRBS

- Boat registration/enumeration module (Boat Survey) – questions on registered/unregistered, type, length of boat(s)

FOR CONSIDERATION: In follow-up to the question of whether the boat is registered or unregistered are two others seeking information on whether the boat is documented and in which state/territory the boat is registered. The team has been advised that the documentation question was added primarily to ensure that all data would be collected, but that the Coast Guard does not intend to use this survey information for any other purpose. The team suggests consideration be given to a combination of the questions on registration and documentation to achieve the capture of the necessary information (e.g., is the boat registered with a state/territory and/or documented with the Coast Guard?) in lieu of the somewhat confusing current series of questions.

With regard to the question on the type of boat, the team is aware that there are some concerns about whether respondents adequately distinguished between “powerboats” and “PWCs” (since both have motors) and between “powerboats” and “sailboats with motors.” The team wonders if there is a better way to ask the boat type question or to further clarify the options (e.g., “powerboats” exclude “PWCs” or “jet skis” or “sailboat” includes “sailboats with motors”).

- Boat usage/Exposure modules (Boat Survey); Boat usage/Exposure modules (Participation Survey); Water recreation days/Trip Exposure/Docked days modules (Trip Survey) – questions on whether boat was used at all, days used, number of days/hours on the water, launch origin/state(s) where boated, number of people/children aboard.

OF NOTE re EXPOSURE and FUTURE WORK: The team identified all of the exposure/exposure-related questions (i.e., those required to calculate exposure hours) as obvious “must have’s.” As part of its review, the team was briefed by Coast Guard staff as to the USCG’s decisions regarding the calculation of different statistics for different types of exposure hours (when operating, when docked, and so on); the assignment of exposure hours (to the states of origin or to where the boating took place); and as to related issues surrounding the calculation of fatality rates.

In the interest of developing an improved understanding of how exposure hours are (or will be) calculated for 2012—not only for the team’s benefit, but also for the benefit of the NASBLA membership when the state-level exposure data are released—the team has asked Coast Guard staff for an easy-to-digest explanation of the steps involved, and to be kept informed as developments on exposure issues are resolved internally at the Coast Guard.

- Boat operation module (Boat Survey and Trip Survey) – questions on primary operator, ever taken a boating safety course

*FOR CONSIDERATION: The question regarding whether the operator had ever taken a boating safety course was identified as a “must have” though it results in only a “yes”/“no” set of responses. While there was interest in the **kind of course** taken, there also was uncertainty as to how reliable the respondent’s information would be. Nevertheless, the team does suggest that consideration be given to finding out whether the course was classroom-based, internet-based, on water, and so on.*

(MUST HAVE/NEED TO KNOW items continue next page)

MUST HAVE/NEED TO KNOW (continued)

- Household participation module (Participation Survey)—questions as to whether spent time on recreational boats, own boats, fish from boat, use canoe/kayak

FOR CONSIDERATION: Apart from the canoe/kayak prompt, it might be useful to prompt for other types of vessels to ensure that some “non-typical” types (e.g., paddleboards) are adequately captured in the results.

- Individual participation module (Participation Survey) – questions as to whether went out on water, spent more than hour while not on open water
- Kind of boat module (Participation Survey) – questions on how many boats owned, what type of boat(s)/further identify
- Rental boats module; Trip exposure module; People on boat module (Participation Survey) -- questions as to whether any time spent on rented boats, types rented, states where boated, people on boat, number of children

FOR CONSIDERATION: The team understands that exposure hours are calculated with owned and rented boats, and this series is intended to improve estimates. It also is aware that questions regarding the states where the respondents boated are necessary for calculating exposure at the state-level. However, it is important to note that as currently worded, these questions might be yielding some data regarding charter boats.

- Safety awareness/Life Jackets module (Trip Survey and Participation Survey) – non-wear related questions on life jackets / throwables on boat during outing

FOR CONSIDERATION: Perhaps the most appropriate characterization of the team’s review of the life jacket related questions across the surveys is that while the topic is of critical importance, some of the questions, as currently structured and worded, might not be yielding the most valuable information. Hence, while the topic itself is slotted here as a “must have,” some of the modules/questions are noted as “nice to know/nice to have” or even questionable given their current form (see further discussions of specific modules on page 4 of this summary and additional suggestions for modifications).

The team understands that there are concerns within the Coast Guard regarding questions that ask respondents to self-report their life jacket wear and that might be used to calculate wear rates--in large part because of the unreliability of such responses and resulting contradictions with observational studies such as those conducted by JSI. However, questions such as whether there were life jackets on board during the recorded outing and whether there was one for every person on board (as opposed to asking “how many”) would seem reasonable and valuable. Moreover, modifications to the question of “were there life preservers or throwable devices on the boat...?” to the simpler “were there throwable cushions or ring buoys on the boat?” might be reasonable alternatives and better understood by the respondents.

The team also saw the potential to learn about any instruction respondents might have received as to the use of life jackets as well as a possible opportunity to use elements of the survey to “educate” or improve awareness of the importance of life jacket wear. For example, in lieu of questions as to the number of children on the boat and whether they wore life jackets, an alternative might be (in the event children were on board) a set of questions that get at the respondent’s awareness of mandatory life jacket wear requirements for children – not generally, but specifically for the locale in which they were boating. Informing about or gauging the respondent’s awareness of resources (such as rentalboatsafety.com) may also prove beneficial.

NICE TO HAVE/NICE TO KNOW – modules (blocks of questions) or specific questions less critical for analysis and the primary purposes of the NRBS; some potentially could be derived from other sources

- Boat details module (Boat Survey) – questions on model year, new/used, hull material, primary propulsion, motor, motor type/how many, HP, fuel types

FOR CONSIDERATION: All of the questions in this module were identified as “very nice” or “nice” to have. For example, the questions regarding model year and whether the boat was purchased new or used potentially yield information about the aging of the recreational boating fleet—something that is good to know, but not a “must have” in the context of the NRBS. The questions on propulsion and motors might serve as a check on the respondent’s response regarding the boat type. However, there is some question as to the reliability of responses regarding hull material as many respondents may not know or accurately label the material.

- Boat operation module (Boat Survey and Trip Survey) – question on experience in operation

FOR CONSIDERATION: The questions on experience in operation of the boat were deemed “nice to know,” though the team surmised that respondents are not likely to have an accurate reading of their experience. However, the team also suggests that this question – or a set of questions – on experience might be made more valuable and meaningful in future surveys. For example, it might be worthwhile to ask “How confident are you in the operation of the boat?”

- Safety behaviors of boating child module (Participation Survey) – questions on participation in boating safety course, frequency of life jacket wear on board

FOR CONSIDERATION: See discussion under MUST HAVE/NEED TO KNOW for clarification on stance regarding life jacket questions on these surveys.

The two questions in this section are identified as “nice to know,” but the question of “how often” the child wore a life jacket while “on board” the boat – if it were to be retained -- would need to be clarified because the wording is open to interpretation (e.g., what does “while on board” mean? underway? at the dock?).

- Life jackets in household; life jackets on rental boats modules (Participation Survey) – questions on whether own life jackets, number owned, number on board rental boat, life preservers/other throwables on rental day, number/ages of children and life jacket wear on rental day, number of adults wearing life jackets on rental day, why respondent or children under age 15 did not wear life jacket

FOR CONSIDERATION: See discussion under MUST HAVE/NEED TO KNOW for clarification on stance regarding life jacket questions on these surveys.

If the questions regarding life jackets owned by the household are retained, knowing “what types” would be more useful. The questions regarding life jackets as pertained to the day a boat was rented also are “nice to know,” but several likely resulted in less than reliable responses. Given that they are asked in the context of rental boats, the team suggests it might be more interesting and important to know whether there was instruction as to the use of the life jackets; moreover, a question on instruction, as opposed to behavior, actually might result in more reliable, truthful responses.

(NICE TO HAVE/NICE TO KNOW items continue next page)

“NICE TO HAVE”/“NICE TO KNOW” (CONTINUED)

- Safety equipment on rental boats module (Participation Survey) – questions on equipment on board rental, use that day for safety purposes

FOR CONSIDERATION: Questions regarding safety equipment are “nice to know.” But there was more interest in whether the renter had been instructed in the use of the items mentioned rather than their mere presence. The “use” question might have some utility for the Coast Guard in support of cost-benefit analyses required for regulatory change.

- Activities module (Participation Survey) – question on what was done on boats on water

FOR CONSIDERATION: The question on activities on the water is “nice to have,” but not a “must have” especially given the team’s understanding that there is not a substantial interest in using this survey to assess the risk associated with certain activities.

- Alcohol module (Participation Survey and Trip Survey) – questions as to whether anyone drank while on water, whether operator drank alcohol

FOR CONSIDERATION: Questions in this section on Alcohol were alternately tagged by the team as yielding “nice to know” information -- if the results could be deemed “reliable”-- or as “questionable” for reasons described in the next section (see page 7). However, the team does suggest that perhaps with additional work – and consistent questioning – it might be possible to use these sorts of questions to develop meaningful trend data. The team also suggests that in the review and potential rework of the alcohol-related questions, similar consideration be given to development of questions regarding Drugs.

- Economic impact module – boat expenditures (Boat Survey) – questions on where boat is kept, transported/trailer, used outside state, money spent on boat

FOR CONSIDERATION: Questions in this module were generally identified as “nice to have,” but not “must have’s for purposes of this survey and for the following reasons: they might not be sufficient to generate the sort of “economic significance” information required for cost/benefit analyses conducted by the Coast Guard for rulemaking; they do not generate data that would have an impact on boating safety, in general; they do not link to the primary issue of exposure hours; and potentially there are other, more targeted sources for this information. A number of the questions in this module were further tagged as being of questionable value for reasons described later.

- Economic impact module – boat expenditure and trip expenditure corollary questions (Participation Survey and Trip Survey) – questions on travel distance from home to boat site, nights away from home, type of lodging, total days out on water, types of launch sites or ramps, operation of motors/engines, money spent preparing for trip, money spent after leaving home

FOR CONSIDERATION: This block, like the above, is generally identified as having some “nice to know” questions. The team does not identify them as containing “must have” questions for the primary purposes of this survey. Potentially, there are other, more targeted sources for this type of information.

(NICE TO HAVE/NICE TO KNOW items continue next page)

“NICE TO HAVE”/“NICE TO KNOW” (CONTINUED)

- Boat hours module (Participation Survey) – questions on whether boat on water overnight, time of day set out, time/days docked again

FOR CONSIDERATION: Questions in this section might yield “nice to know” information but they are not needed to calculate exposure or participation. They appear to be related to economic impact; the responses would likely have picked up larger boats and charters (which are more likely to involve overnight trips/stays).

- Negative events module (Participation Survey and Trip Survey) – accidents, number of events, reports to authorities, property damage, injuries requiring treatment

FOR CONSIDERATION: The team understands that the original intent of including this series on “negative events” might have been to make some linkages between exposure or other information collected through this survey and accident statistics (as found in BARD-Web); however the team also recognizes the potential unreliability of the responses, and has been advised that the Coast Guard is not intending to use the results from the 2011 and 2012 collections in such a manner. As such, upon first review, the team identified this series as being of “questionable value.”

However, upon further consideration, the team also acknowledged that currently there is a gap in reported information on two of the areas in question – property damage and injuries. That gap is of sufficient concern that Objective 9, Strategy 9.13 of the National RBS Strategic Plan describes the need to “continue to research methods for statistical adjustment of accident totals to help extrapolate unreported accidents.” Data resulting from questions such as these, despite the team’s concerns about the reliability of responses and possible biases, still might yield something of value toward that end, or at minimum, eliminate such a survey as a method for gathering such information.

All that said, the team is going to hold on making a final assessment of the quality and utility of the data generated in this series until it has a chance to review the 2012 experience with these questions.

(QUESTIONABLE VALUE items begin next page)

QUESTIONABLE VALUE— modules (blocks of questions) or individual questions likely to have yielded less than sufficient, reliable or meaningful data by virtue of wording, content or approach; some may have affected survey completion rates

- Economic impact module – boat expenditures (Boat Survey) – questions on boat cost, loan payment, taxes, insurance, storage, new/pre-owned motors and trailers, services, parts, other expenditures

FOR CONSIDERATION: Some of the questions in the Economic Impact-Boat Expenditures module are “nice to have,” but not “must have’s” for purposes of this survey and for the reasons articulated previously. However, the other more “sensitive” and potentially intrusive inquiries regarding loan payments, insurance, taxes, and other costs raise questions as to whether they resulted in reliable/complete data and whether this series might even have led some portion of respondents to drop off the survey because the questions were deemed “too intrusive.”

- Alcohol module (Participation Survey) – questions as to whether anyone drank while on water, did operator drink alcohol, was operator impaired, anyone drink before or during operation (rental day)

FOR CONSIDERATION: As expressed in the “Nice to Know” section, the team had concerns regarding the reliability of the responses to the blocks of questions on alcohol and regarding whether this series might have led respondents – or would lead future survey respondents -- to become guarded, wondering what other potentially sensitive or self-incriminating questions are in the offing.

- Types and bodies of water (Participation Survey and Trip Survey)

FOR CONSIDERATION: The questions on type of water and bodies of water do not seem to link back to any of the other questions or have any particular value; as such, they are probably candidates for elimination.

- Lifetime participation (Participation Survey) – ever participated in recreational boating

FOR CONSIDERATION: The team is aware that the question of whether the respondent (who had not boated in the timeframe covered by the survey) had “ever” participated in recreational boating was intended to get at those who might boat the following year. If such a question is retained, and to gather more meaningful information, consideration might be given to limiting the number of years back that a respondent had actually boated.

Appendix B

Precision Measures Associated with Exposure Hours, and Fatality Rates – 2011 Data For Reference Purposes Only

- Table 1 (below) shows exposure hours and their respective standard errors by boat type. Pontoon boats, Sailboats, and Row/Inflatable boats have the highest standard errors, and the widest confidence intervals.
- In Table 2 (next page) however, it appears that only the Sailboats remain with an unduly high standard error associated with the fatality rate. This is due to the relatively large standard error that was initially associated with a small number of exposure hours.
- Question: Since the confidence interval associated with the Sailboat fatality rate goes from 6.2 to 72.6, this statistic appears to be unreliable. Whether the estimate is an understatement or an overstatement of the actual fatality rate is what we don't know.

Table 1: Exposure hours and associated precision measures by Boat Type

Boat Type	Exposure Hours	Standard Error	95% Confidence Interval	
All Boats	2,973	5.629	2,962	2,984
Power Boat	2,053	8.715	2,036	2,070
PWC	131	10.461	110	152
Pontoon Boat	301	33.084	235	367
Canoe	90	5.358	79	101
Kayak	133	2.555	128	138
Sailboat	71	29.883	11	131
Row, Inflatable Boat	194	24.065	146	242

Table 2: Fatality Rates and associated precision measures by Boat Type

Boat Type	Exposure Hours	Deaths	Deaths / 100M Hours	Standard Error of Fatality Rate	95% Confidence Interval for Fatality Rate	
All Boats	2,973	758	25.5	0.048	25.4	25.6
Power Boat	2,053	425	20.7	0.088	20.5	20.9
PWC	131	44	33.7	2.682	28.3	39.1
Pontoon Boat	301	32	10.6	1.169	8.3	12.9
Canoe	90	66	73	4.366	64.3	81.7
Kayak	133	68	51.1	0.982	49.1	53.1
Sailboat	71	28	39.4	16.598	6.2	72.6
Row, Inflatable Boat	194	82	42.3	5.243	31.8	52.8

Appendix C

Potential Sources / Partnerships

Organization	Survey Instrument(s)	Comments
U.S. Fish and Wildlife Service	The National Survey of Fishing, Hunting and Wildlife-Associated Recreation	<ul style="list-style-type: none">- In its current form, this survey is not a good alternative for obtaining the data required for the Coast Guard's intentions- It does not appear that the U.S. Fish and Wildlife Service has any intention of modifying their survey significantly in the near future
Recreational Boating and Fishing Foundation	Various reports on fishing and boating including the 2011 Special Report on Fishing and Boating	<ul style="list-style-type: none">- This survey has significant differences in methodology, groupings of data, and panel participants when compared to the National Recreational Boating Survey- This survey may still be useful in collecting some of the non-critical data currently contained in the National Recreational Boating Survey and may also be helpful in corroborating the consistency of the data from the National Recreational Boating Survey
National Marine Manufacturers Association	Various reports related to economic details associated with boating	<ul style="list-style-type: none">- Although more research into methodology issues is needed, these surveys may still be useful in collecting economic data currently contained in the National Recreational Boating Survey and may also be helpful in corroborating the consistency of the data from the National Recreational Boating Survey