	<p>HEALTH, SAFETY, ENVIRONMENT AND QUALITY MANAGEMENT SYSTEM</p> <p><b>30.0 SPEED THROUGH WATER IN ARPA RADAR</b></p> <p>ON THE JOB TRAINING</p>	<p>OJT : 030  Page : 1 of 3  Date : 07-Nov-25  Rev : 10.1  Appr : DPA</p>
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VESSEL : \_\_\_\_\_

DATE : \_\_\_\_\_

### Details of Training: Why speed through water is used in ARPA for collision avoidance purposes

**Speed Over the Ground (SOG) or GPS speed** is the speed of the vessel relative to the surface of the earth.

**Speed through Water (STW) or Log speed** is the speed of the vessel relative to the water. Current has nothing to do with speed through water. Irrespective of how much current you have, the speed through water will remain same.

### **Speed through water for collision avoidance purposes**


COLREGS Part B Section II Rules 13 (overtaking), 14 (crossing) and 15 (head-on) are based on the **aspect** of vessels in sight of each other and not on how the two vessels are moving relative to each other.

Let us take a situation for GPS/Ground speed input in Radar/ARPA. Your vessel is moving on a true course of 000 Deg. You have another vessel right ahead on a course of 180 Deg. There is strong easterly current and because of that your vessel is making good a course of 040 Deg. Other Vessel is making good a course of 140 Deg. Your radar screen would look something like this:

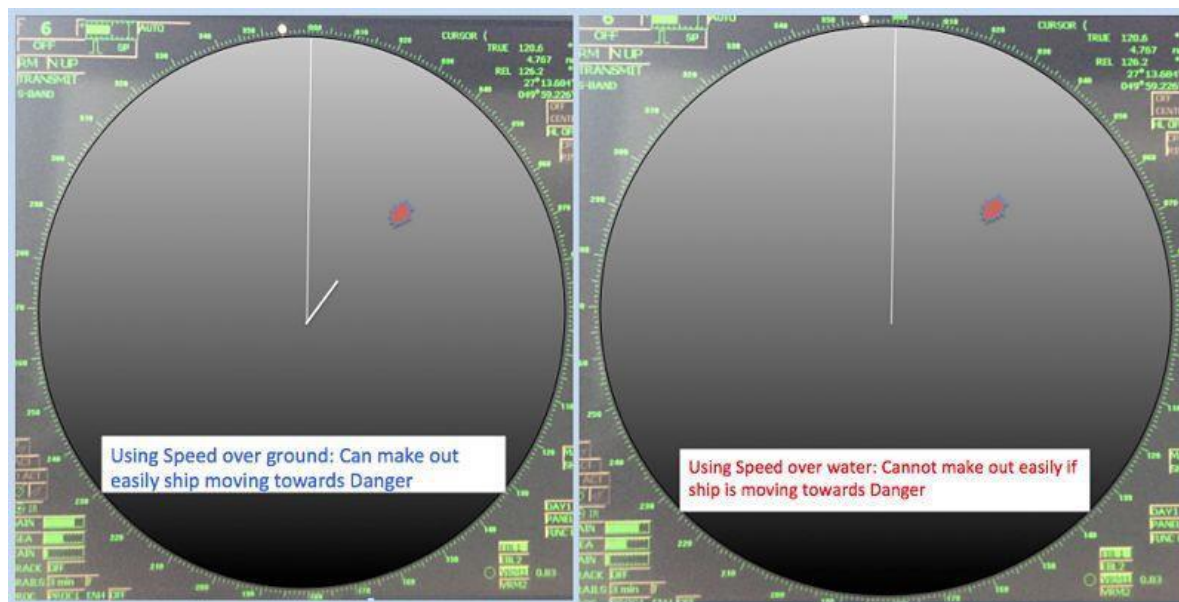


If there is risk of collision, what action will you take and under which rule?

Navigators need to use both speed through the water as well as speed over ground judiciously. Speed through the water is only required to be used for collision avoidance and not necessarily for navigation or conning purposes.

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By using speed over ground and true vectors, a navigator is more aware of the situation than otherwise. For example, if the ship is drifting towards a danger, the navigator will have a clearer indication of this if they are using speed over ground in the radar. This is because with speed over ground, a radar will show a vector of course made good (note that the vector needs to be selected as 'true' and not 'relative' in this case).



As you can see in the above, with speed through the water, the navigator may get an impression that their ship is passing clear of the danger when in actual fact, it may be drifting towards the danger.

Navigators should use both the speed through the water and speed over the ground to their benefit and as a tool to better navigation.

### Above read and understood

CO \_\_\_\_\_

2O \_\_\_\_\_

X2O \_\_\_\_\_

3O \_\_\_\_\_

D/C \_\_\_\_\_

### Verified by Master

Master: \_\_\_\_\_