ICES/UNECE working meeting on Management tools and standards in support of Sustainable Development Goal 14 "Life below water"

ICES Internal Report

9-11 October 2018

MFRI, Reykjavik, Iceland

ICES International Council for the Exploration of the Sea
CIEM Conseil International pour l'Exploration de la Mer

International Council for the Exploration of the Sea
Conseil International pour l'Exploration de la Mer

H. C. Andersens Boulevard 44–46
DK-1553 Copenhagen V
Denmark
Telephone (+45) 33 38 67 00
Telefax (+45) 33 93 42 15
www.ices.dk
info@ices.dk

Recommended format for purposes of citation:

ICES. 2018. ICES/UNECE working meeting on Management tools and standards in support of Sustainable Development Goal 14 "Life below water". 9-11 October 2018. MFRI, Reykjavik, Iceland. 19 pp.

Contents

Welcome address by the NMFRI Director Sigurdur Guðjónsson **2**

Thematic presentations: **3**

Lessons learned **5**

Recommendations for management and for science questions: **6**

Annex 1: Participant list **7**

Annex 2: meeting agenda **8**

Annex 3: Task tables for the meeting participants (meeting follow-up): **11**

ICES/UNECE working meeting on Management tools and standards in support of Sustainable Development Goal 14 ''Life below water''

Conveners: Roland Cormier, Sigurdur Guðjónsson, Andreas Kannen, Wojciech Wawrzyński

This document sets out the report on the ICES/UNECE working meeting on Management tools and standards in support of Sustainable Development Goal 14 ''Life below water''. This report provides the background, summarizes the discussions, and presents the recommendations developed by participants on the use of risk management tools within regulatory frameworks in support of the implementation of the Sustainable Development Goals of the United Nations Sustainable Development Agenda, in particular SDG 14 “Life under water.” The participant list is provided as annex one, and the agenda as annex two to this document.

Welcome address by the NMFRI Director Sigurdur Guðjónsson

The introduction included a summary of background and future uses for the fishery industry, increasing earnings for Icelandic fisheries sector. Then looking to the future challenges to the marine environment, globally, as well as in the Icelandic waters; climate change, acidification of the oceans, and the effect of these on fish stocks and fish migrations.

Setting the scene, Wojciech Wawrzynski, ICES Head of Science Support Introduction to ICES, its products and to the current and new strategic plan.

Lorenza Jachia, UN Economic Commission for Europe Implementation of sustainable development goals, translating global goals into norms, standards, and conventions, building capacity and engaging in partnerships with the private industries.

Thematic presentations:

Jacky Wood, JPI Oceans: The role of intergovernmental platform such as The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) in supporting SDG 14 "Life below water"

The intergovernmental partnership is focused on solving challenges for oceans that cannot be solved on a national level. It tests new ways of cooperation, brings in users and producers of knowledge to align research investment.

Tumi Tómasson , The United Nations University Fisheries Training Programme: "Solving future problems today"

The UNU FTP assists partner nations in reaching their development goals in fisheries.

Anna Kristín Daníelsdóttir, MATIS, 'Co-creating Ecosystem-based Fisheries Management Solutions, lessons learned, from the MareFrame project'.

MATIS presented the achievements of the MAREFRAME project, its decision support tool and relevance to global goals implementation

Kevin Knight, Australia: Managing risks to achieve SDG 14 targets,

Risk management framework, with its structure, dynamics and value added were presented.

Andrew Minkiewicz, KelleyDrye, USA: 'International and national legal and regulatory context'

Selected aspects of international and national legislation with regards to IMO, CATT and IWC were presented.

Michael Elliott, University of Hull, 'Vertical and horizontal policy integration, Marine Management – Is an integrated approach to marine management possible??

The concept of the DAPSI(W)R(M) – underlying framework for marine environmental management was introduced and related to the EU MSFD and UN SDG14 targets.

Markus Krebsz, 'Key risk indicators, key control indicators and key performance indicators. Defining and measuring Kxls: Key risk, performance, control indicators'

Risk management process was described as the set of actions used to contribute towards the likelihood of achieving and surpassing planned objectives over a defined time frame.

Simon Webb, Nichols, UK: Economic aspects of action and inaction on the SDG14

The SDGs were presented as an opportunity to press for a more coherent and high impact approach – getting the right data in front of the right decision-makers. A few of the decision-making bodies concerned are within the UN collective system, but are others controlled by member Governments who need to be persuaded and corralled.

The following discussion was led by Roland Cormier

The SDG implementation progress cannot be assessed unless there is a clear understanding of what procedures exist, whether they work, if they are enforced, controlled, and by whom. The intent of risk management, and application of it in regulatory processes is intended to develop a well-balanced and efficient system of controls and procedures. As opposed to one that veers between two extremes, excessive overregulation or insufficient regulations.

The bow-tie analysis is introduced as one of the IEC/ISO 31010 controls assessment techniques to facilitate the identification of the sources of the risk, causes and consequences of undesired events with a particular focus on prevention, mitigation and recovery controls. In this context, the risk of not achieving SDGs targets implies that the member countries do not have the legislation or the policy in place to

contribute to the goals. Otherwise that their relevant legislation that insufficiently reflected the aim to reach those goals.

Comparison of the MSFD target progress and the SDG target implementation was used to illustrate similarities of the two processes in Europe. The group also discussed how transportable the EU directive framework may be in practice to SDG14 implementation and how would it work for less developed states and SIDS. Accountability for pressures that are outside the control of implementing parties - unforeseen, irresistible and external factor (force majeure) needs to be considered. Risk evaluation asks if parties are willing to live with the consequences or not.

The following comparison of SDG 14 targets, with the MSFD descriptors was undertaken:

Giving each MSFD descriptor a number, on a scale of one to five, on the level of knowledge/information available. (What is known/not known? On a scale of 1 – 5. (1 = nice to have more, 5 = we can't move on without more information))

1. Biological diversity: We know lots about this already. 1
2. Non-indigenous species: 3
3. Commercial exploitation of fish and shellfish within safe biological limits: 3/5
4. Marine foodwebs and assurance of long-term abundance of species and retention of reproductive capacity: 2 for description, 4 for understanding
5. Eutrophication: 1
6. Sea-floor integrity: 3
7. Hydrographical conditions:
8. Contaminants: 3
9. Contaminants in fish and seafood for consumption: (begs the question of the set standard, based on human health risk assessment levels): 1
10. Marine litter: what is meant by harm to the marine environment? 1
11. Energy including noise, not adversely affecting the environment: 5

Lessons learned

Frameworks will set the stage for achievements. Framework without a risk assessment process may be useless. And vice versa. The process is necessary as well as the policy context (ISO31000 and the MSFD)

Legislation vs. non-enforceability. If there is no accountability, there will be no way to show how results were (or weren't) achieved.

Recommendations for management and for science questions:

This above analysis was followed by a discussion on recommendations from the meeting, to be addressed to the UNECE and ICES. The following table mapping the MSFD targets and their relevance to the SDG14 targets was discussed:

- It was noted that because of framework and a risk management process in place, many hazards e.g. in food safety or transport have been decreased. ICES has developed various indicator (including those strictly related to MSFD, e.g. foodwebs) but the network usually does not deal with designation of thresholds. With the exception of the MSY, indicators are usually descriptive and they refer to performance rather than control. It was suggested to look at the developed ecosystem indicator, also those that are in use by Regional Sea Organizations like HELCOM, at the SDG14 indicators, the 5 EuroStat SDG14 indicators and analyse what best could address the SDGs 14 implementation. It I also recommended to investigate what kind of science is needed to support SDG14 implementation at national and regional levels, incl. what are safe and tolerable levels of disturbances.
- It was suggested to organize an ICES/UNECE workshop to address these issues, or/and to draft ToR for an expert group to look into these. Also the best ways to have the results uptaken by regulatory agencies and policy-makers could be investigated.
  A risk management approach could help sort out information that is applicable to regulatory decision-making processes. The UN2030 implementation will require a better understanding of the regulatory frameworks of member countries. A risk management process could also identify the SDG 14 targets that could be improved through risk-based regulatory frameworks and the ones that cannot. The intent of the UNECE is to introduce the risk management process to the work being done around the world.

The group will be asked to specify/modify these recommendations/challenges via e-mail following the meeting.

A wrap up was given by Grímur Valdimarsson, MFRI, pointing to importance of science in decision-making processes with the specific example of Icelandic fisheries and ecosystem-based management. This was followed up by concluding remarks from the MFRI Director, ICES and the UNECE.

Annex 1: Participant list

Name	Institute	Country	Email
Andreas Kannen	Helmholtz-Zentrum Geesthacht (HZG)	Germany	Andreas.Kannen@hzg.de
Andrew Minkiewicz	KelleyDrye	USA	aminkiewicz@kelleydrye.com
Anna Davies	ICES	Denmark	anna.davies@ices.dk
Anna Kristin Daníelsdóttir	MATIS	Iceland	annak@matis.is
Bjarki Thor Elvarsson	Marine and Freshwater Research Institute	Iceland	bjarki.elvarsson@hafogvatn.is
David Gislason	Matis	Iceland	davidg@matis.is
Floor Ten Hoopen	Swedish Agency for Marine and Water Management	Sweden	floor.hoopen@havochvatten.se
Francis Neat	Marine Stewardship Council	UK	francis.neat@msc.org
Grimur Valdimarsson	Marine and Freshwater Research Institute	Iceland	Grimur.valdimarsson@hafogvatn.is
Jacky Wood	JPI Oceans	Brussels	jkw@forskningsradet.no
Jianzhang He	Sun Yet-Sen University	China	hejzh@mail.sysu.edu.cn
Joachim Harms	Forschungszentrum Jülich GmbH	Germany	j.harms@fz-juelich.de
Kedong Yin	Sun Yet-Sen University	China	yinkd@mail.sysu.edu.cn
Kevin Knight		Australia	kknight@bigpond.net.au
Lorenza Jachie	UNECE	Swizerland	lorenza.jachia@un.org
Markus Krebzs (online participant)		UK	krebsz@web.de
Mike Elliott	Institute of Estuarine & Coastal Studies	UK	Mike.Elliott@hull.ac.uk
Nikolaj Bok	EEA	Denmark	nikolaj.bock@eea.europa.eu
Pamela Woods	Marine and Freshwater Research Institute	Iceland	pamela@hafogvatn.is
Pamela Mace	Fisheries New Zealand	New Zealand	Pamela.Mace@mpi.govt.nz
Roland Cormier	Helmholtz-Zentrum Geesthacht	Germany	roland.cormier@hzg.de
Simon Webb	Nichols	UK	Simon.Webb@nichols.uk.com
Sóley Morthens	Marine and Freshwater Research Institute	Iceland	soley.morthens@hafogvatn.is
Sigurður Guðjónsson	Marine and Freshwater Research Institute	Iceland	sigurdur.gudjonsson@hafogvatn.is
Tom Redd	JPI Oceans	Brussels	tre@rcn.no
Tumi Tomasson	Marine and Freshwater Research Institute	Iceland	tumi.tomasson@hafogvatn.is
Wojciech Wawrzynski	ICES	Denmark	Wojciech@ices.dk

Annex 2: meeting agenda

Management tools and standards in support of Sustainable Development Goal 14 "Life below water"

9–11 October 2018

Marine and Freshwater Research Institute

Skúlagata 4, IS-101 Reykjavík, Iceland

Meeting Agenda

October 9	
11:00 – 13:00	**Welcome** Registration and coffee at MFRI Visiting Center
13:00 – 13:15	Welcoming remarks and practicalities - Dr. Sigurður Guðjónsson, General Director MFRI
13:15 – 13:45	**Setting the Stage** International Council for the Exploration of the Sea (ICES) - Wojciech Wawrzynski United Nations Economic Commission for Europe (UNECE) - Lorenza Jachia
13:45-15:15	The role of intergovernmental platform such as The Joint Programming Initiative Healthy and Productive Seas and Oceans (JPI Oceans) in supporting SDG 14 "Life below water" - Dr. Jacky Wood The United Nations University Fisheries Training Programme: "Solving future problems today" - Dr. Tumi Tómasson/ Mary Frances Davidson Co-creating Ecosystem-based Fisheries Management Solutions, lessons learned from the MareFrame project - Dr. Anna Kristín Daníelsdóttir
15:15 – 15:45	**Break**
15:45 – 17:00	Managing risks to achieve SDG 14 targets - Kevin Knight International and national legal and regulatory context - Andrew Minkiewicz

17:00	End of day 1
17:00 – 19:00	**Reception at the MFRI Visiting center** Mr. Kristján Þór Júlíusson, Icelandic Minister of Fisheries and Agriculture

October 10	
	Science Forum/Workshop **Assessing and managing risks of achieving SDG 14 targets**
09:00 – 09:30	Workshop outline: Assessing and managing risks of achieving SDG 14 targets - Roland Cormier and Paul Taylor
09:30 – 10:30	Vertical and horizontal policy integration - Michael Elliott Economic aspects of action and inaction on the SDG14 - Simon Webb Key risk indicators, key control indicators and key performance indicators - Markus Krebsz and Gary van Vuuren
10:30 – 11:00	**Break**
11:00 – 12:00	- Identify the risks to delivering some of the 10 targets of SDG14 - Assess worst case impact and probability of each risk (gross risk)
12:00 – 13:00	**Lunch**
13:00 – 15:00	- Identify current controls (including legislation and regulation) - Assess the reduction in impact and probability of each risk with the current controls (net risk)
15:00 – 15:30	**Break**
15:30 – 16:45	- Assess the acceptability of the net risks (Acceptable/Not Acceptable) realizing that zero risk cannot be achieved - Recommend additional controls, regulation, legislation, protocols to reduce unacceptable risks to acceptable
16:45 – 17:00	- Wrap-up and conclusions
17:00	End of day 2

October 11

Lessons learned and recommendations

09:00 – 10:30	Science and management needs to move forward - Roland Cormier Wojciech Wawrzynski, Kevin Knight, Sigurður Guðjónsson and Andreas Kannen
11:00 – 12:00	Conclusions and wrap up of the meeting - Grímur Valdimarsson
12:00	End of the meeting

Annex 3: Task tables for the meeting participants (meeting follow-up):

ICES/UNECE Reykjavik Meeting October 2018

Participant ……

Task 1 – Give a critique of the SDG14 targets (Cormier and Elliott 2017):

Target	SMARTness?
By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	• Date given but is it far enough away to guarantee success? • Does it aim to prevent (only) the cause or (also) the effects? • Cause is contamination and effects of concern is pollution – which do they mean? • Do they mean all types of pollution (contamination) – physical (solids, litter, sediments, structures), chemical (metals, PCBs, oils, TBT, nutrients, organic matter, radionuclides) and biological (microbes, alien species, GMOs) – should they prioritise? • Land-based includes point sources and diffuse inputs – did they mean both? • Does 'prevent' supersede 'significantly reduce' and why is it 'and' not 'or'? • The target is certainly ambitious but is it realistic? • It may be achievable for developed countries (and already occurs) but not for developing countries? • Risk of inputs (contamination) or of biological effects (pollution)? • Is it realistic to prevent given the costs? • What happens if an area can assimilate a contaminant without harm (pollution) then spending money to eliminate it is unnecessarily costly? • Standards for measuring contaminants, for determining effects, for determining compliance with licenses, for setting licenses, for training staff, ….? • 4 decades of experience in NE Atlantic (OSPAR), Baltic (HELCOM), etc.
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	• Date given but is it attainable? • Can 'sustainably manage' be created as a target? • Are all ecosystems included? • Which adverse impacts do they mean – any, all? • How will they measure significance – in statistical, ecological or societal terms? • How can a strengthened resilience be measured? • Is 'take action in restoration' to be achieved by the same date? • Does the productive part overlap with the other targets relating to fisheries?
Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	• Not specific or time-bounded? • Will it be sufficient to aim for the COP21 Paris targets? • Minimizing acidification does not rely on scientific cooperation but on global actions to reduce CO_2?
By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated	

fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	
By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	• Time given but is it achievable? • What is the amount to date? (is it probably much less than 10%?) • What happens if national laws do not allow this amount or stipulate the need for marine protected areas? • Is there sufficient scientific information to show that 10% is what is needed? • Is this a political rather than a scientifically-defendable aspiration? • Would it ensure that threatened marine habitats are protected or merely any?
By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	• Date given but is it achievable? • What are the 'certain forms' of interest? • If subsidies contribute to illegal fisheries then by definition are they not illegal? • Does the second part (re. developing and least-developed states) contradict the first part? (If the subsidies are to be prohibited then is it reasonable to have them for some states and not others?) • If the levels are unreported then how can they be managed? • If they are regulated then by definition they cannot be given subsidies?
By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	• Date given but not specific regarding the 'increase' – a single economic benefit would achieve the objective? • Does this overlap or conflict with the other fisheries targets? • Why restrict this to only a few states, many others would benefit from reaching the target?
Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	• Unspecific and not time bounded – one new research paper would have fulfilled the objective? • How can the transfer be quantified? • It takes management actions to enhance the contribution of biodiversity to development, the science can only indicate if it is working? • The metrics used to measure scientific output could be used but they only indicate outputs rather than outcomes?
Provide access for small-scale artisanal fishers to marine resources and markets	• Not time bounded? • How can access be quantified? • Can the size of marine resources available to small-scale artisanal be quantified? • Is this a national obligation rather than international or regional?
Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conserva-	• Can the implementation of international law be quantified? • Can sustainable use of oceans and their resources be defined and measured? • Why 'oceans and their resources' – are these the same thing? • Are UNCLOS signatories already signed up to this

tion and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	

Task #2 – what is needed for policy integration and implementation of SDG14 Targets?

Target #1	Policy integration needed for implementation
By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	Point-source pollution controls – discharge standards Diffuse pollution source controls – land-use standards, controls on nutrient and pesticide use Catchment controls on run-off, land-use IPPC – land, air and water discharge standards Controls on aerial deposition Societal controls on litter – increased education, economic incentives Controls on noise pollution Manufacturer controls, recycling and reuse targets Sewage treatment plant controls for microplastics Disposal at sea controls – dredging, vessels emissions (GHG, litter, ballast water)

Target #2	Policy integration needed
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	Determine and assign protection levels and areas (MPA, PSSA) Define and protect priority habitats and species Increase coastal resistance and resilience from climate change effects Control resource removal (biological and physical resources) Coastal flood and erosion protection schemes Proactive coastal (in)habitation schemes (set-back, building regulations) Legislation to restore habitats

Target #3	Policy integration needed for implementation
Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	Exogenic unmanaged pressure (not addressing impacts) Create source controls on GHG Encourage science to detect effects But society to control causes Increase global cooperation Acknowledge geopolitical differences in aerial discharge levels

Target #4	Policy integration needed for implementation
By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	Fisheries controls – derive and implement Increased regulations - closed areas, seasons, species, sizes Increase reporting and monitoring at quayside Increase vessel-tracking (VMS on all vessels) Increase aerial surveillance Type-A and Type-B ecoengineering (protect habitats and re-stocking) Accommodate the paradox – if it is IUU then not known Increased cooperation on straddling stocks and transboundary/high seas controls Increased national funding, equipment and support for fish stock monitoring especially in small and underdeveloped states

Target #5	Policy integration needed for implementation
By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	Increase MPA area legislation and implementation within a state Conservation area designation and monitoring Check and implement risk-based management Implement internal regulations and laws Implement regional laws Implement international agreements and protection of trans-boundary sites Trade-offs between countries/regions

Target #6	Policy integration needed for implementation
By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	Determine which fisheries subsidies occur and where Reform of national fisheries policies Identify IUU fishing and whether there are subsidies Overcome paradoxes (if IUU then how given subsidies) Reform of WTO rules Include developing and least-developed countries in WTO Consider how to challenge internal state economies using international controls

Target #7	Policy integration needed for implementation
By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	Reform economic incentives Ensure economic benefits stay inside a country Increase policy for sustainable management Greater pollution and EIA controls on aquaculture effects and consequences Integrate land-management and planning for areas for differing marine resources Implement legislation on Maritime Spatial Planning Increase management controls on fisheries Overcome the conflict between environmental and economic effects of tourism Overcome the paradox of tourism ('more tourists required by a state which then degrades the reason for tourists to visit') Increase MSP legislation on transboundary basis

Target #8	Policy integration needed for implementation
Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	Increase profile and funding for science (cf. Borja and Elliott, 2017) Knowledge transfer from scientifically-developed nations Increase transparency and knowledge dissemination Increase data availability and open-access especially from industrial sources Ensure marine technology available for poorer states Change marine management in states to be more receptive to new knowledge Implement science-policy strategy committees (or learn from developed, maritime states) Less-developed states to adopt the marine management legislation (e.g. for MSP and Good Environmental Status) from developed states (reduce 'wheel re-inventing')

Target #9	Policy integration needed for implementation
Provide access for small-scale artisanal fishers to marine resources and markets	Derive and implement local agreements for fisheries Increase local control on fishing resources to prohibit industrial fishing Legislate for changes to economic incentives Increase legislative and administrative controls on fishing areas in less-developed states Increase stakeholder cooperation to achieve economies of scale

Target #10	Policy integration needed for implementation
Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	Coordinate national and international conservation controls Adhere to international agreements by local and national action Coordinate fisheries and conservation legislation Coordinate fisheries and conservation administrations Conflict of allowing fisheries and protecting areas Increase national enabling legislation towards holistic and transboundary marine management Less-developed states to adopt the marine management legislation (e.g. for MSP and Good Environmental Status) from developed states (reduce 'wheel re-inventing')

Task #3 – which of these are KPI, KCI and KRI?

TARGETS	INDICATORS	KPI	KCI	KRI
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	**14.1.1** Index of coastal eutrophication and floating plastic debris density			
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	**14.2.1**Proportion of national exclusive economic zones managed using ecosystem-based approaches			
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	**14.3.1** Average marine acidity (pH) measured at agreed suite of representative sampling stations			
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	**14.4.1** Proportion of fish stocks within biologically sustainable levels			
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	**14.5.1** Coverage of protected areas in relation to marine areas			
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	**14.6.1** Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing			
14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	**14.7.1** Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries			
14.A Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in	**14.A.1** Proportion of total research budget allocated to research in the field of marine technology			

order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries				
14.B Provide access for small-scale artisanal fishers to marine resources and markets	**14.B.1** Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries			
14.C Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	**14.C.1** Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nation Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources			

Task 4 – how do the SDG14 targets map to the MSFD descriptors

TARGETS	biodiversity	alien species	fishing	foodwebs	europhication	seafloor integrity	hydrography	contamination	contaminant in seafood	litter	noise
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	✓	✓			✓			✓	✓	✓	✓
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	✓			✓		✓	✓				
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	✓							✓			
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	✓		✓								
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	✓			✓		✓					
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation			✓								
14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	✓		✓	✓		✓	✓				

14.A Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	✓										
14.B Provide access for small-scale artisanal fishers to marine resources and markets			✓								
14.C Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want	✓		✓								

Target
By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information
By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation
By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries
Provide access for small-scale artisanal fishers to marine resources and markets
Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want