

From the Archives – *I recently came across this article that I wrote in 1994. I certainly did have strong feelings on regattas where vessels might be subjected to one another's wake. Isn't it true that in our sport we are trying to measure a skipper's skill in navigational precision and accuracy, not his boat's susceptibility to wakes. When the instructions for a contest cause two boats that happen to predict approximately the same speed to end up dogging each other over the entire course, what does that prove?*

WAKE DAMAGE

By Tom Collins

The rules of the road state that a skipper is responsible for damage caused by his wake. This presents an interesting question. Does that apply to damage to cruiser navigation scores too? It should! From my point of view, the effect of a wake can affect a log racer's score far more than even that of a strong undetected current.

Let's evaluate the physics of the wake. It consists of a sequence of waves that spread out in a somewhat complex form behind the offending vessel enclosed within an area encompassing an angle of 19-1/2 degrees either side of the course track. These waves appear to follow at exactly the speed of the offender and have a trough to crest height that varies according to the displacement and speed of the offender.

So what happens to another vessel that ventures into the significant area of the offender's wake? If the offender is moving slightly faster than the vessel, the vessel will fall back into the wake where, even though the RPM may be held constant, its slip will be reduced and it will pick up speed as it surfs down the front side of the wake. If the offender is moving slightly slower, the vessel will climb the back side of the wake until its propeller slip increases to the point where the vessel slows down to a speed which exactly matches that of the offender. The net result is that the vessel's speed will adjust to that of the offender. Not a nice thing to do to a log racer's score.

What to do? Avoid wakes at all costs. Do not be complacent to remain in someone else's wake. Take affirmative action. Use the dog leg maneuver to jog out of any significant wake from a vessel. If you don't know the amount of dog leg correction to apply, simply move over while maintaining the same fore and aft spacing from the offender. Be sure you move over far enough to get entirely free

of the wake. Keep in mind the 19-1/2 degree rule when judging the location of the wake. When approaching a mark or other course consideration that requires you to jog back behind the offender and into its wake, again adjust the spacing to be the same as that just before the jog. But if you intend to allow your boat to spend any length of time in the wake, then you really should determine the offender's speed and submit your next predicted log using that value. Then you ought to get the same score he does.

In summary, few other things you can do to improve your score can be as effective as wake avoidance. Use the dog leg correction or the constant distance jog; or get the race committee to use an open start time provision that allows vessels to run in clean water where only the contestant's skill in navigation is measured. Not your vessel's susceptibility to wake damage.

Footnote: In order to evaluate the potential wake damage, I consulted with Gene Grant, one of the early masters of our sport, to determine the effect of a wake on a 40' boat from a 40' offender running at 11 knots. The maximum differential entrapment speed is a function of a number of factors including the height of the wake, and the displacement and propeller slip of the following vessel. He determined that at a distance of ten boat lengths (400'), the equivalent force (accelerating or decelerating) against the vessel due to the offending wake would be approximately 200 pounds. The typical propulsion force for such vessel at 11 knots is 4000 pounds. Therefore, it can be seen that the effect of a wake on a 40' vessel following ten boat lengths behind an offender could affect the speed by as much as five percent, depending on their different baseline speeds. Further, the 400' trailing vessel in this example would have to move sideways at least 55 yards to clear the area of significant wake. Not an insignificant amount.