

IN THE COURT OF APPEAL OF THE REPUBLIC OF SINGAPORE

[2023] SGCA 20

Court of Appeal / Civil Appeal No 45 of 2022

Between

Owner of the vessel
“NAVIGATOR ARIES”

... Appellant

And

Owner of the vessel “LEO
PERDANA”

... Respondent

In the matter of Admiralty in Rem No 170 of 2016

Admiralty Action in rem against:

the vessel “LEO PERDANA”

Between

Owner of the vessel
“NAVIGATOR ARIES”

... Plaintiff

And

Owner of the vessel “LEO
PERDANA”

... Defendant

In the matter of Admiralty in Rem No 204 of 2016

Admiralty Action in rem against:

the vessel “NAVIGATOR ARIES”

Between

Owner of the vessel “LEO
PERDANA”

... Plaintiff

And

Owner of the vessel
“NAVIGATOR ARIES”

... Defendant

JUDGMENT

[Admiralty and Shipping — Collision]

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The “Navigator Aries”

[2023] SGCA 20

Court of Appeal — Civil Appeal No 45 of 2022
Judith Prakash JCA, Steven Chong JCA and Belinda Ang Saw Ean JCA
3 April 2023

7 July 2023

Judgment reserved.

Steven Chong JCA (delivering the judgment of the court):

Introduction

1 This appeal concerns a collision in the Surabaya Strait, Indonesia (the “Strait”) between two vessels travelling on reciprocal courses. The appellant’s vessel, the *Navigator Aries* (the “NA”), is a liquefied petroleum gas (“LPG”) tanker with a gross registered tonnage of 18,311mt. The respondent’s vessel, the *Leo Perdana* (the “LP”), is a container vessel with a gross registered tonnage of 27,104mt. The collision occurred just before midnight (local time) on 28 June 2015. The impact left both vessels badly damaged, with a fire breaking out on the NA.

2 The trial of a collision case between two large vessels underway typically generates considerable evidence, both factual and expert, and documents. This was the case here although the material events were largely focused on the last few minutes leading up to the collision, with the last minute proving to be the most critical. Right up to the last minute prior to the collision,

the bridge on each vessel was relatively calm. Both vessels were under compulsory pilotage and it appeared that they were confident of safely passing each other port-to-port as agreed.

3 About a minute prior to the collision, the *LP* experienced a significant sheer to port onto the path of the *NA*. The *LP* attempted to use her Very High Frequency (“VHF”) radio to inform the *NA* that her “steering [was] not responding”. Shortly thereafter, the *NA* noticed the sheer and took avoidance action by altering hard-to-starboard, but the collision could not be avoided.

4 The High Court judge (the “Judge”) found that the proximate cause of the collision was the port sheer of the *LP*. In turn, the sheer resulted from hydrodynamic interaction between the *LP* and a bank lying on her starboard side – a phenomenon known as “bow cushion effect”. These findings are not disputed by the parties on appeal. The outcome of the appeal largely depends on the proper attribution of fault for the occurrence of the port sheer. Key to this inquiry is whether the *LP* knew or ought to have known some time before the above VHF communication (at [3] above) that some hydrodynamic force was already in play which impeded her ability to respond to helm action. This in turn would have a crucial bearing on the propriety of the actions or omissions of those onboard the *LP*.

5 Both vessels, not unexpectedly, provided drastically different accounts of the events leading to the collision. However, both vessels were equipped with navigational aids where important data was contemporaneously recorded. As we will explain below, this data, which embodied vital objective evidence of the events onboard both vessels leading up to the collision, was most helpful in our analysis of the relative faults of both vessels.

6 The Judge apportioned liability at 70:30 in favour of the *LP*. After careful examination of the evidence, for the reasons set out below, we disagree with the Judge and hold that both vessels were equally to blame for the collision, and accordingly, apportion liability at 50:50.

7 This case also offers an opportunity for us to clarify the proper interpretation of Rule 9(a) of the International Regulations for Preventing Collisions at Sea 1972 (the “COLREGS”), which both vessels allegedly breached. The COLREGS have been incorporated as the collision regulations for the purposes of the Merchant Shipping Act (Cap 179, 1996 Rev Ed), pursuant to reg 3 of the Merchant Shipping (Prevention of Collisions at Sea) Regulations (Cap 179, Rg 10, 1990 Rev Ed). In particular, we will examine whether Rule 9(a) should be interpreted in a manner which is consistent with or different from its predecessor provision, *ie*, Rule 25(a) of the International Regulations for Preventing Collisions at Sea 1960 (the “1960 Collision Regulations”).

Background facts

The vessels

8 The *NA* is an LPG carrier registered in Surabaya, Indonesia. She is about 160m in overall length and 25.6m in breadth (beam). She was carrying about 59 tonnes of LPG at the material time, and indicated that she was carrying dangerous cargo by displaying an all round red light (in addition to the regulation masthead lights, sidelights and sternlights that both vessels were displaying). Her drafts at departure were 5.5m forward and 6.2m aft.

9 The *LP* is a fully cellular container ship flying the Panama flag. She is the larger of the two vessels, measuring about 200m in overall length and 32.2m

in breadth (moulded). She was laden with containers weighing around 17,200mt at the material time. For reasons that will become clearer later (at [66] and [170] below), it is relevant to note that the *LP*’s drafts at departure were 8.54m forward and 8.65m aft.

10 The primary means of position monitoring on both vessels were actual Standard Nautical Charts (SNC), and not Electronic Chart Display and Information System (ECDIS). Both vessels were using the British Admiralty Chart No 975 (26 April 2012 edition) (“BA Chart 975”) of the Strait.

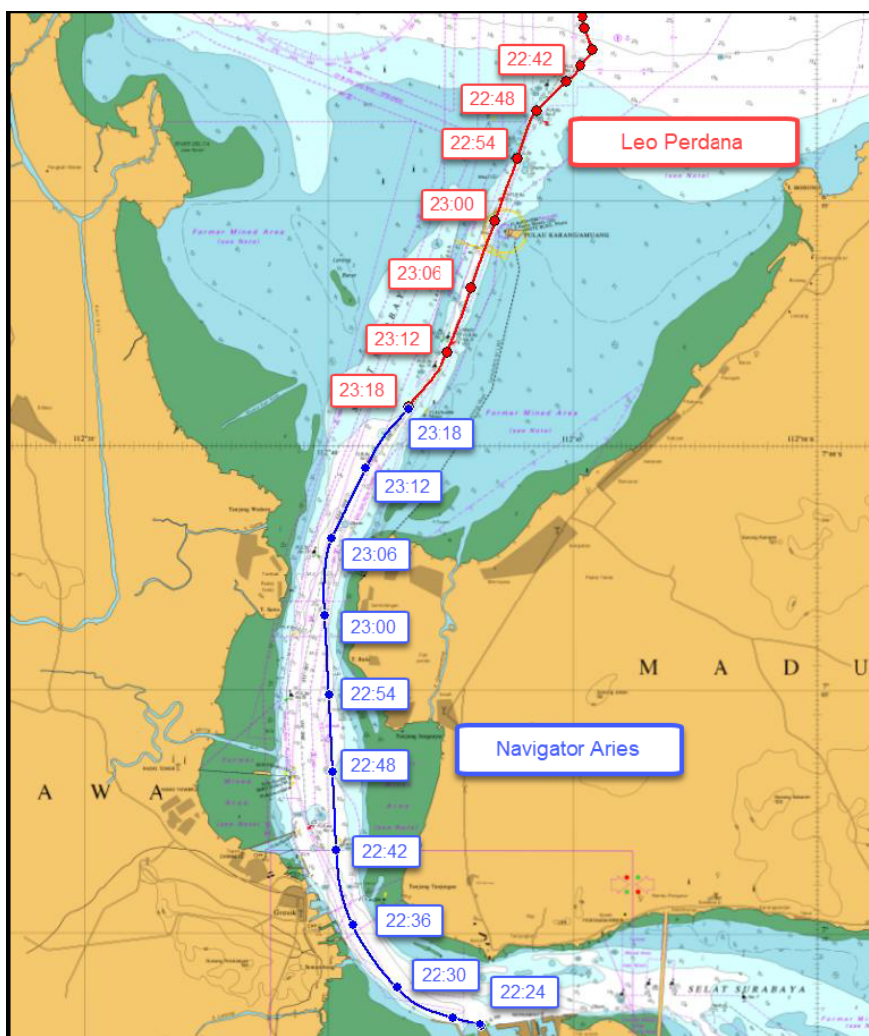
The vessels’ voyages

11 The collision occurred within the Strait, which is approximately 50nm long and passes between the northeast coast of Java and the island of Madura. Within the Strait, the weather was good and visibility was about six miles. There was a northerly current associated with the ebbing tide, which was about 1.22m high.

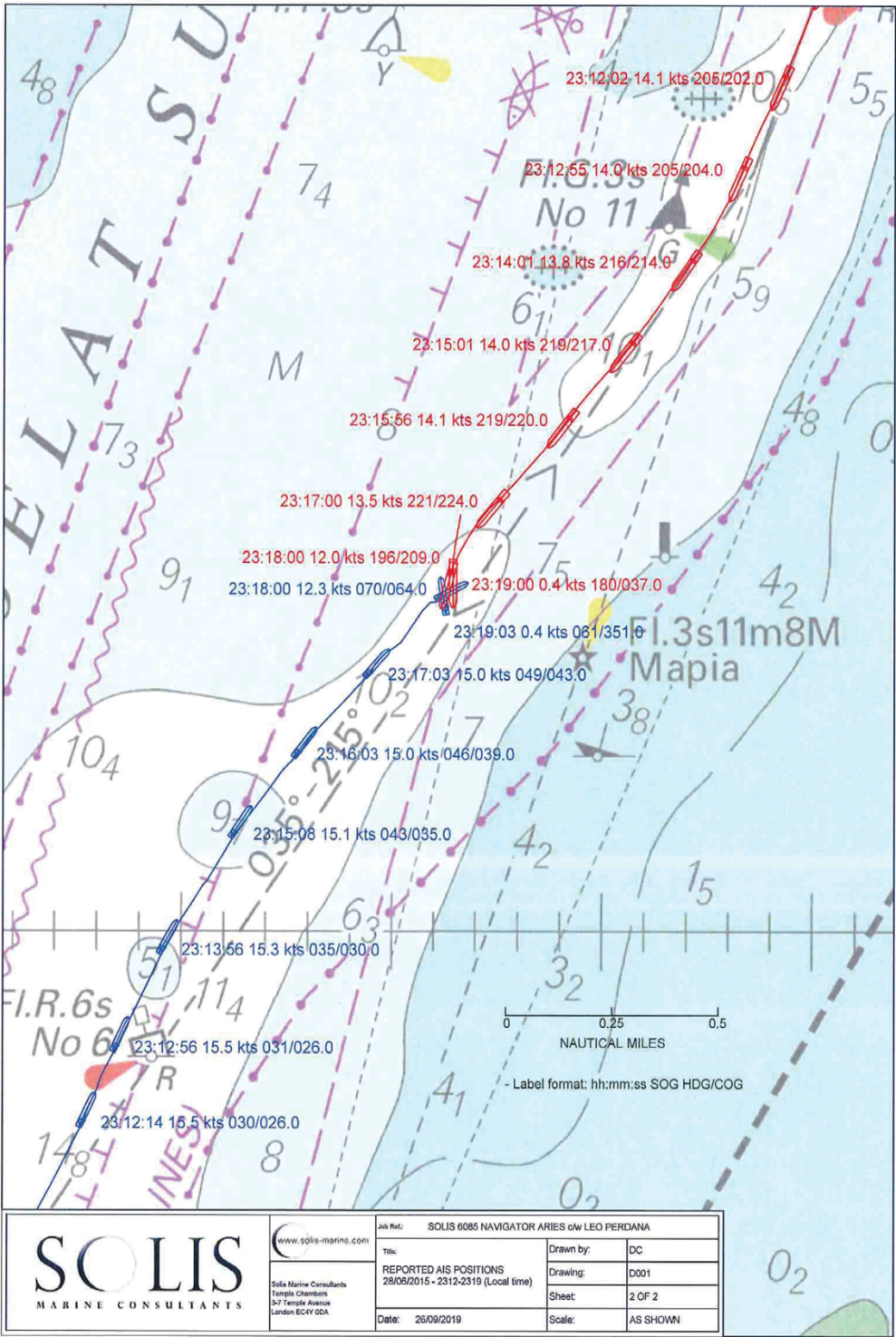
12 The *NA* was on a voyage from Gospier jetty in Surabaya, to Kalbut at the eastern end of Java. She was thus travelling outbound on a northerly voyage, towards the Strait’s northern entrance.

13 The *LP* was on a voyage from the Evergreen container terminal in Kaohsiung, Taiwan, to Tanjung Perak in Surabaya. She was travelling inbound on a southerly voyage from the Strait’s northern entrance.

14 The vessels were thus on reciprocal courses within the Strait. This is illustrated in the following plot prepared by the respondent’s experts, which shows the actual track taken by each vessel (with timestamps reflecting local time):



15 The period of the voyage starting from 23:12 hours is most relevant to the collision. The vessels’ tracks for this period have been mapped out by the appellant’s experts using the vessels’ automatic identification system (“AIS”) data (with the AIS heading data generated from each vessel’s gyro compass):



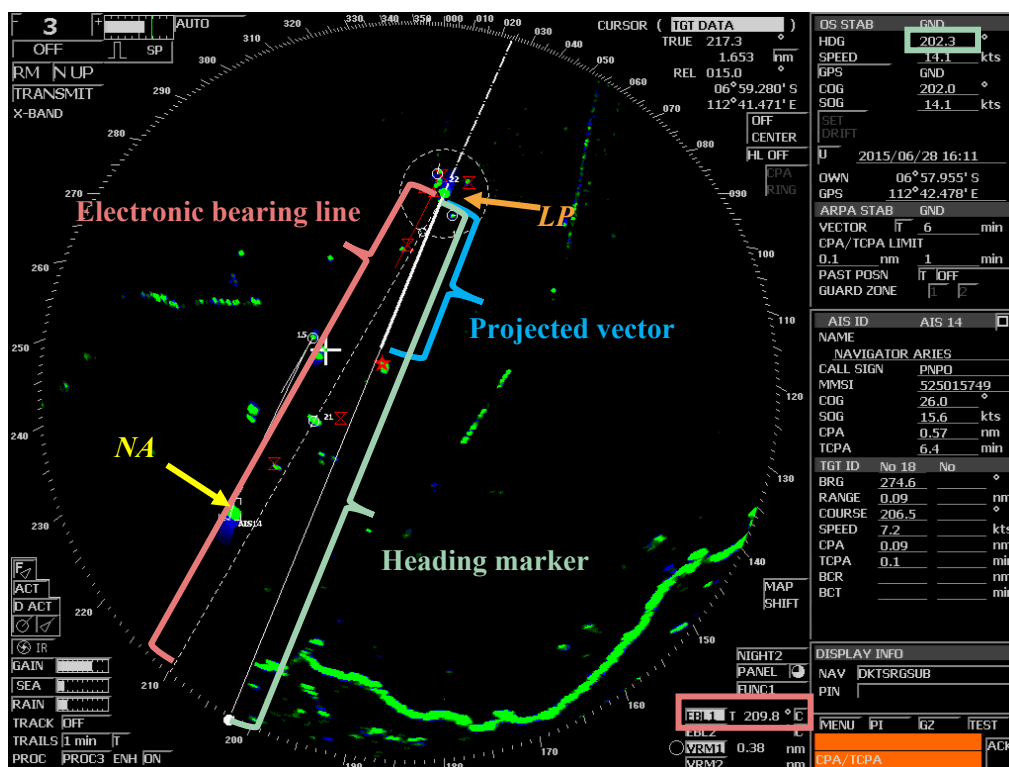
16 Objective evidence on the vessels’ voyages was adduced in several forms. Apart from AIS data, the vessels’ voyage data recorders (“VDR”) captured important information such as each vessel’s speed, heading and rudder angle (“VDR data tables”). Conversations that took place in each vessel’s wheelhouse and communications over VHF radio were also recorded. Most of these conversations took place in Bahasa Indonesia or Tagalog, but they have been translated and transcribed for the purposes of these proceedings.

17 Additionally, each vessel was equipped with two sets of Automatic Radar Plotting Aid (“ARPA”) radar, namely an X-Band and an S-Band radar. Screenshot of the output from each vessel’s X-Band radar were automatically captured and saved at 15s intervals. The accuracy of this data is undisputed. The respondent’s navigation expert, Captain Keith Hart (“Capt Hart”), opined that any positional errors concerning the *LP* and the *NA* were at most of a few metres, and any timing errors, of a few seconds. As will be seen below, these radar screenshots provide critical insight into the relative positions of both vessels with respect to the material events.

18 We use this opportunity to sketch out some key aspects of the *LP*’s radar, using this screenshot taken at 23:11:21 hours as an example:

- (a) The radar was set to north-up mode with relative motion, and a 3nm range.
- (b) The green echo enclosed by a dashed circle is the *LP*. The green echo identified as “AIS14” (in this instance) is the *NA*.
- (c) The thin white line (annotated in green) is the *LP*’s heading marker. This is also indicated at the top right-hand corner of the screenshot, and is 202.3° in this instance.

- (d) The thick white line (annotated in blue) is the *LP*’s projected vector (based on a 6min projection). This is calculated using ARPA.
- (e) The dashed white line (annotated in pink) is the *LP*’s electronic bearing line (EBL1), which reflects the *LP*’s planned change of heading. This is also indicated near the bottom right-hand corner of the screengrab, and is 209.8° in this instance.

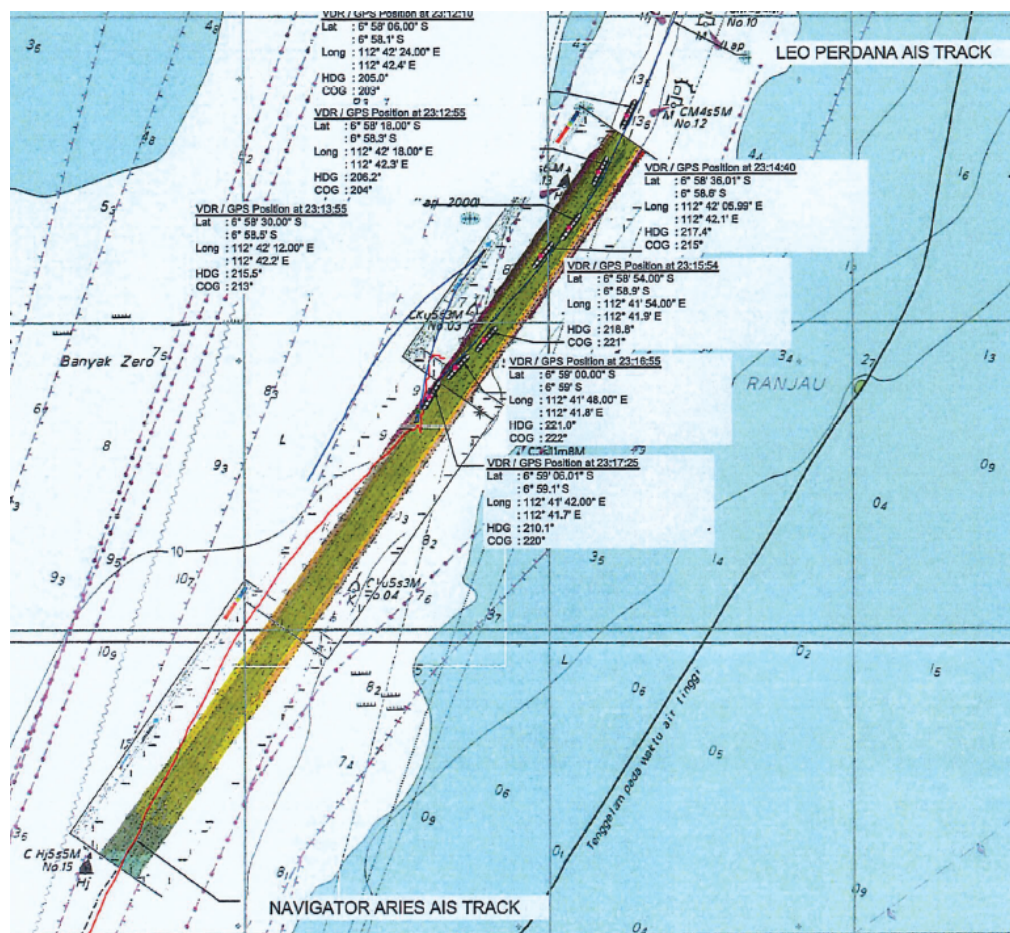


The narrow channel

19 The Strait was marked by lateral buoys. Around the site of the collision, these were laid out in a staggered pattern. It is undisputed that the buoyed channel represented a narrow channel to which Rule 9 of the COLREGS applied. Under the Strait’s buoyage system, northbound vessels were to keep

the red lateral buoys on their starboard side, and southbound vessels were to keep such buoys on their port side.

20 Within the buoyed channel was a dredged channel (the “Dredged Channel”). Dredging works took place from 2014 to May 2015, to deepen part of the buoyed channel from 9.5m to up to 13m (chart datum), and to widen the width of this dredged section from 100m to 150m (this distance excludes slopes extending outwards on either side of the Dredged Channel). This is the section that appears mainly in green in the following overlaid chart:



21 The dredging works were completed shortly before the collision and a post-dredging bathymetric survey was conducted from 18 June to 26 June 2015. In other words, the survey concluded just two days before the collision occurred on 28 June 2015. The BA Chart 975 used by both vessels did not reflect the Dredged Channel’s post-dredging bathymetry. Nevertheless, the parties’ navigation experts considered that the pilots on board both vessels would likely have been familiar with the dredged conditions.

22 BA Chart 975 also reflected a two-way recommended track (the “Recommended Track”). There are no known local regulations mandating its use. The Recommended Track essentially ran along the centre of the Dredged Channel, such that the Dredged Channel extended about 75m on each side of the Recommended Track. As shown in the diagram at [15] above, the collision occurred to the west of the Recommended Track. The Recommended Track is reflected in that diagram by the grey dashed line with a pair of arrows pointing in opposite directions.

The passing agreements

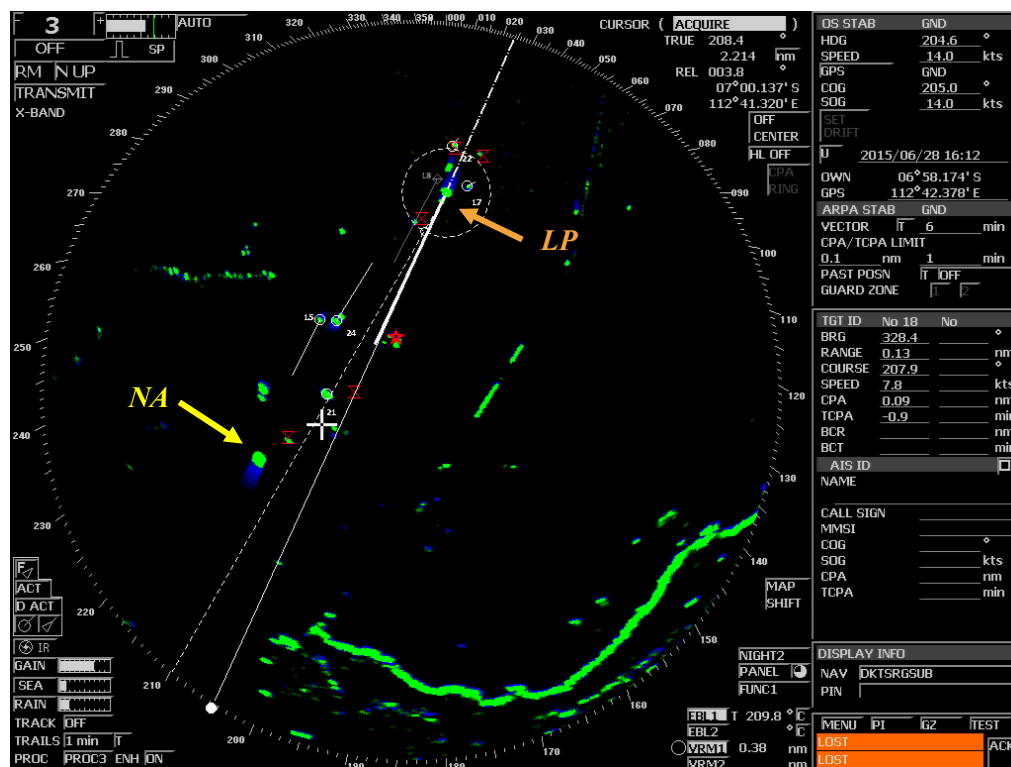
23 A critical feature of this case is that minutes before the collision, the pilots of both vessels had reached an agreement on how the vessels were to pass each other – namely, port-to-port.

24 Both vessels were under compulsory pilotage within the Strait, with pilots on board. There is no dispute that whereas pilots, as local experts, were permitted to give helm and engine orders and make passing arrangements, the masters were to retain overall command and responsibility during the transit under pilotage. Both parties accept that in apportioning liability, pilots are to be

treated as part of their respective vessels. Neither pilot was offered as a witness at the trial below.

25 At 23:12:15 hours, the *LP*’s pilot asked the *NA* (over VHF radio) how their vessels ought to pass. Around this time, the vessels were about 2.9nm apart, and closing at a combined speed of about 29.5 knots. At 23:12:18 hours, the *NA* replied “red-red”. This was confirmed by the *LP* at 23:12:20 hours, which added at 23:12:23 hours “ok red-red, will prepare”.

26 At this stage, each vessel was on the port side of the other’s course over ground (“COG”) line. This is illustrated partly by the following screengrab from the *LP*’s X-Band radar taken at 23:12:21 hours. To give effect to the port-to-port passing agreement, it would have been clear that both vessels needed to make course alterations to starboard.



27 It should also be highlighted that the *NA* was already some distance to the west of the Recommended Track by this time (*ie*, by 23:12 hours). We will return to the significance of this at [177] and [193] below.

28 Two minutes later, the vessels confirmed the port-to-port passing arrangement again at 23:14:20 and 23:14:37 hours. The *LP* added that she “will go to starboard a bit”.

29 Pursuant to the passing agreement, the pilots of both vessels ordered a series of course adjustments to starboard:

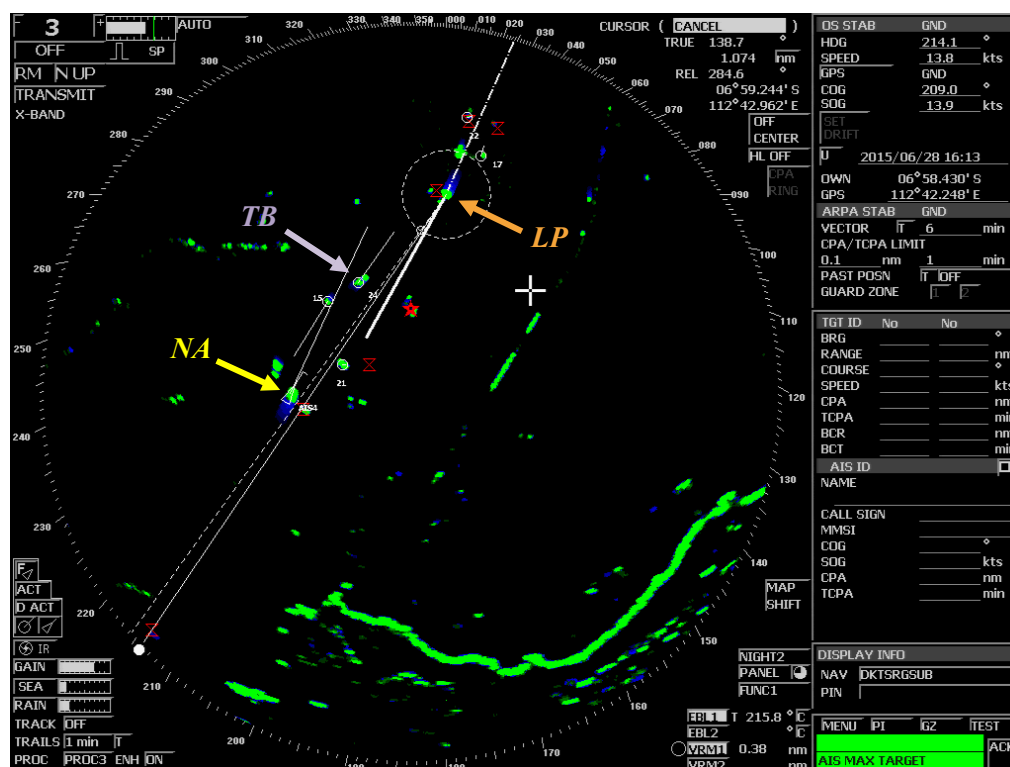
(a) The *NA*’s pilot gave course orders of 035° (at 23:13:01 hours), 040° (at 23:13:46), 045° (at 23:14:41) and 048° (at 23:15:44).

(b) The *LP*’s pilot gave course orders of 210° (at 23:12:37 hours), 215° (at 23:13:11), 218° (at 23:14:14), 220° (at 23:14:40), 222° (at 23:15:39), 223° (at 23:15:56) and 225° (at 23:16:23).

30 The *LP* was also due to pass a tug-and-barge, the *Tango Bravo* (the “*TB*”), just a minute or so before the *LP* would pass the *NA*. The *TB* was heading northwest and was fine on the *LP*’s starboard bow. The *LP* and the *TB* reached an agreement to pass starboard-to-starboard. This was first proposed by the *LP*, and agreed to by the *TB*, between 23:13:35 and 23:13:43 hours (*ie*, about a minute after the passing agreement between the *NA* and the *LP* was reached). The passing arrangement between the *LP* and the *TB* was confirmed again between 23:14:48 and 23:14:54 hours. The effect of the passing agreement with the *TB* was that the *LP* would be navigating in the narrow space between the *TB* (to the *LP*’s starboard side) and the *NA* (to the *LP*’s port side). It appears that the *NA* might have been aware of this: at 23:15:13 hours, the *NA* called the *TB*

to ask her to move “more to port”, and this request was acknowledged by the *TB*.

31 The following screengrab from the *LP*’s X-Band radar, taken at 23:13:36 hours, reflects the relative positions of the vessels when the starboard-to-starboard passing agreement was reached with the *TB*:



The collision

32 The collision occurred at 23:17:51 hours, to the west of the Recommended Track (see the diagram at [15] above).

33 Following the succession of course orders given by the *LP*’s pilot up till 23:16:23 hours (outlined at [29(b)] above), the *LP*’s pilot gave a “midships”

order at 23:16:40 hours and a “steady” order at 23:16:46 hours. However, instead of achieving a steady course, the *LP* began swinging to port towards the *NA*.

34 This drew panicked reactions from the *LP*’s pilot over the course of the following minute:

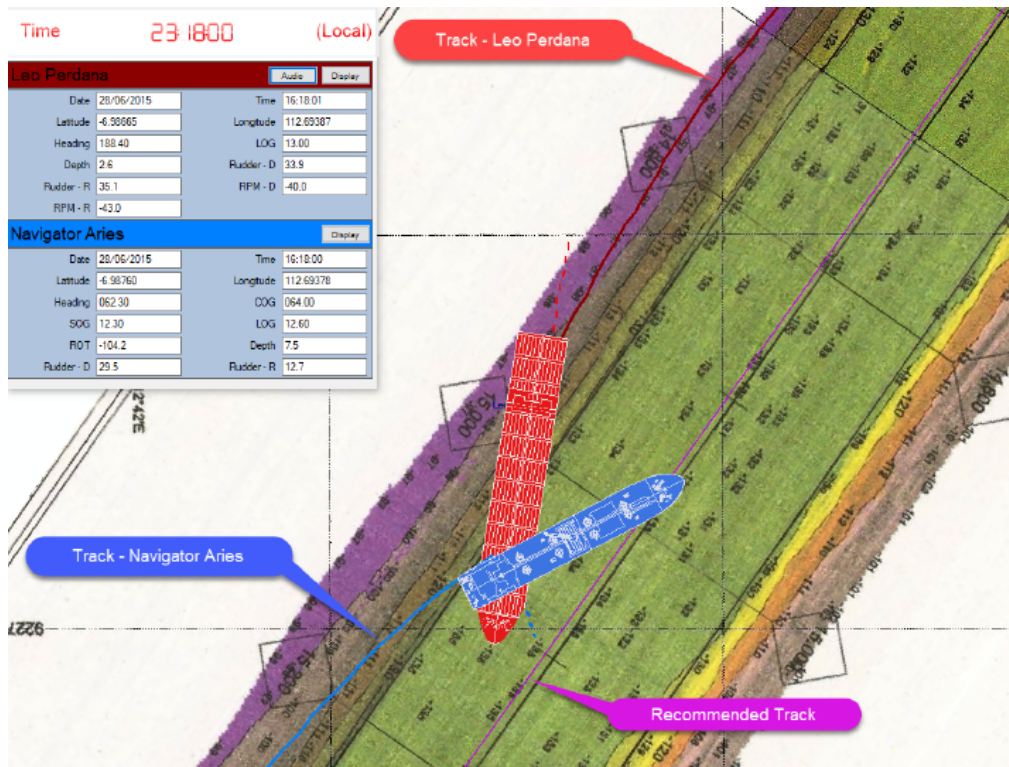
- (a) At 23:16:49 hours, he could be heard instructing “steady, bring to starboard, starboard, starboard”. Based on the VDR data tables, the helmsman applied a starboard helm from 23:16:52 hours. (The *LP*’s rudder achieved and maintained a rudder angle of 25° or higher to starboard from 23:16:58 hours. It was maintained at 35° to starboard from 23:17:08 hours.)
- (b) At 23:16:55 hours, he attempted to ask the *NA* to “move to the right” as “[the *LP*’s] steering [was] not responding”. It is undisputed that this VHF communication does not appear to have been received by the *NA*.
- (c) At 23:16:58 hours, he ordered “full to starboard”.
- (d) At 23:16:59, 23:17:04, 23:17:08, 23:17:12 and 23:17:15 hours, he repeatedly asked the *NA* to move further to starboard.
- (e) At 23:17:17 hours, he repeated the order “full to starboard”.
- (f) At 23:17:20 hours, he ordered “stop engine”. Based on the VDR data tables, this was executed at 23:17:29 hours, at which time the *LP*’s speed through water (“STW”) was slightly above 14 knots.

(g) At 23:17:38 hours, he ordered “full astern”. Based on the VDR data tables, the engine was put to half astern at 23:17:44 hours, at which time the *LP*’s STW was close to 13.5 knots.

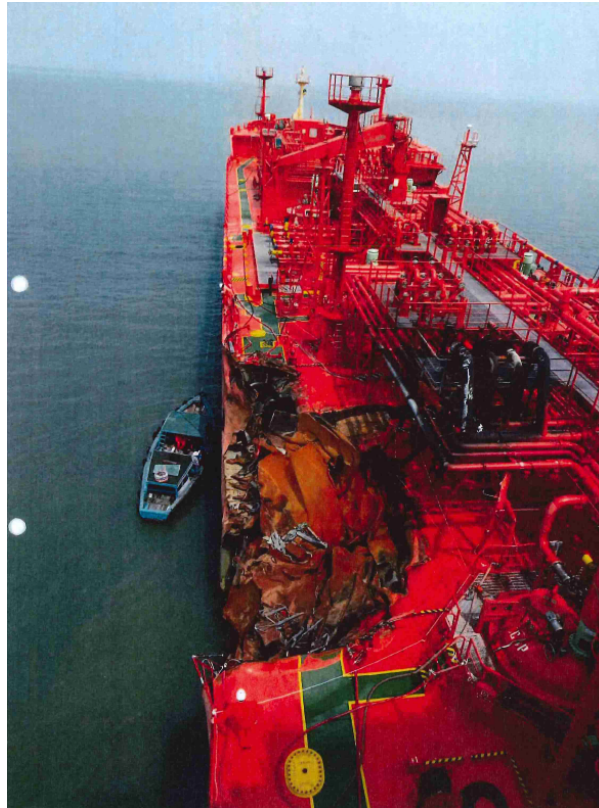
(h) At 23:17:49 hours, just 2 seconds prior to collision, he ordered “hard to starboard”.

35 What happened on board the *NA* was slightly less clear. Her VDR did not capture any VHF communications from at least 23:16:15 hours until 23:17:32 hours. The experts agree that the reason for this is unclear. Nonetheless, conversations in the *NA*’s wheelhouse were picked up from 23:17:12 hours onwards. Crew members were plainly alarmed, drawing attention to “this ship in front” (*ie*, the *LP*), commenting “what is wrong with this ship”, and warning “we will be hit”. An order was given for the *NA* to be put hard to starboard, which was executed at 23:17:15 hours.

36 The manoeuvres undertaken by both vessels ultimately failed to prevent the collision from occurring. By 23:17:30 hours, the vessels were only about 0.1nm apart and closing at a combined speed of about 28 knots. The vessels’ initially uneventful voyages underwent a sea change with the port sheer, with the *LP*’s heading changing from 222.9° at the time the sheer commenced at 23:16:46 hours, to 198.6° at the time of the collision at 23:17:51 hours (*ie*, she went to port by 24.3°). At 23:17:51 hours, the *LP*’s bow struck the *NA*’s port side at an acute angle. The angle of the blow is illustrated in the AIS plot below:



37 The actual impact of the blow is also captured in this photograph of the *NA* taken post-collision:



38 Seconds after the collision occurred, the *NA* suffered a cargo fire and began drifting in a northerly direction. The *LP* moved astern to pull away, and the vessels separated by around 23:19 hours. The *LP* then proceeded on a northerly course that brought her beyond the western edge of the Dredged Channel.

Procedural history

39 The *NA*'s owner commenced HC/ADM 170/2016 to determine liability for the collision. HC/ADM 204/2016, which was similarly commenced by the

LP’s owner to determine liability for the collision, was consolidated with HC/ADM 170/2016. On 13 September 2021, the Judge delivered an oral judgment and apportioned liability at 70:30 in the *LP*’s favour. On 28 September 2021, the Judge made costs orders based on a similar apportionment. On 12 October 2021, the appellant appealed against the whole of the Judge’s decision (including on costs), *vide* AD/CA 109/2021.

40 On 4 November 2022, the matter was transferred from the Appellate Division of the High Court (the “AD”) to the Court of Appeal (the “CA”), *vide* CA/OA 13/2022. This was because the appeal raised a point of law of public importance concerning the proper interpretation of Rule 9(a) of the COLREGS, thereby engaging O 19 r 39(5)(b) of the Rules of Court 2021 (2020 Rev Ed) (“ROC 2021”). Consequently, the result of the appeal would have considerable significance to the shipping industry and as such would also engage O 19 r 39(5)(f) of the ROC 2021. Both reasons made it more appropriate for the appeal to be heard by the CA.

The Judge’s decision

41 The Judge held that the collision’s immediate cause was a sheer to port experienced by the *LP*, which started at 23:16:46 hours. The sheer stemmed from a bow cushion effect, which arose from the *LP*’s proximity to the western edge of the Dredged Channel.

42 The Judge found that it was the *NA* that created the situation of difficulty or danger by failing to comply with Rule 9 of the COLREGS and forcing the *LP* to a position where she would experience the bow cushion effect.

43 Further, the *NA* breached Rule 5 (on lookout) and Rule 7 (on monitoring the risk of collision). Her missteps included: (a) taking insufficient action

despite her radar constantly showing that her COG would not allow her to achieve the agreed passing, and (b) allowing a long period of time to elapse before reacting to the *LP*’s port sheer.

44 In comparison, the *LP* had complied with both Rules 5 and 7. She made repeated course adjustments after 23:12:00 hours to give effect to the vessels’ passing agreement, and made VHF requests to the *NA* to move further to starboard.

45 That being said, the *LP* was travelling at an excessive speed of 16 knots. This was significantly higher than the six knots in her passage plan. This contributed to the bow cushion effect.

46 The Judge ultimately found that the *NA*’s fault carried greater causative potency and higher culpability and, on that basis, apportioned liability at 70:30 in the *LP*’s favour.

The parties’ cases on appeal

47 Two arguments form the crux of the appellant’s case:

(a) the *NA*’s breaches of Rules 5, 7 and 9(a) of the COLREGS – which are now undisputed on appeal – were not the immediate and direct causes of the collision; and

(b) the *LP*’s excessive speed – an established breach – ought to attract more blame.

48 These correspond to the two main steps it says the *LP* ought to have taken:

- (a) she should have gone further to starboard or at least not arrested her alteration to starboard, prior to the sheer commencing; and
- (b) she should have slowed down after realising that she was not responding to helm action.

49 The appellant also makes a number of apparent concessions on appeal. It accepts that the collision’s immediate cause was the *LP*’s port sheer. It is also prepared, without admitting, to proceed on the basis of the respondent’s argument below that the *LP* experienced bow cushion effect, and that her pilot’s “midships” order and her helmsman’s application of port helm were not collision avoidance measures, but navigational course adjustments to keep the *LP* within the Dredged Channel. It is also prepared to proceed on the basis that the *NA* was in breach of Rules 5, 7 and 9(a).

50 In outline, its case is that the Judge erred in:

- (a) failing to factor in the *LP*’s other causative faults, including breaches of Rule 2 (on good seamanship), Rule 8 (on action to avoid collision), Rule 9 (on narrow channels) and Rule 14 (on head-on situations) of the COLREGS, and failing to consider how these caused or contributed to the situation of difficulty or danger between the vessels or the collision;
- (b) incorrectly attributing blame to the *NA* for “forc[ing]” the *LP* to the edge of the Dredged Channel, when Rule 9(a) would have required the *LP* to navigate towards – and beyond – the Dredged Channel’s western edge in any event;

(c) incorrectly attributing the legal cause of the port sheer to bow cushion effect, without accounting for the *LP*’s other causative faults; and

(d) failing to attribute greater causative potency to the *LP*’s excessive speed, otherwise than for its contribution to the bow cushion effect.

51 As to how liability should be apportioned, the appellant’s written case states that the *LP* ought to bear “at least 50% of the blame” for the collision. At the hearing of the appeal, counsel for the appellant, Mr Seah Lee Guan Collin (“Mr Seah”), confirmed that it was seeking a 50:50 apportionment.

52 The thrust of the respondent’s case is that the appellant’s arguments on apportionment paint an incomplete picture: they ignore the *NA*’s manifold breaches of Rules 5, 7, 8 and 9 of the COLREGS, which were of high culpability and causative potency. Had the *NA* complied with Rule 9, both vessels would have transited safely through their respective sides of the channel, and the collision would not have occurred. It also disputes the additional breaches identified by the appellant. For these reasons, it seeks to maintain the 70:30 apportionment reached by the Judge.

Issues on appeal

53 The following issues arise for our determination:

(a) Whether the *LP* was in breach of Rules 8(a), 8(c) and 8(d) of the COLREGS for failing to take sufficient collision avoidance action.

- (b) Whether the *LP* was in breach of Rule 9(a) for failing to alter her course further to starboard beyond the western edge of the Dredged Channel.
- (c) Whether the *LP* was in breach of Rules 6 and 8(e) for failing to reduce her speed.
- (d) In the light of the vessels’ respective faults, how liability ought to be apportioned between the vessels.

Our analysis

The law on apportioning blame for maritime collisions

54 Section 1(1) of the Maritime Conventions Act 1911 (Cap IA3, 2004 Rev Ed) (the “MCA”) provides:

Rule as to division of loss

1.—(1) Where, by the fault of 2 or more ships, damage or loss is caused to one or more of those ships, to their cargoes or freight, or to any property on board, the liability to make good the damage or loss shall be in proportion to the degree in which each ship was in fault, except that if, having regard to all the circumstances of the case, it is not possible to establish different degrees of fault, the liability shall be apportioned equally.

55 It is settled law, and undisputed by the parties, that apportionment of liability under s 1(1) of the MCA is based on a “broad, commonsensical and qualitative assessment of the culpability and causative potency of both vessels” (*The “Dream Star”* [2018] 4 SLR 473 (“*The Dream Star*”) at [127]; *The “Mount Apo” and another matter* [2019] 4 SLR 909 at [96]). The focus is on each vessel’s responsibility relative to the other (*The “Angelic Spirit” and “Y Mariner”* [1994] 2 Lloyd’s Rep 595 at 608).

56 Culpability is concerned with the nature and quality of each ship’s faults, and not the number of faults as such. For instance, breaches of obligations under the COLREGS will usually be regarded as seriously culpable (*The Dream Star* at [126], citing Teare J in *The “Nordlake” and The “Seaeagle”* [2016] 1 Lloyd’s Rep 656 (“*The Nordlake*”) at [149]). As a general matter, greater fault would tend to lie with:

- (a) the vessel which had created a situation of difficulty or danger, as opposed to the vessel which had failed to react properly to such a situation (*The Dream Star* at [111], [114] and [126]);
- (b) deliberate acts or omissions, as opposed to faults comprising only omissions (*The Dream Star* at [126]); and
- (c) errors of navigation committed by an officer who has had time to think (*The “Maloja II”* [1993] 1 Lloyd’s Rep 48 at 50–51; *The Owners and/or Demise Charterers of the Ship or Vessel “MCC Jakarta” v The Owners and/or Demise Charterers of the Ship or Vessel “Xin Nan Tai 77”* [2017] HKCFI 981 at [71]).

57 However, only *causative* fault is relevant: the focus is not on moral blame but the “comparative appreciation of the degree in which the respective faults of the vessels have contributed to the result of the collision” (*The Dream Star* at [125]).

58 Causative potency is in turn concerned with two aspects of causation: (a) the fault’s extent of contribution to the collision; and (b) the fault’s extent of contribution to the damage resulting from the casualty (*The Dream Star* at [126]).

The immediate cause of the collision

59 The Judge held that the collision’s immediate cause was the *LP*’s sheer to port, which started at about 23:16:46 hours. This was just over a minute before the collision occurred at 23:17:51 hours.

60 As to the cause of the port sheer, he accepted the respondent’s argument that the *LP* had experienced bow cushion effect. The bow cushion effect resulted from the difference in the depth of water on the *LP*’s starboard side and that on her port side, owing to her position at the edge of the Dredged Channel.

61 The appellant is prepared to proceed on the basis that the *LP* experienced bow cushion effect, and that this was the factual or physical cause of the port sheer. Its arguments are instead that: (a) it was not to blame for the *LP* experiencing bow cushion effect, and (b) the chain of causation from the bow cushion effect to the port sheer was broken by the *LP*’s own acts. We will return to these arguments later in this judgment.

62 For present purposes, we are satisfied that the Judge was correct in concluding that the immediate cause of the port sheer was the bow cushion effect experienced by the *LP*.

63 Capt Hart explains the bow cushion effect in these terms:

‘Bow Cushion Effect’, also known as ‘smelling the ground’ is a well-known phenomenon whereby when passing a submerged bank or shoal a sudden change in water flow around the hull generates an uneven pressure field causing the vessel to sheer unexpectedly and violently away from the underwater slope it is passing. The sheer can happen extremely quickly and the forces may be such that they cannot be counteracted by use of the rudder. The reference text ‘Navigation in Shallow Waters’ discusses Bow Cushion Effect and suggests that: ‘Contrary to common assumption, the rejection generated by a vertical bank, such as a breakwater wall, is lower than that generated

by a sloping bank that is close to or above the mean water level, as would be the case where a channel is over a soft bottom ... where the ship’s UKC [*ie*, underkeel clearance] is close to the limit (i.e. between 10% to 20% of the ship’s draught). The bank slope creates a ‘sliding effect within the water displaced by the ship, which results in the body of water returning with greater energy.’ ... [emphasis in original omitted]

64 The text that Capt Hart refers to, Eduardo O Gilardoni and Juan P Presedo, *Navigation in Shallow Waters* (Witherby Seamanship International, 2017) (“*Navigation in Shallow Waters*”), makes several pertinent observations on the causes of bank effect or bow cushion effect:

3.3 Bank Effect

As a ship advances, a pressure area is formed at the bow by the thrust of the ship on the water ahead, to the side and below the keel. However, at the stern and on both sides, the water flow lines moving around the underwater hull accelerate to fill the void left by the ship advancing, resulting low pressure areas.

When the pressure balance that exists between both sides of the ship is altered by the proximity of an obstacle on one side, an effect known as bank effect occurs, causing a significant alteration in the ship’s turning moments.

For this to occur, *it is not necessary for the ship to physically touch the bank*. Alteration in hydrostatic pressure on that side (water cushion) will be enough to generate sufficiently powerful forces that will push the ship’s bow towards the centre of the channel and attract the ship’s stern towards the bank.

...

Bank effect is influenced, in order of magnitude, by the following factors:

- Ship speed
- [P]roximity to bank
- [B]ank slope angle
- [W]hether it is an open channel or confined canal
- [S]hip displacement

Speed

If a ship is proceeding at speed near to a bank, the influence of bank effect on the ship will increase exponentially. The ‘bottleneck’ or ‘wedging’ effect that is generated between the bow and the bank will cause an increase in the divergent bow wave.

...

This generates a side thrust that forces the bow towards the centre of the channel. Meanwhile, the funnelled acceleration of the flow lines between the bank and the aft quarter creates a suction that attracts the stern towards the bank, adding to the turning moment.

Bank slope angle

...

Contrary to common assumption, the rejection generated by a vertical bank, such as a breakwater wall, is lower than that generated by a sloping bank that is close to or above the mean water level, as would be the case where a channel is over soft bottom ..., where the ship’s UKC is close to the limit (*ie*, between 10 and 20% of the ship’s draught).

...

The bank slope creates a ‘sliding’ effect within the water displaced by the ship, which results in the body of water returning with greater energy.

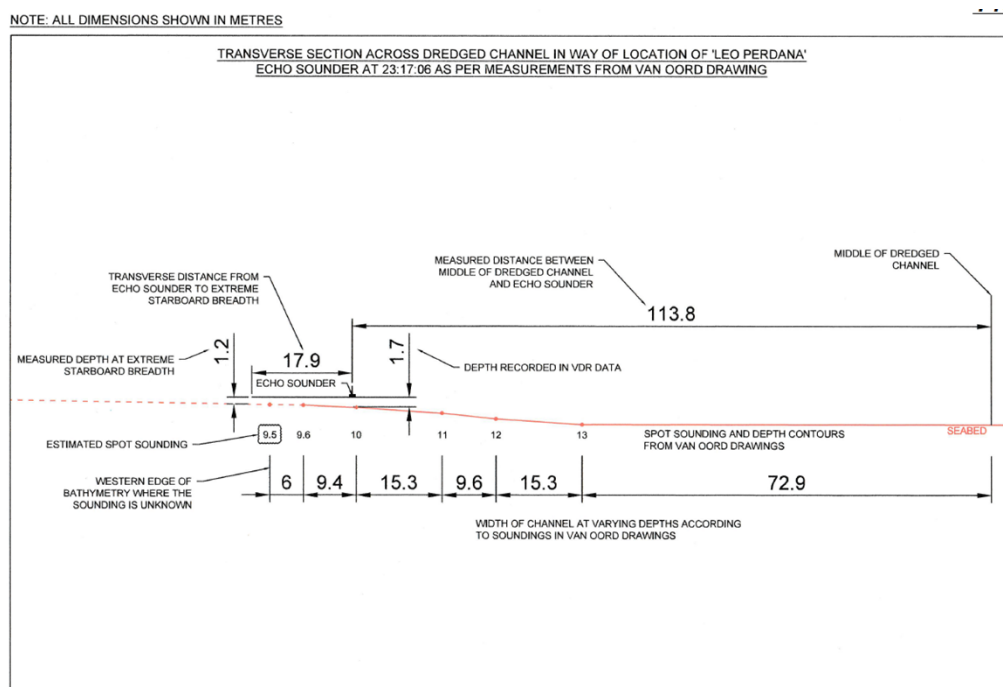
...

[emphasis added in italics]

65 In the present case, the slope was the edge of the Dredged Channel on the *LP*’s starboard side. On the respondent’s case, the *LP* had a smaller underkeel clearance (“UKC”) on her starboard side, and a higher UKC on her port side (a vessel’s UKC is, in essence, the clearance or distance between the bottom of the vessel’s hull and the seabed). The resulting uneven pressure field caused the *LP* to sheer to port.

66 The Judge had instructed parties to provide estimates on the water depths on the starboard side of the *LP*’s hull at the time the port sheer occurred, based

on her echo transducer data. The parties’ experts submitted the following diagram, showing a UKC of 1.2m on the *LP*’s starboard side and 1.7m UKC on her port side. We accept that this differential provides the conditions for bow cushion effect to arise.



To be clear, the port sheer occurred at 23:16:46 hours. The reason the above diagram refers to measurements taken at 23:17:06 hours is that there was a lag of about 20 seconds between the time the *LP*’s bow would have crossed a given spot on the seabed, and the time her echo transducer would have crossed that same spot. This is because her echo transducer was some 147m aft of the forward perpendicular. A 20 second adjustment was thus applied to estimate the *LP*’s UKC at 23:16:46 hours.

67 The reports of the appellant’s navigation expert, Capt John Nicholas Duncan Simpson (“Capt Simpson”), did not substantively refute Capt Hart’s

theory that the *LP* experienced bow cushion effect. On the evidence, we are satisfied that the immediate cause of the collision was the *LP*’s port sheer, the physical cause of which was the bow cushion effect. That said, as highlighted at [64] above, the speed of the vessel has a direct and material bearing on the risk of bow cushion effect. The significance of this is elaborated on at [200] and [214] below.

The LP’s breaches of Rules 8(a), 8(c) and 8(d)

68 As noted above (at [61]), while the appellant does not dispute that the bow cushion effect was the factual or physical cause of the port sheer, it contends that the chain of causation from the bow cushion effect to the port sheer was broken by the *LP*’s own acts. In particular, the *LP* ought to have known that she was already experiencing some degree of rejection (see [71]–[74] below) and that her existing starboard helm was actually operating to counteract this. In prematurely arresting her alteration of course to starboard, the *LP* committed a *novus actus interveniens* that allowed the bow cushion effect to develop into a port sheer.

69 Apart from this argument on causation, the appellant also argues that the *LP*’s conduct amounted to inadequate collision avoidance action. This breached Rules 8(a), 8(c) and 8(d) of the COLREGS:

Rule 8

Action to Avoid Collision

- (a) Any action to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

...

- (c) If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
- (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.

...

70 In analysing the appellant’s arguments, two questions are key:

- (a) whether the *LP* failed to detect the bow cushion effect when she should have (see [71]–[80] below); and
- (b) whether the *LP* bears causative fault for taking off her starboard helm and exacerbating the port sheer (see [81]–[105] below).

The LP’s failure to detect the bow cushion effect

71 While the port sheer occurred at 23:16:46 hours (when the hydrodynamic forces from the bow cushion effect overwhelmed the *LP*’s rudder action and the vessel began to sheer to port), the evidence suggests that the bow cushion effect had begun to operate on the *LP* as early as 23:14 hours.

72 At 23:14:40 hours, the *LP*’s pilot gave a course order of 220°. Her heading was 217.4° at the time. The ordered heading of 220° was only achieved about half a minute later, at 23:15:08 hours.

73 At 23:15:39 hours, the *LP*’s pilot gave a course order of 222°. Her heading was 219.2° at the time. The ordered heading of 222° was only achieved almost a minute later, at 23:16:33 hours.

74 Two subsequent course orders for 223° and 225° were given at 23:15:56 and 23:16:23 hours respectively, when the *LP*’s heading was 219° and 221.2° respectively. Three points are notable:

- (a) First, the ordered headings were not fully achieved. The furthest to starboard to which the *LP*’s heading was altered was 222.9° at 23:16:43 hours; the port sheer took place just 3 seconds after.
- (b) Second, it took some 47 seconds after the 223° order was given for the heading of 222.9° to be achieved.
- (c) Third, the pilot had given the order for 223° (at 23:15:56 hours) *before* the earlier order for 222° could be achieved (at 23:16:33 hours). Likewise, he had given the order for 225° (at 23:16:23 hours) *before* the order for 223° was effectively met (at 23:16:43 hours).

75 What this succession of alterations demonstrates is that the *LP* was not achieving her ordered headings in a timely manner. Moreover, her pilot saw a need to order further alterations even before earlier ordered headings were fully achieved. These have not been attributed to inadequate helm action on the helmsman’s part; Capt Hart did not believe this to be the case, and indeed, the commanded rudder angle during this period reached as high as 18.7°. It was also established at the trial that the *LP*’s steering gear and machinery were not defective. In the circumstances, one would expect that the minor alterations being ordered would have only taken a few seconds to be achieved especially given the speed of the *LP*. Based on the *LP*’s wheelhouse poster, her time hard-over to hard-over is 24.4 seconds with one power unit. Even accounting for the likelihood that the figure of 24.4 seconds was derived under different conditions (*eg*, in a sea trial and under ballast conditions), it should not have taken more

than a few seconds for these *minor* ordered alterations to be achieved. Yet, the *LP* consistently encountered difficulties in this respect.

76 In the circumstances, and as Capt Hart opined, the objective inference to be drawn is that the *LP* was facing some form of rejection or resistance on her starboard side. Crucially, his evidence in this respect was not challenged.

77 Not only is this the objective inference to be drawn now, it should also have been readily apparent to those on board the *LP*, particularly her pilot. Mr Seah’s submission on appeal was that the bow cushion effect should have been noticeable from 23:14:40 to 23:16:23 hours, when the ordered headings were not being attained in a timely fashion. The pilot should also have noticed this when the helmsman gave updates on when these headings were eventually attained.

78 In our judgment, given the regular alterations ordered, large rudder angles applied, and the fact that the vessel was proceeding at full ahead, the *LP*’s pilot should have appreciated that the vessel was encountering some form of hydrodynamic resistance, and made the appropriate helm and speed orders accordingly.

79 In fairness to the Judge, at the trial, the appellant did not pursue questions as to *when* those on board the *LP* knew or should have known that the *LP* was experiencing bow cushion effect. This is perhaps because the appellant’s primary case then was that there was no bow cushion effect to begin with. At the hearing of the appeal, Mr Seah explained that this was never put to anyone on the *LP* because the *LP*’s pilot did not give evidence on the stand.

80 Be that as it may, it must be borne in mind that it was the *respondent* who was advancing the claim that the *LP* had been experiencing bow cushion effect. In taking the position that this *eventually* led to the port sheer around 23:16:46 hours, it would have been for the respondent to establish and for the court to determine *when* this bow cushion effect first arose, when it was first detected by those on board the bridge of the *LP* and what actions, if any, were taken to counteract the bow cushion effect.

The causative fault of the LP’s pilot’s “midships” order

(1) Whether the “midships” order should have been given

81 The appellant argues that the port sheer only began after: (a) the *LP*’s pilot deliberately gave a “midships” order at 23:16:40 hours, and (b) her helmsman mistakenly applied port helm in response to the pilot’s “steady” order 6 seconds later. Prior to these orders, the *LP* could and did in fact control the hydrodynamic effects that contributed to the bow cushion effect from 23:14:40 to 23:16:40 hours, in that no port sheer was experienced.

82 We begin by recounting the orders given and helm action taken by those on board the *LP*.

83 At 23:16:40 hours, the *LP*’s pilot gave a “midships” rudder order. This entailed taking off the starboard helm, such that the *LP*’s rudder would be adjusted to a neutral position in line with her centre-line, with no turning effect on the vessel. At the time, her heading was 222.7° and her speed over ground (“SOG”) was around 13.5 to 14 knots.

84 The “midships” order was executed immediately. From 23:16:40 to 23:16:45 hours, the *LP*’s rudder eased from 17.4° to starboard (at 23:16:40

hours) to 0.1° to starboard (at 23:16:44 and 23:16:45 hours). At 23:16:44 hours, the helmsman confirmed “rudder midships sir”.

85 At 23:16:46 hours, the *LP* began to experience a port sheer. This was a relatively slow, but ultimately uncontrollable, swing. Her engine was at full ahead, with an SOG of 13.9 knots.

86 Notwithstanding this, at 23:16:46 hours, the *LP*’s pilot also gave a “steady” heading order. This meant that the helmsman was left to decide how to steer the vessel with a view to maintaining her existing heading, which was then 222.9° (see [74(a)] above). Based on the VDR data tables, the helmsman applied a port helm. As a consequence, and in a space of just 4 seconds from 23:16:46 to 23:16:50 hours, the *LP*’s rudder swung from 0.1° to starboard to 12.7° to port.

87 Just 3 seconds later, at 23:16:49 hours, the *LP*’s pilot started giving orders that she be brought to starboard. From his reaction (see [34] above), the pilot must have noticed by then that the *LP* had begun swinging to port.

88 Immediately after the collision, the *LP*’s pilot repeatedly blamed the helmsman for applying a port helm in response to his orders. Significantly, the pilot was not heard to have blamed the *NA* for the collision.

89 We agree with the appellant that the “midships” order should not have been given in the circumstances. Significantly, Capt Hart acknowledged during the hot-tubbing session that the “midships” order countermanded the pilot’s previous order to starboard.

90 The “midships” order was a deliberate navigational order, which the pilot would have known would remove the starboard helm. The “midships” order effectively removed the rudder’s ability to counteract the hydrodynamic forces, enabling the hydrodynamic forces to overwhelm the *LP*’s rudder effect, and leading her to an irreversible and uncontrollable sheer to port. This was so even if the rudder was put to port for only a few seconds. As counsel for the respondent, Mr Mohamed Goush s/o Marikan (“Mr Goush”), conceded at the hearing of the appeal, the expert evidence did not show that the port sheer would have occurred even if the “midships” order had not been given and the rudder had remained to starboard.

91 On the available evidence, there was no good reason for the “midships” order to have been given. Capt Simpson’s view was that the pilot should not have given this order but kept the vessel’s wheel at 20° to starboard to maintain her heading, this being “clearly required”. In response, Capt Hart’s evidence was that “midships” and “steady” are normal navigational orders. In particular, it is a common sequence for pilots or masters to order a specific rudder angle, followed by “midships”, and finally, “steady”. This would enable the ship to initially turn at a given rate (the order of a specific rudder angle), followed by a slowing down of the turn (“midships”), before the vessel is finally set on her new heading (“steady”). This was a combination of navigational orders used on the *NA* too. In giving these orders, Capt Hart considered that the *LP*’s pilot was likely intending to give the *NA* more sea room, without deviating too far from the Recommended Track’s axis of 215°.

92 Capt Simpson’s evidence is to be preferred. While we can accept that “midships” and “steady” are *normal* navigational orders, the *LP* was not navigating under normal conditions at the material time. In fact, Capt Hart conceded that he did not actually know why the pilot made the orders. Instead,

the propriety of those orders must be assessed on the footing that the *LP* was by then already experiencing bow cushion effect.

93 The respondent’s core argument on appeal is that if the *LP*’s helm action had caused the port sheer, then her helm and rudder must have logically been put to port before the port sheer commenced at 23:16:46 hours. However, her rudder only went to port at 23:16:48 hours.

94 This argument misunderstands the appellant’s position, which is that the *LP*’s helm actions were subsequent intervening acts that allowed the existing bow cushion effect to develop into a port sheer. Furthermore, the argument does not rely on the helm being put to port; it relies on the starboard helm being removed at 23:16:40 hours, and with it, the counteracting force to the bow cushion effect.

(2) The legal significance of the wrongful “midships” order

95 The appellant argues that the “midships” order carries three legal consequences:

(a) First, by arresting her alteration of course to starboard, the *LP* breached Rules 8(a), 8(c) and 8(d) of the COLREGS.

(b) Second, by arresting her alteration of course to starboard, the *LP* breached Rule 14(a) of the COLREGS.

(c) Third, as a matter of causation, the “midships” order and helm action constituted *novus actus interveniens* that superseded any causal role played by the bow cushion effect.

(A) RULES 8(A), 8(C) AND 8(D)

96 For the reasons set out at [82]–[94] above, we agree that the “midships” order substantially contributed to the port sheer, and the *LP* was therefore in breach of Rules 8(a), 8(c) and 8(d). As the appellant submitted, these were circumstances where both vessels were still approaching each other, the *NA* was not yet past and clear, and the effect of arresting the *LP*’s alteration to starboard following the “midships” order was to bring both vessels closer together in what was already shaping to be a close quarters situation. Although our finding on Rule 8 would cast some doubts on the Judge’s finding that the *LP* was not in breach of Rules 5 and 7, the breaches of Rules 5 and 7 by *themselves* would not have made a material impact on the ultimate apportionment since those breaches are predicated on the *same* fault as the breach of Rule 8.

(B) RULE 14

97 We are not prepared to find that the same conduct necessarily amounts to a breach of Rule 14(a), which provides that “[w]hen two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision each shall alter her course to starboard so that each shall pass on the port side of the other”.

98 The appellant has only made brief submissions on Rule 14(a), based entirely on the text of Rules 14(a) and 14(c). Yet, there is at least some suggestion in the literature that Rule 9 should be construed as a particular application of Rule 14 in narrow channels. For example, the US textbook of Nicholas J Healy and Joseph C Sweeney, *The Law of Marine Collision* (Cornell Maritime Press, 1998) (*“Healy and Sweeney”*) observes at 143:

As [John Wheeler Griffin, *The American Law of Collision* 811–821] states, *the narrow channel rule is a particular application*

of the general principle recognized in Rule 18 of the former International and Inland Rules (now Rule 14 of COLREGS and the current Inland Rules), requiring power-driven vessels meeting end-on, or nearly end-on, so as to involve risk of collision to alter course to starboard and pass port to port. That rule was recognised by the US Supreme Court as early as 1860, and was included as Rule 18 of the 1864 Rules applicable to US naval and merchant vessels. There is, however, an essential difference between the end-on rule and the narrow channel rule, in that the former applies only when two vessels are meeting in sight of one another, whereas the narrow channel rule governs even when no other vessels are in sight. [emphasis added]

99 Given that the appellant is also advancing a case – indeed, its primary case – based on Rule 9(a) (see [108] below), the proper interplay between Rules 9(a) and 14(a) in narrow channel situations would have warranted closer examination by the parties. In a related vein, where vessels have made passing arrangements over VHF radio, it may be queried whether Rule 14 would apply without qualification.

100 The significance of Rule 14(b) has also not been addressed. The limit of “reciprocal or nearly reciprocal courses” in Rule 14(a) is set by Rule 14(b) (*FMG Hong Kong Shipping Limited, the Demise Charterers of “FMG Sydney” v The Owners of the “MSC Apollo”* [2023] EWHC 328 at [101]). Rule 14(b) provides that the situation in Rule 14(a):

... shall be deemed to exist when a vessel sees the other ahead or nearly ahead and *by night she could see the masthead lights of the other in a line or nearly in a line and/or both sidelights* and by day she observes the corresponding aspect of the other vessel. [emphasis added]

101 On the available evidence, this does not appear to have been the case *at 23:16:40 hours, ie*, when the “midships” order was given and when the appellant claims that Rule 14 was breached. Around 23:15 hours, the *LP*’s master noticed the red sidelight of the *NA* opening and her green sidelight closing. The *NA*’s third officer noticed this of the *LP* at around 23:16 hours.

102 Finally, we found it significant that Capt Simpson’s and Capt Hart’s expert reports did not suggest that Rule 14 was breached.

103 Given the brevity of the submissions made on Rule 14, we would prefer to reserve the rule’s proper consideration to a future case, and make no finding on whether Rule 14 was breached in this instance. Given our finding that Rules 8(a), 8(c) and 8(d) have been breached, we do not consider it strictly necessary to reach a definitive view on Rule 14(a) for the purposes of apportioning liability. As highlighted at [56] above, culpability is not a matter of counting faults or breaches, but an assessment of the nature and quality of the wrongful conduct in question. In other words, establishing that the *LP*’s conduct amounted to a breach of Rule 14(a) would not have added much to the appellant’s case in any event.

(C) *NOVUS ACTUS INTERVENIENS*

104 It is unclear if the appellant is maintaining the argument that the “midships” order amounted to a *novus actus interveniens*. Mr Seah submitted at the hearing that the appellant was seeking a 50:50 apportionment. This appears potentially inconsistent with its argument on *novus actus interveniens*, which would imply that the *NA*’s earlier breaches of Rules 5, 7 and 9(a) were no longer causally relevant once the “midships” order was given, with the implication that the *LP* was wholly to blame for the port sheer and the collision (save perhaps for any blame attributable to the *NA* for her excessive speed).

105 In any case, the appellant’s submissions do not address why the “midships” order was of such a nature or gravity as to rise to the level of a *novus actus interveniens*. The law requires that the intervening event is one that can be “said to be so significant causally as to break the causal link ... This

recognises that causes assume significance to the extent that they assist the court in deciding how best to attribute responsibility for the claimant’s damage” (*Sandy Island Pte Ltd v Thio Keng Thay* [2020] 2 SLR 1089 at [93]; *Sunny Metal & Engineering Pte Ltd v Ng Khim Ming Eric* [2007] 3 SLR(R) 782 at [54]). It has also been observed that where the defendant’s own negligence is still active and productive of some effect, the plea of *novus actus interveniens* “has no place” and instead the defendant’s “only claim is to have his liability reduced according to the principles of comparative fault” (Andrew Tettenborn and John Kimbell QC, *Marsden and Gault on Collisions at Sea* (Sweet & Maxwell, 15th Ed, 2021) (“*Marsden and Gault*”) at para 11-041; *The “Magnolia”* [1955] 1 Lloyd’s Rep 417 at 429). In the present case, as we explain below (at [183]), the *NA*’s breach of Rule 9(a) reduced the navigable sea room available to the *LP* and contributed to her being in a location where she experienced bow cushion effect. As such, the *NA*’s breach remained causally relevant even when the bow cushion effect developed into a port sheer.

106 On this note, we turn to examine the breaches that allegedly led to the *LP* finding herself at the western edge of the Dredged Channel, where the bow cushion effect developed into a port sheer.

The LP’s compliance with Rules 2 and 9(a)

The LP’s compliance with Rule 9(a)

107 The Judge found that the *NA* had failed to comply with Rule 9 by not altering her course further to starboard, and that this forced the *LP* to a location where she would and did in fact experience bow cushion effect (see [42] above). On appeal, the appellant does not dispute that the *NA* was in breach of Rule 9(a) (we discuss this breach further from [176] below). Instead, it challenges the second part of the Judge’s findings, concerning causation.

108 The appellant’s case is that the *LP* would have been at the western edge of the Dredged Channel in any event. Rule 9(a) would have required her to alter her course further to starboard, taking her to and beyond the western edge of the Dredged Channel.

109 The respondent argues that the *LP* did comply with Rule 9(a) because she could not have gone further to starboard. In fact, she had already gone further to starboard than she should have, to the point that she suffered a bow cushion effect.

110 The Judge’s decision did not address whether the *LP* had complied with Rule 9(a).

111 We reject the appellant’s argument that the *LP* ought to have gone beyond the western edge of the Dredged Channel. We explain this by examining:

- (a) first, the proper interpretation of Rule 9(a) of the COLREGS; and
- (b) second, whether it was safe and practicable for the *LP* to have gone further to starboard.

112 To be clear, our decision on Rule 9(a) does not mean that the *LP* was blameless in arresting her alteration to starboard through her pilot’s “midships” order. The fault therein began much earlier, and stems from the combination of her failure to detect the bow cushion effect and her failure to make appropriate adjustments to give herself greater clearance, including by slowing down, seeking a different passing, or requesting that the *NA* make bolder alterations to starboard.

(1) The interpretation of Rule 9(a) of the COLREGS

113 As alluded to at [40] above, there is an unresolved question as to whether Rule 9(a) of the COLREGS marks a departure from its predecessor, Rule 25(a) of the 1960 Collision Regulations (the “old Rule 25(a)”), which required a vessel in a narrow channel to keep to the *lane* that is on her starboard side.

114 Rule 9(a) and the old Rule 25(a) respectively state:

Old Rule 25(a) (1960 COLREGS)	Current Rule 9(a) (1972 COLREGS)
Narrow channels (a) In a narrow channel every power-driven vessel when proceeding along the course of the channel shall, when it is safe and practicable, keep to that side of the fairway or mid-channel which lies on the starboard side of such vessel.	Narrow channels (a) A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable.

115 The old Rule 25(a) notionally divides a channel into a dual carriageway, with vessels having to navigate on the “lane” to their starboard side. We describe this as the “Lane Requirement”. On its face, Rule 9(a) appears to require a vessel to instead keep “as near to the outer *limit*” [emphasis added] which lies on her starboard side as is safe and practicable, and not merely in the correct lane. We describe this as the “Limit Requirement”.

116 The question, then, is whether Rule 9(a) maintains the Lane Requirement set out in the old Rule 25(a) or replaces it with the Limit Requirement.

117 As Mr Goush submitted before the Judge, case authorities do not offer much clarity on whether the Lane Requirement or Limit Requirement applies. From our review of the authorities with respect to Rule 9(a), courts, at times, have made reference to whether a vessel was on the correct “side” of the channel or in her “wrong water”, which appears to endorse the Lane Requirement (see, eg, *The Nordlake* at [77] (but see [129]); *The “Maritime Harmony”* [1982] 2 Lloyd’s Rep 400 (“*The Maritime Harmony*”) at 405–406; *The “Nordic Ferry”* [1991] 2 Lloyd’s Rep 591 (“*The Nordic Ferry*”) at 596 and 598 (in respect of the *San Salvador*)). Yet, other aspects of these and other cases appear to lend some support for the Limit Requirement, such as the inclusion of findings on the specific track taken by a vessel or whether a vessel could have made further or earlier attempts to alter her course to starboard (eg, *The Nordic Ferry* at 598 (in respect of the *Nordic Ferry*); *The “Sanwa” and “Choyang Star”* [1998] 1 Lloyd’s Rep 283 (“*The Sanwa*”) at 299). An example of this is *The Maritime Harmony*, where Mr Justice Sheen expressly declined to “make a precise measurement of the channel and then to say that any ship which is just on its correct side of the imaginary centre line is complying with its duty” (at 403). This is because:

... A prudent navigator knows that his ship is on its correct side of a narrow channel without necessarily knowing precisely where the centre line runs. He knows this because he keeps as near to the outer limit of the channel as is safe and practicable.

Were it the case that Rule 9(a) solely embodied the Lane Requirement, one would have expected the central inquiry to be whether the vessel was on the “correct side of the imaginary centre line”.

118 Most academic treatises have similarly given only brief treatment to the proper interpretation of Rule 9(a), sometimes by simply reproducing the text of the provision. The Limit Requirement prevails across most texts (eg, Michael

White (ed), *Australian Maritime Law* (The Federation Press, 2nd Ed, 2000) at 208; Martin Davies and Anthony Dickey, *Shipping Law* (Lawbook Co, 3rd Ed, 2004) at 419). Some contain an additional gloss that seems to require both the Lane Requirement and Limit Requirement to be satisfied (eg, *Healy and Sweeney* at 145 and 148; John Hare, *Shipping Law & Admiralty Jurisdiction in South Africa* (Juta & Co Ltd, 1999) at 270). More exceptionally, a handful of textbooks allude to the Lane Requirement being applicable (Yvonne Baatz *et al*, *Maritime Law* (Sweet & Maxwell, 2nd Ed, 2011) at 248; Yvonne Baatz *et al*, *Maritime Law* (Informa Law, 4th Ed, 2018) at 237). As to maritime practice, we note that the Limit Requirement enjoys some support from the US Coast Guard Navigation Rules, which expressly state that Rule 9(a) makes it insufficient for a vessel to simply comply with the Lane Requirement (US Department of Transport, “US Coast Guard Navigation Rules International – Inland”, 1 May 1977 at 13).

119 The Judge held that Rule 9(a) embodies the Limit Requirement. The Judge commented in the course of oral closing submissions that Rule 9 is now worded differently: it no longer refers to a “mid-channel”, which “envisages almost ... a Traffic Separation Scheme”. Instead, it is now “more situational and less prescriptive”. As he held in his oral judgment, Rule 9 is now both:

- (a) more flexible than the old Rule 25(a), in that a vessel can remain compliant even if she crosses the notional mid-channel line; but also
- (b) stricter than the old Rule 25(a), in that a vessel has to go as far as is practicable to the channel limit on her starboard side.

120 At the hearing of the appeal, both parties accepted that Rule 9(a) embodies the Limit Requirement and not the Lane Requirement. This was

notwithstanding some allusion by the respondent that the Lane Requirement is applicable in its case on appeal and below.

121 For the following reasons, we agree with the Judge that Rule 9(a) embodies the Limit Requirement.

122 The overarching principles applicable to interpreting the COLREGS were set out by the UK Supreme Court in *Evergreen Marine (UK) Limited v Nautical Challenge Ltd* [2021] UKSC 6 at [39]–[41]:

39. Such general principles [governing the construction of an international convention like the Collision Regulations] include the general rule of interpretation set out in article 31.1 of the Vienna Convention on the Law of Treaties 1969, which provides that:

‘1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.’

40. *The object and purpose of the 1972 Convention is to promote safe navigation and specifically the prevention of collisions at sea.* As stated by Sheen J in *The Maloja II* [1993] 1 Lloyd’s Rep 48, 50-51:

‘The structure of the Collision Regulations is designed to ensure that, wherever possible, ships will not reach a close-quarters situation in which there is risk of collision and in which decisions have to be taken without time for proper thought. Manoeuvres taken to avoid a close-quarters situation should be taken at a time when the responsible officer does not have to make a quick decision or a decision based on inadequate information. Those manoeuvres should be such as to be readily apparent to the other ship.’

41. The international character of the Collision Regulations and the safety of navigation mean that *they must be capable of being understood and applied by mariners of all nationalities, of all types (professional and amateur), in a wide range of vessels and in worldwide waters. They should accordingly be interpreted in a practical manner so as to provide clear and readily ascertainable navigational rules capable of application by all*

mariners. They are meant to provide international ‘rules of the road’.

[emphasis added]

123 A key facet of Article 31(1) of the Vienna Convention on the Law of Treaties 1969 is that a treaty is to be interpreted “in accordance with the ordinary meaning to be given to the terms of the treaty”. In this regard, *Marsden and Gault* at para 7-217 describes Rule 9(a) as having departed from the old Rule 25(a) in “three important aspects”. First, the rule is no longer limited in scope to “power-driven vessels”. Second, the obligation upon vessels now applies to narrow channels and fairways quite independently. Third, “the obligation is now to keep ‘as near to the outer limit’ of these, rather than, as before, to keep to the starboard side of the fairway, or of the ‘mid-channel’, a phrase which is dropped”.

124 The authors in *Marsden and Gault* explain at para 7-225 that whereas the old Rule 25(a) required vessels to “keep to *th[e]* side of the fairway or mid-channel” [emphasis added], Rule 9(a) now states the principle in “even stronger terms” by providing that a vessel “shall keep *as near to the outer limit* ... as is safe and practicable” [emphasis added].

125 The authors go on to observe at para 7-226 that a court will not determine the mid-channel line and exonerate a party found on the “correct” side of the line:

The court will decline to construct an imaginary centre line by making precise measurements of the channel and hold a vessel on the correct side of that line free from blame, although a vessel getting on the wrong side of the channel or fairway is usually, but not always, at fault for not keeping as near to the outer limit as she can. ... [emphasis added]

126 This is consistent with the view expressed in A N Cockcroft and J N F Lameijer, *A Guide to the Collision Avoidance Rules* (Elsevier, 7th Ed, 2012) (“*Cockcroft and Lameijer*”) at 46–47, which is that how far a vessel would be required to keep to starboard would be influenced by considerations such as draft and safety:

The requirement to keep near to the outer limit will usually mean that, when the depth of water diminishes from the mid-channel outwards to the sides, *vessels with shallow draught must keep further to starboard than vessels of deeper draught. However, vessels are not expected to put themselves in danger by passing too close to the shoals, or to make frequent alterations of course in order to keep near to the outer limit of every part of the channel. They are required to keep as near to the outer limit as is safe and practicable.*

It will not be sufficient to move over to the starboard side when encountering vessels proceeding in the opposite direction. A vessel is expected to keep near to the outer limit on her starboard side.

[emphasis added]

127 We agree with *Marsden and Gault* and *Cockcroft and Lameijer* that the plain wording of Rule 9(a) clearly and unambiguously supports the Limit Requirement. This was not a cosmetic change, but a new and express introduction of a reference to the channel limit.

128 The Limit Requirement also gives effect of the object and purpose of the COLREGS, *ie*, the promotion of safe navigation and prevention of collisions and close quarter situations (see [122] above and *The Dream Star* at [48]). It also responds more particularly to the unique challenges that navigators face in narrow channels. We find the following description of these challenges by Professor Craig Allen (“Professor Allen”) instructive (from Craig H Allen, “Taking narrow channel collision prevention seriously to more effectively

manage marine transportation system risk” (2010) 41(1) Journal of Maritime Law and Commerce 1 at 6–7):

The narrow channel rule can be viewed as an area-based collision prevention measure, directed at a particular constellation of risks. The drafters of the COLREGS and Inland Rules and their predecessors were apparently convinced that the ordinary rules applicable to non-narrow water bodies did not, by themselves, provide adequate protection against collision risks in narrow channels and fairways. They therefore inserted in the COLREGS and Inland Rules a special purpose rule to address the hazards unique to those channels and fairways. Any interpretation of this risk management rule should therefore begin with the nature of the risks posed by navigation in narrow channels and how the rule seeks to mitigate those risks.

The principal factors that distinguish narrow channels and fairways from other waterways are their physical characteristics and usage. The risks may be posed by narrow and shallow waterway geometry, blind bends, sharp turns, tide and river stage fluctuations, powerful and sometimes unpredictable currents and the forces of hydrodynamic interaction [including bow cushion and bank suction]. In congested waters, the number of encounters between vessels increases, requiring ships to pass frequently at close quarters. Additional risks may be posed by cross-channel and converging traffic patterns, bridges that are unsafely designed or negligently operated and frequent dredging, fishing and barge fleeting operations in some areas. ...

129 Professor Allen (at 19) also cites Richard A Cahill, *Collisions and their causes* (The Nautical Institute, 3rd Ed, 2002) for this observation:

One of the most dangerous situations that can confront a vessel is meeting another in a narrow channel. By definition, a narrow channel allows only a restricted amount of water in which to effect the meeting, so that the ships are not only thrust into close quarters but any deviation from the prescribed course can immediately place the vessels in extremis.

130 In our view, the Limit Requirement better promotes safe navigation by positively mandating that vessels achieve the widest clearance that is safe and practicable, by requiring that they keep as near to the *limit* on their starboard

side as is safe and practicable. This stands in contrast to the Lane Requirement, where compliance can be achieved by a vessel simply staying slightly off the centre line of the mid-channel. Concerns with vessels staying too close to the centre line had been articulated even when the Lane Requirement was the applicable rule. For instead, Willmer J commented in *The “Mersey No 30”* [1952] 2 Lloyd’s Rep 183 at 190:

... I know that in many narrow channels seamen in practice tend to stick to the middle, and only come away to their own side when it is necessary to do so in order to pass another vessel coming the opposite way; but I cannot avoid concluding that, on the proper construction of the rule, such a course of conduct is not in accordance with the rule. The rule requires that each vessel shall keep to her own starboard side of the channel.

The Limit Requirement makes it clear that a vessel should not be planning to navigate close to the centre line in ordinary circumstances.

131 Safety is promoted in a second way, by removing the need to determine the mid-channel line. In his oral closing submissions below, Mr Goush submitted that the Limit Requirement would be operationally simpler as navigators would not have to “start drawing lines on the chart measuring exactly equidistant the way you would measure the boundaries between nations and so on”. This difficulty with charting out an imaginary centre line has been alluded to above (at [117] and [125]). It becomes especially apparent in cases like the present, where channels are marked by pairs of buoys placed in a staggered layout, which is not an uncommon practice across the world.

132 At the same time, the Limit Requirement better accommodates the diversity of localised concerns and changing conditions that narrow channels present (see [128] above). As the Judge rightly noted (see [119] above), the Limit Requirement is more flexible and situational. It makes it unnecessary for

vessels to stay in their “lane” as such and regards a vessel as compliant so long as she is as far to the starboard limit as is safe and practicable for her in the circumstances she finds herself in. This removes some of the arbitrariness in dividing a channel into two lanes. Such a division may have the superficial attraction of simplicity, but it is hard to imagine a channel that is perfectly symmetrical in its distribution of hazards, the effect of current, bathymetric conditions, and so forth.

133 The Limit Requirement is also more accommodative of alternative passing arrangements. For one, starboard-to-starboard passings would be categorically impermissible under the Lane Requirement: by definition, at least one vessel would be in her wrong water. This flexibility is also important for pilotage waters. As Capt Hart noted:

[I]n pilotage waters, arrangements for avoiding the risk of collision are often made by VHF radio between pilots and the masters of local craft, to ensure that traffic can proceed efficiently and to help avoid[] any doubt when planning and taking collision avoidance action.

134 For these reasons, we hold that the proper interpretation of Rule 9(a) is that it embodies the Limit Requirement and not the Lane Requirement. This is clear from its unambiguous wording, and consonant with the object and purpose of the COLREGS.

135 This, however, does not mean that the Lane Requirement is completely jettisoned. As a practical matter, a vessel found in the “lane” on her port side of the channel would likely face difficulties in demonstrating that she was as far to the starboard limit as was safe and practicable. This is not a function of her being on one side of an imaginary line or the other, but a function of her presence in an area that is likely to experience denser oncoming traffic flows.

136 Given our finding that the Limit Requirement applies, the inquiry does not end with the respondent showing, as it has, that the *LP* remained on the “lane” west of the Recommended Track at the material time (assuming that the Recommended Track represents the mid-channel line). The inquiry turns to whether it was safe and practicable for the *LP* to have gone further to starboard.

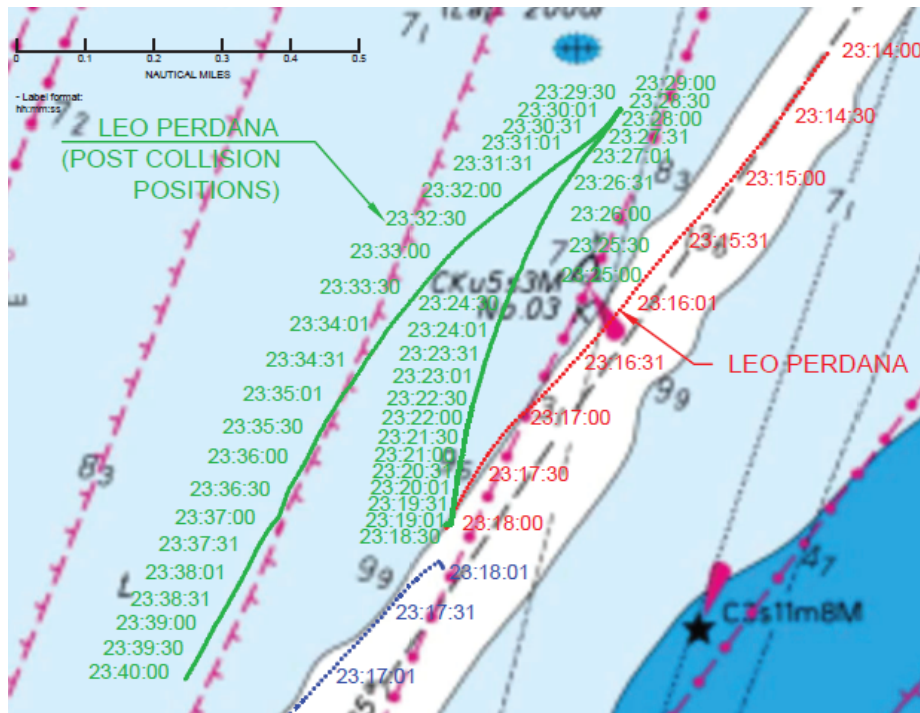
- (2) Whether it was safe and practicable for the *LP* to have gone further to starboard past the western edge of the Dredged Channel

137 We reject the appellant’s argument that the *LP* ought to have gone further to starboard past the western edge of the Dredged Channel, and that her failure to do so was a breach of Rule 9(a).

138 The appellant’s argument is premised on three observations:

- (a) the *LP* had in fact managed to pass further to the west of the Dredged Channel without incident following the collision;
- (b) the *LP*’s master did not appear concerned with the vessel proceeding at full ahead or with the vessel’s UKC; and
- (c) the *LP* was not a vessel constrained by her draft, such that she had to display the lights provided for in Rule 28 of the COLREGS.

139 We address each observation in turn, starting with the *LP*’s post-collision track. Using the *LP*’s AIS positions, the appellant’s experts had mapped out her post-collision track as follows (in green):



We mention for completeness that this map does not reflect the Strait’s bathymetry *post*-dredging. It is based on BA Chart 975, which was published in 2012 prior to the dredging activity in 2015. However, nothing really turns on this observation in our analysis of Rule 9, although we will return to this in relation to Rule 2 (see [158] below).

140 In our judgment, the appellant has conflated two distinct inquiries: whether a vessel *can* be in certain waters, and whether she *should* be in those waters. A significant difference is that Rule 9(a) tempers the latter with concerns of safety and practicability.

141 Quite plainly, the *LP* had found herself in markedly different and difficult circumstances following the collision. She had collided with an LPG tanker that caught fire almost immediately. The *NA* had indicated that she was carrying dangerous cargo. Those on board the *LP* were understandably

apprehensive: their VHF requests for firefighting assistance stressed that the fire was huge and that the *NA* was an LPG tanker. These were not circumstances which would or should ordinarily guide a vessel’s navigation track.

142 To be sure, Capt Simpson opined that after the *LP* crossed into these shallow waters, they remained “deep enough for *safe navigation throughout*, even at the full-ahead speed of [the *LP*]” [emphasis added]. However, in the hot-tubbing session, Capt Simpson conceded that the best way to understand his use of the word “safe” was “safe in the context of grounding”, on the basis that she had about 1m of UKC.

143 Capt Simpson also commented that the *LP* ought to have *considered* the prospect of leaving the Dredged Channel at some stage during her passage, as part of contingency planning. However, this is different from saying that, if those on board the *LP* had undertaken proper passage planning, they would have arrived at the *conclusion* that it was safe and practicable to navigate through *these* waters.

144 The appellant’s case also suffers from a more basic evidential difficulty. It has not demonstrated that the *LP could* have navigated through these shallow waters under normal conditions, even when transiting at commercial speeds.

145 The appellant claims that the *LP* was travelling at full ahead post-collision. It relies on the *LP*’s VDR data tables, which indicate that her engine was put to full ahead at 23:29:27 hours, which was when she resumed her southerly voyage (see the diagram at [139] above). It emphasises this because a higher speed increases a vessel’s dynamic draft due to a phenomenon known as squat. As the experts explained, squat refers to changes in the trim and draft of a vessel when travelling in relatively shallow water. It arises from the increased

velocity of water flow and the consequent fall in pressure underneath the vessel’s hull. These hydrodynamic changes contribute to a vessel’s vertical sinkage, increasing her draft and reducing her UKC. In turn, it limits the vessel’s navigable sea room. In the *LP*’s case, her squat calculation tables indicated that her draft would increase by 2.90m at a full ahead speed of 16 knots in confined waters. Tying this back to the appellant’s argument, the fact that the *LP* could proceed at full ahead meant that she was not constrained by her draft or squat, and could have navigated safely through those waters west of the Dredged Channel even if she was proceeding at her pre-collision speeds.

146 The evidential difficulty the appellant faces is two-fold. First, in the post-collision period up 23:40:00 hours (*ie*, the final timestamp in the *LP*’s VDR data tables), the *LP*’s engine was on full ahead only for a short period of about three minutes from 23:29:27 to 23:32:42 hours:

- (a) her engine was first put astern at 23:17:44 hours, just seconds before the collision occurred at 23:17:51 hours;
- (b) thereafter, it either remained astern or was stopped, before being put to dead slow ahead at 23:27:15 hours;
- (c) at 23:29:27 hours, it was put to full ahead; and
- (d) at 23:32:43 hours, it was put to slow ahead, and it remained set to either slow ahead or dead slow ahead until 23:40:00 hours.

147 This weakens any inference that it was safe and practicable for the *LP* to navigate through those shallow waters for sustained periods of time.

148 The second difficulty is that even during this period when her engine was at full ahead, it is unclear what the *LP*’s *actual speed* was. The only evidence of her speed was from the VDR tables. Yet, during the entire period from 23:29:27 to 23:32:42 hours, the *LP*’s STW indicator stated “Data invalid”, and her STW was reflected as a constant “-2.14” knots. There was therefore no credible evidence of what the *LP*’s speed was when her engine was put to full ahead post-collision. Nor could her speed be inferred from other periods of time when her STW data was indicated to be “valid”. If one examines the period *before* the indicator turned from “Data valid” to “Data invalid” at 23:35:29 hours, the *LP*’s STW never exceeded 4 knots after the collision brought her to a stop. If one examines the period *after* the indicator reverted to “Data valid” at 23:34:50 hours, her STW never exceeded 6.5 knots. As neither of these periods involved the *LP*’s engine being at full ahead, it would be speculative to extrapolate what her speed might have been between 23:29:27 and 23:32:42 hours. And even if extrapolation were possible, it is hard to imagine that the *LP* would have been travelling at an STW of 16–17 knots (*ie*, her full ahead STW prior to the collision).

149 In the light of these evidential difficulties, we do not accept the inference that the *LP* could have safely and practicably navigated through those shallow waters under normal conditions and commercial speeds. We certainly do not understand the appellant’s case to be that the *LP* would have been expected to proceed at only 6.5 knots under normal conditions; even Capt Simpson considered such a speed to be too slow, with 10–12 knots being more realistic.

150 Turning to the second plank of the appellant’s case (see [138(b)] above), the appellant submits that the *LP*’s master was of the view that there was “no risk of the [*LP*] running aground” in those shallow waters.

151 However, in his affidavit of evidence-in-chief, the master expressly stated that he would “ordinarily prefer to navigate at Half Ahead in the channel as [he] was aware that the pilot book had given a caution on the existence of shallow patches on both sides of the channel and that vessels are to navigate with extreme caution”. He only agreed with the pilot’s chosen speed because the pilot “was the local expert in these waters and *would probably* have better knowledge of the prevailing currents and the depth of the water along the channel” [emphasis added]. All this shows is that the master relied on the pilot for his local knowledge of the channel. On the stand, the master’s final response on this issue was that he remained concerned that there may have been areas of shallow water on the *LP*’s starboard side.

152 The appellant also relies on the master’s agreement under cross-examination that if the *LP* had slowed down, she could have adjusted her course further to starboard. This must likewise be read in context. Given the master’s seeming lack of familiarity with the depths of the waters west of the Dredged Channel, the master’s reply cannot be read as more than a general acknowledgement of the relationship between a vessel’s speed and draft, and not a specific observation about those waters.

153 The third and final plank of the appellant’s argument (see [138(c)] above) is that the *LP* was not a vessel constrained by her draft such that she had to display the lights required of such vessels under Rule 28 of the COLREGS. Rule 3(h) of the COLREGS defines such a vessel to mean “a power-driven vessel which, because of her draught in relation to the available depth and width of navigable water, is severely restricted in her ability to deviate from the course she is following”. On the appellant’s argument, the fact that the *LP* did not display the lights under Rule 28 betrayed a belief by those on board the *LP* that she was not confined to navigating within the Dredged Channel.

154 In our view, this argument is neither here nor there. Even a vessel *not* constrained by her draft in the Rule 28 sense would only be required by Rule 9(a) to go as far as is *safe and practicable* to the channel’s limit on her starboard side. As *Cockcroft and Lameijer* explained, how far this extends would vary with a vessel’s draft (see [126] above). The logical implication is that there will inevitably come a point where a vessel would not be required to alter her course further to starboard based on her draft. In other words, the *LP* can justifiably remain in the Dredged Channel by simply relying on Rule 9(a), without resorting to Rule 28.

155 For these reasons, we do not accept that Rule 9(a) required the *LP* to navigate past the western edge of the Dredged Channel.

The LP’s compliance with Rule 2

156 While the appellant has focused its argument on Rule 9, it has also made a passing reference to the duty of good seamanship or duty to take “precaution[s] which may be required by the ordinary practice of seamen” under Rule 2(a) of the COLREGS. Citing the holding in *Alize 1954 and another v Allianz Elementar Versicherungs AG and others* [2021] UKSC 51 that a vessel may be unseaworthy if its passage plan is defective, it argues that the *LP* was likewise in breach of Rule 2(a) for failing to have a proper passage plan. This includes her failure to mark up her working chart with “no-go” areas, as required by her Safety Management System (“SMS”).

157 Our main difficulty with this argument is that even if a breach of Rule 2 were made out, it would not have been causative of the collision and, as such, would have been irrelevant to the ultimate issue of the apportionment of liability. The appellant’s case on Rule 2 is in one sense parasitic on its case on

Rule 9(a). The argument is that, had the *LP* undertaken proper passage planning, she would have realised that she could have navigated further to starboard beyond the western edge of the Dredged Channel. Given our views on the appellant’s case on Rule 9(a), it is speculative at best to claim that proper passage planning would have led to the conclusion that navigation in those waters was safe and practicable. Notably, its own expert, Capt Simpson, did not consider the lack of a passage plan to be causative of the collision.

158 Even if it were necessary to determine whether Rule 2 had been breached, it bears emphasising that BA Chart 975 – which *both vessels* were using – did not reflect post-dredging bathymetric conditions, and that dredging was completed just weeks before the collision. The appellant’s case thus contains a further element of speculation, namely that the *LP* would have arrived at a different passage plan notwithstanding the informational limitations she faced.

159 A third element of speculation is that passage planning by the master and his team would have made a material difference to the decisions made by the *LP*’s *pilot*. Capt Simpson’s evidence on a related issue casts doubt on this:

In my experience, as a master and a pilot, it is not unusual for a pilot to adjust a route, as marked on the charts, due to local factors such as traffic density and/or depth of water. In my experience as a pilot, I have done that on many occasions, explaining to a master that a different part of the fairway, or another channel will be used during the passage. *Although it should ideally be discussed and a whole new passage plan drafted for that section by the bridge team, it is rarely practical, or possible, to do so and so long as the pilot has conduct of the navigation and the passage plan can be monitored visually and by radar as progress is made, it should not be an issue. ...* [emphasis added]

160 For these reasons, we hold that the appellant’s case on Rule 2 is not relevant to the ultimate question of apportionment, and in any case, not proved.

The LP’s breaches of Rules 6 and 8(e)

161 Apart from the breaches of Rule 8(a), 8(c) and 8(d) examined above (at [68]–[96]), the appellant also argues that the *LP* was in breach of Rule 8(e) of the COLREGS by failing to reduce her speed when she was already experiencing bow cushion effect from 23:14:40 to 23:16:23 hours. Rule 8(e) provides that “[i]f necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.”

162 At this stage, it is relevant to mention the Judge’s findings that the *LP*’s speed had been excessive and contributed to the bow cushion effect (see [45] above). While the Judge did not specify which rule(s) of the COLREGS these findings were made in relation to, it is likely that he considered Rule 6 to have been engaged. Rule 6 of the COLREGS requires a vessel to “at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions”.

163 We consider the *LP*’s speed to have been excessive, and, together with her failure to slow down, this constituted a breach of Rules 6 and 8(e). Based on her VDR records, the *LP*’s STW was consistently above 16 knots until 23:17:03 hours. The navigation experts agreed that both the *LP* and the *NA* were travelling at speeds that could be considered excessive.

164 Based on the evidence, it is clear that the *LP*’s pilot only ordered that her engine be stopped at 23:17:20 hours, some 25 seconds after she encountered the port sheer and almost three minutes after he ought to have realised that the *LP* was experiencing bow cushion effect. In examining this argument, it is

important to bear in mind our finding (see [96] above) that the *LP* was in breach of Rules 8(a), 8(c) and 8(d) for the “midships” order being given in circumstances when she ought to have realised that she was experiencing some bow cushion effect by then. In the context of this finding, it is difficult to avoid the conclusion that the *LP* should have reduced her speed *earlier* especially when she was clearly not responding to helm action in a timely manner. At the hearing of the appeal, Mr Goush could not justify why the *LP* did not slow down sooner.

165 Capt Simpson’s response, that a container ship like the *LP* going at full ahead cannot be stopped within a matter of seconds, misses the point. Even if a collision was inevitable, slowing her speed would have likely reduced the magnitude of the impact and the extent of resultant damage, which is also relevant to the ultimate question of apportionment (see [58] above).

166 For these reasons, we find that the *LP* was in breach of Rules 6 and 8(e) for her excessive speed and her failure to slow down more quickly after she experienced the bow cushion effect and in any case after the port sheer had commenced.

167 As for the causative potency of these breaches, the appellant submits that the Judge should have recognised that the *LP*’s speed was causative *in ways other than by contributing to the bow cushion effect*. In particular, it reduced the time available to both vessels to assess the situation and take collision avoidance action, restricted the *LP*’s ability to stop within an appropriate distance, and limited her ability to navigate beyond the western edge of the Dredged Channel.

168 While we accept that excessive speed generally carries a high degree of causative potency (see *The Dream Star* at [114]; *The Sanwa* at 300; Harry Hirst,

Collisions at Sea: Volume 1 Liability and the Collision Regulations (Xlibris, 2019) at 15–16), including for the reasons identified by the appellant, we do not accept that the *LP* should bear greater blame than the *NA* as a consequence given our views below.

169 We have rejected the appellant’s argument on the *LP* having to navigate beyond the western edge of the Dredged Channel (see [144]–[152] above). As to the remaining arguments on reaction time and stopping distance, the simple point is that the *NA* was *also* transiting at excessive speeds that even her own master conceded to be unsafe. In fact, her STW was generally between 15 and 16 knots, and remained as high as 14.8 knots even at the time of collision (*ie*, 23:17:51 hours). We have not been given any cogent reason as to why the *LP*’s causative fault with respect to the excessive speed would have been greater than the *NA*’s. Instead, Capt Hart opined that any criticism as to speed ought to apply equally to both vessels. Capt Simpson had “no fundamental disagreement” with this view. The *LP*’s failure to slow down *after* she experienced bow cushion effect has been taken into account in our finding that the *LP* was in breach of Rule 8(e) (see [163]–[166] above). To that extent, greater causative potency with respect to the *LP*’s excessive speed has already been recognised.

170 Granted, Capt Simpson added one caveat: the *NA* had a smaller draft and higher UKC than the *LP* given their respective builds (see [8]–[9] above). The ostensible implication is that, holding all else equal, the *LP*’s excessive speed limited her manoeuvrability to a greater degree than the *NA*.

171 The reason for this would be squat. As explained above (at [145]), an increase in speed increases the effects of squat and decreases a vessel’s UKC. In the context of [145], this was significant because of the consequent reduction in a vessel’s navigable sea room. For present purposes, the relevant implication

is that reduced UKC may affect a vessel’s steerage and directional stability. This concern is seen in the *LP*’s SMS, which prescribes that where UKC falls under 3m, the master ought to:

- (a) Reduce speed to the minimum necessary to provide steering.
- (b) When under pilotage, discuss speed and squat with pilot and agree on a maximum safe speed for the transit. Remind that the pilot [is] only adviser. [If] the master believes that a slower speed should be used then that recommended by the pilot, then the master’s view shall prevail. ...

This advisory is contained in the SMS’s “Guide for Voyage Planning”, which the *LP*’s master described as being based on good seamanship practices.

172 In our judgment, the appellant has not shown that the *LP*’s navigational difficulties arose from her low UKC in the sense that squat affected her steerage or directional stability. Capt Hart’s evidence is that her speed was not of itself inherently likely to cause any manoeuvring difficulties. The depth below the *LP*’s transducer, which measures her UKC, was in excess of 4m until about 23:16:30 hours. Despite her travelling largely at full ahead during this time, the *LP*’s VDR plots do not reveal any difficulty with maintaining her planned track prior to the port sheer. Similarly, Capt Simpson accepted that although large rudder angles were being applied, the *LP* was able to maintain her heading until the port sheer. There is also no evidence of the *LP* experiencing other effects common to vessels affected by significant squat, which, on Capt Hart’s evidence, could have included an increase in engine vibrations and a reduction in the revolutions per minute (RPM).

173 For completeness, we note that Capt Simpson had also opined that:

By increasing speed to full-ahead, it would mean that [the *LP*] would meet [the *TB*] almost immediately before [the *NA*]. [The *LP*] was limiting her own sea room for any alteration of course

to starboard, when the red to red passing was arranged with [the *NA*].

This appears to be a slightly different point, namely that a slower speed would have increased the passing *distance* between the vessels.

174 However, in the expert hot-tubbing session, Capt Simpson conceded that he had not carried out any calculations to come to this conclusion. He explained that:

Simpson: ... I didn’t do a scientific simulation ... My purpose was simply to say that the---by slowing down, events would have changed ahead. I’m not saying it would have changed for the better, I don’t believe.

There is therefore no basis for inferring that a slower speed by the *LP* would have improved the passing distance. In any case, we note that Capt Simpson appeared to concede that if the *NA* had been transiting at a slower STW of about 10 knots, that would have also enabled “[the *LP*] to increase the distance from [the *TB*] before they met”. The point is thus neutral at best.

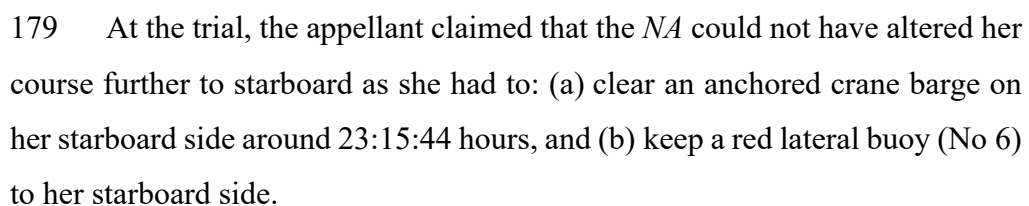
The appropriate apportionment of liability

175 In our view, in comparing the causative fault of both vessels, the Judge placed too much weight on the *NA*’s breach of Rule 9(a), and none on the *LP*’s “midships” order. Before explaining our decision to apportion liability at 50:50, we briefly examine the breaches of the *NA*.

The NA’s breach of Rule 9(a)

176 On appeal, the appellant does not dispute that the *NA* breached Rule 9(a). We agree with the Judge that this breach by the *NA* carries causative fault.

178 From the following chart prepared by Capt Hart, it can be seen that the *NA*'s actual track (in blue) cut across that of the Recommended Track (in pink) as she travelled northwards, with her actual track remaining to the west of the Recommended Track up to the point of collision (where the blue line terminates):



180 However, the evidence shows that the *NA* had in fact passed both the barge and the buoy at an earlier time, around 23:14:20 hours. The *NA*’s master conceded as much after being referred to the *NA*’s AIS plot and radar screengrabs.

181 Furthermore, although buoy No 6 appeared to lie on the Recommended Track in BA Chart 975 (which the appellant argued meant that the *NA* had to keep west of, and not on, the Recommended Track), it was in reality some 100-odd metres *east* of the track and thus outside of the Dredged Channel altogether. This revision was reflected in the third edition of the BA Chart 975 dated 5 November 2015, but no notice to mariners concerning the buoy’s position had been issued prior to this revision. Nevertheless, there was little dispute that the pilots would have been aware of the buoy’s actual location.

182 It is relevant to mention that at 23:14:56 hours, the *LP*’s pilot had requested over VHF radio that the *NA* move further to starboard. While the *NA*’s pilot had ordered a course alteration to 045° at 23:14:41 hours (prior to the request) and another to 048° at 23:15:44 hours (following the *LP*’s request), it was Capt Hart’s evidence that a bolder alteration of course would have been expected, particularly as the *NA* was experiencing a drift angle of some 6–7°.

183 We thus agree with the Judge that the weight of the evidence showed that it was safe and practicable for the *NA* to go further to starboard and to pass the anchored crane barge and buoy No 6 at a much closer distance. Her failure to do so was a breach of Rule 9(a). This breach limited the navigable sea room available to the *LP* in the narrow channel, which was a mere 150m in dredged width, and constrained the ability of both vessels to execute the agreed port-to-port passing safely.

The NA’s breaches of Rules 5 and 7

184 As stated above (at [43]), the Judge found the *NA* in breach of Rules 5 and 7 of the COLREGS:

Rule 5

Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

...

Rule 7

Risk of collision

- (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
- (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- (d) In determining if risk of collision exists the following considerations shall be among those taken into account:
 - (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change; and
 - (ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

185 Based on the Judge’s findings, the *NA*’s missteps included: (a) making insufficient course alterations (see [29(a)] above) even though her radar constantly showed that her COG would not allow her to achieve the agreed port-

to-port passing, and (b) allowing a long period of time to elapse before reacting to the *LP*’s port sheer.

186 The appellant has not appealed against this finding, and we leave it undisturbed.

187 We pause to comment on the respondent’s argument that the *NA* is *also* in breach of Rule 8 of the COLREGS. This argument essentially rests on the same underlying complaint as that in [184] that the *NA* should have taken bolder action to alter her course to starboard. For the reasons set out at [201] below, we do not think that the Rule 8 breach, even if established, would add much to the respondent’s case.

The NA’s breach of Rule 6

188 As explained above at [163] and [169], the *NA* was in breach of Rule 6 for navigating at excessive speeds.

Summary of breaches relevant to apportionment

189 In summary, we affirm the Judge’s findings that the *NA* was in breach of Rules 5, 7 and 9(a) of the COLREGS. She did not keep a proper lookout and adequately monitor the risk of collision. She also failed to keep as near to the limit of the narrow channel on her starboard side as was safe and practicable.

190 As for the *LP*, we hold that her failure to detect and react to the bow cushion effect early enough, her pilot’s erroneous “midships” order, and her failure to slow down earlier, collectively amounted to breaches of Rules 8(a), 8(c), 8(d) and 8(e) of the COLREGS.

191 Finally, both vessels were in breach of Rule 6 for travelling at excessive speeds.

Weighing the vessels’ respective faults

192 The Judge decided that the *LP* was to bear 30% of the blame for the collision. This was due to the *LP*’s excessive speed, and more particularly her exacerbation of the port sheer. In our judgment, the *LP* ought to bear 50% of the blame.

193 A significant feature of this case is that the parties had agreed on a passing arrangement. It was not a case where the *NA*’s intentions were unclear or where a relatively close passing was not expected. Pertinently, at the time the port-to-port passing agreement was reached, the *LP* would have already known of the *NA*’s position – that she was some distance to the west of the Recommended Track and thus unlikely to have been as far to the channel limit on her starboard side as was safe and practicable (*ie*, likely in breach of Rule 9(a)). Even after the passing agreement was reached, in the light of the Judge’s undisputed finding that the *LP* had kept a proper lookout, the *LP* would have known of the *NA*’s track and the sufficiency (or insufficiency) of the *NA*’s alterations. This militates against placing undue weight on the *NA*’s breach of Rule 9(a).

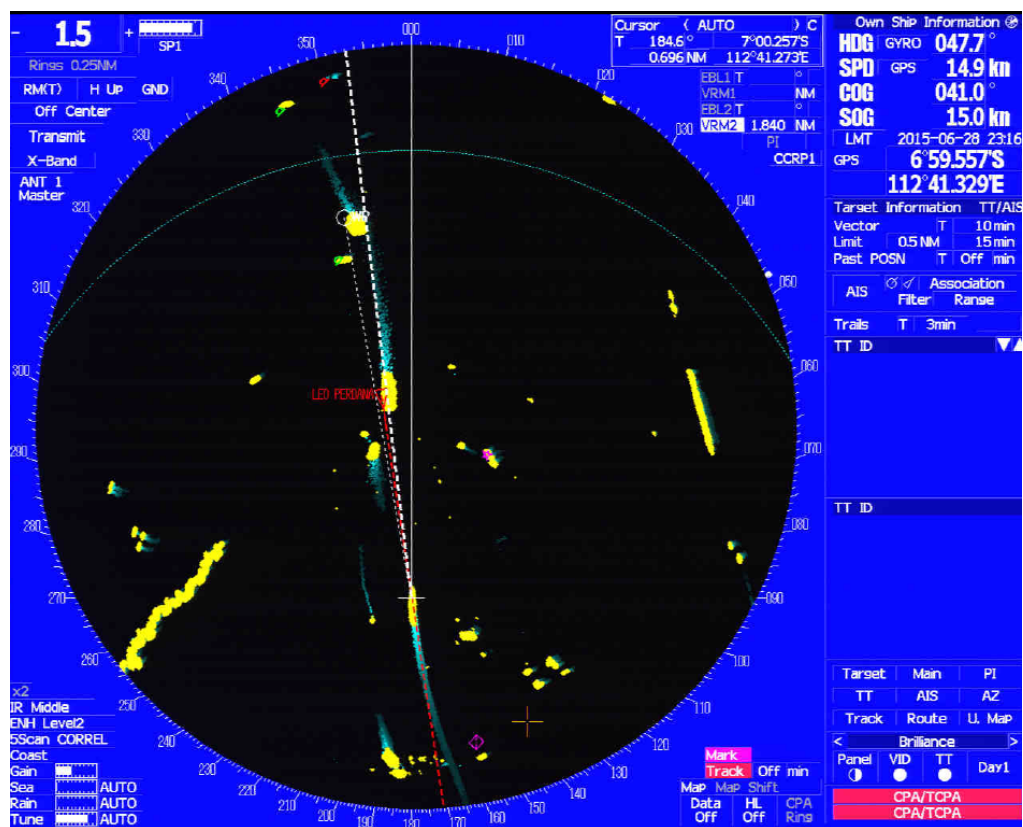
194 In the circumstances, the expectation must have been that both vessels, guided by experienced pilots, would have behaved in a seamanlike manner, and that each would conscientiously and progressively make the necessary alterations to starboard. As Capt Simpson opined:

In pilotage waters, vessels make passing arrangements by radio in advance and then often take action at a later stage, when the vessels are closer to each other than would be the case in open

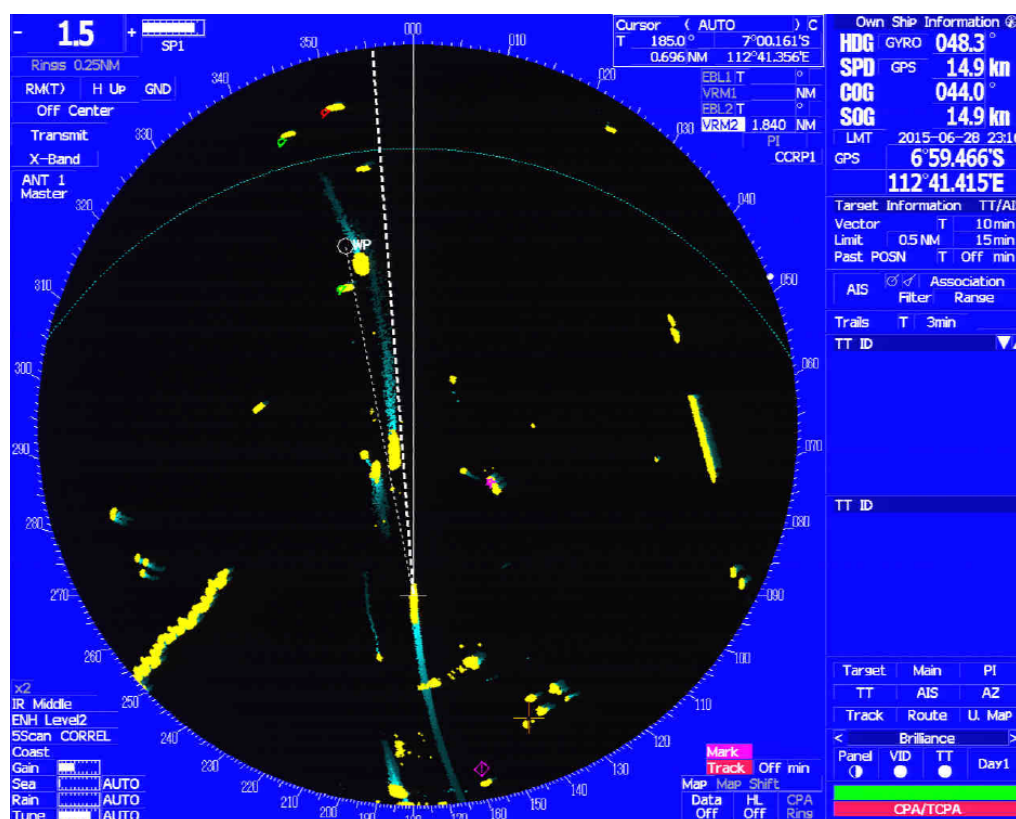
waters. They also often pass each other at a closer range and make smaller alterations of course to facilitate their manoeuvres.

195 Indeed, prior to 23:16:46 hours, the pilots appeared confident that both vessels would be able to pass safely. There was no discussion on the specific location where they would pass. The bridge on both vessels was calm. Strikingly, the *LP* only made a single request for the *NA* to move further to starboard, at 23:14:56 hours. Capt Simpson opined that if there had been any concern onboard the *LP* over the location where the *LP* would pass the *NA*, this would have been communicated over VHF radio. He thus considered that “a safe red to red passing could have been achieved if the master and pilot of [the *LP*] had properly managed her speed and/or the helmsman”.

196 From their courses, the vessels also appeared to be shaping to complete the red-to-red passing. As described above at [101], the vessels’ red sidelights had opened and green sidelights had closed by 23:15 to 23:16 hours, indicating that each vessel was off the other’s port bow. The point is made starker when one compares the following radar screengrabs from the *NA*’s X-Band radar (which is set to head-up mode with relative motion, and a 1.5nm range). The first screengrab, taken at 23:16:14 hours, shows the *LP*’s radar echo lying on the *NA*’s COG line (*ie*, the white dashed line extending from the *NA*).



197 The screenshot taken 30 seconds later at 23:16:44 hours (reproduced below) shows the *LP*’s radar echo now lying *port* of the *NA*’s COG line, as vessels shaped to pass port-to-port. This was just before the port sheer commenced at 23:16:46 hours.



198 Importantly, the course alterations that needed to be made to achieve the port-to-port passing were not significant. According to Capt Simpson, it is common for alterations in the region of 10° or less to be made for a passing similar to that between the *LP* and the *NA*. Moreover, there was sufficient sea room in the area where the collision occurred for the two vessels to pass each other safely. He prepared a simulation which showed that, in ordinary circumstances (*ie*, without any port sheer), a mere 5° alteration to starboard by both vessels as late as 23:17:05 hours would have enabled them to pass with a lateral clearance of about 79m. In his view, this would have been “close, but clear”. Given the inherent spatial constraints of narrow channels and the Dredged Channel’s width of 150m, this appears to us to be a relatively substantial passing distance. To put matters in perspective, the *LP* had passed

the *TB* at a lateral distance of only about 110m. Prior to this, she had also overtaken another vessel, the *Pahala*, at a lateral distance of about 107m. It is likely that the *LP* was expecting to pass the *NA* at a comparable distance, and not at some distance that is so much larger that Capt Simpson’s simulation would be rendered unrealistic.

199 For the foregoing reasons, we do not consider the *NA*’s breach of Rule 9(a) to have presented a serious threat to the vessels’ ability to achieve a safe passing.

200 In comparison, what was unexpected, and what ultimately brought the vessels rapidly towards a collision, was the *LP*’s port sheer. On one view, this originated from a natural, hydrodynamic phenomenon. However, it was causally significant that the *LP* was travelling at an excessive speed, which contributed to the sheer. While the Judge recognised this, he failed to consider that the *LP* had also failed to detect and react to the bow cushion effect *earlier*. Instead, her starboard helm was deliberately and erroneously removed through her pilot’s “midships” order, which sent the *LP* on an irreversible sheer to port. These breaches of Rules 6 and 8 are of high causative potency.

201 The Judge also appeared to place undue emphasis on comparing the number of alterations taken by the *LP* with that of the *NA*. The Judge found that the *LP* complied with Rules 5 and 7 by making repeated course adjustments to give effect to the port-to-port passing agreement, whereas the *NA* was in breach of the same rules for not making sufficient alterations. In our view, given that the immediate cause of the collision was the port sheer, these earlier alterations were of relatively lower causative potency. In fact, as we have explained at [75]–[78] above, these multiple but ineffective alterations to starboard should have alerted the *LP* to realise that she was experiencing some form of

hydrodynamic resistance. We therefore disagree with the Judge’s treatment of the multiple alterations to starboard by the *LP*. In our view, the need for these alterations actually works against the respondent, for they reveal the *LP*’s continuous inability to attain the headings ordered by her pilot.

202 While the apportionment of liability is a fact-sensitive exercise, we find it helpful to examine the case of *The “Pelopidas” and “TRSL Concord”* [1999] 2 Lloyd’s Rep 675 (“*The Pelopidas*”), particularly as it also concerns an unexpected sheer that was exacerbated by speed.

203 The collision in *The Pelopidas* also occurred at night. It took place within a buoyed dredged channel near the port of Buenos Aires, which channel ran largely from east to west. Both vessels were under pilotage. The analogy is between the *LP* and the *Pelopidas*, and between the *NA* and the *Concord*.

204 The *Pelopidas* was outbound and travelling eastward. The *Concord* was inbound and travelling westward. The *Pelopidas* was experiencing a measure of rejection from the southern bank, and had to consistently apply 8° of starboard helm to maintain equilibrium. When she was about half a mile away from the *Concord*, her engines were put to slow ahead, and her speed began to fall from 9 knots. When her speed reached about 7.5 knots, she began to sheer to port, owing to the reduced water flow over her rudder and her increasing proximity to the southern bank. Those on board the *Pelopidas* were unaware of the sheer, much less its cause. Orders were given for half-ahead and hard-a-starboard only when she was less than 0.3nm away from the *Concord* (at 678). Those on board the *Concord* had seen the *Pelopidas*’s green sidelights come into view, and they similarly put her wheel hard-a-starboard, and then hard-a-port moments before impact (at 679).

205 The *Pelopidas*’s anti-collision manoeuvres could not prevent her from altering some 8° to 11° to port due to the sheer (at 679). The *Pelopidas*’s stem and port bow ultimately collided with the port side of the *Concord*, just forward of her accommodation (at 679).

206 It was conceded that the *Concord* was in breach of Rule 9 of the COLREGS at all material times. There was no impediment to the *Concord* moving further starboard based on her draft. Yet, she made no significant effort to do so, be it as the *Pelopidas* approached or even after an earlier near-miss with another vessel, the *Kyklades* (at 680).

207 As for the *Pelopidas*, the assessors advised, and the court agreed, that the *Pelopidas* ought to have reduced her speed after passing a bend in the channel. This was given: (a) her anticipated passing with the *Concord*, and (b) her draft, given the shallow water effects she was already experiencing and which were notorious in the channel. While some bank interaction would still have been inevitable at lower speeds, the court accepted that a slower speed would have made for a less violent and more readily correctable sheer. Her attempts to take her way off were also too late (at 680).

208 As to apportionment, the court observed that both vessels were seriously at fault. However, the “predominate feature of the lead up to collision” was found to be the *Concord*’s breach of Rule 9. Mr Justice Steel noted that: (a) the *Concord* had appreciated that the *Pelopidas* was deeply drafted and had no option but to navigate in the mid-channel area; (b) she had failed to heed the lesson from an earlier close passing with the *Kyklades*; (c) she had given an assurance to the *Pelopidas* that she would move further to starboard; and (d) she was a powerful and manoeuvrable vessel that faced no encumbrance in navigating to starboard. Steel J concluded that “it was [the *Concord*’s] course

which created the risk of collision and, furthermore, reduced the room and time available to [the *Pelopidas*] to correct a sheer, a phenomena all too common in this part of the world” (at 681).

209 However, the *Pelopidas*’s excessive speed also attracted a “significant share of the blame” (*ie*, 40%), “amplified to a small extent” by her subsequent failure to cope with the sheer. The court accepted that her speed was not *substantially* excessive, in that it should have been 8 knots rather than 9 knots after her turn, and about 6 knots instead of 8.5 knots at the time of the collision. But these translated into a magnified effect on bank rejection, which would have been “a particular hazard for a vessel which had such a substantial draught with such limited space laterally in the channel” (at 681).

210 Accordingly, liability was apportioned 60:40, which translates into the *Concord*’s causative fault being 1.5 times that of the *Pelopidas*.

211 At first glance, *The Pelopidas* might read like a case that seemingly supports the Judge’s 70:30 apportionment. Steel J’s assessment of the *Concord*’s breach of Rule 9 as the “predominate feature” is aligned with the Judge’s finding that the *NA* bore greater causative fault by failing to comply with Rule 9 and creating the situation of difficulty or danger. At the same time, due weight was given to the excessive speed of the *Pelopidas*.

212 However, and as we have alluded to over the course of this judgment, there are two critical distinguishing features that would make a 70:30 or even a 60:40 apportionment inappropriate in this case.

213 First, dissimilar arrangements were reached between the respective vessels in each case, revealing stark differences in what was expected of the *NA*

and the *Concord*. Unlike the *NA*, the *Concord* had been specifically reminded of the *Pelopidas*’s deep draft and *informed* that she would consequently be manoeuvring close to the channel’s centre line (at 677 and 678). In this context, the *Concord* gave an assurance that she would move further to starboard. By contrast, the *NA* was not alerted specifically to the *LP*’s draft. Nor was the *LP* displaying lights indicating that she was constrained by her draft. Instead, the *NA* and the *LP* were prepared to perform an *agreed* port-to-port passing without specifying where they would pass, and without the *LP* communicating any concerns beyond asking the *NA* to move further to starboard once at a relatively early stage (at 23:14:56 hours).

214 Second, the circumstances surrounding the sheer in each case were of a different complexion. Mr Justice Steel’s observation that a sheer induced by hydrodynamic interaction was a phenomenon “all too common in [that] part of the world” might suggest that a sheer ought to have been expected by the *Concord*, and that a sheer was a real and possibly unavoidable risk for vessels like the *Pelopidas*. This stands in contrast to the present case. There is nothing to suggest that the *NA* should have expected the *LP* to experience a sheer. The *NA* was not even in a position to know that the *LP* was experiencing bow cushion effect; indeed, only the *LP* would have known of this, and as we explained above (at [77]–[78]), should have known of this *earlier*. Moreover, whereas there was no suggestion that the *Pelopidas* had contributed to the sheer otherwise than through her slightly excessive speed, the *LP* directly contributed to the sheer through: (a) failing to detect and react promptly to the bow cushion effect; (b) her pilot’s “midships” order and the helm action; and (c) her significantly excessive speed.

215 In the light of these salient differences, we are of the view that the *LP* ought to bear at least 50% of the blame.

216 Against this, we appreciate that the *NA*’s breach of Rule 9 is also of real significance. It limited the sea room and time available to the *LP* to overcome her port sheer. This is a critical concern in a narrow channel, not least when the vessels in question were attempting to adhere to a passing arrangement that required non-negligible course alterations. The appellant has been unable to give any cogent explanation for why the *NA* was as far as she was to the channel limit on her port side, and Capt Hart has opined that there was simply “no navigational merit” to the course that she took. In addition to the breaches specific of each vessel, it is also relevant that *both* vessels committed serious breaches of Rule 6 by proceeding at excessive speeds.

217 Having considered all the relevant breaches, we consider a 50:50 apportionment to be most appropriate in the circumstances.

Conclusion

218 For these reasons, we allow the appeal and find both parties equally to blame for the collision.

219 Parties are to tender written submissions with respect to the costs here and below, limited to eight pages per party, within 14 days of the date of this

judgment. These submissions are also to address the costs of the transfer application (CA/OA 13/2022), which were ordered to be costs in the appeal.

Judith Prakash
Justice of the Court of Appeal

Steven Chong
Justice of the Court of Appeal

Belinda Ang Saw Ean
Justice of the Court of Appeal

Seah Lee Guan Collin, Jonathan Lim Shi Cao and Choi Yee Hang
Ian (Resource Law LLC) for the appellant;
Mohamed Goush s/o Marikan (Goush Marikan Law Practice) and
Mohd Munir Marican (Marican & Associates) for the respondent.
