

### The Charge to the Subcommittee

The subcommittee was charged to:

1. *“Review available data on prevention of propeller-strike accidents and the Coast Guard study of various methods of shrouding propellers to prevent contact with a person in the water.”*
2. *“Assess the arguments for and against some form of mechanical guard to protect against propeller strikes.”*

Ten points to be considered were identified. The first two points were:

- A. *“What is the incidence of such accidents?”* (propeller strike statistics)
- B. *“Is there a trend to more or fewer such accidents?”*

Mercury Marine misled the subcommittee by furnishing partial Event 1 fatality statistics, greatly understating propeller fatalities. Not a single accident statistic is provided in the body of the subcommittee’s final report. No efforts were made to account for injuries or unreported accidents.

No mention is made of propeller accident trends in the final report even though BARD reports of propeller strikes were rapidly increasing in that era. (see chart on **1989 part 2**)

### Recommendations of the Subcommittee

The subcommittee’s first three recommendations are below:

1. **“The U.S. Coast Guard should take no regulatory action to require propeller guards.”**
2. *“The U.S. Coast Guard should, through improved accident reporting and analysis, develop a complete and comprehensive data base on underwater impact accidents.”*
3. *“The U.S. Coast Guard should implement necessary steps to have included in national and state level educational and awareness campaigns the information regarding potential hazards associated with careless or negligent boat operation. Such programs should be on a continuing basis and be as vivid as possible in depicting underwater impact accident scenarios.”*

In 2010 USCG produced a vivid propeller strike video titled, *Don’t Wreck Your Summer*. The boating industry quickly rejected the Public Service Announcement (PSA) and had USCG take it down. The industry said the propeller strike PSA showed boating in a bad light.

### Why the Subcommittee Rejected Guards

The subcommittee notes, **“Up to 80% of underwater impacts occur at normal operating speeds.”** (this unproven Snyderism is disputed by USCG’s Purcell & Lincoln report and by BARD data).

The subcommittee report stated *“boats and motors should be designed to incorporate technologically feasible safety features to avoid or minimize the consequences of inexperienced or negligent operation, without at the same time (a) creating some other hazard, (b) materially interfering with normal operations, or (c) being at economic cost disproportionate to the particular risk.”*

Proponents of propeller guards say guards meet the requirements above. The subcommittee report said guards did not meet the requirement because:

1. Fine mesh guards are not feasible above 2-3 mph.
2. Wide mesh guards, spaced bars, or ring guards may prevent propeller cuts but cause blunt trauma injury which becomes increasingly significant at speeds over 10mph
3. **“Either guard (mask or ring type) presents an underwater profile of significantly larger frontal area, thereby increasing the chances of contact.”** (see right)
4. Ring type guards may entrap arms or legs.
5. Operators of “guard equipped” boats may have a false sense of security when approaching people in the water at slow speeds resulting in the guard striking them or entrapping a body appendage.
6. Above 10 mph, drag results in significant loss of power and speed. Increased fuel consumption is required to reach the same speeds.
7. Kort Nozzles can increase efficiency at low speeds. They are not propeller guards.
8. Water jet propulsion removes the propeller at a minimum cost of 25 percent loss of efficiency and creates handling problems.
9. No known materials can make guards or propellers “soft” to absorb energy while they still serve their intended purpose.
10. Seat belts could prevent ejections, but could result in drownings if the boat turns over.
11. Guards would have to be hydrodynamically and structurally compatible with the intended propulsion unit. Retrofitting boats in the field would require a vast number of guard models at a prohibitive cost.
12. Waterskiing and Swimming are activities and do not describe boat types. Boats are multipurpose which prevents the use of an Off-On guard. If guards were removable, they would be removed which could result in overpowering a boat.

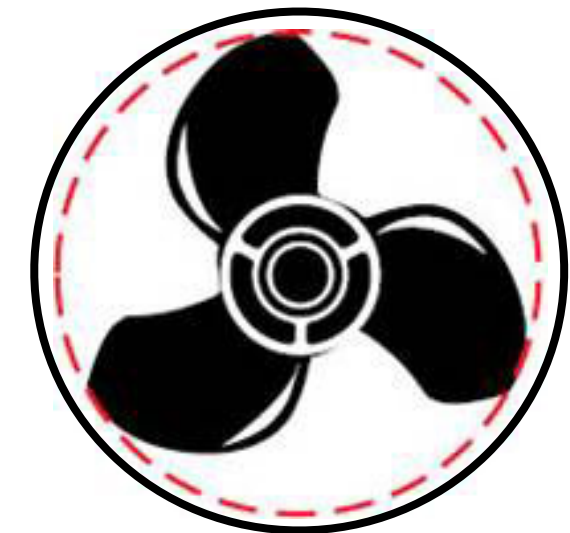
### Cross Sectional Area

The NBSAC propeller guard subcommittee emphasized guards could strike people that might not have been struck by the open propeller due to their larger cross sectional area. They said blunt trauma from striking guards could be worse than the clean cuts made by open propellers.

No testing was performed to prove this, or to prove it was even possible to be within the narrow donut shaped area between the propeller blade tips and the propeller guard and not be sucked into the propeller anyway.

The subcommittee report stated, *“Due to its revolutions, a propeller generally produces a series of evenly spaced cuts which are relatively easier to repair surgically.”* (another unproven Snyderism). No mention was made of those who bled out from propeller strikes and drowned, of water borne bacterial infections of propeller wounds, of dozens of surgeries over decades sometimes required by propeller victims, or of the lifetime of challenges faced by amputees.

The subcommittee said adding a propeller guard could triple the forward facing cross sectional area of the propeller (black circle vs red dashed circle below). That is only close to true when the propeller is stationary and blade tip clearance is extreme.



Today, the industry mounts several very large outboards on boats with no concern for submerged cross sectional area. See the large Mercury outboards below.

