

TELL ME *more* ABOUT THE 2012 NRBS

A charge team of NASBLA's Engineering, Reporting & Analysis Committee (ERAC) spent time learning about the methodology behind the 2012 National Recreational Boating Survey well before the Coast Guard's summary report of findings hit the virtual street of the Internet (www.uscgboating.org). Some of what the team learned is described in the article "Breaking down the numbers: A closer look at exposure hours from the 2012 National Recreational Boating Survey" (pp. 14-19), but other survey and report details also caught members' attention. The following are based on some of the NRBS "how's" and "why's" that have emerged from team discussions to date. (A note of appreciation to Dr. Philippe Gwet, U.S. Coast Guard, for participating in the ERAC team discussions and responding to members' questions and requests for clarification on matters of interest.)

The terms "exposure hours" and "boat-person hours" are both used in the 2012 NRBS summary report issued by the Coast Guard. Are they different things?

Not for purposes of the NRBS.

But exposure hour estimates can be calculated in different ways. In describing

its calculations in the report, the Coast Guard wanted to emphasize that the *number of boaters was taken into account, not just the number of hours the boat was operated*. So, if two persons spent one hour on a boat, then the count wouldn't be one hour ... it would be two boat-person—or exposure—hours.

There is a reason for choosing an exposure hours' calculation that takes into account the number of boaters. Although the likelihood that a boat gets into an accident might just be a function of the number of hours the boat was operated, the more persons on board, the greater potential consequences of the accident.

The "risk ratios" in the 2012 NRBS summary report are based on 100 million exposure hours. Such a large number! Can't they be reduced to something closer to what a boater might really experience in a given year?

Don't do it! They're meant to be a measure for a population as a whole, not a single individual. Grouping by 100 million hours compensates for "variance" in behaviors within the whole group. That methodology brings it closer to what's used for measuring "risk" in other forms of transportation and recreation.

So, while it might be tempting to try to reduce the ratio to something a typical boater might experience in a year—like "x" accidents per 500 exposure hours in a state—the end result would be a flawed statistic.

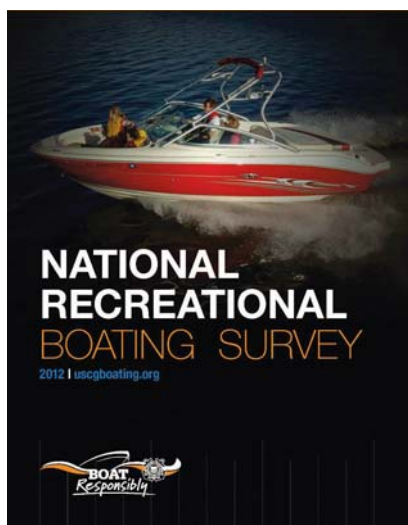
Death or casualty "risk ratios" weren't reported for three states. Table 54 (pp. 82-83) of the summary report says the problem was an "unreliable number due to large statistical error." What does that mean?

Actually, that "unreliable number" doesn't mean the same thing for all three states, although they did have something similar in 2012—either no recreational boating deaths or just one death.

One of the three, New Mexico, shows "zero" exposure hours in Table 54, but that's because the estimate calculated from the trip survey was below 500,000 hours.

The estimate was determined to be "unreliable" and no "risk ratios" were calculated for deaths (one in 2012) or casualties (14 in 2012).

But the issue was a little different for the other two, Vermont and the District of Columbia, and it's an issue worth



considering in discussions about the meaning of “risk ratios” and possible refinements in the way they might be calculated in the future. Although valid estimates were calculated from the trip survey for exposure hours in each of those jurisdictions, it was their zero deaths and low casualty counts that prevented the Coast Guard’s calculation of valid ratios.

The 2012 summary report (Table 6, pp. 19-20) describes the sample sizes and completed interviews for the participant survey part of the NRBS. Why were the target sample sizes pretty similar across the states? After all, there are some good sized differences in the numbers of registered boats across them.

Well, for one thing, the participant survey—unlike the boat and trip survey components of the NRBS—wasn’t based on boats. It was based on people—a population-based survey to get at recreational boating participation in the 50 states, District of Columbia, and Puerto Rico. It didn’t matter whether or not the respondents owned a boat or registered a boat.

The target sample sizes were relatively similar across the states to produce

comparable accuracy at the state level or, in statistics-speak, the sample was allocated to achieve a “margin of error” of +/- 5 percent for household-level estimates within each of the jurisdictions.

Since state-level data was collected for both the NRBS participant survey and the NRBS trip survey, they can be combined, right?

Don’t even attempt it! They’re two separate surveys that had different purposes and different sampling frames.

How were the NRBS trip survey panelists identified?

They were recruited from among participants in the boat survey. The boat survey collected detail on registered and unregistered boats from their owners.

So, if a trip survey panelist had more than one boat, were they asked to report on how they used all of their boats during the previous month?

No. Even though the boat survey identified all of the boats a trip survey panelist owned, if the panelist was contacted for the monthly survey, they were only asked to report boat trip information for one of their boats. The information the panelist reported was used in calculating the exposure hours.

But if an NRBS trip survey panelist took that boat out for 10 days during the month, they had to report on the number of hours and number of people on that boat for all of those days, right?

No. Panelists were only asked questions about two boating days. If a panelist took their boat out for 10 days or any number

of days beyond two, then two days were randomly selected, by computer. In the calculations of exposure hours, a weighting “adjustment” was made to compensate for the other days.

For the NRBS trip survey, apart from being placed into one of four regions, states were also designated as “Northern” or “Southern.” Why was that?

That was for sampling reasons and was based on which states were identified as having longer boating seasons (“Southern”) or shorter seasons (“Northern”).

Trip survey panelists in Southern states were surveyed each month throughout the year, while panelists in Northern states were surveyed every month during the summer. In the winter, panelists in the Northern states were surveyed in January for their boating trips in the prior October through December, and in April for their trips in January through March.

Where can I find all of the background documents associated with the 2012 NRBS?

At www.uscgboating.org/statistics/survey.aspx, you can find the questionnaires used for all three survey components of the NRBS; the methodology reports for the trip and participant surveys; and four micro-data files for 2012. For more detail specific to the boat survey, see the 2011 files on that page.

At www.nasbla.org/ERAC, you can follow links to other survey-related resources provided to the NASBLA ERAC charge team by the Coast Guard (e.g., an analysis prepared for the Office of Management and Budget on non-response issues associated with the three NRBS survey components) and materials developed as a result of the team’s discussions (e.g., a simplified version of the data weighting methodology used in the NRBS trip survey). *