

# Pilotage

A selection of articles previously published by Gard AS





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# Ports and places of refuge in South Africa

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Gard News 201,  
February/April 2011



Nautical chart of Valsbaai (False Bay).

The subject of ports and places of refuge around the world has steadily become a topic of much debate among various interest groups, especially after the breaking of the PRESTIGE off the coast of Spain.

No doubt when the PRESTIGE accident occurred there were several issues at stake regarding what should be done with the vessel and what steps should be taken by the various authorities. After the incident some experts argued that if the vessel had been taken into a port or place of refuge the resultant oil spill could have been controlled. This is not the first time that such a debate has occurred, since the issue is highly sensitive. The PRESTIGE case, however, does illustrate the need for a sensible approach when dealing with ships in difficulty. In the case of the MSC NAPOLI, a decision had to be taken on what to do with the vessel after she developed a crack, and it was decided that a beached landing would be the best solution in order to limit and control the damage to the environment.

It is against this background that South Africa has looked at its contingency plans in order to deal with ships in difficulty and what it should do if faced with any of the above scenarios.

South Africa is surrounded by 2,798

km of coastline that splits the Atlantic and Pacific Oceans. At certain times of the year this length of coastline can be one of the most dangerous stretches of coastline in the world, especially when one takes the weather, currents and rugged rocks into account. It is for these very reasons, that it is important to have a plan in place and to be aware of the options available to the country in order to deal with potential ecological catastrophes should one ever arise. The coastline is littered with wrecks stretching back hundreds of years and, therefore, the next maritime casualty could be imminent.

## A sensible and commercial approach

To deal with the scenario of a ship in difficulty, the South African government has passed legislation and approved the appointment of the South African Maritime Safety Authority (SAMSA) to consider their options, together with other local marine experts, on the procedures to follow should a vessel run into trouble.

South Africa has adopted a very sensible and commercial approach to the issue of ships in difficulty and the need to have ports and places of refuge available for a vessel in case of an emergency. There are places of refuge available in South Africa for deep draft

vessels, together with certain ports, provided certain requirements can be met.

There are three possible places of refuge on the South African coast:

1. St Helena Bay - a deep water bay but exposed to the wind from the northwest
2. False Bay - very good area that offers much protection
3. Algoa Bay - good shelter only from the west

In addition, there are eight commercial ports in South Africa: Saldanha Bay, Cape Town, Mossel Bay, Port Elizabeth, Coega, East London, Durban and Richards Bay.

## Anchoring a vessel at will is illegal

A shipowner or master can not simply anchor a vessel along the South African coastline at their own will. Various pieces of legislation have been passed to prevent this:

- The Marine Traffic Act, Act 2 of 1981;
- South African Maritime Safety Authority Act, Act 5 of 1998;
- Merchant Shipping (Maritime Security) Regulations 2004, which incorporate Regulation X 1-2/9 of SOLAS (ISPS);
- Marine Pollution (Control and Civil Liability) Act, Act 6 of 1981;
- Wreck and Salvage Act, Act 94 of 1996;
- Merchant Shipping Act, Act 57 of 1951 (as amended);
- National Ports Authority Act, Act 12 of 2005.

The Marine Traffic Act deals with a vessel entering and departing from international waters and states that there are regulations regarding the immobilising, laying up, stopping or anchoring outside harbours or fishing harbours. It is an offence under the Act for any vessel to lay up on the South African coastline without the necessary permission. Permission to lay up a vessel must be given by the relevant minister through SAMSA, who may demand, inter alia, that various conditions be met. For example, SAMSA may demand that a tug be made fast to the vessel at all times throughout the duration of the lay-up. The tug would therefore be able to move the vessel in case of an emergency. If she is made fast, then there is little delay in moving or relocating the vessel should the need arise.

## 6

### SAMSA's role

SAMSA also has the power to demand that the master or owner of the ship post security to the satisfaction of SAMSA in an amount determined by SAMSA for the recovery of any costs incurred by SAMSA in enforcing any condition applicable to the immobilising or laying up of the ship, or in the exercise of its powers under the Act.

SAMSA have the authority to prevent a vessel coming towards the coast to seek refuge and this authority stretches to all bays and anchorage areas. Although the ports are operated by the Transnet National Ports Authority (TNPA), they will often turn to SAMSA for advice and assistance. Before a vessel can seek refuge at a place or port in South Africa, SAMSA must first give their authority, and if it is a port, then TNPA will also have to be consulted and give their approval. SAMSA will always consider the safety of life as being paramount and the Maritime Rescue Co-ordination Centre in Cape Town co-ordinates all rescue activities with the harbour master at the nearest port. The next priority is the environment. Once the above factors have been taken into account, one would then give consideration to the safety of property.

South Africa has always had an excellent approach to the subject of vessels seeking a port or place of refuge and SAMSA should be commended for their role in such matters. SAMSA have a difficult function to fulfil and it has always been our advocacy that shipowners looking to utilise South African waters as a place of refuge

should act with utmost good faith when dealing with SAMSA. A failure to disclose a particular fact may lead to a vessel being barred from gaining refuge.

Where a vessel's structure has been compromised, SAMSA will want to inspect the vessel and assess the problem before granting permission for the vessel to get close to the coast.

Once permission has been granted, it may be subject to certain conditions, for example:

- The vessel may be requested to produce a valid hull and machinery insurance certificate.
- The vessel may be requested to produce a valid P&I insurance certificate of entry.
- All fuel bunkers and black oil (including contents of engine sumps) may have to be removed from the vessel.
- The vessel must be attended to by an adequately powerful salvage tug that has to be made fast.
- A salvage contractor must be appointed by owners (the contractor should be an International Salvage Union member).
- An operational plan must be prepared and approved by SAMSA
- A suitable guarantee might be requested.

The request for valid insurance certificates is a new development and an essential one. If vessels want to make use of our coast, then owners must understand that South Africa needs to protect itself from having to incur and bear the costs of removing vessels

which may eventually be abandoned by the owners. Having suitable insurance in place provides a level of protection should an unfortunate event or risk arise during the period of refuge.

Both SAMSA and TNPA recognise and accept Club letters of undertaking from IG clubs. The wording of this letter has been agreed upon with the clubs and is only a slight variation of the standard IMO wording for ports of refuge. The variation is that it incorporates South African law.

### Resources

South Africa is fortunate to have various resources available on its coastline to assist vessels in difficulty or which may have to lay up. South Africa was the first country to recognise the need to have a tug solely for the above purpose, which resulted in the rest of the world also introducing emergency towing vessels (ETV).

Two salvage companies have offices in Cape Town with fully equipped warehouses. Resources are available to provide, inter alia, fenders and transfer hoses.

### Co-operation is paramount

South Africa, as a coastal state, does recognise the need for vessels to seek refuge and in general will assist in this process. However, it is imperative that the requirements of the authorities are met and that the owners, the ship and their respective insurers co-operate at all times.



# Increased risks of grounding in Barranquilla, Colombia

Loss Prevention Circular  
No. 15-10

## Background

Gard and other P&I clubs have recently experienced several serious casualties in the port of Barranquilla. The port of Barranquilla is located on the west bank of the Rio Magdalena (Magdalena River) some 10 miles upriver from the mouth, known as Bocas de Ceniza, in the Caribbean Sea. The port receives some 300 vessels monthly. The purpose of this circular is to inform about the situation in Barranquilla and to help members and clients to assess the increased risk when entering or leaving this port.

## The unusual situation in Barranquilla

The 2010 rainy season in Colombia, with unusually large volumes of rain falling for considerable periods of time has been the worst in 40 years. The rainiest months of the year are usually April and October, but in 2010 due to the La Niña<sup>1</sup> phenomenon, the late rainy season started in late August and is now running into December. Colombian climate experts estimate that the rains will continue well into 2011, probably until March, causing the late rainy season of 2010 to merge with the early rainy season of 2011. At the time of writing, this year's rains have so far left more than 130 people dead and close to two million affected.

There are currently unusually large volumes of water in the rivers, and special directional dams at Bocas de Ceniza have been constructed to accelerate the flow of the river to maintain and improve depth and thus the draught for the shipping channel. This has created unprecedented conditions and increased the risks involved in navigating in the port of Barranquilla.

Increased risk when navigating in the port of Barranquilla

The severe conditions described have caused difficulties for even the most experienced pilots in Barranquilla and some of the incidents, including three serious groundings in October/November may be due in part to misjudgement of the river conditions by the pilots and masters. Examples of this could be "presenting too much hull"

to the current and turning at the wrong time. In addition to the groundings, the excess water flow has also led to other incidents such as collisions due to miscalculating the speed and strength of the current.

With the increasing volume of water, the silting up of the river bed and of the mouth of the river has also increased, causing changes in the pattern of silt deposits, creating shoals and reductions of depth where there previously were none. The changes in the river bed also have a bearing on the speed and direction of the current. The current in the navigational channel has increased due to the Bernoulli principle<sup>2</sup>. This has changed the hydrodynamics of the River.

The authorities have expressed concern and have increased the frequency of bathymetries and soundings of the river bed. They have also started to provide information more regularly (bi- or tri- monthly, rather than once a month). In addition, a permanent dredge is now stationed at Bocas de Ceniza to cope with the changing circumstances.

## Recommendations

Due to the unusual conditions in Barranquilla, Gard strongly recommends Masters to be aware of the risks involved and take the above into consideration when planning the arrival or departure. Vessels entering the port should request their agents to provide the most up to date bathymetric charts and recommendations from the local authorities prior to entering port. When possible, vessels should enter the port during daytime.

When possible the pilot should board the vessel three or more miles outside the river mouth. This will allow the pilot more time to get a better feel of the handling of the ship, should there be an emergency situation. Masters should work closely with the pilots in the discussion and planning of the entering manoeuvre. The pilot station should be contacted well in advance to obtain an update on the conditions in order to get accurate data for the onboard risk



Figure 1- Magdalena River & Rio Cauca reaches the sea in Barranquilla

assessment. The Master and the pilot should plan together to reduce the vessel's side exposure to the current to avoid losing rudder control of the ship.

The circular has been drafted and edited by Gard's local correspondent in Colombia – Marventura Services Ltda.

<sup>1</sup> La Niña is a coupled ocean-atmosphere phenomenon that is the counterpart of El Niño as part of the broader El Niño-Southern Oscillation climate pattern.

<sup>2</sup> If the volume increases and the area to discharge remains the same, the same volume is delivered but at a higher speed.

# Communication in pilotage passage planning

Gard News 200, November 2010/  
January 2011

Good communication between master and pilot continues to be paramount. The article "Master/pilot exchange of information", published in Gard News issue No. 154, focused on the importance of good communication between master and pilot, a problem which was also highlighted in the articles "Pilot on board!" in Gard News issue No. 181 and "Is the pilot a part of the bridge team?" in Gard News issue No. 185. In the following article Gard News revisits the topic once again.<sup>1</sup>

Ideally the pilot, the master and the officer of the watch (OOW) should discuss and agree on the intended passage plan in pilotage waters prior to commencing the passage. Unfortunately, this is often not done in accordance with bridge team management principles. For the master and the ship's crew to be able to supervise the pilot's performance, or even question the pilot's actions, they all have to be aware of the pilot's intentions.

Pilots prevent far more accidents than they cause. Nevertheless, when a pilot boards a vessel there may be pressure on both the pilot and the bridge team in terms of time. As a result, the passage plans of the pilot and the on-board bridge team may not be consistent with each other. There may be a lack of communication between the bridge team and the pilot regarding the intended passage, which may significantly reduce the safety of the operation.

Recent findings in incidents investigated by Gard involving pilots showed that common elements were present in most of these cases:

- (1) information had not been shared by the master and the pilot,
- (2) there had been insufficient time for the ship's crew to familiarise themselves with the pilot's intended passage plan,
- (3) the pilot boarding ground was frequently closer to the harbour entrance compared with the charted boarding ground.

## ECDIS

In many areas pilots use their own electronic chart systems, displaying the passage on a laptop or similar device that they bring with them on board and connect to the vessel's AIS pilot plug. Use of such aids to navigation, if combined with reduced planning and bad communication between bridge team and pilot, further reduces the ability of the OOW to monitor the pilot's intentions regarding the vessel's track, changes of course and to question any decisions made by the pilot.

Nowadays most vessels are equipped with ECDIS or ECS as aids to navigation and support to conventional paper chart navigation.<sup>2</sup> When the passage is properly represented in these electronic systems, it is possible to enable a number of automatic alarms, which add to the safety of navigation. However, for these safety barriers to be effective, the passage plan must be properly agreed between vessel and pilot.

In some areas pilots send passage plans or passage planning information for a particular port to vessels in advance. This proactive communication enables the vessel's bridge team to prepare and enter the expected passage in the on-board systems prior to the arrival of the pilot, including activating the safety settings on the vessel's ECDIS/ECS. When the pilot arrives on board, the bridge team is already aware of his main intentions and should be able to quickly discuss and agree on the passage plan, including any possible deviations from the original plan. However, this should not replace the all-important master-pilot exchange of information.

Given the technology available today, the transmission of intended passage planning information in advance of the vessel's arrival by the pilot, pilotage authority or other responsible body through a simple e-mail would significantly add to safe navigation and would assist the pilot in becoming a more integral part of the bridge team.

This becomes even more important with the impending implementation of full ECDIS regulation. And why not also use emails to send the waypoint details in advance?

Advance information leaves only minor technicalities to be discussed or confirmed at the time of pilot boarding and ensures that the bridge team's full attention can be immediately directed towards navigation.

This is probably the way forward: communication of the pilot's intended passage plan in advance of the actual operation, which would facilitate input of the plan in the ship's anti-grounding monitor system, the ECDIS. This would also allow the bridge team to familiarise themselves with the intended passage plan and be in a better position to monitor the pilot's actions.

## Footnotes

- 1 See also the article "Harbour towage and pilotage", elsewhere in this issue of Gard News.
- 2 See article "ECDIS - Charting the future of navigation" elsewhere in this issue of Gard News.

# Harbour towage and pilotage

By Yves Beeckman, Marine Superintendent, URS, Antwerp.

Gard News 200, November 2010/  
January 2011

It is generally assumed that tug operations are routine for ships' crews and that mooring parties will handle them efficiently and swiftly. As a result, master-pilot exchanges do not usually address this issue. However, in order to ensure effective harbour towage operations, it is essential that the relevant information is exchanged between the master and the pilot beforehand, so that the mooring parties can be called to their stations in time, fully briefed on the details of the operation. Daily experience in a harbour towage department shows that, unfortunately, the number of less-skilled mooring parties is on the increase. This lack of skill may result in delays in securing a tug, putting time pressure on the crew and thereby increasing the risk of personal injury or of the vessel sailing in unsafe conditions, for instance in dense traffic, before the tug is ready.

## Exchange information beforehand

The tug information can be exchanged during the voyage under the pilot's advice, as opposed to being exchanged at the time of pilot boarding, when there are other navigational priorities to be addressed. At the start of the towing operation the parties should all be at their mooring stations in good time and have the heaving lines ready at the correct/required position. The master should discuss the ETA at the rendezvous point and ensure that he musters the crew on time, allowing for the distances to the mooring stations to be covered in time, without the need to run. If the operation is to take place at night, the crew should have ample time to wake up and prepare for the period out there, possibly in adverse weather conditions.

## Information required to be passed from pilot to master

Due to the different types and sizes of tugs, there are many different types of harbour towage manoeuvres, so the master should find out the following details from the pilot in order to pass them on to his crew:

- ship's lines or tug line
- type of tow wire (steel, synthetic, size, indication of their size)
- method of getting the tow wire on

board or the ship's lines to the tug. (most commonly for tug's lines: thin heaving line from the vessel to pick up a larger size messenger rope from the tug, which can be led to the warping drum of a winch in order to heave on board the tow wire. When using ships' ropes, the other option is to lower a ship's rope or send it over with a heaving line. Most tugs will, however, not take a lowered line when underway), only when departing from the berth

- position for passing over the heaving line (throw from the ship's shoulder, which fairlead the heaving line should be taken through)
- maximum speed for securing the tug, so the bridge team can monitor
- bollard pull of the tug(s)
- VHF channels to be used for working with the tugs

## Information required to be passed from master to pilot

The master should provide the following information to the pilot:

- SWL of the mooring / towing equipment
- Which fairleads are suitable for securing the tugs. If they are off centre and only one tug is to be used, this must be specifically brought to the attention of the pilot.
- Pushing point strength, if known. If no pushing points are indicated on the hull, but the ship has a reinforced belt all around, it is important to convey this fact to the tug master.

## What the crew should know

The officer in charge must ensure that the mooring party knows which bollard(s) will be used for the tug(s), how the messenger line will be led towards the warping drum and how the tow wire will be stopped off in order to allow the strain to be taken off the messenger line and the soft eye to be put over the bollard. They should also be aware of the releasing procedure.

In order to avoid disruption, if there has been a crew change, the new crew should familiarise themselves with the mooring equipment before taking their stations for the first time.

Regular meetings should be held

to remind the crew of the risks of handling tow wires and to discuss the procedures.

## During the operation

The commands used by the officer in charge should be clear and well understood by the deckhands; standard terminology may be developed, subject to the ship's working language.

The crew should wear leather working gloves or gloves made from equivalent materials when handling a tow wire, never cotton gloves. Very loose work clothing should also be avoided. Overalls should be tight, especially around the wrists and ankles.

Many serious personal injury incidents in mooring areas involve parting lines. It is therefore important to note that a "snapback zone" exists when a mooring line is under tension. Crews should take that into account during operations and it may be a good idea to indicate these areas permanently on the deck. As soon as the tug is secured, all crew stand back from the snapback zones. Crew members should also be warned to beware of hands and fingers: sudden jerks in the tow wire while taking the line on board or releasing the tug can easily lead to personal injury.

The officer in charge must always be in visual contact with the tug during securing up, so he can exchange hand signals with the tug crew, which is usually better than trying to handle a walkie-talkie VHF in windy conditions. There are ships in which the bulwarks are so high that the tug crew can not see anybody on the (forecastle) deck of the vessel, or anything that goes on there. In such conditions, it is absolutely essential to have one person in a specific location for signalling visually to the tug. The crew should always signal to the tug when the tow wire is secured and the tug can safely start applying power. Status of the tow wire should also be confirmed to the master (secured, in the water, propeller cleared).

Only a suitably weighted heaving line should be used. Monkey's fists should not have additional weight,



but a heaving line should not be thrown without a monkey's fist. The latter may be blown away and may be impossible to get across to the tug. The crew should have a second heaving line ready to throw in case the first one should end up in the water. The ship's crew should always warn the tug crew before sending the heaving line across. The crew should never use a thick messenger line to throw to the tug, instead of a normal heaving line: the weight of the line coming down may injure the tug crew; it is also more difficult to tie two messenger lines together (a rope messenger line will typically be a three strand polypropylene rope of 24mm diameter).

A tow wire should never be grabbed from below, but always from above.<sup>1</sup> If the wire has to be released quickly in an emergency, it is always easier to just release your grip on the wire and let gravity do the work than to pull your fingers away from underneath the wire.

The messenger line must never be disconnected from the tow wire. As an alternative, after securing the wire over the bitt, the shackle can be disconnected from the soft eye of the tow wire and reconnected immediately, over the wire behind the soft eye, as a "running" shackle. This provides a means to give sufficient power to the tow wire to create enough slack so that the soft eye can be lifted easily from the bollard. If this is not done, the shackle connecting the messenger line to the tow wire should not be allowed to become jammed between the bollard and the tow wire. This would cause a

sharp bend in the tow wire under load, which might cause it to snap. The tow wire should never be stopped by simply putting it on deck and standing on it; the wire is too heavy and you may be thrown off your feet or dragged along. Very serious injuries will result in most cases. The crew should also beware of "snaking" messenger lines when they are released and run out. They could seriously hurt someone upon impact.

Normally, the bow tug will have no problems when the tow wire is released in one go; the tug will be moving away from the vessel and there will be little risk of the tow wire ending up in the tug's propellers. However, the crew should always try to obtain confirmation from the tug of how they want this done. The stern tow wire must always be released in a controlled way (slacked away by means of the messenger line, in co-ordination with the tug crew). When you let it go in one motion, it will most probably end up in the tug's propellers.

### **Tug emergency "let go" procedures**

Tugs working on a towing winch have a "let go" system. The ship's crew does not have to do anything to disconnect the wire; that will be done by the tug master. He will set his winch drum free and let the wire run out, until it breaks from its securing bolt on the winch drum, while he manoeuvres his tug to safety.

However, this leaves the ship's crew with a problem: the vessel will be trailing up to 140m of steel wire, which has to

be recovered from the water before the tug can make a new approach (to secure up with its spare towing wire). When making speed through the water, this will be a difficult job for the mooring party, because once the messenger line is entirely on board or on the warping drum, it will be much more difficult, probably even impossible, to wind the remaining towing wire in on the warping drum. In this case, a stopper must be used, and a (second) messenger line tied to the towing wire further down the line, and then winding the wire on board can be resumed. This process may have to be repeated a considerable number of times. It will probably be necessary, if conditions allow, for the vessel to reduce speed. This is a dangerous operation and great care must be taken when carrying it out.

### **Footnotes**

1 Towing wires typically have the following dimensions: for 45 ton bollard pull: 42mm diameter; for 65 ton bollard pull: 48mm diameter; for 80 ton bollard pull: 54mm diameter.

# Damage to fixed objects when manoeuvring in confined waters



Gard has recently seen a noticeable increase in cases involving significant contact damage to fixed objects by vessels manoeuvring in confined waters, mostly within port. Fixed objects include berths, docks, locks and shore side equipment such as cranes. The contact damage has resulted in some very large claims for the repair and/or loss of use of such objects. Outlined below are five of the most common factors, in Gard's experience in cases involving contact damage to fixed objects in confined waters.<sup>1</sup> These incidents also risk harming people and the environment (e.g. pollution from breached oil tanks), and the ship itself is often left with expensive repairs and loss of trading time.

## 1. Prevailing and forecast conditions not properly assessed

The cumulative effect of wind, sea, current and tidal conditions on the ship may not have been fully appreciated. As a result of the above factors the

vessel can experience difficulties in manoeuvring in a controlled fashion and within safe parameters. Insufficient allowance has been made for the forces acting on the ship. These can easily turn out to be greater than expected and beyond the capabilities of the ship and, due to the unforeseen effects of the prevailing and/or forecast conditions, insufficient tugs would have been employed to handle the vessel. There are instances where manoeuvrings in confined waters should be deferred until conditions have improved. This also includes cases of reduced visibility.

## 2. Unfamiliarity with the ship's manoeuvrability

A pilot will know the local waters best, however, the master is more familiar with his vessel's manoeuvrability. Due to the rotation of crew, familiarity with the ship's own manoeuvring systems can be lacking, and, as technology and computerisation is becoming ever more prevalent, training may be

needed to ensure that crew members are familiar with the vessel's systems.<sup>2</sup> It is important to include information as to the vessel's manoeuvrability in the master/pilot information exchange before the commencement of the pilotage.<sup>3</sup> The effect of changes in the vessel's draft, trim and windage characteristics must also be taken into consideration when discussing the vessel's manoeuvrability.

## 3. No agreed manoeuvring plan

Just how the vessel will manoeuvre when in close proximity to fixed objects is often not planned and/or agreed in advance within the bridge team and/or with the pilot.<sup>4</sup> This not only concerns the location that the vessel is proceeding to/from, but also other fixed objects which the vessel will pass within critical close proximity. Often, insufficient time is invested in advance to consider how the vessel can be expected to behave, given its manoeuvring characteristics and the

prevailing conditions. The closest points of approach are often not calculated as are critical bearings, transits and ranges to assist in determining the limits of the safe manoeuvring parameters.

#### 4. Poorly executed manoeuvre

Even the best ship handlers occasionally get it wrong, although it is perhaps surprising how very wrong in some cases. Excessive speed is a common factor as is pilot error and the bridge team can be reluctant to intervene when the pilot is clearly making mistakes.

5 Communication with tugs, terminals and mooring crews leading to misunderstandings has also been a contributory factor. Even where a manoeuvring plan is agreed, prevailing circumstances can require the plan to be changed and there may be little time to react to new situations. In particular, changes in wind conditions and the movements of other vessels often create problems. In a number of cases it appears that aborting the manoeuvre to try again has not been considered or has been left too late.

#### 5. Loss of manoeuvring capability

The loss of engines, propulsion, steerage, or thrusters is, perhaps surprisingly, a less common factor than those mentioned above. There are instances where such a loss has occurred immediately before/after manoeuvring systems have been, or are due to be, repaired or overhauled. Unfortunately, during these periods of increased risk, additional precautions appear not to have been taken. Pre-sailing and pre-arrival checks on manoeuvring systems are important, especially after a long ocean passage or stationary period. Less obvious factors involve squat and/or interaction. Although a loss of manoeuvring capability will inevitably make contact avoidance more difficult, exercises and drills can be used to test back-up systems, including use of the ship's anchors. Having something in reserve is important, but being able to put that reserve to effective use is equally important.

#### Recommendation

It is better to abort the manoeuvre and make a second attempt than to

fail on the first. During drills, exercises and tests of equipment prior to arrival, the Master should ensure that the crew is able to respond at any time to an emergency situation related to manoeuvring. Tasks should be properly defined and assigned to qualified personnel, and the Master should ensure that the company procedures are fully understood by everybody involved. Effective and clear communication is important. The Master should closely monitor the manoeuvres and should not hesitate to comment, give advice, or even abort an approach if he is uncomfortable with the situation.

1 See also "Bumps and scrapes can be costly!" from Gard News 183.

2 Some shipowners have sought to standardise equipment across vessels in their fleet and to always assign senior officers to the same class of vessel.

3 See "Master/pilot exchange of information" from Gard News 154.

4 See Guidance to Masters 2.13.4 Navigation in confined waters – Bridge Resource Management.

5 See also Loss Prevention Circular no. 04-00: Pilot on the bridge - Role, authority and responsibility.

# Pilot error survey

Gard News 186,  
May/July 2007

## International Group of P&I Clubs reports on pilot error-related claims

The Pilotage Sub-committee of the International Group of P&I Clubs (IG) has published a report on claims over USD 100,000 involving pilot error.

Information pooled by IG Clubs relating to 260 such claims has been included in the study, which covers the period from 20th February 1999 to 20th February 2004.

### Important observations

The average number of incidents per year involving pilot error was 52. The frequency did not increase from year to year. The average cost of each claim over the five year period was USD 850,000. The average cost did not increase from year to year either.

Claims for damage to fixed and floating objects (FFO) involving pilot error accounted for 65 per cent of claims by number (37 claims per policy year) and 33 per cent by cost. The average cost of each claim for damage to fixed and

floating objects was USD 400,000. The report recommends better training or briefing of bridge team management to operate with the pilot on board, especially in relation to passage planning.

Collisions involving pilot error accounted for 24 per cent of claims by number and 24 per cent by cost. On average there were 14 collision cases per year involving pilot error and the average cost of each case was USD 800,000. The report recommends bridge teams to keep a proper look-out and not to forget that their eyes are still the most sophisticated aid to do so.

Groundings, pollution and general average/salvage cases involving pilot error each accounted for about three per cent of the incidents by number. There were on average two incidents in each of these categories every year. Groundings accounted for 35 per cent of all incidents by cost. The average cost of each grounding involving pilot error was USD 7.85 million and of

each pollution incident involving pilot error the average cost was USD 1.8 million. The report recommends better training or briefing of the bridge team management to operate with the pilot on board, with emphasis on the master/pilot exchange of information.

Groundings are the most expensive pilot error claims. They are more than four times as expensive as pollution claims and almost 20 times more expensive than FFO claims.

The IG is currently maintaining a database of pilot error incidents from 21st February 2004 to the present and thereafter.

The complete report can be downloaded from the IG website at [www.igpandi.org](http://www.igpandi.org) under "News and Information".

# What happens to the pilot after a casualty?

Gard News 186,  
May/July 2007

A glimpse at pilot error from a different perspective.

When a vessel with a pilot on board is involved in an accident, the usual practice is that the pilot leaves the vessel as soon as possible, often being replaced by a new pilot. Hence, examination or questioning is avoided. The pilot is "the shipowner's servant", and faults or errors made by the pilot are generally covered by the shipowner's insurance policies. Only in major casualties can one expect that the pilot will be forced to give evidence and to be cross-examined. In these cases, the normal procedure is for the pilot to demand a written letter of indemnity from the shipowner prior to any hearing.

One should therefore believe that pilots involved in casualties do not get any reproach as a consequence of their faults. However, some (or perhaps most) pilots' associations have their own internal investigations following a casualty, although very seldom is one made aware of sanctions imposed. In a particular recent collision case, Gard received a copy of the relevant pilots' association's investigation, which proved that some pilots in fact are properly sanctioned. In the case in question, the pilots' association's investigation concluded that the pilot was responsible for:

- wrong understanding of the distance between his vessel and the moored vessel with which it eventually collided;
- his approach was too fast;

- the timing of turning was wrong;
- other waiting vessels made him over-hasty in his operations.

Due to the above, the pilot was suspended from business for 21 days. He was degraded to a lower rank for three months, including a salary cut of USD 1,000 per month for the same period. In addition, he was forced to take navigational simulator training at his own expense.

Notwithstanding, the damage to the vessels had to be covered by the shipowner's insurers.

# Is the pilot a part of the bridge team?

By Captain Erik Blom Master of the M/V BLACK WATCH,  
Fred. Olsen Cruise Lines



Hopefully the answer to the above question is yes, but this comes at a price.

I have been a Captain for the last 20 years, starting in the Royal Norwegian Navy, later becoming a pilot on the Norwegian coast, until I decided to change trade and became a cruise vessel captain. Over the years I have worked on and managed a lot of bridges, some well-functioning and the odd ones not working at all.

Most readers will certainly know the purpose of a well-functioning bridge team. Hopefully gone are the days when the Captain – with a capital C – took all the decisions without discussing with anyone, and not listening to advice from others. On bigger ships the master now has a team around him on board to support him in his decisions: the bridge team.

Bridge team and its responsibilities  
There are many combinations of

environmental and other factors for setting different watch conditions, but as a minimum on ships with crews of more than 6-7, the bridge team (BT) consists of the master, the officer on watch (OOW) and a sailor as helmsman and lookout. With several shipping companies, especially within the cruise and oil industry, additional crew joins the BT.

The BT's responsibility is to ensure a well-functioning Bridge Resource Management (BRM). Some of the main objectives of BRM are:

- To assist the ship master in managing the vessel's bridge team for each voyage so that personnel are rested, trained and prepared to handle any situation.
- To help the ship master recognise workload demands and other risk factors that may affect decisions in setting watch conditions.
- To ensure bridge team members are trained and aware of their responsibilities.

– To help bridge team members interact with and support the master and/or the pilot.

## Pilot's responsibilities

The pilot is on board to assist in navigation and manoeuvring. The exchange of information between master and pilot does not shift the responsibility for the safety of the vessel from one to the other.

## Fatigue

Chapter VIII (Fitness for duty) of the STCW Convention<sup>1</sup> sets limits on the hours of work and minimum rest requirements for watchkeepers.

A pilot's work environment (irregular and lengthy working hours, working at night, unpredictable duty rosters, and travelling to and from their jobs) can significantly contribute to fatigue. Moving a large vessel in confined waters is a high-risk task and the pilot assigned to that task has a responsibility to the state, the port authority and the ship's master.

<sup>1</sup> International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, 1978. Pilots are managers of high-risk

situations that require intense concentration and skill levels so that any decrease in performance can potentially lead to a catastrophe. A pilot error caused by fatigue can endanger the ship, crew, port and the environment.

Only national rules apply to pilots and they are not subject to the same regulations as the ship-board crew. I have met pilots who have been on the run for more than 36 hours without a decent nap, and I can assure you it does not bring back happy memories.

### Communication

Communication can not be overrated. It is the most vital part of bridge team management. Communication with pilots and their organisation starts already during passage planning. Some countries have pages and pages with information within our planning material, and the information often ends with the statement "...failing to report... might cause x hours' delay". If the master/ship has not been to the port before the stress level within the BT begins to rise.

The next crucial point of contact is when the OOW uses the VHF to report to Vessel Traffic Service (VTS) or pilot station. Most stations are very friendly and helpful, but others do not reply at all when ships try to comply with the compulsory rules to report the required number of hours before arrival. The OOW has been informed via passage plan that he must get in touch with the pilot station by a specific time otherwise the ship might be delayed. If there is no reply he will continue with repeated calls on all possible means, dive back into the publications to double check the passage plan information and take the focus away from his main duty – to navigate. This in turn again increases the stress level.

Then the pilot boat is approaching. Being a former Norwegian pilot myself I know how important it is to have optimum conditions for the pilot boat when the pilot is boarding. It can look very calm down there from the bridge wing, but being in the pilot boat is a different story. Very often the pilot boat master has a specific heading he wants us to steer. Coming into the UK is a pleasure: they are always very polite using phrases such as "Please, Sir" and "Captain". Others merely observe the formalities and make you feel ill-at-ease. This is not a good start as you are waiting for a person from that particular pilot boat to come up on the bridge expecting him/her to be a part of the bridge team.

Eventually the pilot is on the bridge. How the master and the pilot meet and

greet each other is the key to how the rest of the passage will be. The pilot has (maybe) done this passage hundreds of times and the master – not having been here before – has made his own assumptions on how the approach should be handled.

I have experienced pilots embarking at the breakwater, not giving us time to meet and greet at all, forcing me more or less to disregard the pilot as there is no time to discuss or exchange information. This is very often the case in Mediterranean ports where you only have a breakwater and a berth or two. The pilots are just there as an advanced linesman showing us where to berth. This is a very unsatisfactory situation as the pilot is not integrated with the BT and sometimes just creates clutter to the organisation.

In general the pilots are on the bridge in due time in order to allow for a thorough "handover"/information exchange. In this case the master has a vital role in making the pilot feel welcome, and the pilot needs to remember how it was coming into a new (complicated) port for the first time.

A lot of information has to be exchanged between the pilot and the master in a relatively short time, when the master normally has "the conn" and the ship is moving in confined waters (to have "the conn" is to have sole responsibility to control, or direct by order, the movements of a ship, i.e., to give proper steering and engine orders for the safe navigation of the ship).

Typically the following information is to be exchanged between the pilot and master during the approach: ship details; originating authority; manoeuvring details; propeller details; main engine details and equipment defects; berth and tug details; local weather and sea conditions; details of passage plan, including navigational hazards, abort points and emergency plans; local regulations, including VTS reporting, maximum allowable draft, etc.; ship's agent; year built; IMO number; cargo type (IMO codes if dangerous cargo); last port; etc.

At this stage it is very important that the chemistry between the pilot and the master is good. Otherwise it might lead to dangerous situations.

The next step is transition of "the conn" from the master to the pilot. I have met pilots coming on the bridge and, without acknowledging anyone, giving the helmsman orders based on the ship's heading when he left the pilot boat, not realising we were on

the correct heading for the approach. After the exchange of information summarised above I always clearly inform my bridge team with the phrase "Pilot has the conn" and in turn my OOW and helmsman acknowledge the information: the closed loop.

The "closed loop" is a communication protocol where information is given, repeated by the receiver and normally confirmed by the issuer. This is the only way one can be sure an order is being followed and is a vital part of the bridge team management. Having observed this from all sides, it is obvious to me that you can minimise the risk of misunderstanding if the "closed loop" is working. In a Canadian study where 200 accidents were related to human error, 84 (42 per cent) involved misunderstanding between pilot and master and some could probably have been avoided if the "closed loop" protocol had been used.

### Language

I have recently returned from a voyage to the French part of Canada. In the St Lawrence River ships the same size as mine always have two pilots on board taking one hour watches. As in many other countries, a new generation of pilots is being trained and in addition to the two pilots we had apprentices on board. It was too easy for them to fall back on speaking French between themselves instead of speaking English and in turn creating two "bridge teams", which should be avoided.

Sometimes it is not possible to avoid two teams due to communication difficulties, either on the crew or on the pilot's side. Based on my experience, most pilots speak more than good enough English, but as a pilot conning a ship heading for Mongstad oil terminal I have experienced that my helm orders had to be translated into three different languages before they were executed by the helmsman. In that situation it was difficult to establish a closed loop.

### The pilot is a vital part of the bridge team

Provided a few essential premises are taken care of, the pilot is a very vital part of the bridge team.

In my opinion, fatigue, language barriers, lack of chemistry, an open loop and, last but not least, cell phone calls from the pilot's family are threats to ships' safety.

"Welcome on board, Mr Pilot. Coffee or tea?"

# Navigation through the entrances to the Baltic Sea



This circular is based on a recent letter received from The Danish Maritime authorities highlighting the increased number of navigational accidents in Danish waters, and Gard's own experience with similar accidents in the same area.

As members and clients are aware, IMO resolution MSC.138 (76) provides recommendations on navigation through the entrances to the Baltic Sea, namely the Great Belt (Route T) and The Sound. The recommendations include the use of pilots for certain types of ships in high traffic density waters. The purpose of IMO resolution MSC 138(76) was to provide those responsible for the operation of ships with recommendations on safe navigation through the entrances of the Baltic Sea with the objectives to ensure safety, prevent human injury or loss of life, and to avoid damage to the environment, in particular the marine environment, and to ships and their cargoes.

In a letter to the International Group of P&I Clubs, the Danish Maritime Authority has drawn the shipping

industry's attention to IMO resolution MSC.138 (76) and indicating that a number of ships are disregarding the recommendations. According to a safety study conducted by the Danish Maritime Authority, during the period from 1st January 2002 to 30th June 2005 alone, 22 ships grounded in the Great Belt and none of these ships had a pilot on board at the time.

The Danish Maritime Authority letter illustrates and emphasises that it is highly recommended to utilise the expertise and local knowledge of pilots, and that as a minimum, vessels sailing through the Great Belt or The Sound follow IMO's recommendation on navigation through the entrance of the Baltic Sea.

Denmark has also launched a procedure whereby all vessels entering Danish waters without ordering a pilot in accordance with the IMO recommendation will be contacted in order to draw their attention to the recommendations on the use of pilots. When a ship does not comply, the master will be informed that Denmark finds it inconsistent with safe navigation

practices and procedures to neglect an IMO recommendation. These ships will be reported to the maritime authority in the ship's flag state.

The following documents are available at [www.gard.no](http://www.gard.no) under News in the Loss Prevention section:

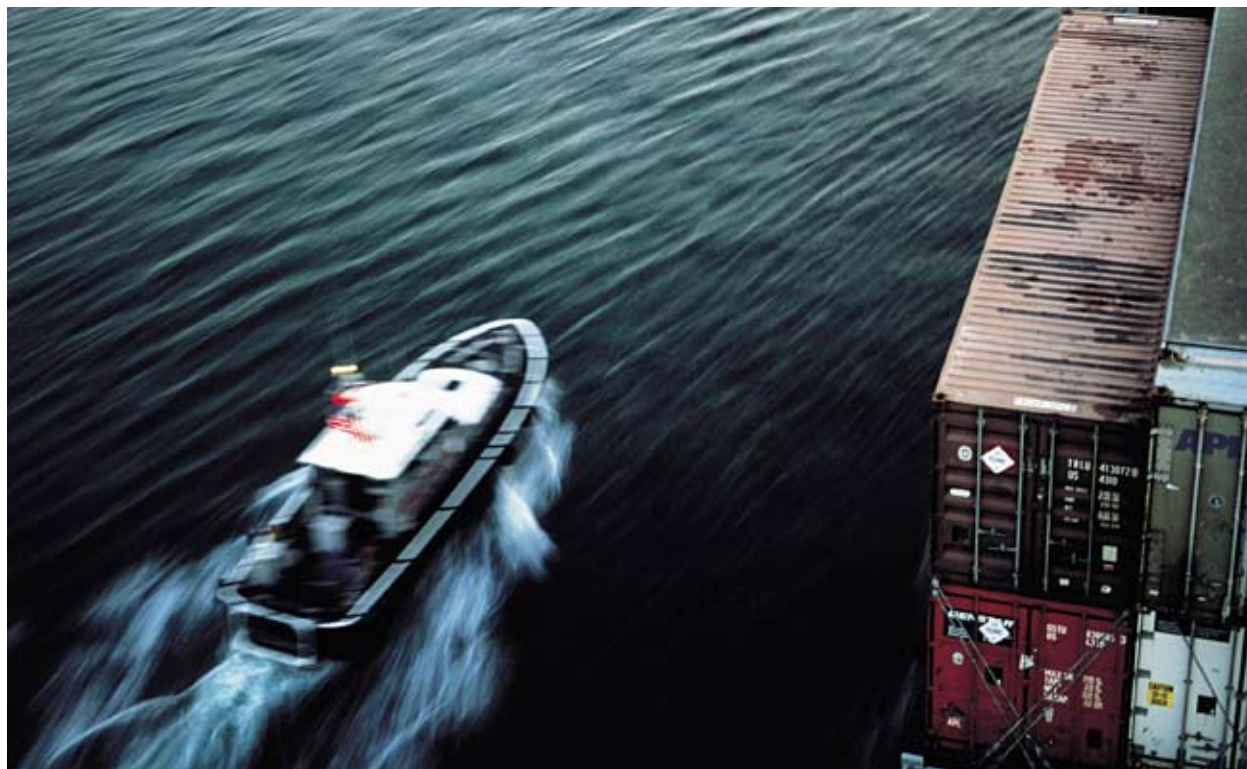
- The Danish Maritime Authority Letter.
- IMO resolution MSC.138(76)
- Intertanko model charterparty clauses in recognition and support of IMO res MSC 138(76).

General information on Pilotage in the Baltic can be found at the Baltic Pilotage Authorities Commission website at: <http://www.balticpilotage.com> and <http://www.pilotage.dk>

Vessels to which the IMO recommendations do not apply are advised to navigate with extra caution through the entrances to the Baltic Sea, i.e. the Great Belt (Route T) and The Sound. A guide to navigation in Danish waters can be found at: [http://www.frv.dk/en/ifm/navigation/navigation\\_ntdw.htm](http://www.frv.dk/en/ifm/navigation/navigation_ntdw.htm)

# "Pilot on board!"

Gard News 181,  
February/April 2006



Gard News looks at some aspects of the relationship between pilots and seafarers.

## Areas of risk

"Despite the pilot's duties and responsibilities, his presence on board does not exempt the Master and the OOW from their duties and responsibilities for the ship's safety." This is quoted from the IMO Code of Nautical Procedures and Practices, and should be well known to seafarers. It is, however, a fact that a large portion of navigation-related accidents occurs when a pilot is on board. The reason for this is obvious: the pilot is sent on board because the national authorities consider the area an increased risk, and in increased risk situations there will always be accidents. However, it is Gard's clear understanding that pilots prevent far more accidents than they cause, but the picture is complex, and there is reason to study this in more detail.

Navigation-related accidents are traditionally split into three main groups: collisions, groundings and

contact damage (typically collisions with piers, etc.). Despite more advanced technology, the implementation of STCW 95 and a strong focus on the human element as well as fatigue, the expected decline in number of accidents per year has not taken place. In addition, the tendency is that accidents are more severe and more expensive than ever before.

As indicated above, a pilot is sent on board because the national authorities have assessed that there is an increased risk in the area. This risk can be related to navigational hazards, geographical areas that are vulnerable to pollution, there can be special regulations related to the cargo that the ship is carrying. In some countries the master's experience is assessed, after a number of pilot-assisted port calls the master may be approved for entry without pilot. There can also be other reasons related to, for instance, military installations in the area. It is also important to note that pilot requirements are at each individual country's discretion. Rules may and will therefore vary from country to country.

So in situations where the navigational risk exceeds a given limit, national authorities respond by sending a pilot on board. This is where the challenges start: to a large extent bridge team management training focuses on co-operation among the bridge team and less emphasis is placed on situations where "outsiders" are introduced. Bridge manuals refer to "pilot to pilot navigation" and little or nothing is said about how to act when the pilot has embarked. In short, the pilot is expected to deliver the service he is paid to deliver and limited consideration is given to his co-operation with the bridge team. For that reason in many situations one does not achieve the desired increased level of safety; on the contrary, the responsibility for navigation is simply transferred from one person to another.

## Communication

In accidents where a pilot is involved there is one factor that is frequently present: limited or no communication between the master and the pilot. There may be language problems and misunderstandings, unclear instructions

to the bridge personnel about how to monitor the pilot's actions and the bridge personnel may be over-confident about the pilot's abilities. In some situations the pilot may not be familiar with the particular design of the navigational systems available on board. Very often these accidents may be avoided if there are clear instructions available from the ship management on how to handle situations with pilots on board.

### Lessons learned

It is possible to extract some lessons from the above examples.

Voyage planning used to be a critical factor and the common response from the crew was "why should we plan the passage when the pilot always brings with him an alternative passage plan?". It is Gard's experience that this has improved: electronic charts have made it easy to adjust the ship's voyage plan according to that brought on board by the pilot and attention from port state control officers has put this item on the agenda. It is also imperative that the pilot be briefed about the vessel's manoeuvring capabilities. This includes rate of turn, propeller arrangement, output on the various manoeuvring orders and general ship data. In short, any information that can improve the pilot's performance must be available. Many shipowners have developed so-called "pilot cards" for that purpose. These have proved to be effective and greatly appreciated by the pilots.

Language barriers have been and will continue to be a challenge; these can be related to communication between the pilot and the crew, as well as understanding the communication between the pilot and assisting parties such as shore staff, mooring boats and/or tugs. Very often these barriers can be greatly reduced by a thorough review of the passage prior to commencing it. The pilot can also be requested to communicate with external parties in a common language, or to translate his communication with them for the bridge team. Many accidents are rooted in surprises and unexpected situations that could have been avoided if the pilot and the bridge team had a common understanding about how the passage would be carried out.

The impact of commercial pressure should not be underestimated. This may result from a variety of reasons:

- the terminal wishes to maximise utilisation of the piers and requires effective (high speed) approach to the terminal;
- some pilots are paid per pilotage and increase speed for that reason;
- charterers require maximum utilisation of the ship, and under keel clearance may be challenged. This occurs particularly in river passages. The availability and suitability of tugs and mooring boats should also be considered: in many situations these are too small or too few for the purpose, but are accepted due to the commercial pressure.

Cultural differences should also be considered. The pilot is perceived as an authority and in many cultures it is difficult to correct or even question a decision made by an authority. Corrections to obvious errors may therefore be delayed and in some cases not put forward at all. Reluctance to get involved in a situation has contributed to several severe marine accidents. In particular, this may be a problem when the master is not on the bridge. It is therefore important that all members of the bridge team have the necessary authority and confidence to interfere if they are in doubt. This can only be achieved by active leadership and involvement by the master. The IMO Code of Nautical Procedures and Practices also states: "If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives".

### Common understanding

The first step to reduce the risk of navigation-related accidents when a pilot is on board is a common understanding by the bridge team of the risks involved. These include geographical hazards as well as cultural and management-related challenges. Introducing company "pilot handling procedures" in the ship management system has proved to be effective. In addition to voyage planning, these should include routines for pre-voyage

briefing, monitoring of the pilot's activities and communication between pilot and officer of the watch (OOW)/master. Exchange of information is also mentioned in the IMO Code of Nautical Procedures and Practices: "The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics".

### Conclusion

In summary, much progress will be achieved by implementing some simple steps in the ship procedures:

- Active use of pilot cards for transfer of ship information.
- Implementation of company procedures for pilot handling.
- Making bridge teams aware of cultural challenges that may occur when a pilot is on board, and giving them the confidence and authority to seek clarification when in doubt.
- Taking into consideration the commercial pressure that may be imposed by pilots, charterers and terminals.

Bon voyage!

# Pilot on the bridge - Role, Authority and Responsibility

Gard Loss Prevention Circular  
No. 04-00

## Introduction

As you are aware, many navigational incidents leading to groundings and collisions involve pilots. The primary problems involve the role, responsibility and authority of the pilot onboard. This Loss Prevention Circular focuses on 4 case study examples of pilot aided grounding and collision followed by general guidance on the prevention of these types of incidents.

## Case 1: Collision with terminal dolphin

At 0200 hrs, Vessel 1 was given instructions to leave a pre-designated anchorage and proceed to load cargo at the terminal. The vessel was underway at 0254 hrs and two pilots boarded at 0354 hrs. The vessel entered the breakwater with the Master on the bridge.

The vessel made routine visits at that location thus the Master thus felt comfortable with the berthing routines. The vessel passed the breakwater at 8.5 knots even though the maximum permitted speed was only 5 knots.

Although the Master observed that they were exceeding the maximum speed, the Master did not attempt to bring this to the attention of the pilots.

Four tugs were requisitioned to assist the vessel in berthing at the terminal. Due to the excessive speed of the vessel, the tugs had difficulty maintaining speed to keep up with the vessel as she made her way to the terminal.

As the vessel approached the terminal, all verbal communication between the pilots and the tugs were in the local language (non-English) that was not understood by the Master. The aft tug was made fast after the vessel entered the breakwater and was quite close to the berth.

The forward tug approached while the vessel was only 50 metres from the berth. Furthermore, before the line could be made fast on the vessel, the tug started pulling on the line, thereby the entire line was run out and was no assistance to the vessel. The two remaining tugs were of no assistance at all.

As a result, the vessel lost control and could not be stopped before colliding with the mooring dolphin. Extensive damage was caused both to the ship and to the mooring dolphin.

The following causes contributed to this incident:

- (1) The vessel's speed was excessive when trying to connect to the tugs.
- (2) There was a lack of communication between the pilot and the master at many stages while transiting the channel. There was little or no information exchanged regarding the docking plan and how the 4 tugs were to be put to use and coordinated.
- (3) The Master did not insist that pilot not exceed the maximum allowable speed as it entered the breakwater.
- (4) The pilot, when communicating with the tugs, was speaking a language that was not understood by the Master. This made it difficult for the Master to have a

proper situational awareness. (5) The Master was over-confident as to the abilities of the pilot.

## Case 2: Grounding at mooring

Having arrived at port to load, a strong east to south-easterly wind prevented Vessel 2 from commencing cargo operations via feeder vessels. On a following morning, the Master received orders from his agents to proceed, with pilot embarked, to a more protected location to commence cargo operations. However, British Admiralty Charts of the area are not particularly detailed. The pilot had only a photocopy of a larger scale local chart.

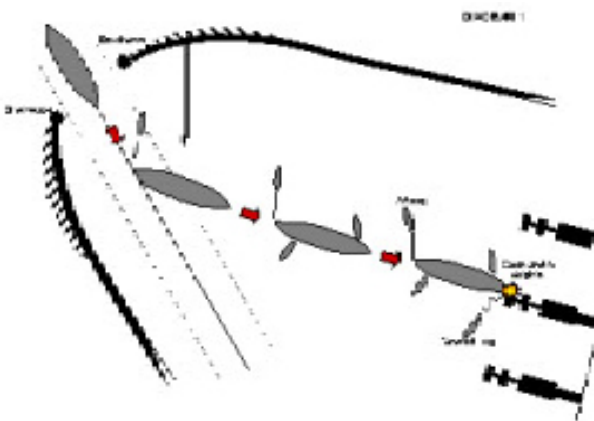
At 1606 hrs the port anchor of the vessel was dropped approximately on the 50 m contour line on the photocopy map. The vessel had 8 shackles of chain (approximately 220 m) in the water that, the Master estimated, gave a distance of about two cables from the anchor to the stern of the vessel and thus provided a turning radius of about two cables.

The vessel was moored on a heading of 150° and, in the Master's estimation, outside the 20 m contour line should she swing right round. The vessel's echo sounder transponder is situated in the bow of the vessel and when she initially anchored it was observed that there were 33 m of water indicated under the keel.

The pilot assured the Master that the vessel was on good holding ground and that the loaded draft would be 11.8 m. The Master was satisfied that the ship was anchored in a good position.

On the final day of loading (four days later), the wind had shifted to the west and the vessel was now on a heading of 289°. The Master's intention was that the ship should arrive at its discharge location with an even keel. Therefore, the intention was to complete loading with a trim by the stern of 45 cm. In order to achieve this, it was agreed that the last 700 tonnes of cargo were to be used for trimming purposes.

At 1520 hrs the feeder vessel gave notice to commence loading the



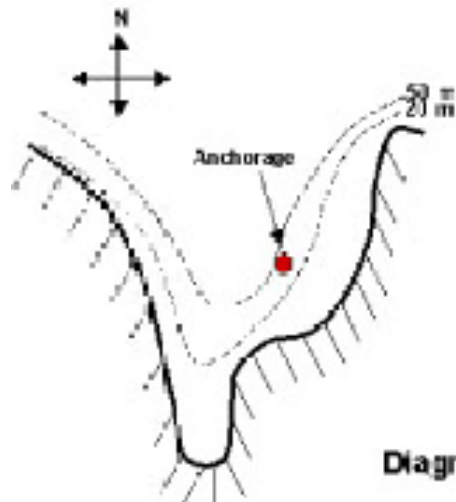


Diagram 2

remaining 700 tonnes. At 1540 hrs, the Chief Officer of the vessel boarded the feeder vessel and noted the draft of his vessel was 11.12 m forward and 10.52 m aft. The trim at the head surprised him. He was concerned that they were not able to attain the 45 cm stern trim. Loading was suspended while he checked his calculations. In addition, he requested that the ballast tanks be sounded since he believed that the ship should not have had a head trim at the time. At 1600 hrs the First Officer notified the Master of his concern.

At 16.15 hrs the aft draft was checked again. It remained at 10.52 m despite continuous loading into no. 7 hold. They then realised the vessel was aground and loading was suspended at 1620 hrs. The ship's heading remained steady at 289°. At 1800 hrs the steering gear was extensively damaged with the rudderstock protruding approximately 20 cm above the steering flat.

The following causes contributed to this incident:

(1) When the wind veered, the anchor position changed from being in the lee of the land to being in the lovar side of

the land, a most unfortunate position to be anchored in. At that point in time it would have been prudent to change anchor position towards the other shore. (2) Eight (8) shackles of chain on 33 meters depth was somewhat excessive. The recommended ratio is three to four times the depth depending on depth and holding ground. (3) Neither the vessel nor the pilot had the proper charts with the required contour details of the location they finally anchored. (4) The vessel crew made incorrect assumptions as to the consequences to the ship if she swung about. The crew should have taken continuous soundings at the location they were anchored since limited information was available. (5) The ship's crew were over-confident with the pilot's assessment as to the water depth of where the ship was anchored. This should have led them to be more diligent.

### Case 3: Grounding while navigating

At 2040 hrs Vessel 3, a pilot and his apprentice at the wharf boarded the general cargo ship. The vessel had completed loading at approximately 1600 hrs and was preparing a transit to

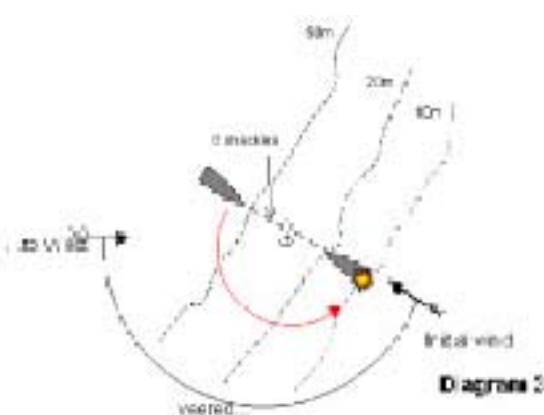


Diagram 3

a new port where additional cargo was to be loaded. It was estimated that it would take 25 hours to complete the passage.

The vessel had not made the engines ready for passage at the time the pilots boarded. They had determined that the vessel had approximately 12 hours more than necessary to make the passage. The Master was aware that some pilots would not take the vessel through the passage at night and told the pilot that departure could be postponed until daybreak.

The pilot assured the Master that it was safe to sail at night. The Master then suggested that they take a route where the channel was wider. However, the pilot preferred and recommended another passage. This passage was recommended for day passage only and required a number of sharp turns to navigate. However, due to commercial pressure, night passage for the route suggested by the pilot was allowed.

The Master and pilot exchanged more information about the vessel and then the Master ordered the engines to be prepared for departure. At 2100 hrs the crew was called to their manoeuvring stations and began unmooring. At 2137 hrs full manoeuvring speed was ordered and executed.

Five persons were in the wheelhouse: the Master, pilot, apprentice, OOW and the helmsman. The OOW used one of the radars when unoccupied by one of the pilots and plotted fixes on the chart on average of every 5 minutes.

A number of minor manoeuvres were made between 2127 hrs and 2218 hrs. At 2218 hrs, the ship prepared to make a 60-degree turn to port at 11.5 knots. At 2225 hrs, the pilot began the planned port turn by ordering a 10 degrees port rudder. Having observed the vessel's reaction to this rudder angle was not quick enough, the pilot increased the rudder angle to 20 degrees. The rate of turn increased but after the turn was completed, the vessel ended up closer to the shore on her starboard side than was intended.

From this moment on, the Master became particularly vigilant and closely monitored the rudder orders. He did not communicate his concern to the pilot. There was little or no time to exchange opinions on this matter since the vessel was approaching another tight turn of 50 degrees to starboard to pass between two islands.

At the required location, the pilot issued a 10 degrees starboard rudder at a point at a point where one of the

islands was 3.5 cables (0.55 km) ahead of the vessel's wheelhouse. The Master considered this rudder angle may have been insufficient to obtain the required rate of return but hesitated to change the pilot's orders. He did however make sure the rudder indicator needle moved to the requested 10° to starboard.

The pilot observed that the vessel was slow to react to his order of 10° starboard rudder and ordered a 20° starboard rudder. Neither the time nor the vessel's exact position was recorded when this order was given, however, the distance to the island was decreasing.

Having heard the pilot's last order, the Master ordered the rudder hard to starboard. The Master's order was repeated by the pilot and was executed by the helmsman. The bow of the vessel cleared the island and kept sweeping to starboard. However, the vessel's port side was observed to be quickly approaching the island.

At 2231 hrs, with the island's northern tip several metres off of the vessel's port side and ahead of the wheelhouse, the pilot ordered the rudder hard to port and stop engine. A slight vibration was felt followed by the distinct touch of a hard object. Some seconds later, air was heard escaping from the tanks.

Although no oil was spilled in the water, the vessel was ascertained to have damage to her side shell plating. The shell plating was punctured in several places allowing seawater to ingress into an empty ballast and fuel tanks.

The following causes contributed to this incident:

(1) There was a lack of proper voyage planning. The time between when the

pilots boarded the vessel and when the ship got underway was quite short particularly since they had 12 hours more than necessary to make the transit to the next port.

(2) The pilot insisted transiting a direction that was recommended for day travel. The Master should have insisted in following the recommended route. However, he was also familiar with the pilot since he had made routine visits to this location and felt over-confident in the pilot's recommendations.

(3) There was a significant breakdown of communication between the Master and the pilot. Once the first order for 10 degree rudder didn't result in the required rate of change in direction was made, the Master should have been aware that another 10 degree rudder order in the second turn would not acquire the desired results. He should have communicated this to the pilot and/or discussed the manoeuvring characteristics: (1) during the pre-voyage briefing, (2) after the first 10 degree rudder order that was changed to a 20 degree rudder, and/or (3) just after the pilot's second 10 degree rudder command.

(4) There was a lack of fundamental seafaring skills used for the tight turning manoeuvre to starboard. A standard practice of reducing the speed of the vessel, commanding the turn, and then bringing the vessel back up to manoeuvring speed should have been used.

#### Case 4: Grounding while navigating

At 1300 hrs Vessel 4 departed partially loaded with two pilots on board. The pilots agreed to alternate their watch. Pilot 1 was to conduct the vessel between 1300 and 1800 hrs and Pilot 2 between 1800 and 2300 hrs and so on. From 1300 to 2300 hrs the passage was

without any significant incident other than the vessel encountering some concentrations of fishing vessels.

After the change of watch at 0000 hrs, personnel on the bridge comprised of the second officer, who the OOW, Pilot 1, and the quartermaster who was at the helm. The visibility had been good until approximately 0100 hrs when the vessel entered a light haze. The radars had been placed on the 12-mile range at the time. By 0125 hrs, the visibility had decreased to about 150 metres. No dedicated lookout was posted.

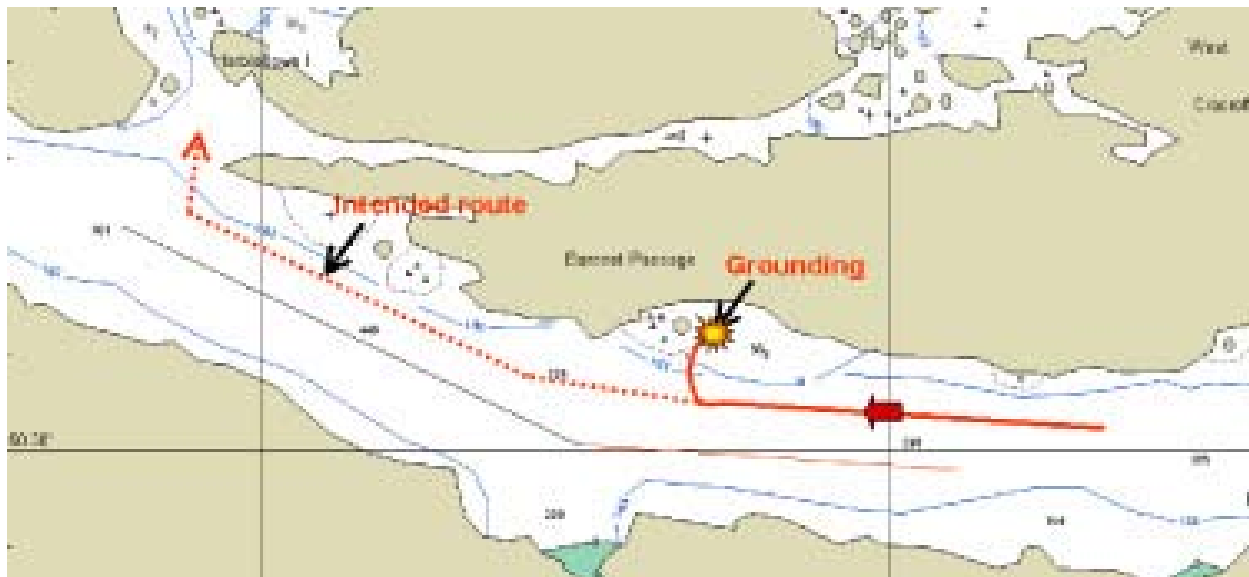
At approximately 0113 hrs the vessel reported its position to the local Marine Communications and Traffic Service (MCTS). The vessel also stated that their ETA to the point where the next course alteration was planned was 0240 hrs.

Communication between the pilot and the OOW was conducted in English and there were no communication barriers.

The OOW had been recording the position of the vessel at approximately 15-minute intervals on the chart in use. The pilot did not refer to those positions nor did he refer to the chart to refresh his memory. The pilot carried a personal course book that he used to navigate the vessel. This book had no provisions for recording of ETA or the actual time of course alternations. The pilot relied solely on his memory to keep track of the vessel's position.

At approximately 0130 hrs, the pilot saw on the radar, what he believed, to be the entrance to the passage and began the required course alteration to starboard. The pilot did not reconfirm the vessel's position prior to the course alteration. The OOW took a range and bearing of a point of land and noted these values on the chart. Before the





OOW had time to plot the vessel's position on the chart, the pilot began a course alteration. The OOW returned to the conning position and ensured the helmsman promptly executed the pilot's orders.

Shortly after reaching the new heading, the pilot realised that the vessel was not on the proper course and ordered a hard-a-starboard helm in the hopes of bringing her around but this was unsuccessful and the vessel grounded at 0135 hrs.

Depth soundings were taken in the area of the grounding and it was determined that the bow was firmly aground and the stern was afloat in deeper waters. The vessel sustained extensive damage to shell plating and internals in way of stem to No. 3 double-bottom tanks.

The following causes contributed to this incident:

- (1) There was a substantial lack of bridge resource management (BRM). The OOW and/or the Master should have been more diligent about ensuring that the OOW was there to reconfirm decisions made by the pilot. This could have been done through better verbal communication between the pilot and the OOW.
- (2) The pilot did not reconfirm his mental model of his position before making the critical turn. The OOW, did not have the proper situational awareness with regard to the vessel's position. The pilot did not reconfirm the vessel's position prior to the course alteration. When the pilot gave the order to turn, the OOW only focused upon whether the helmsman made the turn. He didn't reconfirm that they turned at the proper location.
- (3) The weather played a marginal role in the grounding. However, as a precaution, the vessel may have considered placing a dedicated lookout.

### Recommendations and Lessons Learned

- (1) The Master is in command of the ship at all times with only one exception: when transiting through the Panama Canal. Therefore, it is always the duty of the Master and OOW to keep a situational awareness of all activities of the pilot. Although the pilot is most knowledgeable about local waters, it is the responsibility of the Master/OOW to verify position through proper use of charts, radars and other position fixing devices and follow local rules on speed and routing.
- (2) Voyage planning is crucial in all situations including when pilots are on board. Sufficient time should be allowed for proper communication between the Master, pilots and OOWs. This voyage plan should include every important activity starting from the embarkation of the pilot, in and out of the berth, and finally the disembarkation of the pilot.
- (3) If the pilot is to command tugs and/or personnel at a berth in a language that is foreign to the crew, the Master must demand that the pilot communicates with the Master and/or OOW in a common language
- (4) When the piloted voyage is taking the vessel through narrow waters, you should mark "wheel-over" points either on the chart or at the radar screen in order to know when you are reaching "points of no return". This helps to allow the pilot, Master, and/or OOW to keep a better situational awareness.
- (5) The ship's crew is normally the most knowledgeable regarding the manoeuvring capabilities of the ship. Detailed descriptions of the ship's manoeuvring characteristics should be communicated during the voyage

planning stage. In addition, the Master and/or OOW should communicate manoeuvring capabilities during the voyage, as necessary. The Master and OOW should never feel hesitant to discuss these matters with the pilot if they feel it necessary to do so.

(6) Ensure that the vessel is equipped with the necessary updated charts for the intended voyage. It is not sufficient to rely on the pilot to provide this information.

(7) The OOW should always closely monitor the activities of the pilot. Many times, the pilot will not necessarily communicate with the OOW regarding the vessel and/or voyage. The OOW should not hesitate to communicate with the pilot on any relevant matters regarding the vessel or the voyage.

(8) The OOW should not only be diligent with regard to his duties to ensure the pilot's orders are properly followed but also to monitor the pilot's activities. If the OOW has concerns regarding the pilot's activities, he should contact the Master immediately.

(9) The vessel should have clear procedures and instructions to Master's and OOWs on what to do with a pilot onboard. These should be included as part of the ships safety management system (SMS).

(10) BRM is an important activity to ensure safety. Any BRM training should include how to handle the change in communication, command, and control when a pilot takes over navigation of the ship.

# Who is to blame?

Gard News 173,  
February/April 2004

Useful lessons can be learned from the following incident, which could happen anywhere, any time, with almost any ship.

## The incident

"Good afternoon, Mr Captain. I'll take over. Starboard 10, come to two five six degrees and full ahead."

"Starboard 10 to two five six degrees, full ahead. She is all yours, Mr Pilot."

We are on board an ordinary tanker, on an ordinary day, approaching an ordinary terminal somewhere in the Western Hemisphere. The weather is grey but the visibility is not too bad, although it is early evening. The speed is slowly increasing and the last light of day is rapidly disappearing. The atmosphere on the bridge is relaxed.

"Full speed, Mr Pilot, 14 knots."

"Full speed. Thank you, Mr Captain."

The pilot and the master continue talking about everyday matters such as the weather, how long they are staying at the berth, etc.

"I'm leaving the bridge", says the master. "I have to prepare some papers before we berth. The second mate will assist you. If you need me, just tell him and he will get hold of me."

The voyage continues and the pilot gives instructions regarding the necessary course alterations, as the fairway becomes gradually narrower. The ship is still at full speed.

The pilot calls the harbour master (in his native language) and tells him that ETA (estimated time of arrival) will be in half an hour. He also gives the three tugs waiting to assist berthing the ship an update on the situation (also in his native language). There is no request for translation from the second mate and no information is volunteered by the pilot.

We continue full ahead. Traffic increases as we enter sheltered waters. The background lights from the harbour area make it difficult to see the difference between moving and stationary objects.

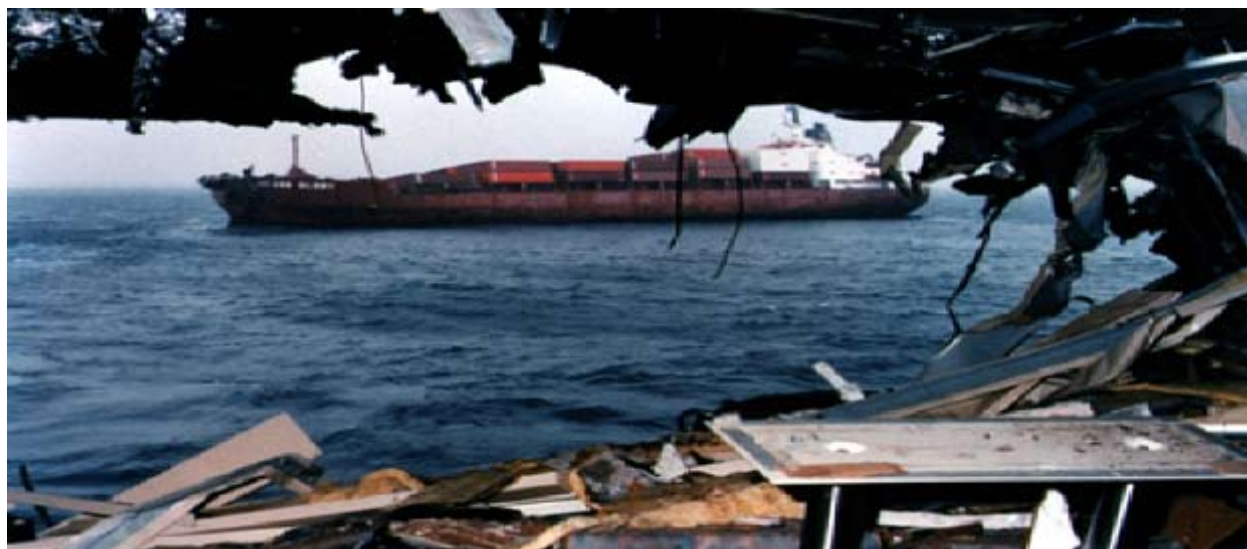
"Mr Mate, can you prepare to receive the first tug on port bow? We will have starboard side alongside." (Two other tugs are also ordered but this is not mentioned by the pilot).

"Aye-Aye, sir", says the mate.

The pilot contacts the tugs on the VHF again (still in the local language) and, as he is talking, his mobile phone rings. The mate calls the master, who enters the bridge after a couple of minutes.

He consults the radar and although it is many years since the last time he was in this harbour, he feels somewhat uneasy with our present speed, as we are rapidly approaching the inner part of the harbour. The master is tempted to ask the pilot to reduce the speed, but for some odd reason he does not. The pilot orders half ahead and continues to talk in his mobile phone. We are approaching the berth and the master is more and more anxious about the speed, so he politely suggests the pilot to reduce the speed. The pilot explains that there is another ship waiting to leave the berth and he has to board it as soon as possible.

The first tug is closing in on port bow and is ready to receive the heaving line from the ship. The second mate, who has just left the bridge, is now on the forecastle making his first attempt at the heaving line, but misses the tug. He sees that they are now alarmingly close to the berth and hurries to do his second attempt. This time he succeeds and reports back to the bridge that the line from the tug is on board and secured. At the same time the pilot, who has just finished his telephone call, is at the bridge, hectically instructing the tugs on how to berth the ship, still in the local language – this time with a raised voice.



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The tugs seem to have problems keeping up with the speed of our ship and this is communicated to the pilot. The distance to the berth is rapidly diminishing and the pilot asks for slow astern. The master, who is really getting nervous now, orders slow astern and even increases this to half astern. The pilot orders the aft tug to start pulling in order to reduce the speed of our ship.

The master finally realises that there is no way he can avoid hitting the berth and orders full astern. Because of the full astern manoeuvre, the ship does an uncontrolled starboard turn and hits the berth with a speed of 2 knots, making a 3-metre long gash on the starboard bow and causing extensive damage to the berth.

### What went wrong

The situation described above could happen anywhere, any time, with a lot of ships trading the seven seas of today.

Can we learn something from this incident?

- The vessel's speed was excessive.
- When trying to connect to the tugs the ship's speed was too high.
- There was lack of communication between the pilot and the master at many stages while transiting the fairway. There was little or no information exchanged regarding the docking plan and how the three tugs were to be put to use and co-ordinated.
- The master did not insist that the pilot should reduce the speed as they approached the harbour area.
- The pilot, when communicating with the tugs, was speaking a language that was not understood by the master. This made it difficult for the master to be fully aware of the situation.
- The master was over-confident of the abilities of the pilot.

– And guess what: the pilot will of course blame the master for interfering in his efforts to manoeuvre the ship safely alongside because he ordered full astern!

### Recommendations and lessons learned

- The master is in command of the ship at all times with only one exception: when transiting through the Panama Canal. Therefore, it is always the duty of the master and the officer of the watch (OOW) to be aware of all actions of the pilot. Although the pilot is more knowledgeable about local waters, it is the responsibility of the master/OOW to verify the position through the proper use of charts, radars and other position fixing devices and follow local rules on speed and routing.
- Voyage planning is crucial in all situations including when pilots are on board. Sufficient time should be allowed for proper communication between the master, pilots and OOWs. This voyage plan should include every important activity starting from the embarkation of the pilot, entry and exit from the berth and finally the disembarkation of the pilot.
- If the pilot communicates with tugs, etc., in the local language (which is likely), the master should ask him to explain what was said in a common language (probably English).
- When the voyage under pilotage takes the vessel through narrow waters, one should mark "wheel-over" points either on the chart or at the radar screen in order to know when "points of no return" are reached. This helps the pilot, master, and/or OOW to have better situational awareness.
- The ship's crew is normally the most knowledgeable regarding the manoeuvring capabilities of the ship. Detailed descriptions of the ship's

manoeuvring characteristics should be communicated during the voyage planning stage. In addition, the master and/or OOW should communicate manoeuvring capabilities during the voyage, as necessary. The master and OOW should never hesitate to discuss these matters with the pilot if they feel it necessary to do so.

- One should ensure that the vessel is equipped with the necessary updated charts for the intended voyage. It is not sufficient to rely on the pilot to provide this information.
- The OOW should always closely monitor the activities of the pilot. Many times the pilot will not communicate with the OOW regarding the vessel and/or voyage as necessary. The OOW should not hesitate to communicate with the pilot on any relevant matters regarding the vessel or the voyage.
- The OOW should not only be diligent with regard to his duties to ensure that the pilot's orders are properly followed, but should also monitor the pilot's activities. If the OOW has concerns regarding the pilot's activities, he should contact the master immediately.
- The vessel should have clear procedures and instructions to masters and OOWs on what to do with a pilot on board. These should be included as part of the ship's safety management system (SMS).
- Bridge resource management (BRM) is important to ensure safety. Any BRM training should include how to handle the change in communication, command, and control when a pilot takes over navigation of the ship.

### Who is to blame?

Who is then to blame? In practice, both, master and pilot, but it is important to keep in mind that as the master is in command of the ship, he is the one who gets the blame!



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