



English 316
Research Paper

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RECTIFYING STAND UP PADDLEBOARD SAFETY MEASURES

Looking for preventative measures to improve safety in stand up paddleboarding, ensuring more positive experiences with this enjoyable sport.

ABSTRACT

RECTIFYING STAND UP PADDLEBOARD SAFETY MEASURES

This research paper investigates safety concerns inherent and/or unique to the growing sport of stand up paddleboarding. The potential for increasing death and injury rates within the sport call for a need to gather data on the potential problems within a few specific areas. Three main areas that are analyzed in the paper are: safety regulations, safety equipment, and safety education. These areas are analyzed in depth throughout the paper. The key focus for this research is to highlight in appropriate detail the dangers inherent to the sport of stand up paddleboarding.

The methodology of the report looks at data in varying areas such as official websites, expert opinions, safety standards already in place, and statistics from official organizations mentioned next. Data from several organizations such as the World Paddle Association (WPA), American Canoe Association (ACA), and United States Coast Guard (USCG) are gathered and analyzed in the results of the paper. Areas of research include: causes of injury and death, environmental factors, laws and regulations, safety standards, equipment and education. Results in the paper show the trends within the research. These trends indicate 1) not wearing safety equipment can lead to increased injuries and deaths 2) lack of education/training can also have an effect on injuries and deaths.

In conclusion it is recommended that two areas would have a great influence on the sport's safety and possibly reduce the amount of injuries and deaths within the sport. These include 1) Standardized safety education 2) increased safety awareness through sport-relevant media. It is suggested that education could be received through issuing a standard training to any new SUP participant before buying a board and at any rental shops. This training would highlight essential safety practices and concerns, the most common and dangerous situations, and basic use of the board itself. All of these training guidelines would abide by the regulations of WPA, ACA, and the USCG. One method of doing such training is through short videos accompanied by a short interactive quiz. Another recommendation, mentioned from a given survey of professionals, suggests requiring sport-related advertising to require depiction of properly used safety equipment.

TABLE OF CONTENTS

INTRODUCTION.....	2
PURPOSE.....	2
OBJECTIVE.....	2
SCOPE.....	3
METHODOLOGY.....	4
DATA & STATISTICS.....	4
OFFICIAL ORGANIZATIONS	4
EQUIPMENT DESIGN & REGULATIONS	5
COMPARISON WITH OTHER WATERSPORTS	7
EXPERT INTERVIEWS	7
SUP IN THE MEDIA	8
LIMITATIONS	9
CRITERIA FOR SUCCESS.....	10
RESULTS	11
OFFICIAL ORGANIZATIONS	11
EQUIPMENT STANDARDS	12
<i>Personal Flotation Devices</i>	12
<i>Leashes</i>	14
<i>Helmets</i>	14
<i>Board Material</i>	15
COMPARISON WITH OTHER WATERSPORTS	15
EXPERT OPINION.....	20
SUP IN THE MEDIA	22
<i>Case 1: Aug 1, 2016 "Recent death... raises water safety concerns"</i>	22
<i>Case 2: June 15, 2016 "Two days, four deaths"</i>	23
<i>Case 3: July 27, 2015 "BYU student dies in SUP accident"</i>	23
DISCUSSION.....	24
SUMMARY.....	24
EQUIPMENT	24
<i>Personal Flotation Devices</i>	25
<i>Leashes</i>	26
<i>Helmets</i>	27
<i>Board Material</i>	27
SAFETY CULTURE & EDUCATION.....	27
ENVIRONMENT	30
OFFICIAL ORGANIZATIONS & EXPERT OPINIONS.....	30
SYNTHESIS.....	31
RECOMMENDATIONS	32
#1. EDUCATION IS THE KEY.....	32
#2. ENCOURAGE MARKETING MATERIALS TO PORTRAY PROPER SAFETY EQUIPMENT.	36
#3. THE USCG NEEDS HAVE SUP-SPECIFIC RELGULATIONS.	37
CONCLUSION	38
WORKS CITED.....	41

INTRODUCTION

Stand up paddleboarding is growing in popularity. With any new sport, a lack of data or media attention can make it difficult for lawmakers and professionals to adequately address the safety concerns inherent to the sport. As the number of participants rises each year, the possibility of severe accidents also rises. The goal of this report is to outline the research we have done into the various areas of safety and concern that are associated with the sport and to make recommendations that, if implemented, would rectify or mitigate these issues.



Source: <http://thev3h.com/wp-content/uploads/2010/08/deck-reno-110.jpg>

Purpose

The purpose of this report is to highlight and appropriately detail the dangers inherent to the sport of stand up paddleboarding. This includes a discussion of injury and fatality rates, and their causes among stand up paddleboarders. Also enclosed in this report will be a discussion of the implications of these injury rates and causes, and how they might be remedied or reduced.

Objective

This report limits itself to three areas critical to stand up paddleboarders' safety. These are:

1. The sufficiency of safety regulations.
2. Effectiveness of safety equipment.
3. Safety culture and education.

After the presentation of thorough research, analysis and discussion on these topics, this report will present one or more solutions. These solution(s) will be judged (and ranked if required) according to their feasibility that is defined in detail under “Criteria for Successful Project Completion” in the methodology portion of this report.

These recommendations may include changes to the regulation of the sport, safety equipment requirements and/or improved education on the safety requirements of the sport. Other actions may also be recommended, where pertinent to these three areas and where defensible according to our body of completed research. This report will restrict itself to research and recommendations that improve or affect these three areas.

Scope

We acknowledge the necessity to further narrow the scope of our research in some areas. While we compared stand up paddleboarding to other watersports, our results will be exclusively focused on and applicable only to stand up paddleboarding. We will exclude death or injury caused by unknown prior health-conditions that inhibit the performance of appropriate safety measures or are the direct cause of death. We will also exclude wildlife-related injury/death, even if the victim was stand-up paddle boarding at the time.

We plan to investigate safety equipment related injuries and deaths to determine if the required gear may be a contributing factor. The environmental conditions surrounding these accidents will be accounted for to understand any factors that cannot be controlled. We intend to scrutinize the current safety standards and explore areas that may need improvement.

METHODOLOGY

The following resources and methods were used to bring this research to bear and to justify our conclusions.

Data & Statistics

We found statistics about stand up paddleboarding injuries and deaths, and the situations in which they occurred. We primarily used available scholarly research and relevant news reports to evaluate trends regarding causes of injury/death while specifically considering location, environmental factors, and demographics.

These data were obtained through internet and library searches (including, EBSCO and Google Scholar). This information is the hard data that informs and underpins the reasoning behind our recommendations.

Official Organizations

The websites of official organizations provide a host of verifiable information on the rates of injury, safety recommendations and so forth. This information may include additional statistics that were not uncovered during our other searches, or the opinions of experts we did not

interview. It also provides a concrete understanding of the regulatory circumstances surrounding the sport of stand up paddleboarding today.

There are a variety of organizations in place to promote the growth of stand up paddleboarding and encourage safe practices of the sport. Five of the most prominent include:

- SUPIA
(Stand Up Paddle Industry Association)
- PSUPA
(Professional Stand Up Paddle Association)
- WSUPA
(World Stand Up Paddleboard Association)
- ACA
(American Canoe Association)
- WPA
(World Paddle Association)

Aside from generally promoting the sport, each organization also claims more specific areas of interest. SUPIA (2016) focuses on research and education of the sport through membership to their organization; PSUPA (2016), WSUPA (2016), and the ACA (2016) all focus primarily on instruction and training their instructors in proper teaching methods

and topics within the sport; and the WPA (2016) focuses on maintaining the standards in competitions and other stand up paddleboard events, along with instructor training.

Equipment Design & Regulations

Finally, we evaluated the safety of specific products used while stand up paddleboarding, including Personal Flotation Devices (PFDs), leashes, helmets, and the material and structure of the paddleboard itself. We will research these independently, relying on unbiased safety ratings and explanations of these items found online in published journal articles or official websites of recognized authorities.

Because we have performed a relatively broad analysis of paddleboarding safety, we have chosen not to provide a scale to rate different safety devices. Instead, we have gathered our research, analyzed it, and made general recommendations based on observed trends. Where relevant, we've chosen to convey the recommendations of sources we referenced in the paper.

The end goal of our research of equipment design regulations was to either support existing laws, or to suggest that the pertinent laws be modified.

In researching equipment regulations, we have researched the following types of equipment:



Source:

https://cdn.shopify.com/s/files/1/0211/5608/products/XB_10_LIME_SUP_Bundle_5x7_d81d4f0d-7e54-4b15-867e-a9b14b301fd7_grande.jpg?v=1469165273

- PFDs
- Leash
- Helmet
- Board Material and design

We have decided to research Personal Floatation devices based on the safety that they provide to paddleboarding participants. To do this, we relied on data concerning the different classes of PFDs as classified by the United States Coast Guard, as

well as other officially recognized websites. As we research the different classes of PFDs, we hoped recommend which types of PFDs should be required based on the safety they afford to paddleboarders. This was to be determined based on a comparison of the following factors. This was done for each class (I-V) of PFDs:

- Relative Levels of Buoyancy
- Ability to turn an unconscious participant right-side up in the water

Leashes were researched separately from PFDs. While many types of leashes exist, for the purposes of this research, all leashes were grouped into one category, rather of analyzing each different type of leash on its own. We hoped that this would create a more black and white recommendation for our readers. Data was acquired from different news sources and official paddleboarding websites in order to formulate a recommendation on paddleboarding leashes. The recommendations concerning leashes were based on the following factors:

- Hazards of wearing a leash as determined by body of water
- Pros and Cons of Wearing a Leash/Not Wearing a Leash

The relative safety of helmets was also researched. As with leashes, we used data from different news sources,

and official paddleboarding websites as we formulated a recommendation. The following factors were weighed when making this recommendation:

- Hazards of wearing/not wearing a helmet as determined by body of water

Lastly, the relative integrities of different paddleboard board materials were compared in order to make a safety recommendation. The following factors were compared when forming a safety recommendation:

- Relative Structural Integrity of the board
- Potential for Injury relative to the material of the board

We acknowledge that the safety recommendation for board material is more difficult to defend than the other equipment categories. This is due to the limited amount of data available regarding board material and its role in paddleboarding safety. Much of the information we find on board integrity and material comes from personal interviews and manufacturer's websites, which we have to acknowledge may be slightly biased. We fully expect that there will be no specific board materials that lead to an increased risk for injury or death. If such a board did exist, it would be rapidly displaced by safer boards in the consumer market.

Comparison with Other Watersports

We ascertained the rates of injury and fatality among stand up paddleboarders and compared them to those of similar sports. By using statistics related to the incidence of drowning, collisional and other injuries among stand up paddleboarders, principal safety issues have been identified. This comparison not only considered the rates of injury, but the various causes of injury and death between stand up paddleboarders and participants of other sports.

This research could not cover the injury/fatality rates of all related sports with the same level of detail. The sports selected and compared in detail were chosen according to the amount of data available for comparison and the similarity of the sport to stand up paddleboarding. “Similarity” may refer to shared biomechanical features, similar equipment, place of participation or other characteristics that enabled us to fill in the gaps in stand up paddleboarding data.

With this information, we will be able to make sound recommendations that will improve stand up paddleboarding safety. This will allow us to isolate causes of death that are simply a result of recreating on the

water and those that are unique to stand up paddleboarding. Most importantly, it will allow us to prioritize these recommendations according to the utility of the recommendation or the severity of the danger. If necessary, we will also be able to emphasize solutions to problems that are unique to stand up paddleboarding.

Expert Interviews

There are many stand up paddleboarding experts, athletes and shop owners in and around Salt Lake, Wasatch, Summit, and Utah counties. They possess first-hand experiences, expertise, and resources that have been able to better direct our research. The results from these interviews inform aspects of and support our final recommendation presented in this report. Where data is sparse or incomplete, the report relies on expert testimony and their knowledge of the sport’s history and current situation to inform our arguments. We recognize that the responses we receive will be potentially opinionated and anecdotal. We have placed greater value on the thoughts of experienced and professional paddleboarders more than those of novices and beginners.

The best way we have been able to contact these people is through the internet. There are groups on social media, particularly on Facebook, which raise awareness and support local stand up paddlers. Members of these groups are interested in the growth of the sport, conditions of local and favorite paddle spots, and meeting up with nearby athletes for paddleboard outings. Two specific groups we were able to engage with are Wasatch SUP and SLC SUP. Each group has around 300 members, and we were able to get a number of responses to the questions we posed to those groups.

We developed a brief questionnaire to get answers and opinions to specific questions once we developed one of our ideas for a recommendation. The questions included simple multiple choice answers as well as space to further express thoughts and opinions regarding the topic of improving stand up paddleboard safety. We shared a link on the aforementioned Facebook group pages and received 41 responses from stand up paddleboarders of all different backgrounds and experience levels. These responses will be

The screenshot shows the Facebook group page for 'Wasatch SUP'. At the top, there's a large photo of several people with paddleboards on a rocky shore next to a lake. Below the photo, the group name 'Wasatch SUP' and 'Public Group' are displayed. To the right, there are buttons for 'Joined', 'Share', 'Notifications', and more. A navigation bar below the photo includes 'Discussion', 'Members', 'Events', 'Photos', and 'Files'. On the left, there's a text input field with placeholder text 'Write something...'. In the center, a pinned post by 'Chris Knoles' is visible, sharing an event from 'Utah Paddle Board Rental & Sales' on July 29 at 4:32pm, with the caption 'It's race time!'. To the right, there are sections for 'ADD MEMBERS' (with a search bar), 'MEMBERS' (showing 280 members with 3 new ones), 'DESCRIPTION' (asking for hosts and event posts), 'GROUP TYPE' (set to 'Club'), and 'TAGS' (listing 'Standup paddleboarding', 'Paddleboarding', and 'Utah').

Source: <https://www.facebook.com/groups/145645006124441/>

discussed in greater detail in the results section of this paper.

SUP in the Media

To gain an understanding of what has happened in the sport recently we have reviewed news reports and other media. This task was aimed at uncovering possible trends in regards to safety hazards, injuries, and deaths. In particular we hoped to learn the causes or events leading up to an injury or death. Discovering trends or similarities in these particular incidents may help us determine what is causing these tragedies to take place.

We hoped to gain other potentially valuable insights from this domain of inquiry. For example, interesting insights into the sport's popularity and how the sport is advertised have been

helpful in determining if the promotion of the sport has any potential sway on stand up paddleboarding safety culture.

The media survey gave us a current view but is by no means sufficient in giving all the details of what happens in a particular incident. In much of the media material details about the incident are sparse and viewed from an outside perspective. Methods such as contacting the families of the injured and the deceased would not have been practical for this research paper due to time constraints and other logistical concerns. Similarly, it would not have been feasible to contact media outlets or authors of news stories to get more insight into the incidents considered. We instead, relied on using the key details that are given within media sources and made educated interpretations of what may have been the root cause(s) of an incident.

Like the other areas of research in this paper the research that is gathered on the media will be outlined and discussed further. This information further supports and validates other research and data used.

Our goals in this area of research are to:

- Help shore up other areas of research
- See what is currently happening in SUP

- Find trends in the media
- Find possible problems in the safety of the sport

Limitations

The main limitation we face is a lack of statistics since data on stand up paddleboarding have only been collected in recent years. We will have small data sets, but because of paddleboarding's recent rise in popularity, they will offer us very current, and therefore pertinent, information.

Other limitations include statistical error of the reports that we cite. We acknowledge it as present even though the error is not our own. Finally, we recognize that those experts who respond to our interview questions may present a bias based on geographic location, professional affiliation, or experience level.

As mentioned previously, the varying laws and requirements for different bodies of water may give cause for objection. We stand by our recommendation based on the research as conducted, and acknowledge that each agency, organization or entity may do as they see fit with the information we present.

Criteria for Success

We have defined a successful research project as one that answers each of the following in the affirmative:

1. Have we identified causes of injury and death among paddleboarders?
2. Is the recommended solution feasible?
 - a. Is the solution easily implemented by the entities that oversee paddleboarding?
 - b. Is the solution cost effective for the associated governmental agencies and/or manufacturing companies?
 - c. Is the solution easy for consumers to understand and apply?
 - d. Is the solution timely?

We will refer to these criteria in our recommendations section and conclusion, as they will be our guidelines for whether or not each safety recommendation is not only warranted by our data, but can feasibly be implemented in the sport of paddleboarding.

Results

These are the findings we gained through the research and methodology as previously presented. We were able to thoroughly assess the areas within our scope of study in order to present a detailed explanation below.

Official Organizations

All of the five official organizations previously described (SUPIA, PSUPA, WSUPA, ACA, WPA) promote education of the sport from certified instructors, which is why all of them provide in-depth instructor training. While the sport could be learned through tutorial websites and videos, all of those organizations promote learning by doing while having a certified instructor to guide the education and practice process.

There are aspects of the sport that can only be learned by doing, such as safely falling off and getting back onto a stand up paddleboard, both of which can be difficult for a beginner who may lack strength or agility while wearing a PFD, especially in non-ideal conditions such

as inclement weather, high winds, large waves, or if the participant is suffering from exhaustion. These, among many others, are circumstances that may not be taken into account when someone decides to try the sport for the first time and are potentially contributing factors of the recorded stand up paddleboard injuries and deaths. However, those are the types of issues which a certified instructor will address early-on in their lessons, thus attempting to prevent such tragedies through proper practice and education.

In addition to those, the United States Coast Guard (USCG) has determined the regulations set in place for proper safety practices for stand up paddleboards on various bodies of water. Essentially, stand up paddleboarding has adopted the same standards that are in place for other water



Above are logos from the five official organizations we researched.

sports and activities that are already in existence. According to a document published on October 3, 2008, the USCG “made the determination that “paddleboards,” actually Stand-Up Paddleboards (SUP) are considered “vessels” and subject to certain boating safety regulations.” They consider stand up paddleboards to be similar to other man-powered vessels, such as kayaks, and required the same applicable rules to apply: “A vessel, according to 1 USC 3 “includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water”” (U.S. Coast Guard [USCG], 2008). They further clarified that if a stand up paddleboard is being used in a swimming area, it is to be left alone by anyone not operating it, and if one is being used in any other body of water, it is to be “treated as a kayak or other paddlecraft” (2008).

Aside from the USCG Navigation Rules, their equipment rules also apply:

PFDs:

- Children (12 years old and under) are required to wear a PFD.
- Adults must have one onboard.
- PFDs must be Type I, II or III.
- Those ages 16 years old and older who are confident in

swimming and in water may wear an inflatable lifejacket.

Sound producing device:

- A whistle is acceptable.

Navigation Lights:

- A simple flashlight that can be used to avoid colliding with another vessel is all that's required.

Visual Distress Signal (VDS):

- If the paddleboard is under 16 feet long and is operating between sunset and sunrise.
- If the paddeboard is 16 feet or longer and in use anytime day or night.

One item not required by the USCG is a leash, however the above organizations all train their instructors require an appropriate leash to be worn during lessons and any other time an instructor is involved in educating or guiding participants.

Equipment Standards

Personal Flotation Devices

The United States Coast Guard uses classifications of Personal Flotation Devices (PFDs) to denote the situations in which each PFD type should be used, and the amount of

buoyancy that each type provides. The types, denoted by Roman numerals 1 - 5 (I-V) are illustrated in Figure 1.

Each PFD type, along with its associated characteristics, are explained below:

Type I PFD: Type I PFDs are best utilized in rough open water. They turn unconscious persons face up, and provide 22 pounds of buoyancy to the average adult. They are widely regarded as the all-around best PFDs.

Type II PFD: Type II PFDs are the classic, over-the-head, orange life vests that most people are familiar with. They are generally less bulky and expensive than Type I PFDs. Many, but not all, Type II PFDs turn unconscious persons face up. Type II PFDs provide 15.5 pounds of buoyancy.

Type III PFD: Type III PFDs are most commonly used for general boating and other aquatic activities. They are most effective in calm water, especially when there is a chance for fast rescue. Type III PFDs provide

Figure 1.



Source:
http://www.ndow.org/uploadedimages/ndoworg/Content/Boat/Boating_Safety/pfd_types.gif

15.5 pounds of buoyancy, but do not turn unconscious persons face up.

Type IV PFD: Type IV PFDs are PFDs that are thrown, such as ring buoys. These will not be discussed further in our report, as they are not pertinent to our research or findings.

Type V PFD: Type V PFDs are classified as "Special Use" PFDs. They include deck suits and work vests, among other life vests, and will not be further discussed in our report, as they are not pertinent to our research or findings.

Inflatable PFD: Inflatable PFDs are classified as either Type III or Type V PFDs, depending on the standards of classification used. We will consider them a classification of our own, for the purposes of this research. Inflatable PFDs are less bulky than traditional PFDs, and require being blown up before they are fully functional. They do not turn unconscious persons face up, and require regular use checks. They are not recommended for personal use for personal watercraft or associated water sports. ("USCG PFD Categories", 2010)

From the information above, we learn that only Type I and Type II PFDs reliably turn an unconscious person right-side up in the water.

Table 1, taken from the Personal Flotation Device Manufacturers Association website, details the amount of buoyancy that each type of PFD provides. From this material, we can glean that all of the classes of PFDs provide the recommended 7-12 pounds of buoyancy, with the exception of the Hybrid Inflatable. This chart shows that the Hybrid Inflatable provides 22 pounds of buoyancy when inflated, but only 7.5 pounds of buoyancy when deflated. This would not provide the recommended amount of buoyancy for most people.

Leashes

In reference to paddleboarding, a leash is a cord, which usually has some elastic properties, which connects the paddleboard to the rider. This is done with a strap that is usually connected to the rider's ankle, as seen in the image below.



Source: <http://epicwaves.net/wp-content/uploads/2015/01/f0c8d2b6bca6.jpg>

Table 1.

Type I	22 lbs.
Type II	15.5 lbs.
Type III	15.5 lbs.
Ring Buoy	16.5 lbs.
Boat Cushion	18 lbs.
Hybrid inflatable	22/7.5 lbs.
Special use device	15.5 to 22 lbs.

Source: <http://www.pfdma.org/choosing/types.aspx>

Many of the leading paddleboarding websites and magazines recommend that a leash always be used when paddleboarding. If a participant falls off their board, the leash allows them to quickly swim to the board, and either rest on it, or continue paddleboarding. In the case of rough water, where there is a possibility that the leash could get caught in the terrain, these websites recommend that a leash with a quick release system be used. ("To Leash or not", 2015)

Helmets

Many of the leading paddleboarding websites suggest that a helmet be worn at all times by those who are paddleboarding in either rivers, or in bodies of water where a surf or whitewater rapids will be present. Helmets worn in these terrains will protect participants from any head trauma caused from hitting objects hidden from sight, such as rocks or coral reefs. ("SUP Safety Basics", 2014)

Board Material

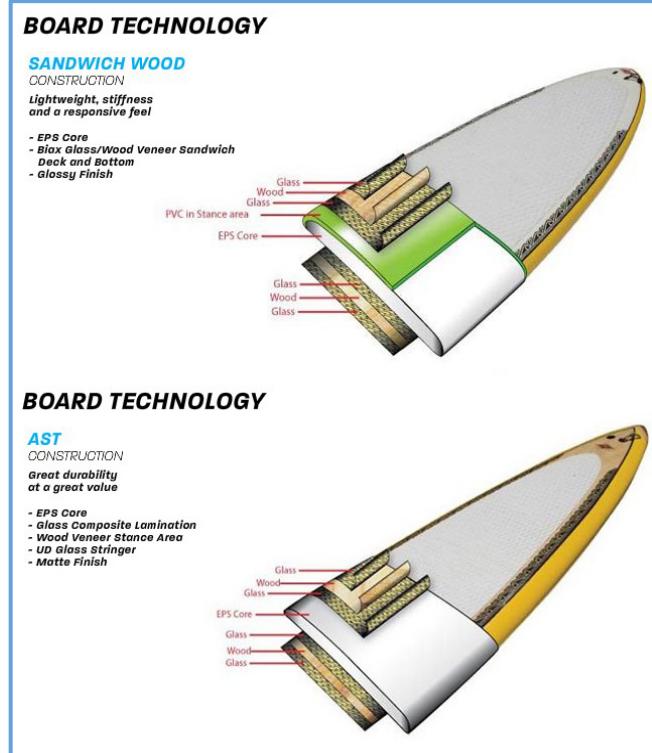
There are many different board materials and structures on the market today. These range from inflatable paddleboards to Sandwich Wood Construction to AST Construction (Hall, 2013).

Our research concludes that although these board materials have different properties, there is nothing about any given paddleboard material or structural design that makes one more dangerous than another. We acknowledge fully that we did a shallow examination of the subject, knowing that a more in-depth study of the individual board types and materials would merit its own research paper. We also recognize that if any particular material or structure was causing injuries and/or death at a rate higher than the others, that that particular board would most likely be off the buying market. This would make it unavailable for us to research, and impossible for consumers to buy.

Comparison with Other Watersports

Due to the sparse amount of data on stand up paddleboarding, it has been useful at each stage of the research process to make comparisons between the safety issues and concerns of and those of similar watersports like surfing, canoeing and others. This helps identify safety concerns and allows us to make educated guesses in

Figure 2.



Source: http://cdn2.hubspot.net/hub/209317/file-62325971-jpg/images/paddle_board_construction.jpg

the absence of stand up paddleboarding-specific data.

According to the US Coast Guard's recreational boating accident statistics, between the years 2012 and 2015, 17 people died while stand up paddleboarding. Of these, 14 drowned and 3 died of unknown causes. Of the drowning victims, the majority (12) drowned without wearing any form of lifejacket or flotation device. This is just some of the information we can glean from the Coast Guard data.

We can look to these data to gain a number of insights about the relationships between stand up paddleboarding and other sports. For example, we learn that 254 people

died canoeing during the same time frame. We can get information on causes of death, the utilization of lifejackets and more. The following

tables outline information from the US Coast Guard on several sports we've selected for comparison.

Table 2.

Stand Up Paddleboarding Deaths (2012-2015)			
Causes	With Lifejacket	Without Lifejacket	Unknown
Drowning	2	12	0
Hypothermia	0	0	0
Trauma	0	0	0
Unknown	0	2	1

All data from USCG Recreational Boating Accident Statistics Yrs 2012-2015

Table 3.

Canoeing Deaths (2012-2015)			
Causes	With Lifejacket	Without Lifejacket	Unknown
Drowning	30	186	6
Hypothermia	2	2	0
Trauma	0	2	0
Unknown	1	10	3

All data from USCG Recreational Boating Accident Statistics Yrs 2012-2015

Table 4.

Rafting Deaths (2012-2015)			
Causes	With Lifejacket	Without Lifejacket	Unknown
Drowning	29	49	1
Hypothermia	0	0	0
Trauma	1	0	0
Unknown	1	4	1

All data from USCG Recreational Boating Accident Statistics Yrs 2012-2015

Table 5.

Kayaking Deaths (2012-2015)			
Causes	With Lifejacket	Without Lifejacket	Unknown
Drowning	72	117	2
Hypothermia	9	0	0
Trauma	0	1	0
Unknown	1	14	10

All data from USCG Recreational Boating Accident Statistics Yrs 2012-2015

Table 6.

Personal Watercraft (Jetskis) Deaths (2012-2015)			
Causes	With Lifejacket	Without Lifejacket	Unknown
Drowning	23	34	1
Hypothermia	0	0	0
Trauma	74	8	4
Unknown	1	2	1

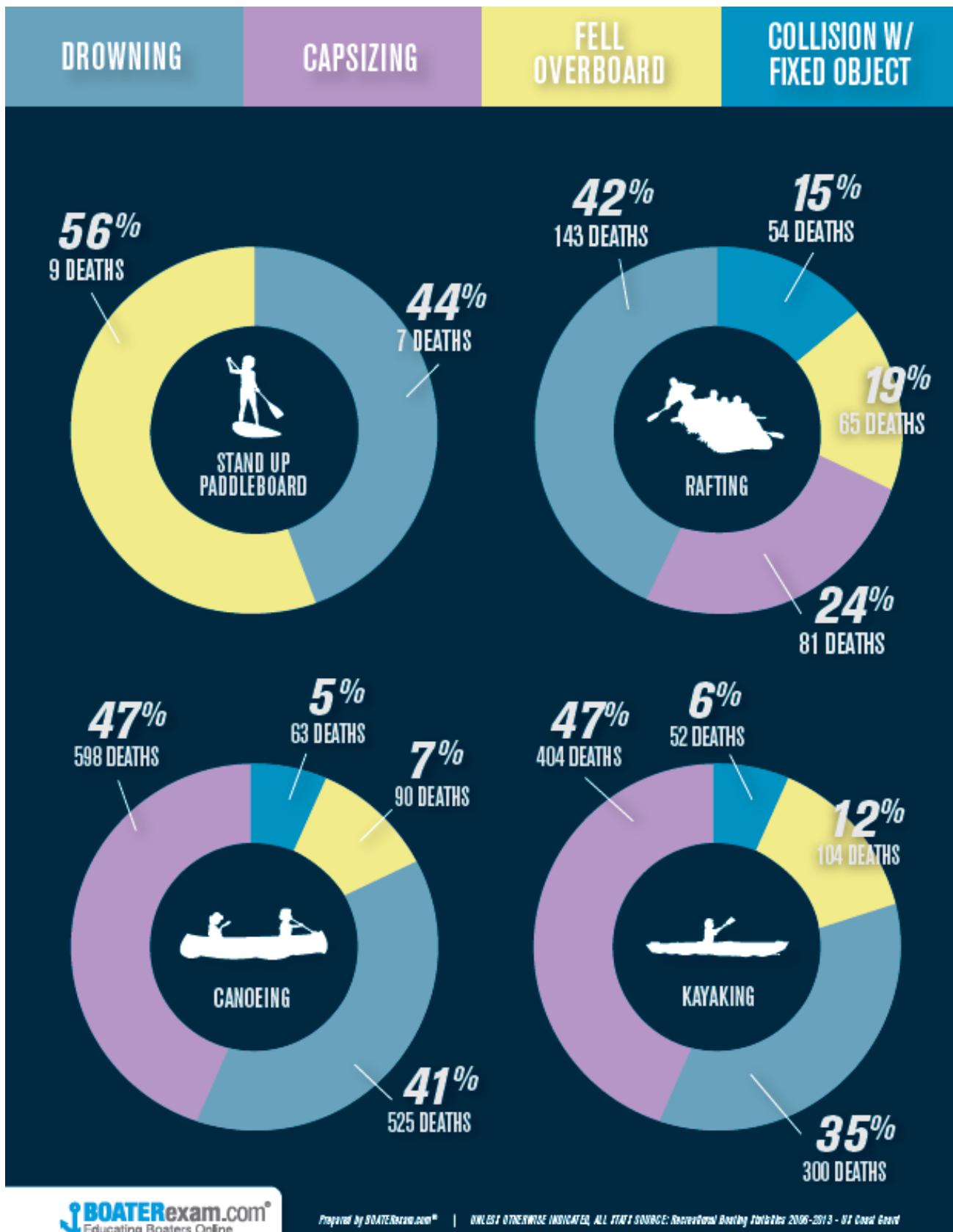
All data from USCG Recreational Boating Accident Statistics Yrs 2012-2015

The American Canoe Association provides the infographic in Figure 3 on the statistics page of their website. We immediately notice some patterns. For example, capsizing is a common problem for participants of other paddlesports. The unique construction of a stand up paddleboard seems to obviate this concern. By contrast, stand up paddleboarders are more susceptible for falling related injuries because the other sports require the

participant to be seated much of the time.

Due to the limitations of these data, we look to other sports to gain further insights. Doctors Mark White and Michael Cheatham reviewed cases of personal watercraft, or jet ski, injuries from 1993 to 1997 in a four-hospital system in Orlando Florida. They remark at the outset that a Centers for Disease Control report found “a four-fold increase in personal watercraft injuries between 1990

Figure 3. American Canoe Association Reporting Paddlesport fatalities.



White, 1999), a period of just five years. Like stand up paddleboards, personal watercraft were quickly rising in popularity. While we are still expecting a rise in injury and fatality among stand up paddleboarders, they wrote in the past tense about an increase in personal watercraft injuries and deaths.

An interesting insight stems from the fact that Orlando is a major tourist destination. Cheatham and White remark that tourists were much more likely to be severely injured than residents (1999). This suggests that simply being unfamiliar with an area can place watersport participants in greater danger. This environmental influence on participant safety is an important safety consideration.

Another useful observation from their report is the poor rate of accident reporting. They observe that while the reporting of fatal and extreme injuries is somewhat consistent, over 90% of the injuries considered in their study were never reported to law enforcement (1999). This insight is especially important as we attempt to make use of the small data sets associated with stand up paddleboarding. It suggests that many more accidents might be taking place than the available data would lead us to believe.

Cheatham and White also note that those with less experience (including tourists and youth operators) are much more prone to injury and severe injury (1999). They recommend the implementation and

promotion of educational programs to reduce the risk. This finding is corroborated by a study of Maine paddlesport fatalities published in *Morbidity & Mortality Weekly Report*. The study found that 26% of all paddlesport fatalities were individuals with less than 20 hours of experience in the sport. The only category that accounted for as many fatalities was those of unknown experience level at 46% (*Morbidity & Mortality*, 2008).

This report goes on to remark, “Education aimed at paddle sports participants might help offset inexperience...” (2008). At the time of the report’s publication, no state had any mandated requirements for paddlesport-oriented safety education. Such education would provide some opportunity to emphasize the importance of PFD use, and explain dangers related to alcohol use, cold water shock and immersion (2008).

A third and final report focuses on stand up paddleboarding done in the United Kingdom. Shree-Eesh Waydia and Timothy Woodacre discuss the results of a survey conducted among paddleboarders in the UK, trying to ascertain the most frequent forms of injury and danger in the sport. They reported that trauma to the feet, head and knees were by far the most frequent (Waydia & Woodacre, 2016). Their argument is that due to the increased size and the paddleboarder’s standing can make control of the board difficult and much more so for the novice

paddleboarder (2016). They also make the observation, “Our study suggests that when used as a paddling sport,” meaning on a lake or flat body of water, “it is a fairly innocuous sport with minimal risk of acute injury” (2016). However, when a paddleboarder ventures out into the surf to catch waves, the risk rises and they describe paddleboarder injuries as, “similar to those sustained by surfers riding similar wave conditions” (2016). This suggests a situational and location specific risk inherent to the sport.

These are the data most pertinent and useful in forming a recommendation that will improve the sport’s safety. Their implications and usefulness will be discussed at length in the discussion portion of this paper.

Expert Opinion

We surveyed 41 stand up paddleboarders, whose experience levels range from beginner to expert. 39% of them are affiliated with stand up paddle companies or organizations on a professional level, further qualifying their knowledge and ideas on this topic.

One question asked what they believe to be the most common cause of stand up paddleboard related

injuries and deaths. The vast majority of participants mentioned a lack of proper equipment, namely a PFD and/or a leash. Another common response included a lack of experience. Additionally, several responded that the weather or environment play a major role in injuries and deaths, however those are factors which there is very little we can do anything about.

Below are some specific quotes from the responses that are especially relevant to our research. The question was phrased, “In your experience, what are the most common causes of SUP-related death or injuries?”

Most common causes of death or injury:

“Not wearing the proper equipment, not knowing the risks of the environment.”

- “Neglecting to follow simple safety measures and paying attention to the weather and surrounding environment.”
- “Not wearing the proper equipment, not knowing the risks of the environment.”
- “Inexperienced paddlers on unfamiliar water... New paddlers have difficulty with managing their movement....”
- “Inexperience, and not wearing a PFD.”
- “Lack of understanding of moving water.”

We also posed the question, “If you were to change one thing to try and improve SUP safety, what would you change and why?” The top three recommendations included in the short-answer responses we received are:

1. Improve education
2. Wear a PFD
3. Wear a leash

These three suggestions from current stand up paddleboarders appear to be consistent with the information we have been able to find about causes of specific sport-related injuries and deaths. A few of the more poignant responses are:

- “Mentoring or partnering new paddlers with people who have more experience.”
- “understanding & respecting the variety of hazards in the water environment is a life long learning experience”
- “A requirement for all SUP boards to be sold with a PFD and leash along with warning and safety instructions.”
- “Education. Since paddle boarding is a relatively easy thing to learn to do recreationally, people don't think of it as something dangerous.”
- “I've seen a number of retailers selling boards without leashes. Even REI! No excuse for that!”
- “Require rental companies to provide a 30 min lesson and safety briefing before allowing renters to paddle.”
- “Offer more free on the water lessons where SUP's are sold or rented.”
- “There's very little education for new paddlers. It's beginning but it's not as common as kayaking. River police don't even hardly know what it is and they are the ones regulating.”
- “Education- of proprietors of liveries and of first-time or beginner paddlers.”
- “Media and magazines. All you have to do is flip through the internet or sup magazine and you see photo after photo of models or athletes without a PFD on!!! So people start to think either you don't need a PFD while on a sup board or that they are uncool so don't want to wear one. The industry, professionals, and media need to start by showing and being an example of the proper SUP safety, mainly wearing a PFD.”

- “More education.”
- “Educate beginners before [they are] allowed to rent boards.”

From these responses, it seems that the stand up paddleboard community has been able to identify some very specific ways that the safety surrounding a sport could be improved. These answers were able to better direct our own understanding and final recommendations, which address some of these exact ideas and concerns.

“There's very little education for new paddlers.”

SUP in the Media

The following three cases are very recent news articles that seem to point at key details of why SUP participants die. These findings are not surprising given the data available from USCG Statistics. The cases stated here are not comprehensive but are only an illustrative sample of recent incidences. The cases are presented in descending chronological order:

Case 1:

August 1, 2016

“Recent death of a paddleboarder raises water safety concerns”

On August 1, 2016 a news article was published by KTVH of a woman of fifty one years dying in a SUP accident on Flathead Lake, Montana. It was mentioned in the report that she was not wearing a PFD at the time rescuers found the body. Madison River Tubing Manager Davis Beveridge reports in the article how life jackets are issued regardless of experience level. Beveridge further acknowledges the seriousness of the sport's safety and the potential of risk of death without wearing a PFD.(2016).

The interesting detail in this article is that the woman was not wearing her PFD that had been issued before going out into the water. Other details are left out and so we are not able to give a reasonable or definite cause of death though it is implied that her death could have been prevented if she had worn her PFD. Montana law requires that one have a life jacket on board but does not specifically say one must be wearing it at all. This leaves the decision of wearing a PFD up to the participant.

Case 2:

June 15, 2016

"Two days, four deaths"

The article's title gives a chilling reminder of how serious SUP safety and education is. Jack Haworth sums it up by saying, "High winds, inexperience, and lack of proper safety precautions all played a role in each tragic incident."(Haworth, 2016). With the exception of the last story in the article each person that was found was not wearing proper safety equipment. (The others died from hypothermia while wearing their PFDs).

Ma's tragic story starts off with college friends having a good time until winds pick up and things start to get a bit out of hand as they were drifting further from shore. Ma attempted to head to shore for help but unfortunately was swept off his board in the attempt. The final analysis of this accident was that Ma, though an experienced stand up paddleboarder, was not wearing a leash or PFD and unfortunately contributed to his death. (Haworth, 2016).

In Atlantic Beach, NY Gary Turkel was off paddling but was never seen again. The last time Gary was seen he was not wearing any sort of safety equipment. Again the same scenario as all the stories above is that fatalities are more likely to happen without proper safety equipment than with it. (Haworth, 2016).

Case 3:

July 27, 2015

BYU student dies in SUP accident

Joshua Merkley went missing while stand up paddleboarding at Rock Point Reservoir in Summit County Utah. Merkley's tragic story resembles that of the other stories mentioned. Everything was great and the weather seemed fine until the weather unexpectedly changed and it started to get darker. Merkley's friends couldn't see or hear him after a while. They decided to call for help to search for him, but he was not found until the next day. The friends report that the last time they saw him he wasn't wearing any safety equipment.

It would be wrong the view these case studies in a way that brings pessimism and gloom to the sport. They merely help to illustrate the dangers of failing to take proper precautions while taking part in the sport. The specific causes of death cannot be precisely determined from these reports but it is assumed that in most cases wearing proper safety equipment does help mitigate fatal incidents, corroborating the data already provided.

Discussion

For the perspective of the data gathered, the greatest dangers to stand up paddleboarders are inexperience, unfamiliarity with the recreational area and improper use of safety equipment. Case studies of several different incidents and expert opinions both corroborated this conclusion. The research did not uncover any significant defects in safety equipment or board design. A study of current safety regulations and recommendations suggests that some changes may be required. The most important factor, according to experts, is the lack of required safety education specific to the sport.

Summary

Based on the research gathered we have learned a great deal on the areas dealing with safety regulations, equipment and education/culture. We have determined:

1. Safety regulations already require participants to wear proper safety equipment.
2. Safety equipment seems to be adequate for personal safety however needs to be worn during the sport.
3. According to expert reviews, education could be very influential in changing culture and behavior.

Equipment

To preface this section, we have come to the conclusion that no major changes regarding safety equipment are needed. This is based on the current laws regarding paddleboarding safety equipment, statistics and causes of injuries and/or deaths while paddleboarding, and our research on the integrity of the safety equipment itself. However, we still feel it is valuable to discuss the findings of our research. Each specific safety equipment item is listed below, along with its respective information, laws, and statistics.

Personal Flotation Devices

As stated above, as a reminder to the reader, as of July 2016, the current laws regarding PFD use while paddleboarding are as follows:

- Children (12 years old and under) are required to wear a PFD.
- Adults must have one onboard.
- PFDs must be Type I, II or III.
- Those ages 16 years old and older who are confident in swimming and in water may wear an inflatable lifejacket.

Our research concerning PFDs focused on

1. The relative buoyancies of the types of PFDs
2. Ability to turn an unconscious participant right-side up in the water

Current laws require that PFDs on board a vessel be Type I, II, or III. Each of these PFD types supply a minimum of 15.5 pounds of buoyancy to the wearer, well above the recommendation of the United States Coast Guard (USCG). The USCG notes that most adults need 7 to 12 pounds of extra buoyancy to allow their heads to remain above water while they are floating ("USCG PFD

Categories", 2010). Thus, the current laws of a Type I, II, or III PFD are supported by our research. As stated above, those aged 16 or older may wear an inflatable lifejacket. Inflatable PFDs provide 22 pounds of buoyancy when inflated, thus exceeding the USCG recommendation of 7 to 12 pounds of extra buoyancy.

According to our research, only Type I and II life jackets have the ability to consistently turn an unconscious participant right-side up in the water. Type III PFDs have the ability to turn an unconscious person right-side up, but are far less consistent in doing so. While Type I and II PFDs are built and designed to turn an unconscious person right-side up, the Type III PFDs are built for comfort, as they are most often used while participating in high-thrill water sports, such as water-skiing or wakeboarding. Therefore, Type I and Type II PFDs meet our second focus requirement, while Type III does not.

Inflatable PFDs differ depending on the manufacturer and model, therefore cannot be classified distinctly into one of these two categories regarding the ability to consistently turn an unconscious participant right-side up. In addition, inflatable PFDs inherently need to be inflated before they are effective. Thus, it is unlikely that an unconscious person would have the opportunity to inflate their PFD properly, as falling unconscious rarely happens when one is prepared for it.

Leashes

As stated above, in regards to leashes, the following research questions were taken into consideration:

- Body of Water being paddleboarded on, and Potential Hazards thereof
- Pros and Cons of Wearing a Leash/Not Wearing a Leash

First, let us focus on the body of water being paddleboarded on. According to our official paddleboarding sources, leashes should always be worn, with no regard to the type of water being paddleboarded on. We stand by that admonition, and would also like to add that it is especially important for those paddleboarding on a river, or in a surf, to wear a leash that has a quick release latch (shown in image below), in order to accomodate quick release of the leash if caught in the terrain.



Source:
<https://salamanderpaddlegear.com/sites/default/files/Quick%20Draw%20Leash.jpg>

Let us now focus on the second question regarding leashes. The specific pros and cons of wearing a leash vary widely on the body of water, weather, and many other factors. However, for easy viewing we have compiled this simple list:

Pros:

- Stay connected to paddleboard at all times, which is especially useful after falling off board
- Paddleboard cannot drift off. As drowning is the #2 cause of death (American Canoe Association) among paddleboarders, this is especially important and pertinent

Cons:

- Can be uncomfortable
- Can get caught in rough terrain, especially when paddleboarding on rivers. Has been known in rare cases to cause death. (Wilson 2013)

We have deduced from this list that overall, it is more advantageous to wear a leash, even though there is a chance of getting caught in rough terrain and drowning, which there have been multiple reportings of over the past few years. However, a study, quoted earlier in this paper, has shown that 56% of paddleboarding deaths come from falling off the board,

whereas 44% come from drowning. We postulate that these deaths could have been prevented by wearing a leash. It is thus our recommendation that a leash be worn by all riders at all times.

Helmets

Our sole research topic regarding helmets was in regards to the type of water being paddleboarded on, and the merits of wearing a helmet in such bodies of water. Based on our research, we concur with the leading paddleboarding websites in saying that helmets should be required when paddleboarding in a river. An image of a paddleboarding helmet is included below.



Source:
http://nrsweb5.richfx.com.edgesuite.net/image/media/43000_01_Y_Right_071314_1000x1000_2.jpg

Board Material

As a result of our research, we have determined that no safety recommendation in reference to board material or design is necessary at this time. As a logical argument for this, we also reason that any board material or structure that is flawed would be immediately taken off the market by safety oversight committees.

We have made many recommendations regarding safety equipment in this section. Although we have come to the conclusion that no modifications of safety equipment law is required, we recommend that safety equipment be worn at all times, by all paddleboarding participants.

Safety Culture & Education

A lack of proper safety culture can be common for beginners in any sport. In comparing stand up paddleboarding with other paddlesports and watersports, a number of interesting conclusions can be reached, which point to the need for greater education specific to the sport. This is especially true for beginners.

One of the first and most critical things that must be accounted for is the lack of any education requirements for paddlesports in general (Mortality & Morbidity, 2008). Because stand up paddleboarding is a new sport rising in popularity, there is already an influx of new, inexperienced participants. Stand

up paddleboarding is a very distinctive sport, with increased board size, board mass, and standing position all making for a unique experience and unique dangers. These and other safety concerns like drowning, hypothermia and alcohol use maybe be completely unknown to the novice paddleboarder.

When we consider that those most likely to be injured or killed in similar sports are those with less experience, this is a recipe for disaster. The problem is compounded by the projected increase in the sport's popularity. As the sport becomes more and more popular, larger and larger numbers of novice paddleboarders will try out the sport. As was observed with personal watercraft in the early 90s, we can project that the growing popularity will correlate well with a significant increase in the number of deaths and injuries sustained.

There are few other things that we uncover by reviewing the data available on stand up paddleboarding injuries. In reviewing the death rates for stand up paddleboarding and related sports, we find the majority of deaths occur while the deceased was not wearing any kind of PFD. While

changing regulations to require paddleboarders to wear them isn't a bad idea, it would be difficult to enforce. Requiring improved education about the safety hazards of the sport would be much more actionable and would help people to stop and consider the risks of not wearing PFDs.

We also know that tourists, or those unfamiliar with a particular area are at greater risk of injury because of their unfamiliarity with the area. Similarly, stand up paddleboarders experienced with on flat water like lakes are in much greater danger in surf due to a variety of factors. Having some system in place for safety education would help address those issues to the unique region or body of water (such as surf, rip tides or strong wind) that put paddleboarders in danger.

Aside from a lack of education and understanding, there are other factors that contribute poor safety culture. One in particular is how the media portrays professionals and other participants in these activities. In stand up paddleboarding, it is common to see official marketing



Source: <http://www.supracer.com/wp-content/uploads/2012/04/Jim-Terrell-200m-Sprint-3.jpg>



Source:
<http://checkout.supatx.com/catalog/product/gallery/id/1586/image/5165/>

Source:
<http://www.towerpaddleboards.com/Inflatable-Stand-Up-Paddle-Boards-p/bd-twr-bnc-6.htm>

images from popular brands showing people paddling without wearing a leash or a PFD.

For example, the above images are from two different brands, SUP ATX and Tower Paddleboards, show participants stand up paddleboarding without any proper safety equipment. These images are used on their websites for selling their boards and products. By neglecting to show even the most basic safety equipment being used, it sends the message to anyone unfamiliar with the sport that participating presents no danger, and therefore no safety-specific equipment is needed.

A similar issue arose in the sport of skateboarding. According to Wikipedia (2016), that sport grew too quickly for safety regulations to be implemented. By the time knee pads and helmets began to be recommended, it was nearly impossible for any sort of safety measures to catch up to the widespread popularity of sport. It was

not until professional skateboarders began wearing helmets and other safety gear that others began to see them as necessary and fashionable, regardless of prior laws and regulations that required them. Many pro athletes now are photographed and filmed wearing these items, both to manage their own safety as well as to promote healthy participation and growth in the sport. One of our questionnaire respondents even reiterated the comparison of this common problem between these two sports, commenting, “Helmets for skateboarders only became cool when the pros started wearing them!”

It seems that for the healthy growth of stand up paddleboarding and to protect participants of all experience levels, promoting an accurate portrayal of the sport is needed. Being introduced to the sport without a knowledge of the potential dangers or seeing proper gear worn may produce similar injury and death statistics as that of skateboarding.

Educating and promoting proper safety measures early on could be an effective way to eliminate high numbers and percentages of injuries related to stand up paddleboarding. The media plays a major role in this since many first encounters with the sport comes from seeing photos or videos of others participating in it. If someone learns from the start that a PFD and a leash are simply part of the equipment used in the sport, then there will be no need to correct misinformation or a lack of education in safety measures.

Environment

A good understanding of the weather conditions as well as the environmental features of the body of water is essential. Several supplies that we have had contact with are already providing their renters with needed weather forecasts. Many deaths have been caused by the heavy winds and strong weather that has the potential to separate the paddler from their



Source: <http://mgsc.cr.usgs.gov/cwqdr/Yampa/images/Pristine-lake.jpg>

board. Again, if this person is not wearing their leash nor their PFD this could be a very dangerous situation.

Official Organizations & Expert Opinions

In general, the main five organizations specified earlier and expert stand up paddleboarders tend to agree on issues and educational standards for the sport. For that reason, we will call these combined groups “the stand up paddleboard community,” or “the community” for the purpose of this discussion.

The stand up paddleboard community largely agrees with the safety requirements set forth by the USCG. However, there are scenarios where stand up paddleboards are quite different from the other vessels they are considered to be similar to. Specifically, they are meant to be stood upon, whereas kayaks and canoes are sat in or upon. Because of this, there are two specific points that

the community feels the USCG needs to improve their regulations:

1. PFDs should be worn, not simply be onboard the vessel.
2. Appropriate leashes for the type of body of water should be included in the required equipment.

A scenario where the current regulation is ineffective is if a participant is on flat water, has a PFD onboard the vessel instead of wearing it, is not wearing a leash, and gets separated from the board. At that point, the person involved must rely on his or her swimming ability and stamina to either retrieve the board or get to safety. In a dangerous environment or inclement weather, this turns into a life-threatening

situation. However, in the same scenario, if the participant was wearing a PFD he or she would be less likely to drown; or, alternatively, if a leash was worn then he or she would be better able to retrieve the stand up paddleboard. Either way, the situation would be significantly less precarious if one or both of the above improvements to USCG regulations were made.

Synthesis

To conclude this discussion portion of the report, no changes to safety equipment appear to be necessary at this time, though this topic alone would merit hundreds of pages of research and discussion. The most salient difficulties appear to be found in the safety education and culture surrounding that sport. Improving sport-relevant education and culture would bring much-needed attention to the poor safety practices responsible for paddleboarder deaths.

Recommendations

Our analyses and results have brought us to consider some recommendations. The summary above lends to an understanding of why we have come to such recommendations.

After careful consideration based on our research we have decided that the best approach to increasing SUP safety is to recommend solutions in three specific areas. The first is our main focus, while the following two are additional recommendations that are important enough to be included with our findings.

These areas of focus are:

1. Education.
2. Safety awareness through media.
3. SUP-specific USCG regulations.

#1. *Education is the key to helping the sport to be safer.*

We recommend a standardized safety presentation as a requirement in order for stand up paddleboard rental shops to send out their equipment with customers. Many of these businesses already do this, however there are still some that do not. For those that do, incorporating this recommendation would not change much, if anything, in how their rental process currently works. It would be easily adopted as they are already a prime example in prioritizing customer safety. However, there is still a chance that they may not be covering all of the information that is

most important or relevant to their customers' safety. Providing standardized content to be covered in a presentation of some sort is the best way to alleviate this oversight for those rental businesses, as well as implementing a benchmark for others to ensure the best possible safety education for inexperienced paddlers.

Standardizing Safety Training

The format we recommend this being done would include a hands-on training by the rental shop covering specific information, a standard video

and interactive quiz being made available which covers the required information, or some other presentation which includes the required information. Numerous stand up paddleboard rental businesses prefer the hands-on approach to teaching their customers safety. Truly, it is perhaps the best practice that engages and thoroughly educates novices. However some rental shops may not have the personnel, training, or ability to do this effectively. For these, a short but thorough video presentation would be sufficient to encourage their customers to learn about the best stand up paddleboarding safety practices. Making this video available online or for a free download would further encourage using it, as it would not become another expense for these businesses.

While in-person safety training is easy to make interactive, making the video interactive may be more challenging. Creating a simple, corresponding quiz to reiterate key points would be an additional feature that would better encourage this education. If this video were available online, it would also be possible to create a fully interactive website of some sort that could provide basic safety training, have interactive question and answer quizzes following video (whether in segments or after a full video), as well as keep track of who has completed the training so that the customer would only need to complete it once, regardless of rental

location or if they are a returning customer. There may be more options and features that could be incorporated, however it is easy to understand that the idea of standardized safety education for rentals and beginners is possible.

Key safety practices we recommend be covered (a.k.a. required content):

- Correlate causes of injury/death to how those could have been avoided.
- Common mistakes.
- Assumptions that should be changed.
- Also, perhaps a body-of-water specific video to cover relevant safety hazards and concerns for where a participant might be going.
- Proper PFDs to be worn for skill level and age.

After considering the results of our research and discussing potential solutions, the idea of having a standard safety presentation that rental and retail shops give to their seems both feasible and has a high potential for improving the lack of education which many of the experts we interviewed mentioned. There is also a chance that one or more of the official organizations we researched

might be willing to help fund a project like this.

To further gauge the acceptance of this idea within the stand up paddleboard community, we asked the participants of our questionnaire what they thought of our idea: “We are considering recommending a 3-5 minute safety video or presentation and a quiz to be a requirement for rental shops to send out SUP equipment with customers. Do you believe this approach would improve or have no effect on the current SUP-related death and injury statistics?” 59% of the respondents felt that our recommendation would improve the stand up paddleboard injury and death statistics. Of those who said they were uncertain if it would make any difference, most expressed that it would depend on the quality of the video or presentation and what information is covered. Here are some of the explanations as to why many believe it would improve the current death and injury statistics:

- “Like selling products the more you see it the more it sticks in your mind.”
- “I currently give a safety talk to each person who rents a SUP board. I believe it is important. A video could work, but so

could rental companies just being responsible and having the knowledge to share with customers.”

- “There is always something to learn or be reminded of, when it comes to safety.”
- “Knowledge is important for beginners to avoid mistakes.”
- “I have friends that have heard about SUPing and have rented boards, but knew nothing about effects of wind, leashes, emergency supplies, etc., or even technique (how to hold the paddle, how to paddle efficiently, how to turn the board) and the rental company didn't teach them Anything. I think that's irresponsible.”

“There is always something to learn or be reminded of, when it comes to safety.”

- “My friends that own a shop already do this and the customers appreciate it.”
- “Any education should be helpful if you are a mature responsible human.”
- “First time paddlers are most at risk for injuries or death because they don't get enough instruction and information on water and weather safety!”

- “Education is always good, what they do with it afterwards is up to them.”
- “I give a 10 minute safety talk/ orientation before every clinic or rental.”
- “Major items can be covered in a short video.”
- “It would have an effect. Whenever I rent a car in New Zealand (where they drive on the opposite side of the road), I'm required to watch a five minute video that has interactive features: a quiz every 45 seconds or so. It's a great reminder for common sense issues that arise in the roadway. Just like SUP, they're the simplest concepts but they're designed to get you considering basic things at a conscious level.”

From these comments, we can see that most of our respondents feel like any way to increase education is beneficial, and having a well-made safety video is one way that would work.

Limitations to Our Recommendation

The following limitations have come to our attention after presenting our recommendation to a group of stand up paddle boarders.

People Not Paying Attention

In many ways trying to get someone to pay attention to a safety video is much like trying to get a child to look both ways before crossing the street. Once the child learns the importance of looking both ways however, the lesson usually sticks. Participants that ignore the safety lessons increase their risk of having an accident.

This particular limitation could potentially be resolved by including quizzes that are interactive, making the material stick. The details of this limitation are explained more above in our recommendation.

Inconvenience

We also face potential customers and or business owners who are annoyed by this recommendation possibly driving business away. For a paddleboard shop-owner depending on the shop's income, this is a valid concern. However, the recommendation has merit as it mitigates the risks of lawsuits from the families of injured or killed renters.

Common sense

Another issue is that even after being trained people make their own decisions and take risks that no one can control. This is something beyond our control. The safety presentation has made them aware of the risks and they still chose to take them.

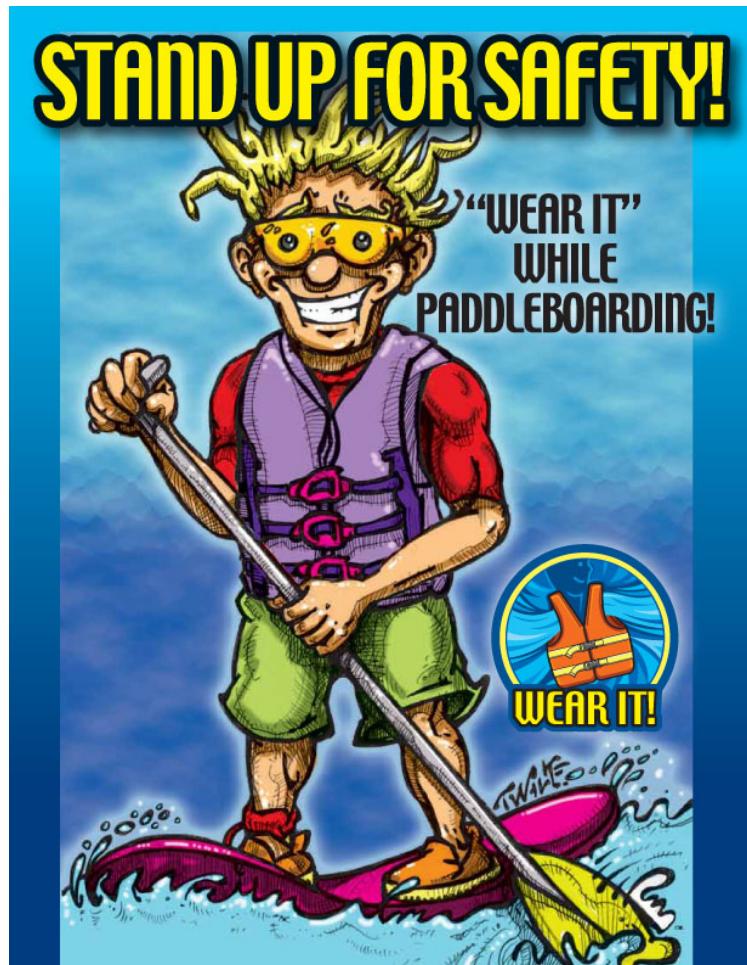
#2. Encourage stand up paddleboard retailers and manufacturers to have subjects in their marketing materials shown wearing proper safety equipment.

As stated in the discussion section, media portrayal of participants in the sport plays a major role in the education of proper safety measures. If more brands, organizations, groups, and professionals made a conscious effort to responsibly demonstrate the safety regulations that are enforced by the USCG and recommended by the stand up paddleboard community, poor safety culture would be less of a problem and the sport would have greatly reduced risks of injury and death.

Figure 4 is an image, taken from the USCG's official blog, which accurately reflects each specific safety recommendation we are making. This advertisement shows a paddleboarding participant wearing a leash and a PFD, even though the law only requires that a PFD be on board the vessel.

We recommend either a regulation or incentive for brands, organizations, groups, and professionals to portray

Figure 4.



Source: <http://coastguard.dodlive.mil/files/2012/05/wally13-lifejacket-lo.jpg>

participants who are in accordance with USCG and other safety regulations. This is a sure way to avoid misinformation, dispel the perception that the sport is not dangerous, and improve the safety culture surrounding stand up paddleboarding.

#3. The United States Coast Guard needs to improve their current regulations for stand up paddleboarding to be more specific to the sport.

To reiterate the points made in the earlier discussion, stand up paddleboards have one significant difference from the other vessels the USCG has categorized them with: they are meant to be stood upon. This changes much of how they are used and interacted with. For that reason, we recommend the USCG recognize that difference and issue more specific regulations for the specific vessel. The specific changes should include the concerns pointed out by the stand up paddleboard community as explained in the earlier discussion:

1. PFDs should be worn, not simply be onboard the vessel.
2. Appropriate leashes for the type of body of water should be included in the required equipment.

There are, perhaps, additional improvements that the USCG can make regarding the standards for stand up paddleboarding, however the above two are quite feasible and actionable. They would likely make a significant impact in reducing the occurrence of drownings and similarly caused deaths.

Conclusion

We have seen that because of the rising popularity of the sport of paddleboarding, there is a need to research and define the appropriate safety practices for the sport. Because the sport is in a relatively infant stage, there has been much to learn and suggest for this sport. This becomes increasingly important as more and more novice participants flock to the sport each day.



Source: <http://www.supracer.com/wp-content/uploads/2014/10/WPA-Paddle-Championships-SUP-Race-Florida-.jpg>

Our research has led us to believe that there are more effective ways to promote safety within the paddleboarding community. While we hope that this changes the way that paddleboarding officials, retailers, manufacturers, and participants view safety in the sport, our biggest hope is that our research saves the lives of those who are unaware of the hazards of stand up paddleboarding.

As stated in the body of our paper, our major recommendations are as follows:

1. Education is the key to helping the sport be safer
2. Encourage stand up paddleboard retailers and manufacturers to have subjects in their marketing materials shown wearing proper safety equipment.
3. The United States Coast Guard needs to improve their current regulations for stand up paddleboarding to be more specific to the sport.

It is also worth noting that we met our criteria for successful project completion as outlined below.

1. Identifying causes of injury and death among paddleboarders.

- a. According to the American Canoe Association, and assuming that its statistics hold true for the entire sport of paddleboarding, approximately 56% of deaths result from falling overboard, whereas 44% of deaths result from drowning.

2. Is our recommended solution feasible?

a. Is the solution easily implemented by the entities who oversee paddleboarding?

- i. Yes.

- 1. A standard safety video can be simply made, and used universally.

- 2. Requiring all safety gear to be worn in marketing materials would also be easily implemented.

- 3. Making changes to the current laws, requiring that PFDs and leashes be worn at all times would be the hardest, but as PFDs are currently required to be on a vessel at all times, it would be simple to require them to be worn, not just on the vessel.

b. Is the solution cost effective for the associated governmental agencies and/or manufacturing companies?

- i. Yes.

- 1. Although a standard safety video could potentially be costly, the value of a life, coupled with the ability to use a video universally, would make it be cost effective.

- 2. There is no cost involved in requiring safety equipment to be worn in marketing materials.

3. There is no cost involved in requiring PFDs and leashes be worn at all times.
- c. Is the solution easy for consumers to understand and apply?
- i. Yes.
 1. A safety video would make safety procedures incredibly easier to understand and apply.
 2. Requiring safety equipment to be worn in all marketing materials would help consumers understand the need for safety materials in their own endeavors.
 3. Requiring PFDs and leashes be worn at all times is easy to understand and apply.
- d. Is the solution timely?
- i. Yes.
 1. All of our major recommendations come at a time when paddleboarding is increasing in popularity. Each recommendation has been tailored to appeal to the current situation of paddleboarding, which is included in the introduction of this paper.

Again, we cannot overstate the importance and timeliness of this research. As we have demonstrated in the body of the paper, the potential that it has to inform participants, retailers, and manufacturers will lead directly to saved lives.

Should you have any questions regarding the methods, results, or associated discussion of the research presented in this paper, please contact one of the representatives listed below.

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