



2017/18 ANNUAL REPORT OF ASEF/TWG/SWG1

PSPC Review and Biofouling issue

2018. 10. 23

ASEF TWG/SWG1 CHAIR

JONG WOO PARK

2018 ASEF EVENT FROM 22 TO 24 SEPTEMBER IN DALIAN, CHINA

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1. Introduction of ASEF TWG/SWG1

1 Key principle and strategic policies

- Exchange of technical opinions and information on IMO PSPC & Biofouling Management issue through cross industry cooperative activities.
- Preemptive measurement for future IMO PSPC Updating & Biofouling Management
 1. **Sharing advanced knowledge and new technology among Members**
 2. **Feedback to the related industries/bodies** based on the PSPC & Biofouling Management experience
 3. **Collaboration activity** with NACE International for PSPC Review & Biofouling Management
 4. **Cooperative responding with TSCF movement related to future IMO PSPC.**

*Contribution to the work of IMO,
By accomplishing substantial IMO PSPC & Biofouling Management*

1. Introduction of ASEF TWG/SWG1

2 Structure

Sub-Working Group1
[17 Members]

Chairman
Jong Woo Park/STX O&S



[Technical Topic]
1. Update of "Performance Standard for Protective Coating"
2. Biofouling Management

[KOSHIPA_6 member]
Kyung Koo Lee/HHI
Hyun Gap Cho/SHI
Andrew Hwang/SHI
Yong woon Kim/DSME
Jong Hui Baek/HSHI
Boo Yeol Kim/SSME

[SAJ_4 member]
Hideo Obata/Namura
Hideo Shin/Oshima
Hisataka Yamashita
/Sanoyas
One member to be selected.

[CANSI_4 member]
Jiameng Wu/MARIC
Meilin Li/Shipbuilding TRI
Xiangjun Meng/Dalian S.I.C
Xiaomin Wang/Guanzhou
SICL

[TSBA_2 member]
Wasin Wacharapinyo/AMS
Krairerg Hemarat/AMS

2. PSPC Review

1. The summary of Current PSPC Questionnaire activity

1. Time frame : From May to October 2017
2. Survey : Total 30 Question survey
3. Total response : Total 179 responses
4. Organizer : NACE International
 - Ship owner/operator : 22 [BIMCO, ICS, INTERCARGO & INTERTANKO]
 - Ship builder : 79 [ASEF]
 - Classification Society/RO : 6 [IACS]
 - Coating Inspector : 72 [Paint manufacturer, etc.]

ASEF SWG1 Chair did promoted and encouraged Ship builders & Coating inspectors To participate in this activity through seminars and industry meetings.

The purpose is to highlight the areas ;

- ✓ *Where stakeholders' responses indicate consistent areas for satisfaction or improvement on present PSPC.*
- ✓ *There are noticeable gaps in understanding or application.*

2. The result of PSPC Questionnaire

1 Consistent Responses in general

- 1. PSPC is generally exceeding** stakeholder expectations based on past experience with coatings in similar tanks.
- PSPC is generally **consistently interpreted and applied in practice** by different parties.
- 3. The criteria of PSPC coating selection is sufficient** to select an appropriate coating system.

The current PSPC is satisfactory and meets the stakeholder's expectations.

2 Inconsistent Responses in general

1. Discovery of premature coating failure

- Ship owner/Classification : Discovered
- Ship builder/Coating inspector : Undiscovered

2. The ease to which new and beneficial technology can be integrated with PSPC Rule

- Alternative coating systems

3. Coating standard applied to other areas where the present PSPC is not required

4. Secondary surface preparation and stripe coating process are used.

5. Practice or guidance for CTF & Possible template for Technical Data Sheet.

To select the items needed for further study ;

- 1. Working Group within Tripartite members with NACE or*
- 2. Participate with NACE Technical Committee.*

3. Plan for PSPC Review for 2018/19

The result of PSPC Questionnaire was presented by NACE at Tripartite meeting in November 2017 as a first step, and this is now a new development stage.

When it comes to SWG1's concerned items, it is considered necessary for a further follow-up to continue the PSPC Review by collaboration works with NACE.

1. Alternative Coating system

➤ Gathering more information to look into the viability of the process and encourage the use of alternative coating system.

- 1) The details of selected alternative coating system
- 2) When, Where & Which Ship were the alternative coating system applied?
- 3) Which Administrations approved it ?
- 4) The information of Performance degree & estimation compared to epoxy two(2) coating system up to date

2. Identification of premature painting defects discovered

Collecting more details on the premature painting defects

✓ To ensure that the Ships in which the premature failures were found duly complied with IMO PSPC

✓ To further analyze the main causes of premature failures.

- 1) The details of painting defect type
- 2) When, Where & Which Ship were coating systems with potential painting defects applied?
- 3) How old was the coating when the failure of PSPC coating system was encountered?
- 4) How much portion of the area was affected by the failure? ()%
- 5) Which part of the area was mainly affected by the coating failure?

For the above further study, NACE will coordinate with Ship-owners, IACS, IPPIC and within Tripartite stakeholders.

3. Biofouling management

1. IMO CURRENT STATUS

1. **No mandatory international requirements yet. But note;**
2. **Related; “International Convention on the Control of Harmful Anti-Fouling Systems on Ships”, 2001.**
 - Bans the use of AFS that contain poisonous organotin such as TBT,
But, not about transfer of biofouling.
3. **Key document; “Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species”
MEPC.207(62), 2011**
 - Biofouling management plan and Record book
 - Anti-fouling system installation and maintenance
 - In-water inspection, cleaning and maintenance
 - Design and Construction
 - Dissemination of information
 - Training and education



3. Biofouling management

- **Additional following papers issued in support;**

- MEPC.1/Circ.792 (Guidance for small craft), 2012
- MEPC.1/Circ.811 (Guidance for evaluating the 2011 Guidelines), 2013
- MEPC 70/INF.23 (Template for BMP), 2016
- MEPC 72/15/1 (Review of the 2011 Guidelines), 2018

4. IMO; GloFouling Partnerships are launching in the end of 2018 (2018 ~ 2023)

- UNDP, and GEF to collaborate on implementation of the IMO biofouling Guideline.
- Focus on developing nations and industry invited to participate.

- The review of 2011 Guidelines will contribute to IMO Strategic directions.

SD 1 Improve implementation

SD 3 Respond to climate change

SD 7 Ensure organizational effectiveness



3. Biofouling management

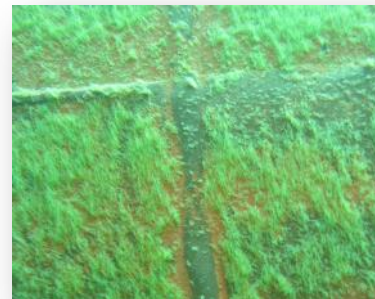
2. Operational considerations for owners By INTERTANKO

1. Antifouling System Selection

- 1) Ship operational profile
- 2) Physical parameters of the coating

2. Biofouling Management

- 1) Hull / Biofouling Management
 - i. Pre-docking / Docking stage
 - ii. Result validation
 - iii. Continuous monitoring
 - 2) Performance monitoring
 - 3) Hull cleaning
 - i. Under Water Hull Grooming
 - ii. Under Water Hull Cleaning
- ▶ BIMCO Guidelines



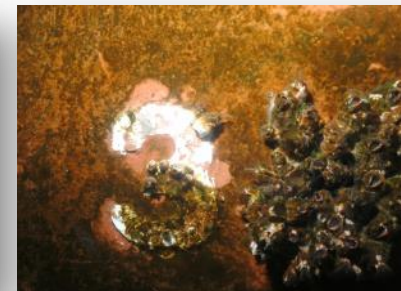
Seagrass



Tubeworms



Tubeworms, algae



Acorn barnacles

3. Global regulatory prospect by IACS

1. According to scientists, likely that the **impact of biofouling is greater** than the impact of ballast water
2. **Increasing number of regulatory initiatives**, both internationally and domestically
3. **Shipping industry** can be expected to **face increasing pressure to manage** the problem better than it does today
4. **Eventual international regulations, agreed at the IMO, would not be unexpected.**

- *Key factors influencing biofouling ;*
 - ✓ *Recessed areas prone to biofouling*
 - ✓ *Ship operation parameters ; Speed, Time moored / anchored*
 - ✓ *Place visited and Trading routes ; Salinity, Temperature, Local ecosystem*
 - ✓ *Ship maintenance history : A/F coating condition, Hull cleaning practices*
- *IACS will continue to engage in the technical aspects of relevant discussions at IMO*

4. Plan for Biofouling management for 2018/19

1. Joint work between ASEF, INTERTANKO and NACE

- Review design options of niche areas for new building designs.
- Information gathering on problem niche areas – enforcement information from NZ and California as well as owner organisations.
- Additional expertise required: e.g. IPPIC and IMarEST, etc.

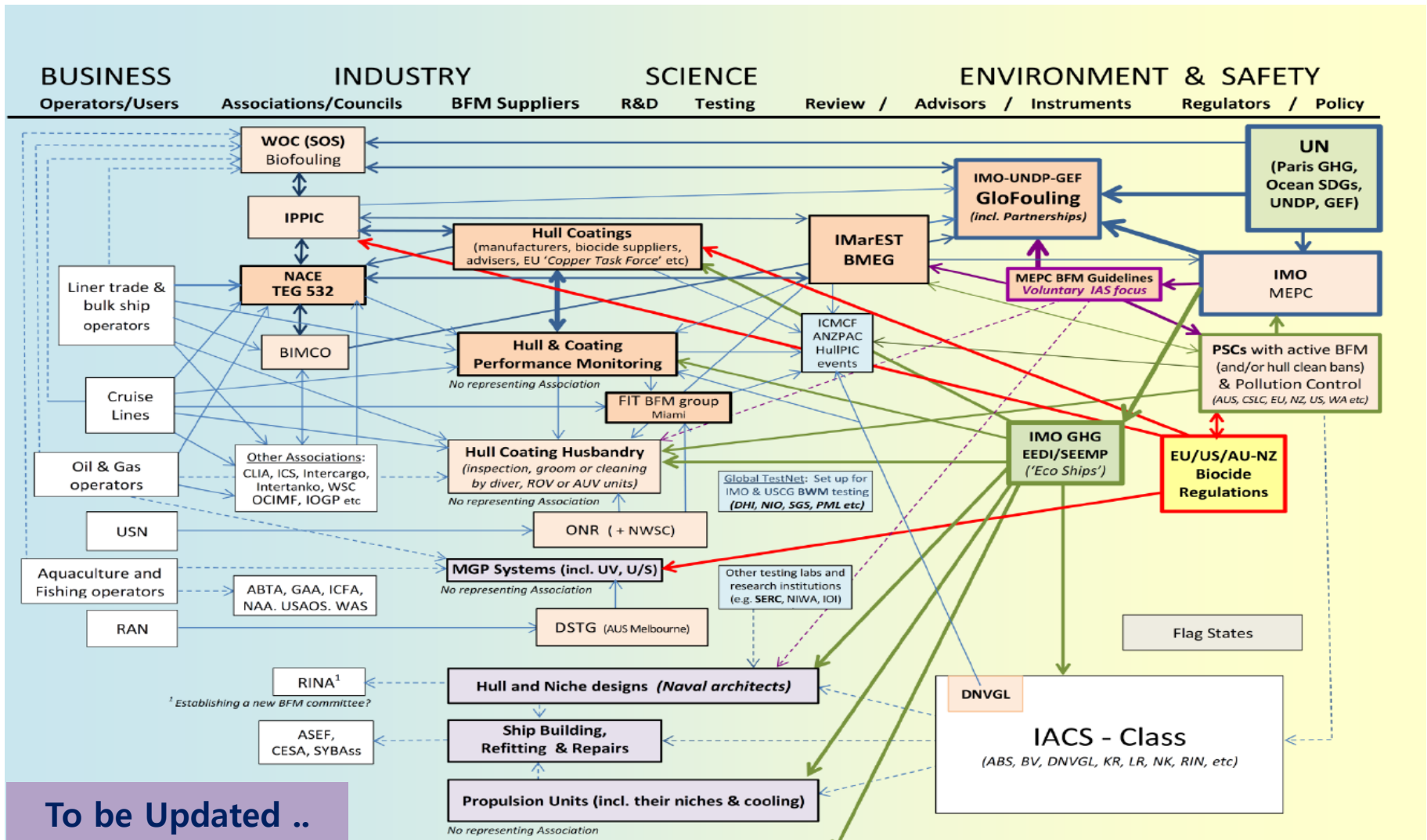
2. Connection between ASEF SWG1 and NACE TEG 532X

- NACE TEG532X was established to address to develop New works on ecological risk of Hull Biofouling issue.
 - Chair : Johnny Eliasson (Chevron Shipping)
 - Vice Chair : Raouf Kattan (Safinah Ltd)

3. Biofouling management

New Start, New Dream!

NACE TEG532X : THE COMPLEX AREAS OF BIOFOULING MANAGEMENT



4. C/Hold Coating in Bulk Carrier

1. IACS Consultation for C/Hold coating in Bulk Carrier

1 Background

1. During the IMO GBS audit of CSR for Construction of Bulk Carrier,

It was observed that requirements for coatings of Cargo holds in B/C do not specify **Target useful life** or **Coating performance standard**.

2. A Project Team established by IACS.

- a) **To identify whether a Coating standard and/or Unified requirement** would be needed for coatings in the cargo hold of B/C; and
- b) If required, **develop a Coating performance standard and/or Unified requirement**.

IACS started consulting with all stakeholders including Coating Manufacturers, Shipbuilders, Ship Owners and Ship Managers to collect the relevant data.

2 Questionnaire Contents

1. General

- 1) Coating maker, Expected service life, type of coating system, No. of Vessel applied
- 2) Type of Cargoes envisaged to transported, Method of Cargo handling
- 3) Description of Coating system, Specified DFT & Max. allowable DFT

2. Surface Preparation, Job Application & Environment requirement

- 1) Steel condition, Blasting and Profile (incl. after Erection), Water soluble salt limit
- 2) Coating application method, Shop primer, Dust, Contamination
- 3) Environment limitation (Temperature & Humidity), etc.

3. Others

- 1) Recommended Maintenance & Repair procedure, Dry dock repair & Re-coating specification

IACS invited us to feedback through the above Questionnaire contents.

2. ASEF SWG1's Feedback remark

SWG1 members are doubtful in seeing necessity to establish a performance standard for cargo hold.

The reasonable performance standard is not likely to be achievable, in terms of practicality as following reasons.

1. The coating condition of Cargo hold is **mechanically and/or chemically damaged** by large variety of cargoes such as coal, iron ore, grain or special cargoes, etc., during Ship's operation.
2. This means that **it needs periodic maintenance and repair practices** caused by unavoidable & crucial mechanical/chemical damages resulting from above external causes.
3. Thus, **it is beyond reasonable considerations to establish target useful coating life**, which heavily depend on operational circumstance and accordingly, **any performance standard is not perfect** to protect coating condition.
4. In conclusion, any attempt to consider such performance standard **will lead to high costs in the first place and it needs continuous maintenance works**. **Eventually**, it will be **a further cost burden**.

4. C/Hold Coating in Bulk Carrier

3. Plan for C/Hold coating in Bulk Carrier for 2018/19

The result of IACS consultation with related stakeholders can be presented in near future.

- **ASEF SWG1, NACE and IPPIC to follow up with IACS on what is driving attention and what action will result.**
- **If attention is needed, it will incorporate into newly created NACE TEG.**

5. TSCF Movement

TSCF Movement related with Future IMO PSPC

December 2017
[TSCF SC41]

1. The work of PSPC GAP Assessment shall continue in 2018 combining all information received to date.
2. Photographs and a case study was shared on the performance of different A/F products.

March 2017
[TSCF WG49]

Discussion and preparation about TSCF IP Revision performed

October 2016
[TSCF S.B.M]

TSCF presented a plan to make an amendment to the TSCF IP

October 2015

Shipbuilders' feedback with comment for TSCF IP was send to TSCF

November 2014

TSCF Information Paper "A Comparison of TSCF and PSPC B.T.Coating Guidance" – Owner's Experiences and Best Practice"

■ *The revision edition to TSCF IP might be published in near future.*

6. Overall Cooperation Framework with NACE

1. Administrative operation for Global Cooperation Agreement

1. Mutually beneficial reciprocities

- Conference/Committee participation,
- Web site hot link & Sharing useful information

2. The establishment of Regular Conference and/or Meeting

3. Coordination of Responsibilities

- The executive functions described in Agreement will be handled directly by designated individual(s) of each organization

Administrative options shall be continuously developed and upgraded with mutual communication.

2. Creation of Reciprocal Technical Committee

1. **NACE Technical committees** evaluate technologies and industry needs that impact the corrosion industry.
2. **ASEF TWG/SWGs members** shall be encouraged to participate in the relevant technical activities
3. **ASEF SWG1 / NACE STG 44 Connection**
 - **NACE STG 44** : Specific Technology Group on Marine Corrosion of Ship and Structure
 - Desire is for the two Groups to collaborate on the topics of IMO PSPC & Biofouling management issue.

ASEF and NACE will be able to develop a new common TEG to address the related topics of Coating & Corrosion issues in IMO.



GEF-UNDP-IMO

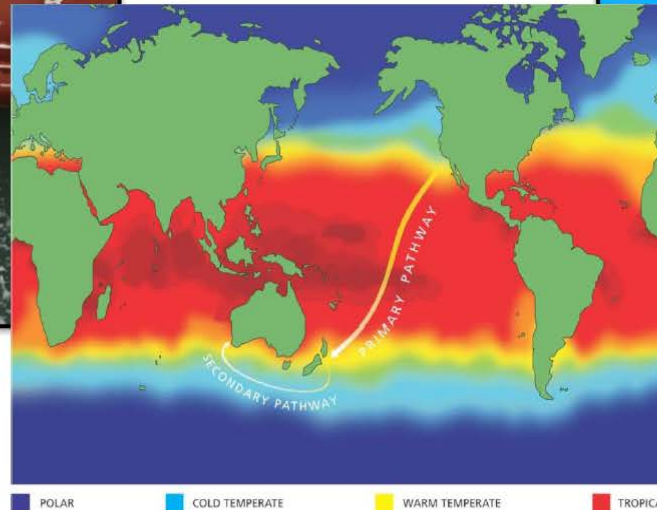
GloFouling Partnerships Project

Project preparation update



Empowered lives.
Resilient nations.

GEF-UNDP-IMO Partnerships: *from Ballast Water to Biofouling*



GloFouling Partnerships Project

Project details

Project funding

GEF grant
USD 6.9 million



co-financing
USD ~33 million



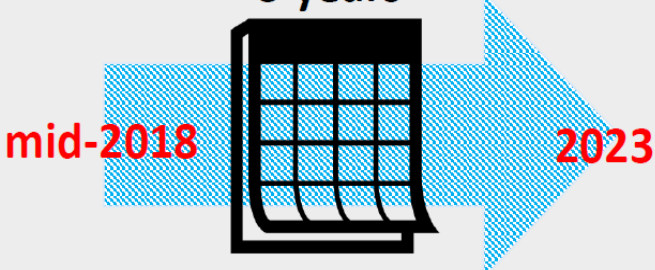
12 countries (LPCs)

LDCs, SIDS



Project duration

5 years



SDG contributions

- 5 GENDER EQUALITY** (Icon: Female symbol with equals sign)
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE** (Icon: Three stacked cubes)
- 13 CLIMATE ACTION** (Icon: Eye with globe inside)
- 14 LIFE BELOW WATER** (Icon: Fish and waves)
- 17 PARTNERSHIPS FOR THE GOALS** (Icon: Interlocking circles)



GloFouling Partnerships Project

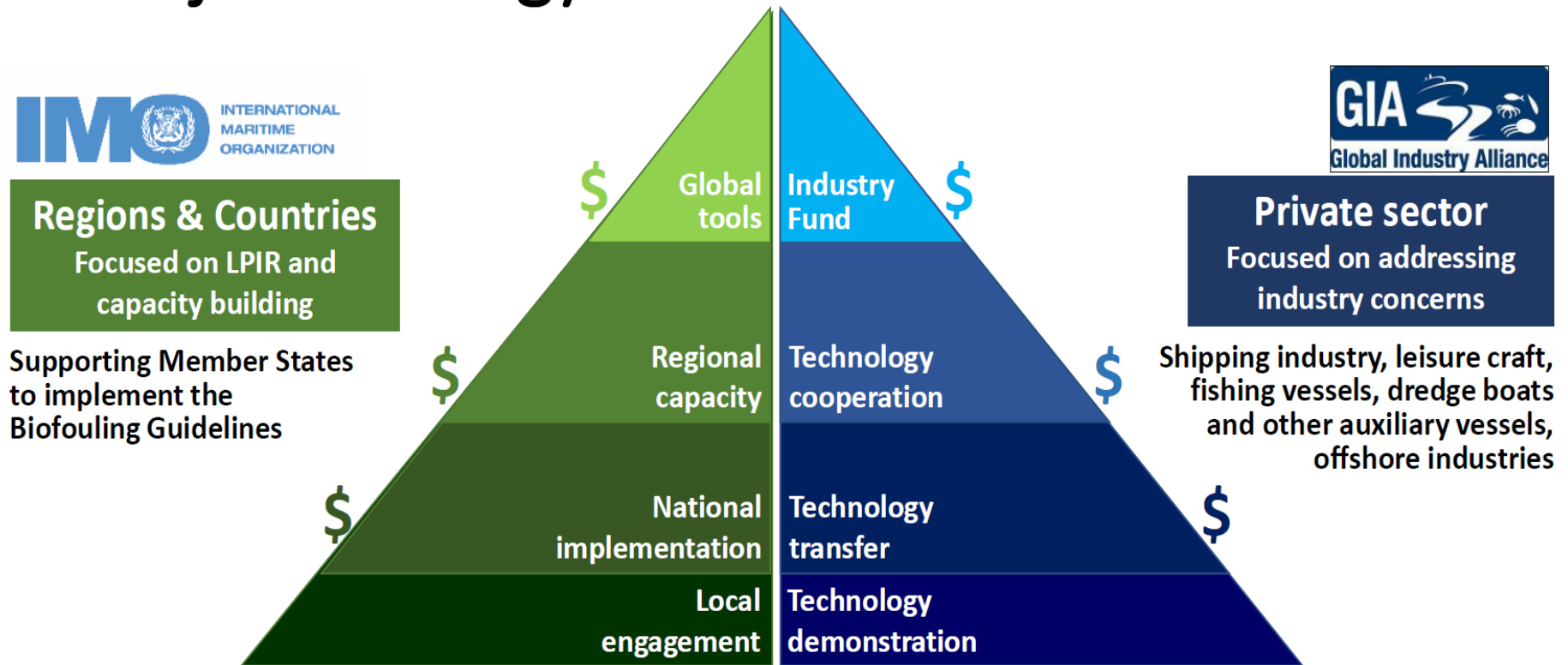
Selection of 12 Lead Partnering Countries (LPCs)



Empowered lives.
Resilient nations.

GloFouling Partnerships Project

Project strategy & structure



“Glo-X Pyramid” Model

GloFouling Partnerships Project



Examples of activities developed by similar projects

Documentaries & awareness raising

Scientific and guidance publications

Development of best practices & regional integration

R&D forums & cluster events

Capacity building: training & elearning course

Public-Private partnerships & technical cooperation



GloFouling Partnerships Project



Thank you for attention!