



From: Gary Polson
PropellerSafety.com
P.O. Box 1381
Stillwater OK 74076

31 October 2014

To: Department of Homeland Security
U.S. Coast Guard

**Reference: Docket No. USCG-2010-0164
National Boating Safety Advisory Council**

Subject: Over 10,000 USCG Reported Boating Accidents From 2009-2013 Are Invisible to Manufacturers and Boating Safety Professionals

Thank you for the opportunity to comment.

Our comment has to do with National Recreational Boating Safety 2012-2016 Strategic Plan Objective 10: Research and Development, Strategy 10.5: Analyze BARD data.

Introduction

The National RBS Strategic Plan talks about continuing to analyze BARD data to learn more about accident causes and circumstances.

USCG and NBSAC analyze BARD data in response to requests. The origin of those requests often traces back to advocacy efforts by victims families. Families begin to recognize the accident scenario that claimed or maimed their loved one continues to claim the lives of others. They begin to identify solutions, call for change, and encourage other victims to join their cause. These survivor advocates educate one another and try to run to their cause up the flag pole high enough to receive attention. Sometimes they reach NBSAC, sometimes they lobby states to pass laws named for their loved one. The process typically takes a long, long time. Survivor advocates often run out of time, money, resources, and enthusiasm before their cause receives the attention they so desire. It is time for a new, faster path to action.

The driving factor behind change is accidents. Boat builders and marine drive manufacturers try to build safe products. But when those products enter the market place, sometimes they encounter unanticipated uses, situations, or conditions, or the product fails in an unsafe manner. Sometime new safety technologies enter the marketplace after the product is sold. Once an accident scenario begins to emerge, at least some portion of future similar accidents can be prevented by design, use of guards or shields, use of new technologies, warnings, Public Service Announcements, education, training, product safety bulletins, recalls, laws, and/or regulations. The quicker the problem is recognized and appropriate actions are taken, the fewer lives lost.

Previously Emerged Accident Scenarios

Each of the following accident scenarios began to emerge at some time in the past, was eventually recognized, and attempts were made to reduce their frequency and/or severity.

1. Circle of death accidents in the late 1970s (kill switches, neutral start interlocks)
2. Neutral start issues and/or lack of ability to positively find neutral (warnings, kill switches, ongoing design efforts)
3. Tiller steered outboards and the circle of death (warnings)
4. Stick steer bass boats with sensitive steering (warnings, stopped making them)
5. PWC off throttle steering (design)
6. Divers and snorkelers struck by boats and/or propellers (education, dive flags)
7. Rental houseboat propeller strikes (warnings, education, proposed regulations)
8. Large boats backing over swimmers in the water behind them (warnings, education, remote video)
9. Houseboat carbon monoxide poisonings (studies, warnings, education, design, sensors)
10. Electrocution near docks (warnings, standards, education)
11. Bowriding pontoon boats (warnings, education)
12. Pontoon boat gate finger pinch accidents (design)
13. Struck by prop on swim ladder (studies, proposed standard lengthening swim ladders)
14. Towboats running over fallen skiers, tubers, or wake boarders when they circle back to pick them up (warnings, education, visibility enhancement devices & techniques)
15. Towed tubes striking obstacles or shore (warnings)
16. Failure to wear life jacket (warnings, inflatable PFDs, education)
17. Kill switch preventable accidents (warnings, virtual lanyards, laws in some states, education)
18. Excessive use of alcohol (laws, education, warnings, Operation Dry Water)

Just as the accident scenarios above emerged in the past, some are emerging in the present, and others will emerge in the future.

Emerging Accident Scenarios Are No Respector of Boat or Drive Manufacturer

The accident scenarios recounted in the previous section did not limit themselves to specific boat or drive manufacturers, they attacked everyone's products. Many still do.

Just like epidemics, emerging boat accident scenarios typically begin with a patient zero, then scatter across a number of manufacturers of similar drives and/or vessels as they encounter situations in which the accident scenario can occur. Just as contagious diseases are often no respector of ethnicity or gender, emerging accident scenarios are often no respector of boat or drive manufacturers.

Manufacturers tend to only worry about accidents involving their products. Boating safety professionals have a broader perspective and can often identify emerging accident scenarios faster.

It is not the accidents that are epidemic, it is the conditions that bring about these accidents. Yes, we recognize human error is often a contributor. When certain conditions come together, certain types of accidents will result some percentage of the time. (*Think about ice on the roads when you are in a hurry trying to get to work in your rear wheel drive car before sunrise.*) When those conditions start coming together enough times to result in one accident, they will likely come together again. (*You will not be the only one involved in a fender bender or in the ditch.*)

Pontoon Boat Over the Bow Propeller Strikes Example

When certain conditions come together, people begin to fall over the bow of pontoon boats and some are struck by the propeller. We are not sure who patent zero was, but we previously identified a 10 year old boy struck in 1964. Back then, a few pontoon boat over the bow prop strikes began to occur scattered over a number of pontoon boat manufacturers. If the boat builder did become aware of one involving their pontoon boats, they likely just wrote it off as a freak accident. Initially, manufacturers likely failed to see the importance of similar accidents in pontoon boats manufactured by others. Once they recognized it, they began to warn their users.

For pontoon boat over the bow accident propeller strikes, the conditions are often:

1. Pontoon boat
2. Pontoon boat with deck extending forward of front fence
3. Children onboard
4. Children sitting forward of front fence while underway
5. Children dangling feet in water while underway
6. Striking a wake or sudden slowing of the vessel
7. 40 horsepower or larger outboard motor (increased speed, larger diameter prop, more power to chop human bone)

When most or all those conditions are met, children are going to be struck by propellers from time to time. It will not happen every time, just like you will not catch a communicable disease every time you interact with someone contagious. But children will be struck.

Large Outboard Motors Striking Submerged Objects and Entering Boat Example

As a more current example, marine drive manufactures seem oblivious to the number of large outboard motors striking submerged objects, breaking off, and flipping into boats with their propeller still under power. While the number of accidents for each manufacturer of marine drives may be low, a broader perspective shows an emerging trend that began many years ago. Several of these accidents involve professional or competitive anglers in bass boats striking stumps. Large outboard motors entering the boat under power are particularly dangerous due to the severity of injuries they can inflict.

We have identified about thirty such accidents, however, we have been restricted to examining only the accidents visible in Releasable BARD.

Invisible Accidents

To gain the attention of boat manufacturers, accidents must occur frequently and result in severe injuries or death. The 30 accidents and <10 fatalities we identified in which large outboard motors struck submerged objects and entered the boat have been insufficient to substantiate the accident scenario in the eyes of the industry.

Our lack of access to over 10,000 accidents reported to USCG from 2008-2013 prevents us from identifying enough accidents to reach the tipping point and attract their attention.

We call for making these currently invisible accidents visible to boat and marine drive manufacturers, and to boating safety professionals.

More Recent Emerging Accident Scenarios

A never ending stream of new boating accident scenarios continue to emerge. New boat types, emerging activities (like tubing, wake surfing, wake boarding, parasailing), changing user demographics and experiences (the rising generation), new hazards, and changing environments overpower even the best efforts of manufacturers from time to time.

Researchers are currently monitoring several pockets of activity to see if they emerge as an accident scenario of national concern or not. Among them are:

1. Paddle board life jacket issues (being discussed at NBSAC92)
2. Distracted boaters
3. Impact of legalizing marijuana in several states
4. South Florida's giant weekend gatherings (like Nixon Sandbar)
5. Increasing popularity and diversity of non-powered or human powered vessels (paddle boards, canoes, kayaks, etc.)
6. Wake surfing (wakeboarding without a rope) behind outboard motors

Just like in the past, boat accident scenarios that emerge 10 years from now will result from the convergence of several conditions. We do not yet know what those types of accidents will be, or what the conditions will be. Access to the invisible accidents in BARD can help manufacturers and boating safety professionals identify future emerging accident scenarios and the converging condition leading to them faster.

How to Stop an Outbreak

The first step in stopping accident outbreaks (emerging accident scenarios) is just like stopping epidemics. You have to recognize there is an outbreak and what kind of outbreak it is. This is done by monitoring accidents, identifying similar accidents, and looking for similar causes and contributors. The limitations are, how observant is the industry? How fast do they respond? Are there barriers to their response? Depending on who you ask, you will get different answers to those questions.

Barriers may include cost of parts, tooling changes, mold changes, implementation costs, assembly costs, shipping costs, training costs, recall costs, lack of personnel, and fear their actions may make them legally responsible for not fixing the problem earlier. The higher the barriers, the more accidents required to justify change.

We Propose Making All USCG Reported Accidents Visible

We propose granting manufacturers and boating safety professionals access to over 10,000 currently invisible accidents reported to USCG from 2008-2013. (See charts attached.)

Access to these accidents would speed up the process by allowing manufacturers and boating safety professionals identify emerging accident scenarios faster. Once emerging accident scenarios reach the tipping point, they attract the attention of the industry, NBSAC, and USCG. Official efforts to address the newly identified accident scenario begins, and lives can be saved. In some instances, this could occur several years faster than the current process of waiting for victims families to raise the issue.

Researchers almost always need access to BARD redacted narratives (verbal descriptions of the accidents with any privacy information redacted). Redacted narratives are not available prior to 2008. That makes access to 2008-2013 invisible accidents even more critical.

How it Could be Done

There are currently several classifications of BARD users depending upon their needs.¹ Among them are contractors preparing the database, certain people at USCG, contracted groups, boating safety partners, NBSAC, USCG Boating Safety Award grantees, internally within the Coast Guard less PII (Personally Identifiable Information), internally within the Coast Guard with PII, media representatives, consultants, lawyers, accident victims, and state boating authority users. USCG provides different levels of access to groups depending upon their needs. Some users receive USCG generated compilations of accidents meeting their requests, others may receive CDROMs, and others gain access via BARD-Web,

Special attention is paid to restricting access to Personally Identifiable Information (PII).

A new class of BARD users could be created granting boat and marine drive manufacturers, and boating safety professionals access to non-PII information on all reported accidents from 2008 to present. Further details are available on our web site.

¹ Privacy Impact Assessment for the Boating Accident Report Database. November 12, 2009. U.S. Department of Homeland Security.

Handout

I am attaching an 11 page handout that introduces a [series of 6 posts](#) on our website addressing the need for boating industry manufacturers to monitor their products in the field for post sale safety issues. The series also addresses the critical importance of access to the currently invisible BARD accidents in that process.

Closing

Over 10,000 USCG reported accidents from 2009-2013 are currently invisible to boat and marine drive manufactures, and to boating safety professionals. Please make them visible so emerging accidents scenarios can be recognized faster, addressed faster, and lives can be saved.

Please be sure to view the attached handout.

We close with these equations:

Invisible accidents = Emerging accident scenarios remain unsubstantiated

Emerging accident scenarios remain unsubstantiated = No action + Boaters killed

Thank you again for the opportunity to comment.

Gary Polson

PropellerSafety.com

attached: 11 page handout