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I am pleased to submit these comments on the United States Coast Guard (USCG) National Recreational Boating Survey (OMB Control Number 1625-0089). I served (as a private citizen) on the Collaboratory[1] of Partners (COP), one of two groups that helped to design the survey. The COP, consisting of representatives of various government agencies, the National Association of State Boating Law Administrators (NASBLA), Federal Advisory Committees (the National Boating Safety Advisory Committee), user groups (e.g., the American Canoe Association and BOAT US), marine trade associations, and others provided input regarding the need for and benefits of various types of information that could be collected through this survey.[2] In short, the COP served as content experts. The inclusion of diverse stakeholders ensured that the answers to the survey questions would be relevant and useful. Because there were many possible survey statistics of interest—too many for a single survey of reasonable length—the COP helped to prioritize information needs.

Another group comprised primarily of statisticians and others experienced in sample survey design—the technical experts—developed the detailed questionnaires and survey protocol. Personnel from Michigan State University shared information between and facilitated the activities of these two groups.

Both groups met several times and shared information between meetings. I can state unequivocally that the COP participants took their charges and responsibilities seriously and that the product(s) of their deliberations were carefully crafted. Thus, the survey design *process* was sound.

I wish to focus my comments on the potential uses of *exposure information* (this is addressed at various places in the National Recreational Boating Survey, such as on pages 2, 3 section A-2) to be derived from the survey. USCG collects, collates, analyzes, and publishes

[1] "Collaboratory" is an amalgamation of collaboration and laboratory, conveying the concept of a collective research organization where a high value and focus is placed on the sharing of effort and findings, such that the quality and progress of the research is highly optimized. For details see (www.ichnet.org/glossary.htm).

[2] The COP also offered comments on the specific survey questions included.

data on certain[3] recreational boating accidents. These purposes of this collection and analysis program include (but are not limited to):

- Publication of annual statistical summaries (Commandant Publication *Boating Statistics*, various years),
- Identifying relevant longitudinal (time varying) and cross sectional (across various types of boats) accident, injury, or fatality trends,
- Assessing the benefits of proposed regulations (e.g., mandatory wear of life jackets[4] or mandatory boater education) for certain segments of the boating public, and
- Assessing the overall effectiveness of USCG recreational boating safety programs.

To achieve these objectives it is important that accurate and complete data are available. Over the years USCG and its partners have made many incremental improvements to the quality of accident statistics. Accident (or injury or fatality) *rates* are necessary for valid risk estimates (see below). These rates are expressed as the ratio of a numerator (e.g., accidents, injuries, fatalities) to a denominator (e.g., number of persons, boats). Historically, USCG has made good progress in improving the accuracy of the *numerator* of the rate equation.

Progress in measuring the *denominator* of the rate equation has been more difficult to achieve. For example, the USCG routinely uses one measure of the fatality rate as an indicator of safety—the number of reported fatalities compared to the number of registered recreational boats. However, the USCG recognizes that there are limitations[5] to this measure and that improved measures of risk are necessary. In recommendations to Admiral Thomas H. Collins, then Commandant of the USCG dated March 2006, NTSB stated:

> "The Coast Guard uses boating accident reports and frequency data to assess the risks associated with recreational boating activity and to guide its Recreational Boating Safety Program. A risk-based approach that uses only frequency data, however, cannot adequately characterize the risks of a hazard or effectively evaluate risk mitigation strategies. As a result, the Safety Board is concerned that the Coast Guard's risk-based approach to recreational boating is not consistent with standard practice in system safety. Such a program needs four basic elements: hazard identification, risk assessment, a plan for mitigating risks, and

[3] So-called *reportable accidents* (see 33 CFR 173.55) include those in which (1) a person dies; or (2) a person is injured and required medical treatment beyond first aid (i.e., treatment at a medical facility or by a medical professional other than at the accident scene); or (3) damage to vessels and other property totals $2,000 or more or there is a complete loss of any vessel; or (4) a person disappears from the vessel under circumstances that indicate death or injury.

[4] For a discussion of this specific initiative and the relevant data issues see, for example, the National Transportation Safety Board (NTSB) Safety Recommendation M-06-1 and M-06-2 dated 16 March 2006, available electronically at http://www.ntsb.gov/Recs/letters/2006/M06_1_2.pdf.

[5] For one thing, as noted in *Boating Statistics*, comparisons of fatality rates among states are difficult because of differences in the scope of each State's boat registration system.

methods for evaluating the effectiveness of mitigation actions. *Risk assessment is dependent upon a clear understanding of participants' exposure to hazards in recreational boating, which is obtained through the collection of data about the number of participants, the size and composition of the recreational boating fleet, and the frequency and duration of boating activities*. These data can then be used in risk assessments to quantify exposure to risk. Without such data, the Coast Guard and the States cannot ensure that their recreational boating safety programs and intervention strategies are effective." [Emphasis added.]

Exposure data are needed for valid comparisons of accident (or injury or fatality) rates of different types of boat. For example, comparisons between accident rates for personal watercraft (PWC) and other types of motorboats have been of continuing interest and difficult to quantify. One study, by NTSB[6] attempted to estimate accident rates for PWC. The study noted that there were substantially different exposure estimates provided by different sources. For example, one study estimated that PWC were used 45 passenger hours per year compared to 117 hours per year for all recreational boats, whereas another that PWC were used for 77.3 hours per year compared to 34.8 hours per year for outboard vessels. Obviously these differences in exposure estimates will impact relative accident rates and, therefore, assessments of the possible need for initiatives to reduce accidents. NTSB recommended in 1998 that USCG:

"Collect recreational boating exposure data such as 'operational use time' or 'vessel running time' and update this information on an annual basis or conduct periodic surveys. (M-98-91)"

USCG is fully aware of the need to develop appropriate measures of exposure (e.g., hours, boater-days, number of boaters using a particular type of craft) to use in the denominator of the accident rate. The data to be collected from the National Recreational Boating Survey includes responses to several questions that directly address exposure (e.g., questions on the number of days of use, hours per trip/use, and number of persons on board) measures. Collected periodically, these data are essential if the USCG is to validly employ risk based decision making (RBDM).

The National Recreational Boating Survey will also collect data on use patterns for boats that are not required to be registered in each state (e.g., canoes and kayaks in certain states)—boats not now (properly) accounted for in USCG fatality rate estimates, another benefit of the survey.

The National Recreational Boating Survey will cover many more topics than noted in my comments. Others can attest to the validity and relevance of these data. I can attest to the transparency and inclusiveness of the identification of data needs and the utility of exposure information.

Respectfully submitted,

[6] National Transportation Safety Board, 1998. *Personal watercraft safety*. Safety Study NTSB/SS-98/01. Washington, DC. 98 p. This is available electronically at http://www.ntsb.gov/publictn/1998/SS9801.pdf.

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