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Enhancing Rip Current/ Beach Safety Awareness Among Teenagers

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13 December 2006

Ms. Amy Painter
Communications
National Sea Grant Office
1315 East-West Highway R/SG
Silver Spring, MD 20910

Dear Ms. Painter,

The enclosed document is our report entitled Enhancing Rip Current/ Beach Safety Awareness Among Teenagers. It was written at the National Sea Grant Office over a period that expanded from October 23 through December 13, 2006. Prior to our group's arrival in Maryland, preliminary work was conducted in Worcester, Massachusetts. Copies of this report are being submitted simultaneously to Prof. David DiBiasio and Professors Hansen and Lucht for evaluation. Upon faculty review, the original will be catalogued in the Gordon Library of Worcester Polytechnic Institute. We greatly appreciate the time and effort that you and Ms. Nikola Garber have put forth to help us complete this project.

Sincerely,

Matthew Conway

Pamela Levandowsky

Laura Rockett

Maxwell Simpson



Enhancing Rip Current/ Beach Safety Awareness Among Teenagers

In cooperation with:
The National Oceanic and Atmospheric Administration:
National Sea Grant College Program

An Interactive Qualifying Project Report to be submitted to the faculty of
Worcester Polytechnic Institute in partial fulfillment of the requirements for the
Degree of Bachelor of Science

Submitted by:

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Submitted to:

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Amy Painter, NOAA
Nikola Garber, NOAA

December 13, 2006

Abstract

Rip current awareness is a serious issue considering the average 100 fatalities annually and 23,000 lifeguard rescues. This report prepared for the National Oceanic and Atmospheric Administration's Rip Current Task Force, recommends powerful and cost-effective ways to promote rip current awareness to teenagers. Top recommendations include: creating an internet chat bot which provides weather forecasts, implementing classroom enhancement including programs and partnerships, and placing public service announcements. These recommendations can educate teenagers about rip currents and help save lives.

Executive Summary

Every year approximately 23,000 people are caught in rip currents and must be rescued by beach lifeguards. Despite the efforts of lifeguards, there are, on average, 100 fatalities each year is related to rip currents. Lack of awareness about how to avoid and safely escape the hazards of rip currents is widespread in the general public especially among teenagers, the age-group most likely to be swimming at the beach and caught in rip currents. Working with the Sea Grant division of the National Oceanic and Atmospheric Administration (NOAA), the goal of this project was to design a campaign that would find powerful and cost effective means to educate teenagers about rip currents.

The Teen Rip Current Campaign, the name we refer to as our main recommendations for NOAA, is a supplement to the existing Break the Grip of the Rip Campaign. NOAA's National Weather Service (NWS), NOAA's National Sea Grant College Program and the United States Lifesaving Association (USLA) joined together to form a Rip Current Task Force in order to increase rip current awareness nationally. The task force launched the "Break the Grip of the Rip" campaign in 2004. Some of the materials the campaign has developed include a brochure in English and Spanish, beach signs, a website, several DVDs and public service announcements. These materials are predominantly developed for a broad, general audience.

To accomplish the Teen Rip Current Campaign, we have proposed a campaign with three components: internet chat bots, educational enhancement, and public service announcements. To develop these ideas, we first conducted a literature review to gather background on useful materials including marketing strategies, safety campaigns, how teenagers communicate and what technologies they use. This information gave us the necessary means to begin forming a list of possible ideas for the campaign.

Next, the group interviewed a series of professionals from NOAA, the National Weather Service (NWS), Sea Grant, and industry to determine what ideas would be feasible, what means were available and necessary to implement these ideas, what resources were currently available and also any additional suggestions. The list of interviewees was determined by our own research and by advice from the project advisors and liaisons.

By applying the knowledge acquired from research and interviews, we were then able to evaluate the information to determine which ideas would be our major recommendations. We evaluated the best ideas based on cost, ease of implementation, scalability, and effectiveness. The table that was used to evaluate each idea illustrates why using an internet chat bot, educational enhancement, and public service announcements (PSAs) as recommendations for our campaign will accomplish our goal. We expanded on these three recommendations to create a more explicit roadmap on how the task force could implement each. The campaign we designed includes why each idea was recommended, what the group has done to begin implementation for pilot testing, and how and where to promote each one.

When the recommendation for an internet chat bot was decided, we contacted weather chat bot providers. We asked one of the leading providers in this area, WeatherBug, if they would be willing to incorporate rip current forecasts into their existing weather chat bot. Since NOAA has a Memorandum of Agreement (MOA) with WeatherBug, this feature could be implemented more easily. Currently, the details necessary for implementing this feature are being provided by the National Weather Service for WeatherBug. WeatherBug has agreed to incorporate this feature with their plans for 2007. The company has also offered to try and include rip current forecasts in other programs they offer.

To enhance educational programming, we had conversations with the United States Lifesaving Association (USLA) about the existing programs they conduct regarding beach safety in schools. We also talked with members of beach patrols to gauge their interest in volunteering to run these kinds of programs. Both of the groups we interviewed expressed interested in seeing the information presented in a more consistent form. In light of this, we spoke with the Rip Current Task Force in regards to the packet of information that they are currently developing that will promote consistency. We have made recommendations on how these packets can be best utilized along with forming supplementary pages that can be included in the packet giving suggestions for presenters to make the programs successful. Additionally, we contacted the American Red Cross about incorporating rip current education into programs they have such as swim lessons. Most of these contacts are awaiting the results of this report and the packet from the rip current task force to determine how they can utilize the available information and our recommendation.

Our public service announcements recommendation includes three traditional media: magazines, television, and radio. After viewing the existing PSA material that NOAA had for rip currents and talking with marketing and public relations professionals, we determined how the task force could develop and improve upon their existing PSAs to target teens. We have identified some magazines and radio stations that would be appropriate to reach the target audience. Some contacts for larger television networks that typically target teenagers, such as MTV, have also been identified. Along with placing the existing material where teenagers would be exposed to them, we have made suggestions for creating new PSAs that are more “hip” to teenagers.

In addition to these campaign recommendations, the group formulated a list of future considerations for the campaign that we did not have time to fully evaluate. The future considerations take into account a broader campaign to spread the campaign nationally, incorporating general beach safety in addition to rip currents, and to add other demographics as targets. Some other considerations tie into or can be built upon the three major campaign recommendations we have proposed.

Our recommendations are intended to be implemented by NOAA and the other task force members. Pilot testing these ideas in concentrated areas and expanding nationally will lead to successful implementation and increase awareness to teenagers and ultimately save lives.

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Chapter One: Introduction

The National Oceanic and Atmospheric Administration's (NOAA) mission is "to understand and predict changes in the Earth's environment... to meet our Nation's economic, social, and environmental needs" (NOAA Strategic Plan, 2005). Rip currents are the biggest dangers of the ocean that beachgoers will encounter. The United States Lifesaving Association (USLA) has estimated that more than 80% of rescues and drownings have been caused by rip currents. This amounts to about 23,000 rescues and 100 fatalities per year. In order for NOAA to accomplish its mission, the Agency must promote environmental literacy to the public, particularly teens to ultimately help save lives.

Rip currents are dangerous due to the lack of awareness about how to avoid and safely escape these hazards. Many people also drown while trying to save someone else from a rip current. The problem requires a change in behavior of the public, a difficult task to pursue. Teenagers are the most common victims. Given this predicament, it is necessary to develop methods of educating the public, specifically teenagers, on precautions to take involving rip currents.

"Break the Grip of the Rip" is an awareness campaign launched in 2004 that is promoted by a task force comprised of NOAA's National Sea Grant Program, National Weather Service (NWS) and the United States Lifesaving Association (USLA). The campaign has already been successful in creating awareness as a result of brochures, public service announcements, and beach signs, to name a few tools used to raise public awareness. In many areas, the USLA have also made concentrated efforts with small campaigns focusing on educating in school systems and targeting the tourist populations. Despite the success of the current campaign, these methods are not well received by teenagers.

The goal of this project was to develop recommendations for a powerful and cost effective means of educating teenagers of the dangers of rip currents. Identifying how teenagers communicate with each other and where they receive their information was essential in being able to produce recommendations for implementation. A major part of this process was accomplished by interviewing professionals in various fields, including Public Relations and Coastal Processes. The Agency's limited budget required us to investigate the costs related to each recommendation as well. We hope that our recommendations will be useful to the task force and inspire others to aid NOAA in spreading the importance of rip current safety.

Chapter Two: Background

Before developing the methods, procedures, and design that we would use to enhance the “Break the Grip of the Rip” campaign, it was necessary for our group to conduct background research. We first looked into what NOAA and the Sea Grant programs have done so that we could have a better understanding of our role as a part of their campaign. We also researched rip currents as well as the success of the present campaign in spreading rip current awareness. This helped us understand the importance of this project and gave us a starting point. Finally, we conducted a literature review which included why we targeted the teenage demographic, marketing techniques to guide us in creating a successful campaign, and the different technologies that teens relate to so that we could choose the best methods of reaching them. After we completed the background, we were able to gain much insight on where we wanted to head with the project.

NOAA and Sea Grant

The National Oceanic and Atmospheric Administration (NOAA) is a government agency within the Department of Commerce established by President Richard Nixon on October 3, 1970. NOAA is comprised of three of the oldest agencies in the Federal Government. The first is the United States Coast and Geodetic Survey, which was founded in 1807 to survey the coastlines of the United States. The National Weather Service, the second agency, grew out of attempts to coordinate the weather observations of the United States Army and eventually became the National Weather Service. The last organization is the Bureau of Commercial Fisheries, which is America's oldest conservation agency and was founded to protect the "Food Fishes of the

Coast of the United States” (www.history.noaa.gov). The official mission of NOAA is "To understand and predict changes in the Earth’s environment and conserve and manage coastal and marine resources to meet our nation’s economic, social and environmental needs" (NOAA Strategic Plan, 2005).

The Sea Grant College Program was adopted in 1966 and became a division of NOAA when the Agency was established in 1970. This program grew because of an interest in science that was occurring in America at the time. Oceanographer, inventor, and writer Dr. Athelstan Spilhaus originally suggested the program to the American Fisheries Society in 1963 saying,

I have suggested the establishment of ‘sea-grant colleges’ in existing universities that wish to develop oceanic work... These would be modernized parallels of the great developments in every culture and the mechanic arts which were occasioned by the Land –Grant Act of about a hundred years ago... Establishment of the land-grant colleges was one of the best investments this nation ever made. That same kind of imagination and foresight should be applied to exploitation of the sea.

With Congress officially adopting the National Sea-Grant College Act, they also were establishing an academic/industry/government partnership that would aim to move into the next century with an improved education, economy, and environment. For further information about the above, please see Appendix A.

Rip Current Problem

The Sea Grant program is involved in the responsible use of beach and lake coastlines. Therefore, it is important to Sea Grant that people realize what a rip current is. This is a critical piece of the message that NOAA is trying to convey to teens. Rip currents are technically defined as “waves of oscillation changing into wave translation upon approaching the coast and tending to pile up on the water shore...some of the water is concentrated into zones and develops

an outward current which persists far longer than the return movement of the individual waves” (Shepard, 2006). NOAA has explained this so it can be easily understood. In the brochure published by NOAA for the “Break the Grip of the Rip” campaign, rip currents are defined in layman’s terms (Appendix C). Rip currents generally occur at surf beaches where there are obstacles for water to flow around such as, jetties, piers and breaks in sandbars. Essentially, the currents are channels that form in the water and flow from extremely shallow points off the shoreline of the beach towards deeper waters. More important than just knowing what a rip current is, is how to identify a rip current. A rip current can be spotted when there is turbulence in the water and when the water is a different shade than the rest of the surrounding areas. In addition, rip currents can be identified when matter is being pulled out to sea or when there are gaps in the waves that are moving towards the shoreline (Break the Grip, 2006). The image in Figure 1 depicts what a typical rip current can look like.



Figure 1: Typical Rip Currents

NOAA hopes to reduce the number of incidents resulting from rip currents by creating awareness. National Weather Service’s meteorologist, Jim Lushine wrote an article titled “A Blueprint for Reducing Rip Current Deaths in the United States.” Lushine broke down his

method of reducing fatalities into five steps (Lushine, 2005). Some of these five steps have been taken into account with our project.

- Step 1: Have plenty of adequately trained patrol units on all surf beaches. This should always be in effect at beaches regardless whether it is or is not a surf beach.
- Step 2: Educate people about rip currents. This corresponds with what NOAA is already doing through their “Break the Grip of the Rip” campaign. Informing the public about a type of danger is a key to success in terms of the people avoiding the danger.
- Step 3: Improve the observation of rip currents. As long as everyone is informed about them, as described in step two, then everyone at a beach should be able to observe rip currents.
- Step 4: Make improvements to warnings and forecasts regarding the dangers of the beach. It is important to remind people to remain cautious especially in case of extreme situations.
- Step 5: Attempt to eliminate the rip currents by manually modifying surf zones (Lushine, 2005). While this may be a viable option, this doesn't really concern us at the present moment.

The chart below shows just how dangerous rip currents are: the currents cause more deaths than any other weather related events aside from heat.

RIP CURRENTS

Break the Grip of the Rip!

- USLA estimates at least 100 fatalities per year due to rip currents.
- 80 percent of all surf zone rescues are due to rip currents.

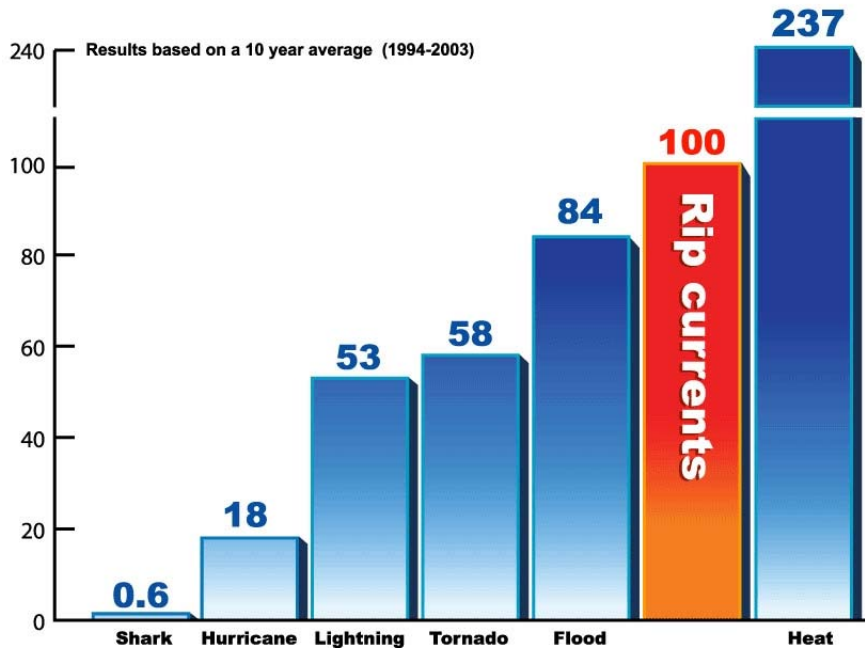


Figure 2: Estimation of weather related deaths in Florida

Rip currents are so strong that even the strongest of swimmers attempting to swim against them can drown. The currents can grow up to 10 to 12 feet wide and move out to sea at speeds of up to 6 miles per hour which is faster than any Olympic swimmer can swim (Allen, 1997). As a result, most people who drown from rip currents are pulled off shore into the ocean. With lack of swimming skills and exhaustion, the swimmers get pulled under (Break the Grip of the Rip, 2006). Unfortunately, few people know exactly how to escape rip currents. Figure 3 describes the course of action one should take if caught in a rip current.

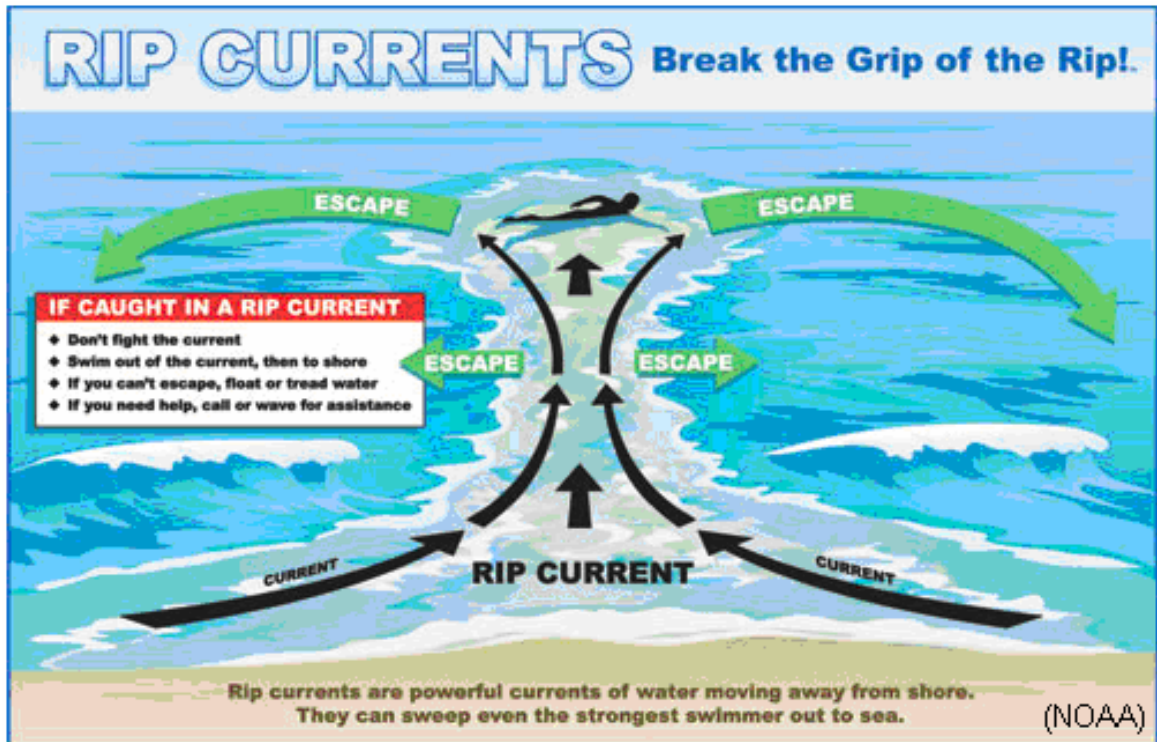


Figure 3: Rip Current Diagram

Since many people are not fully aware of this, lifeguards must constantly be on the lookout for the currents. A real story of a lifeguard who went into the water to save someone in danger of a rip current is as follows:

...Suddenly, Drake [the lifeguard] spots a woman and four pre-schoolers pattering towards the waves. As they waded in to their knees, Drake peels down to her swimsuit. She knows how deceptive- and powerful- the sea can be.

Within seconds the toddlers are literally swept off their feet and pulled into the deep water. The current (moving water) is fast, but Drake is faster. She rushes into the waves with her buoy and leads them back to shore. (Allen, 1997)

The United States Lifesaving Association (USLA) has estimated more than 80% of rescues and drownings have been caused by rip currents. The number of deaths as a result of rip currents amounts to about 100 people per year. The USLA also reported that there were 22,668 rescues related to rip currents in the year 2000. This figure represents only the number of

recorded incidents from the USLA. It is difficult for lifeguards to record the data for swimmers they have saved, and the lifeguards are not always aware of the cause of all drownings. Even when people idly stand by the shore line, they put themselves at risk of being pulled in by the water. This is why information needs to be distributed, particularly to teenagers, because this is a real danger at the beach.

Current Campaign

An important part of enhancing a campaign is to examine the current strategies and accomplishments. NOAA's National Weather Service (NWS), and the National Sea Grant College Program, in partnership with the United States Lifesaving Association (USLA), formed a task force in 2004 with the sole purpose of educating the public about the dangers of rip currents. This task force began a campaign that same year, "Break the Grip of the Rip." This campaign is promoted nationally as well as in Mexico.

The campaign has been promoted through multiple methods and media. The task force is currently developing a packet of information that can be used as a supplement to some of the recommendations given in this report. Some of the current methods of advertising include a national brochure (appendix C), beach signs in English and Spanish, a public service announcement, rip current forecasts, and a website (www.ripcurrents.noaa.gov) where rip current information and materials are available to the public. The Sea Grant College Program alone has produced and distributed an estimated 3,600 rip current safety signs, 5,500 posters, 6,500 table tents, 10,000 refrigerator magnets, tens of thousands of brochures, and scores of news releases. The beach signs are now commonly seen along the Florida coast. On other beaches in Delaware,

the message has been placed on similar signage giving additional information about beach safety as shown below.



Figure 4: Rip Current Signage on a Beach

Other communities and organizations throughout the US have taken it upon themselves to produce similar signage. A few notable rip current awareness appearances in the media include the *New York Times*, the *Today Show*, and *Good Morning America*, who have repeatedly featured USLA experts in their reporting. With this awareness spreading, the USLA has recognized that the public is beginning to realize the dangers of rip currents and the importance of swimming near guarded areas (Brewster, 2004 – 2005).

The USLA has also put forth efforts in rip current education on their own through beach safety talks. Presently, they have an estimated 7,000 contacts with schools annually. USLA lifeguards generally talk to students in the schools and give presentations to high schools during the spring months. Lifeguard training officers are typically responsible for reporting to school systems and are usually in their early to mid twenties. In addition to lecturing, the lifeguards show a video to help illustrate the importance of rip current safety. (Peter Davis, personal communication, October 30, 2006)

Presently, NOAA and the USLA are in the midst of developing a packet of rip current information that can be distributed to organizations and schools to use when educating about rip

currents. This packet would be a key factor in creating consistent message to convey to teens. The packet would include: 4-7 minute long DVD describing general rip current information; a rip current fact sheet; a talking point sheet that is meant to help out the instructor with certain factors; and finally, holographic stickers for the “students” to take home (Appendix D). The sticker would be an eye-catching piece that has an informative graphic as well as rip current information, including NOAA’s website (Amy Painter, personal communication, October 30, 2006). Once the packets are created, they will be distributed to schools and organizations to utilize which would allow for all instructors to deliver a uniform message to students.

Surveys

In order to gauge the level of rip current awareness, some students from the University of North Carolina Wilmington (UNWC) working with North Carolina Sea Grant Program administered rip current awareness surveys. The students used a systematic random sampling technique to select survey respondents however were only able to survey people 18 and older. This survey contained a series of up to 34 questions or less, varying with responses, about rip current awareness along with demographic questions (Appendix E). Unfortunately the data collected has yet to be analyzed and results are not published in this report (Spencer Rogers, personal communication, October 4, 2006). The analysis is due to be complete by the summer of 2007.

Literature Review

Discovering how teenagers communicate with each other and what media and programs are currently aware to them was crucial in the development of the campaign. It was also

important to discern why teenagers are the desired demographic. We have also investigated different methods to best reach teens through effective marketing techniques. With this knowledge of the targeted audience we were able to better develop a campaign that will accomplish the goal and increase awareness among teenagers.

Targeting Teenagers

The teenage population was the chosen audience to target for this part of the campaign as given by our liaisons upon accepting this project. Todd Fritchman of the Dewey Beach Patrol stated that the majority of water rescues that his unit performs are to people ages 19 and older, however it is very important to target the younger teens. One of these reasons, as stated by NOAA, is so that there is a “message that could have a profound and lasting impact on our Nation’s youth.” (Amy Painter, personal communication, September 7, 2006) As children grow to become teenagers they become more independent, and those living closer to beaches are more likely to go without adult supervision. In these instances, there is nobody present to remind or warn them of rip currents.

Another reason for specifically targeting teenagers is that they are the most difficult and most expensive age group to reach (Kirk Gillis, personal communication, November 11, 2006). Because teens are so difficult to reach, finding the proper methods to reach them is important. Also, since advertising to teens is so expensive (Kirk Gillis, personal communication, November 17, 2006), proper efforts must be made to effectively manage the budget allotted for the campaign. Exclusively targeting teens is important because the rip current message is unknown to so many. The message can be a life lesson for teens.

Effective Marketing Techniques

The mission of this project was to develop an effective means of reaching teens in order to promote beach safety and the dangers of rip currents. Studying some basic principles about marketing was useful in finding how to effectively reach an audience and get their attention. Marketing not only refers to situations where an organization or company is trying to persuade customers to buy their products, but also in selling an idea; in this case rip current awareness. In order to make this a successful project, two considerations were made: what marketing is and what makes marketing successful.

Successful Marketing:

Marketing to Teens

General marketing principles are important to follow. Knowing that teenagers are the target audience, we could investigate marketing explicitly to them. John Graham, president of Graham Communications - a marketing services and sales consulting firm, wrote an article titled "Demystifying Marketing or What Makes It Work" that was very resourceful providing a great example of what not to do when trying to promote something geared towards teenagers. The situation dealt with a television station that was hosting an event where fans could meet an actress who was on a show geared towards teens. The event was well publicized but only several people showed to meet the actress. Few fans showed up due to the fact that the promotion was held at a bar, a place that teenagers by law are not allowed. Campaigns need to be promoted where they will easily reach the targeted audience; perhaps in schools, at beach locker rooms or local sandwich shops (Graham, 2006).

John Graham also explains how else to make marketing simple. First, it is very important to develop the promotion into a program. The plan of action must be incorporated with numerous activities because this significantly increases the chances of a successful campaign. Companies and organizations responsible for marketing campaigns should motivate their target audience with an incentive (Graham, 2006). The message that reaches people must grab their attention; otherwise the message will not be retained. When marketing towards teenagers for a website Ron Edwards, a marketing professor, explains that the site must be “cool” and should have an “edgy look and feel.” The site should also incorporate things that draw teens’ attention such as “interactive quizzes, games, chats and forums” (Evans, 2005). Features such as these will really be able to grab teens’ attention

It is necessary for a marketing campaign to be consistent (Graham, 2006). This involves reaching out to the targeted audience repeatedly to capture their attention. The campaign needs to continually disseminate information through different methods for people to comprehend (Graham, 2006). A person needs to be exposed to information a variety of times; approximately 5-7 before they consistently remember the information (Kirk Gillis, personal communication, November 17, 2006). Success evolves from connecting with those being targeted to reach and carrying out the campaign with a professional and high quality approach. These basic principles suggested by Graham and Edwards possess the qualities that can create a successful marketing campaign (Graham, 2006).

Where to Market

Knowing that teenagers are our targeted demographic, we then investigated where to reach teens. When talking with Sea Grant, NWS, and USLA we were told that teenagers living on and around the beach areas are closest to the water are more likely to be informed about rip currents. This makes it important to also target vacationers that are unfamiliar with the ocean and its many dangers. In addition to targeting the beach area communities, methods to deliver the message further inland are important.

Campaigns Targeting Teens

While it was important to study current and previous campaigns in order to gain insight on creating a campaign, it was equally important to study similar campaigns. Although similar campaigns did not directly tell us how we should form our campaign, they provided very useful information such as what type of campaign strategies have proved successful, which have been unsuccessful, and what types of campaigns could be improved upon. Campaigns conducted with similar safety messages helped us to find optimal means of distributing information to them.

Seat Belt Safety

Teenage drivers constitute approximately 43% of all deaths resulting from traffic accidents (Traffic Fatality Facts, 1991) and are seven times more likely to be involved in a car accident (Cerrelli, 1990). A community-based education program called Outreach 2000 was initiated to spread awareness about the importance of seatbelt safety to high school students. The project distributed promotional bumper stickers and posters as well as a student award. There was also a manual written describing how to conduct the program including everything including a timetable, community involvement, and public service announcements. The student club that

was assisting in the effort of the cause also created an incentive program involving prizes ranging from free lunches to movies passes or parking privileges. There were also assemblies featuring several guest speakers including not only police officers but victims and EMT's. Following this, students were shown demonstrations of the forces of accidents. The conclusion of the assembly included a challenge extended to all of the students to wear their seatbelts. Students signed a contract and become eligible to randomly receive prizes for wearing their seatbelts. To maintain interest in the project, public service announcements were broadcasted. One school that conducted this incentive program saw a 12% increase in safety belt use. (Bross & Spellicy, 1994) The increased use in seatbelts can be used to correlate the success of the program.

Viral Advertising

There are marketing strategies used in television media to ensure messages are well received. Over the past summer, the homeopathic pain reliever HeadOn has succeeded in utilizing an effective marketing technique. This was accomplished through an eccentric ad where the product is repeatedly applied to an actress's head while the slogan "HeadOn: Apply directly to the forehead" is repeated. HeadOn's profits increased 50% between April and July of 2006, which may be a sign of the ad campaign's popularity translating into practical results (Howard, 2006). An analysis in Slate Magazine supposes that this may in part be because it is ingrained in people's minds as a result of the repetition and "if some percentage of those people are headache sufferers, and also gullible, they might well be moved to buy some HeadOn" (Stevenson 2006). The commercial utilized a marketing technique referred to as "viral marketing" to increase their sales.

Viral marketing is where the viewer helps spread the information around by word of mouth. An article in *Business Horizons* (Dobele, 2005) attempts to examine the issue closely looking at the case study of Honda UK's 2004 "Cog," a two minute ad where a series of car parts roll through a Rube Goldberg-esque process. To their surprise, the ad spread via the Internet to other countries such as the United States, where an increase in sales of Honda cars followed (Dobele, 2005).

Public Service Announcements

There are various methods of making a person aware of a danger. In a study evaluating the effectiveness of public service announcements (PSA) on alcohol-impaired driving, it was noticed that teenagers are frequently the hardest group to relay safety messages to (Shope, 1996). Since the campaigns in this study were about drinking, the majority of the PSA's were focused on high school proms and graduations; events that are a common link between teenagers and drinking. It was decided for this study that these messages ought to be given by peers rather than adults. Since younger people are more apt to listen to their peers. It was also stated that more emphasis should be given to consequences of high-risk behavior in terms of the life threatening implications. (Shope, 1996).

The designated driver campaign was one of the more successful approaches to implementing this message and is still used in commercials today. Public action or support from the community is also needed. One example of this is the formation of school or community-based programs to relay the message. Another suggestion for creating successful campaigns involves using a celebrity endorsement and creating emotional appeal. Using a celebrity can be risky for a campaign's image. The celebrity could jeopardize a campaign with their actions in their own lives; they can lose their appeal, especially to the younger crowd; or they can be

forgotten. This study has also found that there are limitations to the television PSA. Greater use of the radio is recommended because it not only costs less, but can be just as effective as television (Klassen, 2000). The production costs of television PSAs are much greater than those of radio.

Using an educational setting is another great source for conducting creating awareness. This can include media broadcasts, PSA's, classroom instruction, or written material. There are also behavioral strategies that work to the same effect. These strategies may involve incentives, negative feedback, or modeling of appropriate behaviors. In multiple studies, various age demographics were examined as well as communities with varying economic situations. "Program effectiveness can be influenced by both the quality of program implementation and socioeconomic status" (Klassen, 2000). For these reasons, programs should be developed with certain demographics in mind.

D.A.R.E. Program

The D.A.R.E. (Drug Abuse Resistance Education) program illustrates a productive means of creating awareness to young students. In some aspects, this program is similar to the Community-Based Injury Prevention Intervention previously mentioned. The D.A.R.E. program is aimed at students mainly in elementary school but also have programs that are used to reach students in high school all the way through 12th grade. The curriculum is based on the concept that it "gives kids the skills they need to avoid involvement in drugs, gangs, and violence" (About D.A.R.E., 2006). The significance of the program in terms of this campaign is that it is a classroom enhancement model.

Technology and Communication Methods for Teens

Technology is a predominant factor in the ways that teens communicate with each other. As technology progresses and becomes more and more readily accessible to the masses, children of younger ages also gain access to these technologies. As companies determine how to mass produce their products, cost decreases and the number of people who own these technologies also increases. At one time, cell phones were used for emergencies only, however the trend of using cell phones for personal and professional matters is growing. Technologies at home, school, or in a public library have become common place for ways in which teens can communicate with each other (Lenhart, 2005). With these technologies being so popular to this demographic, it makes sense for us to try to connect with them through these technologies. Here we examined the multiple technologies that teens use.

Internet

Teens frequently use the internet. The popularity of computers and the internet is increasing every year; in 2005 87% of teens ages 12 to 17 used the internet, an increase from the percentage in 2000 which was 73% (Lenhart, 2005). Even if a family does not own a computer at home, there are resources that teens can utilize such as a computer at a school or town library. It has been found that 78% of teens use a computer at school 54% use a computer in a library (Lenhart, 2005).

In past years, e-mail was the most popular form of communication for teens using the internet. Now that technology has changed, instant messaging has been growing in popularity for teens. Statistics show that 46% of teenagers prefer to use instant messaging over e-mailing, and only 33% prefer to use solely e-mail. There has been a large percent increase of teens using

instant messaging daily. The percentage has increased over 10% in four years: in 2000 the percent for instant messaging was 35% which increased to 48% in 2004 (Lenhart, 2005).

Text Messaging

Text messaging is another popular form of communication among teenagers. Text messages are typed using the keypad on a cell phone and are sent to someone via phone number. Text messages can be sent to e-mail addresses from cell phones or through instant messaging programs that are on computers. Of the 45% of all teens in the United States teens with cell phones, 64% send text messages regularly (Lenhart, 2005). As more teens acquire cell phones, the percent of those who use text messages is likely to increase.

Weblogs aka “Blogs”

A newer type of communication that is available is a weblog or blog. A blog is a web site that consists of a series of entries updated frequently with new information about particular topics (Weblog, 2006). They are organized in a topical manner which means there is a certain theme associated with each blog.

Blog use is a growing trend for teenagers: approximately 38% of all teens read blogs which comprises about 8 million people (Pew Internet, 2006). There are many different kinds of blogs including professional blogs which can give out information about many different ideas. Topics of each blog can vary; there are some that are just on the beaches in the USA, and there are some that teachers have started using in the classroom for educational purposes.

Chat Bots

Internet instant messaging has grown to be very popular in recent years. As of they year 2003, there were over 130 million instant message users. It has also been mentioned that over 50 percent of the population with computers use instant messaging. More surprisingly was that the number was predicted to exceed 75 percent for the following year (Farmer, 2003)

With an increased use of AOL Instant Messenger (AIM) and similar internet messaging systems, the corporations that developed these programs are constantly creating new features to keep their users interested in using the programs. One of the unique features of these programs is the chat bot. A chat bot is an application that talks with instant message users through their instant messages. Someone could add the chat bot to their buddy list and by sending the bot certain keywords; the bot will generate automatic responses. Some current AIM bots include one for Moviefone and another called AIM Yellow Pages. The Moviefone bot gives various information for movies including when and where they are showing. This information is received by sending an area code, actor or directors name to the bot. Another bot is the AIM Yellow Pages which can give out information about local businesses. The major force behind these bots is instant messaging as a whole (AIM Today Homepage, 2006).

Podcasting

A podcast is a digital audio file made available online for download to a personal audio device such as an iPod or MP3 player. Podcasts have become recently popular within the last two years. Many organizations, businesses, and even state legislators have used them to target audiences. This is creative, and it makes the company seem cutting edge on the communication trends, and it is inexpensive. (Wyatt, 2006) Podcasting is a term derived from combining "iPod,"

and “broadcasting.” An iPod is a popular listening device produced by Apple Computer, Inc. With this new technology, “broadcasting is not just for music-loving techies anymore” (podcasting, 2005).

Nature’s Cure, a brand of acne medication, use a podcast to target teens. They were the first company to create a podcast with weekly updates. Their podcast gives health information ranging from acne, to piercing and tattoos, to fad diets. The company claims, “Podcasting is an excellent medium to reach teens with the information they need” (Nature's Cure Creates, 2006). Podcasts can be used to disseminate a variety of information.

Magazines

Placing an advertisement in a magazine is a more traditional way to advertise to teens. Many teens enjoy reading magazines for the articles and advertisements they contain. One study showed that eight out of every ten teens read magazines in 2004 which translates to about 19.3 million people ages 12 to 17 (Teen Market Profile). It is also found that teens trust magazines more than any other media advertising. Taking this into consideration, it is determined that teens trust magazine more than television. Furthermore, when teenagers read a magazine, they are less likely to multitask because they have to pay more attention to magazines in order to comprehend the material. In terms of multi-tasking, only 12% of teens simultaneously read magazines and watch TV while only 13% read magazines and listen to the radio (Teen Market Profile, 2004).

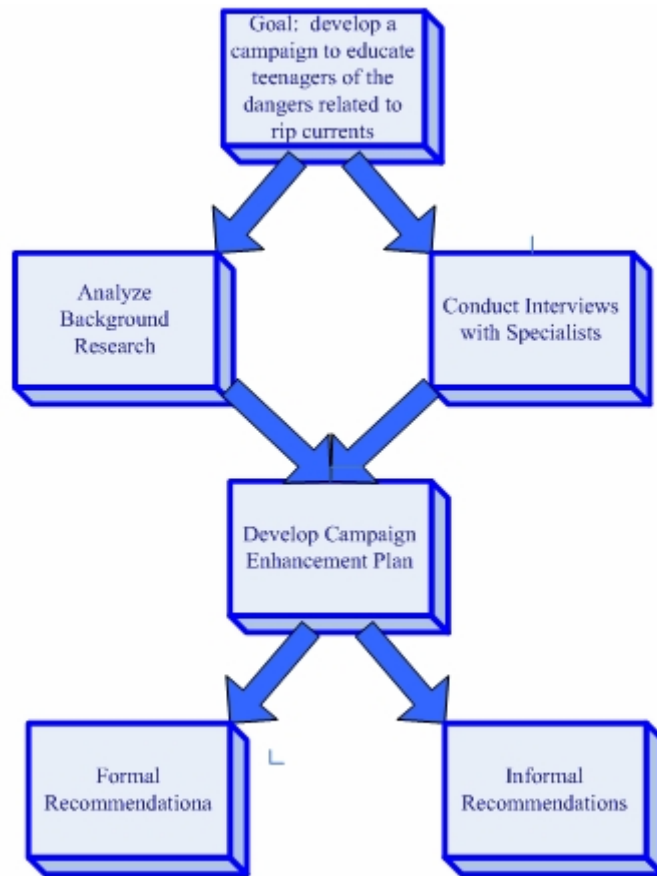
Due to the high interest of teens in magazines, the magazines are able to influence teens into purchasing certain products. It has been found that more than one in four teens, 28%, has made a decision to purchase a product as a result of a sparked interest from a magazine (Teen Market Profile, 2004).

There are different magazines that are geared towards certain demographics. Teens have a very broad demographic because there are so many different interests among them. The most popular magazines in 2004 were Seventeen, Cosmo Girl, Sports Illustrated for Kids, Teen People and Boys' Life (Teen Market Profile). All of these aforementioned magazines are read by and geared toward the ages of 12 to 17 which are essentially all teenage years.

Chapter Three: Methodology

The goal of this project was to develop a campaign to educate teenagers of the dangers related to rip currents. This was completed by utilizing powerful and cost effective means of reaching teenagers through types of media that appeal to them. In order to accomplish this goal, extensive research was conducted in order to provide recommendations to NOAA that can target the “Break the Grip of the Rip” campaign to teenagers.

This chapter delineates how the group developed its conclusions and recommendations for NOAA and the task force. Background research and a series of interviews with various professionals described below contributed to the recommendations. The interviews were conducted with professionals in both in marketing and media as well as with NOAA employees. Although the ultimate goal of this project was to create recommendations and an evaluation plan, during the interviewing phase of the project, some of the campaign recommendations were already in the beginning stages of implementation. This methodology will explain how we determined our recommendations. The flow chart below illustrates the methods used by the group as a guide to complete the project.



Analyzing the Information

The group collected information on various technologies and media that the group had gathered and learned about through our background research, literature review, and common knowledge of the age demographic that had been suggested by NOAA. The group then interpreted all of the information gathered to draw conclusions. This research revealed what comprises an effective campaign for teens, and what needs to be done to implement such a campaign. The information analyzed also assisted in deciding who should be interviewed to get additional information. The data collected is also referenced later in the recommendations section.

Objectives

Before beginning the interviews, we used our analysis of background and discussion with our liaisons to develop objectives. We generated five objectives to use while conducting this methodology:

1. Provide suggestions for technologies and media to reach teens with the rip current message.
2. Generate recommendations for a teen rip current campaign in addition to future consideration that utilize such technologies and media.
3. Identify cost and effectiveness in campaign recommendations.
4. Recommend a method for evaluating the success of the campaign.
5. Initiate pilot-tests for portions of Teen Rip Current Campaign.

Throughout the project, we referred to these objectives to verify that we were staying on target with our mission to increase rip current awareness among teenagers in the most potent and cost effective means possible.

Conducting Interviews

It was vital to our project to conduct interviews with an array of professionals in varying fields in order to get the most accurate information on what types of media and marketing are currently being used and how they work within NOAA. Additional research to the background would be necessary after interviews were conducted. With the help of our liaisons Amy Painter and Nikola Garber, we were able to identify professionals who were capable of providing answers and suggestions for us. We interviewed on a need basis as we saw fit to collect needed

information and answers to questions. To organize our list of contacts, we organized a chart of contacts from the project (Appendix F). This chart will also be helpful to NOAA. The headings for the chart are shown below.

| NAME | TITLE/ ORGANIZATION/ BUSINESS | CONTACT INFORMATION | REASON FOR COMMUNICATION | STATUS |
|-------------|--|--------------------------------|-------------------------------------|---------------|
| | | | | |

Overall, we contacted thirty-six different professionals including lifeguards, meteorologists, media and public relations specialists, coastal processes experts, and leaders of non-profit organizations.

Some of the interviews were conducted via phone conference calls; others were in person while the remaining few were conducted through email. The manner in which an interview was conducted was based on the location of the interviewee the amount of information we were seeking, and their personal preference. Sample questions from these interviews can be found in Appendix F. For longer interviews that covered more than a few specific questions, there are interview summaries located in Appendix G. We feel that the information collected in these longer interviews will be useful for NOAA to reference in the future.

Often our contacts would lead us to other contacts as well. Many of the future recommendations were contrived from the ideas and suggestions given to us by our interviewees. These interviews gave us useful information that allowed us to further research with more precision. They also gave us insight as to what would be feasible for our campaign.

Developing a Campaign

Once all of the background information was gathered and interviews were being conducted, it was time to begin bringing the information together. Using the information, we were able to develop ideas that were later formulated into recommendations. After evaluating these ideas, we were able to determine which ones we would include in our campaign. The details of each of these chosen ideas were then outlined. There are also still many auxiliary and additional future considerations for lesser developed ideas that the group has provided for NOAA.

When the team decided upon an idea to develop, one member became the leader of that idea and was responsible for the related contacts and in getting the correct people at NOAA involved. Working with the professionals involved with each recommendation and using the knowledge we acquired through our research and interviews, we have been able develop details for each recommendation including how and where each recommendation should be implemented. The details of implementation are described in Chapter 4: The Teen Rip Current Campaign.

The ideas that we did not have adequate time or resources to develop have been added to a list of future considerations. The degree to which each of these recommendations is developed varies with the amount of information we were able to collect. Some of these ideas were thought of by the team, while others were suggested by interviewees and NOAA staff.

Chapter Four: Teen Rip Current Campaign

After combining our background research with the results of our work, we have formulated several recommendations that NOAA can implement to enhance their “Break the Grip of the Rip” campaign. These recommendations, that we are calling the Teen Rip Current Campaign, utilize the knowledge we have gained about teenagers and media to construct a campaign that will be effective, practical, and affordable. We decided upon three main recommendations to comprise the Teen Rip Current Campaign: 1. chat bots, 2. educational programming, and 3. public service announcements as selected based on use of Table 1 below.

Evaluation

The best recommendations to educate teens about rip currents were chosen using an evaluation process to compare many of the ways to reach teens. Table 1 below presents an evaluation of the major recommendations that are part of the campaign.

| | Recommendations | Cost | Ease of Implementation | Scalability | Effectiveness |
|-------------------------------------|--|------------------------------------|---|--------------------|---|
| CHAT BOTS | 1. Chat Bot: Collaborating with WeatherBug | No fee | Very easy | Not scalable | Very effective |
| | 1. Chat Bot: created by NOAA on their own | Low cost | Slightly difficult | Not scalable | Uncertain |
| | 1. Chat Bot: Collaborating with AOL | Uncertain | Uncertain | Not scalable | Very effective |
| EDUCATIONAL ENHANCEMENT | 2a. School Assemblies | Moderate cost | Slightly difficult | Very scalable | Very effective |
| | 2b. Red Cross | Low cost | Uncertain | Very scalable | Effective |
| PUBLIC SERVICE ANNOUNCEMENTS | 3a. Nationwide Television PSA | Expensive | Difficult. Inside contacts can make things easier | Low scalability | Very effective – Teens watch 21 hours a week |
| | 3b. Local Television PSA | Moderate cost | Moderately easy | Very scalable | Effective – Teens watch 21 hours a week |
| | 3c. Magazine PSA | Variable: No fee to expensive | Moderately easy | Low scalability | Effective – Eight out of ten teens read magazines |
| | 3d. Radio PSA | Variable – No fee to moderate cost | Moderately easy | Very scalable | Effective – Teens listen to 13 hours a week |

Table 1: Evaluation Chart

As the chart illustrates above, the formal recommendations that we chose contain a significant number of positive attributes. Each of these attributes explains why we chose these features to be a part of the Teen Rip Current Campaign. Other ideas were not chosen as a part of the campaign because they did not possess enough of these qualities.

In searching for a new technology to convey rip current information, chat bots were preferred. Other types of technological related means were podcasting, text messaging, and weblogs but there were problems with these other methods. For podcasting, we would need teens to go to websites, subscribe, and download the podcasts. If they already went to websites to find rip current information, this project would not be so important. Weblogs are growing in popularity but we did not feel that they would suit our needs in an efficient manner, due to the difficulty of promoting such a feature. Text messaging was not developed into a formal recommendation because the resources necessary to carry out the idea we originally designed were never located. Involving instant messaging, statistics previously discussed have shown that teens continually use AIM and other online messaging systems. Developing a chat bot to relay rip current information would therefore be efficient because it would take little effort to use on the teens' part. Another reason why a chat bot was a strong recommendation was because we found an existing weather chat bot with a company that NOAA has a memorandum of agreement. Though the bots are not scalable, it is not a negative attribute because there are no costs involved and it would be available nationally. For these reasons, it was determined that a chat bot should be a top recommendation for the task force to implement in enhancing rip current awareness with technology.

School programming is a traditional means of teaching teens about safety information. The teenagers are in school where they are in the learning state of mind. Our recommendation

that lifeguards and rip current educators enter schools is not a new concept. The USLA has a similar program that involves lifeguards attending schools to discuss beach safety. This recommendation therefore takes priority over other recommendations because it can be built into existing programs. For our purposes, working with something that exists is much simpler than introducing new ideas. For example, the rip current packets that will be used as a guideline for the assemblies are already in production. Educational programming also takes precedence over other recommendations because it is a direct means of reaching teens. There is no pull factor in getting the teenagers to come in contact with the rip current information. For these reasons and the positive attributes expressed in the chart above, educational programming is one of our top recommendations.

The final recommendation is to create public service announcements (PSAs) to be put in magazines, TV and radio that would appeal to teens. These are the most common PSAs that are used for current educational campaigns. One reason that we chose these as a formal recommendation is that once the PSA is produced, they are placed for free. When placed in the proper places the message will successfully reach the intended audience without the need for the audience to seek out the information. PSAs are scalable in that as many as are wanted can be produced. When more money is available, another one can be produced. The task force has also done work in the past with PSAs which is helpful because they are familiar with the process. Since PSAs exist, the recommendation is to make them interesting to teens and place them where they will be seen.

The three recommendations for our campaign are described in the evaluation chart. This does not mean however that the future considerations described in the next chapter should be neglected, because they are still valuable resources that should be further explored in the future.

1. Chat Bots

For The Teen Rip Current Campaign, we are recommending that NOAA develop a chat bot that will generate rip current forecasts. A chat bot is an application that talks with internet instant message users through conversations. Conversations happen when two instant message users want to talk with each other. When the user double clicks on another user's "buddy name" a window appears. He or she can then type in a message, then they hit send and the text is sent to the other user's window in their computer. A person could add the chat bot to their buddy list and by sending certain keywords, automatic responses will be generated from that buddy. A buddy list is simply a box on the side of a computer screen that lists a user's friends. For example, instead of typing in conversation text for the bot, like would be done with friend's, the user can type in a zip code. When the bot receives the zip code, it searches its database for the correlating information to send directly back.

We are proposing that NOAA package its rip current forecasts into a chat bot that gives not only rip current forecasts, but also weather forecasts and warnings. Since the presence of rip currents is a danger on beaches, we are also suggesting that the messages place a bold warning and safety tips when rip currents are predicted. Working with the technical designers of the bots will determine whether or not this is a possibility, or if it would be preferable to have a safety message in the profile.

We found an existing weather bot with the company WeatherBug and began the implementation stages by working with WeatherBug to add rip current forecasts to their existing WeatherBugBuddy, a chat bot that automates a variety of requested weather information including forecasts. The buddy also includes links to the WeatherBug homepage where we have also proposed to include rip current warning and safety information as well as a link back to

NOAA's rip current page, <http://ripcurrents.noaa.gov/>. Along these lines, we are also proposing that NOAA advertise the WeatherBugBuddy's rip current feature wherever possible. The information on how to add rip current information to an existing bot will also be available in the public domain via the website. Making this information available to other companies with instant messaging systems may encourage them to adopt this feature for their bots, allowing for teenagers to have a greater chance of receiving the message. Figures 5 and 6 illustrate conversations with WeatherBugBuddy:

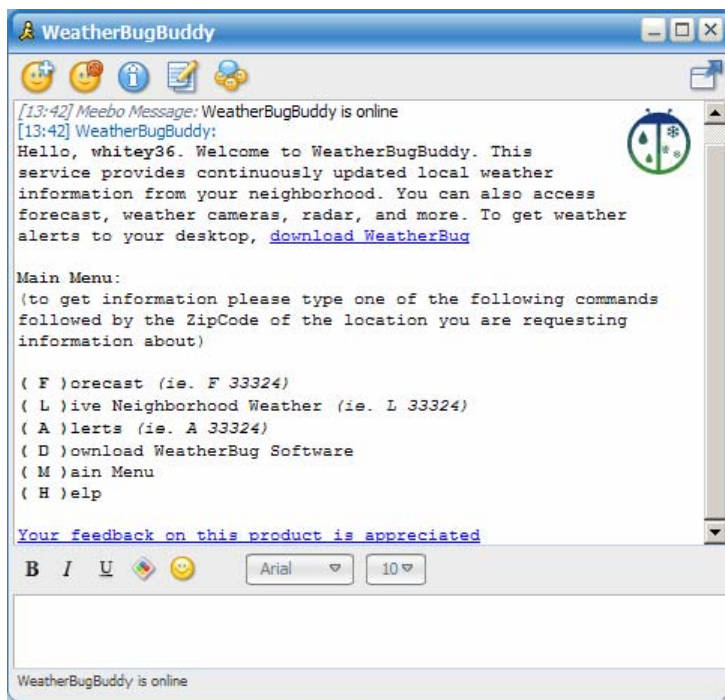


Figure 5: WeatherBugBuddy conversation 1.

Above shows the instructions for how to use the WeatherBugBuddy including the menu of options. Below, Figure 6 shows the "Forecast" function's automated response when given a zip code. It includes a 3-day forecast and the last date and time the forecasts were updated.

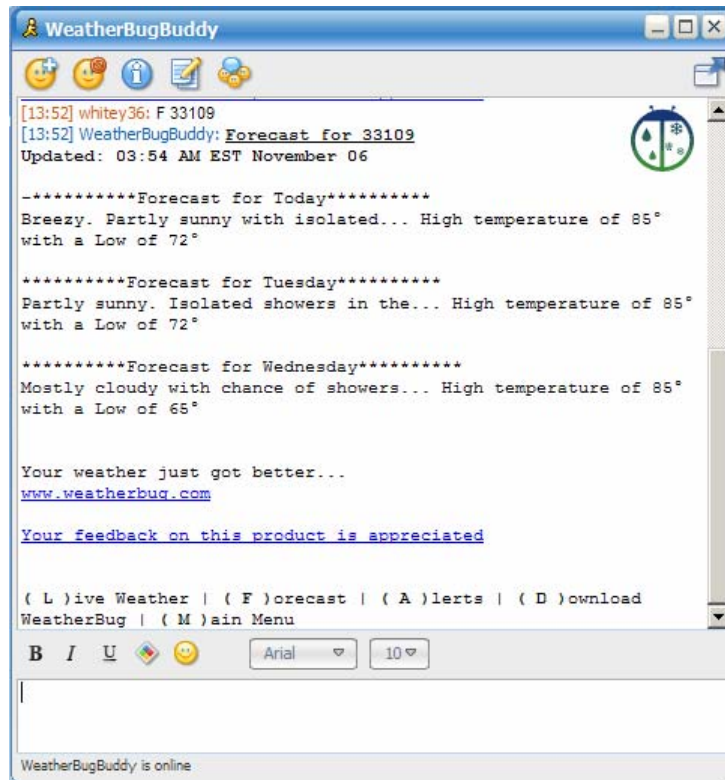


Figure 6: WeatherBugBuddy automated response.

WeatherBug’s current bot has a straightforward purpose. A person simply sends an instant message to the screen name “WeatherBugBuddy”. The format for getting information involves first, typing a letter which indicates whether one wants forecasts (F), live neighborhood weather (L), alerts (A), WeatherBug software (D), the main menu (M), or help (H). Following the letter, a zip code is typed in. After sending a message to WeatherBugBuddy, the program sends the instructions on how to use it. This message is illustrated in Figure 5 **WHY:**

- Increased accessibility of computers and the internet to teenagers.
- Increase in the amount of time teenagers spend on the computer. (Lenhart, 2005)
 - Daily use of internet increased 35%-48% from 2000 to 2004.
- Many teens use internet for communication. (Lenhart, 2005)

- Communication popularity digressing from email to instant messaging. 46% prefer instant messaging.
- 75% of teens send or receive instant messages.
- Weather bots already exist.
 - Would be easier to add message to an existing bot.

WHAT WE'VE DONE TO IMPLEMENT:

When originally beginning to implement the chat bot feature, we researched a few chat bot providers that could include rip current forecasts. We identified AOL and WeatherBug as key companies to target with the rip current message.

- WeatherBug®
 - Over 65 million users.
 - Comes pre-installed on HP and Compaq home computers.
 - Compatible with multiple instant messenger providers:
 - AOL Instant Messenger (AIM)
 - Skype
 - Windows Live Messenger
 - Possibility to include message or section about safety information for rip current website.

We also investigated the possibility of working with AOL since they are a big corporation with many features that could be used to display rip current safety information. To use AOL instant messenger, it is necessary to subscribe to AOL or the instant messaging feature can be downloaded solely free of charge.

The team chose to work towards implementing a bot with WeatherBug over AOL for two reasons:

1. WeatherBugBuddy runs on multiple systems, including AOL Instant Messenger.
2. WeatherBug is a smaller corporation therefore, easier to contact for implementation.

To implement the bot, we contacted WeatherBug and the National Weather Service to coordinate appropriate contacts to make this happen. We have interested WeatherBug in adding this feature. We also discovered that NOAA has a Memorandum of Agreement with WeatherBug which makes distribution of information easier (Appendix G). National Weather Service's Tim Rulon assisted our group in producing the necessary information for WeatherBug to receive rip current forecasts and is still currently working with the contact at WeatherBug to aid in fully implementing this feature.

HOW/ WHERE TO PROMOTE THE BOT:

For optimal results, it will be necessary to promote the bot in other areas of the rip current awareness campaign. The best place to promote the bot is on the chat bot provider's site, www.weatherbug.com in the form of an advertisement, announcement on the homepage or as a separate page altogether. We have also proposed that WeatherBug either include the safety warning available on their site somewhere or even just a link to the NOAA rip current site.

Promotion of the bot once it is established will ultimately increase its usefulness. Since WeatherBug is implementing the bot, we have asked for promotion of the bot and rip current safety information to be carried out through the company's website. NOAA is not able to

promote the use of WeatherBug, but is making the necessary information available for any other chat bot provider to adopt.

2. Educational Enhancement

1) Assemblies

We recommend that the Rip Current Task Force work to create a presentation for assemblies of high school and junior high students. An assembly is the gathering of a group of students for a particular reason, one of which could be education. Many ideas for the content of assemblies were established in an interview that we conducted with Todd Fritchman, Chief of Beach Patrol at Dewey Beach in Delaware. Since he was once a high school science teacher, he also had some expertise on how to catch teens' attention. One major point that Todd made was that the presentation needs to be interactive. In a brief brainstorming session during the interview, we were able to come up with a few examples of how this interaction could take place. Other recommendations were derived from other interviews, including one with Spencer Rogers, from North Carolina Sea Grant.

WHY:

- The USLA is already working to establish more efficient school programs.
 - Currently has beach safety programs that cover five different topics, one of which is most significant to our goal: rip currents
- The USLA is connected with 7000 school systems
- The USLA is trying to adapt their programs so that they can have a uniform message being delivered to all students.
- The Task Force will provide a uniform message for students using other resources, such as a video, stickers, and talking points. (Appendix C)
- Lifeguards who are in their early to mid twenties usually go into the schools

- Younger instructors are closer in age to the demographic, almost peers.
- Peer-to-peer education is desired

(Peter Davis, personal communication, October 30, 2006)

Conducting an assembly in an auditorium at a school is a very simple way to reach a large, captive audience. Depending on the size of the school, a presentation can be given to either all grades or to one particular grade. Assemblies are also desirable because they take place in one or two hours.

RECOMMENDATION:

Much of the information for this recommendation stemmed from the interview we had with Todd Fritchman. From this, we were able to develop recommendations for the assemblies and also a supplemental sheet for the rip current information packet being produced by the task force (Appendix H). The organization that would ultimately take the lead in this assembly recommendation would be the USLA since they are already working to fulfill an idea similar to this. In order to make this recommendation a total success, the USLA and NOAA Sea Grant must totally buy into the idea.

The rip current packets that are being produced and paid for by NOAA should be used as guidelines for the assemblies. Essentially, the whole idea behind the packet is that it is self contained and any person should be able to pick it up, review it, and give a presentation about rip currents. In order to make the presentation more interactive and hold the attention of the audience, we have created the supplemental sheet mentioned above for NOAA to include in the rip current packet. To accomplish this, a few ideas have been suggested:

- Hold a “rip rap” contest on stage
- Perform rip current simulations on stage
- Other recommendations

Rip Rap Contest

Since 27% of teens chose rap/hip-hop over other genres such as classic rock, alternative, classical, pop, punk, and metal (Hicks, 2002), a rip rap would be an activity that many students would take interest in. The audience would be provided with a rap about rip currents to perform by fellow students or would have the option to invent their own. (Spencer Rogers, personal communication, October 4, 2006). They would perform the rap on stage in front of all their peers and the student with the best audience reception would receive a prize. Prizes could be solicited from local restaurants and business since many of them set aside money to donate for good causes. The more detailed and step by step instructions on holding a “rip rap” contest are a part of the sheet that has been created for the rip current packet, currently located in the appendix.

Perform rip current simulations on stage

Another method of making a rip current assembly interactive is to have students perform rip current simulations on stage. There are two different activities that have been proposed: one that demonstrates the power of a rip current and another that demonstrates why it is necessary to swim parallel to shore when caught in a rip current.

Rip Current Strength

One method of demonstrating the strength of a rip current is to begin with a tire that has a rope tied around it. A student would come on stage and put the tire around him or herself. Then, 3-5 more volunteers can be chosen to hold the end of the rope. The ultimate goal of this would be to simulate the strength of a rip current. The volunteer would try to “swim” away from the students pulling on the rope since the pull of the rope would be acting as the pull of a rip current out to sea. Again, Appendix H contains the step by step version of how to carry out this activity.

Swim Parallel to Shore

Another suggestion about a rip current simulation is suggested by the National Weather Service. The purpose of this activity is to demonstrate that it is necessary to swim parallel to shore when caught in a rip current in order to escape. Essentially, students will act as victims caught in a rip current. They will stand between two parallel ropes which will be parallel to the “shore.” The volunteers holding each end of the ropes will walk away from the shore simulating a rip current. Since the victims cannot walk through the rope, they must escape the “rip current” by walking out either opening of the lane created by the two ropes. This simulates the victims swimming out of a rip current parallel to the shoreline. A more detailed description of this activity is located along with the other rip current simulation activity in the appendix.

Other Recommendations

Aside from grabbing the attention of the audience through interaction, there are other methods available. Assemblies should take what teenagers would respond to into consideration:

- Programs should move from a serious tone to a more fun atmosphere or vice versa.
- Presentations to teens should be eye-catching, yet serious

The various ways in which information should be presented to teens would include: videos, power points and pictures. A video, aside from the one enclosed in the rip current packet, should entail a very serious subject such as a survivor or someone who has lost a friend or family member in a rip current. The assembly should then become more lighthearted by introducing humor and moving towards the interactive portions of the presentation. Another possible way to lighten the mood would be to have a “Baywatch” themed program or parody. “Baywatch” was a popular television show that aired from 1989 to 2001 about lifeguards patrolling California beaches (Baywatch, 2006)

(Todd Fritchman, personal communication, November 14, 2006)

(This information is also located in Appendix H)

WHO PRESENTS:

A majority of those who will be presenting at the assemblies will be beach patrol who would volunteer. Many times, beach patrol personnel are also teachers and members of schools systems (Todd Fritchman, personal communication, November 14, 2006). Because of this, they would be accustomed to teaching teenagers and would already have preexisting relationships with students. Other guards may not be a part of the school systems but they would be a valid option for presenters because they are closer to the target audience in terms of age. This would be beneficial since peer to peer education is desired.

Presenters do not necessarily have to be lifeguards. Others knowledgeable and capable enough to deliver the rip current message in a way that will successfully convey the message to teens could also present to students. Some optional speakers if a lifeguard is not available, might include:

- Sea Grant employees
- beach patrol
- teachers
- EMTs
- Others who have a connection to beach safety.

Again, the rip current packet is meant as a stand alone which means that if necessary, anyone should be able to use it and give a presentation even if they aren't an expert on rip currents.

Having these presenters as volunteers would allow the assemblies to be very affordable for NOAA and the USLA because they would essentially only have to spend money on the rip current packets (Todd Fritchman, personal communication, November 14, 2006). The presenters will most likely be responsible for scheduling the presentations within school systems as much of the work done for the assemblies will be taken care of on the local level.

WHEN:

The assemblies should be conducted annually to ensure that all new students receive the information. We suggest the spring months because they lead into the beach season and the first week of June which is National Rip Current Awareness Week,

WHERE:

This recommendation should be pilot tested and begun at a small scale initially. We are proposing that the USLA begin in school districts in North Carolina. North Carolina Sea Grant has already made significant strides in attempting to create rip current awareness. If not in North Carolina, the assemblies should be held in areas where rip currents pose a large threat.

Eventually the assemblies should be held nationally when sufficient staff and resources are in place. A benefit of the assemblies is that this portion of the campaign is scalable. An assembly can begin in one school and expand through other school districts once proven effective.

2) Red Cross

Another aspect of educational enhancement is adding rip current awareness into the programs of other organizations. A major organization that we contacted was the American Red Cross.

WHY:

- Red Cross offers educational programs that promote health and safety.
- An immense organization with almost one million volunteers, 35,000 employees, and over 800 locally supported chapters.
- Spend 91% of their money on humanitarian services and programs.

Given the number of people who take part in the Red Cross programs, and the funding the organization allots to its programs, this organization could be a vital partner in enhancing rip

current awareness. NOAA and the USLA can work closely with the American Red Cross to see how best to fit rip current awareness into the organizations' preexisting programs.

WHAT/HOW:

The Red Cross and eventually other organizations can incorporate rip current awareness into their programs, particularly swimming lessons. The swimming lessons that are taught are mainly for swimming in pools, but beach safety issues could also be addressed.

It would be beneficial for the American Red Cross to use the USLA and NOAA's rip current packets once they are complete. Since the packets would be very simple to use, it could be integrated into preexisting programs. There would be very little effort required on the educator's part in using the information given to them. Also, the students who take part in these programs would receive stickers created by NOAA. The stickers will be useful promotional tools because when placed in prominent places, they will remind students about rip currents.

WHAT WE'VE DONE TO IMPLEMENT:

In order to gauge how much interest Red Cross has in incorporating rip current awareness in their programs, we made a series of inquiries. Our key contact was Tom Heneghan, the Senior Associate for Program Administration and Support in Products and Health and Safety Services at the American Red Cross. We asked if he would be interested in utilizing rip current packets in the Red Cross swimming lessons and programs. He expressed strong interest in the rip current packets and in sharing this information. Additionally, there were several queries he had of his own, including:

1. The stage of completion the packets

2. Points of contact at NOAA
3. Whether or not there was a Spanish version of the packet
4. The cost of the packet
5. Whether or not there would be electronic versions of the packet

We answered Mr. Heneghan's questions and let him know that the task force would keep in contact with further details. He responded stating that once the packet is ready for review, he would assess it with his technical team and that if it were approved; they would discuss how they could spread the information out to their instructors and chapters. So, we urge the Task Force to continue the relationship with Mr. Heneghan by sending him a copy of the packet and further explore how NOAA and the USLA can be of assistance.

3. Public Service Announcements

Public service announcements (PSAs) are non-commercial advertisements disseminated for the sake of some common good. PSAs are typically broadcast on TV and radio and are most commonly used to convey health and safety information in order to modify public attitudes. Rip current PSAs should be placed in multiple mediums in order for teens to remember and absorb the information. Although we think that all manner of public service announcement have value, the media we are specifically recommending are magazines, radio, and television.

1) Television

There are several different places to advertise on television including:

- Nationwide networks
- Individual stations
- Local cable providers

Of these, it is nationwide networks that we have devoted the most research into because it reaches the largest audience.

WHY:

- Teenagers watch on average, twenty-one hours of television each week (Zwillich, 2005), and much of this time consists of advertising breaks.
- It is easy to target specific demographics with television.
 - Different networks and shows appeal to specific demographic groups.

- Information on the demographic breakdown of particular shows and networks is available via organizations such as Nielsen Media.
 - This information can be used to determine which stations would be best to target teens on and during what hours.
- Nationwide networks reach millions of people.
- The local level is a scalable approach. NOAA can target as many markets as it desires.

HOW:

For optimal results it would be best to have a professional familiar with networks write a pitch and alter it to suit each target station. Networks will request to see the public service announcements. The public service announcement should appeal to the target audience. The following are possibilities for the PSA:

- Use existing PSAs produced within NOAA.
- Direct viewers to other NOAA resources, including the rip current website.
(www.ripcurrents.noaa.gov)
- Be upbeat and positive
- Develop new public service announcements using charismatic spokespersons:
 - Celebrities
 - Survivors of rip currents

When the PSA is produced and finally ready for production, pitches may then be sent to the stations. The following nationwide networks are where we recommend pitches should be sent to. We have already made efforts to contact several:

- MTV
- Discovery Channel
- Comedy Central
- CW – A broadcast station that was formed in the last year as the merger of UPN and WB.

When sending the PSA to a smaller local station, we recommend sending it to stations that reach the coastal areas, especially where rip currents are most prominent.

2) Magazines

WHY:

Magazine publications are a traditional method of advertising that are very effective at reaching teen audiences. Many teens enjoy reading magazines, both the articles and advertisements.

- 8 out of every 10 teens read magazines which translates to about 19.3 million people between the ages of 12 and 17 (Teen Market Profile, 2004).
- Teens trust magazines more than any other media advertising (Teen Market Profile, 2004).
- 28% of teens have made a decision to purchase a product as a result of interest from a magazine. One out of every three teens (34%) has gone to see a movie in the theater or bought a DVD because of a review in a magazine (Teen Market Profile, 2004).

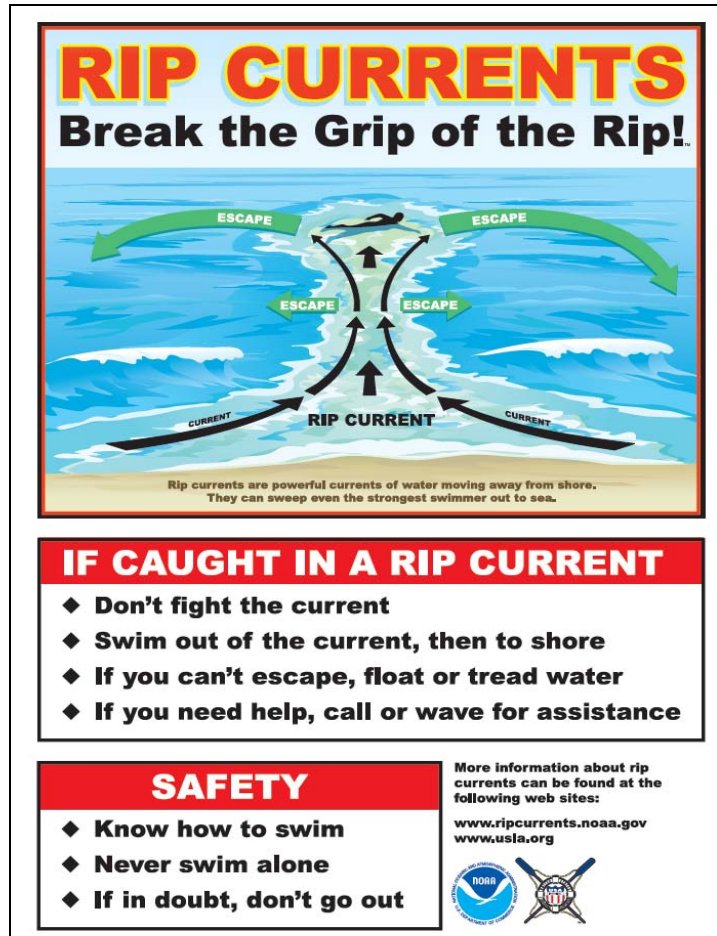
WHERE:

Most magazines are geared towards certain interests or demographics. Teens comprise a very broad demographic with many different interests. For instance, girls may be more interested in beauty and fashion while boys gravitate more towards sports and camping. The most popular magazines of 2004 were *Seventeen*, *CosmoGirl*, *Sports Illustrated for Kids*, *Teen* and *Boys' Life* (Teen Market Profile). All of these magazines are read by and targeted to children ages 12 to 17, or teenagers, our target demographic.

The types of magazines we are recommending to target in order to spread the rip current message include surf magazines, sports magazines, and generic teen magazines. Surf magazines appeal to many age groups and would target the teens who are in the water and waves most often. While professional surfers might know how to get themselves in and out of a rip current, there are also beginner surfers who might subscribe to surf magazines.

HOW TO IMPLEMENT:

NOAA should contact each magazine they wish to place a PSA, and provide a pitch about the campaign and how it benefits magazine readers. Attached with the pitch should be a graphic to be featured in the magazine. The graphic that is currently being used is now displayed on signs posted along public beaches, as shown below:



Current Rip Current Sign

Although the current graphic is very functional and well suited to beach signs, we do not feel that it would elicit the most effective response from teenagers. A more effective graphic would include:

- An image that features teenagers on the beach, perhaps with a rip current sign in the background. The image would look less like a warning telling teens what *not* to do.
- A picture of peer-aged children may also appear to be advice from peers.
- Add the rip current web site URL so teens could get more information.

The magazines that have been contacted are:

- *TransWorld SURF*: replied and said that they were interested in featuring the PSA. We have sent the graphic.
- *CosmoGirl*: did not respond to e-mail, but when contacted with a call said that they needed a graphic. We sent an e-mail with the graphic attached.
- *Seventeen*: replied to an e-mail saying “we will keep you in consideration.”
- *Surfer*: didn’t respond to an e-mail, but when contacted by phone said that they needed to ask the editor.
- *Sports Illustrated for Kids*, *Boys’ Life*, and *Surfing*: never responded to multiple e-mails or to a call.

Other magazines NOAA might consider targeting could include:

- *Girls’ Life*
- *Sports Illustrated*
- *Readers’ Digest*
- *Women’s Day*
- *Men’s Health*
- *Woman’s Health*

3) Radio

WHY:

There has been much concern about the popularity of radio declining in recent years, perhaps partly because of new technologies such as online music or MP3 players. Evidence has shown, however, that even though the amount of radio that teenagers listen to has indeed declined, the hours of listening to the radio are still high at 12.75 hours per week (Frierman, 2006)

with only a small number of teenagers who do not listen to the radio at all (Tucker, 2006). These statistics support radio as a viable method for reaching teens.

Teens have very different musical interests, including: pop, rock, metal, and rap. Different types of stations featuring these genres of music would have to be contacted. Even though teens are the main demographic we are targeting through this campaign, by putting a PSA on the radio, many other age groups would hear the message as well, thus increasing the number of informed citizens.

HOW TO IMPLEMENT:

Contacting radio stations is easy to implement because NOAA has radio station contacts presently. There is a NOAA Weather Radio All Hazards (NWR), which is a nationwide network of radio stations broadcasting continuous weather information directly from the National Weather Service. The broadcasting gives out warnings, watches, and forecasts 24 hours a day.

Requirements to implementing a radio PSA:

- Two different kinds of pitches would be sent to individual radio stations:
 1. Text: this would be a script that the DJ of the radio station would be able to read during normal programming.
 2. Audio: the radio station would play this on the station.

Test Markets:

- O-Rock 105.9 located in Orlando, Florida
- The Sound 107.1 located in Myrtle Beach in South Carolina.

Since there are rip current forecasts for many coastal areas in Florida, where there are dangers of rip currents. O-Rock, while based in Orlando, is broadcast in the Daytona Beach area

and plays music that teens listen to. Similarly, rip current forecasts are issued from Charleston, South Carolina, which would include the Myrtle Beach. The Sound is a pop music station that also reaches teenagers.

Both of the radio stations were interested in airing a PSA about rip currents during their normal programming. The two radio stations have been sent a:

- Script
 - “The beach is a fun place to go, but there are many dangers. One of the greatest dangers is rip currents. Rip currents are able to pull swimmers out to sea at speeds greater than an Olympic swimmer can swim. In order to get out of a rip current just stay calm, wave for help, or swim parallel to the shore until you are out of the rip current. To get more information about rip currents, go to the web site: ripcurrents.noaa.gov.” (sample script)

- Audio file
 - NOAA’s audio file from the 2006 PSA video
 - Ian Crocker PSA which is currently available on the NOAA website

Conclusion

Three formal recommendations have been proposed for the Rip Current Task Force to implement: chat bots, educational enhancement, and public service announcements. The chat bot is already in the stages of implementation in that it is actually being created. The necessary work to complete this is to provide WeatherBug with the information they require and giving them suggestions on advertising the bot and adding safety information to their sites. We found the appropriate people at NOAA willing to do this and set them up with the information that is required.

Of the remaining recommendations, we advocate that NOAA begin with educational programming. Educational programming was ranked “very effective” and “moderate cost.” on the evaluation table (Chapter 4, pg. 31). PSAs, although free to advertise, can be expensive to produce.

Overall, each of our recommendations evolved from the idea that we needed to target teens. Fully carrying out each of our recommendations will be to the utmost advantage for the task force in terms of accomplishing their goal for the rip current awareness campaign.

Chapter Five: Future Considerations

This chapter contains recommendations for future considerations based on information gathered through research and personal interviews. Chapter 6 contains our recommendations for a future survey to evaluate the campaign success as well as campaign program options we did not have time to fully evaluate. Our three primary recommendations were outlined in the preceding chapter.

Surveys

There was a survey conducted about rip currents over the past summer. The data collected has not yet been analyzed making it impossible for us to conclude whether there was any good or bad data. The survey that was carried out by North Carolina Sea Grant was conducted by students from the University of North Carolina, Wilmington who administered their survey on beaches by randomly selecting people to survey and recording their responses. However useful the questions, this survey may be limiting in information due to the age restriction on interviewees per rules of the school; no one under the age of 18 would be able to take the survey. Our campaign is looking to evaluate teenagers.

Due to the lack of information and the time restrictions we were unable to form an actual evaluation that can be used. We are recommending that the task force use the results from the unanalyzed surveys when the information is available and possibly adapt it for our campaign.

From the information we were able to gather, we still conclude that a survey would be the best measure of success. The most feasible way to distribute the surveys would be to post them online or to have a school hand them out to the students. The surveys could be distributed about a year after our recommendations have been implemented. However, if the surveys were done

right after the programs were completed, they may be ineffective because the information would be fresh in students' minds. It will be necessary to determine if the students retain the information. The USLA would distribute the survey because for NOAA to sponsor the survey, the agency would have to go through a long approval process.

One alternate measure of success that has been proposed is the sight of giveaways, perhaps the stickers from the packets. Similar measures can be drawn from awareness campaign's that have awareness bracelets or ribbons. The awareness bracelet began with the Lance Armstrong Foundation that supports and promotes cancer awareness, **LIVESTRONG**. This campaign began selling yellow rubber bracelets with the words **LIVESTRONG** on them (**LIVESTRONG**). The success of the **LIVESTRONG** bracelet started a "consumer craze" that led to the development of many bracelets for varying causes including breast cancer and ovarian cancer (Walker, 2006). The frequent appearance of bracelets, ribbons, and pins is another measure of success that may be difficult to quantify, but obvious when effective.

This would be a secondary recommendation because producing them is very costly and due to the crazes caused by previous campaign, these methods have been less effective. If a similar campaign with a different product is developed, this could be a useful evaluation tactic.

Future Options for the Teen Rip Current Campaign (TRCC)

Our research and interviews yielded a number of suggestions and ideas for the campaign that we were unable to pursue in much detail due to a discrete time period for this project and our lack of knowledge on some of the suggestions. Although we did not have time to evaluate each idea, we think each is interesting and should be looked into more extensively in the future.

SPOKESPERSONS

NOAA is currently searching to find a good spokesperson for rip current awareness. A spokesperson could be useful in any number of the recommendations for the campaign. There are two kinds of spokespeople that NOAA is interested in:

1) Celebrity Spokesperson

NOAA has been discussing the possibility of using a celebrity to promote rip currents.

The last celebrity spokesperson was Ian Crocker, an Olympic swimmer. NOAA is considering not only aquatic celebrities involved in swimming and surfing, but also possibly television stars that are on beach located shows, as well as a few other extreme athletes (T. Schott, personal communication, November 9, 2006). There are many debates on whether or not celebrity spokespeople should be recommended.

Some think that the money is better spent elsewhere (K. Gillis, personal communication, November 17, 2006) and that celebrities are unreliable; they may do something in their own lives that could undermine a campaign; they can lose their appeal, especially to the younger crowd; or they can be forgotten. (Klassen, 2000)

The Recreational Boating and Fishing Foundation which has made some great strides in increasing boating safety have in the past used celebrity endorsements for PSAs; however have recently decided that their funding would be more beneficial elsewhere.

One celebrity fisherman cost them around \$100,000 for what took two days work (K. Gillis, personal communication, November 17, 2006). These are important considerations for NOAA when deciding if they should use a spokesperson and who would be appropriate.

2) Average Teenager with a Connection or a Story

Another suggestion for a spokesperson by several of our interviewees was the use of a victim or someone who was close to a victim of a rip current. The idea behind this recommendation is the personal connection that someone might have, especially if the spokesperson is a teen. NOAA has made a preferred expression in survivor stories versus the tragedy. The difficulty remains in locating those people who have survived traumatic experiences with rip currents however, doing so would be beneficial.

Communication with Technology:

3) Short Messages Service (SMS) Text Messaging:

SMS text messaging is a technology by which short text messages can be sent back and forth, primarily via cellular phone. A third of all teenagers in the United States use text messaging, and like many developing technologies there is reason to believe this number will grow (Lenhart, 2005). It may therefore be useful to create a service that allows users to check weather conditions with their cell phones, similar to a chat bot service. Our group was unable to find a company that offers a service like this that could incorporate a rip current message. NOAA might consider investing in the creation of a service with this feature, especially if the chat bot (recommendation 1, p.35) is successful. Such a service could include any variety of information, though some modifications would have to be made to deal with the constraints of the SMS format.

4) **Podcasting:**

Podcasting is a technology whereby audio or video files are made available on a website on a regular basis. A specially formatted text file is set up to tell people's computers when each new file is uploaded. The name is derived from the combination of the name of the popular MP3 player iPod and the word "broadcasting," although there is nothing inherent in the technology that ties it to iPods. Podcasting is an emerging technology often used by individuals to self-publish their own programming at a low cost. NOAA might use this technology to present rip current forecasts as well as other useful information. Podcasting has been used by many organizations to get their messages across, and it has been argued that podcasting is a good way of sending a message across inexpensively while projecting a high tech image (Wyatt, 2006). WeatherBug, a company we are working with to produce chat bots with rip current information, has a weather-themed podcast that provides a brief summary of nationwide weather on each weekday. If NOAA's rip current forecasts are added to this chat bot feature, perhaps they could be added to Weatherbug's podcasts. Additionally, when talking to National Weather Service, we were told that NOAA has a studio in which they could create podcasts. If NOAA still wishes to target teenagers with the podcasts however, there needs to be serious considerations of the content of the podcasts. It would most likely have to contain humor or something that would appeal to teens and entice them to want to subscribe.

5) **Website**

There are many websites that could be appropriate vehicles for a rip current message. Websites for surfing, beach information, surf stores, beach patrols, health safety, weather, or any topics relevant to rip current or beach themes would be another venue through which to distribute the

message. Teenagers are often on websites looking for some sort of information (Lenhart, 2005), and if we can put our information alongside the information they're looking for, we will reach people when they are most receptive. Potential websites to target include the websites for Rip Curl, Surfrider and TransWorld SURF. Rip Curl is a surf shop that sells merchandise and Surfrider and TransWorld SURF are websites that are dedicated to surfers. For this project we have already made attempts at contacting each organization. The message could be as simple as text with a link to the ripcurrents.noaa.gov website. The more flashy, colorful and possibly interactive the message, however, the more likely teenagers will look at it. It could also simply be a page on a website, or just a small ad that states some of the main points in rip current safety. In working with a designer and doing a little more market research, an effective addition could be easily made to websites that will increase rip current awareness.

6) Online Video Streaming

With the popularization of high speed internet, teens have been sharing videos with each other, both on P2P (peer to peer) networks and on websites such as YouTube (www.youtube.com) and eBaum's World (www.ebaumsworld.com). NOAA might be able to use this format to distribute rip current information if a creative enough video PSA were made. In principle, the current video PSAs could be placed onto these sites, an extremely easy step with no financial cost to NOAA other than resources used to place it online. The videos most typically sent out are usually humorous. So, for maximum effectiveness, it may be better to create a video specifically designed to entertain teenagers. In doing this, the teens will share it with others, leveraging the viral marketing effect.

7) **Video Games**

Interactive computer games are another media that are popular with teenagers. Incorporating rip currents into some sort of video game could be another effective approach to reaching this audience. Many colleges, including WPI, now have programs that involve creating video games: For some schools, it is computer science, while others have explicit interactive game development majors. Perhaps one of the Sea Grant Colleges has such programs with their partnering schools. Possibly, computer science or gaming majors could collaborate with someone at a Sea Grant College to work on incorporating the rip current message into a video as a class project. Students could create a game where rip currents are in one way or another a game play element.

Building on Classroom Enhancement:

8) **Expanding Education into Curriculums**

The USLA is already working with schools and we have already developed a plan to enhance this aspect of rip current awareness. An alternative way of approaching this method is to try and directly incorporate rip current education into school curriculums. There are a few different classes where rip current education can directly relate to existing curriculum (T. Fritchman, personal communication, November 14, 2006).

- i. Health class: Health refers to the general well being of the body. Since trying to fight a rip current can cause distress on the body and ultimately death, discussing rip current issues in a health class would be a good place to get the message across. It can also be tied in with other major beach safety topics such as skin cancer and injuries that result from dangerous waves.

- ii. Physical education: Swimming is a physical activity and is a part of the physical education programs in some schools. In areas where the ocean is accessible within a reasonable distance, a field trip to the beach could be arranged whereupon students will swim in the ocean rather than a pool. Here, the physical education teacher could discuss rip current topics and how to swim out if caught if one. If a field trip is out of the question, teachers can still educate the class on rip currents through swimming class.
- iii. Physics: One topic of discussion that takes place in physics classes is waves. A lesson can be adapted to teach about wave formation and behavior of ocean waves. The process and reasons behind rip current formation can also be an area of discussion as well as rip current awareness.
- iv. Earth sciences: Rip currents and their formation are a topic in the field of earth sciences. More emphasis would be placed on this topic in the earth science courses, especially in high schools.

9) **Expanding Programs**

To augment the educational programming that NOAA is developing packets and potentially programs for as we are recommending they pursue further, having programs with other groups could be a good way to spread awareness. In groups such as the Boy Scouts, Girl Scouts, and 4-H clubs, children devote their time to such organizations where they learn some great educational information as well as have fun and develop life skills. There are multiple opportunities for such programs to take advantage of rip current awareness as a theme. There is the possibility of adding beach safety as some sort of a merit badge, although we have not

explored any of the details of the realm that this might entail. There is also the option of sending the groups a packet and running a program similar to the educational assemblies (recommendation X, pg. A). This could involve the group bringing in some sort of “expert,” perhaps a lifeguard or science teacher as a guest, or having the leader of the group present the packet information. This also would leave open the opportunity for NOAA to expand the packet; perhaps by offering more than one version. Both could include some essentials in addition to suggestions for how to run the program, and crafts and hands-on suggestions for groups such as Boy Scouts and Girl Scouts.

10) Cruise Ships

Cruise ships are often another place that families vacation. Cruise ships now include an array of programs for guests of all ages (H. King, personal communication, November 14, 2006). Since many cruise ships stop at various ports with beaches, rip currents could be a beneficial addition to a ship’s program schedule. By providing ships with the packet and the educational programs NOAA is developing, rip current information could be a relatively simple addition that helps keep the vacationers safe. It would be best to target any cruises that travel to the tropics or any place where people might swim on the beach. The University of Miami works with Royal Caribbean Cruise lines to create a program that offers week long tours and hosts various guest speakers. Some of the topics that have been covered include oceanography and other information of interest to cruise tourists.

11) College Students

Another group that the “Break the Grip of the Rip” campaign can eventually expand to target is college students. While some college students fall into the teenage population, many are in their young twenties. In our interview with Todd Fritchman, chief of Beach Patrol at Dewey Beach in Delaware, he stated that most people that the beach patrol ends up rescuing are ages 19 and older. Here are several suggestions for how to educate college students:

- i. Table sit: Table sitting would involve a student or group of students sitting at a table in a busy place on a college campus. The students could hand out pamphlets and discuss with other students the dangers of rip currents. Posters could also be posted around college campuses to help educate about rip currents.
- ii. Take advantage of Spring Break: Spring break is a time when many college students venture out to warm locations to take a vacation. One possible way of taking advantage of this would be to work with travel agencies. Perhaps they could give out the rip current pamphlet with the rest of the travel information they give to the students when they go away.
- iii. Programs: Run programs similar to the assemblies suggested in the Teen Rip Current Campaign, but with the intent of targeting the 18-24 year old range. Similar features should be used such as interaction and humor.

Building on Public Service Announcements:

12) Web Banners and Banner Ads

Along the lines of promoting rip current information on relevant websites, there is also the use of web banners or banner ads. A banner ad is an image that is featured on various websites along

the top or side of a website. The banners can include animation and sound to attract attention. When the web user “clicks” on the banner image, it opens them into another webpage, often with additional information or surveys. In a study, it was found that teenagers are least likely to click on a banner ad while children up to 11 are the first most likely. Teens, however, were more likely to click on a banner if it offering free goods, sweepstakes, or useful information. (Saunders, 2000) With an increase in internet use, banner ads have the potential to be yet another great way to promote rip current awareness.

Some of the negative aspects of web banners are that some people do not click on them because they are being cautious of spyware, computer software that collects personal information about users without their informed consent.

13) Advertising in Sport and Surf Shops

Another viable option for NOAA to look into would be to advertise in outdoor and surfing themed stores. One company that we contacted in order to gauge their interest in enhancing rip current awareness was the surfing company Rip Curl. In contacting them, we were looking for them to respond to some suggestions that we made for them to consider:

- i. Post rip current awareness signs in their stores
- ii. Hand out rip current brochures in their stores
- iii. Post rip current information on their website

Though many surfers may already be aware of the dangers of rip currents, beginners and non-surfers may not. Partnering with surf companies can benefit non-surfers because many surf shops are located on beaches where tourists are generally located. In addition, non-surfers may also wear surfing apparel which would attract them to the stores and websites.

14) Movie Theatres

Teenagers have been known as one of the bigger demographics that frequently attend movie theaters. Advertisements played on the screen before movies begin are another media for displaying the rip current safety message, especially at coastal movie theaters. Using a public service announcement played prior to movie, that is geared toward teens may be another great way to promote awareness. A study on displaying similar safety messages on anti-smoking campaigns does mention however, that the ads be run periodically so as to minimize tedium (Pechmann, Shih, 1999).

Other Considerations:

15) Music

Music is a major part of many peoples' lives. There are many songs that resonate with audiences long after the listening experience. Incorporating music into the rip current messages might therefore be a valuable approach to increase awareness. Music could be incorporated into any of the ideas we have proposed in various ways including adding audio in the background of radio and video PSAs.

16) Malls

Teenagers spend a significant amount of time going to malls, be it to shop or to simply socialize (Buying Time, 2006). Working with malls may therefore be an effective way to reach teenagers. NOAA could do this in multiple forms. One way is simply by placing posters in mall directory signs. The signs would be large-scale, and in places in between where people walk or near sitting areas. The other idea is to set up booths in malls that give out free "Break the Grip of the

Rip” stickers. More elaborate schemes could also be investigated where NOAA manages to incorporate beach safety messages into something like an overall “theme” of the mall or an in-mall presentation, like when radio stations come into malls for various events. The effectiveness of this type of campaign is unknown. However, due to the amount of time that teenagers are in malls, it might be interesting to further explore this idea.

17) Fast Food

Teenagers eat fast food, and in the heavily populated state of California, a study at UCLA showed that about half the teens in the state (1.5 million) eat fast food daily (UCLA, 2005). Promoting rip current awareness through fast food restaurants may therefore be a useful idea. There are two ideas that relate to fast food restaurants promoting rip current awareness.

- i. The fast food restaurant could add a rip current graphic to the placemats that they put on trays. This would give people something informative to read or look at while they are eating their meal.
- ii. Some fast food restaurants, mainly in tourist locations, have pamphlet racks in the main breezeway such as the one below. It would be a good idea to have the rip current awareness pamphlets added to this rack where applicable.



Figure 7: Pamphlet Rack

18) Campgrounds

Placing rip current pamphlets at beach campgrounds such as Campgrounds of America or at state parks is an option that NOAA should consider. Materials can be placed at areas such as the camp store, information booths, and at the main gate. Pamphlets and brochures can also be given to campers when they sign in after they've arrived at the campground. Additionally, rip current signs can be placed in public areas where people consistently pass through.

19) Contact Chambers of Commerce

Many teens who visit beaches are not locals to the area, but rather vacationers. It may be wise to direct attention to these teens in beachfront areas. Efforts are already being made to distribute information in hotels and other places tourists stay, but perhaps this could be improved by

contacting Chambers of Commerce to organize interesting events that educate people about rip currents. This might help deal with problems of local teens being delinquent because they don't have anything better to do (T. Fritchman, personal communication, November 14, 2006).

Strategies Not Recommended

Although there are many great possibilities for the future of this campaign, there are a few campaign components that would not be ideal. Several of these ideas were not recommended for reasons of cost, ease of implementation, scalability, and effectiveness.

1) Weblogs aka "Blogs"

A weblog is a web site that consists of a series of entries updated frequently with new information about particular topics (whatis.com, 2006). They are organized in a topical manner, which means there is a certain theme associated with each blog. A beach themed-blogs could be used to inform teens about the dangers; unfortunately, there is a small percentage of teens (38%) who use blogs (Lenhart, 2005). When teens read blogs, they are personal sites, such as online journals. It would be difficult to promote the weblog to teens, and have it be read by them. Even having the teen just read the information once would not help them learn.

2) AOL Instant Messaging Chat Bot

We tried to contact AOL to make a bot for NOAA that would feature weather and rip current forecasts with the rip current web site for beaches. This effort was unsuccessful. AOL is a very large company and we were not able to contact an interested party. To pitch this to AOL, we would have to make a business proposal and then send it to them. There is no way to tell if they

will respond to such a proposal. Instead, we have formed a partnership with WeatherBug because they already have a Chat Bot that has weather information and they agreed to add the rip current forecasts to beach areas. More information about the WeatherBug Chat Bot is in the previous chapter.

3) **Outdoor Advertising**

Outside advertisements were one of the media recommended by a marketing firm in Worcester. One of the up and coming forms of advertising involves blanketing any outdoor surface with an ad. This include trains, bridges, sides of buildings, football fields, and anything else one can find a way to put a message on (K. Pagano, personal communication, October 4, 2006). This is one of the newer media that NOAA may not be using in the near future. Some local residences might oppose this type of advertising if brought near the beach. However, it might be interesting to look into this further as the technologies accompanying this media and the potential of its popularity grow. Similarly, there are always billboards that can be placed near beaches and boardwalks that can be powerful tools for conveying a message.

Conclusions

This report presents the ideas that have been developed into recommendations for NOAA through the research and interviews that have previously taken place. In this conclusion of the previous fourteen weeks of work performed for NOAA Sea Grant, we will briefly review the recommendations we have come up with, how these recommendations can be expanded and fit into other campaigns, and why this project will ultimately make a difference.

There are three main recommendations for our campaign. They are to utilize a weather chat bot, increase educational enhancement, and promote public service announcements. We have established an instant messaging chat bot. The purpose of the bot will be to relay rip current and weather forecasts to teens over instant messaging systems.

We have also proposed that NOAA to increase educational programming. Educational programming has two different aspects: assemblies and working with established organizations, like the American Red Cross, to promote rip current awareness to students. The final recommendation that we have formed is to make use of public service announcements. The task force should create new PSAs or alter current ones to appeal more to teenagers and place them in media that teenagers relate to.

In addition to these three main recommendations, we have compiled a list of possible campaign features for future consideration. Many of these were not further developed due to the time constraints of our project and our devotion to developing the Teen Rip Current Campaign to the furthest extent we could. The recommendations for the campaign in this report, however, have been well thought out and should make a great addition to the “Break the Grip of the Rip” campaign.

A benefit of the recommendations in this campaign is that each one is capable of expanding and being adapted to fit into other campaigns. Chat bots are a versatile feature of the campaign. While the present recommendation is to have chat bots relay rip current information, other beach safety information can also be relayed. Multiple bots can be created, or one bot with multiple features can be implemented. A bot, for example, can respond to a user with the UV index or lightening risk. Chat bots can also be used to expand other campaigns. Tim Rulon of the National Weather Service suggested that he would like to see a chat bot relay information about warnings of tsunamis. While a partnership has already been established between WeatherBug and NOAA to add rip current information to WeatherBug's existing chat bot, NOAA should pursue other companies to follow suit. Instant messaging is a very popular form of communication and should be taken advantage of.

The educational programming aspect of the campaign has many possibilities for expansion. While our main focus for this project dealt with rip currents, educational programming can eventually be spread to cover all beach safety topics. Rather than just discussing rip currents while holding an assembly, an instructor can discuss issues such as heat exhaustion and skin protection.

The rip current packets that are being developed could be expanded to cover the broader beach safety subjects. When other organizations utilize the expanded packets, such as the American Red Cross, participants of their programs will be gaining a broader understanding of the beach, along with important rip current information. While educational programming can be expanded to cover a more general sense of beach safety information, it can also be expanded to fit into other campaigns within NOAA. Instead of discussing beach safety in schools, other subjects could be discussed such as natural disasters. Information packets similar to the rip

current packets could be created and used for these topics including hurricanes, tsunamis, or tornadoes. Additionally, these packets could then be distributed to organizations to use in educating about the topics. The educational programming recommendation has a lot of room for expansion and could easily be adapted to fit into other campaigns. For instance, if NOAA decides to develop similar awareness for natural disasters and can work them into a school system, they could present a rotation of multiple topics for various grades or years. NOAA should make use of the versatility of this recommendation and develop it further to cover more subjects than just rip currents.

The public service announcements recommendation is also very expandable. PSAs are created for a variety of topics and NOAA should make full use of them. Once connections have already been made with companies to air PSAs for the rip current campaign, future announcements to be placed and aired could discuss other areas of beach safety. Similarly, once connections have been made, PSAs could be created for other campaigns within NOAA. When promoting a PSA, it is important to have leverage. To get that leverage, teaming with a company that relates to the subject of the PSA could prove to be helpful. If the company agrees with the message, they may request the media they advertise with to run the PSA (K. Gillis, personal communication, November 17, 2006). Once leverage is established and a company agrees to regularly run PSAs, NOAA should take full advantage to expand the message they are trying to spread over time.

The material presented in this report is meant to enhance the “Break the Grip of the Rip” campaign. When the recommendations are implemented, they will have to be pilot tested in a small area. Once the pilot test proves successful, all aspects of the campaign should be expanded into a larger area of the country. Given the effort and research put into the recommendations, we

feel that all aspects of the teen campaign have this potential for a successful pilot test and further expansion. Our hope is that some day this message will have made a difference and saved someone's life.

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Appendix A

A.1 General Background and History:

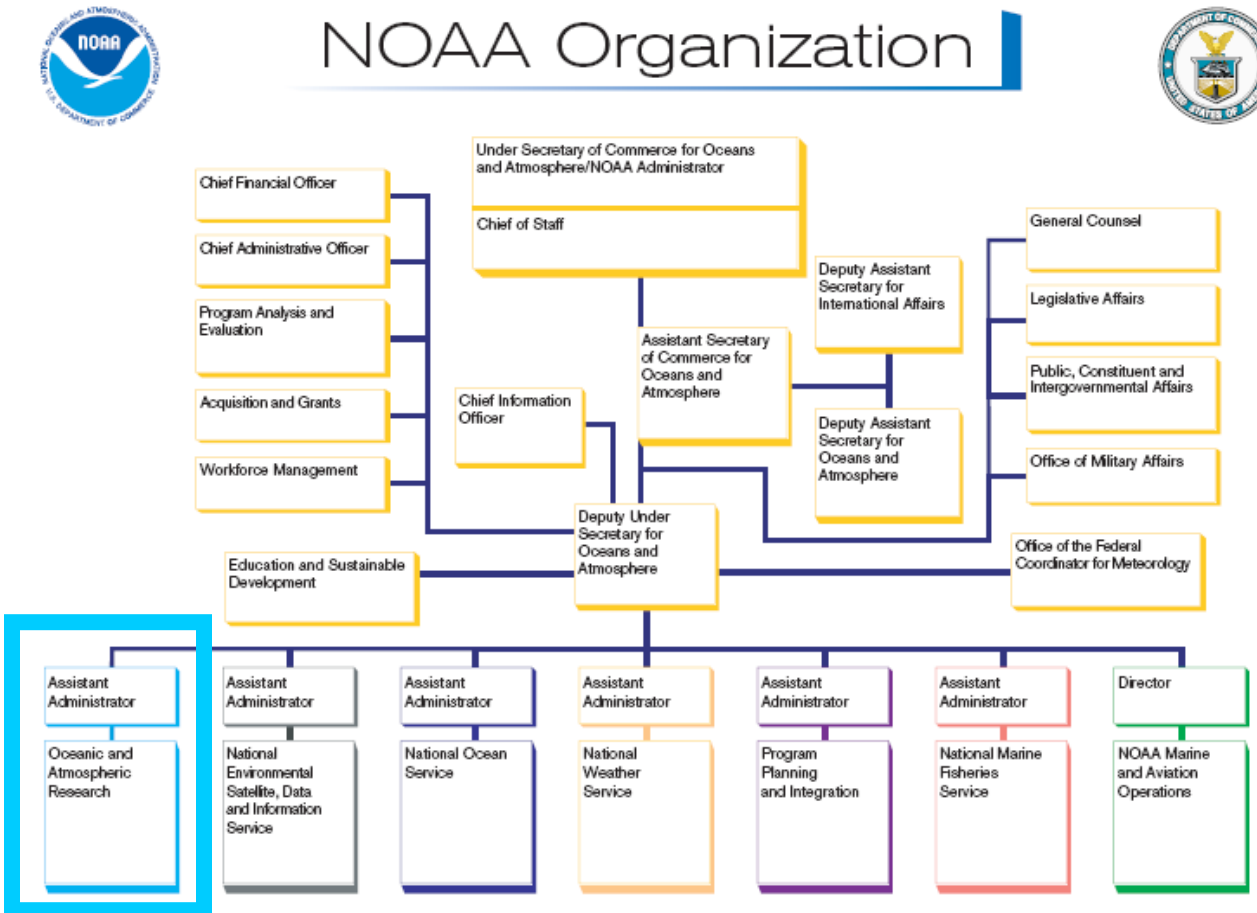
The National Oceanic and Atmospheric Administration (NOAA) is a government agency within the Department of Commerce which was established by President Richard Nixon on October 3, 1970. NOAA is comprised of three of the oldest agencies in the Federal Government. The first is the United States Coast and Geodetic Survey, which was founded in 1807 to survey the coastlines of the United States. The National Weather Service, the second agency, grew out of attempts to coordinate the weather observations of the United States Army and eventually became the National Weather Service. The last organization is the Bureau of Commercial Fisheries, which is America's oldest conservation agency and was founded to protect the "Food Fishes of the Coast of the United States" (www.history.noaa.gov). The official mission of NOAA is "To understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social and environmental needs" (NOAA).

The Sea Grant College Program is a division of NOAA that was adopted in 1966 and became a division of NOAA when NOAA was established in 1970. This program grew because of an interest in science that was occurring in America at the time. Oceanographer, inventor, and writer Dr. Athelstan Spilhaus originally suggested the program to the American Fisheries Society in 1963 saying,

I have suggested the establishment of 'sea-grant colleges' in existing universities that wish to develop oceanic work... These would be modernized parallels of the great developments in every culture and the mechanic arts which were occasioned by the Land-Grant Act of about a hundred years ago... Establishment of the land-grant colleges was one of the best investments this nation ever made. That same kind of imagination and foresight should be applied to exploitation of the sea.

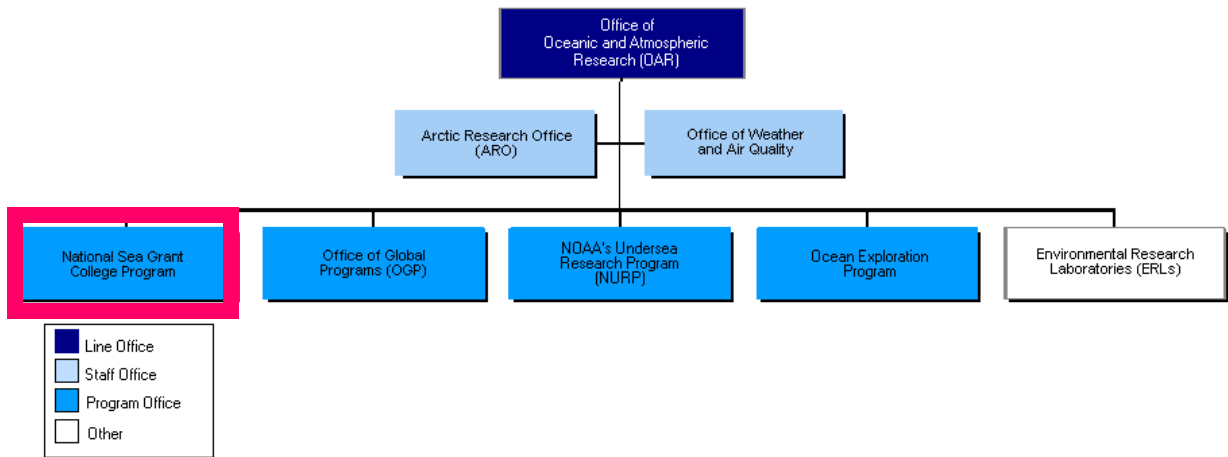
With Congress officially adopting the National Sea-Grant College Act, they also were establishing an academic/industry/government partnership that would aim to move into the next century with an improved education, economy, and environment.

The Sea Grant program serves NOAA in several ways. One way is that it successfully engages universities applied to oceans, coasts, and Great Lakes. It also commands \$95 million in addition to other leveraged assets. Finally, the Sea Grant program serves NOAA in that it offers stable national infrastructure.



Office of Oceanic and Atmospheric Research

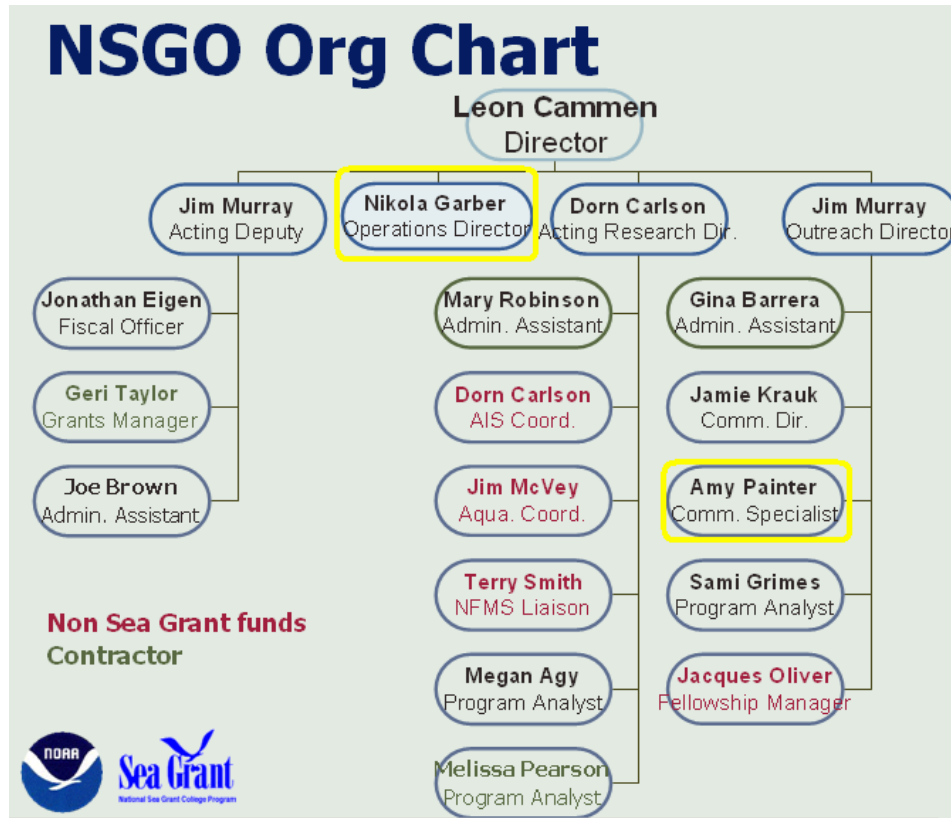
This organizational chart is limited to the portion of OAR that applies to coastal resource management



On the whole, the Sea Grant program connects NOAA, the states, industry, partner solutions, and the Department of Commerce. This is depicted by the following graphic.

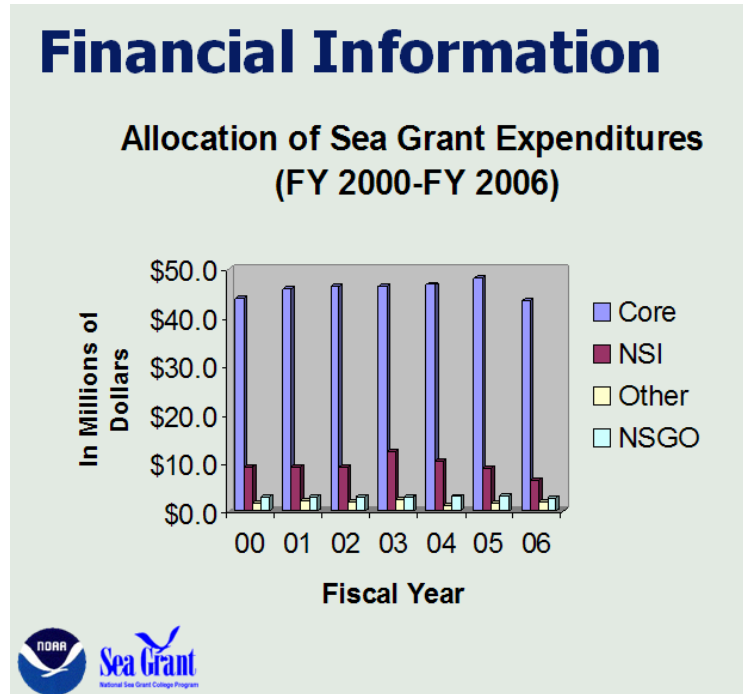


The National Sea Grant office’s employees are headed by Leon Cammen, the director. Our liaisons Amy Painter and Nikola Garber are highlighted in yellow in the organizational chart below.

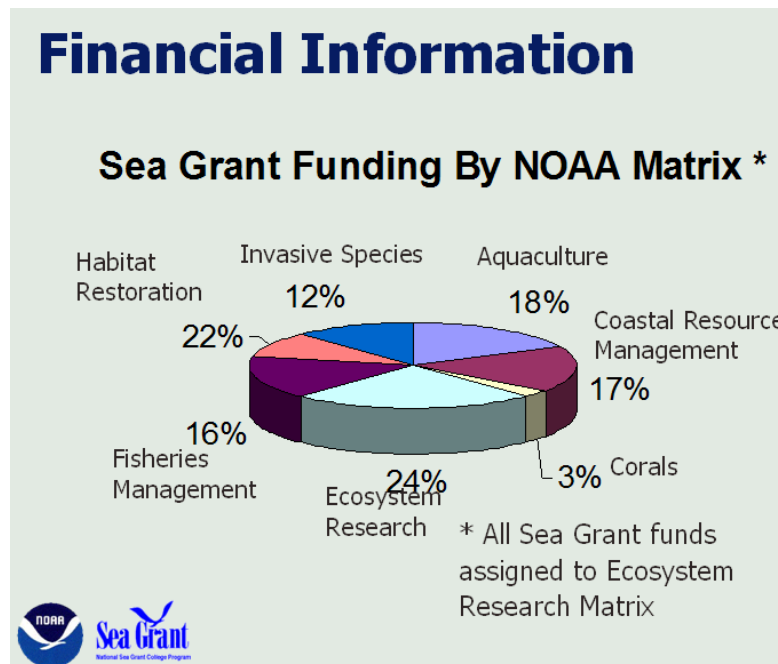


A.2 NOAA Recent Budgetary Information:

The budgetary appropriations will not be distributed until March 2007 in concern with this project.



Allocation of Sea Grant Expenditures



Sea Grant Funding

A.3 How and Whom set NOAA Policies:

The policies for NOAA are set by Congress. The outline below shows the Congressional declaration of policy taken from NOAA's Sea Grant Operations and Procedure Manual (aka "GreenBook") Documents.

Section 1121. Congressional declaration of policy

(a) Findings

The Congress finds and declares the following:

- (1) The national interest requires a strategy to -
 - (A) provide for the understanding and wise use of ocean, coastal, and Great Lakes resources and the environment;
 - (B) foster economic competitiveness;
 - (C) promote public stewardship and wise economic development of the coastal ocean and its margins, the Great Lakes, and the exclusive economic zone;
 - (D) encourage the development of forecast and analysis systems for coastal hazards;
 - (E) understand global environmental processes; and
 - (F) promote domestic and international cooperative solutions to ocean, coastal, and Great Lakes issues.
- (2) Investment in a strong program of research, education, training, technology transfer, and public service is essential for this strategy.
- (3) The expanding use and development of ocean, coastal, and Great Lakes resources resulting from growing coastal area populations and the increasing pressures on the coastal and Great Lakes environment challenge the ability of the United States to manage such resources wisely.
- (4) The vitality of the Nation and the quality of life of its citizens depend increasingly on the understanding, assessment, development, utilization, and conservation of ocean, coastal, and Great Lakes resources. These resources supply food, energy, and minerals and contribute to human health, the quality of the environment, national security, and the enhancement of commerce.

(5) The understanding, assessment, development, utilization, and conservation of such resources require a broad commitment and an intense involvement on the part of the Federal Government in continuing partnership with State and local governments, private industry, universities, organizations, and individuals concerned with or affected by ocean, coastal, and Great Lakes resources.

(6) The National Oceanic and Atmospheric Administration, through the national sea grant college program, offers the most suitable locus and means for such commitment and involvement through the promotion of activities that will result in greater such understanding, assessment, development, utilization, and conservation. The most cost-effective way to promote such activities is through continued and increased Federal support of the establishment, development, and operation of programs and projects by sea grant colleges, sea grant institutes, and other institutions, including strong collaborations between Administration scientists and scientists at academic institutions.

(b) Objective

The objective of this subchapter is to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems.

(c) Purpose

It is the purpose of the Congress to achieve the objective of this subchapter by extending and strengthening the national sea grant program, initially established in 1966, to promote research, education, training, and advisory service activities in fields related to ocean, coastal, and Great Lakes resources.

(NOAA "Greenbook")

A.4 Current Mission, Goals, and Objectives:

NOAA Sea Grant's Vision

Sea Grant will, in the 21st Century, serve as the nation's primary network to engage universities, governments, citizens, and industries in achieving the sustainable use of ocean, coastal and Great Lakes resources through integrated university-based programs of research, outreach, education, and technology assistance (NOAA "Greenbook").

NOAA Sea Grant's Mission

To enhance the sustainable use and conservation of ocean, coastal, and Great Lakes resources to benefit the economy and the environment. (NOAA "Greenbook").

NOAA MISSION GOALS AND MISSION STRATEGIES

NOAA has adopted four overarching Mission Goals that will drive the organization from FY2003 through FY 2008 and beyond. These are described in detail in the NOAA Strategic Plan (<http://www.spo.noaa.gov/strplan.htm>) and are listed below (NOAA "Greenbook").:

1. Protect, Restore, and Manage the Use of Coastal and Ocean Resources through Ecosystem-based Management
2. Understand Climate Variability and Change to Enhance Society's Ability to Plan and Respond
3. Serve Society's Needs for Weather and Water Information
4. Support the Nation's Commerce with Information for Safe, Efficient and Environmentally Sound Transportation

Each of the Mission Goals is organized on an outline of common Strategies. The strategies are:

1. **Monitor and Observe** the land, sea, atmosphere, and space and create a data collection network to track Earth's changing systems.
2. **Understand and Describe** how natural systems work together through investigation and interpretation of information.
3. **Assess and Predict** the changes of natural systems and provide information about the future.

4. Engage, Advise, and Inform individuals, partners, communities and industries to facilitate information flow, assure coordination and cooperation, and provide assistance in the use, evaluation, and application of information.

5. Manage coastal and ocean resources to optimize benefits to the environment, economy, and public safety.

This plan outlines how NOAA Sea Grant contributes to the four NOAA Mission goals. The **Performance Measures** and **Measures of Success** included in this plan include those listed in the NOAA strategic plan to which Sea Grant contributes.

A.5 Original Letter from NOAA:

The National Oceanic and Atmospheric Administration invited WPI to have student conduct an Interactive Qualifying Project on developing a campaign that will increase rip current awareness among teenagers in Washington DC. When WPI accepted this as one of the projects for the DC site, NOAA sent a letter for the student that would choose this project, this group. The letter contains a brief background on the agency and the presented project, in this case enhancing rip current/ beach safety awareness among teens. The letter received is as follows:

National Oceanic and Atmospheric Administration (NOAA) National Sea Grant College Program

WPI Position Description: Enhancing Rip Current/Beach Safety Awareness Among Teens

Background

A joint task force including NOAA's National Weather Service (NWS), NOAA's National Sea Grant College Program and the United States Lifesaving Association (USLA) is addressing the dangers of rip currents (the primary cause of distress in over 80 percent of rescues performed by surf beach lifeguards).

The NOAA/USLA rip current task force was formed to protect and save lives by leveraging the expertise and resources of each partnering organization to increase public understanding of rip currents. Since the campaign's inception two years ago, the task force has produced a comprehensive "Break the Grip of the Rip" public education campaign, including a national brochure and signs (in English and Spanish) educating swimmers about rip current safety (which are being widely disseminated nationwide and in Mexico), a public service announcement, rip current forecasts (available in many areas), and a website (www.ripcurrents.noaa.gov) where rip current information and materials are available to the public.

New Directions

Beginning in late 2006, the campaign will target teenagers, ages 12 and up with the rip current safety message—a message that could have a profound and lasting impact on our Nation's youth.

A variety of media could be used to make this a fun, viable way of educating teens about the dangers of and proper response to rip currents and other natural hazards.

Job Description

Sea Grant would like to invite WPI students to explore the most potent *and* cost-effective means of reaching teenage audiences through traditional (e.g. radio, TV) and/or emerging media (e.g. blogs, wikis, text messaging, podcasts, etc.) in order to effectively communicate the rip current/beach safety message. The WPI students would conduct formal and informal “market research” using qualitative and quantitative research methodologies in order to determine how to target the communications campaign to this age group in a way that will capture their attention (and reach teens of varying socio-economic strata) without exceeding the Agency’s limited budget. The students will then develop a marketing communications plan for the task force members to implement. The plan should include documentation of and an explanation of the research methodologies employed (e.g. surveys, focus groups, interviews, etc.) along with a description of each recommended strategy or medium, a basis/rationale for each recommendation, approximate estimated costs for each, and methods for evaluating or measuring the success of each recommendation. NOAA will use this plan in order to disseminate its rip current/beach safety message. If time allows, the students could present (pilot test) a potential marketing communications strategy/recommendation during their final presentation.

Contact

Amy Painter, NOAA’s National Sea Grant College Program
(301) 713-2431 x153 amy.painter@noaa.gov

Appendix B

Contact Information

| NAME | TITLE/ ORGANIZATION/ BUSINESS | CONTACT INFORMATION | REASON FOR COMMUNICATION | STATUS |
|----------------------|---|---|--|---|
| ALBANO, PATRICK | SPORTS ILLUSTRATED MAGAZINE | patrick_albano@timeinc.com (212) 522-3291 | DIRECTOR OF EAST COAST AD SALES: PLACE RIP CURRENT AD IN MAGAZINE | NO RESPONSE |
| ALVARADO, NICOLAS | NOAA | nicolas.alvarado@noaa.gov (301)713-9444 x130 | ASSISTING IN INFORMATION PERTAINING TO CRUISE SHIP OUTREACH | GAVE US LIZ WILLIAMS INFORMATION. |
| BURNETT, BRIAN | (AOL) HARD BARGAIN FARM | briburnett@aol.com | POSSIBLE AOL CONTACT INFORMATION (FORMER EMPLOYEE) WORKS WITH KIDS THROUGH TECHNOLOGY | MAX HAD A PHONE INTERVIEW WITH HIM ON NOVEMBER 8, 2006 |
| CAREY, WENDY | DELEWARE SEA GRANT | wcarey@udel.edu (302) 645-4258 | "BREAK THE GRIP OF THE RIP" BACKGROUND INFORMATION, SURVEY INFO | MEETING HELD NOVEMBER 14 |
| COTÉ, JUSTIN | TRANSWORLD SURF MAGAZINE | mailform@timeinc.net: jcote@twsnet.com | ONLINE EDITOR FOR MAGAZINE - PLACE RIP CURRENT AD IN MAGAZINE | SENDING AD INFORMATION/ GRAPHIC |
| DAVIS, PETER | USLA | pdavis@galveston.com (409) 763-4769 | LIFEGUARDING PROGRAMS, GENERAL INFORMATION | WOULD LIKE A COPY OF OUR REPORT |
| FOWKE, MARGARET | NOAA: NWS | Margaret.Fowke@noaa.gov (301) 713-0258 x189 | CONTACT INFORMATION FOR RED CROSS | WORKING WITH RED CROSS,NOAA, TASK FORCE, AND US. |
| FRITCHMAN, TODD | CHIEF OF DEWEY BEACH PATROL; PRESIDENT OF ENVIROTECH | todd@envirotechcinc.com (302) 645-6491 | ASSISTING IN IDEAS FOR EDUCATIONAL PROGRAMS IN SCHOOLS AND WITH INTERST LEVEL OF BEACH PATROL TO ASSIST IN THE EFFORT | WOULD LIKE A COPY OF OUR REPORT |
| GILLIS, KIRK | RBFF | kgrillis@rbff.org (703) 519- 0013 | ASSISTING IN CONTACTING DISCOVERY CHANNEL AND ADD RIP CURRENTS TO HIS PROGRAM WITH KIDS | MEETING HELD NOVEMBER 17 |
| GOLDBERG, JASON | NOAA EXPLORER OF THE SEA | Jason_Goldberg@fws.gov | EXPLORER OF THE SEA VISITING SCIENTIST | GAVE US LIZ WILLIAMS INFORMATION. |

| NAME | TITLE/ ORGANIZATION/ BUSINESS | CONTACT INFORMATION | REASON FOR COMMUNICATION | STATUS |
|-----------------------|--|---|--|---|
| GOLDMAN, JANA | NOAA/OAR PUBLIC AFFAIRS | Jana.Goldman@noaa.gov | OUTREACH OPPORTUNITIES, BOUNCE IDEAS OFF OF, POSSIBLE INFORMATION ON NOAA'S POLICIES REGARDING OUTREACH | CAN CONTACT AGAIN FOR ADDITIONAL/ FOLLOW-UP QUESTIONS |
| HALL, STACY | BOYS' LIFE MAGAZINE | shall@netbsa.org (972) 580-2398 | CLASSIFIED ADVERTISING SALES: PLACE RIP CURRENT AD IN MAGAZINE | WAITING FOR RESPONSE |
| HENDRICKSON, SCOTT | SPORTS ILLUSTRATED FOR KIDS MAGAZINE | scott_hendrickson@timeinc.com (212) 522-2084 | NATIONAL AD DIRECTOR: PLACE RIP CURRENT AD IN MAGAZINE | WAITING FOR RESPONSE |
| HENEGHAN, TOM | AMERICAN RED CROSS NHQ | HeneghanT@usa.redcross.org (703) 206 7618 | SR. ASSOCIATE - PROGRAM ADMINISTRATION: AQUATICS DIRECTOR | INTERESTED IN INCORPORATING RIP CURRENT, HAD A COUPLE QUESTION - WAITING FOR APPROVAL OF EMAIL |
| HOTT, LISA | BOYS' LIFE MAGAZINE | lhott@netbsa.org (972) 580-2351 | ADVERTISING PRODUCTION MANAGER: PLACE RIP CURRENT AD IN MAGAZINE | NO RESPONSE |
| JONES, DEBORAH | NATIONAL WEATHER SERVICE | deborah.jones@noaa.gov (301) 713-1677 x124 | NATIONAL WEATHER SERVICE COMMUNICATIONS-RIP CURRENTS | WOULD LIKE A COPY OF OUR REPORT |
| KAGAN, MARC | PRODUCER/ DIRECTOR OF NOAA'S PUBLIC AFFAIRS VIDEO STUDIO | marc.kagan@noaa.gov | EXISTING MEDIA FOR "BREAK THE GRIP OF THE RIP" | SHOWED US EXISTING MEDIA NOAA HAS FOR PSA |
| KOCH, LOUISA | DEPUTY ASSISTANT ADMINISTRATOR, NOAA RESEARCH | louisa.koch@noaa.gov | HEAR OUR RECOMMENDATIONS FOR EDUCATION ENHANCEMENT | MEETING HELD DECEMBER 10 |
| KRAMER, ROBERT | SR. DIRECTOR, GLOBAL IT PROCUREMENT | robert.kramer@viacom.com (212) 848-8328 | TO GET A CONTACT WITH MTV | SENT A FOLLOW-UP E-MAIL |
| MADSEN, CAREN | NOAA | caren.madsen@noaa.gov (301) 713-9042 | MARKETING BACKGROUND INFORMATION IN REACHING TEENS | SETTING UP MEETING |
| MYLES, MONIQUE | COSMOGIRL MAGAZINE | mmyles@hearst.com (212) 649-3932 | PRINT ADVERTISING INFORMATION: PLACE RIP CURRENT AD IN MAGAZINE | NEED TO SEND POTENTIAL AD |
| PAGANO, KATHLEEN | PAGANO MEDIA | kathleen@paganomedia.com | MARKETING BACKGROUND INFORMATION AND IDEAS BEFORE TRAVELED TO DC | MET FOR BACKGROUND A- TERM |
| PARK, SOON | SEVENTEEN MAGAZINE | shpark@hearst.com (212) 649-3951 | PRINT ADVERTISING INFORMATION: PLACE RIP CURRENT AD IN MAGAZINE | KEEPING US IN CONSIDERATION |

| NAME | TITLE/ ORGANIZATION/ BUSINESS | CONTACT INFORMATION | REASON FOR COMMUNICATION | STATUS |
|-----------------------|--|--|--|---|
| RAYDEN, SCOTT | ADMIRAL'S CHIEF OF STAFF | scott.rayder@wpi.edu | RECOMMENDATIONS, PRESENT OUR RECOMMENDATIONS | MEETING HELD NOVEMBER 30 |
| REICHENBACH, JAIME | SURFING MAGAZINE | jaime.reichenbach@primedia.com (949) 940-9607 | ADVERTISING SALES COORDINATOR: PLACE RIP CURRENT AD IN MAGAZINE | NO RESPONSE |
| ROGERS, SPENCER | NORTH CAROLINA SEA GRANT | rogerssp@uncw.edu | "BREAK THE GRIP OF THE RIP" BACKGROUND INFORMATION | WAITING FOR SURVEY ANALYSIS FROM HIM - BEGINNING OF THE YEAR |
| ROMANO, GREG | NOAA, NATIONAL WEATHER SERVICE DIRECTOR OF PUBLIC AFFAIRS | greg.romano@noaa.gov | INDUSTRY CONTACTS, PR ADVICE, SUGGESTIONS, BOUNCE IDEAS OFF OF | RECEIVED CONTACT INFO FOR MTV AND DISCOVERY AND USEFUL ADVICE. |
| RULON, TIMOTHY | ELECTRICAL ENGINEER FOR THE NATOIWS | timothy.rulon@noaa.gov (301) 713-1677 x128 | TECHNICAL INFORMATION ABOUT RIP CURRENT FORECASTS FOR WEATHERBUG | MET WITH HIM NOVEMBER 15, 2006 |
| SASSE, MELANIE | MONTGOMERY COUNTY PROGRAMS, RED CROSS | melanie.sasse@montgomerycountymd.gov (240) 777 6860 | AQUATICS PROGRAM SUPERVISOR CONTACT INFORMATION FOR RED CROSS | FOREWARDED MATT'S EMAIL TO SCOTT TANZI, INTERESTED IN RECEIVING INFORMATION |
| SCHOTT, TIMOTHY | NOAA: NWS | timothy.schott@noaa.gov (301) 713 1677 x122 | NATIONAL WEATHER SERVICE COMMUNICATIONS - METEOROLOGIST | MEETING HELD OCTOBER 31 |
| SHAW, EDWARD | DIRECTOR, NOAA BUSINESS LIAISON | Edward.Shaw@noaa.gov 202-482-7978 | COMMERCIAL PARTNERSHIPS | MEETING HELD NOVEMBER 30 |
| SLOOP, CHRIS | WEATHERBUG | labsproducts@weatherbug.com: csloop@aws.com | "WEATHERBUGBUDDY" ADDING RIP CURRENT FORECASTS/ INFORMATION TO THEIR WEATHER BOT | SET UP WITH TIM RULON TO RECEIVE DATA FOR WEATHERBUGBUDDY FOR IMPLEMENTATION |
| TANZI, SCOTT | AMERICAN RED CROSS CREW CHIEF OCEAN CITY, MD | scott3085@aol.com | FIND ANY WAYS THAT THE RED CROSS CAN USE INFORMATION/ SOURCES FROM OUR PROJECT | KEEPING INFORMED ON PROGRESS |
| TOMBOR, KAROLYN | SURFER MAGAZINE | karolyn.tombor@primedia.com (949) 661-5123 | ADVERTISING SALES COORDINATOR: PLACE RIP CURRENT AD IN MAGAZINE | NO RESPONSE |
| TUPPER, CARRIE | UNIVERSITY OF MARYLAND, RED CROSS | ctupper@umd.edu | DIRECTOR OF AQUATICS CONTACT INFORMATION FOR RED CROSS | FOREWARDED MATT'S EMAIL TO TOM HENEGHAN |
| UNKNOWN | BOYS' LIFE MAGAZINE | boyslifemagazine@netbsa.org | DISPLAY ADVERTISING: PLACE RIP CURRENT AD IN MAGAZINE | NO RESPONSE |

| NAME | TITLE/ ORGANIZATION/ BUSINESS | CONTACT INFORMATION | REASON FOR COMMUNICATION | STATUS |
|---------------|--|----------------------|-----------------------------|-------------|
| WILLIAMS, LIZ | EXPLORER OF THE SEA UNIVERSITY OF MIAMI AND ROYAL CARIBBEAN CRUISES | e.williams@miami.edu | PROGRAM DIRECTOR | NO RESPONSE |

DISCOVERY CHANNEL CONTACTS


| CONTACT NAME | TITLE | PHONE NUMBER | CITY | STATE | E-MAIL | FAX NUMBER |
|--------------------|--------------------------------------|--------------------|------------------|-------|------------------------------|--------------------|
| BEARD, LISA | PROGRAMMING EXECUTIVE PRODUCER | (212) 548- 5213 | SILVER SPRING | MD | | (212) 548- 5813 |
| BETTAG, TOM | PRODUCER | (212) 751- 2120 | NEW YORK | NY | | (212) 751- 3707 |
| BUTLER, ALLAN | EXECUTIVE PRODUCER | (240) 662- 6134 | BETHESDA | MD | ALLAN_BUTLER@DISCOVERY.COM | |
| HOWELL, ANNIE | DIRECTOR OF COMMUNICATIONS | (301) 986- 1999 | | | ANNIE_HOWELL@DISCOVERY.COM | |
| MEDITCH, ANDREA | ONLINE EDITORIAL DIRECTOR | (240) 662- 2000 | SILVER SPRING | MD | ANDREA_MEDITCH@DISCOVERY.COM | (301) 986- 4823 |
| SALERNO, DAN | PROGRAMMING VP | (301) 986- 0444 | SILVER SPRING | MD | DAN_SALERNO@DISCOVERY.COM | (301) 986- 4823 |
| WILLIAMS, CAROL | EXECUTIVE PRODUCER | (212) 456- 7777 | NEW YORK | NY | | (212) 751- 3707 |
| WRIGHT, STEVEN | PRODUCER | (301) 986- 1999 | BETHESDA | MD | | (301) 986- 4626 |

MTV CONTACT

| CONTACT NAME | TITLE | PHONE NUMBER | CITY | STATE | EMAIL |
|----------------|-------------------|-----------------|----------|-------|------------------------------|
| DRAKE, MELISSA | PUBLIC AFFAIRS | (212) 846 8353 | NEW YORK | NY | melissadrake@mtvnetworks.com |

Appendix C

Rip Current Brochure



Rip current

A break in the incoming wave pattern is one sign of a rip current.

Facts about rip currents

- ◆ Rip current speeds vary. Average speeds are 1-2 feet per second, but they have been measured as fast as 8 feet per second—faster than an Olympic swimmer!
- ◆ Rip currents can be very narrow or more than 50 yards wide.
- ◆ Sometimes rip currents end just beyond the line of breaking waves; however, they may continue to pull hundreds of yards offshore.
- ◆ Rip currents do not pull people under the water—they pull people away from shore.
- ◆ Rip currents are not “undertow” or “ripides.” These improper terms should not be used to describe them.

Safety tips

- ◆ Know how to swim.
- ◆ Never swim alone.
- ◆ For maximum safety, swim near a lifeguard.
- ◆ Obey all instructions and orders from lifeguards.
- ◆ Be cautious at all times.
- ◆ If in doubt, don’t go out!

United States Lifesaving Association statistics indicate that the chance of death by drowning at a beach protected by lifeguards is 1 in 18 million.


Where can I get more information about rip currents?

- ◆ Before you leave for the beach, check the latest National Weather Service forecast for local beach conditions. Many offices issue a Surf Zone Forecast.
- ◆ When you arrive at the beach, ask on-duty lifeguards about rip currents and any other hazards that may be present.
- ◆ More information about rip currents can be found at the following web sites:
www.ripcurrents.noaa.gov
www.usfla.org

NOAA’s National Weather Service, National Sea Grant College Program, and the United States Lifesaving Association are working to educate the public on the dangers of rip currents.




RIP CURRENTS!



BREAK THE GRIP OF THE RIP

Rip currents account for 80% of rescues performed by surf beach lifeguards.

What are rip currents?

- ◆ Rip currents are channelized currents of water flowing away from shore at surf beaches.
- ◆ Rip currents typically form at breaks in sandbars, and also near structures such as jetties and piers.
- ◆ Rip currents are quite common and can be found on many surf beaches every day, including Great Lakes beaches.

Why are rip currents dangerous?

- ◆ Rip currents pull people away from shore.
- ◆ Rip current speeds can vary from moment to moment and can quickly increase to become dangerous to anyone entering the surf.
- ◆ Rip currents can sweep even the strongest swimmer out to sea.



Rip currents often form near coastal structures.



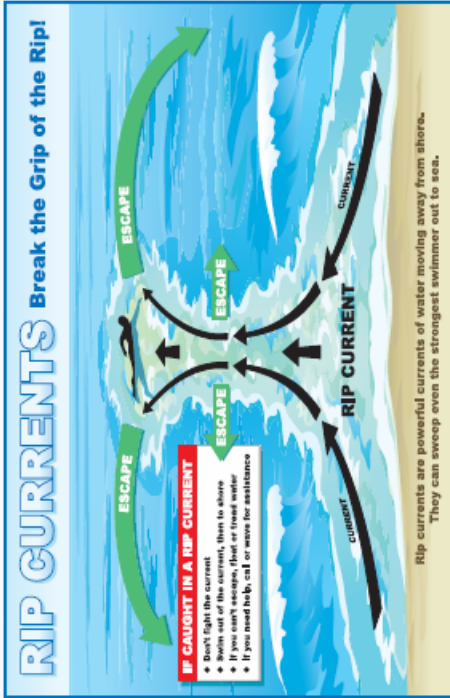
Rip currents often generate a plume of sediment moving away from shore.

What are some clues that a rip current may be present?

- ◆ A channel of churning, choppy water.
- ◆ A difference in water color.
- ◆ A line of foam, seaweed or debris moving seaward.
- ◆ A break in the incoming wave pattern.

What if I'm caught in a rip current?

- ◆ Stay calm.
- ◆ Don't fight the current.
- ◆ Escape the current by swimming in a direction following the shoreline. When free of the current, swim at an angle—away from the current—toward shore.
- ◆ If you are unable to escape by swimming, float or tread water. When the current weakens, swim at an angle—away from the current toward shore.
- ◆ If at any time you feel you will be unable to reach shore, draw attention to yourself; face the shore, call or wave for help.



Rip currents are powerful currents of water moving away from shores. They can sweep even the strongest swimmer out to sea.



A lifeguard rescues a swimmer caught in a rip current.

How do I help someone else? Don't become a victim while trying to help someone else!

- Many people have died in efforts to rescue rip current victims.
- ◆ Get help from a lifeguard.
 - ◆ If a lifeguard is not present, yell instructions on how to escape.
 - ◆ If possible, throw the rip current victim something that floats.
 - ◆ Call 9-1-1 for further assistance.

Appendix D

Rip Current Packet Contents

- 4-7 minute long DVD describing general rip current information
- a rip current fact sheet
- a talking point sheet that is meant to help out the instructor with certain factors
 - Holographic stickers for the "students" to take home.

Rip Current Fact Sheet

What is a rip current?

Rip currents are channeled currents of water flowing away from shore at surf beaches. They typically extend from near the shoreline, through the surf zone and past the line of breaking waves. (The surf zone is the area between the high tide level on the beach to the seaward side of breaking waves.)

How do rip currents form?

Rip currents are formed when waves break near the shoreline, piling up water between the breaking waves and the beach. One of the ways that this water returns to sea is to form a rip current, a narrow stream of water moving swiftly away from shore, roughly perpendicular to the shoreline.

How big are rip currents?

Rip currents can be as narrow as 10 or 20 feet in width, though they may be up ten times wider. The length of the rip current also varies. Rip currents begin to slow down as they move offshore, beyond the breaking waves, but sometimes extend for hundreds of feet beyond the surf zone.

How fast are rip currents?

Rip current speeds can vary. Sometimes they are too slow to be considered dangerous. However, under certain wave, tide and beach conditions the speeds can quickly become dangerous. Rip currents have been measured to exceed 5 mph, slower than you can run but faster than you or even an Olympic swimmer can swim.

Are all rip currents dangerous?

Rip currents are present on many beaches every day of the year, but they are usually too slow to be dangerous to beachgoers. However, under certain wave, tide and beach shape conditions they

can increase to dangerous speeds. The strength and speed of a rip current will likely increase as wave height and wave period increase.

Are rip currents and undertows different?

Rip currents are not “undertow” or “riptides.” These are obsolete terms. In some areas, people have used the term undertow to describe the combination of being knocked down, pulled out, and submerged due to a lack of swimming ability and/or lack of knowing what to do to escape. This is where the myth formed that a rip current (or “undertow”) pulls you under water. A rip current pulls you out, not under.

Why do some people use terms like runouts, rip tides, and undertow when you are calling them rip currents?

These terms, though once commonly used in certain regions or time periods, are now considered to be incorrect. The National Weather Service, Sea Grant, and the USLA are working together to use consistent terminology to provide a clear rip current safety message to the public.

Where should I look for rip currents?

Rip currents can be found on many surf beaches every day. Rip currents most typically form at low spots or breaks in sandbars, and also near structures such as groins, jetties and piers. Rip currents can occur at any beach with breaking waves, including the Great Lakes.

How do rip currents result in the drowning of swimmers?

Drowning deaths occur when people pulled offshore are unable to keep themselves afloat and swim to shore. This may be due to any combination of fear, panic, exhaustion, or lack of swimming skills. Rip currents are a major hazard to all beachgoers. They can sweep even the strongest swimmer out to sea. Rip currents are particularly dangerous for weak and non-swimmers.

More information about rip currents can be found at the following sites:

www.ripcurrents.noaa.gov

www.usla.org

Appendix E

North Carolina Sea Grant Survey



Beach Awareness and Safety Survey

Name of Interviewer: _____

Date of Interview: _____ Time of Interview: _____

Interview Location:

W-B1 (Shell Island Resort to Johnnie Mercer's Pier)_____

W-B2 (Johnnie Mercer's Pier to Station 1)_____

W-B3 (Station 1 to Oceanic Pier)_____

W-B4 (Oceanic Pier to Masonboro Inlet Jetty)_____

C-B1 (North End of Freeman Park to Entrance to Freeman Park)_____

C-B2 (Entrance to Freeman Park to Beginning of Boardwalk at Carolina Beach Avenue)_____

C-B3 (Beginning of Boardwalk at Carolina Beach Avenue to Pier at Ocean Grill & Tiki Bar)_____

C-B4 (Pier at Ocean Grill & Tiki Bar to Atlantic Towers High-Rise at Alabama Avenue)_____

Kure Beach1 (Atlantic Towers High-Rise at Alabama Avenue to Kure Beach Pier)_____

Kure Beach2 (Kure Beach Pier to North End of Fort Fisher Rocks)_____

Kure Beach3 (South End of Fort Fisher Rocks to Fort Fisher State Recreation Area)_____

Hello, I'm _____ from the University of North Carolina Wilmington and the North Carolina Sea Grant Program and we are conducting a study regarding individual's knowledge and awareness of beach safety issues. Your participation in this survey is entirely voluntary and will take less than 5 minutes. All answers will be kept confidential.

Q1 Would you be willing to answer a few questions? **Q1a** ____ Yes **Q1b** ____ No
(If YES, go to **Q2**. If NO, thank them for their time and terminate the interview)

Q2 Is the individual being interviewed: **Q2a** ____ Male **Q2b** ____ Female

Q3 Is the individual being interviewed:

Q3a _____ White (Non-Hispanic)

Q3b _____ Black (Non-Hispanic)

Q3c _____ Hispanic

Q3d _____ Asian/Pacific Island

Q3e _____ American Indian/Alaskan Native

Q3f _____ Other (Please specify _____)

Q4 In what year were you born? _____ Year (If under the age of 18, born 1988 or later, thank the individual, tell them you are only allowed to interview individuals 18 or older, and terminate the interview.)

Q5 What is the zip code of your permanent residence? _____

Q6 Do you know what Rip Currents are?

Q6a ____ Yes

Q6b ____ No → skip to **Q21**

Q7 Please tell me what are Rip Currents? (Listen to the individual's response and mark all of the following responses that you hear)

Q7a ____ Rip Currents are channelized currents of water flowing away from shore at surf beaches

Q7b ____ Rip Currents typically form at breaks in sandbars and also near structures such as jetties and piers

Q7c ____ Rip Currents are quite common and can be found on many surf beaches every day

Q7d ____ Other (Please specify _____)

Q8 Rip Currents exist along the New Hanover County coast.

Q8a _____ Agree

Q8b _____ Disagree → skip to Q11

Q9 From which of the following sources of information did you become aware that Rip Currents exist along the New Hanover coast? (**Ask all and mark all responses that apply**)

Q9a ___ Signs in and around the New Hanover County beaches → go to Q11

Q9b ___ Brochures distributed in the school system and other locations → go to Q11

Q9c ___ Radio → go to Q11

Q9d ___ Television → go to Q11

Q9e ___ Newspaper → go to Q11

Q9f ___ Refrigerator magnet → go to Q11

Q9g ___ Friend → go to Q11

Q9h ___ Family member not my child/children → go to Q11

Q9i ___ My child/children (Please specify age/ages) _____ → go to Q10

Q9j ___ Other (Please specify) _____ → go to Q11

Q10 From which of the following sources of information did your child/children become aware that Rip Currents exist along the New Hanover coast? (**Ask all and mark all responses that apply**)

Q10a ___ Signs in and around the New Hanover County beaches

Q10b ___ Brochures distributed in the school system and other locations

Q10c ___ Radio

Q10d ___ Television

Q10e ___ Newspaper

Q10f ___ Refrigerator magnet

Q10g ___ Friend

Q10h ___ Family member

Q10j ___ Other (Please specify) _____

Q11 What would you do if you were caught in a Rip Current? (**Listen to the individual's response and mark all of the following responses that you hear**)

Q11a ___ Stay calm

Q11b ___ Don't fight the current

Q11c ___ Escape the current by swimming in a direction following the shoreline (parallel to the shoreline).
When free of the current, swim at an angle—away from the current—toward shore

Q11d ___ If you are unable to escape by swimming, float or tread water. When the current weakens, swim at an angle away from the current toward shore

Q11e ___ If at any time you feel you will be unable to reach shore, draw attention to yourself: face the shore, call or wave for help

Q11f ___ I would do nothing at all

Q11g ___ Other (Please specify) _____

Q12 Why are Rip Currents dangerous? (**Listen to the individual's response and mark all of the following responses that you hear**)

Q12a ___ Rip Currents pull people away from shore

Q12b ___ Rip Current speeds can vary from moment to moment and can quickly increase to become dangerous to anyone entering the surf

Q12c ___ Rip Currents can sweep even the strongest swimmer out to sea

Q12d ___ People become tired and can drown

Q12e ___ I don't know why Rip Currents are dangerous

Q12f ___ Other (Please specify) _____

Q13 What are some clues that a Rip Current may be present?

Q13a ___ A channel of churning, choppy water

Q13b ___ A difference in water color

Q13c ___ A line of foam, seaweed or debris moving seaward

Q13d ___ A variation in the incoming wave pattern

Q13e ___ I don't know any clues that a Rip Current may be present

Q13f ___ Other (Please specify) _____

Q14 Would your household be willing to pay _____ per year in local or state taxes to support Rip Current Awareness and Safety Programs? (**Rotate the dollar amount for each survey and write the amount selected for this particular respondent in the space provided—\$1, \$5, \$10, \$25, \$50, \$100**)

Q14a _____ Yes **Q14b** _____ No

Q15 Why would you not be willing to pay the \$ _____? (**Write the amount selected for the above question in the space**)

Q15a _____ The amount is too high

Q15b _____ I believe beach goers should educate themselves

Q15c _____ I don't trust government

Q15d _____ I don't think it is fair to make beach goers pay

Q15e _____ I don't think it is fair to make non-residents pay

Q15f _____ I don't trust the NC Sea Grant Program

Q15g _____ Other (please explain) _____

Q16 How many individuals, including yourself, normally live in your household? _____ People

Q17 How many adults (18 or older) traveled with you to the beach today? _____ People

Q18 How many individuals under the age of 18 traveled with you to the beach today? _____ People

Q19 Have you had a discussion with these individuals under the age of 18 about Rip Currents?

Q19a _____ Yes **Q19b** _____ No → skip to **Q21**

Q20 What have you told these individuals under the age of 18 about Rip Currents? _____

Q21 How many years have you been coming to this beach? _____ Years

Q22 When do you typically come to this beach?

Q22a ___ During the week

Q22b ___ On weekends

Q22c ___ Vacations and days off

Q23 Including today, how many trips to this beach have you taken since Easter weekend (April 16th)?

_____ Trips

Q24 At this point, knowing what you do about your other commitments, how many more trips to this beach do you think you will take through Labor Day weekend (September 4th)?

_____ Trips

Q25 How many trips do you expect to take next summer (Easter weekend through Labor Day weekend)?

_____ Trips

Q26 What is the primary purpose of your trip to the beach today?

Q26a ___ Sun/tan

Q26b ___ Relax/read

Q26c ___ Walk/jog

Q26d ___ Swim

Q26e ___ Surf/board

Q26f ___ Fish

Q26g ___ Socialize/date/meet people

Q26h ___ Entertain kids

Q26i ___ Other (Please specify _____)

Q27 Are you an overnight visitor?

Q27a _____ Yes **Q27b** _____ No → skip to **Q31**

Q28 How many nights are you staying? _____ Nights

- Q29** Are you staying at night on a beach island or on the mainland?
Q29a _____ On a beach island **Q29b** _____ On the mainland
- Q30** Which type of lodging are you using at night?
Q30a _____ Hotel/motel
Q30b _____ Rental cottage/house
Q30c _____ Rental condo/apartment
Q30d _____ Non-rental cottage/house
Q30e _____ Non-rental condo/apartment
Q30f _____ Other (Please specify _____)
- Q31** What is your marital status?
Q31a _____ Single
Q31b _____ Married
Q31c _____ Separated
Q31d _____ Divorced
Q31e _____ Other (Please specify _____)
- Q32** What is your highest level of education completed?
Q32a _____ Less than high school graduate
Q32b _____ High school graduate
Q32c _____ Some college / not a college graduate
Q32d _____ Associate degree / community college graduate
Q32e _____ Bachelors degree / college graduate
Q32f _____ Masters degree
Q32g _____ PhD degree
Q32h _____ Law school graduate
Q32i _____ Medical school graduate
- Q33** What is your occupation?

If retired, please ask what their occupation was _____
- Q34** As close as you can recall, what is your household's total annual income before taxes? Is it 15 thousand dollars or less, between 15,001 and 25,000, between 25,001 and 30,000, between 30,001 and 35,000, between 35,001 and 40,000, between 40,001 and 45,000, between 45,001 and 50,000, between 50,001 and 60,000, between 60,001 and 75,000, between 75,001 and 100,000 or more than 100,000?
Q34a _____ \$15,000 or less **Q34g** _____ Between \$45,001 and \$50,000
Q34b _____ Between \$15,001 and \$25,000 **Q34h** _____ Between \$50,001 and \$60,000
Q34c _____ Between \$25,001 and \$30,000 **Q34i** _____ Between \$60,001 and \$75,000
Q34d _____ Between \$30,001 and \$35,000 **Q34j** _____ Between \$75,001 and \$100,000
Q34e _____ Between \$35,001 and \$40,000 **Q34k** _____ More than \$100,000
Q34f _____ Between \$40,001 and \$45,000

This concludes our interview. Thank you very much for participating!

Appendix F

Sample Questions:

With each interview, we typically began by giving a brief summary of our project, in particular the sections that relate to each profession.

Marketing and Public Relations

1. What is your role at your company/ organization?
2. Could you describe some of the PSAs that you have worked in creating?
 - a. How did you get the PSAs out?
 - b. What are some potential costs in developing the PSAs?
 - c. Did you have any connections in industry that assisted? If so, how did you obtain these connections?
3. What techniques do you use to target your desired audience?
4. What deliverables are necessary for NOAA's Public Relations to implement these features of this campaign?
5. Do you have or can you suggest any partnerships in industry that might be interested in our message?
 - a. Are any working with teenagers?
6. What resources do you have that could be of assistance to us?
7. What strategies do you/ would you recommend when marketing to teenagers?

Coastal Processes Experts and Lifeguards

1. What methods have been used to promote rip current awareness?
2. Can you show us any examples of signage or messages that you have used in the campaigns?
3. What has been done to assess the level or awareness?
4. Do you have any suggestions for promoting awareness? To teens?
5. What resources do you have that might aid in programs we are developing?
 - a. Would beach patrol and lifeguards be willing to help?

Technical Experts

1. Do you have existing information or media that is relative to our message and could be used in certain aspects of the developing campaign?
2. In what ways can you assist in assuring this feature gets implemented?
3. What kinds of costs are involved in developing these features?
4. Do you have any recommendations that would aid the task force in further developing and implementing these features?

Appendix G

Interview Summaries

Wendy Carey and Todd Fritchman

Meeting Minutes from Fieldtrip to Delaware Beaches November 14, 2006

On Tuesday November 14, the team along with Amy and Hollis took a trip to Delaware Sea Grant and Rehoboth Beach to talk with both Wendy Carey and Todd Fritchman about the project. We also saw the new signage on Rehoboth Beach as well as taking a look at where a webcam is located.

Meeting with Wendy Carey

While at Delaware Sea Grant, Wendy Carey gave us an excellent presentation on Rip Currents and also what is currently being done for outreach in her area.

Some information we learned during the presentation:

- Although sand bars do contribute to the formation of rip current they are by no means the only factor. (many people overlook this)
- Four major ways to predict rip currents:
 - Field observations and measurement
 - Remote sensing and video monitoring
 - Lab testing and modeling
 - Mathematical modeling
- Would like to revisit the message to improve forecasts
- Research is necessary, but who will pay for the research?
- With tsunami and Hurricane Katrina, rip current research has minimized
 - More money being spent on hurricanes and tsunamis due to disasters.
- In 2000 there were 22,668 rip current rescues and an average of 100 fatalities.
 - Ask Tim Shott about updated figures on rip current fatality standings average since Hurricane Katrina.
- North Carolina and Delaware already making local efforts.
- Delaware Sea Grant's Coast Day – go over rip currents.
- Interpretative signs used to educate board-walkers when lifeguards are gone.
- New signs
 - Rehoboth Beach
 - Dewey Beach
 - Bethany Beach
- Want to improve communications
 - Have beach patrol monitor rip currents
 - Be eyes and ears

- Call an 800- number if forecasts are incorrect or drastic changes.
 - NWS Forecast Office's
 - Philadelphia
 - Mount Holly
 - On Dewey Beach: Beach patrol is trained to measure wave/ swell parameters.
 - Daily, twice-a-day, assign one person to record information.
 - Information sent to Mount Holly to compare with predictions for accuracy.
- Beach patrol has extensive training – waves, wind, tides, and rip currents.
- Delaware Sea Grant does some work with the Army Corp of Engineers.
- Rehoboth Beach has web cams set up that capture images.
 - Can look at algorithms of images.
- Rip currents are very site specific.
 - West coast varies greatly from East and also from beach to beach.

Meeting with Todd Fritchman and Wendy Carey

While on the trip, the team, Amy, and Wendy all went to meet with Todd Fritchman at Envirotech. Todd is not only the president of Envirotech but also a former high school teacher who is chief of Beach Patrol at Dewey Beach. We met with him discuss our project to him and see if the beach patrol might have any interest in helping out with some of this.

There were many great suggestions for us:

- Get the message into public education
 - Specifically into the curriculum
 - Oceanography/ marine biology
 - Science and physics
 - Health and physical education
 - Teach it and apply it.
- Programming/ Assemblies
 - Psychological challenges
 - Needs to be eye-catching yet serious
 - Start serious and get fun or the other way around
 - Beach patrol would probably help volunteer (possibly teachers that are on beach patrol)
 - Set up a “Baywatch” scene.
 - Interactive
 - Contests (Rip-rap?)
 - Simulations
 - Videos, power points, and pictures.
- Career/ Health Awareness Days
 - Make an interactive visual display
 - Innovative and hands-on display
 - Possible contact: Robin Aeger of BIE Alliance
- Needs to be regional.
 - Do regional tracking to find where beach goers are coming from.
- Junior Lifeguard Programs
 - Curriculum sets for children ages 6-15

- Consider the man injured on Bethany Beach.
 - Partially paralyzed
 - Was on Oprah?
 - Look up name
- Suggested checking out “Making the Difference”
 - Used by USLA, but a private company film.
- Possible sponsorship
 - Kefier (make rescue equipment)
 - Sunscreen companies
- For magazines, suggested looking at older ages
 - Men’s Health Magazine
 - Many of their rescues are 19+ victims
- Try using website for beach patrols
 - Typically used in-house or by people looking for work
- Others
 - Realtors
 - Chambers of Commerce
 - June Bug type events in coastal cities and towns
 - Create programs to keep the teens out of trouble instead of looking to get them into trouble
 - Boy/girl scouts, 4H clubs
 - Merit badges?
 - Possible programs
 - Fire Departments and EMT’s
 - YMCA
 - Surfrider Foundation and surf stores
 - Hotels and Motels
 - Cruise ships
 - Sometimes have educational programming
 - Movie theatres
- Also remember to think about Spanish-speaking community.

National Weather Service

Meeting Minutes with National Weather Service November 9, 2006

On Thursday November 9, the team held a meeting with the National Weather Service's Deborah Jones, Timothy Shott, and Greg Romano to discuss the following ideas.

We met to tell Greg about our project and get some feedback:

- NWS is looking to refresh the outreach for rip current awareness.
- Team asked Greg about possible media connections
 - Greg is going to look into possible media sources with
 - Discovery Channel
 - MTV
 - TLC?
- NWS asked what our pitch for television stations was.
 - The team doesn't have a pitch – we are more so trying to find out where we would send a pitch and what they are looking for in it.
 - NWS offered to help in developing a pitch, if we wanted.
- NWS Proposed looking more into Podcasts
 - Have a studio where we could make demo one if we wanted.
- NWS asked about potential spokespersons
 - Amanda Byrd- swimmer
 - Kelly Slater- pro-surfer
 - Carey Heart- motocross racer/ television celebrity
- NWS also asked if we knew the names and if we had any ideas for anyone else.
 - Probably someone extreme and crazy, yet still maintaining NOAA standard of leadership.
- Production – NOAA often works with Atlas Media
 - Ask them about programming
- Asked about pushing the age (although they know it's not what we are doing, but out of curious)
 - Where to promote on college campus
- Networks – potentially look at figures.
- If Greg cannot be reached, try Theresa Eisman (at the same number to reach Greg at)

Kirk Gillis

Meeting Minutes from Phone Interview with Kirk Gillis November 17, 2006

On Friday November 17, Laura and Matt conducted a phone interview with Kirk Gillis of the Recreational Boating and Fishing Foundation. We interviewed with him to ask a few questions about public service announcements and about developing a campaign. He was a pleasure to talk with and had some excellent feedback.

- Kirk told us to take a look at Angler's Legacy at rbff.org or at anglerslegacy.com
 - There are about 50 magazines running PSAs for free at the moment.
- Too often good ads and good PSAs don't get run.
- Need to have a well defined target audience
 - More defined than 'teenagers'
 - Suggestions? Coastal counties (NOAA should know), boys.
 - Media budget?
- Need to reach a person 5-7 times before they remember the message.
 - Need to reach them frequently
- Teenagers are hardest and most expensive in the market
 - There are so many media
 - Teens have small attention span
- Someplace like MTV could take up to a year just to get a meeting.
- Community Newspapers or local retailers might be good places for boys.
- Do not try to go national at first, pilot test on an area to find which partners work.
 - After pilot test, roll out the campaign.
 - Build on the success
 - Don't suffer paralysis by ambition
- For magazines; identify the right person, the publishers, NOT editors or producers.
 - Find who manages sales ads.
- Do not plan on an ad being run.
 - Having a good message, good creative, good images is NOT enough.
 - You need a cause; leverage to make it work for the companies.
 - You will get some remnant space
 - The extra space that hasn't been sold before needing to be printed; aka filler.
 - Don't start with the message.
 - Small effective group of influential people.
 - Find companies or people who pay for certain materials related to rip currents
 - (I.e. boating companies that sell fishing gear and supplies approach the people that make rods and boats and life guard.
- Ask for influential people.
- Keep it simple.

- Kirk sent out via mail and followed up 3 or 4 times when placing magazines ads.
 - Get them to say yes.
 - Convinced them to run the ads regularly
 - If one was not run when it was suppose to be, just gave a little phone call and had it put in the next one.
- Many people go the celebrity route
 - For RBFF could cost \$100,000 for something to run 2 years and about 2 days of work.
 - That would still be a reduced rate for the celebrities
 - RBFF has done this in the past, but has since cancelled it.
 - Spending the money elsewhere
 - Difficult to be successful.
 - No leverage to get it placed.
- Need to provide a good reason as to *why* they should choose our PSA.
- Build a strategy around it.
 - It is not as simple as creating a PSA about your message.
 - Message needs to be supported.
 - Need to use other relationships (leverage)
 - It's all about the delivery.
 - Employ it.
- Use peers and event marketing
 - Scion exceeded sales 70-120% with event marketing to the younger crowd purchasing vehicles.
 - Get specific marketing
- Social marketing
 - Blogs, discussion boards, my space, similar forms of media.
- There is nothing better than word of mouth
 - Hearing something from someone you know and trust
 - Maybe use teenagers in marketing campaigns
 - Real life stories from teens in rip current circumstances.
 - Find that target audience
- Kirk suggested looking into NASBA and boating safety.
 - Possibly working with the Coast Guard
 - If the assist at all with rip current rescues or anything.
 - Coast Guard might be able to deliver the message in a better way
 - Softer and gentler about the message.
 - They are good with education
 - Might have a vested interest
 - They have a lot of reach (nationally)
 - Well organized
- To ensure a message is delivered
 - Use a media budget to buy media
 - You can't count on a PSA being aired for free.
- He would suggest putting money into the creative and building very solid communications tools

- Simple for everyone that is pitched the idea to use and also so they use the right message.
 - Explanations and the message both need to be simple.
- Never use paragraphs
 - Use bullets, people are busy.
- Communications materials and creative
- Don't skimp on the media
- Remember with magazines that one size does not fit all.
 - Segment the market
 - Have multiple versions of the add
 - Speak to each region or area
 - Look into similar messages
 - Anti-smoking campaigns.

Scott Rayder

Meeting Minutes from Interview with Scott Rayder November 30, 2006

On Thursday November 30, the team met with Scott Rayder who is the Admiral's Chief of Staff at NOAA. We interviewed with him to discuss our project, how he could help us, and receive feedback about developing our campaign.

- Began with the background of the project
 - There is a recent story about a daughter who got caught in a rip current and the father tried to save her and they both died.
- Discussed background of our formal recommendations
 - NOAA has a PSA with the Little Mermaid new edition
 - Not putting trash in the ocean
 - There is little money, so we would need a cost schedule
- How to measure campaign effectiveness is important
 - National Safety ?
 - Green Cross
 - Need to have a handle on the demographic
- Next steps for implementation
 - What are the next steps
 - Media does not cost a lot of money
 - Not just the coast area
 - 50% of people live less than an hour away and the percentage is growing
 - Challenge is to reach everyone
 - With papers, they go everywhere
 - Broadcast meteorologist (they speak well and in laymen's terms)
 - Always think about ways to work with Industry
- NOAA's goal is to save
 - Have a PSA for flash floods
 - For white males and people with 4x4
 - "turn around don't drown"
 - Language of the campaign (Spanish)
 - Yes have signs in Spanish in Mexico
- Look at leads on beach safety for partnering
 - Contact Coast Guard (think of as an sister agency)
 - Perfect Storm shows the relationship between NOAA and Coast Guard
 - Role of the States
 - Local and regional network to get info out
 - Red Cross
 - Many others that we haven't even thought about
- Have to get attention of people to be successful
 - Need to read the signs not just look at them
 - Some people don't believe the information

- Forecasts from Hurricane Katrina
 - Change of behavior is important
 - Hard to do for adults
 - Easier for children and teens
 - More open for change
- Contacts
 - Louisa in education out reach program
 - State Health departments
 - Media opportunity in Cape Cod
 - National Sea Shore; Dept. of Interior
 - Dr. Beach (Steve Leathermen)
 - Rates all the beaches in USA
 - Add a PSA in the book
- Think unconventionally
 - iPods
 - think new technologies that are coming out
- When do we want the campaign to surge?
 - think of Memorial Day good day to start
 - Delaware has a beach day that draws lot of people
- Need to keep pushing and keep this going
- NOAA is where science gains value

Appendix H

The following is the supplemental pages we have provided to the task force to include in their packets to help improve presentations.

HOW TO MAKE YOUR PRESENTATION A SUCCESS!

Make the presentation interactive.

Hold a “rip rap” contest on stage.

HOW?

1. Prior to the assembly, or after educating the audience about rip currents, ask if anybody likes music. Then ask if anybody likes hip-hop or rap. Of those respondents, ask if any like to rap. Then propose a contest to make a “rip-rap.” Offer a really cool prize to the winner. (Possibly solicit to local businesses – restaurants or stores that teens frequent.) Take an appropriate number of volunteers based on the time allotted for your presentation and of the size of your audience.
 - a. Give these students the attached rip-rap information.
 - b. Tell the volunteers that they have a certain amount of time to make a rap or similar song using the information.
 - c. Let these student work.
 - d. Proceed with another part of your presentation. Something that will take approximately 10-15 minutes.
 - e. Invite students back onstage to perform their songs.
 - f. The “rapper” with the best audience response will be declared the winner.
2. You can also have partner or small group to perform.
3. Provide your audience with the attached rip-rap that volunteers from the crowd will perform.

Perform rip current simulations on stage.

HOW?

Rip Current Strength Simulation

WHAT YOU WILL DO:

Have audience members participate in a demonstration of how powerful rip currents are. Explain to the audience that even Olympic swimmers can't out swim a rip current.

WHAT YOU WILL NEED: An inner-tube (or similar device), a rope, approximately 3-5 volunteers.

How to Do it:

- Ask one volunteer to be the “victim.” Tie the rope to the inner tube and have a volunteer wear the tube around their waist.
- The other volunteers will be “the force of the rip current.”
- Explain the scenario of the stage as a beach scene.
 - ⇒ The front of the stage is the shore... etc.
- The “victim” will attempt to walk, or “swim” toward the shore, in the opposite direction of “the force of the rip current” holding the rope. (Presenter can play the “victim” if necessary for safety precautions.)
- After a short amount of time, the “force” can begin to pull a little on the rope to show the current will in fact pull you away from the shore.
- After this, end the demonstration portion and explain what to do if you are being pulled back like this due to a rip current – reinforce main ideas such as:
 1. Stay calm, don’t fight the current.
 2. To escape, swim parallel to the shore.
 3. If you can’t escape, float or tread water.
 4. If you need help, call or wave for assistance.

Swim Parallel Simulation

As created by the NWS

Here’s a way to help show other people how to escape from a rip current.

WHAT YOU WILL DO:

Demonstrate why swimmers caught in rip currents have to swim parallel to the shore before they can swim back to the beach.

WHAT YOU WILL NEED:

- Two or more strips of ribbon, rope or string, each at least ten feet long; if you have a choice, a blue color is good for representing ocean waves
- At least five people, including yourself

How to Do It:

1. Have pairs of participants hold opposite ends of the rope or ribbon. You will need at least two pairs of participants to do the demonstration.
2. Designate one side of a room or outdoor space as the “shore” and the opposite side as “deep water.”
3. Have pairs of participants stand so that the rope or ribbon is stretched out, and is parallel to the shore. These participants and their ropes or ribbons represent waves.
4. Place “trapped swimmer” participants between two of the “waves.”
5. Have the “waves” walk toward the “deeper water,” staying parallel to shore as they move. The movement of the “waves” represents the flow of a rip current. The “trapped swimmer” can only

escape being carried into “deeper water” by swimming parallel to the waves until she or he is out of the rip current.

Other Recommendations

1. Allow for the presentation to move from serious tones to a more fun atmosphere.

2. Make the presentation eye-catching

HOW?

1. Utilize the video in this packet
2. Create a power point
3. Use pictures

3. The assembly should be lighthearted when introducing humor and moving towards the interactive portions of the presentation.

4. Another possible way to lighten the mood would be to have a “Baywatch” themed program or parody. “Baywatch” was a popular television show that aired from 1989 to 2001 about lifeguards patrolling California beaches. You could have the audience volunteer to be David Hasselhoff and Pamela Anderson. Unfortunately it was cancelled, so the younger crowds may be unfamiliar with the show.

RIP RAP INFORMATION SHEET

Be sure to include some of this important information in your rap!

- Rip currents are dangerous.
- Don't try to swim against the rip current.
- If you can't escape, float or tread water.
- To escape: swim parallel to the shore.
- If you need help: wave or call for assistance.
- Be aware of high rip current forecasts.
- Ask your lifeguard about rip currents when at the beach.
- Swim on guarded beaches.
- Don't go into a rip current to try and save someone else – Get help.

A Rip Rap

As written by Matthew Conway

- 1 We want y'all to be aware to break the grip
So I'm gonna sing this rap and give you some tips
- 3 When you realize a rip current has been found
Do yourself a favor and turn around
- 5 The rip currents really are not our friend
They have the power to bring the ultimate end
- 7 The currents move from shore faster than you can swim
So if you get caught I'll give you a hint
- 9 Don't swim back against the stream
Stay calm, relax, and signal for the rescue team
- 11 But if you know to swim and your muscles aren't sore
Swim in a direction parallel to shore
- 13 When you feel you are out of the rip current's pull
Swim back to the land where the water's shallow
- 15 So now I'm done and I'm gonna close my lips
But let me just finish the line: Break the Grip of the Rips