

*Meeting of the
Propeller Strike Injury Avoidance Workshop*

**Crowne Plaza Hotel
Arlington, Virginia**

March 21-22, 2006

Panel Members and USCG Staff Present:

John Adey	Chair
Marion De Cruz	Member
Larry Meddock	Member
Ted Woolley	Member
Pete Chisholm	Member
Bob McNeil	Member
Keith Jackson	Member
James Muldoon	Member
Richard Moore	Member
Dave Marlow	Member
Katherine Lerner	Member
Jeff Hoedt	USCG, Chief, Office of Boating Safety
Jeanne Timmons	USCG, Office of Boating Safety
Bruce Schmidt	USCG, Office of Boating Safety
Phil Cappel	USCG, Office of Boating Safety
Richard Blackman	USCG, Office of Boating Safety
Dan McCormick	USCG, Office of Boating Safety
Barry Nobles	Potomac Management Group
Mitchell Cho	Potomac Management Group
Rachel Warner	Potomac Management Group
Elizabeth Cusumano	Potomac Management Group
Colin Meehan	Potomac Management Group
Mark Mancuso	Potomac Management Group
Philippe Gwet	SAGE Systems
Harry Hogan	SAGE Systems

Tuesday, March 21, 2006

Chairman Adey called the Panel to order at 8:30 a.m. on March 21, 2006. After introductions, the Chairman read the original Statement of Purpose from the National Boating Safety Advisory Council (NBSAC) Resolution 2005 76-04 entitled "Propeller Strike Injury Avoidance" rendered in November 2005. He explained that the statement of purpose was the grounds for the workshop and introduced Jeff Hoedt, Chief of the Coast Guard Office of Boating Safety. Mr. Hoedt stated that the Office of Boating Safety is not only aware but also very concerned about propeller injuries and fatalities. He explained that the Coast Guard would like an aggressive approach to the problem of

propeller strikes and would like to see a balanced proposal to come from this group. The Panel needs to remember that developing a measure of effectiveness is so important to the Coast Guard, the Office of Management and Budget (OMB) and the Government Accountability Office (GAO).

Chairman Adey introduced Phil Cappel, Chief of the Product Assurance Division of the Office of Boating Safety. Mr. Cappel handed out a draft brochure discussing propeller strikes. He described the regulatory process the Coast Guard went through during the 1990's regarding requests for public comments and Notice of Proposed Rulemakings (NPRM). In April 1999, NBSAC issued four recommendations they felt addressed the issue of propeller strikes. Based on these recommendations, the Coast Guard issued NPRM (10163) in 2001 which required houseboats to install a propeller guard, jet pump drive, or one of the three interventions: swim ladder interlock, clear visibility aft device, or an ignition cut-off switch. According to Mr. Cappel, the feedback from the NPRM questioned the cost-benefit analysis. Furthermore, the Coast Guard could not overcome objections that were raised regarding the potential costs to boat owners. Mr. Cappel explained that the Coast Guard is seeking advice from the Panel regarding that NPRM and would like to know if they should continue to work on it or go in another direction.

Mitchell Cho from Potomac Management Group (PMG) discussed the Coast Guard's regulatory development requirements and presented a benefit estimating tool PMG developed, which illustrates the potential benefits involved in a regulatory analysis. Mr. Cho explained that Executive Order 12866, Regulatory Planning and Review, requires an economic analysis for any rulemaking project which needs to show that the potential benefits to society justify the potential costs. For purposes of the workshop, Mr. Cho stated that the main benefits were the fatalities and injuries averted. According to Mr. Cho, the benefit estimating tool can estimate a range of monetary benefit values for a particular population of vessels. Mr. Cho emphasized that these are not guidelines, but rather estimations and explained the concept of Willingness to Pay (WTP) as estimates of what users of the Nation's transportation system would themselves collectively pay to reduce by one the number of fatalities expected to occur in transportation accidents during a given time period.

Marion De Cruz expressed concern about the components of WTP and stated that based on her conversation with OMB, the WTP number of \$3 million per fatality is not concrete and can be adjusted. Alex Welti suggested that they examine the effects of the insurance industry providing discounts to boat owners and how it would affect the WTP figure.

Bruce Schmidt from the Office of Boating Safety explained that the Coast Guard captures data on three types of engines in regards to propeller strikes: outboards, stern drives, and inboard engines. Mr. Schmidt discussed the importance of adjusting the casualty data by the boating population and provided data on fatalities and injuries for 2002-2004. His analysis was trying to target which boat types and lengths have the highest risk of involvement in propeller injuries. Mr. Schmidt stated that it is important to focus on what types of boats are associated with these risks and what types of activities or injuries are associated with the boats belonging to this population. Ted Woolley asked Mr. Schmidt for trend data that is broken out over a five year period to look at the number of propeller strikes to see if they are increasing or decreasing.

Mr. Marlow asked why it would be limited to the boat types most often reported. Mr. Hoedt replied that a cost-benefit analysis is required and by expanding the target populations, the regulations could become less cost beneficial. The Panel recommended looking at the cost-benefit analysis to determine the size and population type that can be covered.

Chairman Adey discussed the Houseboat NPRM (10163) published on December 10, 2001 and questioned what the options are in regards to the future of the regulation. Mr. Cappel explained that the Coast Guard cannot issue another request for comments to get additional information because there were already two requests for comments and an NPRM issued. The options would be to change the wording and put it out as a supplementary notice or to start a different rulemaking. Cindy Squires from the National Marine Manufacturers Associations (NMMA) added that if the Coast Guard is going to do more than just address houseboats then they must come out with a completely new announcement because they will need to get public comments on it. The failure of NPRM 10163 to pass was discussed. The cost-benefit formula as currently employed did not support the use of current intervention devices. It was suggested that some factors were not taken into account when computing the formula, such as how many people will be affected; how many exposure hours versus boat usage; and that it is possible that limited use of boats may decrease the population. The development of these scenarios could not be completed due to the lack of understanding of what factors are already included in the cost-benefit analysis. The Coast Guard was asked to present more information on these factors at the next NBSAC meeting. **ACTION ITEM USCG**

Chairman Adey presented four recommendations being discussed by the Coast Guard to address propeller strikes. Mr. Cappel stated that they view these options as something that could move forward much better than continuing to work on the current NPRM.

There was a motion by Ted Woolley to leave NPRM 10163 in place until additional information can be added to increase the cost benefit ratio and propose an additional NPRM to NBSAC using other criteria. Marion De Cruz seconded. Chairman Adey called for a vote and the motion passed unanimously.

Dan McCormick from the Office of Boating Safety presented an overview of interventions currently on the market. There are different types of designs for propeller guards, depending on the size and use of the boat. Prices for the guards range from \$116-\$399. Other types of interventions include ring propellers, engine cut-off switches, wireless cut-off switch lanyards, wireless cut-off switch lanyards with GPS integration, engine stop and start prevention, and water jet propulsion systems. Mr. Woolley stated that NBSAC organized a committee that did extensive testing in the 1980's on propeller guards. The committee found that these devices cause the operator to have less control of the boat as well as decrease the horsepower. He wanted to know if these same issues still existed with the current models. Mr. McCormick replied that manufacturers claim that those issues have been worked out and claim better performance. Pete Chisholm explained that tests have found that although the manufacturer claims a performance increase, there are trade-offs with handling. The handling of the boat is dramatically altered when you introduced any sort of horizontal surface.

Chairman Adey invited discussion on alternative initiatives as the next topic for discussion and opened the floor to Marion De Cruz. Ms. De Cruz believes the crux of the

matter is the successful application of the WTP formula and wanted to know if additional factors such as the occupancy factor and the extended associated benefit factor could be added to enhance the WTP figure. Ms. De Cruz explained that the occupancy factor could be determined by multiplying the WTP figure by the number of individuals allowed on the vessel. Ms. De Cruz described the accident scenario of Ms. Phyllis Kopetko and discussed the use of the occupancy number. Ms. De Cruz believes that the accident could have been prevented by purchasing safety equipment well within the range of WTP for three people. The extended associated benefit factor is the idea that a regulation may apply to more than just propeller accidents.

Additionally, Ms. De Cruz emphasized the importance of qualitative information in addition to quantitative and suggested the following qualitative measures; children at risk of propeller injuries; and the seriousness of these accidents which usually requires emergency room visits. Ms. De Cruz said that OMB does not seem to treat WTP as rigidly as the Coast Guard and wondered what is preventing the Coast Guard from looking at WTP in a more flexible manner. Mr. Hoedt said the Coast Guard utilizes the old Department of Transportation (DOT) system in its assessment since the Department of Homeland Security (DHS) does not have its own process, and will use DOT guidance until DHS guidance is established. Mr. Hoedt went on to say that the boundaries of the cost-benefit analysis are well defined but there is some flexibility and those questions are being asked now.

Ms. De Cruz's understanding is that you can petition OMB when it is about saving lives even if your calculations show a low benefit. She provided an example of OMB allowing the Federal Aviation Administration (FAA) to use a \$6 million figure when determining the value of a statistical life (VSL). Mr. Hoedt pointed out that the FAA has to go through the DOT and from DOT, it goes to OMB. The Coast Guard has to petition DHS and then they have to go to OMB. Chairman Adey asked whether it is appropriate for this forum to discuss potential changes to the cost-benefit analysis. Mr. Hoedt thought it would be difficult to discuss until they fully understood what is captured in the WTP number. Mr. Marlow asked if someone could come to the NBSAC meeting to discuss these ideas with the Council. Mr. Hoedt thought it unlikely, due to the timeframe. As a short term goal, Keith Jackson suggested that the Panel finalize the propeller strike brochure and create a packet to send out to rental companies and anybody else dealing with boating.

Ms. De Cruz made a motion requesting the USCG to evaluate the additional quantitative and qualitative measures proposed (i. e. occupancy factor) and provide an answer in writing to Mr. Hoedt. Mr. Jackson seconded. A vote was taken and the motion failed.

Ted Welti, uncle to a young boy injured by a propeller, suggested evaluating what he termed a parked boat factor; only requiring compliance for boats in the water. Additionally, Mr. Welti mentioned that the \$3 million WTP figure should account for inflation. Jim Muldoon asked whether the Coast Guard knew of concrete quantitative values used by other agencies that could be considered. Mr. Hoedt emphasized the need to concentrate on effectiveness and asked Panel members to not forget that some of the proposed measures are inexpensive. Kathleen Lerner stated that the injuries of propeller strikes are very high with morbidity and mortality, which needs to be factored in. Chairman Adey concluded that Mr. Hoedt will decide the best method to inform the

Panel of the factors in WTP and the cost-benefit analysis, whether it is a visit from a DHS economist or some other discussion.

Chairman Adey asked Fernando Garcia, representing the Personal Watercraft Industry Association (PWIA), to discuss the PWC renter education strategies. Mr. Garcia said that the industry created a rental kit to address the issue of high rates of injuries with rental PWCs. The kit contains a number of items; a short safety video; a comprehensive checklist along with some instruction for liveries; and a poster of the checklist to familiarize customers before viewing the other components. Another item which is not included in the kit but may impact it is a uniform label on the craft that is being placed on all PWCs. The rental kit is available at the PWIA website as well as distributed annually to the State Boating Law Administrators (BLA).

Bob McNeill asked whether there was an observed benefit or if PWIA was attempting to quantify benefits at all in regards to the number of PWC injuries and fatalities. Mr. Garcia responded that except for a steady decrease in PWC injuries, the PWIA does not have concrete data on the kit because a significant amount of safety programs were implemented at the same time. Mr. Muldoon asked Mr. Hoedt whether using the Coast Guard grant process to develop something to impact education would be a good way to make a quick impact. Mr. Hoedt stated that a proposal would qualify for the grant process but because the proposals are being submitted right now, the Coast Guard would not evaluate it until this time next year. Additionally, Mr. Hoedt pointed out that the only way it would happen any quicker is if the proposal was a request under \$20,000. Larry Meddock suggested looking into the effectiveness of the existing packets provided by some resorts and rental companies such as Forever Resorts and Lake Powell. Mr. Hoedt said that under current authority, the Coast Guard cannot require any kind of educational requirement of recreational boaters. A year and a half ago, NBSAC gave a resolution directing the Coast Guard to seek that legislative authority and they are in that process.

Chairman Adey proposed a resolution on the rental package, noting that if the Panel decided that they did want to pursue a rental kit, it would have to be divided up by boat type or another method of categorization. Mr. Garcia agreed that the Coast Guard has limited authority on this issue and said that at the State and local level typically, there are licensing authorities or some other authority that can require such rental kits.

After a short review of the Forever Resorts booklet, Ms. De Cruz found that most of the large print sections are about trash overboard, aluminum can collection, and loud music. She did not find a single warning about propellers and injury, just protection of the propeller itself. Her opinion was that it was very weak in the overall warning about safety. Chairman Adey suggested creating bullet points on what should be included in a rental packet from the Propeller Working Group. Mr. Meddock said that the Water Sports Industry Association (WSIA) has a similar program in which the dealer has an outline of questions to go through with an expected renter and a poster addressing risks involved. He suggested using the WSIA format to produce something similar with recreational boating. Mr. Marlow thought that the passage of behavior laws was possible. The Chairman agreed and wanted to keep focusing on education and complete the list of bullets.

The Chairman recommended asking the Coast Guard to assemble a task force to look into what's available from PWIA and the American Canoe Association (ACA) and

present the findings to NBSAC. Additionally, he proposed a task force to come up with a draft brochure. Mr. Welti suggested a safety class could be available for a fee with a corresponding discount on a boat purchase for attendees. Mr. Chisholm felt that the insurance underwriting industry would have a vested interest in this process and that it might be worth looking into that potential benefit.

Chairman Adey asked the Panel to discuss requiring use of the engine cut-off switch. The Chairman suggested using the NASBLA Model Act definition for engine cut-off switch. Mr. Woolley pointed out that this would only apply to Federal waters, to apply it to State waters, it would have to be a recommendation going to NASBLA, which they already have from the Model Act. Chairman Adey responded that since this item is based on the Model Act there should be no conflict between State and Federal regulations. Robert Townsend from the audience suggested requiring cut-off switches for all occupants. Mr. Moore felt that the enforceability of this recommendation would be a tremendous obstacle. Mr. Hoedt agreed that there is a challenge in getting it out to the public but most of the public are law abiding citizens and will comply if they get the message. Discussion followed on the merits and problems of requiring the use of the engine cut-off switch.

The Chairman called for a vote from the Panel on the best course of action; to recommend issuing an NPRM or recommend promoting the use of an engine cut-off switch through education, or both. The Panel votes tied, five for education and five for both. The Chairman broke the tie with a vote for both and decided to suggest to NBSAC the recommendation of both issuing an NPRM and promoting the use of an engine cut-off switch through education.

Ms. De Cruz asked what the timeline on developing voluntary standards was. The Chairman replied that writing a standard is quite a process but that there was no need to wait for legislation, it can be done through the industry and ABYC's technical board. He went on to say that a recommendation could be made as soon as next year through the technical board on occupant protection which is typically handrails, re-boarding means, seating positions, and hand holds. Propeller guards have never been considered. Ms. De Cruz asked if it would be inappropriate to request the industry to test what is currently on the market in regards to propeller strike interventions within the parameters the intervention is to be used. For impartiality sake, the Chairman felt that the appropriate organization to perform the testing would be the Coast Guard. Additionally, he explained that another issue would be the cost of the testing and the fact that there have been a number of other parties who have done this research previously.

The day's work was summed up with the following recommendations:

A. Education – It is recommended to NBSAC that a rental package be assembled for use by all livery/rental companies. Some suggested items to be included from a propeller strike standpoint are:

- Require operators of recreational boats to shut off the engine when individuals in the water are within an unsafe distance from the boat
- Discussion on bow riding (education against craft-specific unsafe activity)

It is suggested that the USCG:

- Gather other industry rental literature (e.g. PWC, American Canoe Association)
- Reference hazards that the BARD has indicated are common on rental fleets.

B. Require manufacturers of recreational boats to install ignition cut-off switches. The definition of engine cut-off switch will be taken from the NASBLA model act on the Use of Engine Cut-off Switches. (NOTE: Large inboard powered cruising vessels are not intended to be included in this rule. Data analysis should indicate the boat population)

C. Require operators of a motor boat equipped with an engine cut-off switch to use this safety feature while the engine is running and the vessel is underway and to attach the cut-off switch link to their person, clothing or, PFD as described (see NASBLA Model Act). In the event the operator falls overboard or otherwise is moved from normal operating position, the switch would immediately shut off the engine. (This action, coupled with (b) above, provides the opportunity to reduce propeller strike fatalities by as much as 25% over the long term

D. Require operators of motor boats to shut off the engine when individuals in the water are within an unsafe distance from the boat (exact distance/wording to be determined). (This rule could model a current state law regarding CO exposure that reads “holding onto the boarding platform, boarding deck, boarding step, or boarding ladder of the boat” and includes exceptions for vessels engaged in law enforcement or emergency rescue activity. This action offers the opportunity to significantly reduce propeller strike injuries because it impacts the major cause of such injuries.)

Mr. Hoedt stressed that the Panel did not discuss the perceived measure of effectiveness that these recommendations would have. The Panel members in turn, requested more data to calculate effectiveness. Mr. Hoedt stated that he did not expect a specific calculation but rather a discussion of either data in existence, or data needed, and the valued opinion of the expert Panel. Mr. Hoedt said that the Coast Guard will attempt to provide any additional data requested in time for the NBSAC meeting. Lastly, Mr. Cappel asked Panel members to look at the brochure and provide critiques the next day. The Chairman recessed the Panel at 5:00 p.m. until the following morning where the following questions would be answered for each recommendation:

- A) What problem(s) does the solution address?
- B) What is the expected effectiveness of this solution?
- C) If implemented, when would this solution become effective?
- D) Who has the responsibility of implementation what is the perceived participation of that group?

Wednesday March 22, 2006

Chairman Adey reconvened the meeting at 8:00 a.m. on March 22, 2006. The first item he wanted to talk about was what to do with the Houseboat NPRM 10163 which required houseboats and non-planing vessels to have a number of interventions for propeller injury avoidance. The discussion went from getting rid of the NPRM to revamping it and finally, that it should stay in place while ways to increase the benefits for the cost-benefit analysis are calculated to be able to afford some of the interventions on the market. He mentioned that there was confusion on how to increase the benefits, whether it is by capacity or the amount of time boats are being used and asked the Coast Guard to give a report on exactly what items are included in the cost-benefit analysis such as pain and suffering or medical expenses.

Mr. Hoedt gave an update on where the Coast Guard was in trying to calculate exposure hours. There have been National surveys done over the years to gather that information, one being the last National Boating Survey. He said that the redesigning of that survey started in November 2004 with a group from Michigan State University made up of academia, user groups, safety organizations, and Federal Agencies to try and deal with the redundancy and conflicting results in Federal surveys. That group recommended three things; first, to consolidate a Federal boating survey rather than having multiple surveys; second, to do it more frequently than every 5-10 years; and third, they suggested the Coast Guard take the lead on this. The Coast Guard put out a grant notice for a grantee to design the instrument, the survey, and the methodology for the survey, as the Coast Guard would implement it later with its own funding. The grant applications are currently coming in and grant awards will be announced in the next couple of months. It will be approximately 18 to 24 months before exposure hours in recreational boating are calculated.

Ms. Lerner wanted to examine how the injury prevention system works. She mentioned that in a hospital, when there is someone who had a seizure, it is automatically reported to the DMV in California because they can no longer drive a car. It is mandated reporting. Since the Boating Accident Reports are not filled out on a regular basis, there should be mandated reporting at hospitals but it would be an enormous mountain to climb. The Emergency Nurses Association (ENA) attempted to get a snapshot of boating injuries but the nurses do not have time to do these surveys. She said that you cannot get nurses to give this information unless it is mandated or paid for.

Chairman Adey stated the recommendation to NBSAC that a rental package be assembled for use by all livery and rental companies with propeller strike risk information including operators of recreational boats to shut off the engine when individuals in the water are within an unsafe distance from the boat. He wanted to know what problems the solution addressed and mentioned that the numbers indicate that in the 370 deaths, 35 of them were rentals which represent about 10-12%. He then asked the Panel to figure out what is the expected effectiveness of this solution and said that it is tied to that 10-12%, because they can use that to get an actual number of what the present day rental numbers are.

Mr. Marlow asked if there is a standardized formula that looks at providing educational material and its effectiveness on human comprehension. Ms. Lerner suggested that some of the large injury prevention centers such as John Hopkins have

people who spend their whole lives learning how to prevent injury and they have run numbers on how effective certain types of education are.

Chairman Adey gained the consensus that this may not be answerable by the Panel, that any answer would be speculation. Mr. Hoedt reminded them that the Coast Guard did not expect a scientific determination but rather there expert opinions. With regard to legal side of warnings and instructions, Mr. Weinstein mentioned that if you can establish that the materials are comprehensible, the risk is transferred to the person who read them and suggested the measure of effectiveness be how well is it understood by the population you are trying to seek, and if you can demonstrate that it will likely be understood then that is as far as you can go.

Mr. Marlow warned the Panel to not confuse comprehension with effectiveness. Mr. Woolley added that not all liveries are on the waters edge and some take place in a trailer in somebody's front yard. Many times when people rent, what is on their mind is to get out on the water, time is money, and they are not focusing on safety. Mr. Welti said that as a motorcycle rider, he took a motorcycle training course years ago but it still makes him a more conscientious driver today. Also, the person who rents a boat one year may buy one the next, so it's not just the renters that would be affected. Ms. De Cruz added that the Houseboat Association has 300 members and if SPIN could get the permission from California, Utah, Nevada, and Arizona, they would offer to call the livery operations with regards to houseboats.

Chairman Adey asked the Panel, if implemented, when the solution would become effective. Mr. Meddock replied with as soon as it is completed but the question is how long it would take to get completed. Mr. Hoedt responded that realistically, it would probably be over a year. From a manufacturing standpoint, Mr. Marlow added that commercial uses are not allowed in a warranty and that it is not the intent of the manufacturer to sell it for commercial use. Gaining a group consensus, Chairman Adey determined that the 2007 boating season would be when this would become effective. After discussion, Chairman Adey gained a sense of the committee on a 40% effectiveness rate as a realistic target. Mr. Woolley suggested that the brochure should have a website where someone can link to different technologies. Mr. Cappel stated that the Coast Guard is looking at creating a database of manufacturers of different propeller guards and would have to maintain it so that it could be accessed. It would tell you what is available for the various types of engines.

The Chairman asked Mr. Schmidt for an update on the number of propeller strikes on rental fleets. Mr. Schmidt said in 2002-2004, looking at the casualties occurring on rental vessels, there are really two types of boats involved, open motorboats and pontoon boats. There is not a high number in terms of injuries and fatalities but on a percentage basis, they occur more on rented pontoon boats than rented open motorboats. When you look at the year to year variation there are peaks and valleys but when you smooth it out for the years 2002-2004, 11% of the injuries and 11% of the fatalities are on rented open motorboats, on rented pontoon boats it is 39% of the injuries and 56% of the fatalities.

James Welti, a young man injured by a propeller, said there should be a requirement that the operator of a pontoon boat shut off the engine if anyone is sitting on the bow. He also recommended that propeller guards should be used because how many more people have to suffer before something is done, and added that you cannot put a cost on human life. Ms. Kopetko was not happy with putting the Houseboat NPRM on

hold. It started out as all non-planing boats, which was the way the original resolution in NBSAC started out back in 1996. Now it is just rental houseboats, which is a tiny fraction, if they included pontoons there would be larger numbers. She strongly suggested that they include pontoons, or better yet, all non-planing boats. There is no reason with the current technology it couldn't apply to all non-planing boats. The determination and definition of "planing" vs. "non-planing" is not an easy task. The pontoon boat in question would have been considered a planing boat. Chairman Adey also stated that ABYC Standard H-35 contains a labeling requirement warning of occupancy outside the railing while the boat is underway.

A discussion of different regulatory options the Coast Guard had been analyzing followed. The first option would be to require engine manufacturers to provide a selection of propeller guards as optional equipment on all new propeller driven engines sold. The Panel came up with three reasons why they could not discuss this at that point. The first is that there was a lack of a definition for a propeller guard. Secondly, the guard may not be suited for the intended use of the outboard as an engine manufacturer would have no indication of where and how that outboard is going to be used; it would be difficult for them to determine what guard should be installed. Thirdly, there is a lack of an industry standard dealing with propeller guards, installation, and use. The Chairman questioned whether they should re-open this discussion because if this group cannot take care of these items, who can. Mr. Jackson suggested that the engine manufacturers can not just offer propeller guards, but other technologies as they are developed.

Mr. Cappel clarified that the propeller guards are proposed to be offered as optional equipment. It could almost be considered a regulation to educate because a lot of boaters involved in propeller accidents say if they had known there was a propeller guard available, they would have used it. This is requiring manufacturers to put a propeller guard in the list of options that the person could get installed. Ms. De Cruz asked if the definition is an equipment standard or performance standard because in the past, it has always been described as a performance standard such as this guard should perform the following functions. From an ABYC perspective, the Chairman said that they are strictly performance-based standards. This is a common way to write standards under the American National Standards Institute Process. From a standards standpoint, it is not a quick fix, we cannot tell a manufacturer to put a guard on until it is ensured that there are companies who complied with the universal standard. Ms. De Cruz asked if there was a way to have the purchaser be able to get a pre-drilled or template to attach a guard and the aftermarket guard manufacturers would have to fit to that template. Mr. Jackson replied that the guards his company manufactures use a mounting harness that does not need drilling. It was discussed that the USCG would have to perform impartial testing before any definition or further discussion of propeller guards could continue.

Chairman Adey led a discussion of the next proposed solution: to require manufacturers of recreational boats to install ignition cut-off switches. Large inboard powered cruising vessels are not intended to be included in this rule and data analysis should indicate the boat population. Mr. Woolley asked if the NASBLA model act coincides with what ABYC has determined what an engine cut off switch is. Chairman Adey replied this is not something addressed in any ABYC standards so there are no conflicts.

In regards to most of the accidents occurring by backing into a swimmer or skier, Mr. Jackson recommended to put in ladder interlocks or any other device that will prevent the engine from starting when someone is climbing the ladder or in the propeller operating zone. This would allow for new technology that might be available in the future. Mr. McNeil warned of including larger boats and said that they need to put a size limitation on it. Mr. Cappel said that the Coast Guard looked at single occupant vessels and determined that the requirement of having a kill switch installed, coupled with the requirement to wear it, would solve the problem of at least those 25% of fatalities, but having kill switches on all vessels would probably go beyond that. He suggested that 25% would be a good starting point. The Chairman said he believed that 25% is justifiable to OMB so they do not have to go lower than that.

Mr. Garcia reminded the Panel that the reality is that most engines have had an engine cut-off switch available for the last ten years, the problem is that people are not using it. Mr. Hoedt suggested combining the strategies of the manufacturer installation and the attachment requirement. Mr. Moore said that there will be residual benefits beyond propeller injuries that would include some falls overboard or other injuries and fatalities from being ejected from the vessel and would even address some of the capsizing. Mr. Hoedt mentioned that the contract staff is aware of that and is looking into the data. Ms. Cruz added that 57% of all accidents are man overboard, so why couldn't they include that whole 57% in the benefits. In the recommendations, Chairman Adey added that the Coast Guard will investigate collateral benefits. He then asked the Panel if implemented, when this would become effective. A discussion followed and it was determined that after the regulatory process, it would be effective around June 2009.

The Chairman noted that States will not be enforcing this law and asked the Panel who has the responsibility of implementation. Mr. Woolley suggested the Forest Service and other Federal law enforcement agencies be responsible and pointed out that enforcement is going to be on Federal waterways not all waterways. The Chairman asked if the percentage difference between State run and federally run waters is known and that it is something they should know. Mr. Hoedt replied that the Army Corps of Engineers has over 1200 boat-able reservoirs. After some discussion, the Panel collectively came up with a 25% effectiveness rate. Mr. Marlow added that as you enforce, the effectiveness will go up.

The final option was to require operators of motorboats to shut off the engine when individuals in the water are within an unsafe distance from the boat. This rule could model a current State law regarding CO exposure that reads "holding onto the boarding platform, boarding deck, boarding step, or boarding ladder of the boat" and includes exceptions for vessels engaged in law enforcement or emergency rescue activity. This action offers the opportunity to significantly reduce propeller strike injuries because it impacts the major cause of such injuries. Mr. Chisholm added that one of the benefits of the ladder interlock is that you have to ensure that the ladder is stowed before you start your motor so it automatically puts someone at the back of the boat that can make sure that the swimming area is secured. There are some human behavioral patterns that are automatically adjusted with that technology.

Mr. McCormick questioned whether this could be a standard as opposed to a regulation. Chairman Adey responded that deploying a ladder and shutting the engine off is a patented process from a standards perspective, requiring a patented item would be an

issue. There is a large patent policy to go through if you want to put a patented process into a standard. It would be requiring every boat builder to put on a patented device. Mr. McCormick questioned if the patent is on the process of the ladder going down and the engine turning off, or the system of switches and components involved. Mr. Meddock clarified that it depends on whether it is a design patent or a utility patent. A utility patent would cover a process and would be difficult to circumvent; a design patent would be less difficult. The Chairman mentioned Technical Information Reports where ABYC can speak of different technologies. For Example, Ringprop is patented, they cannot write a standard on it but they can write a Technical Information Report. It would be the best place to discuss a patented item while still increasing the level of safety. Mr. Marlow added that the laws in California and Washington passed because they were not device specific. Mr. Moore cautioned that if they start getting into specifics about devices, then they might run into another cost-benefit issue. In trying to determine the expected effectiveness of the solution, the Chairman wanted to focus on the behavioral side as opposed to the mechanical. Ms. Lerner suggested putting it at 30% and explaining that they expect the compliance to increase as the awareness does.

Chairman Adey suggested that the committee recommend to NBSAC that the Coast Guard issue a grant or other means to test propeller intervention devices. Mr. Woolley suggested that the USCG just come up with a standard procedure that the equipment has to comply with and it would be up to the manufacturer to pay for the testing, similar to the PWC off throttle steering issue.

The Chairman was satisfied that they were done with the tasks they set out to do. He said that they will get into more detail at the Las Vegas meeting and expected the Boats and Associated Equipment Subcommittee to give guidance on what to do next, perhaps to have this group meet again to discuss just propeller guards and not all aspects of the problem. The group was hopeful for a second NPRM and an enhanced Houseboat NPRM with enhanced benefits and different targets. Chairman Adey adjourned the meeting at 10:50 a.m. on March 22, 2006.