All India Maritime Pilots' Association






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All India Maritime Pilots' Association

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From The President's desk

Capt. Gajanan Karanjikar
President- AIMPA

Dear Readers and Colleagues,

It is with great pleasure that I report that Maritime Pilot Capt Ritesh Bhamaria has been conferred the **"National Maritime Award for Gallantry"** on the occasion of the 58th National Maritime Day Celebrations 2021. The March 2021 issue carried an article on Capt Bhamaria's actions that resulted in the award being conferred on him. And I am particularly pleased to mention that AIMPA was one of the entities/persons who proposed his name to the National Maritime Day Celebration (NMDC) committee. This issue carries the citation that AIMPA attached with the nomination forms it sent to the selection committee.

AIMPA will soon be launching a new initiative. It is part of its continual effort to promote its key policy objectives. The particular objective of this initiative is that of **improving the safety of pilot ladders**. The initiative is planned for implementation through the top management of various Indian ports. For which AIMPA will be soliciting their cooperation. It is being sought to be made applicable to all ships – those that are covered by the SOLAS Convention as well as those which are not. For example Coast Guard vessels, other Govt vessels and vessels with a coastal trading licence.

The initiative is in the form of providing a well thought out and researched guidance document to all ships calling at an Indian port. This guidance is so that ships do not rig pilot ladders that are unfit for use or rig them badly.

The opinion exists amongst the global maritime pilot fraternity that it is mainly poor levels of knowledge and training of ship crews that makes unsafe pilot ladders so commonplace and widespread. A series of surveys carried out by IMPA in the last 5 to 6 years have helped confirm the truth of such an opinion. Therefore the mentioned guidance document is educative as well as providing relevant information in an easy to understand manner. It provides an explanation as to why certain commonly observed issues exist. It also suggests simple **solutions** for those issues. Solutions which AIMPA feels are well within the ability of any competent ship's crew to implement. The guidance is well illustrated too.

The push by AIMPA to bring about positive change under this initiative will be in two forms.

1. **Promulgating** a requirement to all ships calling at a port through a carefully drafted order contained in a "Notice to Ships" to be issued by that port's top management. An example of such an order has been drafted by AIMPA for ready use by port managements. The order will require ships calling at the port to comply with the advice given in the "Guidance" document which, obviously, will also be promulgated along with the "Notice". The "Notice" and "Guidance" will reach ships and their owners/managers through the individual ship's local agents. And be emailed/sent by them to their ships at least 3 clear days in advance of their arrival at the port. This lead time is to ensure ships have sufficient time to understand the guidance document and comply with its advice.

2. **Pilots working at Indian ports will be the backbone of this initiative**. Because it is they who will identify and formally report any gross neglect by ships in the provision of safe pilot transfer arrangements and for compliance of the advice provided in the guidance document for the purpose. They will recommend, through the port's management, corrective action by such ships to prevent a recurrence. Depending on the nature and quality of the response received from a ship, the follow up on any corrective action so proposed would be escalated by that port's management accordingly, should such a need arise in its judgement.

Thus, working with Port Managements, Ship Owners and the concerned Maritime Administrations, AIMPA hopes to bring about the necessary change that is always needed for improving safety in its field of competence – namely - maritime pilotage safety matters in India's ports.

Best wishes.

Capt Gajanan Karanjikar
President- AIMPA
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Pilot personality of the month

Capt Satish Karandikar is a senior pilot at APM Terminal's Gujarat Pipavav Port Ltd (GPPL)

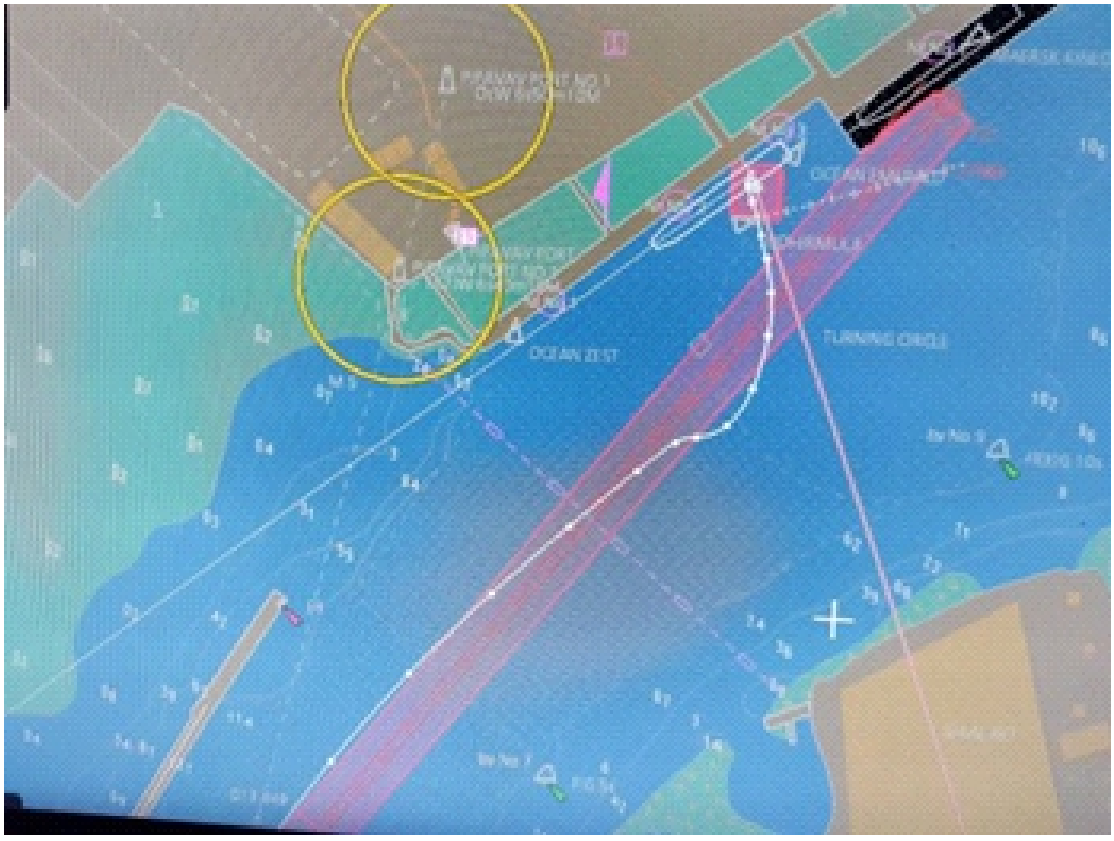
Capt Satish Karandikar is a senior pilot at APM Terminal's Gujarat Pipavav Port Ltd (GPPL). He started his sea career in 1979 as a direct cadet with Garware Shipping. After suffering through the severe recession in shipping in the 1980's, he got his Master's FG in 1991 while with Great Circle shipping and command there in 1994. In 1998, he stepped ashore when he was offered a job as a pilot by the late Capt M S Karnik (ex DC, Mumbai Port). The employment pattern was a one month on/off basis and rotated between two ports. One at a captive jetty at Muldwarka and the other at a brand new port further east at Pipavav. From 2002 he worked full time at GPPL. One month on/off is what helped him decide to leave sailing to better meet his family's needs. And is the secret of long service by pilots at remote port locations says Capt Karandikar.

Pilot Personality of the Month

Satish took to pilotage like a fish to water. His amiable personality, calm under duress and wonderful pilotage skill means that ship masters and colleagues have had nothing but praise for him. If a movement was done well by a pilot – junior or senior, the highest compliment would be to say to him that it was "almost as good as what Satish would have done"! Almost, because no one could do it as well as him. An example of one such perfect movement is shown in the picture. It is of a ship entering the port with the flood and then being swung around to port to stem the tide before going alongside starboard side to. The engine orders were SAst, Stop, DSAhd, Stop. That is it. Over a twenty minute period approx. Vessel was a container ship LOA about 260 m, draft 12 m

One can see the track of the vessel contains no squiggles or wobbles!

Satish sets a fine example for fellow professional to emulate. Of forever being a student of the art of pilotage. Freely sharing his tense moments so that others would not have to go through the same. Or something new he tried which helped improve efficiency or reduce risk. He is very approachable. New pilots love training with him as he is an excellent teacher and mentor. Never gets impatient or disparages their effort. Never makes it personal. He is known for taking a genuine interest in the other departments of the port. One must know about all department's working and plans. Statements like "I don't know", "Why should I know?", "It is



not my department" are anathema to him. By personal example he has shown how understanding and empathising with another department's problems helps to remove friction points where their fields of work overlap. No wonder he soon became the port's Assistant Harbour Master in 2009. Over his many years of such exemplary service at Pipavav his opinion is valued and sought by everybody there – high or low. He is now the port's "institutional memory" so to speak, about all matters marine.

Asked to recall a few memorable movements, he mentioned three. They all confirm Satish's ability to think on his feet and the great pilotage skill and ability he possesses. For want of space, just one is described. Of a 300 m container ship at a deep draft doing 14kts at a place where she should be doing no more than 8 to 9kts! The ship's officer repeated the engine order of S.Ahd correctly but pushed the telegraph to F.Ahd by mistake. Such ship's engines being very powerful, within minutes her speed went up to 14kts. Being the ace visual navigator he is, he saw the channel buoys were not passing by but whizzing by! Coming back into the wheelhouse, a glance at the speed log and GPS confirmed what his eyes saw. He calmly told the Captain that the engines must go astern immediately, while he steered the ship away from the line of berths. The ship's crew responded well and the engines went astern in spite of the high speed. Soon, she was down to 8kts and he knew things were back in his control. Tugs were made fast. The vessel came to a full stop within 1400 mtrs after giving astern. In a position just a little further than the normal place. Non-marine port staff ashore were none the wiser as to what they had witnessed. Because there were no orders in a panic stricken voice on the common radio channel at any time to the tugs, port control or support staff. So, when Satish was stepping off the gangway after all fast, they met him to say they were very impressed with how smartly he had brought the ship! He just smiled and left it at that. But he sure regaled the other pilots and HOD later in the evening over dinner.

Satish is based in Pune and looks forward to retiring from full time pilotage in Aug 2021 when he reaches age 60. He plans to take it easy for a while and hopes to more often indulge his love of going on treks in the mountains and visiting wild life reserves. His wife, Veena, is an avid amateur wildlife photographer. Satish says he cheerfully carries (Veena may dispute this!) all her photography equipment while she does, what else? Shoot pictures! And oh yes. Satish is blessed with the ability to take a nap at will. Even on a tossing pilot boat. A very precious trait for a pilot. The ability to rest fully between movements during a long night of work.

AIMPA wishes Capt Satish and Mrs. Veena Karandikar the very best and many more happy, healthy and active years.

Captain David (Duke) Snider FNI, AFNI, BIO 2021

Captain David (Duke) Snider is the CEO and Principal Consultant of Martech Polar Consulting Ltd, a privately-owned company providing global ice navigation services and support for polar shipping, ice navigation, polar research, expedition logistics support and ice related consulting services. Martech Polar provides Ice Navigators on cargo, research, cruise and expedition ships and private yachts in ice covered waters worldwide. Martech Polar is heavily involved in assisting owners and operators to meet Polar Code requirements through completion of Operational Assessments and Polar Waters Operations Manuals. Martech Polar has been recently recognized by International Transport News Maritime and Shipping Awards 2018 as "Best Ice Pilotage & Navigation Specialists – North America" and by CV Magazine's Canadian Business Awards 2019 as "Best Polar Ice Navigation & Pilotage Specialists 2019".

Captain Snider is a Master Mariner with over 40 years at sea, operating many vessels in a broad variety of ice regimes in Arctic and Antarctic Polar Regions, the Baltic, Great Lakes and Eastern North American waters. He has served onboard Naval, Commercial and Coast Guard Vessels. He retired from Canadian Coast Guard service as Regional Director Fleet Western Region in 2013 to run his own company. He remains active at sea, holding both Polar Waters Advanced Certificate of Proficiency and The Nautical Institute Ice Navigator Level 2 Certification. As a marine consultant he has extensive experience in authoring and contributing to numerous shipping feasibility studies, as expert witness in marine insurance arbitrations and cases as well as marine industry safety and risk reviews.

As an Ice Navigator Captain Snider has been the author of and contributed to many ice regime shipping feasibility studies as well as numerous papers on ice navigation. The second edition of Captain Snider's authoritative book Polar Ship Operations was published by the Nautical Institute in 2018 is soon to be released in a Spanish edition. He holds a Bachelor of Maritime Studies degree granted by Memorial University of Newfoundland in 2006 and is a Fellow of the Royal Geographical Society. He was awarded the Queen's Diamond Jubilee medal in 2011 for his many years as a member of The Nautical Institute dedicated to improving safety at sea, with particular focus on improving standards of ice navigation. His honours also include the Canadian Coast Guard Exemplary Service Medal and the United States Coast Guard Antarctic Service Medal. He was recently awarded the Maritime Museum of British Columbia Beaver Medal for outstanding achievements in polar navigation including roles in promoting internationally recognized ice navigation qualifications.

Captain Snider is the Past President of The Nautical Institute and now sits on the Institutes Executive Board. He is Chair of the Ice Navigator Working Group which is tasked with administering The Nautical Institute's global standard for Ice Navigator Training and Certification Standard. He is a member of The Nautical Institute's NGO delegation to IMO on matters of ice and polar navigation.

Navigating in Polar Regions - Capt David Snider. His intro

Navigating in the Polar Regions

In recent years, interest has been growing in the potential for increased shipping in the polar regions due to climate change. Much has been made of the what are seen as imminent and massive savings in voyage costs due to shorter distances traversing the Arctic as opposed to Suez and Panama Canal routes, the opening access to greater natural resource extraction, or the increase in accessibility for cruise/expedition vessels. It is very clear that global climate change is rapidly changing the environments in both the Arctic and Antarctic, but practically speaking, the savings in fuel costs and accessibility are not as great as many seem to think, and hazards particular to these regions remain regardless.

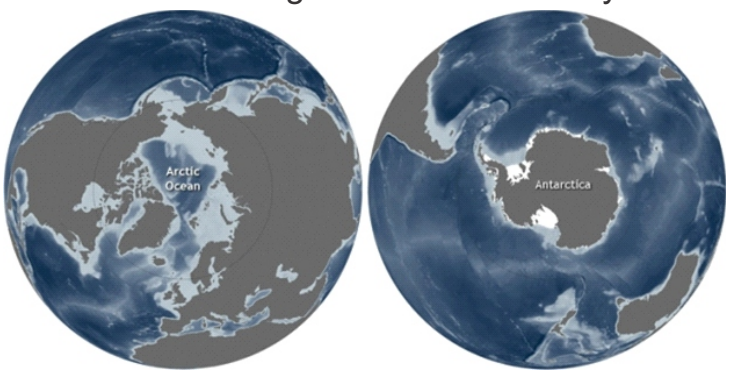
Owners, operators, and seafarers must keep in mind that in depth understanding of the Polar regions, and extensive preparation must be made before venturing “north or south of 60”, particularly if the vessel and crew are new to the regions.

Today, the Polar Code requires vessels to have Polar Ship Certificates and to have onboard ship specific Polar Waters Operations Manuals (PWOMs). An Operational Assessment is required to be completed taking into consideration the seasonal, geographic and technical risks, along with the ship's specific capabilities and limitations. This then guides the development of the ship specific procedures and guidance in the PWOM. This can take many weeks, and often months to do adequately. PWOM's are not off the shelf copy and paste documents, though some have tried to pass such documents off. Poorly done and inadequate PWOMs will not be accepted during Port State Control inspections.

Preparation is key and should not be taken lightly.

Polar Regions - Differences and Similarities

The Arctic and Antarctic are not the same environments for shipping. The Arctic is an ocean, surrounded by sovereign coastal states (each with their own national regulations and oversight often above and beyond Polar Code requirements), with only a very small non-coastal state region in the centre of the Arctic Ocean. The Antarctic, on the other hand, is a large continental land mass surrounded by ocean with no sovereign national status, administered through the Antarctic Treaty.



An ocean surrounded by coastal state versus a continent surrounded by ocean.

Traffic in each region is considerably different. Due to it's specific research-related presence, the Antarctic is primarily witness to either resupply/research voyages, or, focused primarily on the Antarctic Peninsula, cruise/expedition vessels. However, many of the navigational and operational challenges are similar to the Arctic.

The Arctic is quite different in that shipping is not only more varied, but activity in general is much higher. Shipping in this region is either destinational, that is, entering or leaving

the region to supply communities and facilities; to visit for tourism; for research; or to export natural resources; or it is transit, that is, shipping that passes through the region without stopping enroute. Often the two regions are rolled into one statistic and this is not appropriate for understanding navigational or economic factors. Transit shipping can be further broken down into Northwest Passage (north of North America through the Canadian Archipelago); Northern Sea Route or Northeast Passage along the north of Russia; or Trans-Polar, across the Arctic Ocean. Due to the heavy ice that still remains, the Trans-Arctic routes remain the domain of high ice class icebreaking ships. Most Arctic traffic, whether destinational or transit, is focused on the coastal regions.

Ice

While considering the gradual increase in length of navigational seasons when shipping is least impacted by ice thus allowing for low or non-ice class vessels to visit many Polar regions, generally speaking, ice growth through each winter closes off the waters for 9 or more months each year. Even in the navigational season, ice can be encountered in much of the Polar regions. Common choke points exist. Typical Arctic ice choke points can be encountered along the Russian coastal waters of the Northern Sea route off Novaya Zemlya, Sernaya Zemlay, Novosibriskye Ostrova and Wrangle Island. Along the Northwest Passage, choke points are encountered in the southern Beaufort Sea, Dolphin and Union Strait, McClure Strait, McClinkock Channel and Peel Sound. The northeast coast of Greenland generally remains ice choked throughout the year. When planning voyages, the mariner must be aware that routes that seem to offer the best path due to reduced ice may be bathymetrically challenging. Simpson Strait in the Northwest Passage is generally ice free through the summer navigational period but is draft restricted to about 7m. The most "direct route" through the Northwest Passage north of Banks Island looks inviting with deep draft capability, but is choked with heavy old ice throughout the year.

Ice choke points in Northwest Passage. Simpson Strait generally open water mid-summer

Ice choke points in Northeast Passage/Northern Sea Route

Perhaps counterintuitively, climate change has in many ways increased the risk of potential ice damage. Ice conditions have become more variable. Though the overall extent of thicker, denser multi-year ice has been reducing, this type of heavy ice can now be encountered in regions where previously it had not been seen as it is no longer held back by consolidated ice floes. Increased glacial melt has resulted in increased rate of calving of icebergs, with expectations of encountered glacial ice much greater in recent years. Fluctuating temperatures have also contribute to increased variability. In 2014, polar pack ice extended right to the coast of Point Barrow for many weeks past when the region was historically expected to be ice free. In 2018, the

central portion of the Northwest Passage was blocked by heavier than normal ice to all but the heaviest icebreakers.

The prospect of encountering ice is often downplayed against the expectation of voyage cost savings to be made by proponents of "shorter route" planning. Careful planning must be made to ensure routing and seasonality of the voyage do indicate a lower likelihood of encountering ice, and ensure equipment and personnel are capable of dealing with ice and potentially cold temperature transits.

Training and Experience

Contrary to what seems to have become the popular belief since the implementation of the Polar Code, IMO/SCTW Polar Code training does not ensure individuals have the competence to operate in ice, though during the training specified in the code, ice theory is touched upon and some level of simulator experience is required. There is no requirement for sea time in ice to build the practical skills and ensure the seafarer has gained the practical experience necessary to gain ice operations competency. Even in 1820, William Scoresby made it clear in his book The Arctic Regions and the Northern Whale Fishery "The navigation of the Polar seas, which is peculiar, requires in a particular manner, an extensive knowledge of the nature, properties and usual motions of ice, and it can only be performed to the best advantage by those who have long experience with working a ship in icy conditions." More recently Stena Seabulk's Ulf Ryder said "It takes as long to train an Ice Master as it does to train a brain surgeon". This is no less true today. Having a highly capable Polar Class ship still requires an experienced and competent Ice Navigator in command.

Noting the gap in training and competence, The Nautical Institute (NI) has developed the Ice Navigator Training and Certification scheme that fills the gap. Individuals that hold the appropriate STCW Certificate of Competency may be issued a Nautical Institute Ice Navigator certificate based on meeting specific ice operations competency requirements. The NI certificate is not solely Polar focused, but is generally ice focused thus it does not replace the requirement to hold the appropriate Certificate of Proficiency in Polar Waters Training. It complements the Polar Code and adds a layer of proof of competence.

Often, owners and operators will employ additional bridge officers that possess ice competency to join and supplement the bridge team. Their officers may already possess Polar Waters Training Certificates of Proficiency (CoP) but do not have the appropriate experience in ice, may not have the appropriate CoP at all or the ship may not have sufficient numbers of CoP holding officers. Rather than replace officers, The Polar Code allows for the additional experienced officers to be brought onboard for the period their skills are necessary. These officers do not operate or act in the manner of traditional "pilots" but become additional members of the team "signing on to articles" as it were. All Martech Polar Ice Navigators hold STCW Master Mariner Certificates of Competency, Certificate of Proficiency in Polar Waters Advanced Training and Nautical Institute Ice Navigator Level 2 certification, backed up by years of practical in ice operational experience. Our Ice Navigators join ships, signing on as members of the crew for the duration of the voyage when their competencies are required, often for weeks or months at a time.

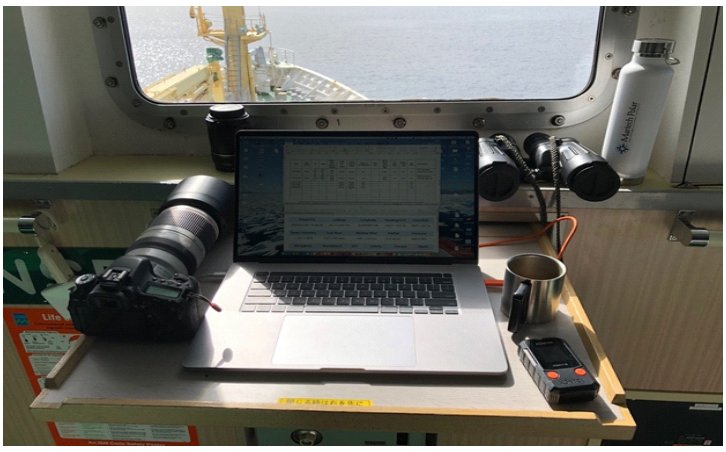
Five experienced Ice Navigators, all Nautical Institute Ice Navigator Level 2

Ice competency aside, it is important to note that simply attending course identified as Polar Code Polar Waters Basic or Advanced is not sufficient to meet the regulations. It is necessary to convert training institution training certificates into Flag State issued Certificates of Proficiency.

Operational and Navigational Challenges

Challenges other than ice also exist in the Polar regions. When operating in high latitudes, one must always consider the remote geography. These regions are at the extreme ends of the globe, their remoteness impacting many aspects that mariners often take for granted, even in the middle of the Atlantic, Pacific, or Indian Oceans. The presence of ice throughout most of the year has ensured that traffic has been low or even non-existent. Neither Coastal or Flag states have generally paid much attention to developing infrastructure or support capabilities other than a bare minimum or in relation to natural resource development and export. In Canada and Russia Coastal government focus has been predominantly on soft support to shipping enacting robust environmental and shipping regulations that have been in place for many decades before the Polar Code was implemented as a mandatory common set up rules.

Communications poses one of the least understood or expected challenges. As most commercial marine satellite communication is based on geostationary satellites situated over the equator, the "visibility" of the satellite above the horizon reduces to non-useable levels at higher latitudes. VSAT may be available to 75ºN or S, however operators must ensure that their contract includes the Polar regions AND allows for signal strength increase to make up for latitude limitations. Low earth orbit systems such as Iridium can fill the gap, but to date do not allow for the lower cost broad band connectivity that one considers routine elsewhere. Vessels expecting to operate in the Polar Regions must also ensure that their GMDSS system is fully operational for area A4, requiring full HF/MF/VHF operability. Even with the additional radio capability, the mariner must be aware of the potential for communication interference in periods of increased solar activity.



An Ice Navigators set up for working ice. The computer accesses ice charts and imagery, linked to the ships navigation sensors and ECDIS.

Much is said about the instability of magnetic compasses for Polar operations and the need for suitable alternate direction

indicating equipment, but even some gyro-compasses can experience issues at higher latitudes. These can include precession and poor directional stability. Modern systems such as GPS/Position corrected gyrocompasses, and fibre optic or ring laser compasses adequately deal with these issues.

Charts and modern bathymetric surveying are still not consistent across Polar waters. As ice cover has generally inhibited the need for more modern or extensive charting in the Polar regions, climate change and recent increases in technology and interest has increased the need for broader coverage. To be fair, regions that have been seen more routine traffic, such as routes and approaches to communities for resupply, or associated with natural resource development and export have well surveyed and charted corridors. Mariners must ensure that they remain within the well surveyed corridors. Another charting issue has been the patchwork of chart datums. Though this issue is slowly being resolved as chart

Chart indicating reliance on track line soundings, common on many Polar charts still.

authorities update paper charts or issue new ENCs, it is still possible that position error or "position jump" may occur when switching between charts of different datums. It is of paramount importance to be more watchful of chart datum error between charts or between fixing electronics and charts in use. Finally, ENC coverage may not be complete depending on routing, requiring paper charts be on hand to fill the gap between ENCs.

Infrastructure – Resupply, Repair and Rescue

The Arctic and Antarctic are extremely remote. A common misconception is that because one's ship is often operating generally in a near coastal environment, that repair, resupply and support are close at hand. This is not the case in either the Arctic or Antarctic. In the Antarctic, no ship resupply or repair facilities exist at all. Ships are required to resupply the sparsely populated research stations that dot the coastlines. Other than very specific research station flights by nationally supported aircraft, there is no commercial air transport available. The Arctic fairs somewhat better, but marginally. In the North American Arctic, outside of limited resupply and very small repair facilities in Dutch Harbor on the Aleutian Islands and Nuuk in Greenland, no facilities for ship repair and resupply exist. A single fueling station in the Canadian Archipelago for Naval and Coast Guard Ships is not available to commercial shipping. In the Russian Arctic the conditions are somewhere better with efforts to improve shipping support east of Murmansk, but generally speaking, it is best to assume no repair or resupply facilities in Arctic or Antarctic waters. Polar operating vessels must be prepared to operate without support, potentially holding onboard equipment spares and other supplies that would normally be easily obtained elsewhere.

Closely related to lack of support infrastructure is the reduced Search and Rescue capability. For the most part, neither the Arctic nor Antarctic are well covered for marine SAR response. Both regions have clearly

defined regions of responsibility for SAR reporting and responding, however hard marine or air assets are not always close at hand. Air resources may be 12 to 24 hours response time away, marine resources such as icebreakers and salvage tugs may be many days away. For this reason, the Polar Code makes clear that operators in these regions must be prepared to survive on their own for up to 5 days. This requirement may be reduced if the Operational Assessment determines rescue may occur sooner, but generally the 5-day capability is held.

Crew Health and Welfare

Depending on the time of year, the Polar regions may be impacted by 24 hours of daylight or 24 hours of darkness. Though this might at first seem to be of little consequence, during the summer navigational season, operating in 24-hour daylight can adversely affect sleep periods. Simple things such as installation of black out curtains in accommodation spaces are beneficial. During early fall through winter to late spring, 24hr darkness will require a similar awareness and adjustment. Operationally, the ship must be fitted with fully controllable searchlights to "light the way" as well as make any work on deck possible. A simple mitigation of the negative effects on sleep is the adoption of lighting rotation, dimming alleyway and some common spaces during "night time" but brightening lighting during "daytime" may be beneficial.

Even during summer operations, cold temperatures may be encountered. Crews must be prepared with sufficient and effective PPE. Consideration must be given to scheduled work on deck in extreme cold ensuring crew are not exposed to colder temperatures for longer than is necessary. This may require limiting crew time on deck to no more than 20 minutes with adequate rewarming before venturing out again. Layering clothing is important to allow wicking of sweat from the body, insulation from cold, and then an outer layer for water resistance.

Cold weather injuries, such as hypothermia, must be considered and all crew made aware of the signs and symptoms. As cold progressively affects the body, crew become lethargic, slower to respond physically and slower in comprehension with reduced cognitive ability. This results in an overall reduction in capability that can result in workplace injury. Do NOT use alcohol or liquor to "fortify" individuals as it has a disastrous opposite effect.

Insurance

Often forgotten in the rush to enter the Polar shipping market is the increased cost of insurance for vessels. Special agreement additions to policies must be clarified prior to entry into the "red zones", adding considerable cost in many circumstances.

Insurance zones

Sadly, all too often, newcomers to the Polar shipping world leap in without adequately understanding or preparing for the very different operating environments. Very dangerous challenges remain regardless of the hyperbole in the media and with some NGOs proclaiming ice -free waters and massive increases in shipping. Neither are real or true.

Captain Francesco Aiello - introduction

Captain Francesco Aiello, a seafarer with over 40 years on board different types of ships, served as maritime pilot in the port of Gaeta (Tyrrhenian Sea - Italy), from 1974 to 1978 and as Chief Pilot from 1978 to 2007. In this capacity, between 1986 and 2012 he attended several EMPA and IMPA Congresses, submitting to those Bodies and to the IMO Maritime Safety Committees several proposal aimed at improving the range of safety in the Pilots daily service. In the course of the XXIVth IMPA Congress in Dakar (Senegal-2018), always with the goal of enhancing the pilots' personal integrity, he presented an innovative pilot boat's design for preventing the potential entrapment of the pilot ladder in particular weather conditions,

Maritime pilots: How to improve their safety

Life at sea is traditionally recognized as tremendously difficult and filled with a vast array of hazards associated with general seafaring activities.

The related risks, while in some way are reduced for pilots in consideration of the limited time spent aboard ships whilst piloting, are however still remarkably risky, due to the peculiarity of the tasks carried out, which implies both huge skills in safely carrying out pilotage of ships but even more so with very close attention to personal safety whilst embarking /disembarking.

As a matter of fact, the huge string of continuous accidents involving pilots, plus the potential seriousness of some of them, highlight the need for better research and studies on this topic, with the aim of finding new technological advancements and/or standard protocols which could reduce the current associated risks and facilitate safer working conditions.

On the subject, still ranking high in the list of the priorities to be definitively sorted out, so much has been talked about but, from a pragmatic view, no definitively sound measures have been found nor adopted by the International Maritime Community (including Pilots) to address the problem.

In this respect , in my capacity as a former and experienced Chief Pilot, I have been devoting myself to this topic over so many years, trying to improve a key common factor which encompasses both the aspects of the pilot ladder and the pilot boat's design; jointly, as they can't but be considered in isolation but as a joint combination critical setting which could severely affect a pilots' life.

The Pilot ladder

The Pilot ladder is one of the key drivers I've focused on, with the aim to increase the range of safety in the Pilots daily service, in particular during the critical phase of their transfer from the pilot boat to the ships and vice versa, especially when operating in severe weather conditions.

It is a well-known fact that boarding a ship from a pilot ladder is always a dangerous operation.

Disembarking is even more risky and daring, particularly if the sea is rough, as it is quite difficult at times to select the right moment to move from the pilot ladder to the pilot boat, considering that the pilot operates with his back to it.

To this end, the pilot has to let go one of the side ropes and hold himself with just one hand. However, in this situation, as he is grasping only to one side of the ladder, his body isn't adequately balanced and, mainly when he needs to hold on standards of suitable safety, he

can't jump as easily and safely as required.

This is how the idea came about a modified step with a carved slot in its central part. (See Picture n. 1)

Exploiting the chance of holding his hand in the central slot, the pilot avoids the usual difficulties related to the swing of the ladder (despite the spreaders), having at the same time the opportunity to look in front of the boat (and not sideways or from his back), so as to better assess the overall situation and the most appropriate time to jump off the ladder. (Pic. n. 2)

Of course, the modified step doesn't change the traditional way of climbing up or down the pilot ladder grasping the side ropes: the slot in the middle is meant to supply the pilot with an **additional and alternative option** in the final part of his action, allowing him to keep a more balanced position while he is disembarking in severe weather conditions (high waves, in particular) , facing more directly the pilot boat so as to have a full picture of the surroundings.

Needless to say, it isn't necessary that all steps in the ladder have the said slot, **but just a few (i.e. 5/6) located** from last spreader starting from the bottom, mainly those at the appropriate level from where the jump into the boat is usually made. (Pic. n. 3)

The same modified step could be fitted near the bulwark, so avoiding the pilot being forced to put his hands in the very tight area between the bulwark and the ladder side ropes, a tricky occurrence that happens quite often.

In this context, bearing in mind that **the only purpose is to maximize the pilots' safety when boarding and disembarking,** the following additional considerations are necessary:

- Although normally pilots grasp the side ropes and not steps, it is not rare to find a pilot ladder rigged against the round edge of a bulwark, not permitting to insert the fingers between the side ropes and the bulwark surface. In this situation, an alternative grip in the middle of the step would be very helpful, supplying the pilot with an increased factor of personal safety.
- It goes without saying that making a slot on the step traditionally used could affect its robustness and in this sense concerns could at first hand sound appropriate. However, in studying the case since its origin, the shortcoming was tackled by appropriately increasing the wood's thickness.
- To this end, the new type step has undergone a strain test trial performed by RINA, (the Italian Classification Society and an IACS member).
- The trial tests have been performed considering :

  -a traditional ladder step of dimensions: 480mm x 115 mm x 25 mm ;and

  - a modified l step of dimensions : 480 mm x 115 mm x 40 mm. (Pic. n. 4)
- The results highlight the advantages of the modified pilot ladder step, also in regard to the strain test trial.
- Additional tests performed by RINA have been carried out in frozen conditions. The findings of the trials didn't highlight big encrusted ice problems and no negative consequences in the use of the hand by persons wearing wet gloves.

- Moreover, the difference in terms of weight is insignificant between the modified ladder step and the traditional one:

-traditional ladder step Kg 1.100 ;

-modified ladder step Kg 1.400, really irrelevant in the context of the total ladder's weight.

The new tested step has been found able to withstand any potential drop and contact with the pilot launch.

- All the way through the tests on board different ships, nobody claimed about any difficulties.
- As a matter of fact, the proposal is aimed at changing only a few standard steps with the new ones i.e. starting from second spreader from the bottom (N° 3 steps below it and N°2/3 steps above) and possibly at the ladder end (upper side) made fast on board the ship.

Anti-entrapment pilot boat design

We all know that even if the pilot ladder is perfect and well rigged, it can still become entrapped between the ship side and the pilot boat.

This happens when the pilot boat rises in the water: pins the ladder against the ship and then pulls it down. This may result in excessive strain on the ladder and possible damage to the ladder and/or the boat, as well as the possibility for severe injuries for the pilots.

Actually, many accidents with fatal outcomes occur due to the pilot ladder becoming trapped and many pilots agree that a solution to this problem should be definitively found.

I just quote some significant incidents:

- May 14, 2007 - Capt. Mike Watson, President of the American Pilots' Associations, informed some pilots had also recently been killed in Japan, Uruguay, Egypt, India, France and Scandinavia.

- January 9, 2006 Columbia River Bar -Pilot fell while disembarking.

- January 29,2006 Hawaii-pilot died after falling.

- Between January 2006 and February 2007, four pilots were killed across the United States in falls from pilot ladder.

- October 5th 2016 - M/V SUNMI and Patrol pilot boat –. A Port London Authority sea pilot fell and was crushed between the two vessels.

- In Hualien Port, Taiwan, a maritime pilot had an accident whilst boarding (Reported by Youtube on February 3, 2020)

On this issue, already during the IMPA CONGRESS 2012 -LONDON- concerns were expressed that :

a) The pilot boat won't collide with the pilot ladder (the pilot boat squeeze and pull apart the pilot ladder which causes the pilot falling off) .

b) There should be enough space between the side of the pilot boat and the side of the ship.

In this situation, the most important challenge is to avoid **the entrapment of the pilot ladder!**

A possible conceptual solution lies in a different, specific scheme of pilot boat, designed to completely eliminate or at least reduce the potential dangers to the pilot during the transfer.

The new pilot boat's design differs from the traditional model in the configuration of the main deck. It is structured with four protruding platforms, two on each side (fore and aft) which form a single body with the rest of the deck.

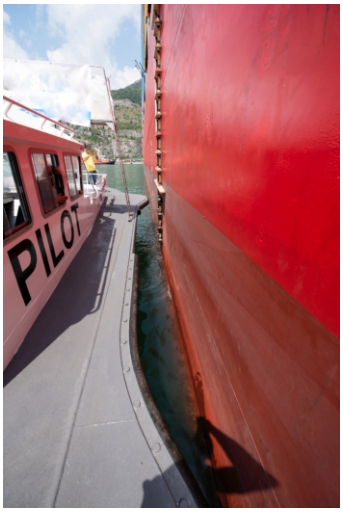
When the pilot boat is alongside the ship, these sideways protrusions create a recess in which the pilot ladder, even if dropped too low in the water, does not run the risk of being crushed or dragged, i.e." entrapped ". Despite the ship's frequent high speed, the pilot boat can come closer and approach making sure that the pilot ladder is kept within the said recess until the pilot is ready to make the transfer.

In particular, the pictures of the pilot boat better show that the side of the pilot boat is far from the side of the ship, which is touched only by the ledges.

This creates a useful "dead spot" where the ladder can work safely, free from any potential impediment, without the risk of being trapped in the boat's side or torn apart during the boat's movements as a consequence of the sea conditions. (Pics. n. 5 to 8)

Natural concerns could arise vis à vis the cost of this innovation. My personal contacts with shipyards have shown that:

- For pilot boats to be built, the builder can easily arrange the necessary structural



modifications;

- For existing boats, it's sufficient preparing/allocating these protrusions at very low costs and with limited span of the boat's inoperativeness.

In both the cases, it's worthy saying that these costs are totally affordable, mainly in comparison to the benefit of preventing additional danger to the pilots' daily activity, the main goal pilots are bound to and the key target to be achieved.

CONCLUSIONS

I do trust these elements of clarification could better address the mentioned daring situations, while orienting the general view towards a more pragmatic principle aimed at improving the safety of maritime activities at sea and the personal integrity of pilots in particular, in comparison of which any further inaction could sound ethically inadequate.

I also trust our Pilot-colleagues could consider this article as "food for thoughts" in this exhausting debate, still pending while so many severe casualties continue occurring.

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The role of a PPU in BRM

"Pilot, you appear to have run us aground"!

Not something which is good to hear on the bridge of a ship entering port to discharge its cargo but such a comment is very telling in highlighting a failure in Bridge Resource Management during the voyage.

Clearly, the OOW believed that the pilot had sole responsibility for the safe navigation of the vessel and was probably not aware that he could either intervene or comment in the ship's position relative to safe water. The Bridge Team's belief that the Pilot had everything under control was very likely reinforced by the fact that the pilot was using his own Portable Pilot Unit for the conduct of the passage.

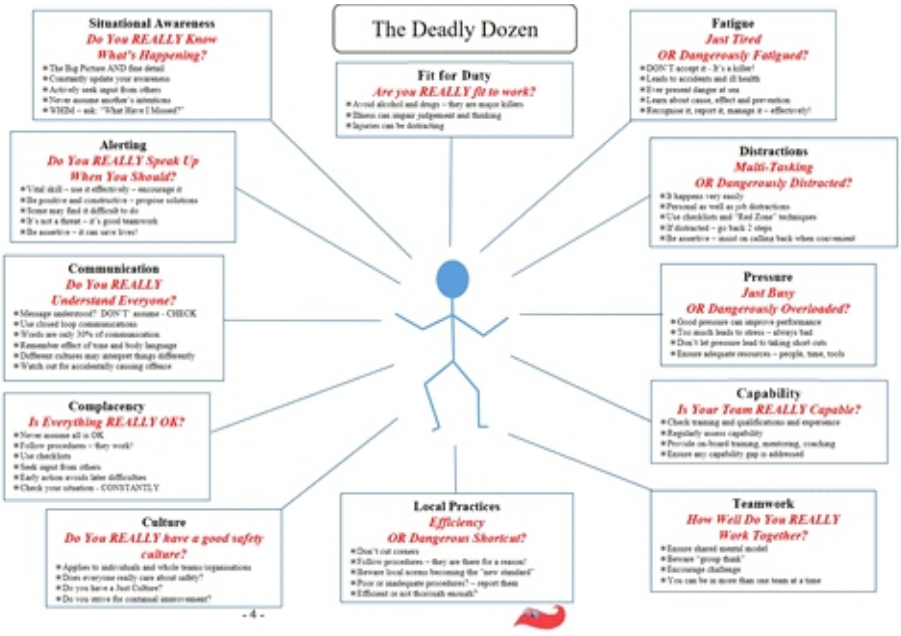
So how does the use of the PPU become an effective tool in the conduct of pilotage and how does its use get incorporated into "best practise" BRM?

Ravi Nijjer, a very well respected expert in BRM whose description of the concept has been made simple by defining it as – "The use and coordination of all the skills and resources (people, procedures and equipment) available to the entire bridge team to achieve a safe outcome."

Clearly, once embarked with the Pilot, the PPU as a resource, becomes part of the equipment suite available to the whole bridge team.

The investigation report into the above grounding concluded that it is about as likely as that the Pilot's use of a PPU led the ship's bridge team to believe that the Pilot did not need their support because he had his own electronic navigation aid. Evidence in support of this is that none of the ship's bridge team was closely monitoring the radar and ship ECDIS. Had they been, they would not have been so surprised that the ship had run aground. When a PPU is a Pilot's own equipment, the ship's personnel have no way of verifying that the PPU is functioning properly unless the Pilot tells them. In this case the Pilot did not tell the bridge team that there was some uncertainty about the accuracy of the PPU, which is not consistent with the team approach.

The UK Maritime and Coastguard Agency has produced a Marine Guidance Note (520 (M)) containing an excellent graphic which identifies 12 human behavioural factors which can contribute to an incident or accident.



1 NZ TAIC report dated September 2019

Bridge Resource Management covers many of these elements but the key factors in the safe conduct of pilotage can be summarised as:

- Teamwork and a Shared Mental Model
- Situational Awareness
- Error Management
- Procedures

Scrutiny of various incidents around the world where ships have accidentally grounded, while under the direction of a Pilot using a PPU, has shown that the first two of these factors have played a major role.

Teamwork and a Shared Mental Model

Establishing a shared mental model is a critical step towards the development of an effective team. It is well recognised that the embarkation of a Pilot can often be seen as introducing an outsider into a well-established team and with that can come a reluctance to engage. While that is recognised as standard human behaviour it is vital that such reticence be overcome in the interests of safety, the Pilot will have prepared a passage plan and shared that plan with the Master as part of the Master Pilot Exchange (MPX) but very often that exchange does not reach the whole team responsible for the ship's safety. If all members of a ship's bridge team understand what the ship is doing and what is happening around the ship at any one moment, they can predict the effects of the control inputs applied or assess what control inputs need to be changed.

The PPU can play a vital part in the sharing of a passage plan. The fact that the display is portable means that it can be used as a comparison against the ECDIS or even what is going on outside the Bridge window. The Pilot can take the spatial picture to the Master and OOW. They can amplify the information provided by the PPU such as:

- Accurate Heading
- Accurate ROT
- Accurate prediction of future position
- Ship vectors ahead and astern
- Distances from berths, limits of safe water, dangers
- Shared AIS information

and use that to compare with the information from the ship's sensors and the external view .

The Master and the Bridge team are always responsible for the safe navigation of the ship and are therefore expected to participate fully in the conduct of pilotage. Continued appraisal of the Pilot's conduct and advice is necessary as is their support of the Pilot as both, a valuable resource and a team member.

Situational awareness

Situational awareness is a critical aspect of navigation and it plays a crucial part in decision making. There are many definitions describing SA but perhaps most simply it is "knowing what is going on around you". This will include "what is happening", "what has just

happened" and "what is about to happen"?

The Australian Transport Safety Bureau report into the grounding of Maersk Garonne in 2016 highlighted that situational awareness is dependent on working memory and is, therefore, affected by distraction, interruption and stimulus overload. Collective (team) situational awareness can be enhanced by:

- monitoring the progress of the agreed plan,
- communicating with each other about the situation to share individual awareness and discuss differences,
- anticipating next conditions,
- checking one another

It is also worth considering a fifth enhancement:

- checking each other's navigational systems – PPU and ECDIS; ship's gyro and PPU HDG; Ship's ROT and PPU ROT.

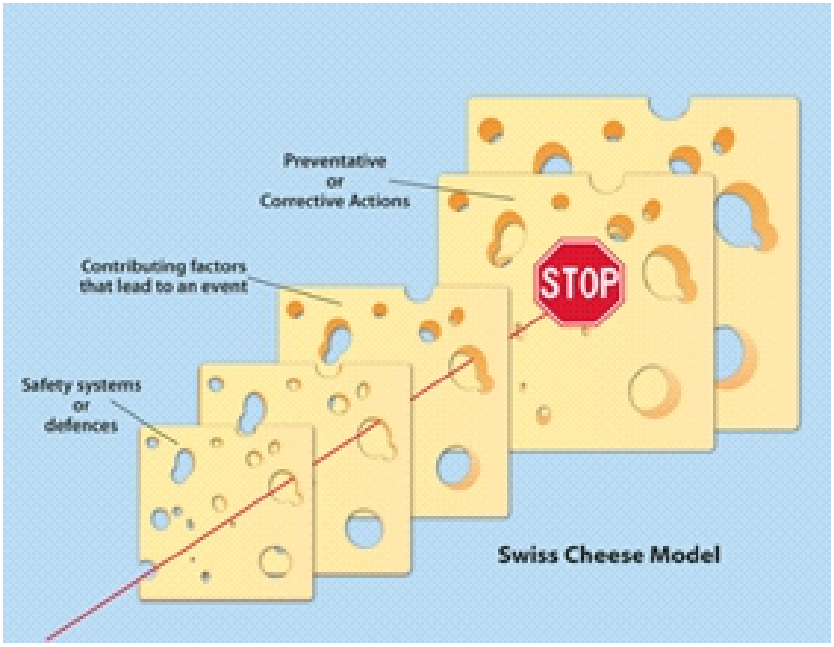
A failure in any one of the above has the potential to introduce an error into the conduct of navigation which, if not recognised or checked can lead to an accident.

Error Management

Accidents do not just happen, they are caused! I return to Ravi Nijjer's model of BRM where "people, procedures and equipment" are all working well together. A failing in any one of those elements can start an Error Chain which, if not checked, can be disastrous. It is a sobering exercise to review accident investigation reports and try to identify when things started to go wrong. And then review one's own experiences to see if we have been in a similar situation.

Consider the Swiss Cheese Model where factors which can contribute to an accident all seem to "magically" align and result in an "unexpected" outcome. In reality, the opposite is often the case!

All it takes to break the chain is to misalign one slice of the cheese and thereby block a "hole". A simple concept but the most difficult task is to identify the holes!



2 ATSB Transport Safety Report Marine Occurrence Investigation 319-MO-2015-002 Final – 17 October 2016

This is where effective BRM comes in! The whole team knows what the plan is and how it is going to be executed. The information from all equipment, including the PPU, is shared and compared and every member of the team is empowered to speak up if they notice anything which does not look right, feel right or sound right!

CONCLUSION

A PPU is an aid to navigation and a contributor to situational awareness. The information it provides is only as good as the input it receives. Although it is designed to provide stable and accurate heading and positional information, it is fallible and can be wrong. So a glance out of the window will very often clarify a situation and highlight a discrepancy.

PPU Display (What AIS said)

(Reality outside the window) Actual Situation

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