# REPORT OF THE
# 44th ANNUAL GENERAL ASSEMBLY

## held in, Buenos Aires, Argentina

The 44th Annual General Assembly was held at the offices of Centro de Capitanes de Ultramar y Oficiales de la Marina Mercante (CCUOMM), on Thursday 26th and Friday 27th April 2018 at the invitation of IFSMA association member CCUOMM.

### LIST OF DELEGATES

**EXECUTIVE COUNCIL**

| | |
|---|---|
| Hans Sande (Norway) | President |
| Willi Wittig (Germany) | Deputy President |
| Marcos Castro (Argentina) | Vice President |
| Koichi Akatsuka (Japan) | Vice President |
| Marcel van den Broek (Netherlands) | Vice President |
| Cal Hunziker (USA) | Vice President |

**MEMBERS OF ASSOCIATIONS (Listed by country and alphabetically)**

| | | |
|---|---|---|
| Marcos Castro | CCUOMM & ExCo | Argentina |
| Eduardo Baglietto | CCUOMM | Argentina |
| Sergio Dorrego | CCUOMM | Argentina |
| Eduardo Gilardo | CCUOMM | Argentina |
| José Pereyra | CCUOMM | Argentina |
| Victor Delgado | CCUOMM | Argentina |
| Maerten Claude | KBZ | Belgium |
| Dimitar Dimitrov | BSMA | Bulgaria |
| Juan Gamper | Nautilus | Chile |
| Eduardo Góngora | Nautilus | Chile |
| Martin Björkell | FSOU | Finland |
| Danielle Quaini | HYDROS | France |
| Willi Wittig | VDKS & Deputy President | Germany |
| Suresh Bhardwaj | CMMI | India |
| Koichi Akatsuka | JCA & ExCo | Japan |
| Marcel van den Broek | Nautilus International (NL) | Netherlands |
| Hans Sande | NMOA & President | Norway |
| Mehmet Birol Bayrakdar | TOGSMA | Turkey |
| Arif Bostan | TOGSMA | Turkey |
| Calvin Hunziker | CAMM & ExCo | USA |

**INDIVIDUAL MEMBERS**

| | |
|---|---|
| Koichi Akatsuka | Japan (JCA & Ind Member &Vice President) |
| Paul Owen | UK (Ind Mem & Secretariat) |

**SECRETARIAT**

| | |
|---|---|
| Commodore Jim Scorer | Secretary General |
| Captain Paul Owen | Assistant Secretary General |

A list of apologies received is held at the IFSMA Office.

A translation service Spanish< - >English was available throughout the AGA.

Due to many guests being present the first morning's proceedings were held in the CCUOMM theatre with than 100 persons. See photographs.

**AGENDA ITEM 1 – Welcome**

Captain Marcos Castro, President of Centro de Capitanes de Ultramar y Oficiales de la Marina Mercante (CCUOMM), welcomed all present to the 44th Annual General Assembly, being held in the new headquarters building of CCUOMM, Buenos Aires, Argentina, on this special occasion, their 100th Anniversary of the founding of CCUOMM. For the benefit of some guests part of the welcome address was given in Spanish.

**AGENDA ITEM 2 – Reply by IFSMA President**

Captain Hans Sande, IFSMA President, replied.

Mr President, honoured guests, delegates, ladies and gentlemen it is a great honour for IFSMA to be invited back to Argentina for our 44th Annual General Assembly and to be part of your 100-year anniversary celebrations of the founding of Centro de Capitanes de Ultramar Y Oficiales de la Marina Mercante (CCUOMM). It seems like only yesterday that we were last here 14 years ago for our 30th AGA and we have very many fond memories of wonderful hospitality. You have been one of our most loyal Members since the earliest days of IFSMA. Thank you for your support.

I would also like to thank Captain Jeff Cowan and the Council of American Master Mariners for being such welcoming hosts in MITAGS Baltimore last year where we had a most memorable few days. It is useful to remember that IFSMA was formed in 1974 by eight National Shipmasters' Associations to unite the World's serving Shipmasters into a single professional co-ordinated body. It is a non-profit making, apolitical organisation dedicated solely to the interests of the serving Shipmaster and to uphold International Standards of Professional Competence of Seafarers commensurate with the need to ensure Safe Operational Practices, Preservation from Human Injury, Protection of the Marine Environment and Safety of Life and Property at Sea.

To those of you who are not familiar with the Federation, IFSMA was formed in 1974 by eight National Shipmaster Associations and in 1975 was granted Consultative Status as a Non-Governmental Organisation by the International Maritime Organization (IMO) which enables the Federation to represent the views and protect the interests of the serving Shipmaster, unfettered and unfiltered either by National Governments or by Shipping Companies. In 1993, IFSMA was placed on the International Labour Office's (ILO) special list of Non-Governmental International Organizations.

We are held in very high regard at the IMO and by other International Organisations and it was with great honour that in February this year we welcomed the Secretary General of the

IMO as an honorary Member of IFSMA and last year I was invited to represent IFSMA on the Managing Board of Seafarers' Rights International. It is the desire of The Federation to assist IMO in achieving a truly global implementation and rigorous enforcement of its International Treaties so that there is no need for any Country to resort to Regulatory Measures on either a National or a Regional basis. The Federation now represents over 10,000 Shipmasters from more than 60 Countries

The IMO is the core of our business and our Shipmasters are robustly represented by the small Secretariat of Jim Scorer and Paul Owen, but I do urge our affiliated associations to join us in attending IMO meetings or at least to send your comments prior to IMO meetings so they can be taken into account. This will be particularly important over the next two years when the Regulatory Scoping Exercise is about to start on the subject of Autonomous Ships. We have co-sponsored a Paper on the subject where it will be introduced at the Maritime Safety Committee in May and we will need to take strong action to ensure that these new vessels are regulated properly to fit in with our congested and dangerous waters. These vessels do have a role in our Maritime Industry but it is important that they are properly regulated and equipped to be able to safely interact with manned vessels. We must constantly remind ourselves that shipping is not all about nuts, bolts and lots of technology, but also about people. If we do not succeed in ensuring fair treatment of seafarers, and a safe working environment, then the talented youth of the future will not invest their time in our industry. Most of the Shipmasters today are working on temporary contracts and their employment may be terminated for any reason. This causes enormous pressure on Shipmasters and can affect their decision making.

During the next two days we will have a number of very interesting presentations of professional papers for you and I would like to thank all of the presenters in advance. It is therefore with great pleasure that I now declared the 44th Annual General Assembly open.

He presented Marcos Castro with an inscribed IFSMA Plaque to commemorate this important event.

He then declared the 43rd Annual General Assembly open.

**AGENDA ITEM 3 – Adoption of Agenda**

A change in evening events was noted, the visit to the Country Club being moved to the first evening with the Annual Dinner on the second evening. The Agenda was adopted.

**AGENDA ITEM 4 – Report by the Secretary General**

Jim Scorer, Secretary General, presented his report for the year. He commenced by congratulating the new Turkish Association President, Captain Arif Bostan, who was with us today and to the Taiwan Master Mariner Association (MMAT) on deciding to join IFSMA.

***See Annex A for the written report.***

At the conclusion of his presentation the IFSMA Promotional Video was shown and members invited to download the video and show it to those who may be interested.

**AGENDA ITEM 5 – CCUOMM, the first 100 years**

**Presented by Rodolfo Vidal, CCUOMM**

The presentation (very large file, 153mb), that includes video clips, is available to download. It covers many interesting events over the 100 year period and was an inspiration to us all for what CCUOMM has achieved on behalf of the Mariners of Argentina.

***See the IFSMA Website for the presentation document***

**AGENDA ITEM 6 – Argentine Merchant Marine changes and Recent Maritime Law**

The presentation (very large file, 84mb), is available to download …

***See the IFSMA Website for the presentation document***

**AGENDA ITEM 7 – Navigation in Shallow Waters**

**Presented by Eduardo O. Gilardoni, CCUOMM**

This comprised information sourced from his published book. The Powerpoint file for this item is not available.

***After lunch, when the guests had departed, the General Assembly moved to a smaller meeting room with a capacity of 40 persons.***

**AGENDA ITEM 8 – Secretary General's Report, Q&A.**

**Q&A**

None raised.

**AGENDA ITEM 9 – Treasurers Report**

**Presented by Paul Owen, Assistant Secretary General**

The Treasurers report was presented which comprised the 2017 Income and Expenditure sheet together with the agreed budget; he explained the differences between the budget and actual amounts. The Balance Sheet for the end of 2017 and the Hon Auditors Report was prepared by Rodger MacDonald who had also advised that he was prepared to continue as Honorary Auditor.

**Q&A**

**Juan Gamper** asked about the budget for the office move**. Paul** replied that the office move did not happen as expected and we are uncertain whether we will move office or not in the future. **Jim** added that we had received notice from our landlord that they intend to double our office rent from 1st July. He has objected to the landlord and explained that we, together with CIRM, spent considerable funds refurbishing the office and that this has not been taken into account and requested a better offer. In the meantime he reported that he has been investigating other options for the location of the office and did not anticipate it costing much to move office e if necessary.

The 2017 Accounts were agreed.

Treasurer then distributed the proposed budget for 2019, explaining that it was based on the present subscription levels and related expenditure. **Hans** intervened by stating that changes for the future of IFSMA finances will be put to the AGA tomorrow.

The 2019 budget, as presented, was agreed by a show of hands, subject to any proposals tomorrow that may affect the budget.

He continued by taking the opportunity to explain necessary recent changes in the Part A document, page 3, "IFSMA Associations and Votes" since it was printed. Number 16, IIMM Ireland, have changed their declared members from 60 to 90. Number 20, NMOA Norway, have updated their declared members to 3560. Number 27, MOA Sweden, have paid their subscription and are now in Good Standing. Number 28 MMAT Taiwan, are not yet in good standing as we await their very first subscription payment. Some of the above changes may update the voting rights of the associations. He concluded by giving the revised totals on page 4 of the same document, Associations members is now 10.111 and the grand total is 10,180. Regarding new members, he reported that we are in discussions with Indonesia, Republic of Korea, Ukraine and India. These may, in due course, all join as IFSMA Member Associations.

**AGENDA ITEM 10 – Establish Drafting Group**

The Secretary General proposed Calvin Hunziker and Willi Wittig to form the drafting group. Agreed.

**AGENDA ITEM 11 – Adoption of the minutes to the 43rd AGA, Baltimore, USA.**

Secretary General, **Jim Scorer**, introduced this subject reminding that the minutes had been distributed by email and were also available on the IFSMA Website.

The minutes were accepted, without amendment, on the proposal of Calvin Hunziker, seconded by Koichi Akatsuka.

**AGENDA ITEM 12 & 13 – Executive Council Elections & Changeover of Councillors**

Assistant Secretary General, Paul Owen, gave a brief on how the election procedure will work, noting that this was different to how it had been conducted in the past. The new procedure was simpler than before.

He explained the use of a ballot form that contains all the nominees on one sheet of paper for each category of election, including any last minute nominations. On this occasion there were two nominees for one place as Deputy President and 9 remaining nominees for the 7 places as Vice Presidents. Members were instructed to place ticks in the appropriate box next to the nominees' names(s) they chose, a maximum of one tick for Deputy President and seven ticks for Vice Presidents. Members will be provided with a ballot form for each vote they have. As per the Statutes and Bye-Laws voting is to remain secret.

Members were then invited to choose two ballot counters who were not nominees in the elections. Juan Gamper and Arif Bostan were chosen. Postal Votes had been received and were taken into account. The President notified of the Proxy Votes that had been received.

The postal voting forms received were handed to the ballot counters so they could be included in the results.

**The Elections.**

The **President**, **Hans Sande**, was returned unopposed.

There were two nominations for **Deputy President**. After the ballot, **Willi Wittig** was elected to continue as Deputy President.

There were nine remaining nominations for **Vice President**. The six incumbents were returned to continue as Vice President. In addition Danielle Quaini was elected as a new Vice President:

| | |
|---|---|
| **Marco Castro** | Argentina |
| **Fritz Ganzhorn** | Denmark |
| **Danielle Quaini** | France |
| **Koichi Akatsuka** | Japan |
| **Marcel van den Broek** | Netherlands |
| **Jörgen Lorén** | Sweden |
| **Calvin Hunziker** | USA |

The office bearers for 2018-2022 were all congratulated by acclamation of those present.

Due to the interest in joining the Executive Council, it was later proposed to increase the number of Vice Presidents from seven to 10.

As there was no change to Executive Council members present at the Annual General Assembly, a changeover was not required.

**AGENDA ITEM 14 – Resilience Engineering & the Fifth Age of Safety**

**Presented by Suresh Bhardwaj, India**

***See Annex B for the written paper.***

**Q&A** (summarised)

**Marcel van den Broek** It brought back memories, if there is an accident investigation they look backwards. He recalled a casualty where a ship missed a waypoint and went aground, my union assisted with investigation. Looked at the cause of the missed waypoint, looked at systems on board, number of ports visited in short time with a limited number of crew, we were successful in defending the crew because that was the cause of the accident. **Willi Wittig** commented that the point is that a human being is often the preventer rather than the cause, this is often forgotten by the investigators. This is taken for granted. Seniors more often tell people off, rather than praise for good work. In our industry the majority of the seniors are more interested in telling people off, rather than praising them. Suggested that we advise leaders in the industry to not always look at what went wrong.

**AGENDA ITEM 15 – The Carriage of Bauxite in Bulk**

**Presented by Jim Scorer, Secretary General**

***See Annex C for the information paper.***

**Q&A** (summarised)

**Calvin Hunziker** asked if it was possible to pump out the slurry. **Jim** replied that this depended on pumping arrangements, weather conditions, time available and everything else, if you think about how this occurs, it is generally because of rough weather which makes it more difficult with opening hatches more dangerous with possibility of more water coming in. So that is not an easy solution. **Birol Byarakdar** commented that it was physically impossible to pump out, he suggested that the best course of action is to hire a surveyor and have the ship's officers standing by during loading. **Jim** agreed and said that it is the shipper who is responsible for testing, not the master, this is a point he raised at IMO. Tests must be done within seven days unless there is significant precipitation, but what is significant precipitation? Moisture may have the opportunity to seep through for seven days and the 10% moisture limit could be exceeded. It is a difficult problem and why the Master needs to be aware of, and why it is so important to witness the loading operation, and what happens as you start to load it as this gives the clues which you may need for your safety later on. **Dimitar Dimitrov** stated once liquefaction (dynamic separation) occurs and the master advises the shore, some VTS authorities cannot understand the problem and do not allow the vessel to enter a port of refuge. **Jim** replied that Rio Tinto and ClassNK take this very seriously and are visiting companies and ports involved in this trade to get the message out there that this is serious and potentially very hazardous.

**AGENDA ITEM 16 – Dangers of Chemical Treatment of Ballast Water**

**Presented by Marcel van den Broek, Nautilus International (Netherlands).**

***See Annex D for the written paper.***

**Q&A** (summarised)

**Calvin Hunziker** - In the tanker industry there have been facilities ashore for many years, why not for others. **Marcel** replied that in some ports it is available but not everywhere. He also gave the example of a heavy lift vessel that needs to move large quantities of ballast water is a short period of time. **Suresh Bhardwaj** added that in the chemical industry they have responsible care. The complete life cycle of chemicals must be considered including their eventual disposal. **Marcel** – I have been told that in practice the situation can be much worse, over time we will learn what it is going to be. **Koichi Akatsuka** for the treatment of ballast water, MARPOL Convention ports are required to provide reception facilities, but these are not always available. **Marcel** replied that he was not sure if that applies to ballast water.

**AGNDA ITEM 17 – World-wide Cabotage Laws**
**Presented by Hans Sande, Norway.**

*(This presentation replaced the scheduled subject – Plastic Odyssey: Exploring solutions to plastic pollution. – See Annex F for the paper. This paper was not presented.)*

Hans commenced by reporting that on 17th May he was appointed to the Advisory Board for Seafarers Rights International (SRI). He recommended visiting their website.

https://seafarersrights.org

For this presentation he shared a summary of a world-wide cabotage law survey conducted by SRI.

**Q&A** (summarised)
**Calvin Hunziker** reported that with the Offshore Industry the USCG has allowed foreign flag offshore supply vessels. **Hans** noted that the US Congress is lobbying to have the Jones Act apply to this trade again. **Juan Gamper** noted that similar problems in Chile for a few years, we have had many meetings with ITF representatives and owners representatives, last Government wanted to open cabotage to any flag. Companies want to move empty containers from one port to another. Our politicians don't know much about seafarers and need to be briefed on the activities of seafarers. Law in congress to allow over 400 Passenger Ship cabotage and cargo ships to allow free trade, we are fighting to prevent this change. **Hans** in 12 years of work in Norway, politicians in Norway don't care. I said forget seafarer what do they contribute to the maritime industry shore side. The two largest industries in Norway, totally depending on skills of seafarers, when they end their maritime career 80% of seafarers come ashore and share their knowledge with the maritime cluster, whereas foreign seafarers take their knowledge away from Norway. Went to the 50 largest cities in Norway, sat down with Mayors and asked what would happen if you have no seafarers. Mayors wrote to Government that they need seafarers. His advice was to tell your Governments the consequences of no seafarers.

**AGENDA ITEM 18 – New Traffic Separation Schemes in Japan**

**Presented by Koichi Akatsuka, Japan Captains' Association**

***See the IFSMA Website for the presentation document***

**Q&A** (summarised)

**Jim Scorer** asked since the systems had been introduced in Japan, had a noticeable difference in traffic patterns been observed. Koichi replied that they were certain about improved safety for the fishing grounds which have many fishing vessels. **Dimitar Dimitrov** asked if it is possible to educate the fishing vessel masters. **Koichi** replied that they have a dialogue with the fishing industry, they recognise the problems and the situation is getting better.

**AGENDA ITEM 19 – Cyber Security and Traditional Navigation Skills**

**Presented by Dimitar Dimitrov, Bulgarian Shipmasters' Association**

***See Annex E for the written paper.***

**Q&A** (summarised)

**Jim Scorer** concerning that new ships may not have means of taking a visual bearing. Some officers are required to remain in chair during their watch, if he gets up an alarm will sound in operational HQ. What issues do officers bring on board with their own Laptop. **Birol Bayrakdar** Support, agree with Laptop plugging into vessels. Money spent to protect against cyber-attacks $87.2b in 2017, in 2018 more than $90b. Equipment installed is an 'aid' to navigation, the human being is still at the centre of all this. **Maerten Claude** interesting and worrying presentation. Do you see difference between different ship types. **Dimitar** yes, tankers are doing more. To only use GPS to fix position before anchoring, this is very

dangerous. He recounted his recent experience with a Dutch vessel just out of repair and that they could not verify their anchored position. **Eduardo Baglietto** we are trying to save traditional ways of navigation yet we are moving towards unmanned ships. He could see there will be a struggle in the industry. **Dimitar** Agreed, we cannot escape from reality. **Hans Sande** if you use sextant to navigate you need to use it daily. Mentality of navigators is changing, if you use GPS then you need to alternate with another system. Need to be aware on their surroundings. We are not training them properly. IMO tries to get sextant away from compulsory (move from A part to B part) equipment. **Willi Wittig** we also need to look into older officers with new equipment, they do not understand that a pen stick can ruin your day. (putting into wrong port, etc). **Hans Sande** those who man the vessel need some operational experience. The first unmanned vessel will come into operations in 2019, the master will sit in operations room ashore, he will be fully qualified Master with Pilotage Exemption.

**AGENDA ITEM 20 – Confirmation of Venue for 45th AGA**

**Willi Wittig** reminded that it had been agreed in Istanbul AGA to hold a conference in 2019. Our Indian Association (CMMI) has agreed to host the first of these conferences in New Delhi during September. If the Special Meeting of the General Assembly in September agrees to continue with the Annual General Assemblies then we have the first location. **Marcos Castro** asked if we have enough people to hold a conference. **Hans Sande** replied that in order to be attractive for potential Industrial Members, you need to have a conference, Willi will organize the event together with the Indian Association. He concluded that he was willing to give it a try.

**Willi Wittig** explained the arrangements. Compared to a similar event held in Bremen, this time it will be held under IFSMA's banner. **Jim Scorer** suggested we call it a conference. Title "Future Skill requirements for a Digital Maritime Future". **Willi Wittig** responded that scientific meetings of the type being envisaged are generally called a congress.

**Hans Sande** noted that we do not have the capacity to organise such an event with our office resources, however, he was prepared to see how successful next year was with our Indian colleagues looking after the administration of the event.

**AGENDA ITEM 21 – Approval of any Resolutions or Statements**

To accompany the paper **Cyber Security and Traditional Navigation Skills** the author had presented a draft Assembly Resolution. It was agreed to consider this after the AGA and to report to the next General Assembly.

**AGENDA ITEM 22 – Any Other Business**

**1. Changes Proposed by Executive Council.**

Following notice of resignation from the present Secretary General, Jim Scorer. Hans noted that Jim had taken IFSMA to a new high level at IMO during the last 2 years. Due to our finances we have never had a full time Secretariat. It was now proposed to recruit a full time Secretary General. Jim had agreed to remain in post until a replacement is recruited. Hans added that he would very much like to see him continue to be our Senior IMO Advisor in view of his excellent public relations and network building skills. With the approach of Autonomous Ships in IMO we need to increase IFSMA's presence.

The Executive Council had considered what changes need to be made to take the Federation into the future. There was a long discussion on changes proposed. Namely:

1. Increase the number of Vice Presidents from 7 to 10.
2. Employ the next Secretary General on a full-time basis.
3. Increase the income of the Federation to finance the above.
4. Increase the annual subscription from £12 to £15 per active shipmaster.
5. Minimal annual fee for an association to be increased form £360 to £1,000.
6. Increase Individual Member annual subscription by 25% to £75.
7. Partly offset increased subscriptions with biennial General Assemblies after 2019.
8. Introduce a deadline for nominating members for Executive Council elections.
9. Adjust the voting rights to better motivate affiliates as follows:

- 1-100 1
- 101-200 2
- 201-300 3
- 301-700 4
- 701-1000 5
- 1001-1400 6
- 1401- above 7

After the discussion it was agreed to take these proposals forward. It was noted that this would require a Special Meeting of the General Assembly (Article 17) which needs 60 days' notice to all members and must be called by at least three Member Associations. It was suggested to hold this meeting during September in London.

Those representatives present all called or the Special Meeting to be held. Marcos requested not to be held on 5/6 September which was agreed.

***See Annex G for AGA Resolutions.***

### *2. Relationship with IMO*

Hans reported that the IMO Secretary General, Kitack LIM, had accepted IFSMA Honorary Membership after a only a short time in office, and he had invited IFSMA to participate in a special meeting to consider the immigrant at sea problems, one of only eight invitees. In addition, Jim has had private meetings with Kitack LIM concerning projects he would like us to pursue with the assistance of IMO. We are in good standing with IMO. He invited those present to give a round of applause to Jim for these excellent results.

### *3. New IFSMA Website*

Willi Wittig demonstrated the new design in detail for the IFSMA Website which is still under development. He added that passwords are now available. It was agreed to proceed with the new website.

### *4. Approval of New Bye-Law – Resolution Committee.*

**Calvin Hunziker** read out the new Bye-Law regarding the Resolution Committee which had been circulated in good time to all members. Agreed by a show of hands.

### *5. General Data Protection Regulations (GDPR)*

In view of the introduction of the new GDPR in May Paul Owen asked those present if their names could be included in the report of the AGA. All those present agreed.

### *6. Honorary Membership*

Willi Wittig proposed that, in view of his exceptional service and dedication to IFSMA, Koichi Akatsuka be elected as an IFSMA Honorary Member. He listed some of the many achievements Koichi had made over the years. Agreed by acclamation.

## CLOSE OF 43RD ANNUAL GENERAL ASSEMBLY

The President, Hans Sande, sincerely thanked Marcos Castro and the Centro de Capitanes de Ultramar y Oficiales de la Marina Mercante (CCUOMM) for their hospitality in hosting this excellent Annual General Assembly.

A vote of thanks given to the team of interpreters who had done an excellent job.

## ANNUAL DINNER

The **Annual Dinner** was held on the evening of Friday 27th April after the AGA was complete.

# ANNEX A

## Agenda Item 4 -Report by Secretary General, Jim Scorer

AGA report covers the period from April 2017 to April 2018. It provides a summary of events that took place.

**Secretary General**

1. President, Members of the Council, Members and honoured Guests a very warm welcome from me to our 44th Annual General Assembly. The prime reason for forming the Federation was to be able to represent Shipmasters around the World as a Non-Governmental Organisation at the United Nations body responsible for Maritime Affairs, the International Maritime Organisation based in London. IFSMA is the only organisation dedicated solely to this task and in the last 2 years my focus has been to ensure that the Shipmasters voice has been heard loud and clear. I do hope that many of you have taken the time to read the reports from the various Committees and Sub-Committee Meetings over the last year that we have posted on our website. Between Paul Owen and me, IFSMA has been to every IMO Meeting and we continue to be very highly respected for our pragmatic and forceful interventions. We can't do this on our own and we are in constant need of the assistance of our Member Associations to provide specialist Shipmasters with current knowledge to ensure we are represented on the necessary Working and Correspondence Groups. In this regard I would specifically like to thank Nautilus International and the Norwegian Maritime Officers Association for the enormous assistance they give IFSMA at their own considerable expense. Last year I briefed you on the specific relationship I have built up with the Secretary General of the IMO and I continue to hold private one to one meetings with him. The high regard with which he holds IFSMA is recognised by the fact he was delighted to accept our offer of becoming an Honorary Member of IFSMA at a small Dinner your Executive Council and a few other Honorary Members held for the specific occasion in February this year.

2. At that Dinner, Secretary General Kitack Lim reaffirmed his commitment to try and improve the life of the Mariner at sea by announcing that he has set up a Project within the IMO Marine Safety Division to look specifically at this area and asked for the assistance of like-minded NGOs and National Delegations. To this end, I currently chair a group of NGOs which includes the International Chamber of Shipping and the International Transport Federation to provide him with the specialist technical advice.

3. Last year I briefed you that we were working as a Member of the IMO Correspondence and Working Group for the Liquefaction of Cargos such as Bauxite and was advised by the Global Bauxite Working Group sponsored solely by Rio Tinto and led by Dr Tim Evans one of Rio Tinto specialist scientists. A report was delivered to the IMO in the autumn of that year which proved conclusively that Bauxite and other fines do not liquefy, but become unstable due to dynamic separation of the fines and any liquid. The report was good news for Masters' of Bulk Carriers and indeed the Shippers as this research informs us of how this is caused, how to recognise that it is happening and how to mitigate the dangers. I had hoped that Dr Evans would be able to come and brief us personally on his work, but this AGA coincided with a long planned holiday with his family. He has though worked on a specific presentation for us and I will deliver that to you tomorrow. This is a very practical example of what our Interventions and lobbying

at IMO have been able to help deliver for the benefit our members and we have been able to put a lot of this information in our now bi-monthly newsletter.

4. I hope you have seen some major changes to the Newsletter over the last year and we are continuing to improve the quality and diversity of articles to keep you informed. We would very much welcome your feedback and we always welcome interesting articles you might have for us. Your Deputy President, Willi Wittig, runs our Facebook Page and works hard to keep it populated with interesting issues on a daily basis and I urge you to help contribute in this important line of social media. We are working hard to ensure that IFSMA is seen publicly as the go to Organisation for Master Mariner issues.

5. You will be pleased to hear that finally, after nearly a year of much heated debate, we are nearing the completion of the much needed Guidelines on Global Anti-Piracy to be known as Global BMP. IFSMA is a co-signatory to this important document and I have been involved in the drafting group of this for the last year. I hope it will be published and distributed in the next month. This important document will replace the current ICS Guidelines for Somalia, BMP 4, and will consist of general Global Guidance, Regional Annexes for key areas with specific information to that region and then an Appendix which highlights other Global threats such as the possibility of Terrorism, Cyber Attacks etc. ICS and IFSMA believe that it sends a very powerful message when Ship Owners and Shipmasters come together particularly as it needs to be recognised that it is the Shipmaster who represents the Shipowner on the front line and is often the first point of contact. We continue to look for other opportunities going forward, not least working with them at the IMO to raise greater awareness of Mariner issues and to try and bring about legislative change at the IMO and ILO.

6. The subject of Maritime Autonomous Surface Ships (MASS) continues to move forward at a pace with a number of projects underway in Nations around the world. I reported that I was part of a Multi-National Group based in the UK who were at the centre of pushing for proper legislation of Autonomous Ships on a worldwide basis. At the IMO Maritime Safety Committee, following a Paper submitted by a number of Nations, the Committee will decide whether to undertake a Regulatory Scoping Exercise to look at what International Codes and Regulations will be affected by MASS to ensure their safe operation and integration into our often congested and dangerous environment. This Scoping Exercise will also take place in all of the four Major IMO Committees over the next 2 years in various Working Groups and you can rest assured that IFSMA will represent you robustly as this issue develops. I will however be calling for assistance from the Member Associations to ensure we get the necessary subject matter experts to advise and help. We have combined with the ITF to co-sponsor a paper being presented to the Maritime Safety Committee in May and it poses a number of questions and proposals which we hope will undoubtedly influence how this debate evolves and not least proposes a proper definition of MASS so that all understand what it is that we are talking about. You will see a full report on this on the Website at the end of May.

7. Finally, I want to mention the issue of Membership. I am pleased to say that during the last year we have received requests from a number of Associations around the world seeking Membership. These are ongoing with one formal application being discussed by the Executive Council this week and another pending. A few more are still in the discussion phase, but I think this is a sign that IFSMA is becoming better known around the world and that it is only by Shipmaster Associations coming together under one umbrella organisation that we can really make a difference on the International Stage.

8. Thank you for listening to me and for those of you attending tomorrow I will provide a bit more detail in a few areas. I am now very happy to try and answer any questions you might have.

# ANNEX B

# AGENDA ITEM 4 – Resilience Engineering & Fifth Age of Safety

**Presented by Suresh Bhardwaj, CMMI, India**
Dr (Capt) Suresh Bhardwaj, *fics, fni, fcmmi, PhD (Denmark & UK),* Master Mariner
Resident Director, Maritime Training and Research Foundation, Chennai, India.

## Introduction

This paper challenges some traditional fundamental concepts of accident dynamics, accident prevention, and accident analysis. The purpose is to emphasize that improvement analysts need to understand the theoretical bases of safety management and accident analysis, and the practical application of Integrated Safety Management framework. The increasing complexity in highly technological systems is leading to potentially disastrous failure modes and new kinds of safety issues. Traditional accident modelling approaches are not adequate to analyse accidents that occur in modern socio-technical systems, where accident causation is not the result of an individual component failure or human error.

## The Contemporary Understanding of Accident Causation

Safety science today views serious accidents not as the result of individual acts of carelessness or mistakes; rather they result from a confluence of influences that emerge over time to combine in unexpected combinations enabling dangerous alignments, sometimes catastrophically. The accidents that stimulated the new safety science are now indelibly etched in the history of safety: Challenger and Columbia, Three Mile Island, Chernobyl, Bhopal, Piper-Alpha, and Deepwater Horizon, as identified in the DOE Handbook on Accident and Operational Safety Analysis (2012). These accidents have introduced new concepts and new vocabulary: normal accidents, systems accidents, practical drift, normal deviance, latent pathogens, organizational factors, and safety culture.

Within complex systems, human error does not emanate from the individual, but is a bi-product of the ever-present latent conditions built into the complexity of organizational culture and strategic decision-making processes. The triggering or initiating error that releases the hazard is only the last in a network of errors that often are only remotely related to the accident. Accident occurrences emerge from the organization's complexity, taking many factors to overcome systems' network of barriers and allowing a threat to initiate the hazard release.

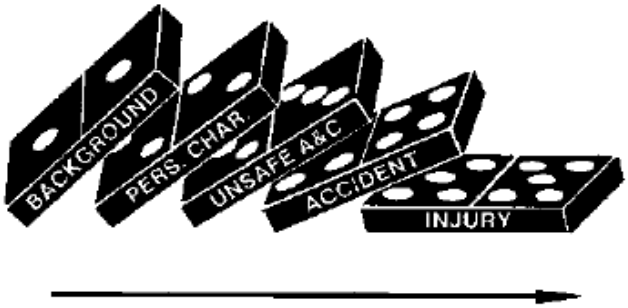
## Accident Models

### *A Basic Understanding*

What investigators look for when trying to understand and analyze an accident depends on how it is believed an accident happens. A model, whether formal or simply what one may believe, is extremely helpful because it brings order to a confusing situation and suggests ways one can explain relationships. However, the model is also constraining because it views the accident in a particular way, to the exclusion of other viewpoints and this must be kept in mind.

*Sequence of Events Model*

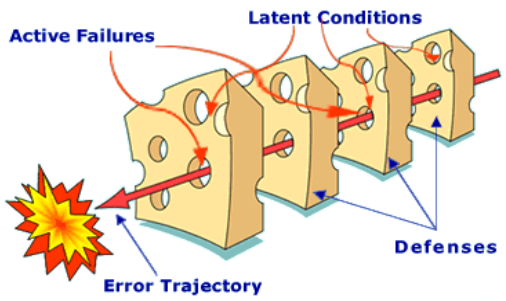
This is a simple, linear cause and effect model where accidents are seen as the natural culmination of a series of events or circumstances, which occur in a specific and recognizable order. It is generally represented by a chain with a weak link or a series of falling dominos. In this model, accidents are prevented by fixing or eliminating the weak link, by removing a domino, or placing a barrier between two dominos to interrupt the series of events.




The sequential model is limited because it requires strong 'cause and effect' relationships that typically do not exist outside the technical or mechanistic aspect of the accident. In other words, true cause and effect relationships can be found when analyzing the equipment failures, but causal relationships are extremely weak when addressing the human or organizational aspect of the accident. For example: While it is easy to assert that "time pressure caused workers to take shortcuts," it is also apparent that workers do not always take shortcuts when under time pressure.

*Epidemiological or Latent Failure Model*

This is a complex, linear 'cause and effect' model where accidents are seen as the result of a combination of active failures (unsafe acts) and latent conditions (unsafe conditions). These are often referred to as epidemiological models, using a medical metaphor that equate the latent conditions to pathogens in the human body that lay dormant until triggered by the unsafe act. In this model, accidents are prevented by strengthening barriers and defences. The "Swiss Cheese" model developed by James Reason is an example of the epidemiological model.




*Latent Failure Model – differences from Sequential*

Performance Deviation – The concept of unsafe acts shifted from being synonymous with human error to the notion of *deviation from the expected performance.*

Conditions – The model also considers the contributing factors that could lead to the performance deviation, which directs analysis upstream from the worker and process deviations.

Barriers – The consideration of barriers or defences at all stages of the accident development.

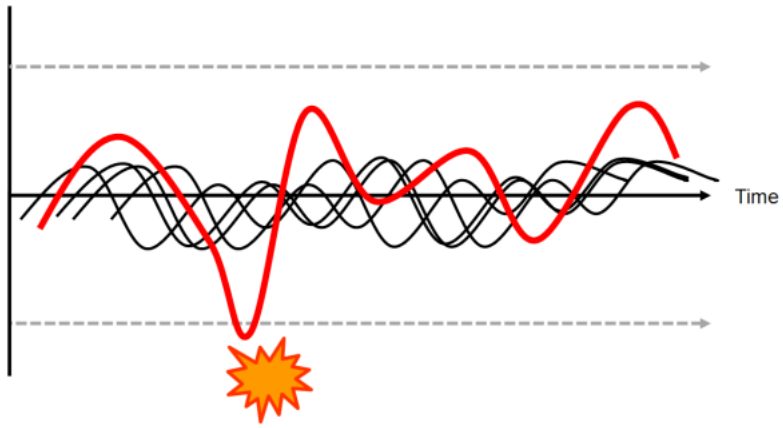
Latent Conditions – The introduction of latent or dormant conditions that are present within the system well before there is any recognizable accident sequence.

This model views the accident to be the result of long standing deficiencies that are triggered by the active failures. The focus is on the organizational contributions to the failure and views the human error as an effect, instead of a cause.

*Systemic Model*

New approaches to accident modelling as brought forward by Hollnagel (2004) in his book *Barriers and Accident Prevention,* adopt a systemic view which considers the performance of the system as a whole. In systemic models, an accident occurs when several causal factors (such as human, technical and environmental) exist coincidentally in a specific time and space. Systemic models view accidents as emergent phenomena, which arises due to the complex interactions between system components that may lead to degradation of system performance, or result in an accident.

This is a complex, non-linear model where both accidents (and success) are seen to emerge from unexpected combinations of normal variability in the system. In this model, accidents are triggered by unexpected combinations of normal actions, rather than action failures, which combine, or resonate, with other normal variability in the process to produce the necessary and jointly sufficient conditions for failure to succeed. Because of the complex, non-linear nature of this model, it is difficult to represent graphically. The Functional Resonance model from Erik Hollnagel uses a signal metaphor to visualize this model with the undetectable variabilities unexpectedly resonating to result in a detectable outcome.




Leveson (2004) in his seminal article *A New Accident Model to Engineer Safer Systems* in Safety Science journal explains the theory behind. Systemic models have their roots in systems theory. In a systems theory approach to modelling, systems are considered as comprising interacting components which maintain equilibrium through feedback loops of

information and control. A system is not regarded as a static design, but as a dynamic process that is continually adapting to achieve its objectives and react to changes in itself and its environment. The system design should enforce constraints on its behaviour for safe operation, and must adapt to dynamic changes to maintain safety. Accidents are treated as the result of flawed processes involving interactions among people, social and organizational structures, engineering activities, and physical and software system components.

**The perspective of Resilience Engineering**

Viewing safety though the lens of complexity theory illuminates an understanding that it is the ability of people in organizations to adapt to the unexpected that produces resilient systems, systems in which safety is continually created by human expertise and innovation under circumstances not foreseen or foreseeable by technology designers.

Resilience Engineering is defined as 'The intrinsic ability of a system to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under expected and unexpected conditions.'

For Resilience Engineering, 'failure' is the result of the adaptations necessary to cope with the complexity of the real world, rather than a breakdown or malfunction. The performance of individuals and organizations must continually adjust to current conditions and, because resources and time are finite, such adjustments are always approximate. This definitive new approach explores this groundbreaking new development in safety and risk management, where 'success' is based on the ability of organizations, groups and individuals to anticipate the changing shape of risk before failures and harm occur.

Erik Hollnagel, a pioneer of the Resilience Engineering perspective, has explained that accident investigation and risk assessment models focus on what goes wrong and the elimination of "error." While this principle may work with machines, it does not work with humans. Variability in human performance is inevitable, even in the same tasks we repeat every day. According to Hollnagel, our need to identify a cause for any accident has coloured all risk assessment thinking. Only simple technology and simple accidents may be said to be "caused." For complex systems and complex accidents we don't "find" causes; we "create" them. This is a social process which changes over time just as thinking and society change.

It is to be noted that it is not just to be able to recover from threats and stresses, but to respond appropriately to both disturbances and opportunities – a change from 'protective safety' to 'productive safety' – thereby leaving the sterile discussions and the stereotypes of the past behind. Resilience is about how systems perform, not just about how they remain safe. Hollnagel and other resilience thinking proponents see the challenge not as finding cause. The challenge is to explain why most of the time we do things right and to use this knowledge to shift accident investigation and prevention thinking away from cause identification to focus on understanding and supporting human creativity and learning and performance variability. In other words, understanding how we succeed gains us more than striving to recreate an unknowable history and prescribing fixes to only partially understood failures.

**Cause and Effect Relationships - & pitfalls**

Although generally accepted as the overarching purpose of the investigation, the identification of causes can be problematic. Causal analysis gives the appearance of rigor and the strenuous application of time-tested methodologies, but the problem is that causality

(i.e., a cause-effect relationship) is often constructed where it does not really exist. Investigators look backwards with the undesired outcome (effect) preceded by actions, which is opposite of how the people experienced it (actions followed by effects).

A true cause and effect relationship must meet the requirements of (a) The cause must precede the effect (in time); (b) The cause and effect must have a necessary and constant connection between them, such that the same cause always has the same effect.

This second requirement is the one that invalidates most of the proposed causes identified in accident investigations. As an example, a cause statement such as "the accident was due to inadequate supervision" cannot be valid because the inadequate supervision does not cause accidents all the time. This type of cause statement is generally based on the simple "fact" that the supervisor failed to prevent the accident.

In a complex socio-technical system involving people, processes and programs, the observed effects are usually 'emergent phenomena' due to interactions within the system rather than 'resultant phenomena' due to cause and effect. Since accidents do happen, there are obviously many factors that contribute to the undesired outcome. These factors are often identified by missed opportunities and missing barriers which get miss-labelled as causes. The investigation should focus on understanding the context of decisions and explaining the event. In order to understand human performance, one must not limit oneself to the quest for causes. An explanation of 'why people did what they did' provides a much better understanding - and with understanding comes the ability to develop solutions that will improve operations.

**Human Performance Considerations in the context of Work**

According to the DOE Handbook on *Accident and Operational Safety Analysis* (2012), workers have knowledge, but the application of knowledge is not always straight forward because it needs to be accurate, complete and available at the time of the decision. Goals and knowledge combine together to determine the worker's focus. These influences and differences include:

- Organization - actions taken to meet management priorities and production expectations;
- Knowledge - actions taken by knowledgeable workers with intent to produce a better outcome;
- Social – actions taken to meet co-worker expectations, informal work standards;
- Experience – actions based on past experience in an effort to repeat success and avoid failure; Inherent variability – actions vary due to individual psychological & physiological differences;
- Ingenuity and creativity – adaptability in overcoming constraints and under specification.

The result is variable performance. From the safety perspective, this means that the reason workers sometimes trigger an accident is because the outcome of their action differs from what was intended. Conversely, successful performance and process improvement also arises from this same performance variability. Expressed another way, performance variability is not aberrant behaviour; it is the probabilistic nature of decisions made by each individual in the organization that can result in both success and failure - emerging from same normal work sequence. In accident investigations, performance variability needs to be acknowledged as a characteristic of the work, not as the cause of the accident. Rather than simply judging a

decision as wrong in retrospect, the decision needs to be evaluated in the context in which it was made.

**The Fifth Age of Safety**

It has been suggested by Borys, Else & Leggett (2009) in *The Fifth Age of Safety: the Adaptive Age*, in the Journal of Health & Safety Research & Practice, that we are living in the fifth age of safety. The first was a technical age, the second a systems age, and the third a culture age. Metaphorically, the first may be characterized by engineering, the second by cybernetics and systems thinking, and the third by psychology and sociology. The fourth age, the "integration age," builds on the first three ages not abandoning them but blending them into a trans-disciplinary socio-technical paradigm, thus prompting more complex perspectives to develop and evolve. The fifth age is an "adaptive age." It does not displace the former, but rather transcends the other ages by introducing the notion of complex adaptive systems in which the roles of expertise, professional practice, and naturalistic observation attain primacy in resolving the duality of "work-as-imagined" versus "work as done."

The adaptive age embraces adaptive cultures and resilience engineering and requires a change in perspective from human variability as a liability and in need of control, to human variability as an asset and important for safety. Embracing variability as an asset challenges the comfort of management. However, the gap between work as imagined and work as performed and the failure of OHS management systems and safety rules to adequately control risk mean that a new perspective is required.

What is important to remember is not that individuals in organizations make mistakes, but that mistakes themselves are socially organized and systematically produced. The accidents have systemic origins that transcended individuals, organization, time and geography. Its sources are neither extraordinary nor necessary peculiar. Instead, its origins are in routine and taken for granted aspects of organizational life that create a way of seeing – that was simultaneously a way of not seeing.

The most important contribution of this new version is the reminder that tools are only mechanisms for collecting and organizing data. More important is the framework; the theory derived from research and practice, that is used for interpreting the data.

This version thus challenges future investigators to apply analytical tools and sound technical judgment within a framework of contemporary safety science and organizational theory.

# ANNEX C

# AGENDA ITEM 5 – Safe Shipping of Solid Bulk Cargoes

**Presented by Jim Scorer, Secretary General**

**Author: Dr. Tim Evans, Rio Tinto Zinc**

## Dynamic Separation & resulting Free Slurry Surface Effect

## Introduction

The shipping of solid bulk commodities is paramount to the world's development and economic prosperity. Ensuring these cargoes safely reach the end user is most importance. Since 2011, Rio Tinto (RT) has been deeply involved in understanding how solid bulk cargoes behave during ocean transportation, especially identifying any cargo instability due to moisture.

- The work first started with an investigation into the behaviour of iron ore fines, conducted via the Iron ore Fines Technical Working Group (IOF TWG). This work was submitted to the International Maritime Organisation (IMO) to assist with policy formulation for the carriage of iron ore fines.

- Following this work, the Australian coal industry, embarked on a study to understand the behaviour of coal during shipping, again leading to assisting the IMO with policy on the safe shipping of coal.

- Recently, bauxite has also been investigated via the Global Bauxite Working Group (GBWG) with the outcomes utilised by the IMO to develop policy to ensure the safe shipping of bauxite.

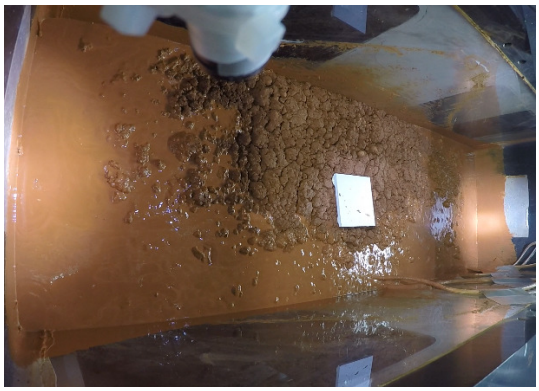
ClassNK is a ship classification society and has contributed to the Japanese IMO delegation supporting Japan's competent authority. It has held a great interest in understanding the issue of possible ship instability due to high moisture of solid bulk cargoes such as nickel ore. ClassNK and RT entered into a Collaboration Agreement in 2013 under which a joint study into the behaviour of solid bulk cargoes during shipping was undertaken. The collaboration included dynamic centrifuge physical modelling, where the impact of the ship's rolling motions and cargo properties on the stability of the solid bulk cargoes was investigated. The outcome of the joint study has contributed to IMO policy formulation for bauxite in 2017.

The cumulative knowledge developed over the course of these investigations, including the RTClassNK collaboration project using the dynamic centrifuge, has resulted in a better understanding of cargo instabilities due to moisture and the resulting effect on a vessel's stability. This has profound safety implications for the vessel, its Master and crew.

## Dynamic Separation

The dynamic centrifuge tests showed that some cargoes do not liquefy in the classical sense; however they do exhibit an instability due to moisture whereby the cargo dynamically separates to form a drier, compact and competent solid bulk over which a free slurry surface forms. If the cargo is fine enough, wet enough and experiences enough forces from vessel motions, the cargo will undergo dynamic separation, expelling water to the cargo surface as the cargo pile slumps. The final worst case result is the formation of a dense free slurry surface covering the full width of the vessel hold. This free slurry surface has serious implications to a vessel stability.

Cargo Before Dynamic Separation



Cargo After Dynamic Separation

***Dynamic Separation occurring in Solid Bulk Cargo when moisture and fines content are high and vessel motions are large***

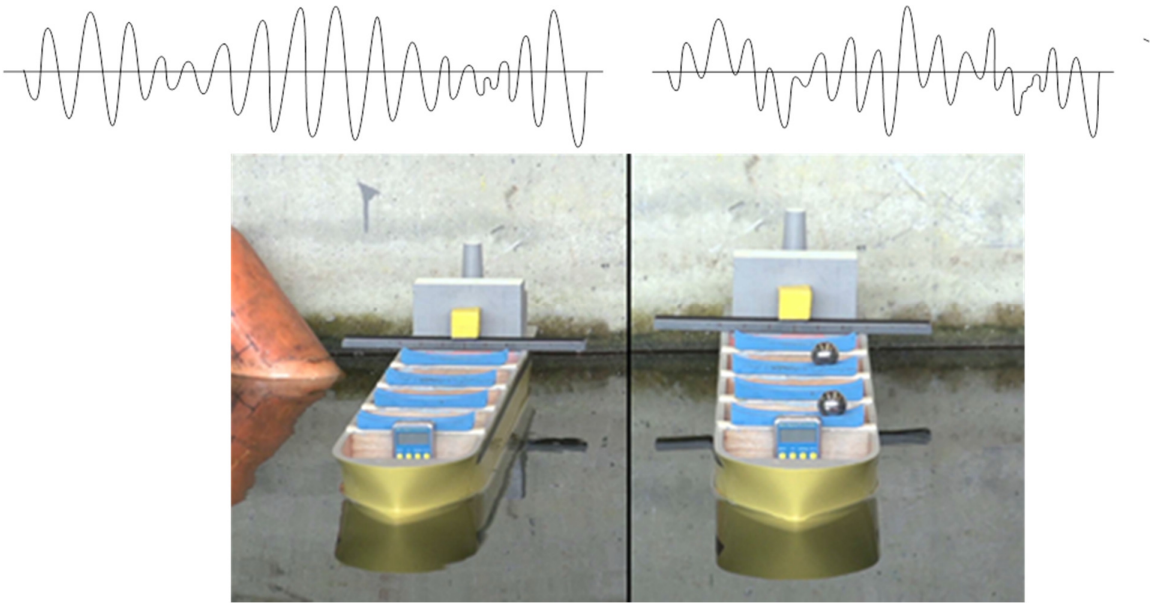
## Free Slurry Surface Effects

To understand the vessel's response to dynamic separation of the cargo and to be able to accurately ascribe the mechanisms leading to catastrophic failure, incidents where vessels had been lost due to cargo liquefaction where assessed, as outlined by the GBWG. Typically, it is the accounts from any surviving crew that are critical to understanding the process leading up to failure. In most accounts,

- the first sign there was an issue was when the crew noticed the vessel's unusual response, typically its rolling behaviour.
- Soon after this, the vessel would develop a list that would progressively increase over a period of at least an hour, sometime days.
- Finally at some point when a list of 15 degrees or more had been reached, the vessel would capsize in a matter of minutes.

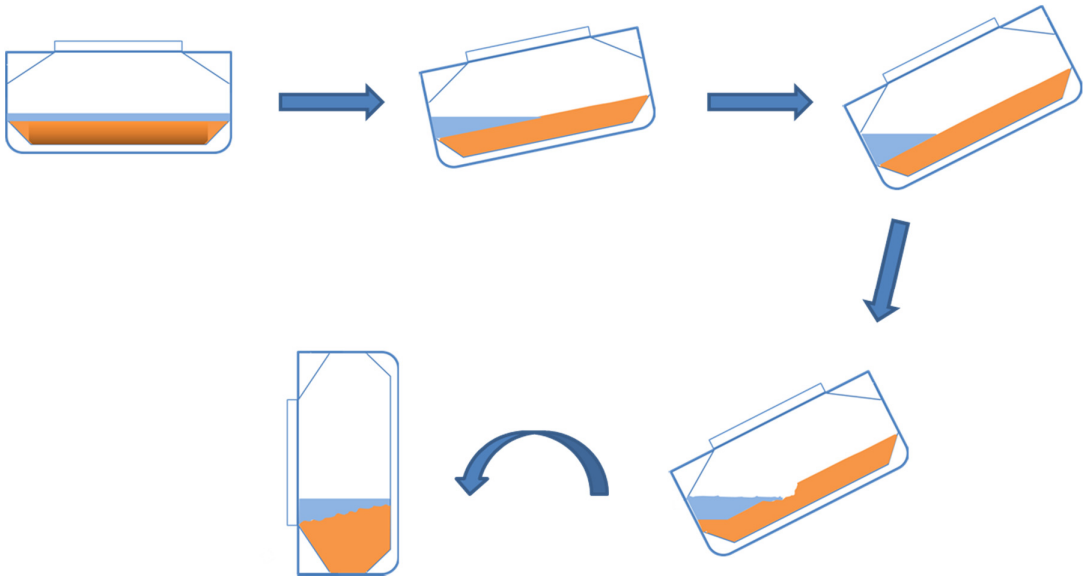
These accounts point to a two stage process of failure. The first being the steady development of a list and the second being rapid capsizing. Any cargo instability due to moisture that arises should be able to explain the vessels behaviour. Under the classical liquefaction model this is difficult to explain, as the cargo liquefies it shifts during any rolling motions causing rapid capsizing. However, the dynamic separation phenomenon with the formation of a free slurry surface can explain this two stage process leading to vessel loss.

The free slurry surface affects the static stability of a vessel by effectively reducing the vessels GM. This depends upon the density and height (amount) of the slurry formed, the width the slurry can move in the hold and the number of holds that form a free slurry surface. If one or more holds have a free slurry surface that covers the full beam of the ships hold, then the vessel's GM will be significantly reduced and an unstable state will result. In this condition the vessel may still be upright but its response to waves will be atypical and its normal rolling motions will have an overriding wobbling motion due to the free slurry surface. This is the first sign something is wrong and the crew and Master will "feel" this behaviour. As the vessel's GM approaches zero, the destabilising effect of the free slurry surface will be counteracted by the vessels righting moment (the vessel wants to be stable) and the vessel will develop a list to regain static stability. The amount of list developed depends on the slurry density, the depth of the slurry, the width of the slurry and the number of holds containing a free slurry surface.



*1:185 Handymax model showing normal roll response and "wobbling" due to free slurry surface effects (ball bearings)*

Once listed and still experiencing rolling motions, the free slurry surface can erode the underlying competent solid cargo, causing it to be deposited to the lower side of the cargo hold, thereby exacerbating the list. Furthermore, the exposed competent solid cargo that is on the high side can be under eroded. At this point, the high side cargo can easily avalanche as its angle of repose has been exceeded by the erosion action of the free slurry surface, causing a catastrophic cargo shift which results in the vessel quickly capsizing.



*Schematic of free slurry surface effect leading to firstly a vessel list, and then to a rapid catastrophic capsizing*

## Key message

Under the traditional cargo liquefaction model, only by ensuring compliance before the cargo is loaded can any risks due to cargo liquefaction be mitigated. If a cargo is mis-declared and the vessel sails, the Master and crew have no advice or potential recourse, and the cargo may liquefy, causing the cargo to rapidly shift and the vessel to capsize.

Under a dynamic separation model of cargo instability, ensuring compliance before the cargo is loaded still mitigates the risk any instability occurring. However, if the cargo is mis-declared or incorrectly declared and the vessel sails, and the Master and crew are educated about the potential signs of cargo dynamic separation and its influence on the vessels behaviour, the Master and crew can now develop mitigation strategies. At the first sign of unusual vessel rolling motions, the crew now know that something is wrong with the cargo's stability.

- They can act to firstly reduce vessel motions and input forces to the cargo to prevent further cargo separation.
- The crew can get ready to abandon ship early as they know what is happening.
- They can seek refuge if possible or let others know they have issues and may need assistance.
- They could potentially start with measures to increase the vessels GM and regain stability and prevent a list from developing.

The main point is there are now a set of actions that could possibly be taken.

This new understanding of cargo instability due to moisture and how it affects the vessels stability needs to be circulated to the maritime community.

RT and ClassNK believe that this information is paramount to ensuring the safety of all mariners regardless of the cargoes declaration (Group A, B or C). If a cargo is mis-declared or incorrectly declared, and the Master and crew notice any unusual behaviour in the vessels response, urgent actions to prevent loss of life must be implemented.

The vessel and cargo may not be saved, but these can be replaced, however the irreplaceable lives of the Master and crew no longer should be lost. In the event of any future incidents, it is hoped that the Master and crew will find safety as they were aware of this information.

## References

More detailed information is/will be available at the following websites:

AMSA video: https://youtu.be/zdyrQSypPBQ
ClassNK Research Institute: http://www.classnk-rd.com/
ClassNK website: http://www.classnk.or.jp/hp/en/research/rd/index.html
For further technical information please contact Dr T Evans - tim.evans@riotinto.com

# ANNEX D

# AGENDA ITEM 7 – Ballast Water Management

**Presented by Marcel van den Broek, Nautilus International, Netherlands**

Ships have been transporting ballast for thousands of years. In the days of wooden ships, solid ballast, normally stone, was carried. However, since the advent of the iron and steel hulled ship, ballast has been carried in the form of water.

As the size of the world fleet and that of individual ships has increased, so too has the quantity of ballast water transported around the world. When you consider that the Emma Maersk has capacity for up to 60,000 tons of ballast water, it is no surprise to learn that today, it is estimated that more than 10 billion tons of ballast water is carried around the world annually.

As ships fill their ballast tanks with water, they also take in the organisms living in the water which can include small fish, fish larvae, crustaceans, algae invertebrates and even viruses and bacteria which can become problematic when they are discharged into a new area once the ship reaches its destination.

Most of these hitch-hikers do not survive the journey to the new area, but occasionally some do and if aggressive or fast reproducing, they may become invasive by outcompeting local flora and fauna.

In these new surroundings, an introduced species may not have the same limitations on their population that they had in their previous environment such as predators, grazers or parasites.

In these instances, the newly introduced species can expand unhindered and have a large and detrimental effect on the new host ecosystem, displacing existing species either through predation or food competition which in turn can affect the productivity of fisheries and aquaculture, as well as the economy and livelihoods of those dependent upon the areas biodiversity.

High profile examples of such infestations include the Comb Jelly which wiped out the anchovy industry on the Black Sea and, the European Zebra Mussel on the Great Lakes of the United States. It is estimated that these invasive species are responsible for about 137 billion dollars in lost revenue and management costs each year in the United States alone.

Unfortunately, detecting initial incursions of potentially damaging species requires considerable monitoring efforts and the eradication of even a small population from the confines of a small harbour or estuary requires an intensive and costly effort. In fact, there have only been a handful of successful cases of eliminating an invasive species reported so far which included using chemicals to eliminate all life in an Australian marina at the cost of over 2 million Australian Dollars. In effect, prevention is the only solution as in most cases, attempting solve the problem after the event is not possible.

Although the problem of invasive species carried in ships ballast water has gained significant publicity in recent years it is by no means a new issue.

Scientists first recognised the signs of an alien species introduction after the mass occurrence of an Asian phytoplankton algae in the North Sea in 1903 but it was not until the 1970's that the scientific community began reviewing problem in detail and not until the late 1980's that countries that were experiencing particular problems with invasive species brought their concerns to the IMO.

This resulted in the introduction of guidelines to address the issue in 1991 followed by a resolution to develop mandatory provisions in 1993.

After 14 years of complex negotiations between member states, the Ballast Water Management Convention was finally adopted in 2004. In his opening address to the conference, the secretary general stated that the new convention would represent a significant step towards protecting the marine environment for this, and for future generations. "Our duty to our children and their children cannot be overstated" he said, "I am sure we would all wish them to inherit a world with clean, productive, safe and secure seas – and the outcome of this Conference, by staving off an increasingly serious threat, will be essential to ensuring this is so."

However, as we now know, the story did not end there. The convention did not meet the required number of ratifications for a further 12 years with the ratification by Finland dragging it over the line to meet the required 35% tonnage in September 2016 – triggering the entry into force one year later.

But even then, the delays continued. At MEPC 71 held in July last year, the shipowners successfully argued for yet another delay in the deadline for fitting a ballast water management system, meaning that some ships will not have to comply until as late as 2024 – a full 20 years after the adoption of the convention, more than 30 years after it was agreed to put in place mandatory measures and, one hundred and twenty-one years after the problem was first identified.

Undoubtedly, further irreparable damage has been caused in the intervening years that would have been prevented if flag states and ship owners had not taken such an obstructive position and instead had given the convention their backing and implemented earlier.

However, we are we are and the most important thing now is to ensure effective implementation and enforcement going forward to protect the marine environment and ensure that there are no unintended consequences emanating from the requirements of the convention.

As previously stated, by 2024, it will be a requirement for all ships to have a type approved Ballast Water Management System (BWMS) installed.

A variety of systems have been approved to date that utilise a range of different technologies either singularly or in combination. These can be split in to two broad categories, namely systems which use mechanical or physical means of treating the ballast water, such as filtration or UV light treatment, and; those which render the organisms inactive through chemical treatment.

Whilst there are a number of systems available that rely on physical treatment methods, they tend to have the downsides of high energy consumption, performance problems in waters of high turbidity and the length of time required for treatment.

For these reasons, a large proportion of available systems use active substances, and here lies the potential for unintended consequences.

Systems that use active substances in order to achieve compliance with the Convention must be assessed under the G9 guidelines to ensure that the ballast water management system does not pose an unreasonable risk to the environment, human health, property or resources. However, there are concerns as to the efficacy of this process and doubts as to whether this requirement can be achieved in practice.

Active substances used in BWMS come in two general types which are oxidising and non - oxidising. Of the systems type approved so far, the majority use oxidising agents. Systems based on chlorine predominate, followed by ozone, peracetic acid and chlorine dioxide.

If we consider the two most commonly used substances, the potential for harm to the crew if accidental exposure occurs is obvious – as is the potential for damage to the marine environment if these chemicals are released in sufficient concentrations.

Chlorine and ozone are both substances that are toxic to humans. Most harmful chlorine exposures are the result of inhalation and can result in symptoms ranging from difficulty breathing and eye irritation to very serious conditions such pulmonary edema (fluid build-up on the lungs) and likewise, excessive exposure to ozone can result in severe lung injury or even death.

The potential for exposure to the chemicals to occur is not limited to the handling of the substances by crew but could also include spillages due to malfunction of the equipment, the inhalation of spray during de-ballasting operations, during sampling of the discharge water and during the inspection and cleaning of ballast water tanks that have previously contained treated seawater.

In fact, a study carried out by the US Navy in 2005 showed that it is possible for gas bubbles to form within the sediment and mud carried in ballast tanks. Even if it were possible to completely ventilate the ballast tank, which in many cases it is not due to the non-availability of sufficient equipment and hoses, there is a possibility that the gas may remain in solution in the mud. This could give rise to the situation where it assumed that a tank is free of gas but when the tank has been closed for some time, the gas could be released from the mud and now become a potential danger to the crew. It is worth bearing in mind that regular cleaning of ballast tanks is necessary in order to ensure treated water is not contaminated and, is a mandatory part of the ballast water plan required under the US Coast Guard's requirements.

On top of this, there is even the possibility of the general public being exposed if they swim in an area where ballast water has been discharged.

These risks have been identified and guidance is in place aimed at mitigating them however, as is normally the case, the guidance is vague and relies on risk assessment which invariably is in the eye of the beholder.

In terms of the environmental risks associated with the discharge of these chemicals, research has been produced which is highly critical of the test procedures in place to ensure that the discharge is not environmentally damaging. In fact, it has been described as over simplistic and not adequately reflecting the complex reality of real world scenarios.

Beyond the obvious risks associated with the active substances themselves, there is the potential for additional risks to be introduced which are less well understood.

When these strong oxidants are introduced to the ballast water they not only react with the organisms that are to be deactivated but also with a number of other components of the water to produce a potentially nasty cocktail of chemicals known as Disinfectant By-Products (DBP's).

The long-term effect of these products both on the marine environment and on human health is unknown. The IMO type approval test relies on determining if an organism has died in a specific time frame as a result of exposure to discharged ballast water to determine if the discharge is toxic and measures aimed at protecting the crew only consider direct exposure to the active substance. No consideration is given to the potential for build-up of these chemicals over time.

We do not need to look far to find examples of where measures aimed at protecting the environment have actually had an unintended detrimental effect. In shipping, the addition of "booster biocides" to anti fouling paint in response to the banning of TBT (TriButyl Tin) based paints is one such example.

In terms of human health there are many examples (thalidomide/asbestos) of adverse health effects manifesting themselves many years later.

To summarise, the ratification of the ballast water management convention is a welcome and necessary development. As the then Secretary General of the IMO said some 14 years ago – we have a duty to our children, and our children's children. However, positive action is required to ensure we do not leave those generations with a whole raft of new problems that we may not have even imagined yet.

History has shown us that the potential unintended consequences discussed often take many years to manifest themselves. We cannot afford to wait that long and we certainly cannot afford to wait another 120 years for anything to be done about it when any problems do become apparent.

Research needs to be carried out to identify any potential risks and immediate action needs to be taken as when they are identified. In the meantime, companies and manufacturers need to take ownership to ensure that crews and the general public are sufficiently protected. This includes ensuring that proper instruction is given in the safe use and maintenance of the equipment.

In discussions with ship masters, we have heard that many ships are now being fitted with ballast water management systems however, in almost all cases it is reported that the systems are installed with little or no information being given to the crew. This is not only an unacceptable safety risk but also puts the vessel at risk of detention. It has been agreed that during "experience building phase" that there would be no penalisation in the event of not meeting the discharge standard but this only applies if the equipment is operated in accordance with manufacturer instructions – something the crew are unlikely to be able to do without any training!

Whilst the responsibility undoubtedly lies with the owner, it will once again be the master that inevitably bears the brunt of their actions.

Well that brings my presentation to an end. The entry into force of this convention was a long and torturous process. We can only hope for the sake of the environment and of the crew onboard that the implementation is somewhat easier.

# ANNEX E

# AGENDA ITEM 8 –

# Cyber Security & Traditional Navigational Skills

**Presented by Dimitar Dimitrov, Bulgarian Shipmasters' Association**

Cyber security and cyber security breaches are the most modern threats on board commercial ships. There are already a lot of cases reported in breach of communication between ships and shore, GPS failures, etc. And the industry made its traditional steps to prepare guidelines on cyber security, to include the problem in the contingency plans, in the safety management system and security plans for the ships and companies. There is just one thing missing in all the process – the mentality of the personnel.

We all used to stay in front of our computers, to wake up in the morning with our Facebook and Twitter updates and to check our mails before doing anything else any single day. In general one cannot progress if he does not follow the recent technologies. The technology makes life easier and more effective and efficient. But, what if we lose connection to the network and/or the mail does not reach the recipient? Are we prepared how to proceed?

I'll not repeat all the measures written in the guidelines or various companies' procedures but I'll try to stick on the human element. Nowadays we have more and more information and our problem is to find enough time and resource to get acquainted with it. And in a way we started ignoring some of the traditional skills used on board ships as they are no more in use. One simple example is more than indicative. There was mass spoofing attack involving over 20 vessels in the Black Sea in June 2017 as reported in the Maritime Executive by Dana Goward. Finally nothing happened, the operation of GPS had been restored and everything went fine. But it could be worse. Imagine that the ship is approaching a port or she is going to pass shallow water area and her position is not accurate. Do we really have alternative to GPS and are the nowadays officers on the bridge and young shipmasters able to plot the ship's position in traditional ways and to take the right decision to avoid incidents? Electronic charts are already compulsory and even if the officers are able to take bearings and distances with the radar or visual bearings through the compass repeater and distances with any measuring device, could they plot the position and could they do it in ample time to take the proper decision and to navigate safely. There is general and specific training in ECDIS compulsory for all the deck officers and in theory they should be able to do this. It comes to my mind how often the officers are using the above said options for training in order to be ready to do that in case of necessity. Even if included in the safety management system training in the modern busy shipping a lot of exercises are done automatically or even the ticks in the boxes are usually done with the explanation "That's very easy to do, I do not need to train it in reality, and I'll do it when necessary." In our modern world we skip a lot of minor activities to save our time and it becomes a habit to do it. Unfortunately there are enough emergencies and investigations showing omission of such simple activities leading to groundings, collisions in clear weather and good visibility simply because of loss of situational awareness. The only reason is absence of traditional skills to plot ship's position, to evaluate it immediately and to take the proper action or in general most of modern seafarers do not have at hand the next step if there is failure in ship's electronics.

Going a bit further we come to the change of style of life in our modern society. Usually we neglect the probable threats and dangerous situations with the simple explanation that "Will it happen now or to me in this moment?" And with all the modern equipment and facilities fatalities still happen and the reasons are more trivial than years before. Typical cases are heavy collisions during 2017 involving big navy ship and large container carrier in the Far East with loss of lives of seamen and huge material losses, a lot of groundings and collisions, etc. How to improve the situation or to reduce the risk of incidents due to human error? Most probably we have to come to the basics starting from the education of seamen. How many of nowadays officers and seamen are able to splice a wire rope or fiber rope. The ropes come on board spliced. And how many seamen graduating their basic qualification or officers graduating merchant academies at the time of graduation and completion of their apprenticeship are able to do it? Without making representative research on that I would answer "no more than ten percent of the entire number", maybe less. The students in the merchant academies prepare their lessons using internet and the web. It is more than normal to use those possibilities. The academies are saving money reducing real practice and students are not obliged to go to the severe conditions in practice. They stay in front of computers, watch the screens and learn everything. And very often they forget it immediately. In my green years there was no GPS system on board commercial ships and satellite systems when available on board large ships gave ships' positions once during four hours watch. When sailing close to the shore we had nothing to do but to take bearings using radar or the compass repeater and to plot the ship's position on paper chart. It was routine and in case of emergency all of us were able to do it immediately without any doubt. It is not the case today. Even if some of the old fashioned professors insist on the above mentioned knowledge, there is no time during the educational process and there is no time when the youngsters go on board the ships, busy with daily routines and busy schedules of ships. More to that, examinations more and more are simple tests done on computers and there is no practical examine done by qualified professional ashore. The reliance on shipmasters on board ships is really very sketchy as the masters are 25 hours out of 24 busy. A comprehensive research on masters' time use made from Danish nongovernmental organizations showed 75 percent of his time the shipmaster is occupied by administrative burdens and pure navigation is less than 20 percent. Unfortunately it's more or less the same with the time of officers. More and more the young professionals accept navigation as computer game but unfortunately they do not realize that they have no more than one life on board the ship. Nowadays most of the shipmasters are already from the above mentioned generation and traditional skills disappear little by little.

Further worsening of the situation comes from the fact that most of the companies are owned and managed in the industrialized countries and crew is provided usually from the third parties/ countries and the managers make everything good on paper but they do not care too much till accident happens. Most of the nowadays managers are without maritime background or they have one or few voyages as junior officers. Without experiencing the responsibility one can hardly understand the need of traditional practical knowledge and skills in case of emergency.

What have to be done to change that not so good trend? First of all, when discussing safety of life and pollution matters, we have not to look at the financial aspect solely and primary. In the period of prolonged crisis in shipping industry finances are important but in long term solving today's problems cutting the educational, training and safety expenses is really killing the good practice and will create huge problems in the future and future generations will not be able to understand where problems come from. Deepening of the gap between management and labour supplying countries is worsening the situation. Decision making and

management people are going more away from real problems of crew members on board ships. Thus safety culture and need of safeguarding traditional skills is becoming more important for the future of the industry. One could say that autonomous ship conception will solve these problems. Automation is really important tool to improve safety and new technologies should be used. But the traditional skills still do not have alternative and something more, the developers of the autonomous ships will need the knowledge on traditional skills to create necessary tool to navigate the ships. And the managers need to have knowledge on traditional skills to manage the entire process properly.

# ANNEX F

## Extra Paper – Not Presented

## Plastic Odyssey: Exploring solutions to plastic pollution

*Author: Simon Bernard, Plastic Odyssey Expedition*

Our oceans are home to more than 700,000 species and are vital to human health, providing jobs and food to billions of people. Half of the oxygen we breathe comes from the oceans. This indispensable resource and common need is threatened by massive anthropogenic assault. Pollution from petroleum products such as plastic is among the most critical. Every day, around 30,000 tons of plastic are dumped into the sea. Fortunately, solutions to this global issue already exist, they just need to be spread around the world.

**"10 million tons of plastic enter our oceans every year"**

At this pace, scientists predict that by 2050, plastic in the oceans will outweigh fish. This accumulation of debris – bags, bottles, nets, and different forms of packaging – is gradually transforming our oceans into open dumps.

**Once at sea, it's too late**

A few initiatives are now being initiated to clean up the oceans directly, unfortunately only 1% of this wastes actually float on or near the surface. The remaining 99% sinks or breaks down into micro particles to litter the deep sea, becoming impossible to collect while working their way into our marine food chain. This pollution has a lasting effect on health, climate, and maritime economies.

**"Stop the leakage of plastics at the root"**

While cleaning up the ocean is almost impossible, we can still eradicate the problem at its root cause to prevent further damage. 80% of ocean plastic comes from land runoff; therefore, we need to act on the coasts to stop plastic before it enters the sea.

What if collecting trash was profitable? What if waste was actually a resource? Hundreds of people could collect plastic for a living while cleaning coasts at the same time and stopping plastic from entering the seas.

**Transitional solutions are needed**

Change our consumption patterns, stop the use of packaged products, and choose sustainable alternatives (bio plastics, edible packaging). All these transformations are necessary but require a lot of time. Meanwhile, we need to find transitional solutions.

Today, many solutions are emerging to either reemploy, recycle, or recover plastic waste, but they are either unknown or not adapted to countries most affected by plastic pollution.

**A world premier expedition to highlight and publicise local solutions**

Plastic Odyssey is a world premier expedition on-board a 25 m loa oceanographic vessel transformed into a floating plastic recycling lab. The ship will uniquely be powered by

plastics. Wastes will be harvested onshore during each call, then stored on-board, to finally be transformed into fuel and power the ship's engines.

The vessel will achieve the first round-the-world expedition using plastic waste as a fuel, providing concrete proof that it is no longer necessary to talk about waste but rather about resources.

It will set sail in 2020 to cruise the coasts of Latin America, Asia-Pacific waters and those of Africa, the regions most affected by plastic pollution, during three years of a unique adventure.

**"Innovation and human endeavour at the centre of all concerns"**

Behind this challenge, a panel of plastic-recycling machines is being developed with the help of a community of renowned engineers, industrialists and experts. These machines are as low tech as possible, human-scale and free of patent to be easily improved and replicated. These particularities make them well adapted to emerging countries, the main focus of Plastic Odyssey.

Three principal systems are now being developed:

- a plastic sorting sensor able to help recognize and sort plastic wastes prior to recycling;
- an all-in-one extrusion machine that can recycle plastic into new materials such as bricks or tiles to build houses
- A plastic-to-fuel unit capable of transforming from 500kg to one tonne a day of plastic into fuel. The unit will be self-sufficient in energy and will convert 1kg of plastics into up to one litre of diesel and gasoline.

These technologies will be embarked and tested on-board the vessel before being spread all over the world to initiate human scale recycling factories.

**"Fighting poverty to reduce plastic pollution"**

There is a saying in Africa that "pollution is poverty." Plastic Odyssey's advocacy role is to prove plastic recycling is an economically profitable solution which could solve both pollution and poverty problems at once. Therefore, the economic approach is likely to be the best to make a difference: collect plastic because it is a valuable resource, not just because it is a major concern for the future of our planet.

# ANNEX G

# AGENDA ITEM 22 – Any Other Business 1

## RESOLUTIONS FROM THE 44TH ANNUAL GENERAL ASSEMBLY BUENOS AIRES, AGENTINA, 26TH AND 27TH APRIL 2018

1. Following the increased interest by Members in seeking election to the Executive Council and recognising the need to involve more Members in the running of IFSMA , the Executive Council put forward the following proposal:

**RESOLUTION 44/01**

That the Statutes and Byelaws be amended to increase the number of Vice Presidents on the Executive Council from 7 Vice Presidents to 10 Vice Presidents.

2. Following the resignation of the current Secretary General, Commodore Jim Scorer, the Executive Council, in full agreement , propose that:

**RESOLUTION 44/02**

In order to carry on the work done by the current Secretary Genera in providing full and effective representation of IFSMA at the International Maritime Organisation and take forward the Strategic Plan into the future, the position of Secretary General be recruited on a Full Time basis. To achieve this, there will need to be an increase in annual membership fees to £15 per **Serving** Shipmaster, both afloat and ashore, 2019 with a minimum fee of £1,000 per association and an increase in Individual Member subscriptions to £75, from 31 March 2019. The Executive Council further proposes that the Secretariat will take steps to reduce the running costs of IFSMA where possible and including the Annual General Assembly being replaced by a Biennial General Assembly. The first Biennial Assembly will be held in 2019 and every 2 years thereafter. The next election for the Executive Council will therefore be at the Biennial General Assembly in 2023 and the current Executive Council Members elected in 2018 will, exceptionally, hold office for a single 5 year period.

3. In discussing the above issue the Executive Council were concerned that the current voting system needs to take into account the increased interest by a number of Member Associations in wanting greater influence on the running of IFSMA. Therefore, the Executive Council propose:

**RESOLUTION 44/03**

That Article 16.a, *Voting and the Quorum,* of the Statutes and Bye-Laws be amended as follows:

In all matters requiring a consensus of opinion, all Member Associations shall have:
For every

| | | | |
|---|---|---|---|
| 1 | – 100 | Members | One vote |
| 101 | – 200 | Members | Two votes |
| 201 | - 300 | Members | Three votes |

| | | |
|---|---|---|
| 301 - 700 | Members | Four votes |
| 701 - 1000 | Members | Five votes |
| 1001 - 1400 | Members | Six votes |
| 1401 | Members and above | Seven votes |

A simple majority of those voting shall be sufficient, unless otherwise laid down in the Statutes and Bye-Laws. Voting may be effected in person, in writing or by electronic means. Proxy voting is permissible.

4. In discussing the election and voting process to become a Member of the Executive Council, the 44th Assembly propose:

**RESOLUTION 44/04**

That the Statutes and Byelaws be amended to reflect that nominations for positions on the Council should be lodged with the Secretariat no later than 30 days prior to the declared opening date of the meeting at which the election is scheduled to take place.

5. The 44th Assembly welcomed the proposal to increase the number of Vice Presidents on the Executive from 7 to 10 Vice Presidents. The Assembly unanimously agreed that to carry on the work done by the current Secretary General, provide full and effective representation of IFSMA at the International Maritime Organisation and take forward the Strategic Plan into the future, the appointment of Secretary General should be on a Full-time basis. In making this commitment, the Assembly agreed in principal, that IFSMA will have to raise the increased funding, highlighted in 2 above, but that this should be offset by making savings in the planned Budget, increasing the Membership and by Member Associations declaring their full Membership numbers of serving Shipmasters, both afloat and ashore. Additionally the Assembly agreed that the Annual General Assembly be replaced by a Biennial General Assembly commencing in 2019 and every 2 years thereafter.

6. Accepting the advice from the Executive Council, the Assembly proposed:

**RESOLUTION 44/05**

Resolutions 1 – 4 above all require changes of the Statutes and Bye-Laws which can only be agreed at a General Assembly which is also needed to approve an increase in Membership Fees. In view of the exceptional requirement to agree the above Resolutions following the resignation of the Secretary General , all the Member Associations present at the 44th Annual General Assembly noted the call for a Special Meeting of the General Assembly, proposed by CAMMS, NMOA and Nautilus International (NL) and all others present, to be held as soon as practicable in accordance with Article 17 of the Statutes and Bye-Laws which states that:

> Special Meetings of the General Assembly may be called at the request of at least three Member Associations. It shall be the duty of the Council to give notice of such a Special Meeting as soon as possible after the receipt of the required number of requests in writing and notice of the Meeting and Agenda shall be given in writing at least sixty days before the date of a meeting.

7. Notwithstanding the Assembly's agreement in principal to the above Resolutions, the Assembly asked that the Executive Council should issue these Resolutions with a covering letter explaining the reasons leading to the calling of a Special Meeting of the General Assembly so that Member Associations would have time to consider the Resolutions and give their views to the Executive Council. It was agreed that the President would issue a letter to

the Membership as soon as possible and that a deadline be given for any comments within 30 days of the issuance of the Letter.

END