

Social Marketing and Boating Safety

A Project to

Increase Personal Floatation Device Use



Literature Review

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Table of Contents

Introduction.....	3
Boating and the economy.....	4
Boater characteristics	5
Economic Burden of drowning.....	6
Boating Incident Reporting.....	6
Drowning	7
Observational Studies/Interventions	8
Boater Perceptions of PFDs.....	11
Conclusion	12
References.....	13

Introduction

Boating is a defining element of life in Florida and it has a significant impact on nearly every person living in the state. For example, boating activities on Florida's waterways generate significant revenue for the state's economy—exceeding that from citrus, ornamentals, and fruits and vegetables. As the population in Florida increases along with the popularity of boating, the vast inland and surrounding waterways of Florida are predicted to experience an even greater profusion of recreational boaters. In 2008 there were a recorded 1,010,359 registered boaters in Florida. [1] Recreational boaters come to Florida's waters with varied levels of experience, boating knowledge, and perceptions of boating risks and safety. Although boating safety courses and education campaigns have been implemented throughout the state, Florida continues to rank high in the number of accidents and fatalities. In 2008 there were recorded 657 recorded accidents and 54 fatalities. [1] The majority of Florida's recreational boating deaths reported in 2008 were due to victims either falling overboard or capsizing their boat, resulting in drowning among 70% of the victims. Although there may be other contributing factors such as inexperience and alcohol use, a consistent factor noted in the drowning deaths was non-use of a personal floatation device (PFD). [2]

In the United States, a PFD refers to a floatation device that is a life jacket. In Canada difference types of devices are considered PFDs. There has been discussion into encouraging the U.S. and Canada to adopt similar PFD categorizations and terminology. The reason for differentiation in Canada is to categorize PFDs by purpose, use requirement, and the buoyancy they provide. [3] In the United States, all boats are required to have United States Coast Guard (USCG) approved vests aboard for all passengers. [4]

Ensuring safety of both visitors and residents of Florida has been the primary task of local jurisdictions, the Florida Fish and Wildlife Conservation Commission, and the United States Coast Guard. This is a complex charge given that Florida has over 1,197 statute miles of coastline and 11,000 miles of rivers, streams, and waterways. [5]

Several observational studies within the continental U.S. that have been conducted on PFD usage, indicate that PFD wear rates increase in relationship to the size of the watercraft; the larger the craft the more likely people are to not wear a PFD. Studies also disclose that mortality rates are higher among adult males. These studies take into account seasonal variation (Florida boating being year round versus most other states where most boating occurs only during the warm weather months when boating reaches a peak). Studies also accounted for weather conditions, noting that voluntary PFD use increases when the weather conditions are less predictable.

Boating and the Economy

The popularity of boating continues to escalate in Florida and nationally. The Coast Guard reported that nearly 13 million persons owned registered boats in the U.S. in 2007, a one percent increase from the previous year. [2] This does not include paddle craft such as canoes and kayaks that represent the fastest growing boating segment. [6] The increase in registered boats has been an economic driver in recent years. During 2006, national recreational boating generated \$39.5 billion in sales and service, representing a six percent increase from the previous year. [7]

Of the nearly 13 million registered boaters, over one million reside in Florida. Easy access to the inter-coastal waterway, the expanse of the Caloosahatchee River, the Great Calusa Blueway paddling trail, and the lure of the Gulf of Mexico has attracted many boaters to Lee

County, Florida. Lee County is the host to nearly 50,000 registered boaters, ranking third in the state. [2] Boating activity is a large economic stimulator for the state of Florida. In 2007, Southwest Florida (Lee, Manatee, Sarasota, DeSoto, and Collier counties) generated \$1.308 billion dollars in craft and trip spending, placing boating as the second greatest revenue generator in the state. (Economic Contributions to regional economy)

Boater Characteristics

Based on national data, typical boat purchasers have an average household income of less than \$100,000, are married, and range from 45-49 years of age. [7] These individuals enjoy boating activities such as cruising, water sports, and fishing. A study of boater characteristics conducted in Lee County via mail and telephone surveys found that the primary attraction to boating, specific to the area, was fishing, cruising, and restaurant docking, respectively. [8] The most common type of boat is an *open fishing boat* or a *power cruiser*. Thirty two percent of surveyed boaters live on an outlet waterway and exit directly from their home docks. Other boaters have their boats in dry dock storage for retrieval. These boaters launch at public boat ramp sites.

The increase in recreational boating requires increases in boat surveillance and boating safety education. This is of critical importance to Lee County. In 2008 they were ranked ninth in the number of boating fatalities and accidents in the state. [1] Lee County reported 22 accidents and 1 fatality for that year. Of greatest concern in Lee County and statewide is the lack of PFD use among victims. Of the 54 statewide victims, 9% were not wearing a PFD. [1] This number is likely an under-representation of the actual percentage of non-wearers; 74% of the boating accident forms indicate that the survivors were unsure of whether the victim was wearing

a PFD. With 70% of the statewide victims having died from drowning, it is easy to see the importance of encouraging PFD use. [1]

Economic Burden of Drowning

Injuries sustained from near drowning and drowning deaths are an economic burden through loss of productivity associated with potential years of life lost. In addition, the cost of resources for law enforcement, search and rescue operations, and mortuary services are also factors associated with the cost of drowning mortality.

In a report for policy consideration in Canada, the annual cost of recreational boater drowning was calculated at \$80 million dollars for one year. These calculations do not touch on the social and human costs of such tragedies which have a devastating and long lasting impact on family, co-workers, and friends.

Boating Incident Reporting

For over a decade the Coast Guard has received annual reports of recreational boating accidents and fatalities from the 50 states, five U.S. territories, and the District of Columbia. This data is compiled by the Coast Guard and reported in the annual Boating Statistics publication. [2] The data used to compile these reports comes from local and state jurisdictions with an approved Coast Guard reporting system, Coast Guard investigations, and media reports that neither the Coast Guard nor local/state jurisdiction had previously reported. [10, 11] One of the key reported measures is drowning deaths related to PFD use. [2] Based on this reporting system, there is a direct correlation between drowning deaths and individuals who choose not to wear a PFD.

In Florida, the Florida Fish and Wildlife Conservation Commission (FWC) is tasked with enforcement of boater safety regulations, among other responsibilities. FWC compiles data specific to Florida's waterways. FWC provides this data to the Coast Guard to supplement its national reported statistics. This annual state specific report provides a comprehensive review of boating accidents, fatalities, and PFD use on state waterways with a detailed breakdown at the county level. [9] In 2007, the counties in Florida with the greatest number of recreational boating fatalities included Lee, Pinellas, and Miami-Dade Counties. [9] Although fatalities in Lee County have decreased in 2008, they still rank in the top ten counties for accidents. [1]

Drowning

The World Health Organization defines drowning as "the process of experiencing respiratory impairment from submersion/immersion in liquid." [12] Individuals who experience drowning may be classified according to the end results of mortality, morbidity (injury sustaining), or no morbidity. The data reported by the Coast Guard is cross sectional in nature and does not reflect subsequent mortality that may result from the physiological sequelae of submersion injuries. This may also suggest the potential for under-reporting of actual recreational boating deaths related to drowning. In a medical context, drowning is defined as "death secondary to asphyxia while immersed in a liquid, usually water, or within 24 hours of submersion". [13] This indicates the need for hospital follow up of all submersion injuries in order to obtain a more accurate reflection of mortality from drowning and its relationship to PFD use.

In the 2007 national boating fatalities summary, the Coast Guard reported drowning as the primary cause of death in 66% of all the boating fatalities for that year. Of those drowning deaths, 90% of the victims were not wearing a PFD. [2] Even with the statistical support of

drowning deaths related to lack of PFD use, the Coast Guard and local governing bodies do not have the authority to mandate individuals to wear PFDs while on watercraft, this authority is left to the state lawmakers. The Coast Guard and local jurisdictions are limited to making recommendations only. The Coast Guard's recommendation is that both the operator and all passengers wear PFDs to improve boating safety and decrease mortality statistics. [14] Currently in the state of Florida, the only individuals required to wear a PFD on state waters include personal watercraft (PWC) drivers/riders, water skiers, and children less than six years of age aboard a boat less than 26 feet in length. [15] Although individuals over the age of six are not required to wear PFDs, all registered boats in the state of Florida are required to have appropriate sized, wearable Coast Guard approved PFD onboard at all times for all passengers.

Observational Studies/Interventions

In 1992 King County, Washington conducted a two year educational campaign to increase voluntary PFD use. The campaign efforts included videos for elementary schools, life jacket loaner programs, community events, and promotional materials aimed at increasing PFD use and boating safety. To evaluate the campaign efforts, an observational study was conducted before and after the educational campaign. Wear rates increased from 19.8% in 1992 to 31.3% in 1994 within subgroups of the population. [16]

Another observational study was conducted in Washington and Oregon in 1995 with the purpose of characterizing PFD wearers in order to increase use. Observational data was collected for 4181 individuals in a variety of sites including lakes, rivers and salt water locations. Similar to the Minnesota Department of Natural Resources and the National PFD Wear Rate studies (referenced on page ten/eleven of this document) wear rates were higher for smaller craft. It should be noted that both Oregon and Washington participated in the National Wear Rate

study. Weather conditions did not significantly affect wear rates. [17] It was noted that increased use of a PFD in an adult led to increased wear rates by children. This phenomenon has been duplicated in seat belts and bicycle helmet studies. [17] It has been suggested that differing patterns of PFD use among boat types may indicate differing knowledge levels, attitudes, and perceived risks of drowning.

In 2000, Washington State conducted another observational study of 7762 boaters. No intervention was involved in this cross sectional study. The study found males less likely than females to wear PFDs and smaller craft boaters more likely to wear PFDs than motorboats. Due to recent changes in state requirements, children wear rates had increased. An outcome of the study was a recommendation to use future studies to investigate boater's attitudes regarding PFD use in order to better inform educational and promotional campaigns for increasing PFD use. [20]

Another campaign aimed at increasing PFD use in the Northwest involved Mustang Survival, an organization focused on saving lives. Mustang Survival partnered with Oregon and Washington state boating agencies to distribute free PFDs to children. The *Sidekicks* brand PFD was distributed to over 5000 children. This cause marketing event occurred after the observational study.

Other organizations have investigated wear rate characteristics and have also implemented educational campaigns to encourage use. A national life jacket wear rate observational study report was released in 2008. The study collected data from 1998-2007 to analyze trends in wear rates specific to weather, boat types, and age. The data included observations from a random sample of 30 states. Noted findings were that adults alter their PFD

usage based on perceived risk, wear rates increase as boat size decreases, and the main barrier to PFD use is the bulky nature and discomfort of the traditional styles. [18]

This study spawned the *Delta Campaign*, an educational campaign partnership among the U.S. Coast Guard, Boat U.S., The California Department of Boating and Waterways, the National Safe Boating Council, and third party sponsors. Campaign components included a marketing campaign entitled, *Wear it California*, conversational ambassadors, a campaign tour boat, and distribution of educational materials. Post observations noted a significant increase in wear rates from 5.2% to 16.9%. [18] The *Wear It Campaign* was an effort to get boaters to voluntarily wear life jackets through promotions and publicity. The hope was that social norms around wearing a life jacket would change. 2007 was the first year of the campaign. The report from that year shows there were increases in life jacket wear rates. However, that report also shows that life jacket wear rates also increase when there is fishing tournament in progress (particularly for those likely to be participating in the tournament). Wear rates increase while a fishing tournament is in progress because tournaments' rules stipulate that to qualify for the winning prize contestants must wear a life jacket when the boat is motoring. Many wear their life jackets on while actually fishing even though the boat is not moving. What is unknown is whether compliance to this rule (and perhaps spill over compliance to other boaters) was enhanced because of the publicity from the *Wear It Campaign*. Data in the 2007 report show that there is increased wear rates when both the campaign publicity is active in the area and a tournament is going on. The only effects that seem to remain are for those involved in fishing or intending to fish.

In 2007, the Minnesota Department of Natural Resources conducted an observational study modeled after the National PFD Wear Rate study conducted by JSI Research and Training

Institute. Similar to the national study, the Minnesota study found that wear rates increased as the size of the boat decreased, but not significantly. However, weather and gender were not significant variables. The study noted that there no particular factor that had a significant influence on voluntary wear rates in Minnesota. The Minnesota study did not include an intervention.

In Florida, efforts to mimic the *Wear it California* campaign have been tried in Pinellas and Miami-Dade counties. The program entitled, *Wear it Florida*, involved mass media as in California, but did not include the distribution of free PFDs. It should be noted that Boat U.S. Foundation implemented a Life Jacket Loaner Program that discontinued accepting applications for a loaner PFD in 2008. It is uncertain whether this loaner program had an effect on the wear rates associated with the *Wear It Florida* campaign. The study showed that wear rate varied between salt and fresh water, gender, and season. The program focused on encouraging inflatable PFD usage through paid media advertisements. Currently, twenty five states have adopted the *Wear It* logo for advertising. [19]

Boater Perceptions of PFDs

Although studies have shown that boaters understand the importance of having PFDs on board and agree that wearing one is a good idea, the perception of availability and ease of putting them on outweighs actual continuous wear in boaters. [3,21] To make the point, Rhode Island law enforcement offered boaters a certificate if the operator and passenger could all don their PFDs within 30 seconds or less. Almost all boaters were unable to accomplish this task. Although most boaters feel they could don a PFD in a sufficient amount of time, this is not true with most drowning accidents.

In four focus groups of hunters and anglers, PFDs were viewed as being a symbol of inexperience and creating a child-like appearance. The primary motivator for voluntary use of a PFD was an emotional, tragic event of losing a fellow boater. [21] Recommendations that evolved from the focus groups to increase PFD use include having television fishing professionals and other water activity personalities model PFD use by wearing them messages that carry an emotional tone and are family oriented (such as using a child to talk about missing their dad because he drowned from not wearing a PFD), and recommendations to PFD manufacturers to make PFDs more utilitarian and more comfortable. [21]

Conclusion

Observation of PFD use in recreational boaters has occurred in over half of the U.S. states and has produced recurring themes. Adult male boaters are less likely than female boaters to wear a PFD. The smaller the craft the more inclined boaters are to wear a PFD. Although educational interventions have shown positive results, there are too many confounding variables that may have skewed the data, such as fishing tournaments, PFD giveaways, and policy changes.

The limited qualitative study recently conducted in Lee County, consisting of four focus groups, found that boaters believe PFDs are valuable and should be worn. However boaters particularly males still are reluctant to do so. Boaters dislike the bulkiness of traditional PFDs which is a barrier to use. Newer styles, in both the fanny pack design and vest design, were developed to help overcome this barrier. There is valid concern that boaters may not be aware of the newer styles. Further inquiry is warranted to determine whether or not awareness is a widespread barrier or isolated to particular subsets of the boating population.

References

1. Florida Fish and Wildlife Commission (2009). *2008 Boating Accidents Statistical Report*.
2. United States Coast Guard (2008). *Recreational Boating Statistics 2007*, U.S.C. Guard, Editor, U.S. Department of Homeland Security: Washington, DC.
3. Groff, P. and J. Ghadiali (2003). *Will it float? Mandatory PFD wear legislation in Canada*.
4. Florida Fish and Wildlife Commission (2008). *The Florida Boater's Guide*.
5. *Florida Quick Facts*. State of Florida.com
6. Centers for Disease Control and Prevention (2008). *Paddle Sports Fatalities -- Maine, 2000-2007*. Morbidity and Mortality Weekly Report.
7. National Marine Manufacturing Agency (2007). *2006 Recreational Boating Statistical Abstract*, Research, Editor.
8. Sidman, C., et al. (2005). *A recreational boating characterization for the greater Charlotte Harbor*.
9. Florida Fish and Wildlife Commission (2008). *Boating accidents review*.
10. United States Coast Guard (2007). *U.S. Coast Guard Statistics*.
11. Lawrence, B. and T. Miller (2006). *Recent research on recreational boating accidents and the contribution of boating under the influence*, USCG, Editor, Pacific Institute for Research and Evaluation.
12. Drowning (2009). Retrieved from http://www.emedicinehealth.com/drowning/article_em.htm
13. Drowning (2008). E-Medicine. Retrieved from <http://emedicine.medscape.com/article/772753-overview>.
14. United States Coast Guard (2005). *Press Release*. Retrieved from www.piersystem.com/go/doc/800/88170/
15. Florida Fish and Wildlife Commission (2008). *State boating law summary*.
16. Treser, C., M. Trusty, and P. Yang (1997). *Personal flotation device usage: Do educational efforts have an impact?* Journal of Public Health Policy.
17. Quan, L., et al. (1998). *Are life vests worn? A multiregional observational study of personal flotation device use in small boats*. Injury Prevention. **4**: p. 203-205.
18. Mangione, T., et al. (2008). *2007 National Life Jacket Wear Rate Observation Study Final Report*, JSA Research and Training Institute, Editor: Boston.
19. Rehwinkel, B. (2008). *Wear it Florida Campaign*. in NASBLA. Clearwater Florida.
20. Quan, L., et al. (2001). Washington State drowning prevention project year 2000 PFD observation results.
21. Responsive Management (2001). Hunters' and Anglers' attitudes toward boating safety, the use of personal flotation devices, and various messages that communicate the benefits of wearing personal flotation devices: focus group results.