

## ‘Conflicts in Inshore Waters’ – A Yachtsman’s View

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DISCUSSION. Cdr Booth’s paper, ‘Conflicts in Inshore Waters’,<sup>1</sup> was interesting and, as he said in his introduction, provocative. It may, however, have been rather more provocative than he intended, as some of his conclusions are far from moderate: excluding small craft from the channel between Southampton Water and Warner buoy, for instance, could – depending on the precise limits of the channel – effectively cut off the Isle of Wight harbours of Bembridge, Seaview, Ryde, Wootton and Cowes from the mainland harbours of Portsmouth, Titchfield Haven, Hamble River, and Southampton.

Before going on to present comments, counter argument, and some ideas which I hope will be considered constructive, it is only fair to admit my own vested interest. As a Yachtmaster Instructor, former professional yacht skipper, and now a yachting journalist, I regard myself as part of the yachting industry – taking ‘yacht’ in the broadest sense of the word, to include power-driven and human-propelled craft as well as sailing vessels.

It is an industry that directly employs approximately 20 000 people nationwide, with some 400 businesses in Hampshire alone dependent on yachting as their main or only source of income. Many others – including hotels, restaurants, estate agents, PR consultants and ferry companies – derive part of their income from recreational boating.

Assuming Cdr Booth’s estimate of 30 000 pleasure craft on the Solent to be correct, it is not unreasonable to estimate that Solent yachting alone contributes something in the order of £25 million to the exchequer every year in VAT.

Expenditure on boat ownership is entirely voluntary, and could easily be diverted to other ends, such as holidays abroad, second homes, or private swimming pools. Anything that makes boating less attractive or less attainable therefore jeopardizes the marine industry, and the employment and revenue it generates.

Unpalatable as they may be in this respect, Cdr Booth’s proposals for zoning, segregation, registration and ‘hardened-up’ collision regulations might be nevertheless acceptable if they were likely to make a significant contribution to safety in general. I cannot, however, accept that they would, because I believe there are a number of flaws in his argument.

1. *‘It is inconceivable... that a small vessel should be allowed to put a commercial vessel at any risk.’*

I know of no case in which a ship has sustained significant damage as a result of an encounter with a yacht. For the yacht and its crew, by contrast, a collision with a ship would certainly be expensive, and could prove fatal.

It must therefore be presumed that his argument assumes that the ship might endanger herself by attempting some avoiding action. This possibility, however, appears unlikely.

Rule 17b<sup>2</sup> states that ‘When... the vessel required to keep her course and speed finds herself so close that collision cannot be prevented by the action of the give way vessel alone, she shall take such action as will best avoid a collision’.

In a ship–yacht encounter in which the ship is the stand-on vessel, then by the time it is too late for the yacht to take effective avoiding action, there is nothing the ship can

do about it. If, however, the ship is the give way vessel, then by the time 'collision cannot be prevented by the action of the give way vessel alone', the yacht may still be able to take its own avoiding action. Even if the yacht's skipper is not aware of the precise wording of Rule 17, his instinct for self-preservation will force him to obey it, if it is possible to do so.

2. '*... a commercial vessel*'?

At several points in his paper, Cdr Booth refers to 'a commercial vessel'. It is interesting to ponder the implications of this in the light of a few examples. Consider a power-driven vessel of modest size – say about 100 ft – plying for hire on sight-seeing trips. It has a small professional crew, but most of those on board are there purely for pleasure. Compare it with a charter yacht, with a professional skipper and five paying crew on a sailing holiday. Which is the commercial vessel?

Or compare the QE2 with a maxi racing yacht. The QE2 is manned by a handful of professional seamen, but most of her ship's company are employed in running the ship's hotel services for the benefit of holiday-makers. The maxi yacht, on the other hand, may well be manned entirely by professional yachtsmen, and operated primarily to further the commercial interests of her sponsors.

Any rule aimed at giving commercial craft rights of way over pleasure craft would somehow have to take account of the difficulty of assessing the degree of commercialism of one vessel from the bridge/wheelhouse/cockpit of another. In this context, it is worth noting that there are already a great many vessels which are externally indistinguishable from private pleasure craft, but which are defined as 'commercial' by the Department of Transport.<sup>3</sup> These include the charter yacht in the example above.

3. '*The international rules work well where commercial craft with qualified masters are concerned*'

James<sup>4</sup> suggests that in approximately 90 percent of potential collision situations, the giveaway vessel takes responsibility for collision avoidance, but that in the remaining 10 percent, the vessel that is supposed to stand on is the first to take avoiding action. As James's paper refers only to the actions of qualified officers, this tends to refute the statement that 'The international rules work well where commercial craft with qualified masters are concerned' – unless, of course, one regards a 10 percent failure rate as acceptable.

One may sympathize with the feelings of the Master of a large ship in congested waters, faced with a large number of yachts moving in apparently random directions. Masters' subjective opinions, however, are inadequate evidence to support the proposition that yachtsmen are ignorant of the rules.

It may be true that few yachtsmen know much about the handling characteristics of different types of ship, but that is irrelevant unless we are also to criticize ships' Masters for not being familiar with the handling characteristics of a small trawler, or of a ketch sailing under spinnaker and mizzen staysail. It must be the responsibility of each individual Master and skipper to navigate within the constraints imposed by his own vessel, rather than to second-guess what might be influencing the decision-making process of others.

Boating is not a cheap pastime, and by its very nature tends to appeal most to those of a reasonably high intellectual calibre. Most yachtsmen, therefore, have to be in occupations that require responsible decision-making, in order to finance their boating; and can be expected to read widely and think carefully about their hobby. They are unlikely to suddenly become reckless, foolhardy, or ignorant when they put to sea.

A clue to the reason why some masters may genuinely believe that yachtsmen do not know the rules has appeared in several papers in this Journal,<sup>5,6, *inter alia*</sup> in which it is

suggested that mariners prefer to operate in such a way that a 'domain' around their ship is never entered by another vessel, and that any give-way action required to preserve the integrity of the domain should take place before the other vessel has crossed the boundary of a larger area, called the 'arena'. It is further suggested that the size of the arena is partly dependent on the rate at which the range is closing. Thus the decision as to *whether* avoidance action is required depends upon an individual's assessment of the size of his domain, and the decision as to *when* action is required depends on his assessment of his arena.

The master of a large vessel is likely to have a large domain and arena. The skipper of a small and relatively manoeuvrable vessel, by contrast, can be expected to have a small domain and arena. Typically, I suggest, a yacht's 'arena' (in a yacht-yacht encounter in daylight) may have radius in the order of 100 m. When a large ship encounters a cluster of yachts, the Master may well feel that by the time the range has closed to 2 miles, the yachts should already have cleared his path. Each individual yacht skipper, however, is more immediately concerned with avoiding other yachts that are already near the boundary of his arena.

4. *'I draw an analogy with the airmen. A private pilot in a private aeroplane is not allowed into the airways.'*

I understand from aviators that this is not strictly true, but in any case it is a false analogy, because it neglects both the size of controlled airspaces, and the all-important third dimension.

The Air Traffic Zone around a typical civil airfield has a radius in the order of 2 miles, so flying round it, rather than through it, entails a detour of about 4.3 miles, or about 2 minutes flying time. As I understand it, Cdr Booth's proposed 'high risk zone' is shaped like three sides of a quadrilateral, roughly ten miles east-west and three miles north-south. Going round it would extend the 5-mile passage between Portsmouth and Wootton by about 11 miles – or almost 3 hours – for a typical sailing yacht, even in favourable conditions.

The third dimension is important because even the approach sector 'pan-handle' of a Military Air Traffic Zone does not constitute an impenetrable barrier: private aircraft can always fly under or over it.

5. *'Harbour authorities are not always seen in the most favourable of lights by the recreational sailor.'*

This is undoubtedly true, and sometimes justified. Complaints range from inconsiderate or incompetent boat-handling by harbour staff to a more worrying tendency for some harbour authorities to place themselves outside or above the law. A minor but surprisingly common example of this is the use of blue flashing lights on harbour launches, apparently in contravention of Rule 36.<sup>2</sup> More serious examples include notices intended to mislead yachtsmen into believing that bye-laws exist when they do not, and even instances in which Harbour Masters have attempted to prosecute skippers for 'breaking' rules which they were not empowered to make.<sup>7</sup>

A particular cause for concern is that although many Harbour Masters are employees of commercial enterprises, they have considerable legal powers to control other people's activities over substantial bodies of water. It is not difficult to envisage situations in which the overzealous application of those powers might be of direct commercial benefit to their employers, whilst acting to the detriment of vessels or other commercial concerns in the vicinity.

Whenever such a Harbour Master seeks to extend the geographical area he controls, or to impose additional restrictions on vessels using the harbour, I believe his motives should be subjected to the most rigorous scrutiny.

## CONSTRUCTIVE SUGGESTIONS

1. *Discourage passing 'green to green'*

It is reasonably easy to apply the collision regulations in open water, where all the vessels concerned are likely to be maintaining more or less constant courses. The problems that arise inshore are caused partly by the density of traffic, and partly by the fact that all vessels are likely to be making frequent alterations of course.

Unexpected alterations cause the greatest problems, and in this respect I believe the common practice of passing 'green to green' should be strongly discouraged. It is not sufficient for the masters of the ships concerned to confirm the manoeuvre with each other by VHF, because yachts in their vicinity are likely to be planning their avoidance strategy on the basis of normal practice, rather than on some private arrangement of which they are unaware.

2. *Encourage the use of proper sound signals*

Living within earshot of Southampton Water, I hear a great many different sound signals, few of which feature in the collision regulations.<sup>2</sup> Of those that do, by far the most common is five short blasts.

Ships' Masters can hardly accuse yachtsmen of not understanding manoeuvring signals when they do not use them correctly, and should be aware that if yachtsmen knew what a ship was likely to do in advance they would be better able to take appropriate action. As an instructor, I find it difficult to convince students of the importance of understanding sound signals when their personal experience is that ships seldom use them.

3. *Encourage the use of larger day shapes*

The minimum dimensions for day shapes required by the collision regulations<sup>2</sup> are not related to the size of the vessel, except in the case of vessels under 20 m in length. Thus a 300-m ship may claim the rights accorded to a vessel constrained by its draft by displaying a cylinder 0.6 m in diameter and 1.2 m high. At a range of 1 mile, a cylinder of that size looks no bigger than a full stop in a page of this *Journal* at 0.5 m! It may be smaller in diameter than the mast from which it is suspended, and may be displayed anywhere on the vessel.

4. *Encourage suitable standards of design and construction*

To cite a single example: some container ships have twin propellers but only one rudder. Without the propeller wash flowing across the rudder, this means that the ship has to be moving fast through the water in order to maintain steerage way. It could be argued that in some instances, this makes it impossible for the Master to conform to rule 6<sup>2</sup> (safe speed).

It is also common practice for containers to be stacked so high on deck forward of the bridge that conformity with Rule 5<sup>2</sup> (lookout) and IMO guidelines on the visibility from navigation bridges<sup>8</sup> is questionable. So a laden container ship entering the Solent could be compared to a lorry driving through a town centre at 40 mph, with a defective steering system, and with a wardrobe strapped to the bonnet!<sup>9</sup>

Where the design, construction, or loading of an individual vessel make it impossible for her to be navigated in accordance with Rules 5, 6, and 13, I submit that she is unseaworthy, and that Harbour Masters and other authorities should use their existing legal powers to control her activities in waters or conditions in which she constitutes a hazard.

In some areas, this is already the case: the *Port of London Authority Handbook*,<sup>10</sup> for instance, draws attention to the requirements of M1264<sup>8</sup> and warns that 'failure to comply could result in the vessel being delayed until adequate visibility is achieved'.

5. *Encourage an awareness of shallow water interaction effects*

Masters of ships have often complained that small craft tack right under their bows,<sup>9</sup> or that they fail to appreciate the wind shadow produced by a ship.

I suggest that most sailing yachtsmen are well aware of the fundamental characteristics of their motive power, but that there is little a yacht skipper can do to minimize the effects of wind shadow if a larger and faster vessel passes close to windward.

There may, however, be a general lack of awareness (amongst yachtsmen and Masters alike) of the shallow water interaction between vessels. M930<sup>11</sup> draws attention to this, as does the *Admiralty Manual of Navigation*.<sup>12</sup> The latter, for instance, says 'Do not navigate in shallow water at high speed, particularly if in close company with other ships', and says that 'more than normal interaction or shallow water effect' may be noticed when:

$$\text{depth (m)} = \text{speed (knots)} \times 0.17 \sqrt{\text{Displacement (tonnes)}}.$$

Thus a 1000 ton vessel in 5 m would create noticeable interaction effects at 3 knots. For a 50000 ton vessel in 20 m the effect would be apparent at 2 knots.

Interaction effects, it says, may be noticed over several hundred metres; in addition, the *Admiralty Manual of Seamanship*<sup>13</sup> points out that the magnitude of the interactive forces is proportional to the square of the speed. Thus the forces created by the 50000 ton vessel in 20 m will be 64 times as great at 16 knots as at 2 knots.

The effect of interaction when a ship passes close to a yacht is far more pronounced on the yacht than on the ship, because of the yacht's smaller mass. If the ship is overtaking the yacht on a parallel course, the initial effect is to push the stern of the yacht away from the ship – turning her bows onto a course convergent with that of the oncoming vessel. This is followed by an attractive force, pulling the two vessels together: thus the overall appearance is of the yacht altering course and driving into the ship.

The turning effect of interaction was cited as a probable factor in the collision between *Marchioness* and *Bowbelle*.<sup>14</sup> This incident concerned a 272 ft ship making 8 knots through the water in a depth of about 8 m, overtaking an 85 ft vessel making about 6 knots through the water. This could be analogous to a 100 ft ship overtaking a 30 ft yacht in 4 m of water – a very common situation in the Solent.

Where there is a very large disparity between the size or speed of the two vessels, however, it seems likely that the turning effect is much less significant: the dominant factor is the attractive force, which pulls the yacht into the side of the ship and holds it there until it is pushed clear by the pressure wave around the ship's stern.

CONCLUSIONS. Having kept a boat in Portsmouth Harbour for seven of the past seventeen years, I have nothing but respect for the way that harbour is managed, and for the considerate manner in which QHM exercises his considerable powers.

In some areas, restrictions to pleasure craft activity may be necessary, but I believe harbour authorities should guard against unduly tight 'zoning', which may increase the risks of collisions by concentrating large numbers of vessels into small or inappropriate areas; and against the introduction of local rules which could be construed as contradicting the collision regulations.

The argument that the collision regulations should be 'hardened up' – essentially because it is not always commercially expedient to design, build, or operate ships in a manner that does not endanger small craft – is, I believe, untenable, and runs counter to the principle expressed by the Appeal Court following the collision between the *Princess Alice* and the *Bywell Castle* in 1878.<sup>15</sup> The court said 'A ship has no right by its own misconduct to put another ship into a situation of extreme peril and then charge the other ship with misconduct.'

Moreover, I think it should be accepted that the geography of the Solent, and the density and variety of traffic using it, make the area a special case: the problems in the Solent do not, therefore, justify changes to rules intended for wider application.

There is, however, room for improved liaison between shipping interests and the small craft fraternity, which might lead to a better understanding of each other's problems.

In this context, and in particular when specific conflicts arise, I believe it is important to guard against the assumption that the qualified Master is always right and the yacht skipper is always wrong. The tendency to believe that 'might is right' is not confined to the Solent, nor to incidents between ships and yachts: the Marine Accident Investigation Branch report on the collision between the *Marchioness* and *Bowbelle*<sup>14</sup> says: '...all the operators of the larger vessels in the Thames thought that the problems revealed by those (prior) incidents resulted almost entirely from the manner of operation of the passenger launches, so that they had less regard than they might have done for the contribution made by their own ships.'

## REFERENCES

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## KEY WORDS

1. Small boat navigation.
2. Safety.
3. Vessel traffic services.
4. Collision avoidance.