

# *Prevention of Collision at Sea*

## Lights! Camera! Action!

by Vincent Pica - District Captain, Sector LI Sound/South, D1-SR • U.S. Coast Guard Auxiliary

More than once you have probably gone out for an afternoon and found yourself coming back in the dark. It can be unnerving if you don't know how to interpret the rising lights. So, let's focus on those rules that govern – Rules 20 – 31. We'll get started with Rules 20 – 22.

Rule 20 says that all the rules in the "Lights and Shapes" Section of the Rules of Navigation are governed by a few common factors and that you need to see each separate rule for specific matters as they relate to the vessel or circumstances.

### Rule 20 – Rules Common to All

Rule 20 is quite simple. It says that Rules 21-31 all shall comply with the following common factors:

1. Use your lights from sunset to sunrise and in times of restricted visibility (implying foul weather of course).

Use no other lights at that time unless you are sure that there is no way that they can be mistaken for the lights spelled out in this section – or won't impair their visibility or distinctive character. (Now you know why there are no headlights on a boat – try finding red and green side lights while staring into headlights!)

From sunrise to sunset, regardless of visibility, vessels shall exhibit "shapes" (another column coming!) that conform to the "lights" that would be used for night/foul weather.

So, what are the specifics beyond that..?

### Rule 21 – What Does It Say?

Rule 21 specifies what a masthead light is – a white light placed fore and aft of the centerline of the vessel. It shows an unbroken line over an arc of the horizon of 225 degrees and so fixed that it can't be seen if you are more than 22.5 degrees abaft the beam of the vessel. Abaft? Seaman-speak for "behind." So, if you see a vessel ahead and you can see a side light (red or green) and a white light above and behind it, it is a crossing situation and you are not more than 22.5 degrees "abaft" her beam. If all you can see is a white light, it is her stern light (keep reading) and you are overtaking her – or it is her anchor light (try not to hit her!)

Just what is 225 degrees? Extend your arms and pretend you are a jet plane about to take-off. That angle, from your right hand, up your arm, across

your chest and down your left arm to your other hand... for most people is roughly 225 degrees. You get the picture.

Rule 21, having described what a mast light is, goes on to describe "side lights" – those red and green lights. Green goes on the starboard side and red goes on the port side. Which side is port? "There is no RED wine LEFT in the bottle of PORT." For the numerically advanced, these lights exactly cut the mast light's "arc of horizon" in half. Each light shall show her colors over an unbroken arc of 112.5 degrees ( $112.5 \times 2 = 225$ ) and also can't be seen if you are more than 22.5 degrees abaft the beam of the vessel. Take your jet wings and have one arm point straight ahead while holding the other at "take-off" position – 112.5 degrees.

You might say to yourself, "Wait. I don't have two lights on the side of my boat. I have one on the bow, which is half green and half red." Exactly, Bunky. Under 20 meters, you can combine these side lights into one "lantern carried on the fore and aft centerline of the vessel."

Continuing to move aft on the boat, the rule then defines the "stern light" – a white light placed as nearly as practical at the stern showing an unbroken light over the horizon of 135 degrees and fixed so you can't see it if you have moved forward more than 67.5 degrees from the stern. And just what is 135 degrees? Pretend you are a jet plane again. That angle, from your right hand, across your back and to your other hand... for most people is roughly 135 degrees. And  $225 + 135 = 360$  degrees. You get the picture.

And what's with the 67.5 degrees? That is to ensure you can tell when you are behind the target vessel ( $67.5 \times 2 = 135$  degrees or from the spine of your jet plane to either hand) or crossing her. Lastly, for the math geeks and those that love the hidden zen of the sea – 112.5 degrees from the bow and 67.5 degrees from the bow = 180 degrees (the full side of your boat, from stem to stern).

Rule 21 finishes with some more simple definitions and so shall I. A "towing light" is just like your stern light – except it is yellow. An "all-around light" is, you guessed it, a light that exhibits an arc of horizon of 360 degrees (combining the mast light and stern light into one which is common and permitted on smaller vessels). A "flashing light" is a light that flashes 120 times (or more) per minute. These are

thus "defined terms." (There is actually one more defined term in Rule 21 – a "special flashing light" which is just like your mast light – except it is yellow and flashes 50-70 times per minute...)

### Rule 22 – What Does It Say?

Rule 22 is very straight forward. It says, by USCG specifications, lights must be visible at the following distances – on a fair night presumably. If the weather is foul, both you and the approaching vessel will be a lot closer when you first see each other.

Light	Vessel Length (meters)	Visibility
Masthead	<12	2 miles
	12 – 20	3 miles
	20 – 50	5 miles
	50 – >	6 miles
Side Light	<12	1 miles
	12 – 50	2 miles
	50 – >	3 miles
Stern, including all-around and towing lights	<50	2 miles
	50 – >	3 miles

Happily, manufacturers adhere to these specs maniacally – but be wary if you pick up something "off market" or even from older vessels where specs may have been different. BTW, want to convert meters to feet easily? Multiple the meters by 3 – then add 10% of the answer back on top and you are within inches.

20 meters x 3 = 60;  
 $60 + 10\% (6) = 66$  feet by Capt'n Vin  
65 ft and 7.40157 in by the International System of Units

Off by 4 ½ inches... close enough?

Until next month...

BTW, if you are interested in being part of USCG Forces, email me at [JoinUSCGAux2010@aol.com](mailto:JoinUSCGAux2010@aol.com) or go direct to John Blevins, who is in charge of new members matters, at [FSO-PS@emcg.us](mailto:FSO-PS@emcg.us) and we will help you "get in this thing."