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LeaderSea

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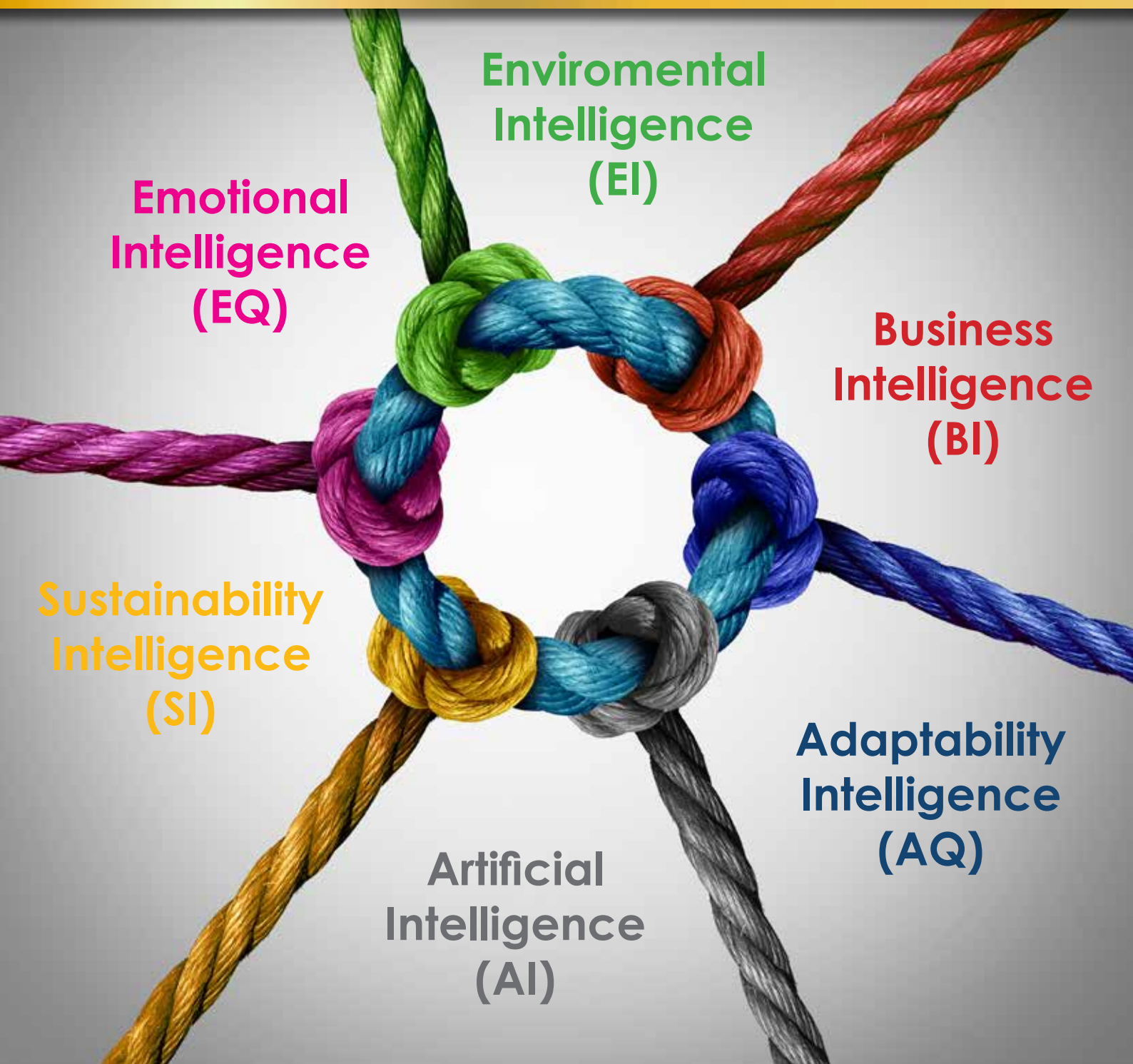
ARCADIA SHIPMANAGEMENT CO. LTD

For Blue Leaders and Grow Thinkers

2021

The dawn of a Revolution in Shipping:

Cultivating Six Multiple Intelligences



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Ready for another 365 - round

Editorial | CEO's Note

Dear ARCADIA LeaderSea Readers,

Welcome to a new experiential voyage!

I hope you celebrated the start of 2021 safely and in good spirits with family or friends.

On the threshold of this New Year, COVID remains a global serious crisis. But as Winston Churchil said in the wake of the Second World War: "you never want a serious crisis to go to waste."

In that spirit, we can try to look ahead and move forward with a positive mindset. The COVID-19 pandemic is challenging us in ways we never have predicted as long as we have a central point of reference.

In Arcadia, our central pillar has been the 'human connection.' We serve our mission through our services, but we are clear on whom we serve; we serve people. We are committed to our people, our stakeholders, assisting them to cultivate a prominent performance to serve Global Shipping.

This unrelenting focus on people is our particular source of pride and a positive direction to inspire gratitude. At this point allow me to thank our employees, partners, suppliers, and clients for pulling together as a family-business community.

Although we have grown accustomed to long periods of social distancing, we have all invested in maintaining the personal relations that allow us to continue and collaborate as professionals.

The year 2020 taught us that human interaction and live communication remain invaluable, and that access to real time information is indispensable for Shipping to grow and thrive.

New Year delivers the reflections of our choices. It is of great importance to use time wisely and move forward as decisively and swiftly as we can. We should promise and commit -to ourselves first- to use our multiple intelligences to reach our goals.

In the dawn of 2021, I urge you, to be thankful and appreciate what you have, to be creative and optimistic for what you deserve to have, to take a leap and prepare yourselves to enjoy the fruits of the seeds of a previously unimagined future in Shipping.

Dimitrios Mattheou

CEO

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LeaderSea
For Blue Leaders and Grow Thinkers

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A publication of ARCADIA SHIPMANAGEMENT CO LTD
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Arcadia Shipmanagement Co Ltd provides safe and reliable transportation of oil by sea, through a modern fleet, setting top objectives for Safety, Quality and Environmental protection. To achieve these, Arcadia is dedicated to develop and sustain a strong working relationship with all parties involved in International oil trade, based upon mutual trust and reliability.

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MARINE TOURS
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#WESAIL : Arcadia's 4-pillar-campaign during COVID-19 and beyond

It is no secret, times are changing. The last few months have brought significant stress and instability at a time a pandemic. People are forced to adapt to the changes and wonder what the new normal will look like. Likewise, the Shipping industry, is equally trying to navigate change.
In Arcadia, at the very core of our humanity our employees' recognition is vital, especially during hardships and in times of change and uncertainty. With the guarantee of more changes on the horizon, Arcadia has addressed four key pillars illustrated in the internal **#WESAIL** campaign that not only motivate employees to cope with pandemic-related challenges, but also account for a communication roadmap to continue building trust within management and teams.

#WESAIL: We **S**ense, We **A**dapt, We **I**nspire, We **L**ead

We **S**ense: Our people -on board and on Shore- are seen, acknowledged, and understood with empathy. We work hard to stabilize their hearts and minds with hope and confidence. It is in the best interest of Arcadia management to cultivate sensitivity and a nuanced appreciation for each individual. Our expression of appreciation is specific and meaningful whether it's delivered through email, on a phone call, via video conference, chat, or any other means in our increasingly isolated work environment. We do not simply recognize we deeply appreciate our people efforts during this critical period. Caring for our employees is the most powerful and ethical way to gain their respect, loyalty and commitment.

We **A**dapt: We have prepared our teams -mentally and spiritually- though continuous learning and development trainings to become flexible and adaptable to respond effectively to unstable and critical working conditions. Adaptable people are not scared of change, as they will first make necessary plans to handle it. Continuous questioning and assessment has ensured adaptability and a resilient culture within Arcadia. The key tool is effective communication through performance debriefs and evaluations stimulating a process that will make people adaptable people generate adaptable organizations

We **I**nspire: Our people are looking for more intangible incentives — such as motivation, leadership, ethics, and a clear company vision and mission — than ever before. Establishing such high standards of employment starts at the top of the organization, flows downward, and strengthens every level of operation as it trickles through the chain of command. Having worked out that people matter most, we give them responsibility for performing their part in the plan. We create the need for commitment through involvement. We tell people what to achieve and why and give them the freedom of action within defined boundaries, which are broad enough to take decisions for themselves and act on them. This has caused -through these critical times- a chain reaction of continuous positive thoughts and actions while they provide their services on board, at the office or at home.

We **L**ead: Knowing our value while being fully aware of our responsibilities, we act bravely, we serve our duties with pride and we take good care of ourselves and each other with whole hearts. Our operating management system is successfully performed by our valuable people who contribute in with their passion, professionalism and seamanship. People and human capacity are the cornerstone of Arcadia's evolution to excellence. What we are simply do is to cultivate human excellence in any possible way and enforce our people to act as leaders! We look to the future, regardless the hardships of times, with high optimism and sincere respect to the same values and ideals that built up the Greek maritime tradition, focusing on quality, safety and environmental protection. Our valuable Human Capital reflects to our effective Leadership; it is our Link to Success.

Arcadia spirit will continue to live up to opportunities and we will make the most of our human capital for safer Shipping oriented to Excellence during COVID-19 and beyond!"

FLEET LIST ARCADIA

NAME	VESSEL TYPE	IMO	YEAR	CLASS	FLAG	DWT	BUILT
AEGEAN FREEDOM	AFRAMAX OIL TANKER	9232876	2003	DNV		106,074	HHI
MARATHA	AFRAMAX OIL TANKER	9252371	2003	DNV		105,995	HHI
AEGEAN ANGEL	SUEZMAX OIL TANKER	9290323	2004	ABS		159,100	HHI
AEGEAN DIGNITY	SUEZMAX OIL TANKER	9290335	2004	ABS		159,081	HHI
AEGEAN MYTH	AFRAMAX OIL TANKER	9348479	2006	DNV		115,833	SHI
AEGEAN NOBILITY	AFRAMAX OIL TANKER	9345441	2007	DNV		115,814	SHI
AEGEAN HARMONY	AFRAMAX OIL TANKER	9338917	2007	DNV		115,824	SHI
AEGEAN POWER	AFRAMAX OIL TANKER	9338905	2007	DNV		115,753	SHI
AEGEAN HORIZON	SUEZMAX OIL TANKER	9326811	2007	ABS		158,783	HHI
AEGEAN MARATHON	SUEZMAX OIL TANKER	9745225	2016	ABS		159,000	HHI
AEGEAN UNITY	SUEZMAX OIL TANKER	9745237	2016	ABS		159,000	HHI
AEGEAN DREAM	SUEZMAX OIL TANKER	9645425	2016	ABS		159,000	HHI

NEVER – Follow sensible Rules and Stay SAFE/SECURE/ALIVE

Cpt. Apostolos Skempes
Training Manager
Arcadia Shipmanagement Co Ltd.

Either dancing to the famous song, composed and performed by "the Bee Gees" band, or referring to our job, Staying Alive should be a parameter into our private and professional activities. Lives, ours – our beloved ones – our colleagues – everyone's – are too precious to be spared.

Before discussing the fundamental issues related to our job, let's remind to the young ones of some interesting facts about the worldwide known song "Stayin' Alive". It is a song written and performed by the Bee Gees, included into the "Saturday Night Fever" motion picture soundtrack. The song was released on 13 December 1977 and climbed the charts to hit the number 1 spot on the Billboard - Hot 100. In the process of the years, it became one of the band's most recognizable tune. It brought tremendous fame to Bee Gees but led to them being pigeonholed as a "disco" act, despite a long and varied career before and after.

"Staying Alive" lyrics refer to RESILIENCE. As per the Bee Gees own words: "Everybody struggles against the world, fighting all the bullshit and things that can drag you down. And it really is a victory just to survive. But when you climb back on top and win bigger than ever before, well that's something everybody reacts to everybody".

When the song was released and became a success, many of us (including myself) "detested" it, because it was considered a "disco" song and we were "rockers". It took me about 20 years or so, to accept that it really is a masterpiece of pop/dance music.

Getting back to our job, the safety culture at the recent years has also become secure culture, since nowadays threats are not only against our lives but also against our earnings and our belongings, either as individuals or as groups or companies. Staying alive, staying protected, staying intact, must always – everyday – every time, remain a priority and a non-compromised way of acting and behaving, either during our professional time or during our personal time.

The title of this article "NEVER", refers to actions that must be avoided. Below is a list of fundamental principles which can be found in guidance booklets, instructional manuals and operational procedures in our industry. We have included just a few (basic ones), just to get the idea. It is 20 of them, but we don't want to place them into a numerical order. Each one is equally important.

Never neglect your watch-keeping duties, in favor of personal or other non-related occupational interests.

Never continue or force your activities or assignments, when it is deemed unsafe or when running out of time (working under time pressure).

Never leave your watch, before ensuring that your substitute is capable and aware to take over.

Never assign tasks to Crew with insufficient experience/training.

Never skip drills and safety trainings.

Never "forget" or misuse the essential PPE in relation to the kind of the task assigned to you.

Never ignore an alarm or consider it as false, without double-checking its cause.

Never hide faults or signs of malfunction/ sub-condition in material, equipment or systems.

Never attempt to combat a fire, without prior informing an OOW about your intention.

Never enter an unattended space (machinery, enclosed, storeroom), without having informed an OOW.

Never create "death-traps" such as: safety barriers missing, stop/warning signs not placed, deck plates out of position etc.

Never under-estimate snap-back areas.

Never wedge or tighten open, a Fire door.

Never block or tighten open, a Sounding pipe (equipped with self-closing mechanism).

Never block a Water-tight door from operating freely.

Never plug personal devices, such as USBs, into bridge/cargo/ballast/engine control systems.

Never work or act under operational uncertainty. ASK a colleague (superior or more experienced) or SEEK for advice/help.

Never assume another's intentions or awareness. Think for and protect yourselves but also think for and protect your colleagues.

Never assume all is OK – don't be complacent.

Never assume you can do it all, for long. Not observing rest periods, leads to a cumulative build-up of effects of fatigue.

We could go on for long. Each experienced seafarer may add a lot more to the above list. As they say, "the list is not exhaustive", as the risks which are threaten our personal and professional lives are "waiting to happen".

Let's don't give those risks a chance. Let's enhance into ourselves - our families - our "job-related" families, the safety and secure culture. By following guidelines, procedures and advices, we have a most probable way of Staying Alive (acts of God excluded).

And we may keep on dancing to this famous song, or any other songs and kinds of music which anyone prefers.

"Pandemic threat. Do you feel safer at home or on-board?"

Theodoros Agathos
Master
M/T Maratha

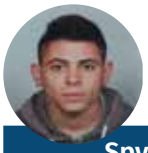
During this difficult period with COVID-19, all ship and shore personnel face difficulties that they had never faced before. I believe that inside the vessel I feel safer, since most operations at ports are made remotely or with minimum shore personnel joining the ships. Also the protection measures that we take on board are stricter than those we take in our homes.
I would like to point everyone's attention to the difficulties during COVID-19 that we face as Masters, when our crew cannot disembark. Threats, disappointment and depression are some of the issues arisen. Building resilience in our days is more important than ever.
At per Safety for Ship-Aug. 2020 publication, at least 200,000 seafarers required repatriation last July, with similar number of seafarers urgently need to join ships.

Lampros Giannelis
2nd Officer
M/T Maratha

I feel much safer at home because it's you who controls with whom you socialize during your daily routine and you can also assist your family, in case they require help.

Moreover, in case of suspicious symptoms, you have more immediate and prompt means to medical facilities, whereas on-board there have been numerous cases in global shipping industry, where potentially infected crew were totally ignored, not given proper medical care or were not allowed to be repatriated by port authorities during vessels' port of call.
Policies & measures are mostly effective only when something has been experienced before or by lessons learnt.

During COVID-19 era, they are a dice, which may roll out a win-win situation or may not. Future will only tell.



Spyridon Rousakis
2nd Officer
M/T Aegean Vision

Taking into consideration the present global circumstances and condition, I believe nobody feels absolutely safe. However, being on board makes me feel much more safe, rather than being at home.
The implementation of Covid-19 shipboard management plan and additionally the frequent trainings and drills regarding the management of Covid-19 outbreak on board, makes me feel prepared in any relevant incident that may arise. Furthermore, we take all the necessary precautions when we have visitors on board, following all the procedures. With this way, we minimize the risk of any case of Covid-19 on board.
However the large amount of people that they come on board every time during our stay in a port is a negative factor, even if we follow all the proper procedures, because we don't know for these people actually from where they came from, with how many people they came in contact and if they actually followed any precautions before they come on board our vessel.

Stamatios Chrysakis
2nd Engineer
M/T Aegean Vision

Being at home makes me feel much safer. During my stay at home, I put the rules for who is coming or not. So having this control makes me feel safer and more certain that me and my family can avoid any virus incident.

On the contrary, being on board makes me feel less safer, due to the large amount of people that they come on board in the ports. Furthermore, many of them request to stay on board for the entire duration of the vessel's operation.

That fact makes the possibility of a virus incident much more feasible. That's why I feel safer at home.

Jose Sol Bongato
2nd Officer
M/T Aegean Unity

Considering pandemic is a global threat, I cannot precisely say that there will be such a safe place for keeping. But taking the given alternatives to reconsider, I can say that it is much safer onboard rather than at home. It is because here onboard, the same people we are going to encounter everyday. There is also a limited area for the people to be exposed. Aside from that, a proper monitoring is also conducted on board from the medical team. Besides, consistent implementation of health protocols is strictly followed here on board. After all, safety of each comrade is the highest regard for us, in order to have a safe and smooth sailing.

Kenneth Jamora
3rd Officer
M/T Aegean Unity

Personally, I feel safer onboard. The pandemic has changed the way maritime operations are being done and our vessel is no exception. Everyone involved in shipping and handling activities, has been through measures to make sure that they do not carry the virus along with them.

It's also worth mentioning that "safety first" has always been our priority. Various protocols are in place to ensure everybody's safety in this difficult time. I trust that these are enough to protect our crew, so that we can carry on providing for our loved ones and in turn, helping them so as to feel safe back at home.

Ioannis Vlachakis
Master
M/T Aegean Vision

When Covid-19 first appeared in the beginning of 2020, everybody rushed to impose restrictions, tests to seamen. As usual the seaman is the easy target, regardless if by default, due to the nature of seaman's profession, we are isolated for more than 14 days. In most of the cases, for disembarkation, a negative PCR test is required no matter what.

However no one ever thought what about the visitors coming on board the isolated ships. The only tool provided to vessel (beyond the disinfectants, masks and gloves) as a restriction for the visitors is a Form (F-423) of questions which must be send and completed in advance by the visitor before boarding.

Only from one port we received in advance the Forms completed, however these were completed wrong. At the rest of ports we completed the Forms on board, at reception stand, upon visitors' boarding. This does not secure that visitor is healthy and not infected or is an asymptomatic carrier of the virus.

Why Shipping Companies do not request a negative PCR test for all visitors before boarding?

Thus we are straggling on board to disinfect all ship areas, places where visitors (Mooring masters, pilots, agents, authorities) had been and touch ship's furniture, handrails, doors, knobs, door handles etc. plus the fact that after the first 2-3 hours, almost all visitors star feeling "comfortable" seeing that we actually maintain daily disinfections of all accommodation decks' floors, stairs, handrails etc. and they even remove their masks. Only Master has become the "bad guy" when reminding the visitors to put their masks on. Many times I have noticed surveyors, loading masters etc. rushing to put their masks on, when I appeared in ship's office.

Then after ship's sailing, "the counting" starts from 1 to 14 days until we verify that everyone on board is healthy without Covid-19 symptoms. And before we start feeling safe for 2-3 days, ship arriving at next port and the story goes on from the beginning.

A characteristic example of the most difficult port the Master has to deal with, is the port of Abidjan, where 14 shore personnel were staying on board and before completion 12 signing-on new crew also arrived, thus a total of 49 persons stayed all together on board for 20 hours, including night time.

Shipping Companies should impose restrictions to shore personnel who intent to board the vessel, to the absolutely necessary ones!!!

So where do I feel safer, at home or on board? Guess what.
Home sweet home.

Ariel P. Banico
2nd Officer
M/T Aegean Vision

In my own opinion, being onboard the vessel makes me feel safer than staying at home. Being onboard. allows me to stay away from the large crowds where Covid-19 transmissions can mostly happen, thus preventing me from being exposed to it.

On the other hand, being at home can put me in situations where I expose myself to different people who are possible carriers of the virus, situations like ordering food from restaurants or buying groceries. Being onboard is the best possible way for me because I am earning and providing the needs of my family, while also putting food on the table.

During the Covid era, my wife can order their food and needs online and have it delivered. My family can be safer this way and there will be less spread of the virus among humans.

Michael Vilaras
Apprentice Officer
M/T Aegean Vision

In my opinion being to my home makes me feel much safer than being on board. First of all this happens because me and my family we have the control of who visited our home.

Furthermore we follow all the procedures and instructions in order to avoid places with crowds of people and set our self exposed to Covid-19.

On the other hand being on board makes me feel less safer because, when the vessel stays in port, we do not have exactly the control of who comes on board and if they have been passed from Covid-19 test. As far as I am concerned, I believe that even we being at home or on board, we must always follow all the procedures of wearing masks, gloves and keeping the safe distance with people, in order to take care of ourselves and decrease the spread of the virus.

This photo includes all the below seafarers of M/T "AEGEAN UNITY", who provided their opinions.

M/T "AEGEAN UNITY" – Von Ryan Dela Cru / Boatswain

Family is my priority. Since I became a father, I see to it that I spent long months with them compared to staying onboard. My kids are in their growing stage, a character building stage, where both parents' presence is very important.
When pandemic started and lockdowns imposed, I'm thankful that I was at home. By God's grace and provision we are spared from this virus. I saw the real situation of other people, where establishments were closed and a lot are jobless. Not that worried, for I do know that God will never forsake us. In this time of pandemic, many seafarers were stranded and wanted to go back to work. But for me, work called me in time of another lockdown. I see that as a calling and a sign that I should be thankful for the right timing. Being on board is not being selfish. Hardships and homesickness cannot be compensated by salary. But with this situation, I prefer to be on board. Not to be safe, but for the sake of my family. The virus will not chose its victim, whether you are rich or poor. I may be on board away from them, but I am very sure that I can fully provide them. Sometimes we need to be lost to serve our purpose and do always remember that by God's grace, when we are weak, we are at our strongest.
Let us do pray for each others' burden. May God bless us all!

M/T "AEGEAN UNITY" – Eric Catapang / Pumpman

In this pandemic, I feel like I am safer onboard, because all my team-mates or co-workers know, if they are healthy or not. Also, we have fewer people who we are socializing. As for some people who are having contact with work, aside from my co-workers, they made sure to have done some Covid tests or swab test, to secure our health and safety. Unlike when we are at home, there are more people with who I am socializing from outside, coming to our home without having done any tests. Finally, I can support my family's needs, whenever I am onboard.

M/T "AEGEAN UNITY" – Arnel Tumbaga / Deck Cadet

Onboard, I feel safe because, together with my comrades we are protected and we are in isolation, wherein all of us stay in this area. We feel better because, none of us can be threaten by this COVID-19. But as we are here, we cannot avoid the anxiety sometimes, yet, we are all coping-up with the positivity and enjoying things here on board, as much as we can.

M/T "AEGEAN UNITY" – Albert Aboy / Able Seaman

I feel safer when I'm onboard, because of the less people I mingle with. I'm sure my co-workers are healthy because they can't be onboard if they aren't. Moreover, the vessel is well disinfected in a daily basis rest assured that everybody onboard will feel well protected in addition. When you're at home, more friends and relatives come to visit you which you are not secure if they are virus free or not. Whereas, when you're onboard, only on ports will enter additional people on operation, which is less of a health hazard.

M/T "AEGEAN UNITY" – Ismael Ibarra / Able Seaman

We all know that covid-19 pandemic has given a serious threat globally. It has affected not just the giant industries that runs the world economy, but most particularly the small unit of society; our family.
Nowadays, every corner of the globe is not considered as a safe place, even in our home. Considering the fact, that we have this deadly airborne enemy, that even our naked eyes can't see.
I know it's not that safe, crossing countries and interacting different nationals. But, I practically prefer to stay onboard in these times of world pandemic. Just to ensure the financial welfare of my family. And as a frontline worker amidst the world crisis, risking our own lives matters less, as long as we are happy and fulfilled providing the needs of our loved ones.

M/T "AEGEAN UNITY" – Dhean Mark Ilustre / Able Seaman

I feel safer to stay onboard. Of course, we are isolated for months or weeks at sea. Which is giving us less chances to be affected by the virus. And at the same time, those people who come to the ship from ashore, they are strictly screened and monitored prior to their embarkation. Every time we are at port, we are giving our best to screen all visitors by taking their temperatures and giving them a mask for the safety of everyone. For my own thoughts, even if one of the crew will be affected by the virus and he has no symptoms for days, as long as we are isolated to the other people we are still safe.

M/T "AEGEAN UNITY" – Bryle Jazmin / Able Seaman

Personally, I feel safer to stay onboard than to stay at home. Being the most cautious person that I am, I feel more secured and assured to stay here onboard, knowing that all of us are Covid-free. At port each of us is equipped with PPE's, to ensure that we are protected and to prevent us from contracting the disease.
Comparing the situation from here onboard than staying at home, where people are more exposed than we are, there are people who are neglecting the fact that Covid really is existing. That is why they tend to forget on how to properly put on mask and face shield, whenever they go outside or speak with someone.

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TO MEET THE CHALLENGE
AND SMALL ENOUGH
TO CARE

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M/T "AEGEAN UNITY" – Richard Dancalan / Ordinary Seaman

"Safety is the lifeline in every seafarer's life". They say whether onboard or on shore, we always have to think about safety. As we all know our profession is one of the toughest and risky jobs around the world. "Healthy body is the main foundation of a seafarer's career". We must be fit for sea duty, in order to do our jobs onboard. On this current crisis that we are facing, the Covid-19 pandemic, I can say that we seafarers are safe against the threat of the virus. One word proves this: "ISOLATED". As we all know, seafarer's work with same persons throughout their contract, thus making them safe from making contact with a person positive in COVID. Joining crew and disembarking crew are subjected to test, in order to make sure no one is going onboard and travelling carrying the threat of covid-19. Every shipping company is assuring that before we can be qualified to work onboard, we have to pass the medical exams needed and I know every agency in maritime industry is relaying to every seafarer the knowledge and safety protocols, in order to be safe against the threat of Covid 19. We, seafarers, are safe against Covid-19 while onboard vessels, "BUT" as long as we leave no room for complacency and keeping in mind that the threat is always there during vessel's operation at ports. So we must check that persons from ashore are COVID free.

M/T "AEGEAN UNITY" – Donerey Talagtag / Oiler

As a seafarer, it's hard to be far from loved ones, especially during this time of pandemic. We all know that everyone is struggling regarding on the financial budgeting.
In my opinion, the much safer, between being at home or onboard, is on board. Why is it? Because seafarers stay onboard during their entire period of their contract, without the possibility of going ashore. Dealing with a few members onboard on the entire duration of our travel. The only saddest part of being onboard is, when you need to deal on your own safety to prevent the anxiety, loneliness and helpless, knowing that your family is not a hundred percent safe because of this unseen virus.
Being on board during this pandemic is a big help for my family, since I can provide financial support by means of hard work and dedication in my job. And the most important and special thing that you receive is to know they are safe all the time. It is a big help that can make you ease and worry-less, whenever time passes by.

M/T "AEGEAN UNITY" – Royet Duplito / Engine Cadet

I feel safer onboard than home, because when you are onboard you stay in one area and you can't go everywhere you want. Also, not too much people you can encounter may have symptoms of "Corona Virus".
When you're at home, you can do whatever you want or when you want to go outside, it's easy. But too much people you may encounter outside your home, is possible to have the virus. So you have big chances that you may be affected, maybe you transfer that virus at your family members at home and all of you will suffer the symptoms of the virus.

M/T "AEGEAN UNITY" – Eduardo Pangilinan / Chief Cook

For me, being onboard is much safer than being at home, because here inside the ship we have limited face to face contact to the other people from outside, except when we have few visitors onboard, which is not always and is quite manageable.

Whereas, when we are at home, we are always prone to contracting the corona virus because we are obliged to go outside our home to do some errands, like doing groceries and going to the market to buy food supplies, meeting with other family members and many more.
And with that, we are more exposed to different people outside, therefore we are more prone to contact or get infected by the corona virus.

M/T "AEGEAN UNITY" – Mark Nil Manlapaz / 2nd Cook

Pandemic - a world threat. As days passed, many countries suffered because of the corona virus or also known as Covid 19. For some people it's better to be at home. To be safe as they think. But for some reasons, some people need to go far as they could go, like me.
We all know that seafarers' nature of work is to be at sea-onboard. Maybe they say that it's dangerous to be onboard, but for me, I feel safer here because as we sail, we go farther into reality. The world out there faces the danger in their daily lives. As seafarers onboard, the only thing that we are facing is our daily routine and to be practical.

M/T "AEGEAN UNITY" – Aries Abenion / Messman

I feel more safe onboard, because by staying on a ship is less people which you encounter. Only the crew onboard is that we collaborate. Staying at home is more dangerous. In Manila, we will quarantine for fourteen days. And when we go home to our home town, it will be another fourteen days of quarantine. We have heard of many corona virus cases in my place, especially in the Philippine Capital Manila.
The only problem onboard is when we discharge or load our oil cargo. The people who are in charge from shore side, who are going to check all the documents for discharging or loading, are the persons that we, all crew are afraid of. We do not know if they are infected or not, although we have all the protocols onboard, wearing PPE for corona virus, but that is not 100 % safe.

M/T "AEGEAN UNITY" – Anonymous #1

I feel safer on board. Company has introduced a shipboard management plan for Covid-19 and we take all the appropriate measures for our protection due to this pandemic. The only contacts that we have on board are with the visitors at ports.
Dealing with visitors is another challenging issue as many are those who board a vessel; Pilot, PSC authorities, Surveyors, maintenance Technicians, Inspectors and others. There are practical protective measures to be implemented onboard when in port. All crew members in our vessel are fully aware of precautionary measures onboard. These are: 1) PPE 2) Social distancing 3) Hygiene 4) Testing.

M/T "AEGEAN UNITY" – Anonymous #2

I'm sure that on board, during this time, is safer than in our hometown. Seafarers are resilient people, able to draw on their already well-developed mental strength. It's time to use our mentality and maintain a positive attitude, along with regular contact with our colleagues.
All the safety measures that we apply on board during the Covid-19 pandemic are more effective than our hometown measures as were taken by the government. We always wear our masks and take time to read the posters on board, which are highlighting the best hygiene practices.

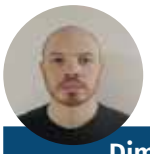
Joel P. Banawan
2nd Officer
M/T Aegean Dream

Generally speaking, I feel safer onboard. First and foremost, seafarers are considered as front-liners. Hence, it is less contact or mingle with people from shore, rather than at home. As the first line of defence to avoid virus transmission is "social distancing" which is one of the general measures of protection. Currently, our Company vessel trading route and voyage is considered less risky in terms of contamination of the said virus due to the fact that, mostly has a long voyage and majority of offshore cargo operations. Due to this, crew onboard is feeling safer. Cooperation Onboard Vessel Is Definitely = (C.O.V.I.D. FREE)

Jimvic Palacios
2nd Officer
M/V Innovation

In my opinion, it is safer to stay at home because we limit physical contact through social distancing with other people. It is one way for not to spread the virus. Financially it's not practical to stay at home without a stable job. How can I help my family during economical problems and financial crisis without a job? I chose to work onboard, because it helps me personally with my expenses.

I'm one of the front liners who have visited risky countries. I make sure to follow the safety protocols and maintain myself healthy and more alert. This is how I do my part to prevent the spread of the virus. Due to the economical and financial crisis we face, we all need to do our part in keeping our workplace safe, not only for our survival but also for the survival of the Company.



Dimitris Trispiotis
Chief Officer
M/T Aegean Harmony

Under the corona-virus pandemic worldwide, I don't feel safer either at home, or onboard. I believe that even if we keep and follow all the appropriate measures, as we are dealing with different people even at home with our friends, relatives and onboard with the shore visitors during our port stay, the threat is there.
The positive thing onboard is that we are more isolated than being at home. The Company provides us with all the appropriate protective equipment and we follow the Company's procedures in order to minimize the threat from the shore personnel and stay safe and healthy.

Paul Joseph Laude
2nd Officer
M/V Innovation

Well, logically speaking, there is no other safer place to be when it comes to the pandemic, than to be onboard the ship. There are strict protocols and tests being done, before someone or somebody could be onboard. This alone can make you feel safe and assured that you and your crew mates are safe onboard, and most of the time you will be on the open sea away from crowds, thus reducing the probability of being infected.
Furthermore, the Company has provided us with necessary equipment, supplies and guidelines needed to be followed, during stay at port or at sea, to avoid the risk of infection. Being onboard, following necessary measures, with a small group of people whom you know and you trust, feels a lot safer during these pandemic days.

Jay L. Santacera
2nd Officer
M/T Aegean Angel

The COVID-19 pandemic is the largest public health crisis in a generation - and may be the biggest to ever hit the world.

And as the pandemic drags on, a lot of people have to struggle, not only with staying healthy and disease-free, but also to cope with being far or physically distant from important people in their lives.

As a seaman, a husband and a father of 2 kids, I feel safer at home. I can spend full time bonding, talking and taking care of my family which, I miss a lot during my career. I noticed sweet smile on their faces and sensed that they feel secure when I am around.

But then again, SEAFARERS are the front liners in maritime industry. It is a CALL of DUTY. So, I need to go back on ship, as this is also the source of my income to sustain my family's need. Crew change is difficult. There is a need to follow Government Health Protocols and a lot of documents needed for travelling. When on board, we encounter different people at port, whom we don't know if they are COVID-19 safe or infected.

It is a need to address this pandemic threat to us seafarers. Vaccination of seafarers is important as we play a key role in the global supply chain. Ship-owners will need healthy and vaccinated seafarers, as we are also affected with travel restrictions and may force us, seafarers, to stay onboard vessel beyond contract due to this pandemic.

Of this ongoing pandemic, whether we are at home with our family or onboard with our crewmates, it is important that we take all the necessary precautions to ensure our safety.

Romnick C. Velasco
2nd Officer
M/T Aegean Marathon

In my opinion, the answer to this question depends on each personal experience. In the event that no one thought that this COVID 19 was going to be a global threat. Each of us was not prepared for travel bans, closing borders, lockdowns, ceasing of crew changes.
As a seafarer who mostly relies in our job to support our families, I feel safer onboard, not only because I have assurance that my family is in good condition, but also I feel safer with the high standard and response of our Company, in dealing with this kind of threat onboard ship.

Christos Kapetanakis
Chief Engineer
M/V Infinity

I believe I'm safer on board than at home.
Due to this situation, is better to be in a distance from other people because they may transfer this disease to you. So it is better to be onboard in a small and controllable environment.

From one hand, due to the long voyages of the vessel and from the other hand, due to safety and control measures, that vessel's crew and port authorities in every port are following, I'm feeling more safe to be on board.

Ioannis Stamatiou
3nd Engineer
M/V Infinity

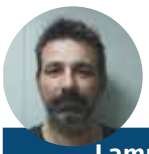
Nowadays we have to deal with something different, something which hardly you get used to it.

The Covid-19 affects our lives, no matter what we do or were we are.

Our priority is to be safe. We must choose our path and how we like to face up this situation. Even through the current circumstances, being cautious at home with the family feels more safe, than coming in instant contact with different people at ports, especially now with new variant of the virus being recorded.

Marcos Mabale
Chief Officer
M/V Innovation

Corona virus makes a tremendous change in the world, particularly in economic aspect of every country hit by the said pandemic. It is very hard to be separated from our family, especially at this time of crisis, but being bread winner you are obliged to go onboard. I find it safer/less vulnerable to be onboard, than staying at my home town. Its either I'll get infected with the people I encounter day by day, including my family, one way or another we'll be infected through people I met outside, while on board your exposure to people outside is minimal. It is safer to be onboard as long as the crew will maintain health standard protocol, cooperate, obey and follow the guidelines of safety precaution and recommendation from the health expert and port authorities. With the support of our principal owner and manning agency, there will be a less tendency of infection and infecting others by COVID 19 on board.



Lampros Loukoumis
Master
M/V Anna Maria

At home or onboard, regardless where you are, the risk to be infected by Covid-19 exists. The knowledge and discipline are the main factors that minimize the panic caused by pandemic and lead to the proper confrontation.

As I have experienced the lock down at my home city during the first wave of corona-virus spread, now I feel safer being onboard. This feeling caused by the fact that, I'm surrounded by persons (all crew), who have the sense of personal responsibility and implement strictly the Company's management plan, which was developed from the first moment.

As a conclusion, I could tell that it is up to each one of us to create a safe environment to live into, at home or onboard. Anyway, vessels are for the seafarers, their second home.

Ferdinand M. Magpantay
3nd Officer
M/T Aegean Marathon

Covid 19 pandemic has a direct impact in the world of work and is considered as health emergency. The risk of transmission is higher on board in particular for those in the front line of response.
The government and health community's advice to stay at home, is one of the most important thing we can do to help avoid getting infected, or becoming a carrier of the disease. I must say that it's more safer at home, because of a few interactions only with other people and have a low risk to catch or be exposed in the virus, since only the authorized persons can go outside for some errands.
While the covid 19 pandemic may prove to be a rear challenge for families, it also brings new opportunities for us to spend more time together. In the long run, this will increase our family's resilience to help us towards future problems and crisis.

Louie Mark A. Angcao
2nd Cook
M/T Aegean Marathon

The world is in distress and is saddening. These viruses have gone far and bring fear to people all over the world. How long and how far it will last? As seafarers, what can we do to prevent it from spreading?

I feel safer at home, because I know the people around me, I can minimize the risk of getting the virus since I stay home most of the time. On the other hand, now that i'm onboard, I feel safe too, because I know that everyone I work with onboard is virus free.

I feel safe whenever we are sailing, it is far from land and from other people. The things get scary when we are approaching the port, we don't know what awaits us. The good thing is, Officers on board keep on reminding us about the safety measures that we need to take, like keeping our face mask on every time that we are port. Frequent hand washing, using hand sanitizes and maintaining a safe distance whenever we are interacting with the shore personnel.

We, the crew on board, must be cautious about the risk we are facing whenever we are onboard. It is our duties to look after each other and to keep the virus away from us.

We should keep continuously in our minds the word 'SAFETY', so we can get back safe to our family and to our safer place, our 'HOME'.

Achilleas Gkoutanoudis
Chief Officer
M/V Anna Maria

Covid 19 has completed a year from its birth. Last year, I found myself being for equal periods of time locked down: as a resident of the seas during my stay on board, at the first period and, as a homeland locked down in my home, at the second period.
During the break-out of the pandemic, I felt that home may be a safer shelter for me, because of the easier access to hospitals and doctors. When I was repatriated, the reality was different from my thoughts. Many people did not take the precautions given by the government and the scientists. That caused the filling of the hospitals and thousands of deaths.
On the other hand, whilst on board, I found that the maritime community rapidly mobilized and applied new rules in all the maritime industry. Companies are frequently providing valuable information and guidance to their fleets.

Unlike many of the negligent citizens of the land, seafarers are disciplined professionals and from our first steps of our career, the maritime motto "safety first" is always activated into our minds, making us take precautions, because most of the time we are the protectors of our self and exposed all alone in any kind of danger.

Considering all the above I can definitely say now, that I feel safer onboard.

Alan Agrupis
2nd Officer
M/V Anna Maria

Since the pandemic began almost a year now, it affected many lives, the countries' economy and workers' lay-off. For us, seafarers, travel restrictions, ship's spares logistic halted and crew changes became the worst affected part in our profession. Thus, the crew is staying onboard beyond their contract and the safety of the ship is in danger, due to stress and fatigue.
For me, against the pandemic threat I feel safer at home. As long as you are observing the minimum health standard-social distancing, wearing face mask, face shield, proper hand washing and avoiding large gathering. These adopted basic protocols reduce the possibility of virus affection and anytime of the day you may be provided with immediate treatment, even though hospitals are congested. Our family will be contacted/comforted no matter what it may happen.
Unlike when you are onboard, port authorities, agents and port stevedores come onboard and you never 'who is the carrier of this virus' as most of them are not well aware of the consequences it takes. In addition, if anyone will have symptoms on board, it will be hard to get immediate treatment, especially when you are already in the middle of ocean. Lastly, no matter how hard life may be at home through this pandemic threat, it is the best and safer way to be in times of crisis, with someone you love most.

Fernan G. Caubang
Boatswain
M/T Aegean Marathon

I feel safer onboard because the people whom I interact with, are professionals who have gone through the guidelines, which makes them safer, rather than those whom I interact with at home.
The strict protocol onboard makes it much safer for us seafarers to work, because the Company makes sure that everyone who goes in and out of the ship is free from the virus.

Panagiotis Alamagkos
2nd Officer
M/V Agonistis

I feel safer onboard. Utmost care must be placed during airway travels, which is the main transportation means to and from a vessel, being used by seafarers / shore-based staff. It must be noted that, because of how air circulates and is filtered on airplanes, most viruses and other germs do not spread easily.

Although the risk of infection on an airplane is low through the air-conditioning system, the way that the virus may be transferred from one person to the other, helps its spread.

The basic precautionary measures are:
Avoid conducting meetings with visitors inside the ship.
When and where possible (weather or other conditions permitting), conduct meetings outside while maintaining social distance.
Maximize technology for remote survey (i.e. email, video, photo, skype, electronic signatures) whenever practical. At the end, is more safe to stay on board due to constant supervision which applies at every port globally.

Dimitrios Gasparinatos
2nd Officer
M/V Agonistis

The covid-19 pandemic has been life-changing for all of us. It is my belief we must remain focused on our daily life and keep a clear head so that we will not astray from the routine of our work, we need, although, to take the necessary precautions to do so with safety.
To conclude, I feel safer onboard, because the nature of seamanship life has always been a self-created quarantine, due to being isolated and not having social interaction with people that may spread the virus to you or your beloved persons.

Christos Brouzioutis
2nd Officer
M/V Infinity

Into this difficult situation that we are passing through during this pandemic of the new covid-19 virus, many things have changed. We have to be extra careful, for us and also for the people beside us. Circumstances have changed also for the seamen, who are coming in contact with different people in every port, if its necessary. At this point, I feel safer on board because in the vessel you can be "Quarantined'' for long periods during long voyages. If you are home nowadays, everyday you hear at the news about people being sick and you face everywhere people with masks. In my opinion this is a kind of disease also, which affects your mental heath!

Dario S. Taray
2nd Officer
M/V Infinity

As per my opinion, it's safer to be at home than onboard during this time of pandemic. As long as you follow the safety/health protocols, the transmission can be avoided. You know the persons you meet everyday. In case you have the virus, transportation/medevac is available.

Being onboard, as you boarded the plane for joining the ship you are already vulnerable to the virus.

If vessel is at port, shore personnel who come onboard, may carry the virus and the onset of the virus will last up to three weeks and medevac at the middle of the ocean is very difficult.

Spyridon Balaris
Chief Engineer
M/V Anna Maria

In my opinion is safer staying at home, due to the ease of accessibility to medical facilities.

Onboard, while at sea, despite of strict implementation of Company's policy, in case of a Covid infection, the virus could spread rapidly infecting all crew members and the limited treatment means, to reduce the possibility of recovery.

This pandemic affects all people around the world & all kind of jobs. I hope very soon to get over it & return back to our normal lives.

Shipboard Survey on fleet vessels

On the occasion of the Q1 2021 Company magazine, a survey was arranged and carried-out onboard fleet vessels, with the crew members being addressed with the following question:

"Where do you feel more protected, against a possible virus infection: at home or onboard"?

A lot of crew members responded (the survey was anonymous) and the overall results out of the Company's fleet vessels, produced an almost 50/50 score.
Although this 50/50 score was not applying to all vessels (there were vessels with difference between the two options), the generic outcome proves that all personnel, either at home or onboard, are taking very seriously the issue of the pandemic threat and are safeguarding their lives, as well as the lives of their beloved ones, by all means.

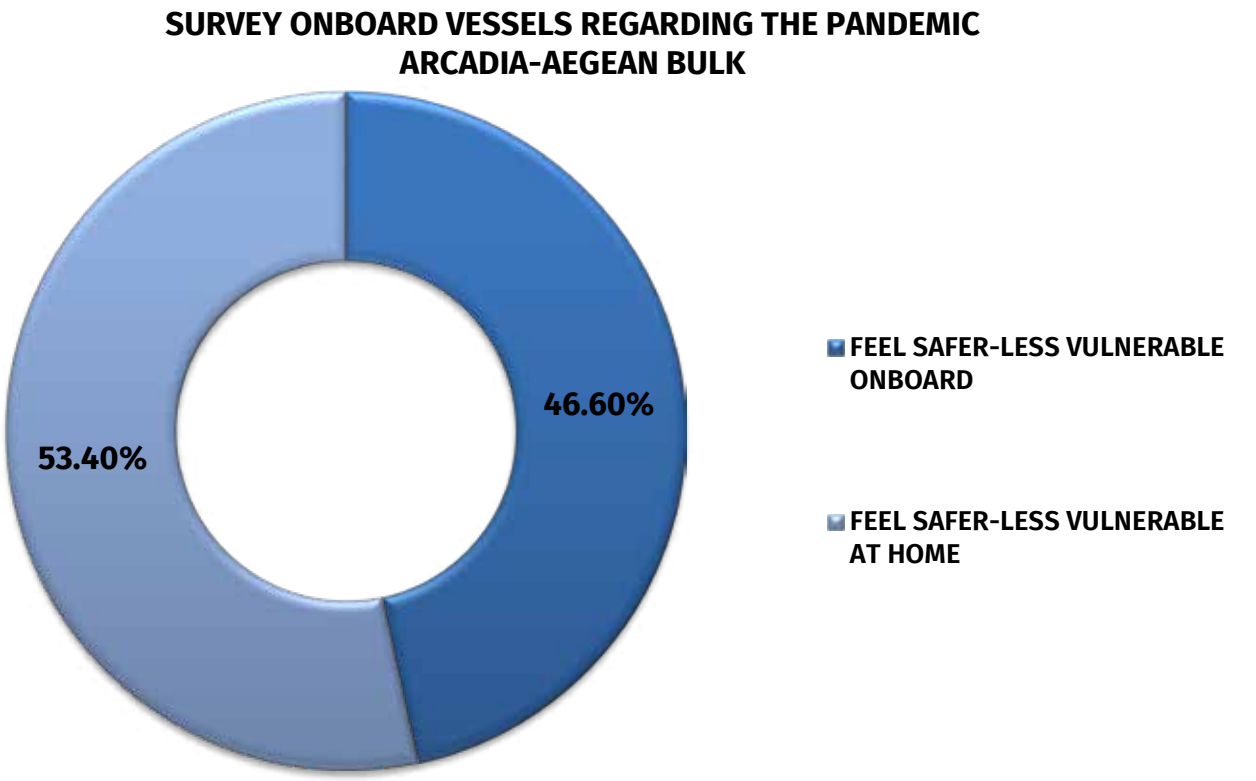
We would like to thank all of the crew members who have chosen to take part to this survey.

We also would like to thank each and all of you on board fleet vessels, for keeping COVID away from the ships, by taking extra care and applying all the instructions and protective measures that exist. The Company may have produced a COVID-19 SHIPBOARD MANAGEMENT PLAN and sends to vessels any industry guidelines and updates, but the documents can do nothing on their own.

You, the crewmembers on board, are the ones who are applying precisely and effectively the protective measures and instructions.

CONGRATULATIONS TO ALL !!!
LET'S ALL STAY COVID-FREE !

ARCADIA & AEGEAN BULK



2021 - The dawn of a Revolution in Shipping: Cultivating Six Multiple Intelligences

Capt. Dimitrios Mattheou
Chief Executive Officer,
Arcadia Shipmanagement Co Ltd.

2020 does not need any introduction. It was a year characterized by a dynamic and constant instability; a disruption of the world market, economic shifts, socio-political tensions - an unprecedented confluence of events and, of course, the pandemic; a crisis that caused a global "silence".

A severe crisis, however, never go to waste. A crisis should be considered an opportunity for a massive reconstruction that requires drastic actions. The most powerful enemy at this stage is inertia; the human tendency to stay inactive.

On the threshold of the New Year, the leaders of the world must immediately prepare their organizations and people for a dramatically and resounding wavering future that begins today, at the dawn of 2021.

The seeds of a previously unimagined future

The world is heading into a striking Change. Shipping and seaman are the first to feel the winds of change.

For centuries man has been roaming the world's oceans on various forms of ships and seafaring was a daring venture, undertaken by hard men with soft skills; men who had a clear vision, a great courage and well -developed interpersonal skills that enabled them to successfully manage the voyage and of course survive. This inner urge has been offering us, through time, an excitement as we achieve things we once thought not achievable.

Today, Shipping is rising to a new era where artificial intelligence combined with the human element are called upon to remodel the Maritime world creating tremendous opportunities leading to sustainable growth and genuine innovation. Multiple Intelligences can be an ideal business model -based on multiple human intelligences- that can lead to this direction.

The Multiple Intelligences theory

When Howard Gardner Developmental Psychologist and Research Professor of Cognition and Education in Harvard University introduced his multiple intelligences theory 35 years ago, it was a revolutionary idea that challenged long-cherished beliefs. The prevailing idea of a single, monolithic intelligence did not match the world he observed. Gardner sees individuals as having one or more capabilities that can function independently or in concert with each other.

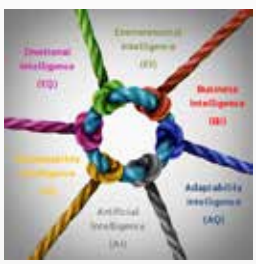
A momentous breakthrough in Shipping: Applying the Theory of Multiple Intelligences

Evidence from environmental research, human development, technological evolution, business and cross-cultural comparisons was brought to bear in my search for certain intelligences that can be effectively adapted as an integrated system by the Shipping industry and applied both on board and ashore. I ended up with Six Multiple Intelligences (MI's):

1. Emotional Intelligence (EQ)
2. Artificial intelligence (AI)
3. Business Intelligence (BI)
4. Adaptability Intelligence(AQ)
5. Environmental Intelligence (EI)
6. Sustainability Intelligence (SI)

The Six Multiple Intelligences (MI's) in Shipping

The 6 MI's model can function effectively as a system based on a holistic approach and this can be a big challenge for shipping.



It depends on how we - the Shipping Executives, Leaders

and Managers- will perceive and respond to this challenge. In this respect, the challenge is essentially a matter of how efficiently we leverage our resources and processes, how we deliver our products or/and services and most important how we manage our people.

Emotional Intelligence (EQ) - Featuring Empathy

People come first and so does Emotional Quotient (Intelligence). **EQ** remains a key ingredient in the development of people and organizations. **EQ** is the ability to understand and manage your own emotions, and those of the people around you.

People with a high degree of emotional intelligence know what they are feeling, what their emotions mean, and how these emotions can affect other people. For leaders, having emotional intelligence is essential for success. According to Daniel Goleman, an American psychologist who helped popularize emotional intelligence, there are five key elements to it: Self-awareness, Self-regulation, Motivation, Social skills, and Empathy.

I will focus on the last one.
For shipping leaders, having empathy is critical to managing a successful team or organization. Empathic leaders help develop people on their team, challenge those who are acting unfairly, give constructive feedback and listen to those who need it. If you want to earn the respect and loyalty of your team, then show them you care by being empathic.

Empathy is a surprisingly crucial business skill. Empathic leaders get along well with people from different backgrounds and cultures, and can express their ideas in ways the other person will understand. Executives with high empathy are better at keeping employees engaged, and employees with empathy contribute to successful organizational performance.

The 21st century is considered the Age of Empathy (the 20th century was the Age of Introspection). In Shipping we need empathy to create a new revolution. Not an old-fashioned revolution built on new legislations, institutions, or policies, but a radical revolution in human relationships.

Empathy can be a mass phenomenon that will bring about fundamental changes within Shipping.

Artificial intelligence (AI) – Designing systems imitate human intelligence

The role of **A**rtificial **I**ntelligence has created a massive impact on all sectors of the world. The rise of automation in the shipping supply chain along with the demand for more autonomous shipping has raised interest in **AI**. Preventive maintenance, smart scheduling and real-time analytics will make **AI** a more important role to play.

As we build machines that become closer to the human brain, it makes sense to start borrowing from psychology to model what these machines will look like. The obvious application for **AI** in shipping is autonomous ships, but in reality, there are far more interesting applications being developed to optimize business processes, voyage planning and vessel maintenance.

Maana, for instance, is a U.S based startup that has developed a knowledge platform that enables industrial companies such as Shell and Chevron to encode human expertise and data from across silos into a computational knowledge graph. This combination of data and knowledge is used to power **AI**-driven-applications that accelerate decision making processes and workflows. Essentially it ensures that the right people get access to the right information at the right time that allows them to make the right decisions.

From my perspective, **AI** is a humanities discipline; an attempt to understand human intelligence and cognition. Technology and Digitalization -if managed wisely- will enhance us. So through artificial intelligence, we will augment our intelligence and therefore the industry we serve.

Business Intelligence (BI) - Transforming data into actionable insights

Business **I**ntelligence is continually evolving according to business needs and technology. Realize that artificial intelligence and machine learning will continue to grow, and businesses can integrate the insights from **AI** into

a broader **BI** strategy.

As shipping companies strive to be more data-driven the efforts to share data will increase. Data visualization will be even more essential to work together across teams and departments. **BI** is an important new tool for modern business.
Historically, **BI** tools were based on a traditional business intelligence model. It was a top-down approach where business intelligence was driven by the IT organization and most, if not all, analytics questions were answered through static reports. This led to slow frustrating reporting cycles and people could not leverage current data to make decisions.

However, modern **BI** is interactive and approachable. While IT departments are still an important part of managing access to data, multiple levels of users can customize dashboards and create reports on little notice. With the proper software, users are empowered to visualize data and answer their own questions.

BI if applied in Shipping will cover the processes and methods of collecting, storing, and analyzing data from operation to optimize performance.

Adaptability Intelligence (AQ) – Being flexible in changes and resilient in crises

The pandemic has accelerated the arrival of the future of work and adaptability. Adaptability Quotient (Intelligence, is a subjective set of qualities loosely defined as the ability to pivot and flourish in an environment of fast and frequent change.

Due to the corona crisis the importance of **AQ** is more prominent than ever in Shipping and the pressure on maritime organizations to increase their adaptability is on the rise. Over 2000 years ago, the Greek philosopher Heraclitus remarked, "The only thing that is constant is change." **AQ** is a soft skill that means being able to rapidly learn new skills and behaviors in response to environments where constant change is a constant circumstance.

AQ is not just the capacity to absorb new information, but the ability to work out what is relevant, to unlearn obsolete knowledge, overcome challenges, and to make a conscious effort to change. In this fast-changing world, the most successful organizations will be those with the most adaptable workforce. AQ involves flexibility, courage, problem-solving skills and resilience and for shipping companies to adapt, require flexible and resilient employees. Even when faced with events that seem utterly unimaginable, resilience enables people to become flexible and develop mechanisms for protection against overwhelming experiences.

AQ is unquestionably the key skill for organizations to maintain balance not just to survive but to prosper.

Environmental Intelligence (EI) – Setting Up the human ecosystem interaction

Over the past 500 years, human activity has become the driving force behind many of Earth's great systems, including the climate, biogeochemical cycles, biosphere integrity, and the water cycle. The convergence of two important developments — Big Data and climate change—is transforming the field of Environmental Intelligence.

EI refers to data and analysis of the earth's climate, geography and populations. Big Data are a phenomenon of the Digital Age. Over the past decade, the digitalization of information has made it possible not only to create and store vast amounts of data, but also to analyze these data in high-**volume,** high-**variety**, and high-**velocity** formats (the **"Three V's"** of Big Data). This has vastly enhanced the quality of **EI,** both in terms of the data itself and the tools and techniques that make **EI** meaningful.

EI is considered a collaborative-scientific process, which requires a continuous co-construction process fueled by multi-disciplinary data about the response of the natural and human systems to proposals and interventions. The concept of **EI** is a territorial co-construction process of sustainable trajectories. Trajectories are understood as a time-wise implementation of truly sustainable practices, which progressively enhance societal and environmental wellbeing.

Shipping is responsible for the transportation of approximately 90% of world trade and is also one of the most environmentally benign forms of transportation when considering goods transported on a tone mile basis. However, ships continue to be large producers of CO2, SOx, and NOx emissions. Other pollutants such as wastes, persistent chemicals from anti-fouling, cleaning agents and lubricants are as-

sociated with the shipping industry to the potential detriment of the marine environment despite the growing awareness of environmental issues and corporate social responsibility with regards to shipping and the environment.

Environmental performance and wellbeing of shipping continues to be an area of increasingly intensive scrutiny, which has driven governments, ports and shipping operators to focus on ways of improving the sustainability of the shipping life-cycle and initiatives that encourage them to do so.
Environmental conditions, such as the development of big storms, rainfall and ocean currents, directly impact the shipping industry. Delays and inefficiencies that occur because of unanticipated conditions can be costly.

EI optimization solutions are helping the industry manage these risks more effectively. For example, Maersk Line developed a proprietary **EI** solution, known as ECO-Voyage, to optimize its voyage routes. ECO-Voyage continually analyses **EI** data, such as currents, depths, wind and waves to determine the most efficient power and speed needed throughout a voyage.

The sensor-based data come from both third-party providers and the company's own fleet, whereby vessels sailing on the same route "learn" from each other's data as they are fed back through a central server. According to the company, developing "an edge on Mother Nature" has led to fuel savings of 0.5-1.0% per year.

As disruptive as the corona virus was to Shipping, companies are recognizing the environmental crisis could be much more damaging to the world as well as the bottom line than the pandemic. Therefore, every company must rethink operations, environmental impact, and their products and how they are being used. Very likely, if we create a "Digital Earth" — a multi-resolution, three-dimensional representation of the planet, in which we can embed vast quantities of geo-referenced data, **EI** can be an intelligent business tool that can lead Shipping to a Green industry.

Sustainability Intelligence (SI) - Leading the way to Green Excellence

Sustainability has been a concern for some time but during the pandemic things shifted in emphasis. Organizations have been showing a growing awareness regarding the importance of corporate sustainability.

However, the integration of sustainability concerns in companies' long-term planning, strategic management, processes, and activities is still challenging, disconnected, and often conducted in isolation.

Defining sustainability is not straight forward but it is important to establish a shared understanding of what is meant by the term, particularly when moving forward with a shipping framework that is entirely focused on the issue.

In 1987 the World Commission on Environment and Development developed a definition of sustainability that was subsequently incorporated into the Brundtland report (1987).

It stated that: Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainability Intelligence is a model that provides organizational managers with a structured framework to adequately understand, select, implement and assess sustainability-promoting actions, based on the development of structural and systematic disruptive tools and involving the exchange of collaborative ideas between organizational stakeholders.

SI encourages shipping to go beyond standard compliance of environmental behavior and become exemplary in their approach to shipping operations and the environment. As part of the United Nations family, IMO is actively working toward the 2030 Agenda for Sustainable Development for the transition to a healthier planet for present and future generations.

With concrete targets, the Goals aim to end poverty and hunger, expand access to health, education, justice and jobs and promote inclusive and sustained economic growth, while protecting our planet from environmental degradation.

The 2020 World Maritime Theme of "Sustainable shipping for a sustainable planet" will further raise awareness of the United Nations' Sustainable Development Goals and support Member States in their efforts to implement **SI** and make 2020-2030 a decade of action that can lead Shipping to Green Excellence.

Shell Verification Visit

The following message was received by SHELL Auditor, after conductions a Partners in Safety (PiS) virtual visit on M/T "MARATHA"

"As part of our "Partners in Safety" programme, one of our Shell staff s visited the MARATHA whilst she was at Libya on the 25-Nov-2020.

The purpose of the visit was to show visible leadership to support you in the "Partners in Safety" programme and to assess your progress with quality implementation of the Leadership Visits, Reflective Learning, Learning Engagement Tool (the three actions) and Resilience.

We want to thank you for the hospitality of the Captain, Officers and the crew who made our representative feel most welcome. It was most pleasing to find that the crew were aware of the programme, were knowledgeable about its content and were actively involved in every aspect.

The MARATHA sets a very good example of quality implementation of the "Partners in Safety" programme and gives confidence in safety management on board. We would like to thank you for leading the implementation of the programme so successfully and encourage you to maintain this. By working closely together we truly believe that we can turn our vision of a zero-incident industry into reality".

Kind regards

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Corrosion-resistant steels for cargo oil tanks

The use of corrosion-resistant steels in cargo oil tanks offers certain advantages compared to coatings. Tried and tested for about 12 years, they have now been included in DNV GL's rules, and a new class notation for these steels is available.

Mr Leonidas Karystios
DNV GL Regional Business Development & Gas Segment Director

Crude oil is a complex mixture of substances at varying ratios and in most cases contains at least some salt water. Even after desalination some of this brine remains dissolved in the crude and gradually sinks to the bottom of the cargo oil tank during transport. The corrosive nature of salt, along with microorganisms and other aggressive substances contained in the cargo oil, causes rust, most notably in the form of pitting, which are cavities in the steel that deepen over time.

Double-hull tankers are more prone to pitting

Pitting corrosion is typically found in the bottom area of cargo oil tanks. Above the cargo surface, especially on the underside of the upper deck, corrosion tends to be more evenly spread. It is primarily caused by aggressive chemicals contained in the inert gas, which is flue gas from auxiliary engines pumped into the cargo tanks to prevent an explosion of fumes rising up from the cargo.

While in the single-hull tankers of the past the cooling effect of the seawater slowed down bacterial growth by keeping the cargo relatively cool, the double hull of compliant modern tankers insulates the cargo from the low temperature of the seawater. As a result, the cargo stays relatively warm, providing ideal conditions for corrosion-causing microorganisms to thrive. Pitting therefore progresses rapidly on an unprotected tank bottom, weakening the metal and risking cargo loss, structural damage and environmental pollution.

The traditional way to prevent pitting and general corrosion has been to apply specially formulated coatings to the affected surfaces. This is an expensive, time-consuming process that needs to be supervised to ensure proper execution. What is more, protective coatings typically have to be renewed from time to time.

Corrosion-resistant steel - a proven alternative approach

These well-known facts prompted three Japanese steel manufacturers – JFE Steel Corporation, Nippon Steel Corporation and Kobe Steel, Ltd. – to submit a proposal to IMO to accept the use of corrosion-resistant steels as an alternative method of preventing corrosion in crude oil tanks. Following thorough discussion, IMO issued its new 'Performance Standard for Alternative Means of Corrosion Protection for Cargo Oil Tanks of Crude Oil Tankers' as an extension of the Performance Standards for Protective Coatings (PSPC) in 2010.

Research performed over a ten-year period by JFE Steel Corporation in a crude oil tanker delivered in 2008 confirmed that the corrosion-resistant steel dramatically reduced both pitting corrosion and general surface corrosion compared to uncoated conventional steel. Various other vessels featuring cargo tanks fitted with these advanced steels have been in operation since the new IMO PSPC standard came into effect and have demonstrated vastly improved corrosion resistance. The technology can thus be considered as validated.

New notation COAT-PSPC(CA) confirms compliance

DNV GL has since revised its relevant ship construction rules to incorporate corrosion-resistant steels for cargo tanks, and recently added the new classifier "CA" (for "corrosion protection by alternate means") to its existing corrosion protection class notation. Announced in July 2020, the new notation COAT-PSPC(CA) confirms a ship's compliance with the corrosion protection requirements for cargo oil tanks of crude oil tankers, by application of approved corrosion-resistant steel grades in one of the following areas of a cargo tank:

a) Lower surface of the strength deck and surrounding structures (RCU)
b) Upper surface of the inner bottom plating and surrounding structures (RCB)
c) Both the strength deck and the inner bottom plating (RCW)

Besides using the approved steel grades, the notation also implies the use of appropriate, approved welding consumables to join the plates. Compliance with both requirements must be substantiated by submitting specific documentation. The class notation will enter into force six months after publication of the rules, i.e. in January 2021.

Eliminating the cost of coating

Opting for corrosion-resistant steels in the corrosion-prone areas of crude oil tanks offers various benefits to owners and charterers as well as shipyards. One example is to eliminate the cost of coating and shortening the time it takes to complete a newbuild in the yard. Furthermore, no coatings need to be reapplied to the relevant tank wall areas over the lifetime of the vessel since the IMO performance standard assumes a useful life of 25 years of the cargo oil tank (COT) steel until its thickness is reduced beyond acceptable levels. Owners who choose this class notation can demonstrate to cargo owners that their crude oil tankers have a lower risk of tank bottom or wall failure, cargo loss and environmental pollution, thereby enhancing confidence in their ships.

The new normal in Crew Travel Management

Challenges posed by Covid-19 to key workers' travel

Mr Konstantinos Oikonomou
CEO,
Marine Tours

Almost a year has passed since the early stages of the Covid-19 outbreak when the severity of the pandemic became apparent and crew travel became increasingly difficult to many restricted markets internationally.

Today and as long as the second wave of the pandemic "hits" every part of the planet, a "brand" new reality emerges regarding crew changes, driving organizations in rethinking and redesigning key workers' travel management.

It is needless to say that Crew Travel has always been a crucial issue, as it is the exact point where seafarers, shipping organizations, travel consultants and suppliers meet to find the "golden mean" and apply best practices for the protection and the wellbeing of the first (the seafarer) and the prosperity of the rest!

It is true that the situation in crew travel has been significantly improved during the last 10 months, while it is expected to further improve in the next period, thanks to the valuable effort and contribution of the Shipping companies and other stakeholders (especially with regards to the aviation and travel management organizations), as well as to the positive developments regarding the travel restrictions such as relaxing of protocols and ease of measures applied on points of departure and arrival.

More specifically, in April 2020, the global lockdown shrunk the international flights network by 95%, making any crew change prohibitive. Today, we are glad to confirm that 80% - 85% of crew changes are able to be facilitated. Indeed, with maximum complexity and unprecedented challenges but still, they can be implemented.

On the other hand, and as an organization that remained at the forefront of crew joins and repatriation "missions", we cannot overlook the ongoing crew change crisis, which leaves thousands of seafarers stranded onboard ships due to the travel restrictions of several countries, or others who come face to face with unprecedented disruptions and last minute changes of the protocols while travelling.

Constantly changing travel restrictions- that are modified not only by country of arrival but by the nationality of travelers too-, local lockdowns, cancellations or last minute postponement of flights and social distancing guidelines, are only some of the factors that add layers of complexity to crew changes. Almost a year since the pandemic changed the travel process of the maritime sector and still there is no homogenized global framework to define crew travel procedures. There are still no global standards regarding travel guidelines, port regulations and airline hygiene measures. An inconsistency that adds further pressure to crew managers and travel management consultants.

It is worth to be mentioned that, due to all these unforeseen factors, a crew change has become more expensive and more time consuming than ever before! It t is calculated that a crew change takes today approximately 5 times longer in comparison with a change prior to the outbreak, placing greater demand on resources and highlighting the importance of a trusted travel partner with the experience to provide both solutions and support.

We, at Marine Tours, with more than 40 years of expertise in marine travel, we put safety at the forefront of our strategy and thus protecting seafarers -and keeping trade by sea flowing- has inevitably become the after effect of our day to day business activities.

Our motto "You can count on us" reflects that we are next to crew managers and crew every step of the way, overcoming the obstacles and effectively managing the crew change, by minimizing risk and maximizing safety for each and every traveler.

Within this aim, we are closely monitoring all the latest updates for each destination, we communicate systematically with the official authorities, airlines and other suppliers; while we have developed an effective methodology in order to maximize the efficiency of the trip and ensure that our clients can always make informed decisions for a crew change.

Based on our data, at Marine Tours, we have managed to repatriate and move from door to deck- under extremely challenging and unpredictable conditions- over 51.000 seafarers from the 1st day of the pandemic till today, only 15% less than the same period of the previous year! We couldn't be prouder of this achievement and we would like to thank all of our clients for their trust and loyalty. It is our promise and ethical commitment to keep empowering shipping companies and seafarers through effective travel management, even in these unpredictable and turbulent times.

Introducing the power of Coaching and Mentoring in the Maritime World

Mr. Spyros Kottoris
Potentia Learning & Development Manager
Bsc, AdvDip, MBA, MEd, Certified (ICF) Coach

Across the maritime industry there is a growing and necessary effort to act on the term "human element", according to TMSA 4, applying practical methodologies for the development of people and their personal skills.
For a definition of "human element", as it is applied in shipping, the most cited is probably the one adopted by IMO (2003) in its most recent resolution on the subject: A.947 (23) IN 2003:

"The human element is a complex multi-dimensional issue that affects maritime safety, security and marine environmental protection. It involves the entire spectrum of human activities performed by ships' crews, shore-based management, regulatory bodies, recognized organizations, shipyards, legislators the other relevant parties, all of whom need to cooperate to address human element issues effectively. "

As can be seen from this definition, the term reflects the complexity and multidisciplinary nature over the subject but emphasizes that we are dealing with people in the environment of the workplace and applies to different organizations in the sectors of the industry.

Furthermore, according to Behavioral Competency Assessment and Verification for Vessel Operators issued by Intertanko and OCIMF (2018), skills, abilities and motivation play a key role in performance at both the individual and organizational level. Soft skills and the ability to realize an organization's strategy and vision are what set excellent performers apart.

And here comes the million dollar question: How can we empower people to reach self-awareness, unleash their potential, cooperate with empathy and increase performance, daring to lead? The answer is Coaching and Mentoring. What Coaching and Mentoring have in common is that both are learning relationships which help people to take charge of their own development, to release their potential and to achieve results which they value. The differences between Coaching and Mentoring, for a better understanding of the terms, can be seen in **Table 1.**

Coaching	*Mentoring*
Relationship generally has a set duration.	Ongoing relationship that can last for a long period of time.
Generally more structured in nature and meetings are scheduled on a regular basis.	More informal and meetings can take place as and when the mentee needs some advice guidance and support.
Short term (sometimes time-bounded) and focused on specific development areas/issues.	More long term and takes a broader view of the person.
Coaching is generally not performed on the basis that the coach needs to have direct experience of their client's formal occupational role, unless the coaching is specific and skills-focused.	Mentor is usually more experienced and qualified than the client. Often a senior person in the organization who can pass on knowledge, experience and open doors to otherwise out-of-reach opportunities.
Focus is generally on development/ issues at work.	Focus is on career and personal development.
The agenda is focused on achieving specific, immediate goals.	Agenda is set by the client, with the mentor providing support and guidance to prepare them for future roles.
Coaching resolves more around specific development areas/ issues.	Mentoring revolves more around developing the mentee professionally.

Table 1. Differences between Coaching and Mentoring | Note. Conor N., Pokora J. (2007) Coaching & Mentoring at Work, Open University Press.

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The stages of a Coaching or Mentoring session includes:

1. Establishing and managing the Coaching or Mentoring relationship: The Coach or Mentor needs to define what coaching or mentoring is and create an environment of safety, trust and positivity. The coachee or mentee needs to get out of his comfort zone and be open. The essence of a real rapport is "authenticity".

2. Setting goals: The coachee or mentee aims to achieve what he values. Coaches and mentors need to understand what success is for the other person and help him relate his life and career goals to that meaning.

3. Clarify/understand situations: The coachee/mentee needs to describe what is happening at the time speaking, what are the difficulties he is facing, what is the role he has played. Metaphors are a powerful method of provoking intellectual and emotional exploration of the dimensions of a situation.

4. Building self-knowledge: The Coach or Mentor need to open the learner's values, change belief sets, bring stereotypes into the open and understand one's life and career.

5. Finding options: The coachee needs to think what he has tried so far, what are the options he has and what are the consequences for each option. The difference in mentoring is that the mentor may advise the mentee on this stage and have a more directive behavior.

6. Deciding what to do: The coachee/mentee needs to create an action plan with details of what, how, with whom, when he will proceed with certain actions so that he can achieve his initial goal.

7. Committing to action: The coachee/mentee needs to understand how determined he is or how could he sabotage himself, undermine his decision.

A maritime organization that aims to create a Coaching Culture needs to equip leaders with skills, empower Managers with knowledge and tools – both on ship and onshore- in order to act as Coaches and/or Mentors aiming to one main objective → **Successful Human Performance.** To achieve this, involvement and commitment is required. Managers and leaders need to apply their highest qualities of empathy, integrity, leadership and willingness to develop their people by undertaking responsibilities and become agile and flexible so as to perform at the highest levels essential for efficient and effective operations that best promote safety, security and the protection of the marine environment.

The focal point is always within; the awareness of who we are, what we feel, how we think, while being responsible and accountable for our choices. These two dimensions have a significant impact on the individual and team performance simply because everything starts and ends to people.

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Selma Ship Data Collection & Efficiency Monitoring System

SELMA, in cooperation with our strategic partner NOVA ELECTRONICS SA following the successful distribution of Advanced Control Systems in the Greek marine industry for the past decade, continues this strong partnership, by extending our offer with innovative systems and applications focused on ship operational data collection, data analysis and vessel monitoring. Ship Data Collection offer is based on the Ship Energy Efficiency Monitoring System (SEEMS) and its integrated Data Acquisition System (DAS), specifically designed and built to meet the requirements of the maritime industry. The system is applicable to all types of vessels, either as a retrofit solution or as a new-buildings solution.

Moreover, the system was designed and specified having in mind all the modern requirements and approaches for Fleet Management. These are focusing on increasing each vessel's operational efficiency by continuously optimizing vessel performance based on the analysis of the real-time and historical data acquired from vessel data acquisition systems and acting upon these data.

Furthermore, Fleet Management nowadays became increasingly challenging due to existing and future or pending technical and environmental regulations, the fluctuations of fuel costs, the ever-increasing and fast-adapting competition, the requirement for condition-based and predictive maintenance, as well as the considerations of each vessel's environmental footprint. Shipowners, in order to address these challenges, have to rely on extensive, reliable and accurate operational data for each of their assets. Thus, to achieve this goal, the utilization of reliable and highly accurate data acquisition and processing systems is deemed necessary.

SELMA SEEMS/DAS is an intuitive, intelligent and fully integrated solution developed specifically to address the aforementioned challenges. It allows fleet operators to make targeted decisions to optimize their fleet's performance, resulting in increased profits, optimal vessel performance and lower environmental footprint. In order to achieve these goals, SELMA SEEMS/DAS system gathers data from a large variety of data sources, systems, sub-systems and individual sensors and instrumentation around the vessel, that enable the system's functionality to deliver high-quality data for analysis and post-processing. The system's core functionality is structured as follows:

• Fuel Oil Consumption:
Precise Fuel Oil Consumption Monitoring of all the Major Consumers (Main Engine, Boiler & Generators Flow Meters)

• Navigation Data:
Extensive Monitoring of all Navigation Instruments and equipment for Operational Optimization and Benchmarking

• Tanks Level Data:
Integrated Monitoring of Tank Gauging System (Cargo, Ballast, Draught, Bunker Tanks)

• Electrical Power:
In-depth Monitoring and Analysis of the Power Generation System (Power Quality & Analysis)

• Emission Monitoring:
Monitoring of the Ships' Emissions and Evaluation of Environmental Footprint Limiting Actions

• KPI Tracking:
Tracking of all the Important Ship Performance KPIs (Key Performance Indicators) and Optimization Factors

Finally it is important to be noted that for such a holistic distributed system as the SEEMS/DAS that is intended for shipboard installation and operation, the greatest technical challenge faced is its seamless integration and interoperability with other shipboard systems (e.g. navigation equipment, tank level gauging system, etc.).

SELMA's extensive experience and expertise in system design and integration guarantees that the fulfilment of this core requirement.

Monitor onboard Main Engine Cylinder Liners' Wear (Iron) – Parker Kittiwake "Ferrous Wear Meter"

Writers: Mr. Scott Herring, Regional Account Manager, Parker Kittiwake
Mr. Andreas Angelidis, Electrical Engineer, Project Dept, Technava.

Since the beginning of 2020, Parker Kittiwake and Technava have been accumulating feed-back from Greek shipowners ref their ex-peri-ence with new 0,5% Sulphur Fuels and two stroke Engines' Cylinder Liners' wear.

Lack of sufficient Detergency* in a low BN (e.g 40BN) Cylinder Oil can be one reason for ac-cel-erated abrasive (mechanical) wear (even Scuff-ing) on the two stroke Main Engine Cyl-inder Lin-ers, due to deposition of Carbon on the Liners and piston rings.

Parker Kittiwake "Ferrous Wear Meter" (FWM) enables crew onboard to easily (within 2sec, no reagents) and accurately (+/- 10ppm) measure the **Abrasive IRON** concentration (ppm) in the Scrapedown Cylinder Oil (known also as: Drip Oil or Drain Oil analysis).

This solution enables crew onboard to real time monitor and support the safe operation of the Main Engine.

The benefits of onboard scrapedown Oil anal-ysis (Iron, BN) are widely accepted by the mar-ket and OEMs and include adjusting the Cylin-der Oil feed-rate, so as to protect the cyl-inder liners/piston rings or achieve important savings from the Cyl. Oil consumption.

How it works:

- FWM determines (metallic) iron content (ppm) by magnetometry.
- Ferrous iron causes a disturbance in a magnetic field.
- This disturbance is measured by a sense coil.
- Extent of disturbance is determined by iron level (ppm of Abrasive Iron).

Very easy test:

- 5 ml oil sample.
- 2 seconds measurement time.

Ferrous Wear Meter (FWM)

***DETERGENCY:** *It is a chemical additive which has a property of preventing the deposition of carbon on the Cylinder Liner and washes it away with the lube oil.*

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Innovation in the LNG carrier sector

Patrick Janssens
Vice President,
Global Gas Solutions, ABS

The last decade has seen a continuous stream of innovation in LNG carrier design and operations; vessel designs have continuously evolved to meet changing trade demands and this evolution is set to continue.

An owner ordering a vessel 15 years ago would have had very little choice in what they could specify. LNG carriers were almost all large ships of around 140-145 cu m with standard designs featuring steam propulsion and little choice of containment systems.

Today the drive for higher performance vessels has seen a choice of propulsion systems come onto the market. Common options include dual-fuel diesel engines and even slow speed diesel engines, with more options being developed.

Owners now have options in types of containment systems ranging from independent tanks to membrane systems.

For large LNG carriers membrane systems remain the standard, with the choice driven by the need to balance the cost of better performing systems versus the required flexibility.

There have been some design developments in MOSS tanks, mainly optimising the tank shape and recently a number of ships with SPB containment systems were delivered, but at present there are no large LNG carriers on order with independent tanks.

Generally the choice of membrane type is dictated by the shipyard, but there are nowadays a variety of membrane solutions available including No.96 GW, No.96 LO3, No. 96 LO3+, Mark III Flex, Mark III Flex+, with different degrees of boil off gas performance. New membrane types are emerging including the KC-1 and GTT is developing a new system which is a hybrid between No.96 and Mark III.

Where we see the use of independent tanks emerging is in the small and medium size sector, driven by the developing LNG bunkering market as well as a need for local redistribution. Traditionally, LNG carriers could trade their entire lives on fixed routes with little need for flexibility. The need to respond to changing patterns of trade means that it is becoming more common for new vessels to include a reliquefaction system.

In fact, there are a number of factors prompting vessels to install reliquefaction plant. A key driver is the much better energy efficiency of modern power plants such as slow speed dual fuel engines).

As a result the vessels are only capable of burning the full natural boil-off when sailing at near the design speed. In addition, vessels are on average operating at lower speeds and at times may store the LNG to deliver at the most opportune time commercially.

With the emergence of something akin to a spot market in LNG, ships may load for different destinations depending on the state of the market and the season, potentially spending more time on the water, so requiring greater use of reliquefaction.

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The ABS My Digital Fleet™ is the only customizable risk management platform that provides real-time data-driven insights to improve fleet efficiency, reduce costs and manage risks.

Some of the world's largest LNG exporters are scaling up of their trading operations to find new markets and supply existing ones with greater flexibility, which has increased the interest in different ship types to serve emerging trades.

These changes in demand have also seen the emergence of mid scale and small scale LNG shipping, with new trades requiring discharge flexibility to parcel level where a large LNG carrier may discharge to the shore or other vessels for final delivery to small, draft-restricted ports.

This has driven further innovation in new vessel design with concepts such as the LNT-A-Box which can serve the small and mid-size cargo demand directly. Its simplified design also means it can be constructed at shipyards that otherwise would not be able to compete for LNG carrier tonnage.

It is not uncommon for new designs to take time to gain commercial acceptance. ABS granted AIP in 2013 to Lattice Technology for its Lattice Pressure Vessel (LPV) tank, which features a flexible, space-saving shape for carrying fuel or cargo. The tank is a Type C-equivalent pressure vessel based on a proprietary design which provides a solution for prismatic pressure vessels by combining the space efficiency of the prismatic shape of non-pressure tanks with the load-carrying capability of cylindrical pressure vessels.

It took until 2017 for Lattice Technology to secure its first order, for a 15 cu m LNG fuel tank installed onboard a port clean-up vessel in South Korea. In terms of what comes next, one of the major trends is likely to be more mid-scale LNG for energy supply and LNG bunkering. Development of these ships has only scratched the surface and designs will continue to adapt to the need for greater market flexibility.

Of course the LNG carrier market is not immune to industry-wide drivers and the key one will be the efforts to comply with the IMO's 2030 and 2050 carbon emission reduction objectives. The need for greater energy efficiency and lower fuel consumption has prompted interest from owners in technologies including air lubrication of the hull and auxiliary wind assistance.

Digitalisation too, will influence the way that ships are designed and operated, in particular how systems are managed and how the data collected. LNG carriers already lead the industry in featuring a very high level of shipboard automation so the innovation will be applied to how the vessel is operated with greatest efficiency in terms of routeing and voyage execution.

All innovation creates technologies with different levels of success. The class society Approval In Principle (AIP) process is designed to encourage innovation and to recognise technology that can be applied safely and sustainably.

It is in the nature of the design process to have a third party evaluate new concepts for compliance. Not all the concepts that result come fully into the mainstream, not all prove commercially acceptable to owners, but AIPs demonstrate to buyers that creative minds are trying to find new solutions and the best will survive the process of natural selection.

The last decade and a half has demonstrated beyond doubt the depth of creativity in LNG carrier design and operations. The AIP process will continue to give owners confidence across a range of options from which to select the technologies appropriate for the next generation of vessels.

The Human Element in shipping

By Commodore David Squire, CBE, FNI

Introduction

In the maritime context, the term human element embraces anything that influences the interaction between a human and any other human or system or machine aboard ship. The human element has been with us since time immemorial, but it is the humans, systems and machines that have changed, not only through the increase in technology, but also because of the need for operators to maintain the competitive edge by reducing running costs, which has resulted in a reduction in manning scales and the employment of multi-national, multi-cultural and multi-lingual crews. There is no such thing as 'the perfect ship', because the end product is inevitably a compromise between what is needed to satisfy the regulations, what is absolutely necessary to fulfill the operational role, and what is affordable. But, it must be 'fit for purpose'.

However, the global nature of our business is such that not only is the maritime workforce multinational and multicultural, but also there can be differing interpretations of international guidelines and inconsistent standards in lifestyle, training and education.

The importance of people

People are important and ships need good, qualified, and motivated seafarers to operate well. They need to be provided with the proper tools and be adequately trained to be able to conduct their business in a safe and efficient manner. Hitherto, little emphasis has been placed on honing the personal attributes of the seafarer, yet the quality of the end product depends not only on the standard of education and training provided, but also on the basic human needs of the Mind, the Body and the Spirit. The term 'Garbage In, Garbage Out' (GIGO) is one of the great proverbs of the computer age, which says that if invalid, inaccurate or inappropriate data is entered into a system, the resulting output will be invalid, inaccurate or inappropriate. In other words, the quality of the output is directly dependent on the quality of the input.

The human influence

It is often stated that around 80% of all accidents at sea are attributable to human error (or more correctly operator error) while the remaining 20% may result from hull or equipment failure due to unrecognized faults or lack of expert maintenance. The causes of maritime incidents can be linked to a number of contributory factors:

- Poor ship or system design
- Equipment failure through poor maintenance
- Fatigue
- Ineffective communication
- Lack of attention to rules, regulations and procedures
- Inadequate training in the operation of equipments
- Unawareness of the vulnerabilities of electronic systems
- Complacency

Crew competence does not feature in this list; indeed, rarely does an accident investigation report cite crew incompetence as a cause. More to the point, every one of these causes can be linked to inadequacies or failings in the education and/or training not only of the seafarer, but also on the part of the various stakeholders involved in the maritime sector.

Figure 1 tells the story of the life of a modern ship in terms of the human element; it identifies the various responsible stakeholders and their linkage, at each stage of the lifecycle from conception to disposal.

While every one of these stakeholders has an influence on the human-system integration on the ship, the degree of influence can be more, or less, direct. For example, someone on a ship who does not take account of health and safety issues will have a very direct influence on the operation of that particular ship, whereas a Government, which takes an interest in the health and safety of seafarers generally, could have a small but significant effect on all seafarers sailing under that country's flag.

Conclusion

For any ship or system to operate safely and effectively, not only must it be designed to support the people who work it, without detriment to their health, safety and overall performance, but also those people must be sufficiently educated and trained to be able to operate it. A ship is unique in that it is not only a place of work, within which there are a number of workstations, each of which may have different operational criteria, but also it is a 'home' to those who work onboard. It is also a floating platform which can be affected by external and internal environmental conditions such as weather, temperature, humidity, noise, vibration and ship motion (pitching, rolling and slamming), any of which can also be detrimental to the safety and performance of those who work and live onboard.

All responsible stakeholders need to work together to ensure that ultimately the master and his crew have the right tools in place, and are properly trained, to ensure the safe conduct of the ship, and the safe and timely delivery of its cargo. Ergonomic and human factors considerations do not just start at the design stage of a ship and finish at build – they must be applied throughout its lifecycle, especially when updating its role or its manning philosophies or when retro-fitting new systems or equipment.

If the seafarer is not competent, healthy, happy, well trained and motivated then the commercial efficiency of the ship will be compromised.

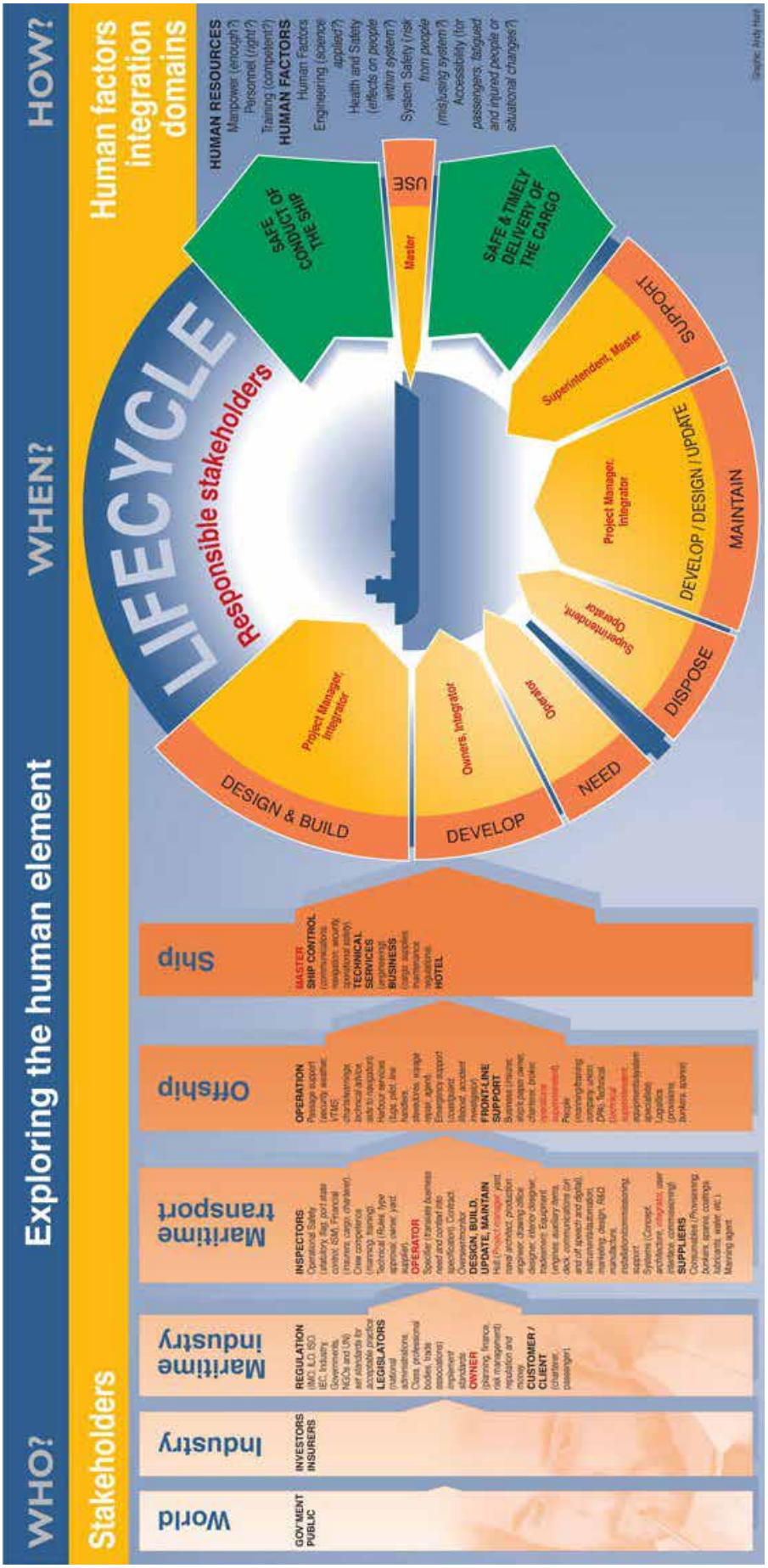

Figure 1. Exploring the Human Element *Who-When-How*

Industry Update Following Incident in the Persial Gulf

A Tanker conducting STS Operations in International waters in the Persian Gulf reported a limpet mine attached to the hull of the vessel. Industry organisations are relieved no seafarers have been injured or damage sustained.

What was reported

A limpet mine was discovered attached to the hull of a tanker whilst conducting STS operations in Iraqi Territorial Waters, in vicinity of Al Bakr Oil Terminal (29 33 N / 048 47 E). There is no indication where or when the device was attached to the hull or who did this.
It is understood Officials from Iraq safely removed the device.

What we are doing

Industry is in contact with Flag States, Regional Stakeholders, UKMTO, Combined Maritime Forces, International Maritime Security Construct (IMSC), European Maritime Awareness in The Strait of Hormuz (EMASOH), and industry associations.

Risk mitigation measures

Industry organisations recommend companies review BMP5 and consider sending the following guidance to vessels operating in the Arabian Gulf, Gulf of Oman, Gulf of Aden and Red Sea:

• Undertake a new ship- and voyage-specific threat risk assessment before entering any region where there has been an incident, or the threat has changed.

• After the risk assessment, review the Ship's Security Plan.

• Review section 2 of BMP5, which outlines non-piracy threats.
• Maintain a full and vigilant bridge watch; Note: at night, slow small boats with no wake are difficult to spot on radar.

• Maintain a strict communications watch and establish communication with all vessels coming close. Do not allow small boats to approach or to come alongside. Use a searchlight for identification at night.

• Ensure strict boarding controls are in place.

• Only lower accommodation gangways or ladders when necessary.
• Rig outboard lighting where possible provided they do not interfere with keeping a safe lookout, particularly over the stern and rig/use searchlights if available.

• Report any suspicious activity or objects immediately to both the port and UKMTO +442392222060.

• Monitor relevant VHF and other communication channels.

• Check all fire-fighting equipment is available for immediate use. Make sure the emergency fire pump is available if any maintenance is being undertaken.

• Keep the Automatic Information System (AIS) on. There is no need to complete the field stating the last or next port of call.

Visual check of the hull:

• Undertake a visual search from the deck, all around the vessel to check for anything attached to the hull of the vessel. Particular attention should be paid to the hull at the waterline.

• Conduct regular rounds and search the upper deck.

• If a vessel detects anything unusual attached to the hull, then the Master should contact the UKMTO and Flag State immediately. All crew should be evacuated from the immediate area and mustered in a safe place. No attempt should be made to remove it.

• Vessel should follow the advice of the military authorities.

Additional measures Operators may wish to take if alerted to suspicious activity whilst at anchor include:

• Rotate the propeller continuously or at short, irregular intervals.

• Operate bow and stern thrusters at zero (0) thrust at irregular intervals.

• Turn the rudder frequently.

• Switch the echo sounder to transmit counter/combat swimmer/diver threat.

BIMCO International Chamber of Shipping INTERTANKO INTERCARGO OCIMF

REFERENCES
- *BMP5: Best Management Practices to Deter Piracy and Enhance Maritime Security in the Red Sea, Gulf of Aden, Indian Ocean and Arabian Sea.*
- *OCIMF's Ship Security: Hull Vulnerability Study*
- *NATO ATP2: NCAGS Guide to Owners, Operators, Masters and Officers Edition A Version 1 Annex D to Chp 4*
- *IMSC Bridge Reference Cards Jun 20*

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Four Nigerian stowaways found sitting on rudder of ship in Las Palmas

Four men from Nigeria were discovered sitting on the rudder of chemical/oil products tanker **Champion Pula (IMO 9341146)** when it arrived in Las Palmas on October 6th 2020. They had hidden in a room behind the rudder for 10 days at sea.

The ship had unloaded its cargo in Lagos and was on its way to Herøya in Porsgrunn, Norway, to load liquid manure. On the way it had a bunker and supply stop in Las Palmas. The discovery of the stowaways was made by a pilot boat of the Spanish authorities.

The Spanish authorities took the four ashore, but Spain would not keep them. The vessel was also not allowed to sail until a decision had been made on what to do with the men. Eventually the shipping company received assistance from the Ministry of Foreign Affairs and the Norwegian Shipowners' Association.

The stowaways received medical supervision and food, before the trip went on to Hœrøya, with the stowaways reinstalled on board. The ship docked in the morning of October 17th. The stowaways had been allowed to live in cabins on board. Guards were hired to ensure the safety of the crew. The four were handed over to the Norwegian authorities upon the arrival at Herøya.

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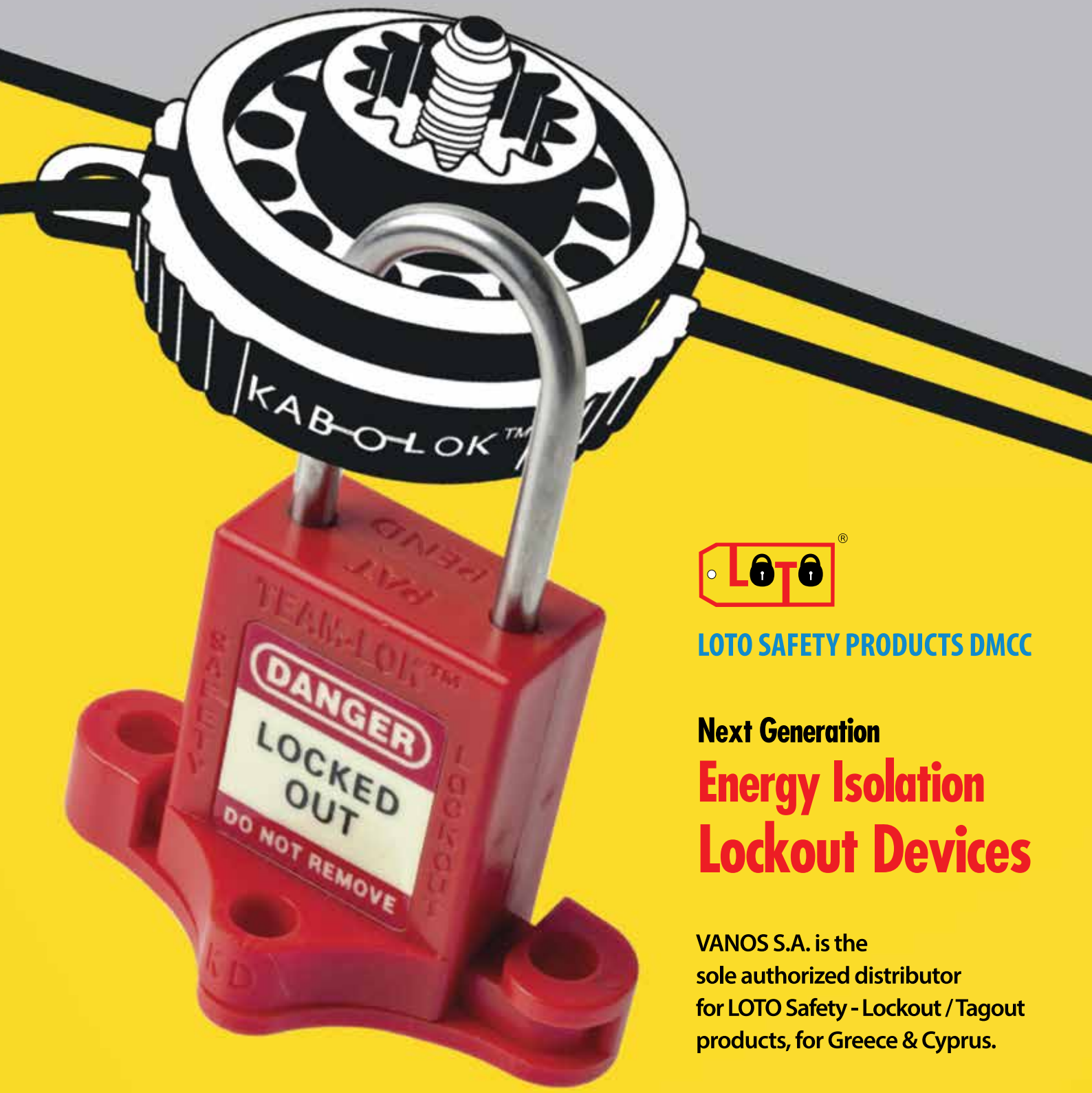

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EMSA and Space technologies | EU surveillance programs: Clean Sea Net and Copernicus Maritime Surveillance

Data from Earth Observation satellites offer a unique view of our oceans, seas, and coasts. Satellites, and their on-board sensors, provide routine, cost effective, reliable and wide area maritime surveillance. Alternatively satellites can be pointed to a targeted location for monitoring specific operations or to gather data in response to intelligence information. Satellites have access to remote areas, are independent of air traffic control and need no permission to fly, in comparison with traditional manned aircraft and Remotely Piloted Aircraft Systems (RPAS). These characteristics are extremely important considering that this information is used for coordination and support of on-scene assets, such as patrol vessels and aircraft.

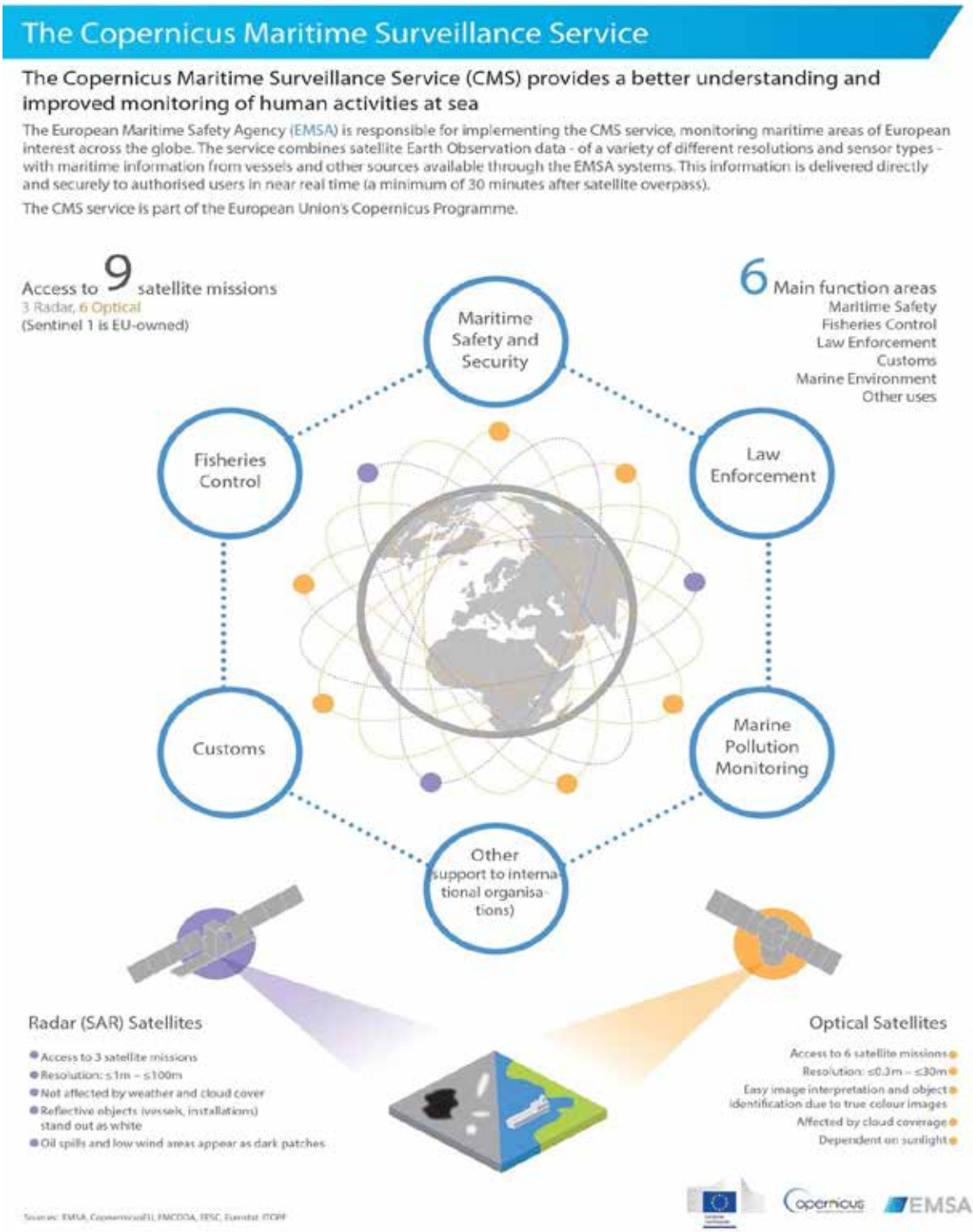
Data from Earth Observation satellites is downlinked to a network of Ground Stations, processed into images, and analysed. The images and results are then sent to the Earth Observation Data Centre at EMSA, where this information is integrated with vessel traffic and other maritime information and disseminated to users of EMSA's Integrated Maritime Services.

The Agency provides radar and optical satellite images in near-real time delivered regularly to its end-users in a user friendly format, particularly in response to specific operations at sea or in support to emergencies.

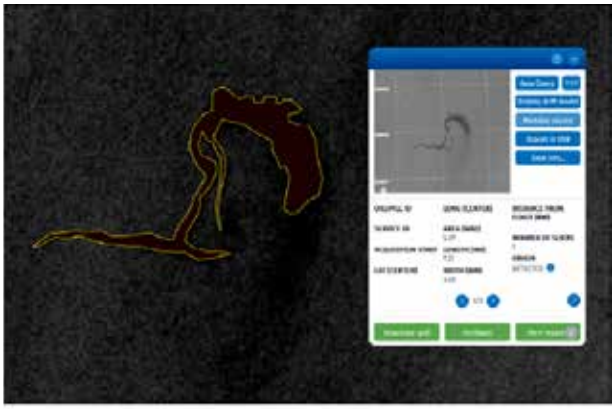
EMSA Earth Observation Services access data from 15 different satellites to provide information for two EU surveillance programmes: Clean Sea Net and Copernicus Maritime Surveillance. These two services combined deliver almost than 14 thousand satellite images per year, serving a wide range of users.

The Copernicus Maritime Surveillance (CMS) Service provides Earth Observation products (satellite images and value adding products) to support a better understanding and improved monitoring of activities at sea, within a wide range of operational functions such as maritime safety and security, fisheries control, customs, law enforcement, marine environment pollution monitoring, and others. Implemented by EMSA, it is a Security Service of the EU's Copernicus Programme.

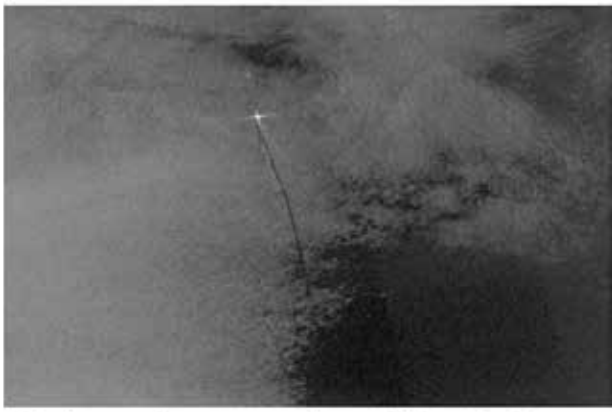
Recognizing that human activity at sea is intrinsically dynamic, the Copernicus Maritime Surveillance Service aims to provide timely, relevant, and targeted satellite-based information to member states and EU bodies. Data from earth observation satellites is combined with a wide range of other data, both from EMSA systems as well as from external sources. This includes vessel identification and position information, behaviour patterns, and intelligence from users. The fusion of data provides a more complete overview of activities at sea, enabling a more in-depth analysis than any one data source alone. By offering increased access to earth observation data, Copernicus reinforces and enhances existing EMSA services and opens the possibility of setting up new services too.



The type of EO data (Synthetic Aperture Radar (SAR) or optical) which is most useful depends on the type of monitoring needed in any given maritime security operation at sea. Spills from vessels, offshore platforms and oil pipelines can severely pollute marine and coastal habitats causing damage to the natural environment and the economy. Oil pollution from vessels and platforms is usually either a result of deliberate operational discharges or because of accidental spills. Rapid detection and early warning of marine oil spills allow national and regional coast guard authorities to catch polluters in the act of illegal discharges, and to respond quickly to emergencies in the case of large accidental spills. Satellite-based synthetic aperture radars (SAR) consist of surveillance systems



Oilspill detected in a SAR image



Discharges often appear as long and linear dark shapes

capable of monitoring all-weather, day and night, wide areas at regular intervals. SAR satellite images are appropriate for detecting possible illegal discharges from ships (oil and similar substances); since discharges appear as long, linear dark shapes, while vessels and oil platforms appear as bright white spots. CleanSeaNet, the European oil spill monitoring and vessel detection service operated by EMSA since 2007, combines SAR and optical data with other kinds of information (e.g. ship tracking data) to identify the potential polluters, and provides relevant authorities with valuable information to take further action.

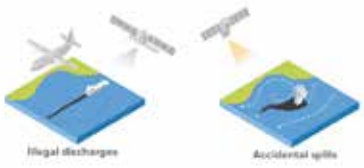
Through Copernicus, this service is extended to new geographic areas of European interest, for example overseas territories of EU states. The Copernicus Maritime Surveillance (CMS) service provides satellite-based data to detect illegal ship sourced discharges (e.g. of oil), to identify polluting vessels and to track the evolution of accidental spills. The service is provided in areas of European interest outside European waters such as overseas territories of EU states.
VIEW

CMS SUPPORTS POLLUTION MONITORING IN AREAS OF EUROPEAN INTEREST THROUGH:

• detection and tracking of illegal ship-source pollution

• identification of possible polluters by combining information on oil spill detections with information on vessel positions and routes

• monitoring the extent and spread of oil over time following a large-scale accident



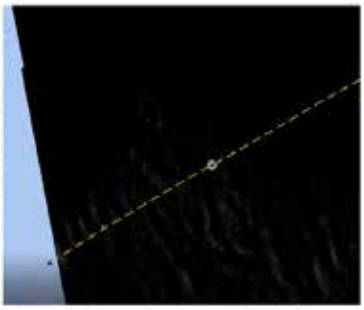
CleanSeaNet is a European satellite-based oil spill and vessel detection service which offers assistance to participating States for the following activities:

• Identifying and tracing oil pollution on the sea surface;

• Monitoring accidental pollution during emergencies;

Rapid detections lead to improved responses

Airplanes verify data provided by satellites



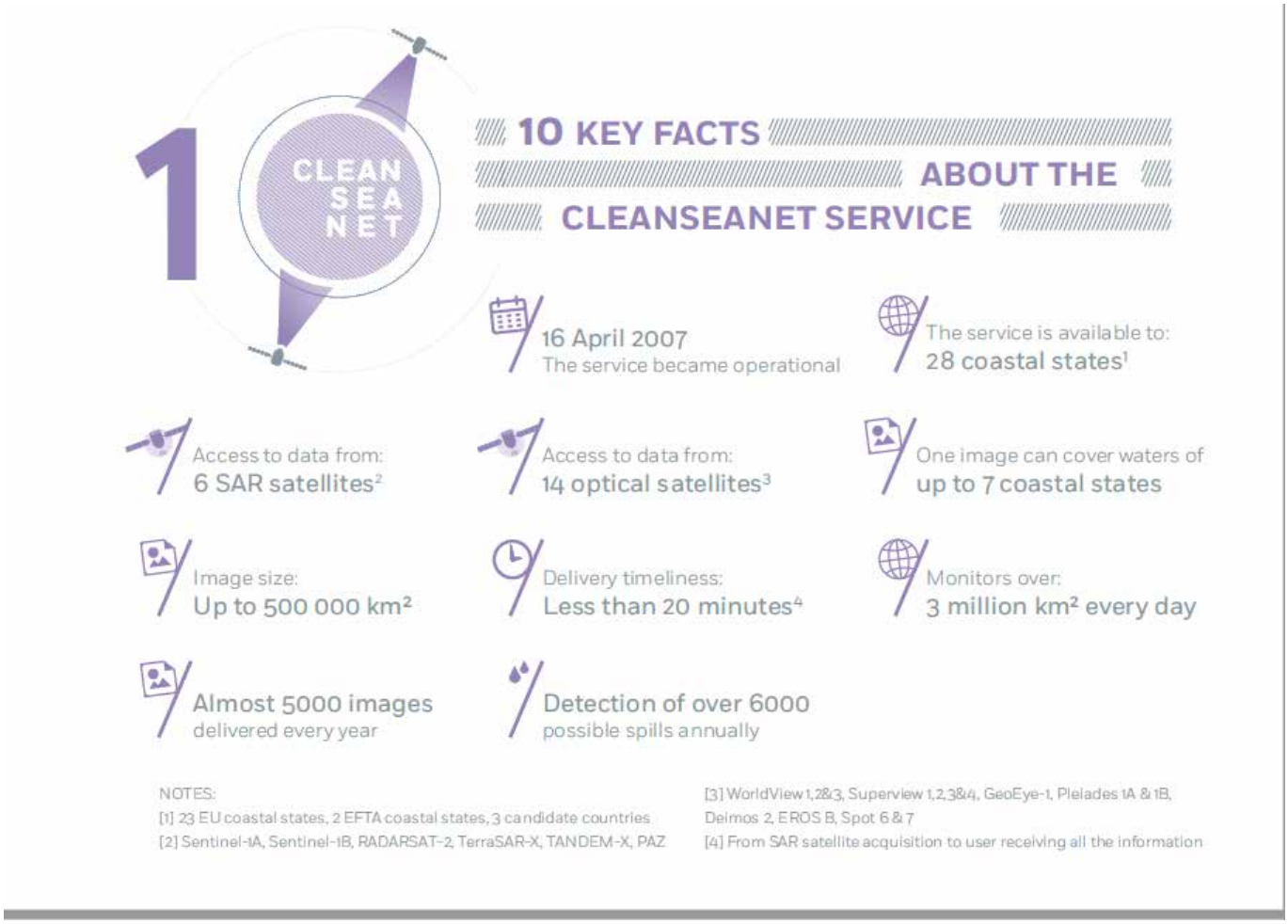
Vessel tracks can lead to the oilspill's source

Incident involving the Russian aircraft carrier Admiral Kuznetsov Photo: Irish Coast Guard - MCA

• Contributing to the identification of polluters.

The CleanSeaNet service is based on the regular ordering of Synthetic Aperture Radar (SAR) satellite images, providing night and day worldwide coverage of maritime areas independent of fog and cloud cover. Data from these satellites is processed into images and analysed for oil spill, vessel detection and meteorological variables. The information retrieved includes among others: spill location, spill area and length, confidence level of the detection and supporting information on the potential source of the spill (i.e. detection of vessels and oil and gas installations). Optical satellite images can also be acquired upon request, depending on the situation and user's needs.

In co-operation with users, EMSA's EO team plans and orders satellite imagery to meet their service coverage requirements. After image acquisition trained operators assess the images, together with supporting information (meteorological, oceanographic and ancillary information such as AIS and vessel detection) to identify possible pollutions, to determine the likelihood of the presence of oil on the sea surface and to assist in



identifying the source of the pollution.
When a possible oil spill is detected in European waters, an alert message is sent to coastal States. Analyzed images are available to national contact points in near-real time and are sent to the national authorities who then follow up on the alert report.

CleanSeaNet's near-real time service capabilities are crucial to a rapid response by coastal states as well as to increase the likelihood of catching the polluter red-handed. In case of oil spill related accidents or emergencies the affected coastal State can request additional satellite images to monitor the spill area over an extended period of time, capturing the evolution of the spill and supporting response and recovery operations.

Who can benefit and how?

The CleanSeaNet service is available to all participating States including EU Member States and their overseas territories, candidate countries and EFTA Member States. Each coastal State has access to the CleanSeaNet service through a dedicated user interface, which enables them to view ordered images. Users can also access a wide range of supplementary information through the interface, such as oil drift modeling (forecasting and backtracking), optical images, and oceanographic and meteorological information.

CLEANSEANET IN ACTION –Case Studies

i. COLLISION BETWEEN TWO VESSELS

On the morning of 7 October 2018, the roll-on/roll-off vessel Ulysse and general cargo ship CSL Virginia collided in the Mediterranean, 28 km north of Corsica. The damage to the CSL Virginia resulted in the loss of an estimated 600 m³ of oil. Following a request made by French and Italian authorities, additional Synthetic Aperture Radar (SAR) and optical imagery of the incident area was ordered. In total, CleanSeaNet delivered 15 SAR and optical satellite images to monitor the extent and spread of the oil spill. Radar was used for open water, and optical was used to locate pollution closer to the coast and on the shore. Brezzamare, an EMSA/EU chartered oil spill response vessel, arrived on site on the morning of 9 October and joined the oil recovery operations. The first SAR image was acquired on 8 October, confirming an oil spill of 22 km long.


Mediterranean Sea (near Corsica)

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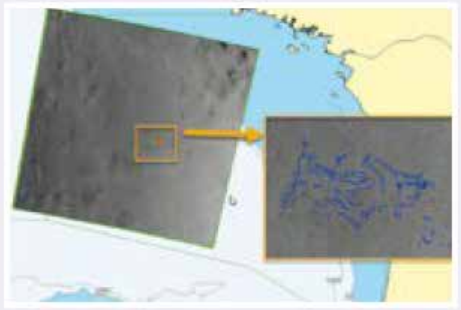

A total of 11 SAR images were acquired; the spill at its longest point measured 50km, as seen in the images. Very high-resolution optical images were used to detect pollution along the coastline. These images can help overcome the technical limitations of using radar images close to the coast and provide a very detailed picture of the areas impacted by oil. For this specific emergency four optical images were delivered. The French authorities provided feedback that the reports based on the images provided by EMSA were useful in terms of indicating the extent of the pollution and detecting additional areas that had been impacted.

ii. FIRE AND SINKING OF THE GRANDE AMERICA

On the evening of 10 March 2019, a fire was reported on board the vessel Grande America. The 27 persons on board abandoned the ship safely. The ship was quickly consumed by the fire and sank on the afternoon of 12 March. The ship was carrying 365 containers, of which about 20 remained floating on the sea surface, causing a potential threat to navigation. EMSA's CleanSeaNet satellite service was activated by the French authorities for the acquisition of additional satellite images. The following day, two satellite images were delivered: one optical image to detect drifting objects and one SAR image to detect oil spills. Four containers were identified on the optical image as well as five other objects, potentially debris from the vessel.

The SAR image detected a possible oil spill in the area where the vessel sank. The French authorities later confirmed the existence of an oil spill of 11 km2. From 15 March, two of EMSA's oil spill response vessels, as well as the remotely piloted aircraft system (RPAS) service, were made available to France to assist in clean-up operations. Between 18 March and 2 April, an additional 55 images were delivered by CleanSeaNet over the Bay of Biscay to monitor the evolution of the spill and to provide support to the response operations.

For more information visit EMSA link: http://www.emsa.europa.eu/copernicus.html or watch the video: **EMSA and Space technologies, EU's eyes on the sea**, https://youtu.be/snBCjYFHtH0

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The Principal Regulations Governing Maritime Safety

Shipping is the safest and most environmentally benign form of commercial transport. Perhaps uniquely amongst industries involving physical risk, commitment to safety has long pervaded virtually all deep sea shipping operations.

Shipping was amongst the very first industries to adopt widely implemented international safety standards. Because of its inherently international nature, the safety of shipping is regulated by various United Nations agencies, in particular the International Maritime Organization (IMO) which has developed a comprehensive framework of global maritime safety regulations.

The following are the major international shipping conventions, adopted by the International Maritime Organization (and the International Labour Organization) concerning safety and pollution prevention. However, many other maritime instruments concerning more specific issues are also in force worldwide.

Dealing with the ship – SOLAS, MARPOL, COLREG, LOADLINE AND ISPS

• **SOLAS** (International Convention for the Safety of Life at Sea, 1974) lays down a comprehensive range of minimum standards for the safe construction of ships and the basic safety equipment (e.g. fire protection, navigation, lifesaving and radio) to be carried on board. SOLAS also requires regular ship surveys and the issue by flag states of certificates of compliance.

• **MARPOL** (International Convention for the Prevention of Pollution from Ships, 1973/1978) contains requirements to prevent pollution that may be caused both accidentally and in the course of routine operations. MARPOL concerns the prevention of pollution from oil, bulk chemicals, dangerous goods, sewage, garbage and atmospheric pollution, and includes provisions such as those which require certain oil tankers to have double hulls.

• **COLREG** (Convention on the International Regulations for Preventing Collisions at Sea, 1972) lays down the basic "rules of the road", such as rights of way and actions to avoid collisions.

• **LOADLINE** (International Convention on Loadlines, 1966) sets the minimum permissible free board, according to the season of the year and the ship's trading pattern.

• **ISPS** (The International Ship and Port Facility Security Code, 2002) includes mandatory requirements to ensure ships and port facilities are secure at all stages during a voyage.

Dealing with the shipping company

ISM (The International Safety Management Code, 1993) effectively requires shipping companies to have a license to operate. Companies and their ships must undergo regular audits to ensure that a safety management system is in place, including adequate procedures and lines of communication between ships and their managers ashore.

Dealing with the seafarer

STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978/1995/2010) establishes uniform standards of competence for seafarers.

ILO 147 (The ILO Merchant Shipping (Minimum Standards) Convention, 1976) requires national administrations to have effective legislation on labour issues such as hours of work, medical fitness and seafarers' working conditions. This was superseded by the ILO Maritime Labour Convention, 2006 which entered into force on 30 August 2013.

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Current issues in shipping | The COVID-19 Pandemic: Responding to the Operational Challenge

The arrival of COVID-19 has presented truly enormous challenges for the entire maritime transport sector, an industry responsible for moving about 90% of global trade.

It is hard to exaggerate the impact of the pandemic on international ship operations. At this time of continuing crisis, working with governments to ensure the maintenance of safe and efficient supply chains remains the overriding priority for ICS and its member national shipowners' associations.

As a result of the pandemic, the economic fortunes of large numbers of individual shipping companies have been greatly affected due to the severe contraction in demand for their services and dramatic levels of freight rate volatility. The cruise ship industry, in particular, has faced incredibly difficult challenges, with virtually all operations suspended during the initial stage of the crisis.

Industry co-ordination

As soon as the global scale of the pandemic became clear, ICS took on a leadership role to provide a co-ordinated industry response, particularly with respect to addressing immediate operational challenges.

This has involved close liaison with relevant global bodies including the industry's global regulator, IMO, as well as with the International Labour Organization (ILO), the World Health Organization (WHO), the United Nations Conference on Trade and Development (UNCTAD) and the office of the United Nations Secretary General, utilising the strong relationships which ICS already enjoys with these intergovernmental agencies. ICS has also worked closely with maritime industry organisations such as the International Association of Ports and Harbors (IAPH), the International Association of Classification Societies (IACS) and most importantly – as the global union representing the interests of some two million seafarers employed by the shipping industry – ICS's social partner, the International Transport Workers' Federation (ITF).

At the outbreak of the crisis, ICS sought to ensure that the need to identify seafarers as 'key workers' and the necessity that maritime trade should continue to flow, would be identified as critical priorities by governments around the globe. Supported by high level media communications, ICS lobbied for affirmation of these priorities at a series of emergency G20 Leader Summits on COVID-19 held in March/April 2020.

But words from governments still need to be followed by action, especially with respect to facilitating ships' crew changes, an issue that is far from being resolved.

Developing recommendations

Because of the closure of the IMO headquarters in March 2020 and the suspension of scheduled meetings of IMO Member States, the development of more detailed guidance to governments on COVID-19 initially proved a major challenge. Working closely with the IMO Secretary-General, as well as with the leaders of international industry associations, ICS endeavoured to fill this temporary vacuum, co-ordinating the rapid development of recommendations that enjoy the full backing of the entire maritime sector, which the IMO Secretary General could bring to the attention of all IMO Member States as part of a series of special IMO circulars.

Industry co-ordination

Throughout the ongoing crisis, ICS has hosted regular online meetings with its global network of member national shipowners' associations, in addition to frequent joint meetings with the leaders of more than 15 other international maritime industry organisations, to keep all informed of

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global developments and to formulate a common strategy for addressing immediate challenges. Communications experts in ICS national associations have also met regularly to ensure common presentation of the industry's priorities.

The ICS Chairman and Secretary General have given frequent interviews to the mainstream global media on behalf of the shipping industry throughout the pandemic. In particular, widespread media coverage has been given to the crew change crisis, including an ICS co-ordinated global 'shout out' on 1 May 2020, when ships in ports around the world sounded their horns in unison.

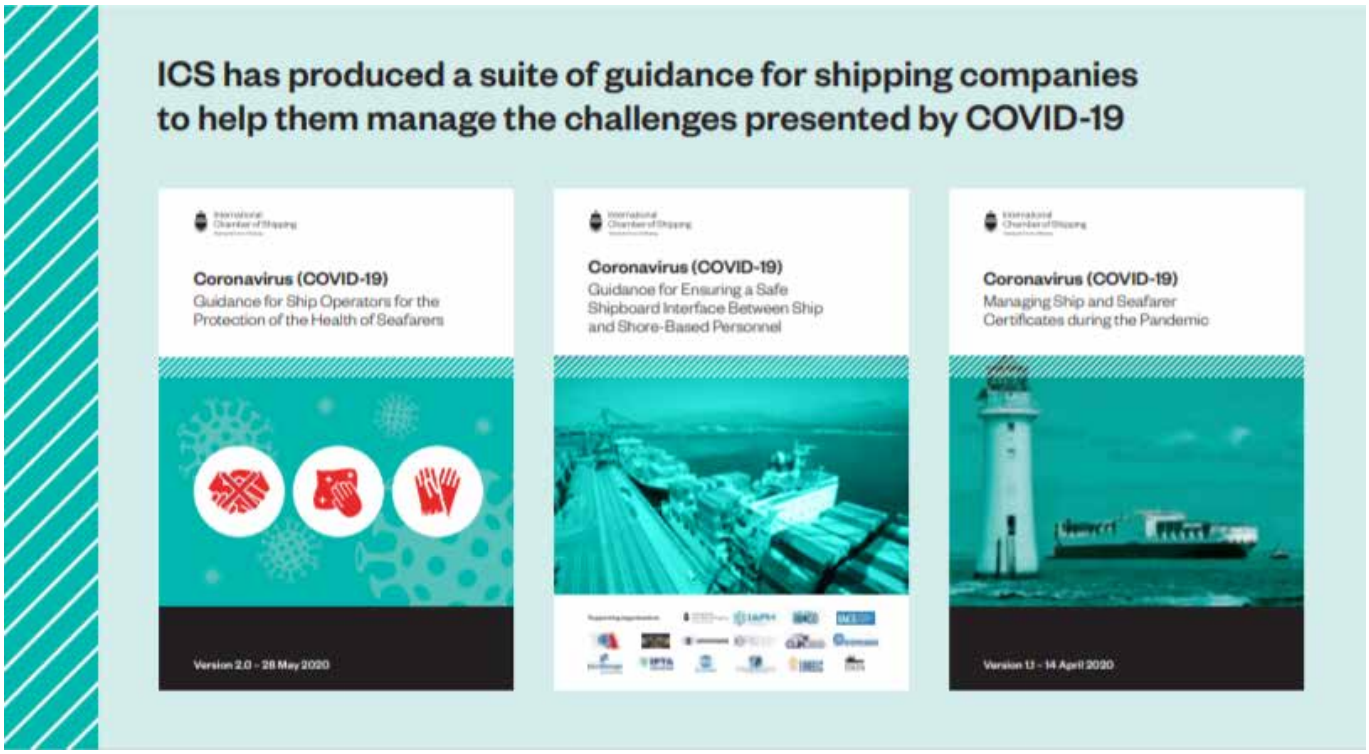
But as the crisis continues, the fundamental difficulty remains that regardless of the obligations of governments under existing international maritime regulations adopted by IMO, ILO and WHO, instructions from national political leaders and local health authorities have often taken precedence over the advice of maritime transport officials. This has served to highlight the vital role played by ICS's member national shipowner's associations which, in co-operation with national seafarers' unions, have been liaising directly with the many different government agencies involved in applying special measures to shipping, to ensure that the impact on ship operations is minimized as far as possible.

Looking ahead

The shipping industry is still very much in the eye of the storm. As discussed below, hundreds of thousands of seafarers have had to extend their tours of duty at sea, and many shipping companies are still unable to conduct crew changes due to the health restrictions put in place by many local authorities. Helping to resolve the global crew change crisis remains a critical issue of the utmost importance.

Unfortunately, despite an improving situation in some countries, COVID-19 infection rates appear to be increasing in many developing nations, and the risk of a 'second wave' of infections means that the current crisis is far from over. Nevertheless, throughout the pandemic, the vast majority of ports worldwide have remained open to visiting ships for the discharge and loading of cargo, including the energy, raw materials and food (as well as vital medical supplies) on which the global economy depends.

There are still many operational challenges, not least the ongoing crew change crisis that must be urgently resolved in co-operation with governments, not to mention some profound economic and structural issues that will need to be addressed when the industry eventually emerges into the post pandemic landscape.



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CONV./ CODE	REGULATION	ENTRY INTO FORCE	APPLICABLE TO	SUBJECT	IMO RES.
EU Ship Recycling Regulation	Article 5.2	2020-12-31 Implementation date.	All cargo vessels, HSC/ DSC and passenger vessels, GT >= 500. If non-EU/EEA flag.	Non-EU-flagged/ third-country flagged vessels calling at a port or anchorage of an EU member state shall have on board a Statement of Compliance on Inventory of Hazardous Materials (IHM) by 31 December 2020.	EU (1257/2013)
EU Ship Recycling Regulation	Article 5.2	2020-12-31 Implementation date.	All cargo vessels, HSC/ DSC and passenger vessels, GT >= 500. If EU/ EEA flag.	Vessels in operation and flying the flag of an EU/ EEA member state shall have on board Certificate on Inventory of Hazardous Materials (IHM) by 31 December 2020.	EU (1257/2013)
IBC Code		2021-01-01	Chemical tankers, keel-laid >= 1986-07-01. Tankers holding NLS Certificate or International Certificate of Fitness.	The carriage requirements for all IBC products will change, consequently vessels holding a certificate of fitness or a NLS certificate will need to be provided with a new certificate and corresponding product list based on the new carriage requirements. The new certificate will be issued prior to 1 January 2021 and will supersede the existing certificates on this date.	MEPC.318(74)
BCH Code		2021-01-01	Chemical tankers, keel-laid <= 1986-06-30. Ships holding Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk.	The carriage requirements for all IBC products will change, consequently vessels holding a certificate of fitness or a NLS certificate will need to be provided with a new certificate and corresponding product list based on the new carriage requirements. The new certificate will be issued prior to 1 January 2021 and will supersede the existing certificates on this date.	MEPC.319(74)
MARPOL	Annex II, Reg. 13 (new para. 7.1.4 & 9)	2021-01-01	All chemical tankers.	A prewash will be mandatory in North Europe ports when unloading certain high viscosity or low melting point persistent floating products. The affected products, mainly vegetable oils and paraffin was, will be identified in Ch. 17 og the revised IBC Code due to enter into force of the same date.	MEPC.315(74)
MARPOL	28.6 (new para.)	2021-01-01 Final date for complying.	Oil tankers, keel-laid <= 2015-12-31.	All ships shall be fitted with an approved stability instrument, capable of verifying compliance with intact and damage stability requirements. Existing instruments needs no replacement if satisfactory to the Administration. There are some conditions for exemptions. Paragraph 5.7.5 and 5.7.6 of the IOPP Certificate and Supplements, Form B are inserted accordingly.	MEPC.248(66)
GC Code	Ch. II/2.2.4 & .5 (new sub-para.s)	2021-01-01 Final date for complying.	Gas carriers, keel-laid <= 1986-06-30.	All ships shall be fitted with an approved stability instrument, capable of verifying compliance with intact and damage stability requirements. Existing instruments needs no replacement if satisfactory to the Administration. There are some conditions for exemptions. Paragraph 6 of Certificate of Fitness is updated accordingly.	MSC.377(93)
IBC Code	2.2.6 & 2.2.7 (new sub-para.s.)	2021-01-01 Final date for complying.	Chemical tankers, keel-laid >= 1986-07-01, keel-laid <= 2015-12-31.	All ships shall be fitted with an approved stability instrument, capable of verifying compliance with intact and damage stability requirements. Existing instruments needs no replacement if satisfactory to the Administration. There are some conditions for exemptions. Paragraph 6 of Certificate of Fitness is updated accordingly.	MEPC.250(66)/ MEPC.369(93)

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TECHNICAL AND REGULATORY NEWS No. 14/2020 – Statutory

IMO AND EU REQUIREMENTS FROM MARCH 2020 TO DECEMBER 2021

Relevant for design offices, shipyards, suppliers, owners/managers and flag states.

JULY 2020

This statutory news summarizes the most important IMO and EU requirements entering into force after 1 March 2020 to 31 December 2021.

CONV./ CODE	REGULATION	ENTRY INTO FORCE	APPLICABLE TO	SUBJECT	IMO RES.
MARPOL	Annex VI, Reg.14	2020-03-01	All cargo vessels, HSC/ DSC and passenger vessels. Not applicable to ships with scrubbers.	Fuel oil used or carried for use on board a ship shall not exceed a sulphur limit of 0,50% m/m. The supplement to the IAPP certificate is updated accordingly.	MEPC.305(73)
MARPOL	Annex VI, Ch. 4/ Reg. 22A (new reg.) & Appendix IX (new)	2020-03-31	All cargo vessels, HSC/ DSC and passenger vessels, GT >= 5000.	Final date of the first fuel consumption report to be submitted for verification. Data as specified in Appendix IX.	MEPC.278(70)
MARPOL	Annex VI, Ch.2/ Reg.6 & Appendix X (new)	2020-05-31	All cargo vessels, HSC/ DSC and passenger vessels, GT >= 5000.	Final date of the first issuance of the Statement of Compliance after the annual report is verified and submitted to the Administration. Validity date to be 31 May the next year.	MEPC.278(70)
MARPOL	Annex I, II, IV and V	2020-10-01	All cargo vessels, HSC/ DSC and passenger vessels.	Electronic Record Books (eRB) as an alternative method to hard copy record books approved by the Administration in accordance with Guidelines, Res. MEPC.312(74) is accepted. This applies to the MARPOL record books.	MEPC.314(74)/ MEPC.316(74)
NOx Technical Code 2008	Reg. 1.3	2020-10-01	All cargo vessels, HSC/ DSC and passenger vessels, GT >= 400.	Electronic Record Books (eRB) as an alternative method to hard copy record books approved by the Administration in accordance with Guidelines, Res. MEPC.312(74) is accepted. This applies to the Record Book of Engine Parameters (NOx Technical Code).	MEPC.317(74)
BWM	A-1 (new para.8) & D-3	2020-10-28 Installations on or after.	All cargo vessels and passenger vessels. Also applicable to floating platforms, FSUs and FPSOs. If with ballast water capacity and subject to Article 3 of the BWM Convention.	Ballast water management systems installed on or after 2020-10-28 shall be in compliance with the BWMS Code (Res. MEPC.300(72)). An UI of Appendix I clarifies that the 'installed' means the contractual date of delivery of the ballast water management system. In absence of this date, actual date of delivery may be used.	MEPC.296(72)

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CONV./ CODE	REGULATION	ENTRY INTO FORCE	APPLICABLE TO	SUBJECT	IMO RES.
BCH Code	Ch.II, 2.2.1 (replaced)	2021-01-01 Final date for complying.	Chemical tankers, keel-laid <= 1986-06-30.	All ships shall be fitted with an approved stability instrument, capable of verifying compliance with intact and damage stability requirements. Existing instruments needs no replacement if satisfactory to the Administration. There are some conditions for exemptions. Paragraph 6 of Certificate of Fitness is updated accordingly.	MEPC.249(66)/ MSC.376(93)
2011 ESP Code	June 2019	2021-01-01	All bulk carriers and oil tankers.	The complete text of the Code is replaced to align the Code with the survey an certification requirements of the IACS UR Z Series.	MSC.461(101)
IMSBC Code	June 2019	2021-01-01 Implementation date.	All cargo vessels, GT >= 500.	Amendments providing updated information on the shipment of certain types of solid bulk cargoes. Consequential amendments to MSC.1/ Circ.1395/Rev.3 on 'Lists of solid bulk cargoes for which a fixed gas fire-extinguishing system is effective' where approved accordingly.	MSC.462(101)
ISM Code		2021-01-01 First annual verification of DOC after	All cargo vessels, HSC/ DSC and passenger vessels.	The new Res. 428(98) encourages Administrations to ensure that cyber risks are appropriately addressed in safety management systems.	MSC.428(98)
MARPOL	Annex IV (sewage), Reg. 1, 11 & 13	2021-06-01 (expected) Implementation date.	Passenger vessels, contract date <= 2019-05-30. This regulation applies if building contract < 2019-06-01, or in the absence of building contract, if keel-laid < 2019-06-01. Delivery date is not relevant in this respect.	Annex IV has been amended introducing Special Area (the Baltic Sea) regulating the discharge of sewage from passenger ships. Discharge is prohibited in this area except for ships that have an operative approved sewage treatment plant (STP), type approved to the new standard, Res. MEPC.227(64), para. 4.2.	MEPC.274(69)
IGC Code	Ch.2, 2.2.6 (in revised code)	2021-07-01 Final date for complying.	Gas carriers, keel-laid >= 1986-01-01, keel-laid <= 2016-06-30.	All ships shall be fitted with an approved stability instrument, capable of verifying compliance with intact and damage stability requirements. Existing instruments needs no replacement if satisfactory to the Administration. There are some conditions for exemptions. Paragraph 6 of Certificate of Fitness is updated accordingly.	MSC.370(93)

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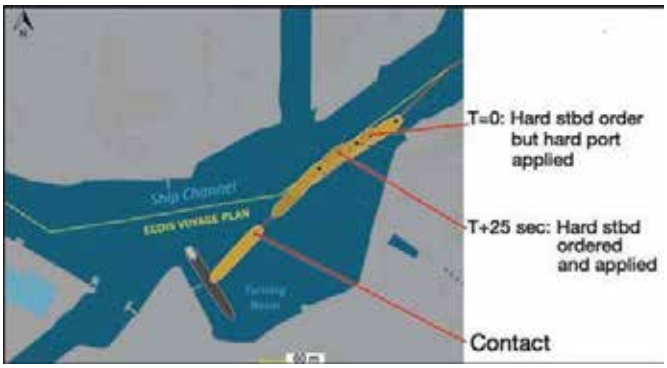
Accidents

1. Fatigue and weak Bridge Team practices, contribute to collision accident

A partially loaded bulk carrier was inbound in a port channel under pilotage. A rudder angle indicator was lit and, because the bridge had been darkened for night vision, it could easily be seen by the bridge team. The pilot conned the vessel from the centreline windows, the helmsman was directly behind him and the OOW was near the engine order telegraph just to the helmsman's left.
Upon reaching a planned course alteration point the pilot gave a port 20-degree command to start the turn. The helmsman answered, 'Port 20,' but instead put the helm 20 degrees to starboard. About 11 seconds later the pilot saw that the wrong helm direction had been applied so he ordered 'midships' then repeated the port-20 order. Combined with a full-ahead burst of speed the vessel's swing to starboard was arrested about 38 seconds after the original command to port had been given and the vessel regained the required heading.
Following the helmsman's error and recovery, the pilot and OOW had a brief conversation about the mate's duty to watch the helmsman. The second mate agreed to double-check the helmsman with each command. The Master was not on the bridge at the time. The OOW offered to call him, but the pilot declined. Although the OOW did not understand conversational English, he told investigators he understood the pilot's orders.
Some 90 minutes later the vessel approached a major turn to starboard. By now the Master was on the bridge. The pilot planned to turn wide, intending to stay to the south side of the channel to pass a working dredger. The pilot gave a port 20-degree command to bring the ship slightly left, ahead of the turn to starboard, and the helmsman answered accordingly. The pilot's next order to make the turn to the right, 24 seconds later, was 'hard starboard'. The helmsman repeated the pilot's order but instead put the rudder hard to port.
Ten seconds later, the pilot recognised the error and ordered midships while tapping with his fingers on the rudder angle indicator above his head to get the helmsman's attention. It took the steering gear 15 seconds to shift from hard port to midships, and then the pilot repeated his original hard-starboard order. The rudder reached hard starboard 12 seconds later, although the ship's heading was still falling to port at about 12 degrees per minute. The pilot now realised an emergency manoeuvre was needed.
The pilot ordered 'Stop engines; let go anchor' and seven seconds later, 'full astern'. The vessel's whistle was sounded. At this point the vessel was making about 6 knots and its heading was still falling to port. The pilot estimated that increasing the engine speed to power through the turn, as he had done earlier, would not work so he chose instead to attempt to stop the vessel.

With the port anchor and two shots of chain deployed, the vessel nonetheless collided with the port side of a berthed tank barge while making almost 4 knots.

Although there were no fatalities or injuries as a result of this accident, the two vessels and the shore facility suffered damage that amounted to more than $21 million in total.
The investigation found, among other things, that the helmsman had probably been fatigued by carrying out extra duties the day before and that this contributed to the accident.



Lessons Learned

• When in restricted waterways the helmsman's actions should always be verified by same-time sighting of the rudder angle indicator. A wrong rudder application may be irrecoverable if left for even 10 seconds.

• The OOW was apparently not sighting the indicator at all and, if he was, he did not indicate the wrong rudder application to the pilot. The pilot was sighting the rudder indicator but only after a 10- or 11-second delay. In the first instance they were able to recover, but not in the second.

• The work-rest log did not indicate the helmsman's extra duties the day before. When collecting data for fatigue, investigators should not restrict themselves to looking at the work-rest logbooks, but should also question each person in detail about their previous 72-hour, or preferably 96-hour, work-rest routine.

2. Poor Paperless Navigation procedures, contribute to grounding accident

On 09/07/2018 at about 11.10 Lt, a product tanker, loaded with 18.000 tons of ammonia ran aground on a shoal, between the island of Komodo and Banta, off-Indonesia. The vessel had left the port of Kwinana, Australia and as per Passage Plan she should sail from the Flores Sea to Sumba strait, via the Selat Sape.
The Master assumed command on 10.18 Lt and relieved the 3rd Officer who was OOW, so that the Officer could attend a VIDEOTEL training course in vessel's office. A lookout was also on the Bridge. At 10.24 Lt, the steering was switched from auto to manual, since the vessel was approaching a group of fishing vessels. Vessel's speed was about 15 knots at that time.
When the vessel entered the Selat Sape, at about 10.42, she deviated from her originally planned route, sailing more to the south at a distance of 0.25 nm due to the fishing vessels. At about 11.00 Lt, the 3rd Officer returned to the bridge and began talking with the Master about the training, while the Master was still in command.
At about 11.10 Lt, the vessel sailed over a submerged object and grounded at a nearby area. Only the forepeak and forward ballast tanks were damaged, no cargo escaped. After transfers of cargo and ballast, the vessel was able to refloat and proceeded to shipyard for repairs.

The cause of the incident was the cautious-less use of ECDIS, in terms of passage planning and passage monitoring. The Electronic Navigation Chart displays the symbol of "isolated danger" at the place of grounding. Anyhow, there is no additional depth information or depth contours near the isolated danger area. The CATZOC for this area is assigned as "C", indicating a positional inaccuracy of +/- 500m or 0.27nm. This means that a safe CPA to this plotted isolated danger should not be less than 0.50 nm, in the worst case.
The cross-track distance monitoring alarm into ECDIS was set to 1 nm for the entire voyage. This means that the vessel could reach the isolated danger area, when deviated from the original course and no off-track alarm would be activated.
Moreover into this area of vessel's passage and eventual grounding (east of Pulau Banta), tidal streams are prevailing. Such information was not available into the Passage Plan notes. Additionally, reference to this specific rock, is included into Sailing Directions publication, with the following note:

Lessons Learned

• Each voyage plan, especially when including passages through coastal areas, should be inspected and evaluated in greater depth and accuracy by the Navigation Officer and vessel's Master, in addition to normal check-route procedure.
• CATZOC instructions must be looked-upon precisely.
• Any isolated danger (when near the course) must be considered as an actual hazard to vessel's safe navigation.
• Apart from the information existing on the Electronic Navigation Charts, other important sources of information (in digital or paper form) must be taken into consultation. Officers on Bridge watch should navigate by using all available means and aids throughout the voyage.
• The tracks of this particular voyage were ultimately supplied by a service provider, on behalf of the Charterer, so that the sortest route to be used. No matter who is providing the route, the navigators on board (the Master and the bridge watch-keeping Officers) must thoroughly check, evaluate and verify the Passage Plan.

3. Auxiliary machinery not fit for service and crew's delayed / inaccurate actions, contribute to grounding accident

On 11 March 2018, during departure from Dampier, Western Australia under harbour pilot guidance, a Bulk Carrier experienced an electrical blackout resulting in loss of propulsion and steering control. As a result, the ship exited the channel and ran aground. The ship was recovered into the channel with the aid of tugs, before being taken out of the channel, to anchor, for further investigation.

The electrical blackout occurred because the auxiliary diesel generator engines shut down, after the cooling water temperature controller malfunctioned, resulting in overheated cooling water. The ship's engineers did not immediately identify the problem and were unable to manually operate the cooling water temperature control valve in time to prevent the blackout.

Although the problems in the engine room had started about 13 minutes before the blackout, however the two pilots on board were not informed of the situation. This removed the opportunity for the pilots to prepare for the loss of control and delayed actions that may have assisted in a more timely or more effective response.

Further, it was found that the ship's emergency generator was not fit for service. When the blackout occurred, the engine started but shut down shortly after, due to overheating. The radiator fan belt had failed several months prior, but had not been replaced. The operator did not have in place adequate procedures to ensure that critical spares were identified and their inventory level maintained, to guarantee availability when required on board.

The ship had been awaiting replacement fan belts for the emergency generator diesel engine since one year before the incident. Two (2) days prior to the incident, these items were delivered to the ship as part of a normal delivery of ship's spares. However, neither the Master nor Chief Engineer were aware of their arrival, as it was usual practice to check the packages and their contents once the ship was at sea.

Narrative

At 14.04 Lt, the main engine was started dead slow ahead and the ship was under way, after clearing the berth. At 14.20, as the main engine was increased to full ahead, AuxDG1 went into alarm due to high temperature (85°C) of the cooling fresh water outlet. The 3rd Engineer went to investigate and reported to the Chief Engineer that the diesel generator engine cooling fresh water control valve was in the 'bypass open' position, rather than the 'cooler open' position. This meant the cooling water was bypassing the fresh water cooler and was not being cooled.

The Chief Engineer went to inspect the equipment as the 3rd Engineer attempted to manually operate the control valve via the hand wheel fitted to the top of the valve. However, the hand wheel could not be turned in the direction indicated (counterclockwise, to raise the valve spindle and open flow to the cooler), despite the use of a wheel key and considerable force.

The Chief Engineer instructed the 2nd Engineer to open the emergency/maintenance cooling water supply from the main engine cooling system. However, this had little effect and the cooling water temperature continued to rise. The Chief Engineer then telephoned the bridge and discussed the problems with the Master.

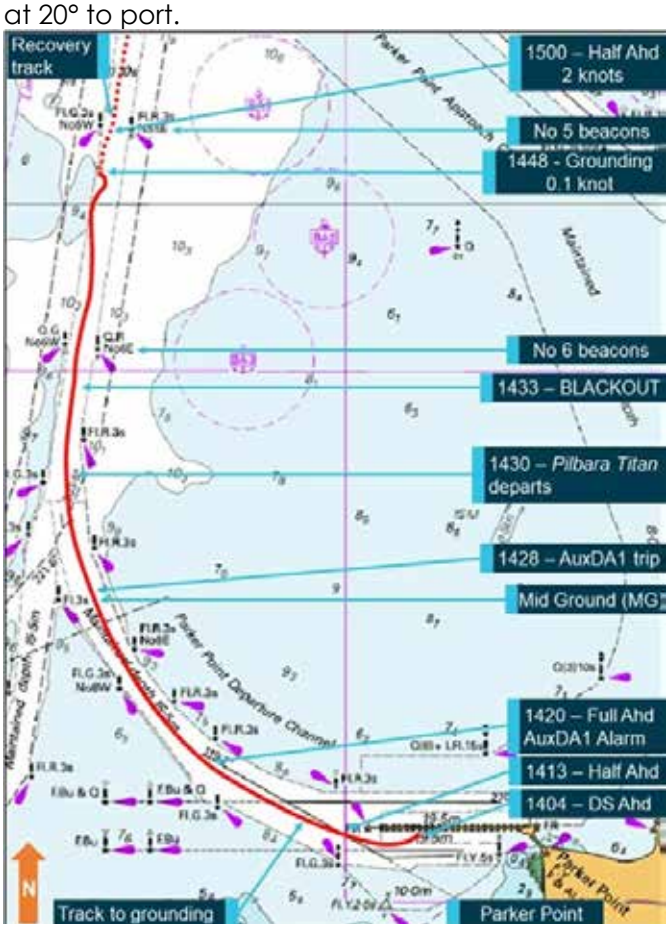
Meanwhile, the Pilots remained unaware of the engine room events. The main engine remained at full ahead and the ship's speed increased to 7.7 knots.

At about 14.28, AuxDG1 tripped due to excessively high cooling water temperature (90°C). All electrical load transferred to AuxDG3. The Chief Engineer called the Master and provided an update of the situation in their native language (Filipino). The details were not shared with either of the Pilots.

At 14.30, the Pilot released the tugs. At this stage, the ship had a speed of 8 knots.

At 14.32 the rudder was put to starboard, initiating a slow turn to starboard. At 14.33 the helmsman reported that the ship was reaching the intended course and applied port rudder to slow the turn. At about this time, the rudder was put 20° to port.

At that moment, AuxDG3 tripped on excessively high cooling water outlet temperature and the ship lost all electrical power (blackout). The emergency generator started and soon after, shut down due to overheated cooling water. Multiple alarms sounded on the bridge, signaling that the ship had lost electrical power and propulsion. Loss of power to the steering gear meant that the rudder remained at 20° to port.



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The Pilot went to the helm and determined that all control of the steering had been lost. The applied port rudder had taken effect and the ship had stopped turning to starboard and now was coming to port.
At 14.35, the Master directed the 2ndOfficer (who was at the aft mooring station) to go to the steering gear room and engage the emergency steering. Once at the steering gear, the 2ndOfficer informed the Master that emergency steering could not be engaged, because there was no power to either of the steering motors.

The Pilot realized that control of the steering would not return and that the ship was going to turn out of the channel and run aground. The ship contacted the bottom at an angle of about 15° to the channel side. The ship rode up the channel side, heeled and slewed to starboard, coming back parallel with the channel. It slid along the bottom and slowed. The Pilot called the port authorities, including the Harbour Master and Pilot Manager and informed them of the incident.

Blackout—engine room actions

The Engineers applied sufficient force to move the cooling water control valve manual hand wheel in the 'cooler open' direction. However, the valve spindle remained in the 'bypass open' position. In addition to this, opening the cooling water supply from the main engine system had no effect. The Engineers dismantled the control valve pneumatic actuator and, when the control air pressure was released, the valve moved to 'cooler open' position. However, it was about this time that AuxDG3, AuxDG2 and, shortly after, the emergency generator shut down due to the high cooling water temperature.
The Engineers dismantled the control valve actuator and found that the thrust bearing and disc fitted to the end of the manual operating hand wheel shaft had come adrift. The set screws normally holding these components in place had broken, allowing the assembly to fall off the shaft. The set screws were replaced and the control valve actuator reassembled.
The time taken to repair the valve actuator allowed the engines to cool a little and, at 14.35, the temperature of AuxDG2's cooling fresh water outlet returned to within normal limits (83°). This allowed the engine to be restarted, which commenced circulation of the cooling water. Electrical power and services were then slowly restored as control of the engine temperatures was regained by manual operation of the control valve. By 14.40, all three cooling water temperatures were within the normal operating range.

At about 14.48, electrical power was restored. The Engineers continued to restore services and check systems in preparation for restarting the main engine. In the minutes following, the Master directed the 2ndOfficer to engage emergency steering and move the rudder to midships.
At 14.52, the ship was back in the channel, assisted by Tugs. At 14.57, the Master spoke with the Chief Engineer and confirmed that the main engine was available. At 14.58, the main engine was started at dead slow ahead and propulsion was restored. At 15.00, the main engine speed was increased to half ahead. At 18.30 the vessel anchored.

Two days later, a Class surveyor attended the ship and oversaw a dive inspection of the hull. Evidence was found of contact with the bottom, but no significant damage. The surveyor also inspected the cooling water system, including the control valve repairs and the emergency generator condition and operation. The systems were tested to the surveyor's satisfaction. The AMSA detention order was lifted and at the same day the ship departed the anchorage to continue its voyage. Class recommendation was issued for the installed emergency generator fan belts, to be replaced with correctly sized belts as soon as possible and within one month.

Contributing factors

• Electrical power was lost when the auxiliary diesel generator engines shut down due to overheating of the cooling water. A fault in the pneumatic controller resulted in the cooling water bypassing the cooler and overheating.

•When the temperature control valve stuck in the cooler bypass position, the Engineers did not know how to manually operate the valve. Had the valve been correctly manually operated when first discovered, it is likely that the temperature of the cooling water would have been controlled and the engines would not have overheated.

• Bridge communications were ineffective and the Pilots were not informed of the machinery problems prior to the blackout occurring. This removed the opportunity for the Pilots to prepare for the loss of control and delayed actions which may have assisted in a more timely or more effective response.

• Conversations between the Master, Chief Engineer and others, relevant to the deteriorating situation in the engine room, were not in a language the Pilots could understand, which removed an opportunity for the Pilots to be informed. Even so, the Master had opportunity outside of these conversations to inform the pilots, but did not do so.

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• Had the Pilots been aware of the escalating problems, their actions would have most probably changed, including that the short escort tug would not have been released when it was. This may have led to a more favourable outcome, including the possibility of avoiding the grounding.
Other factors that increased the risk:
• The emergency generator was not fit for service, as it was unable to provide sustained electrical power to the ship and steering. The engine overheated and shutdown because the radiator fan drive belts had failed several months prior and had not been replaced.
• No procedure or system was in place to ensure critical spares were identified and their inventory controlled to ensure availability when required. As a consequence, the fan belts for the emergency generator had been on order for several months.

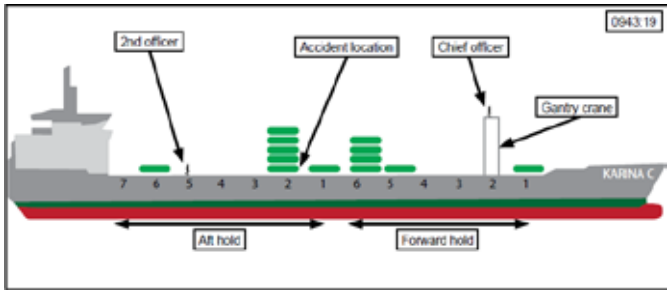
4. Fatal accident due to lack of communication and Officer's alcohol consumption

At 09.45 on 24 May 2019, the 2nd Officer of a general cargo vessel was fatally injured when he was crushed between the vessel's gantry crane and a stack of cargo hold hatch covers, during post-cargo loading operations in Seville, Spain. The 2nd Officer had been working at the aft end of the main deck and was attempting to pass between the hatch covers and the stationary crane. As he climbed onto the hatch coaming, the vessel's Chief Officer drove the crane aft, trapping and crushing the 2nd Officer against the hatch covers.

The accident occurred on the 2nd Officer's birthday and his postmortem toxicology report showed that he had a significant quantity of alcohol in his bloodstream. The investigation concluded that:

- The 2nd Officer did not know the Chief Officer was about to move the crane and the Chief Officer did not know where the 2nd Officer was or what he intended to do, because the deck operations were not being properly controlled or supervised and the deck Officers did not communicate with each other.
- The 2nd Officer's judgment and perception of risk were probably adversely affected by alcohol.
- Tiredness might also have adversely influenced the 2nd Officer's actions.
- The Master did not adequately investigate or report the accident.
- The safety culture on board the vessel was weak. Company procedures were not followed and several unsafe working practices were observed.
- The Company's drug and alcohol policy was not being enforced.

The history and findings of the macroscopic autopsy lead to the conclusion that the death of seaman was a violent accidental death caused by falling. The 2/O had suffered a broken left femur, injuries to the skin of his lower legs and multiple rib fractures, together with lacerations to both lungs and ruptures to both his liver and left kidney. He died as a result of internal bleeding due to organ rupture.



Zoomed CCTV screenshot showing the 2nd Officer climbing onto cargo hold hatch coaming

The 2/O's toxicology report stated that his blood alcohol content (BAC) was 117mg per 100ml. No other narcotic or toxic substances were detected.
In the period before the accident, the vessel's hours of rest records indicated that the 2/O had worked from 12.00-18.00, had one almost 6 hour break from 18.00 to 23.45 and worked again from 23.45 to 05.40. He was then disturbed by being called to the deck at 09.15, after some 3 hours of rest.

Risk Assessment

A risk assessment prepared by the vessel identified the hazards, including:
- Personal Injury,
- Awareness – Struck by a cargo crane,
- Awareness – falling from height and,
- Obstructions.

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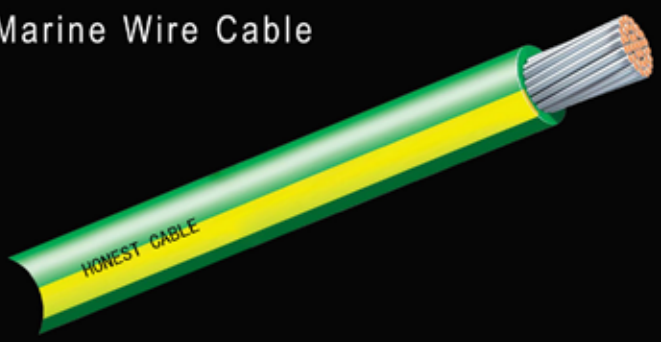

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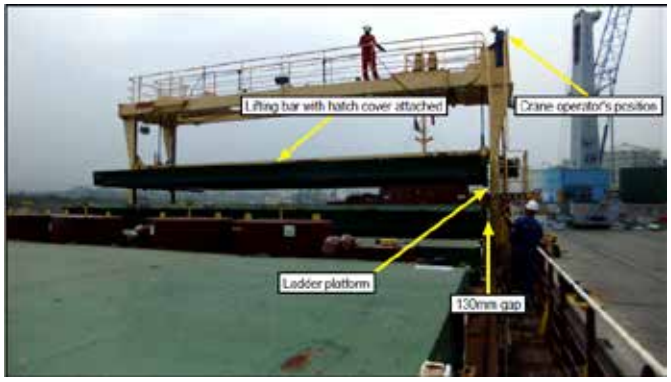
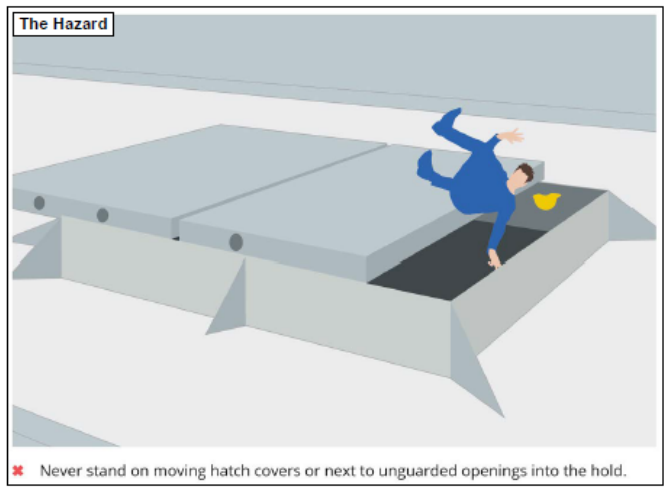
Risk mitigation measures made multiple references to the gantry crane. Being crushed by the gantry crane was not identified as a specific hazard in the RA document. To reduce the risk of personal injury the RA's procedural control measures included:

- Crew vigilance – Constant monitoring of the task.
- Ensure that the person operating the gantry crane has a clear view of the hatch covers at all times.
- A crew member must be placed on the opposite side to the gantry crane operator for monitoring.
- Any crew/personnel not directly involved in hatch cover operations should stay well clear.
- Establish and maintain at all times communication by voice and/or radio and line of sight between crew involved in the operation.
- Position crewmembers to observe both sides of the hatch and to operate emergency stops if required.
- Ensure that a crewmember is watching the operation from the opposite side and is standing by to stop the operation immediately by using the emergency stops in case of emergency or equipment malfunction.
- In no any circumstances is allowed to drive the Gantry if any Persons are in the vicinity of moving gantry (the walkway on the coamings have to be empty too).
- Any opening, through which a person may fall, including open hatches should be adequately and securely fenced or otherwise guarded to prevent a person falling.



Lessons Learned

1. **Awareness.** The 2/O was crushed because he attempted to walk between the vessel's gantry crane and a stack of cargo hold hatch covers, unaware that the C/O was about to drive the crane towards him.
2. **Communication.** The C/O did not know the 2/O was under the crane or what his intentions were because he was not monitoring the walkways and had not established effective communications with the crew working on deck.
3. **The Safety Culture** on board was weak. Established safe systems of work were not followed, personnel were working close to moving equipment and unprotected edges, and personnel were not wearing adequate levels of PPE.
4. **Controls.** The risk assessment and procedure in place for operating the gantry crane could have been clearer; however, had the stipulated safety controls been implemented, the accident would have been avoided.
5. **Alcohol consumption.** The 2/O's judgment was probably impaired by alcohol.
6. **Barriers.** The crane emergency stops were not easily accessible and were not within reach of the 2/O when he was trapped.



Fall prevention methods while working close to open hatches

Psychological Wellbeing at Sea

Good Mental Heath Guide for Seafarers

Psychological Wellbeing at Sea is part of ISWAN's series of Good Mental Health Guides for Seafarers. It aims to explain what positive mental health and psychological wellbeing is, and helps you to recognize the risks to wellbeing that you may face as a seafarer. In this guide we have drawn together some of the best evidence available to give you some practical ideas about how to maximize your psychological wellbeing.

We all like to be happy! But did you know that psychological wellbeing is beneficial for your overall health and can even mean that you live longer?

People who score higher on wellbeing measures live longer and have a 50% lower chance of a heart attack or stroke. They make better decisions and have higher work performance, take fewer risks and have a lower risk of accidents or injuries1. Paying attention to your wellbeing can really make a difference and mean that you can learn to limit the risks of working at sea and keep yourself fit, healthy and happy.

The World Health Organization defines mental health as a ***"state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community"***

Psychological wellbeing is about being well psychologically, which means that we can function well, we feel generally good about ourselves and about life, we feel a sense of life satisfaction, a sense of purpose and a sense that our lives are on the right track.

Psychological wellbeing is not only about the times when things are going well but also about how we cope when things are more difficult. It is about both feeling good and functioning well. If you feel good then you function more effectively, and if you function more effectively then you feel better about yourself. But it is difficult to function well if you aren't feeling good.

How you feel on a day to day basis can change and is affected by all kinds of things in our lives and environment. Our sense of psychological wellbeing is not fixed, it includes how happy we feel but is more than just our sense of happiness or the mood that we are in right now. Some people have defined it as the point of balance between the day to day challenges we face and the resources and skills we have to meet those challenges.

WELLBEING AT SEA

It is fully acceptable - and often expected - that we should look after our physical health. Many ships have gyms or exercise equipment and many companies encourage healthy eating and lifestyle choices to keep seafarers healthy. One of the first things we do if we are in physical pain is to tell someone close to us about it.

We might even contact a doctor. However, this is often not the case when it's our mood that's low and our discomfort is psychological rather than physical. As a seafarer, being away from family and friends may mean that you're less likely to talk about a low mood or feelings of unhappiness than someone ashore who sees their loved ones every day.

Just as means of communication with home can be limited, seafarers may face other restrictions to their wellbeing such as limited shore leave, monotonous routines, long working hours, shift working, and few opportunities for exercise or socializing. It is vital we pay attention to our mental health because it affects how we think, feel and act.

HOW CAN WE ENHANCE OUR PSYCHOLOGICAL WELLBEING?

There is a large and growing body of evidence about what makes people happy and what enhances their wellbeing, and that we can control many of these things.

We now know that there are several critical factors which characterize people with high wellbeing; people who 'flourish' in their lives. These include positive emotions, engagement, positive relationships and a sense of meaning, purpose and ac-

complishment.
There is a strong body of evidence that suggests that intentionally engaging in activities to strengthen our psychological wellbeing will have a positive effect, and if we can make them into habits they will have a long lasting impact on our wellbeing and physical health.

POSITIVE EMOTIONS

We don't often deliberately make time for and put effort into doing things that make us feel good, or bring us peace, contentment, calm, fun, happiness, enjoyment, pleasure and so on. However, it seems that this is exactly what we can and should do.

When we feel good we have the energy to do all kinds of things, but when we are busy and especially when we are feeling stressed or low, we forget to do the things that make us happy.

We lose motivation to do things and very quickly we find that we are not doing the things we enjoy. Evidence suggests that actively and intentionally making time to engage in things we like to do can have a real and positive impact on our wellbeing. It doesn't matter what you choose but **make time for activities which you enjoy.**

POSITIVE RELATIONS WITH OTHERS

The times when we are truly happy or joyful often involve other people. Relationships are an essential part of our psychological wellbeing. Close confiding relationships have a very significant impact on your mental health and even how long you will live. Social isolation has increasingly been identified as problematic for seafarers and so it is not surprising that if people feel isolated their wellbeing is likely to be affected. This means that nurturing our relationships with friends and family at home and connecting with the people around is important.

MEANING AND PURPOSE

Ancient philosophers and modern scientists agree that there are three kinds of life to aspire to:

The Pleasurable Life in which you enjoy day to day pleasures.

The Good Life in which we are aware of our individual strengths and skills and use them to the best of our ability to accomplish our goals and achieve our aims.
The Meaningful Life in which we use our skills, our strengths and our resources in belonging to and serving something that is bigger and more important that ourselves. Whilst positive emotions, good relationships and doing well in our work or hobbies are all key elements of our psychological wellbeing, we also need to find meaning and purpose in life.

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Electrolyte Feed Temp. : 4 - 40°C
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Electrolyte Feed Salinity : > 10 PSU
Filter Inlet Pressure : > 0.5 bar
Total Residual Oxidant(TRO) : 2.5 – 3mg/L(PPM)

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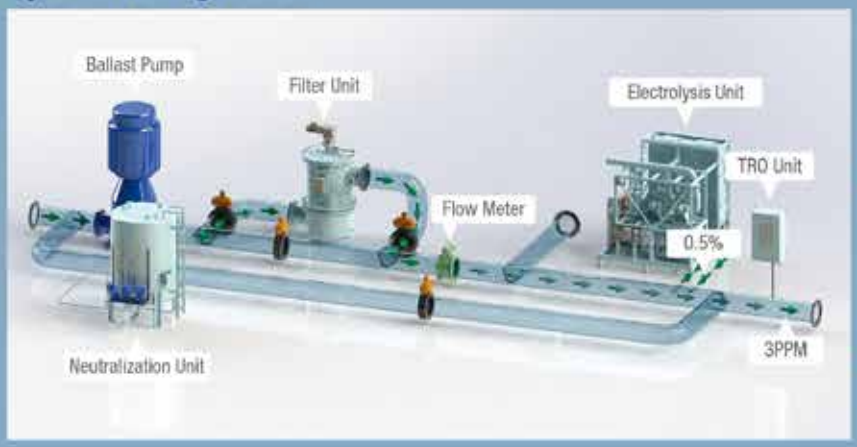

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Meaning or purpose may be different for each of us and lies in the things that we give greatest value to in our lives. There is considerable evidence that a higher level of spirituality goes hand in hand with greater wellbeing, less mental illness, less substance abuse and more stable marriages as well as better performance at work.

For many people, their religion or faith brings a strong sense of meaning to their lives. It gives them an ethical code to aspire to and live their lives by, it shapes the way they view the world and gives them strength and comfort through difficult times.

Practicing your faith both alone and with others is important. It can be more difficult to practice your faith if you are at sea but look for opportunities to do so. Take time to keep connected to your faith, go to services if or when you can, spend time alone in prayer or meditation.

There are many apps you can download and use offline to support you in your spiritual life. Search for one that suits you. Celebrate your religious feasts and share them with people around you who may not know much about your culture and religion.

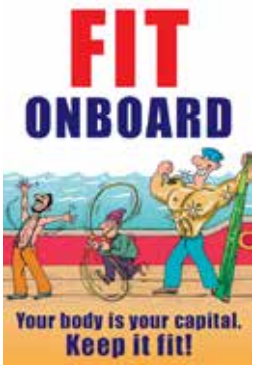
ACCOMPLISHMENT

A sense of accomplishment can contribute a great deal to our overall happiness.
However, we often overlook the things that we achieve. Once we reach our goals we can soon discount them as unimportant. Paying attention to our achievements, and new goals we can work towards, can have a very positive impact on our wellbeing.

A seafarer's time away at sea may be a good opportunity to work towards personal goals, either long term or short term. They could be related to anything, for example, reaching a certain level of fitness or acquiring a new qualification.

PHYSICAL HEALTH

All seafarers know that remaining fit and healthy is essential to their career at sea, but it is also essential for our psychological wellbeing. Three key areas we can focus on to become fitter and maintain a healthy body are exercising regularly, eating healthily and ensuring we get enough rest.



EXERCISE

Like many workers ashore, seafarers can lead very sedentary lives, but seafarers are generally more limited in the ways they can exercise. All the same, it is still possible to keep active at sea. Here are some general tips:

• Aim to do 30 minutes of exercise a day in addition to any other physical activity which is part of your normal routine.

• There are many exercises you can do in a small space, or with limited equipment. **www.trainingonboard.org/article/56a8a6984e73fd34370000c4**

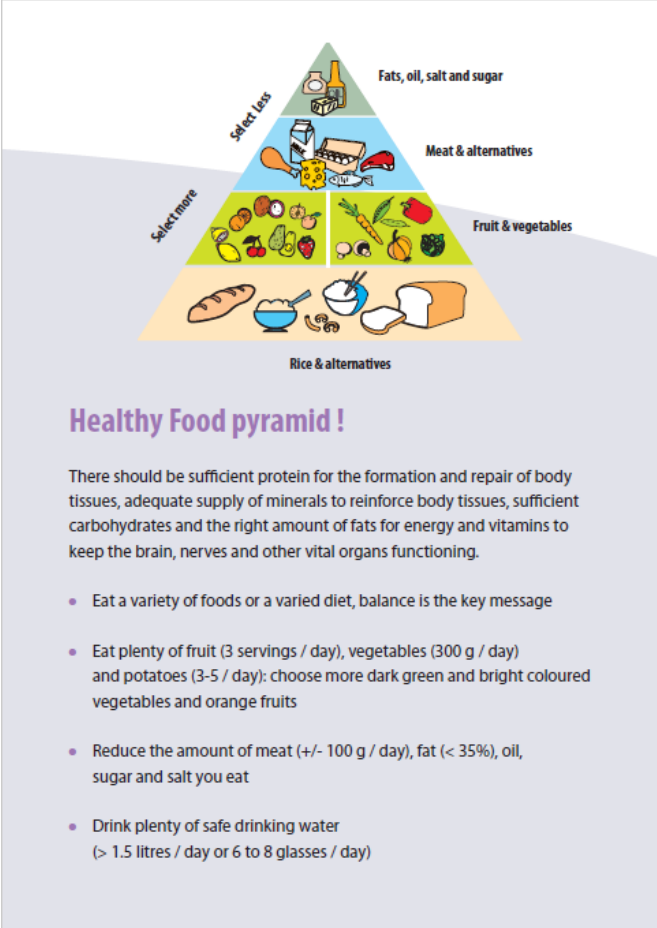
• Get some inspiration from the following:
a. Workout Plans & track your fitness **(www.trainingonboard.org/wp/)**
b. Fitness on board guidance **www.seafarerhelp.org/assets/downloads/FitOnBoard_A5_20151204.pdf**
c. Sailors Society Wellness at Sea Mobile App **(Available via Google Play and the App Store)**

Support can help: ask if any of your crew mates would like to exercise together to help motivate

each other. Team sports are great if you have the space.

DIET

It is also important you pay attention to your diet on board. You may find smart tips below:



REST

Finally, fatigue has been recognized as a significant problem for seafarers and a recent report is spurring the industry into action. It is important to be aware that seafarers are entitled to the proper rest periods (a minimum of 10 hours in any 24 hour period). Are you getting enough good quality sleep? Are you able to make the most of rest times?

FINDING SUPPORT

Everything in our lives has an impact on our mental state. If things are generally going well, and we have good relationships, fulfilling work, enough money to pay our bills and so on, then things are OK. But if things are not going so well and we have problems in one or more area of our lives then we can start to feel worried or down.

Human emotions are natural and normal; they indicate to us when something is amiss and lead us to rectify the situation. Worry kick-starts us into problem solving, anxiety leads us to think about how to prevent a problem which we anticipate, sadness helps us come to terms with a loss in our lives. Remember; throughout the course of our lives we all feel a range of positive and negative emotions. One of the ways we manage our problems and our emotional response on a day-today basis is to talk to our friends and family or the people we work with. We don't even really think about it. That kind of normal everyday sharing helps us to gain perspective and process events and experiences and if there is a problem to be solved it might help us to come up with a solution. Your opportunities for that normal everyday interaction may be limited at sea.

Sometimes things can get on top of us. We can start to feel overwhelmed by problems and we can't see a way forward. If you are worried about yourself or someone else – asking for help and support is of vital importance.

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