



Foreign &  
Commonwealth  
Office



# SCIENCE IN STANDARD DEVELOPMENT

WORKSHOP ON THE DEVELOPMENT OF STANDARDS  
AND GUIDELINES FOR THE MINING CODE

MAY 14TH | MS. AMBER COBLEY & DR DIVA AMON



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# ADVANCING SCIENCE IN POLICY

MARIA BAKER, LISA LEVIN, KRISTINA GJERDE, HARRIET HARDEN-DAVIES & ELVA ESCOBAR



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# S & G WORKSHOP CONSULTATION



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ARTWORK TANYA YOUNG

"Standards require goals and objectives which do not exist; and many standards must be in place before regulations are finalized".



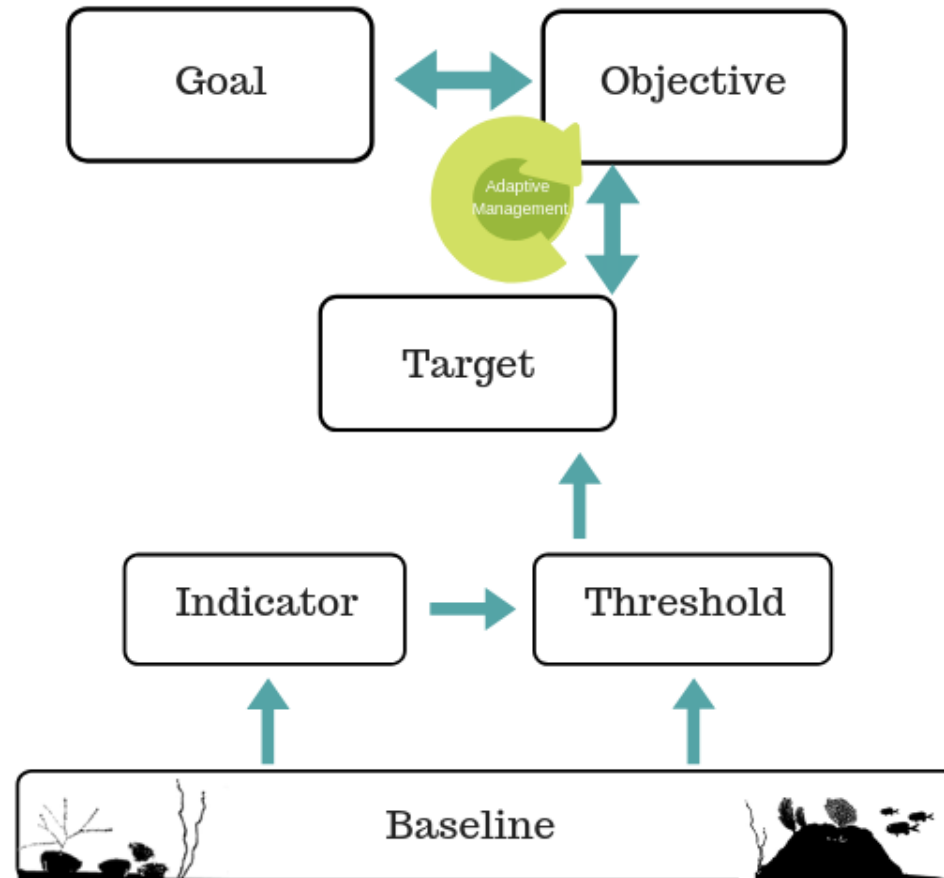
# GOALS, OBJECTIVES AND BEYOND

HOW SCIENCE UNDERPINS STANDARD AND GUIDELINE DEVELOPMENT

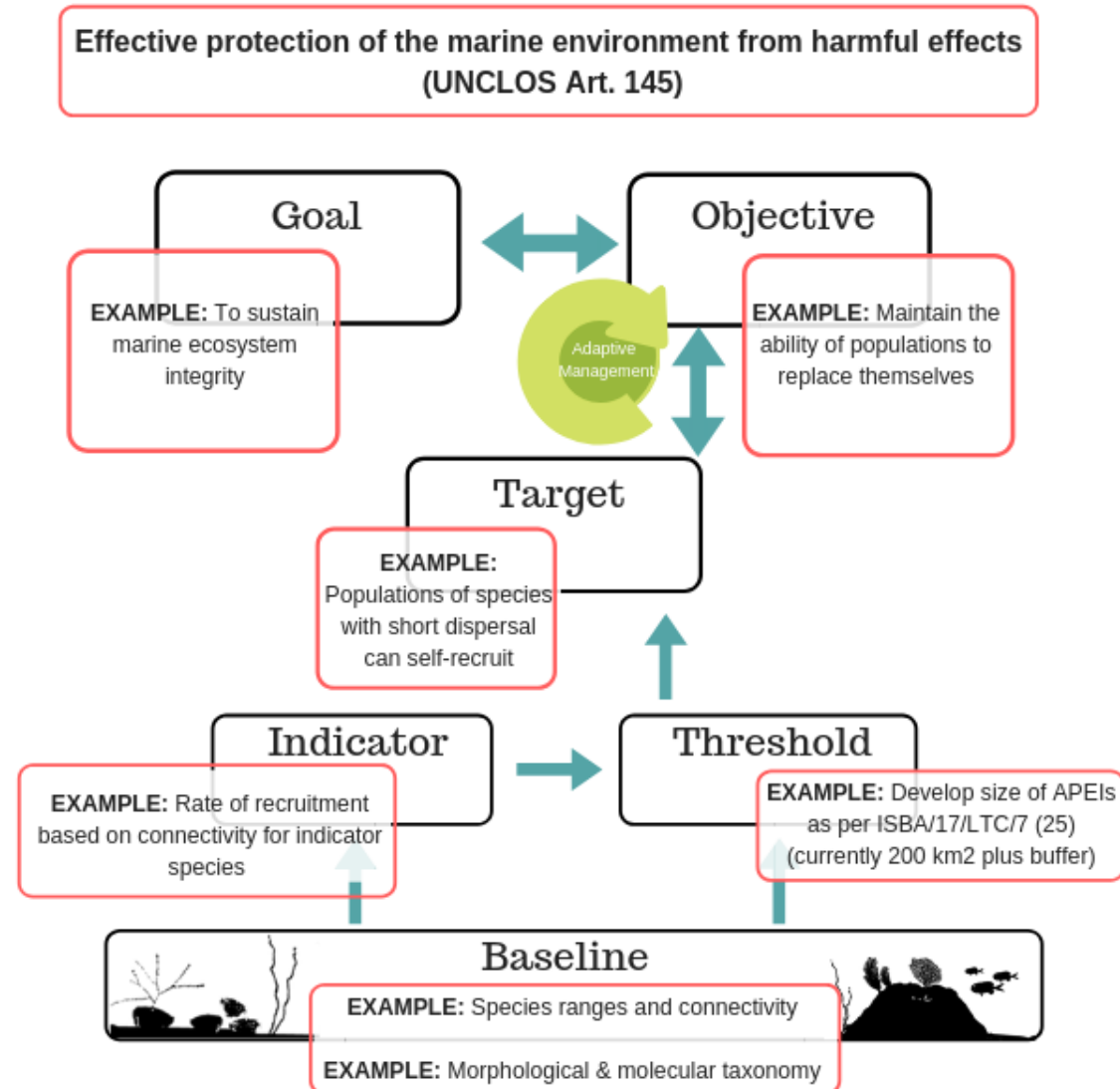
RESULTS OF CONSULTATION AND DOSI REPORT ON STRATEGIC ENVIRONMENTAL GOALS AND OBJECTIVES FOR PEW CHARITABLE TRUSTS

# HOW SCIENCE UNDERPINS ENVIRONMENTAL REGULATION

Effective protection of the marine environment from harmful effects  
(UNCLOS Art. 145)



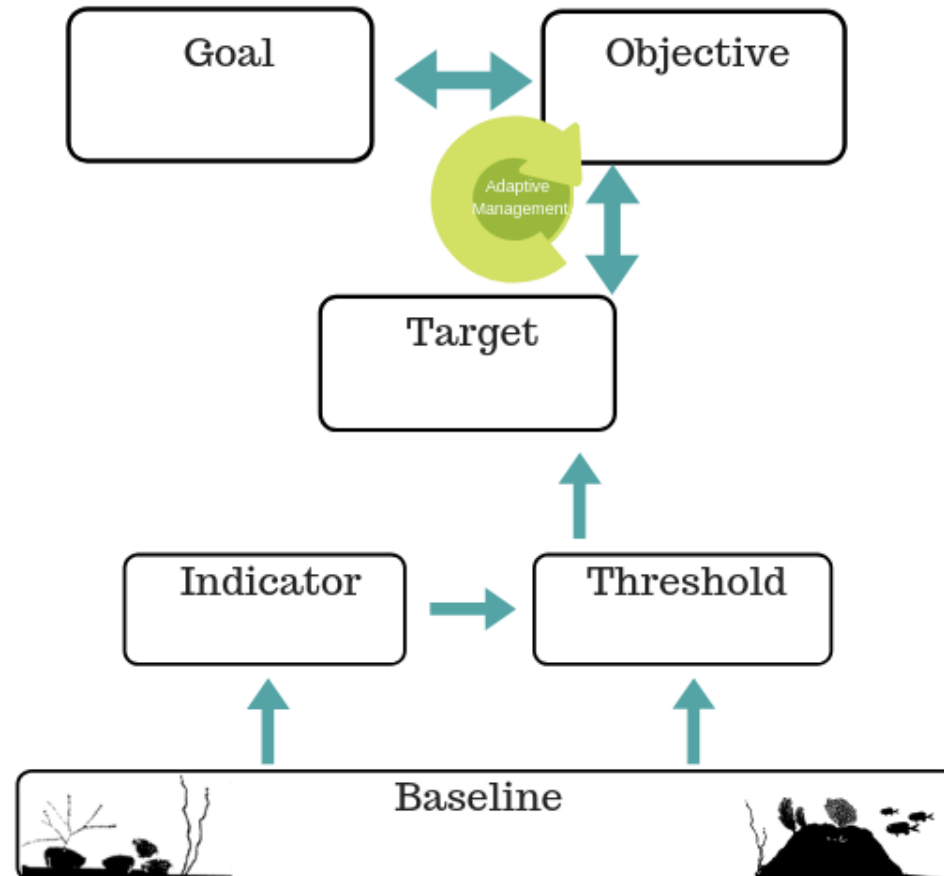
# HOW SCIENCE UNDERPINS ENVIRONMENTAL REGULATION



# HOW SCIENCE UNDERPINS ENVIRONMENTAL REGULATION

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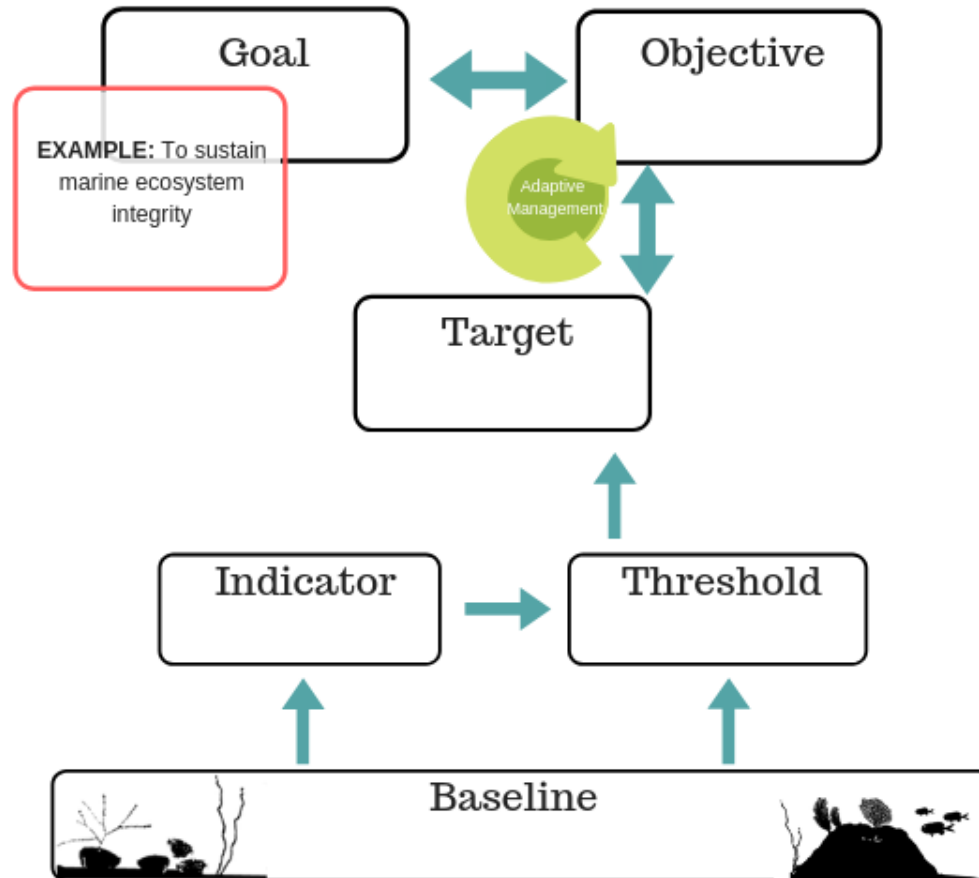
Effective protection of the marine environment from harmful effects  
(UNCLOS Art. 145)





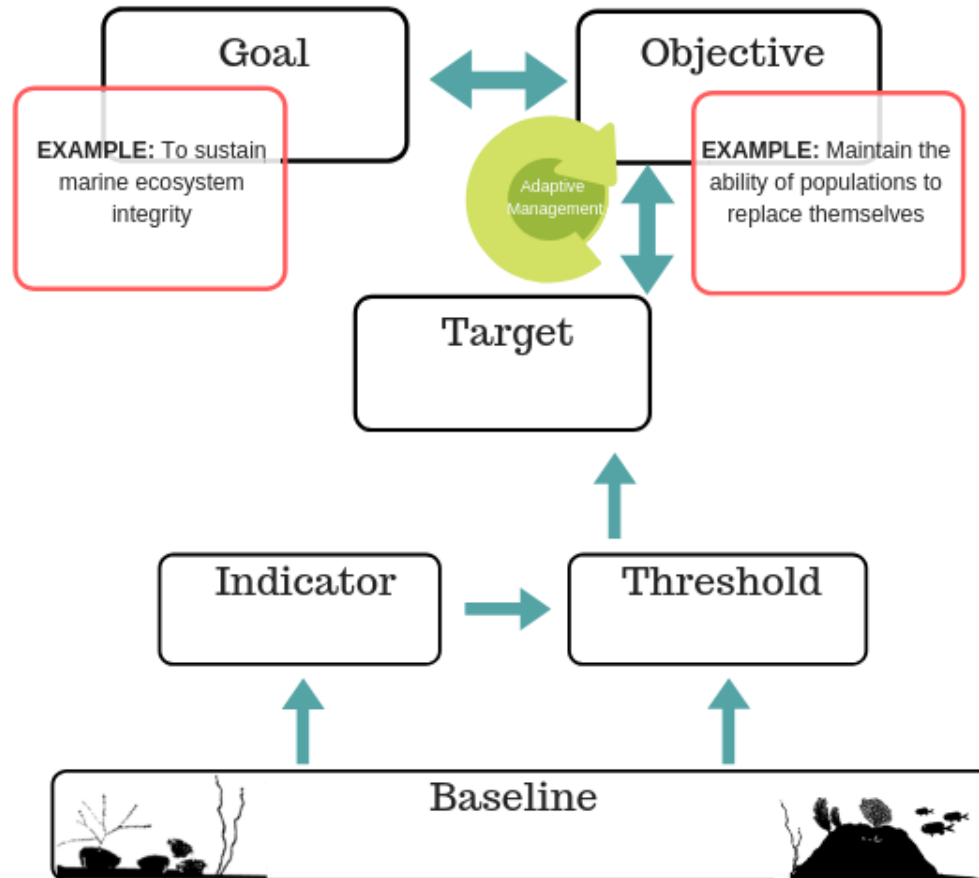
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Effective protection of the marine environment from harmful effects  
(UNCLOS Art. 145)



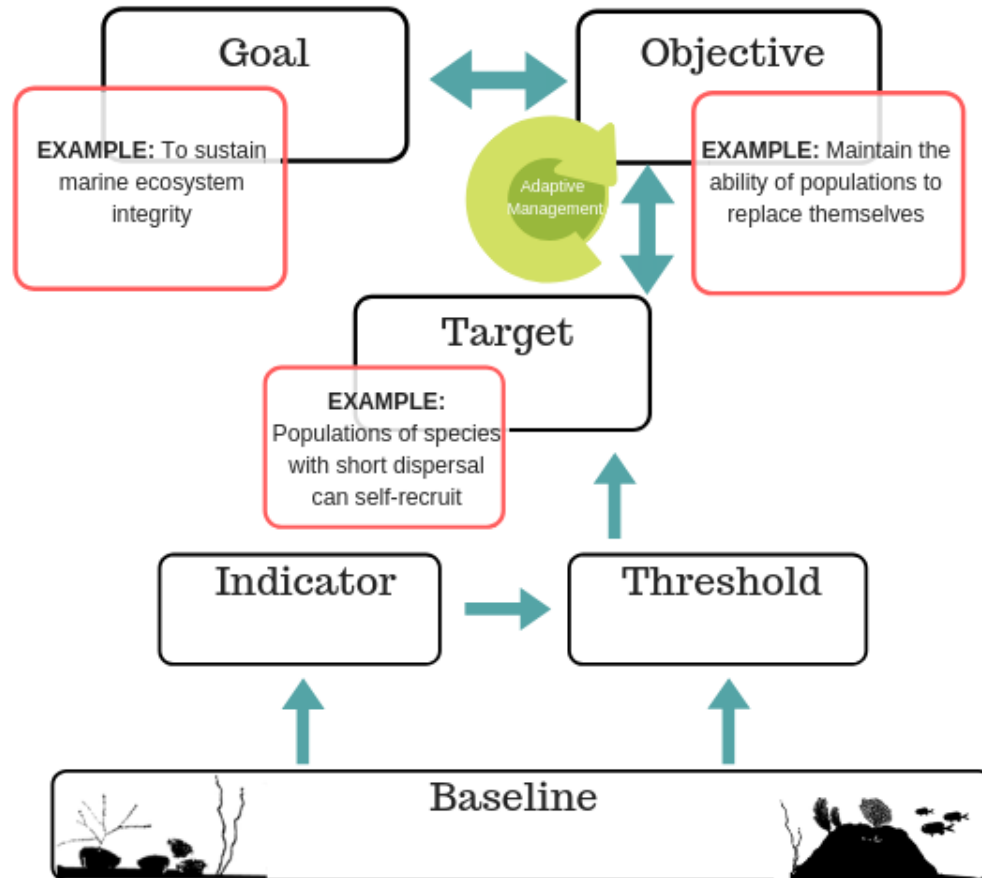
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(UNCLOS Art. 145)

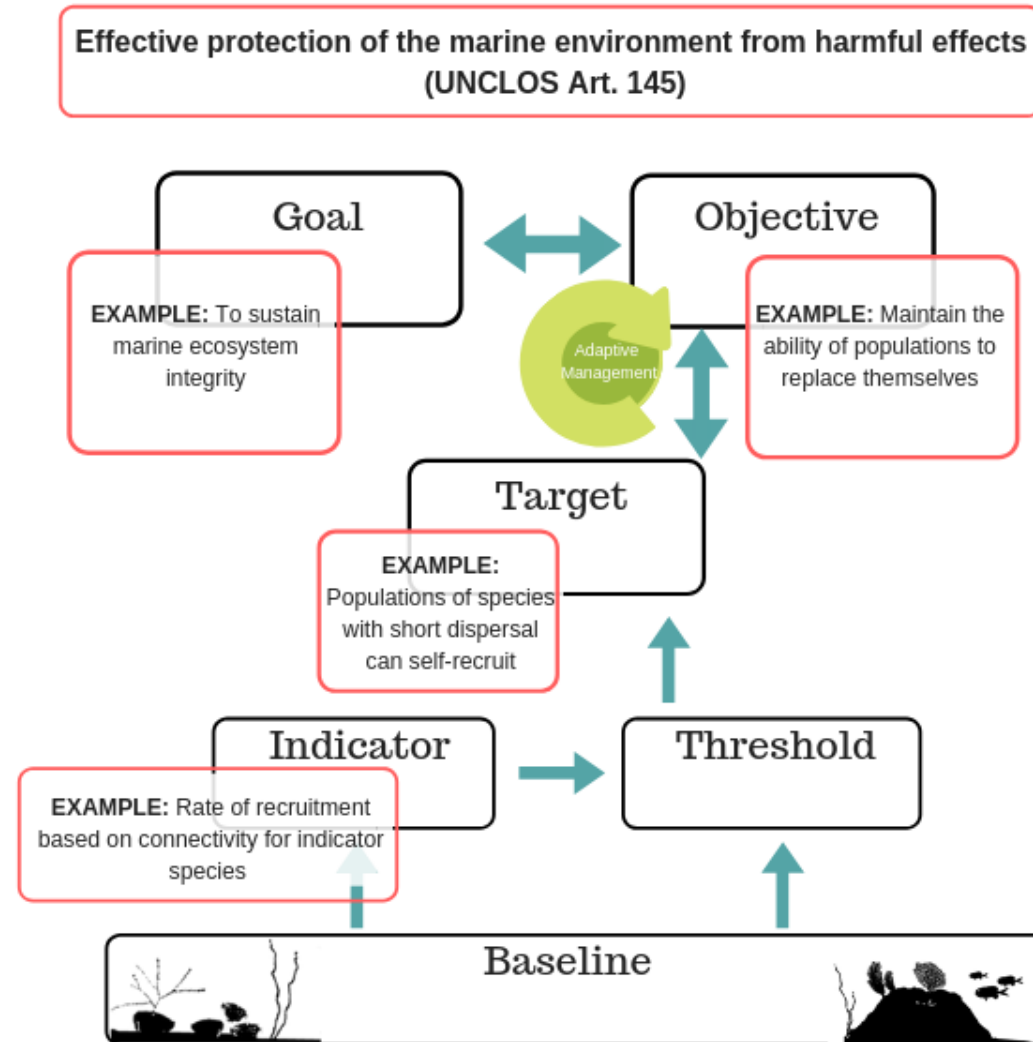


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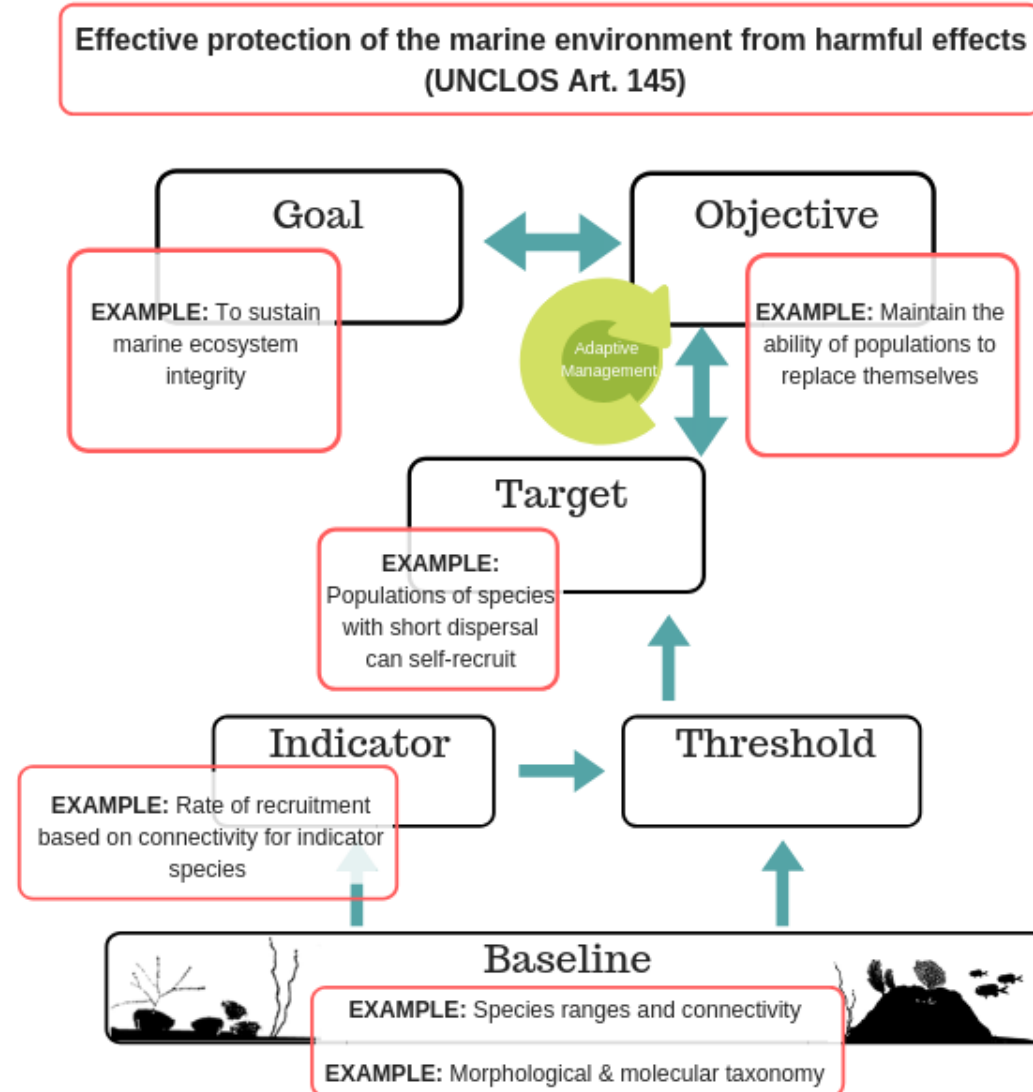
Effective protection of the marine environment from harmful effects  
(UNCLOS Art. 145)



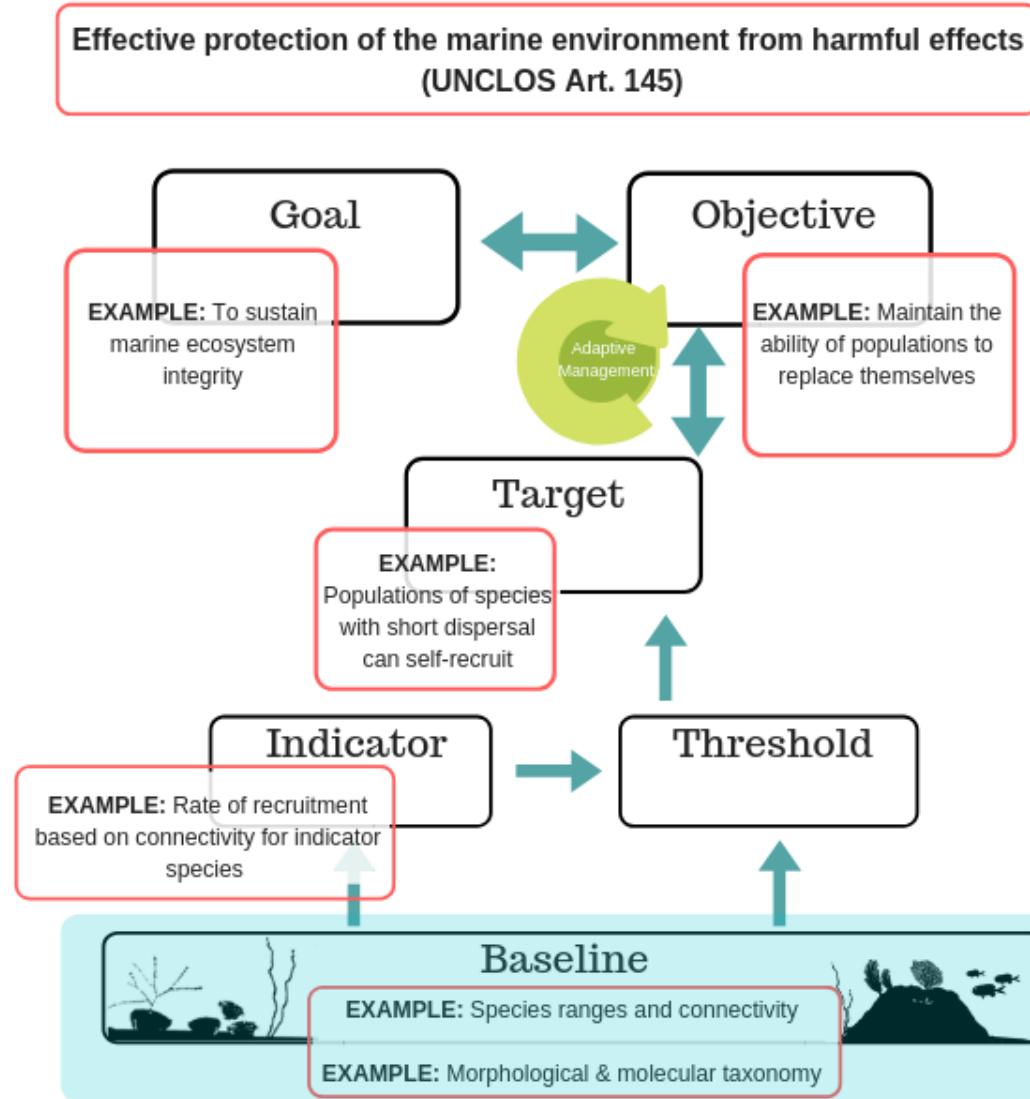
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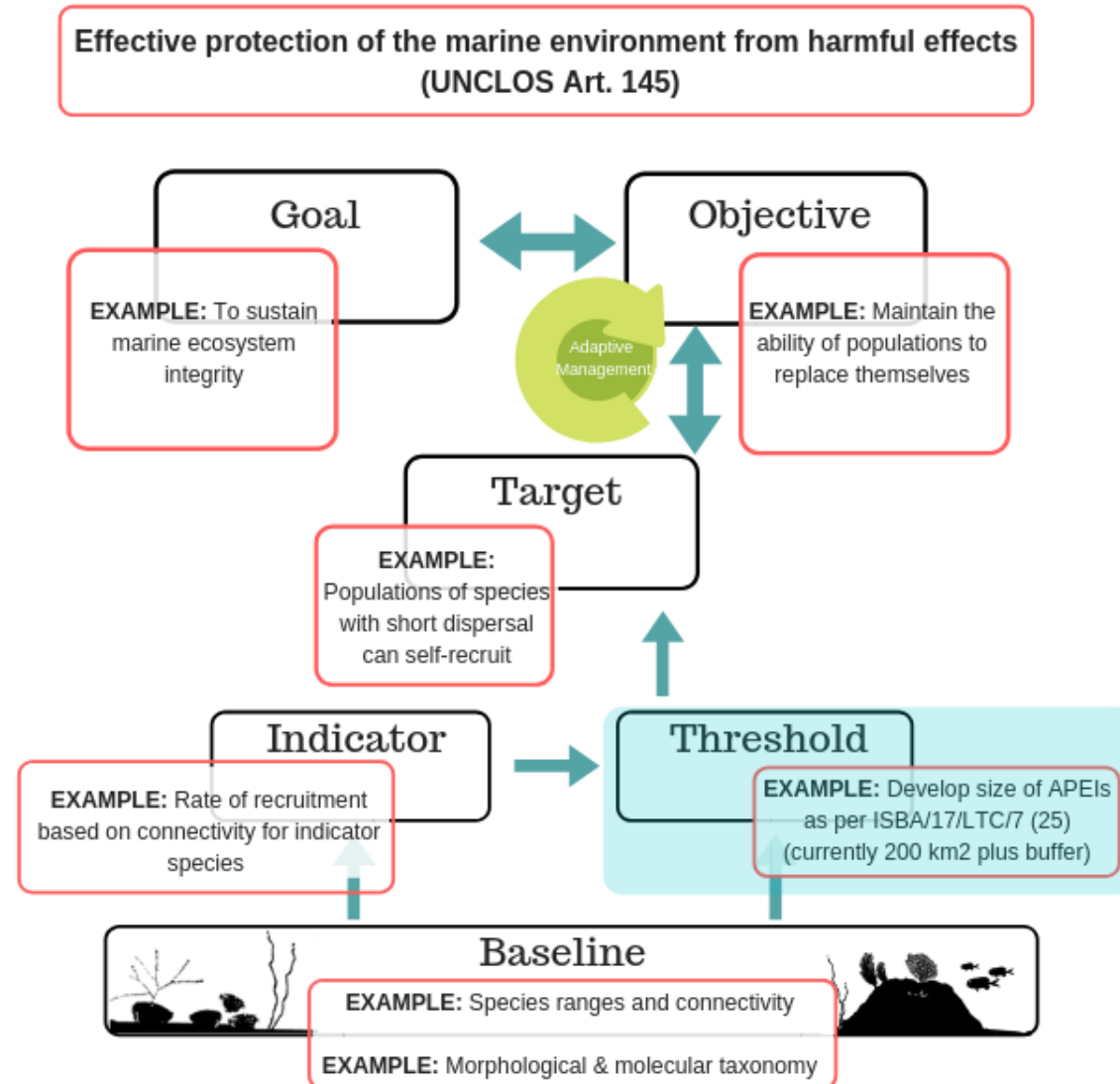
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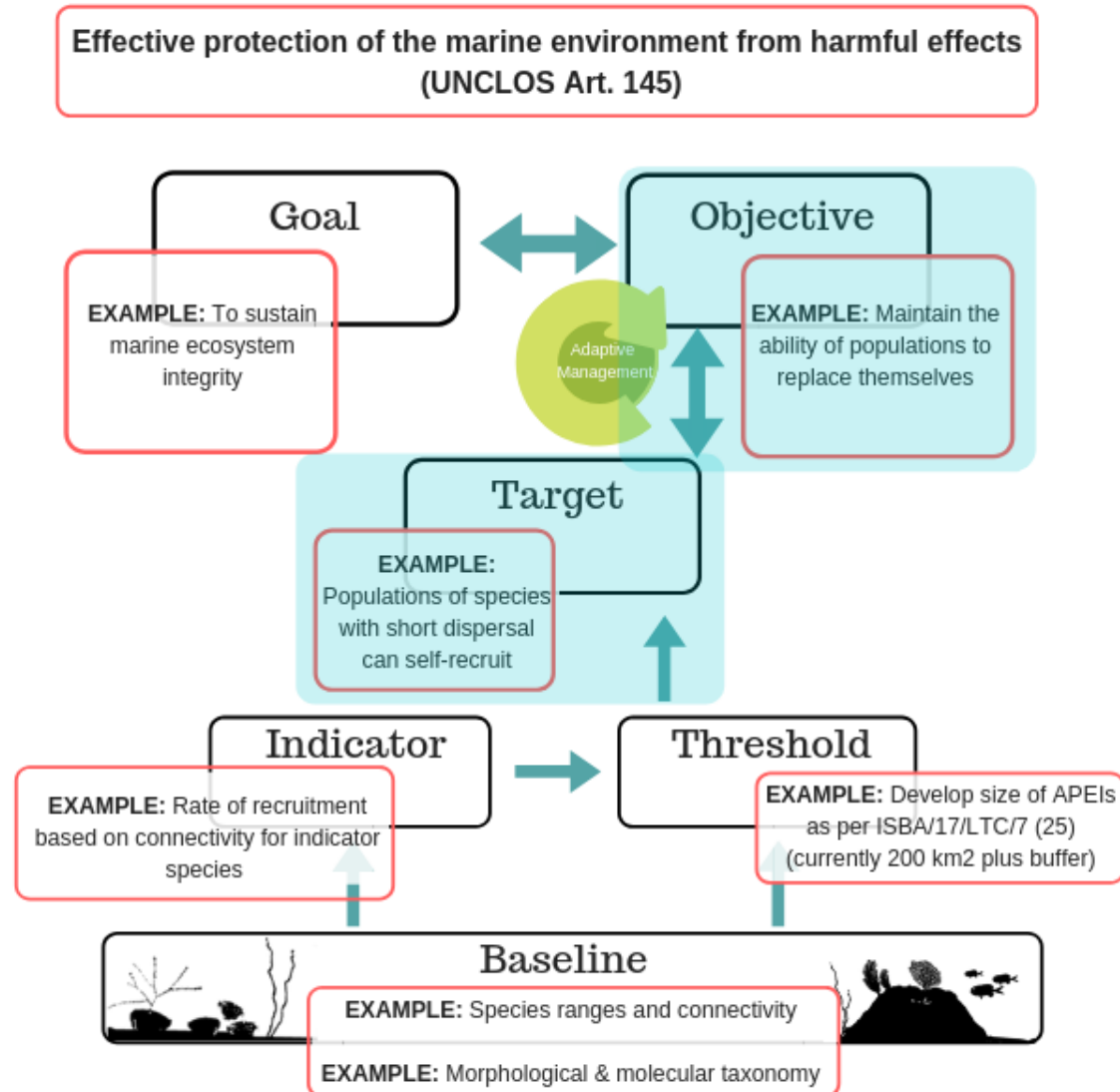
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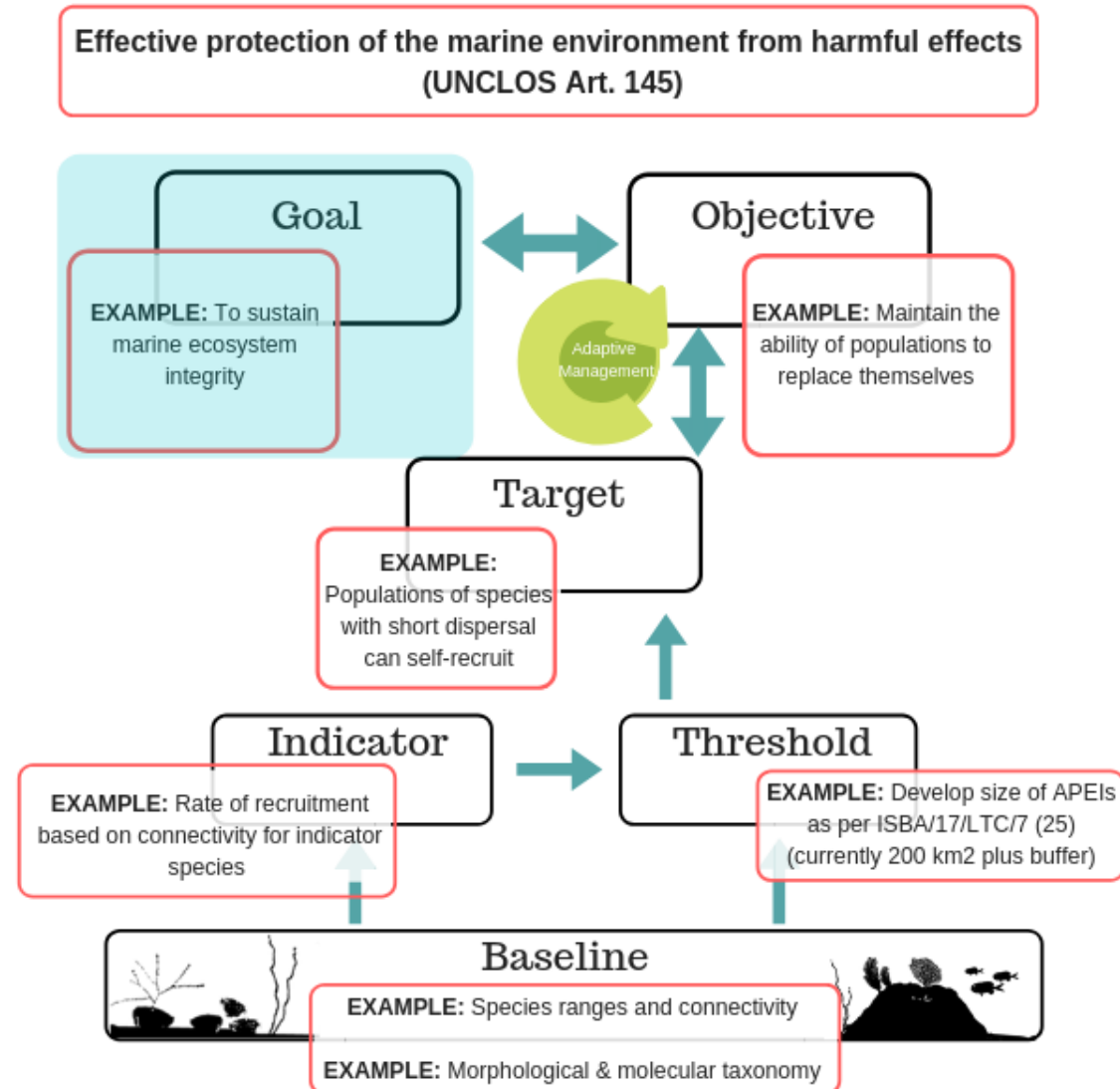


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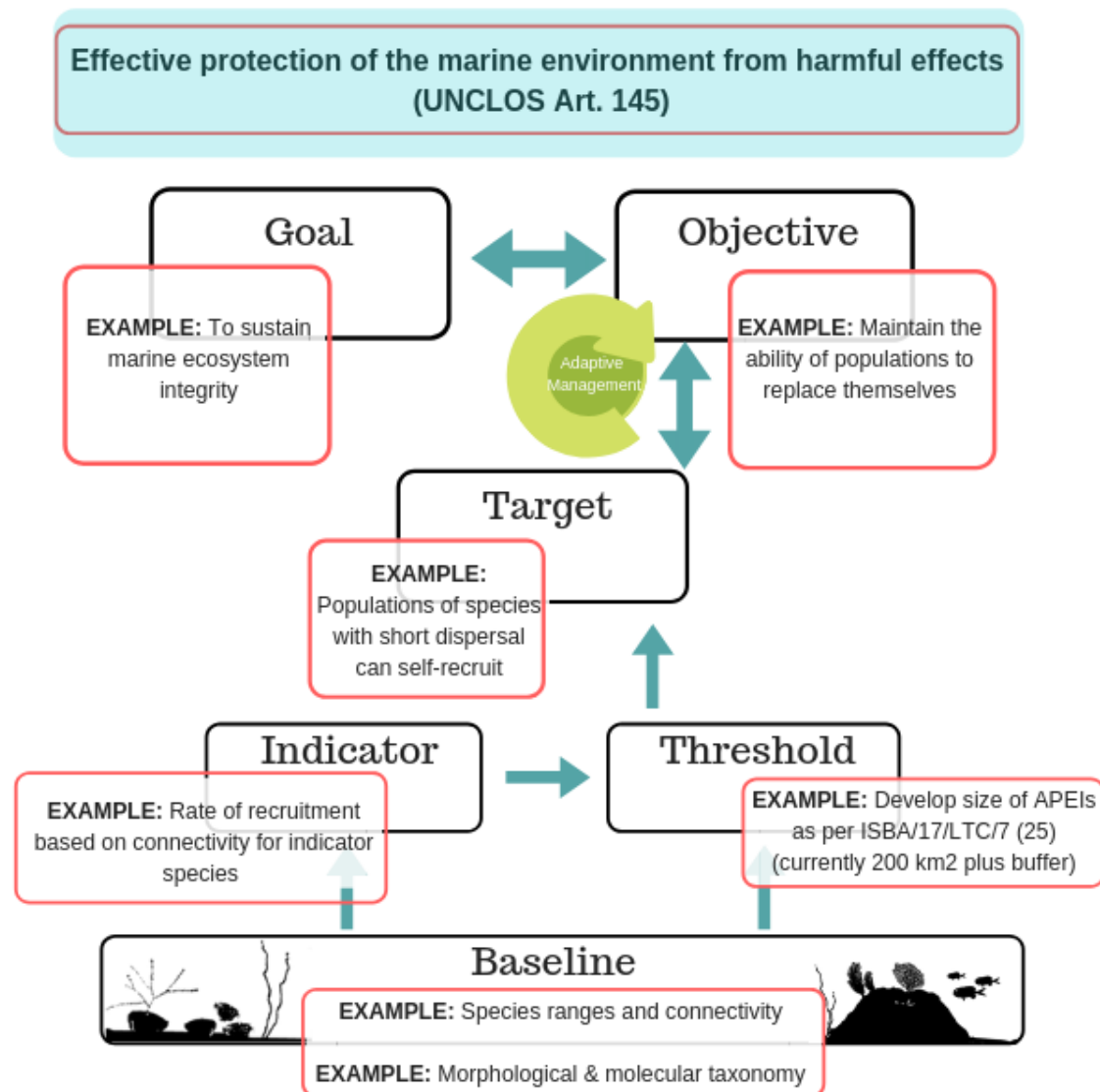




# HOW SCIENCE UNDERPINS ENVIRONMENTAL REGULATION



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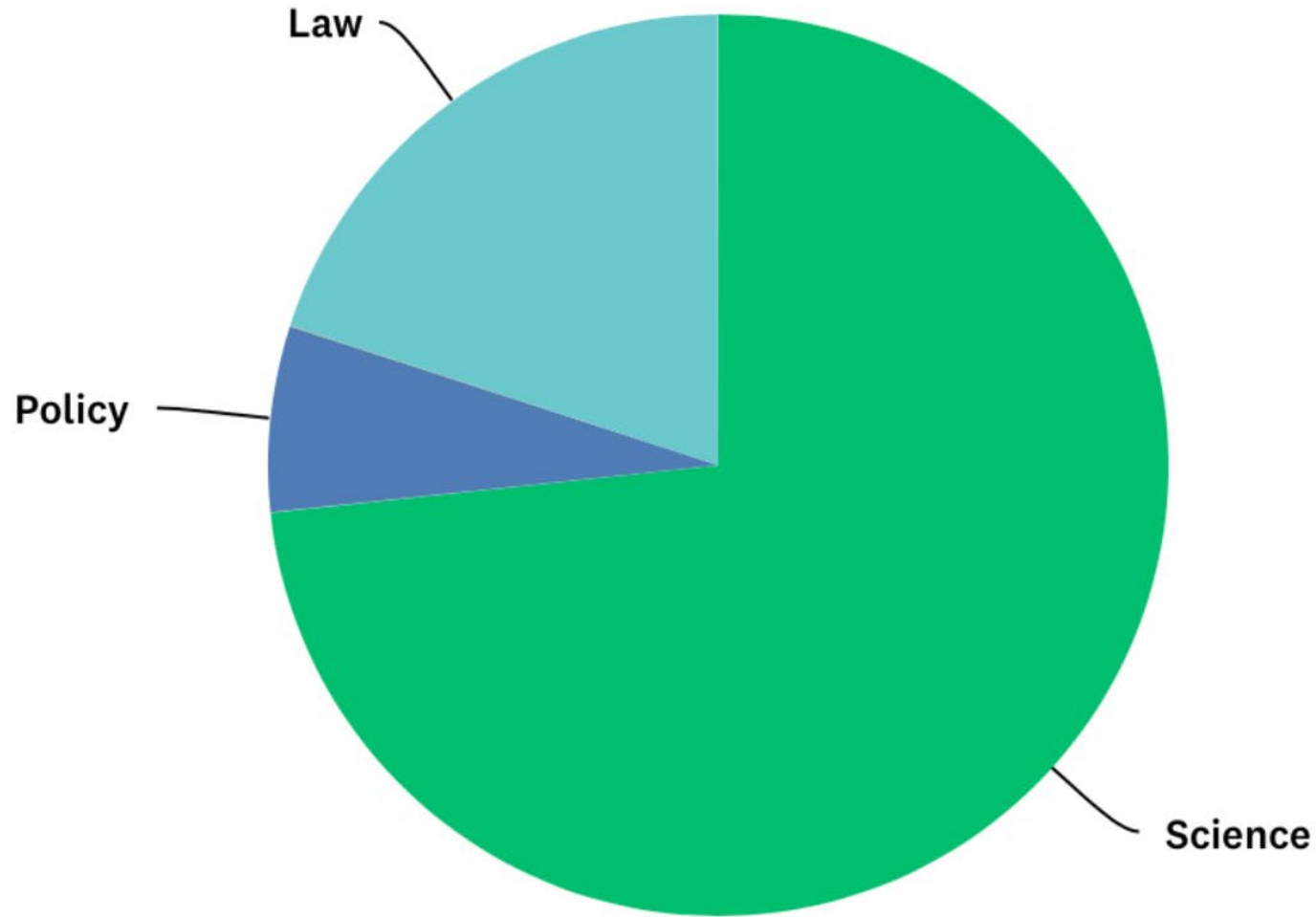
# S & G WORKSHOP CONSULTATION



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# PARTICIPANT EXPERTISE



**21**



# PRIORITY STANDARDS & GUIDELINES

RESULTS OF DOSI MINERALS WORKING GROUP CONSULTATION

# TOP 5 MOST IMPORTANT

## IMPACT ASSESSMENT

Guidelines for environmental impact assessment and preparation of an environmental impact statement

## SERIOUS HARM

Guidelines on the interpretation of serious harm

## BASELINE DATA

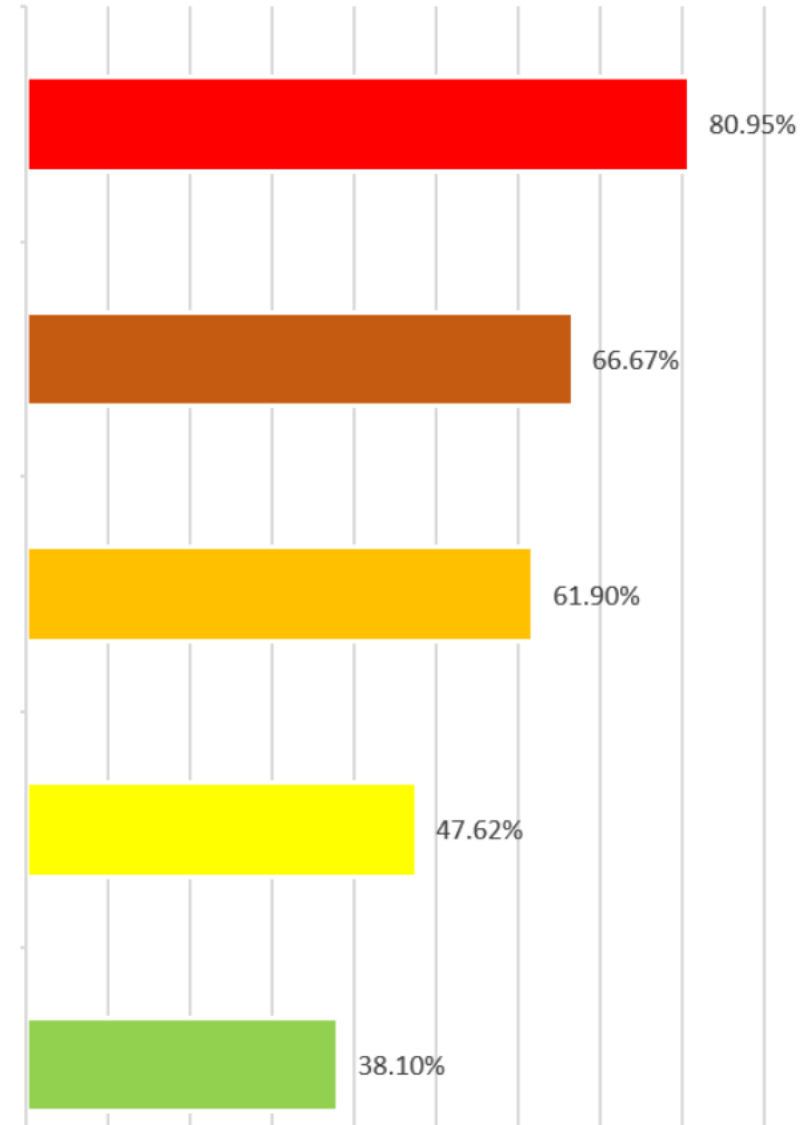
Guidelines on the expected scope and standard of baseline data collection

## ASSESSMENT FRAMEWORK

Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators

## MONITORING

Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area





	RANK
Assessment framework: Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators	1.19
Serious harm: Guidelines on the interpretation of serious harm	1.24
Impact assessment: Guidelines for environmental impact assessment and preparation of an environmental impact statement	1.3
Baseline data: Guidelines on the expected scope and standard of baseline data collection	1.6
Monitoring: Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area	1.63
Management system: Guidelines for the development and application of environmental management systems	1.63
Management plan: Guidelines for the preparation of environmental management and monitoring plans	1.63
Best available scientific evidence: Guidelines on the application of best available scientific evidence	1.69
Pollution: Guidelines for the control of pollution	1.74
Mapping: Guidelines for mapping seabed habitats and resources in the Area	1.85
Participation: Guidelines for procedures for stakeholder participation in activities in the Area	1.89
Risk of incidents: Guidelines on the interpretation of "as much as reasonably practicable"	1.89
Best environmental practice: Guidelines on the application of best environmental practice	1.9
Adaptive management: Guidelines on the use of adaptive management measures	1.95
Scoping reports: Guidelines for the preparation of scoping reports	2
Risk assessment: Guidelines on tools and techniques for hazard identification and risk assessment	2
Access to data: Guidelines for access to environmental data and information	2.05
Marine scientific research: Guidelines on protocols for the conduct of marine scientific research in the Area	2.05
Preparation of an application: Guidelines for the preparation and assessment of an application for the approval of a plan of work for exploitation	2.11
Technology: Guidelines for the use of remote monitoring technology	2.21
Performance assessment: Guidelines on the conduct of performance assessments	2.26
Emergency response plans: Guidelines for the preparation and implementation of an emergency response and contingency plan	2.32
Best available techniques: Guidelines on the application of best available techniques	2.32
Environmental guarantee: Guidelines for the form and calculation of an environmental performance guarantee	2.37
Reasonable regard: Guidelines for the practical application of reasonable regard for other activities in the marine environment	2.39
Good industry practice: Guidelines for the application of good industry practice	2.39
Annual and other reporting: Guidelines for annual and other reporting requirements under an exploitation contract	2.39
Notifiable events: Guidelines for protocols relating to notifiable events	2.39
Records and samples: Guidelines for the keeping of books, records and samples	2.44
Use of exploitation contract as security: Guidelines for the application and assessment for use of an exploitation contract as security	2.47
Insurance: Guidelines for insurance requirements under an exploitation contract and placing of insurance risk	2.47
Management systems: Guidelines for the application of health and safety management systems	2.47
Closure: Guidelines for the preparation of closure plans and post-closure monitoring and evaluation	2.53
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Royalty returns: Guidelines for the preparation and processing of royalty returns	2.61
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Compliance: Guidelines for plan of work compliance	2.67
Maritime security: Health, safety and maritime security plan	2.74
Transfer of rights and obligations: Guidelines for the application and assessment on the transfer of rights and obligations under an exploitation contract	2.74
Renewal: Guidelines for the preparation and assessment of an application to renew an exploitation contract	2.79
Accounting principles: Guidelines on internationally accepted accounting principles	2.88
Expiration of contract: Guidelines on information to be submitted upon expiration of an exploitation contract	2.88
Commercial production: Guidelines on criteria for determining the date of commercial production	3.12



# GROUP 1 (ASAP): TO ADVISE OTHER S, G'S & REGS

## ASSESSMENT FRAMEWORK

Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators

## SERIOUS HARM

Guidelines on the interpretation of serious harm

## IMPACT ASSESSMENT

Guidelines for environmental impact assessment and preparation of an environmental impact statement



	RANK
Assessment framework: Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators	1.18
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# GROUP 1 (ASAP): TO ADVISE OTHER S, G'S & REGS

## BASELINE DATA

Guidelines on the expected scope and standard of baseline data collection

## MONITORING (INC. POLLUTION)

Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area

## MANAGEMENT PLAN

Guidelines for the preparation of environmental management and monitoring plans



# COMPARISON



3

Serious harm interpretation of

1

"Operationalising serious harm should be a priority as the environmental regulations develop around this concept. Indicators and thresholds that will help assess serious harm also needed".

Monitoring and reporting and evaluation for the environmental impacts for the Area

3

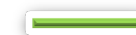
1

# RANKED STANDARDS AND GUIDELINES

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# BINDING STANDARDS & GUIDELINES

RESULTS OF DOSI MINERALS WORKING GROUP CONSULTATION

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# BINDING S & G W1 BREAKOUT 3



**Impact assessment:** Guidelines for environmental assessment and preparation of an environmental impact statement



**Monitoring:** Guidelines on the monitoring and reporting of results for the environmental effects of activities



**Pollution:** Guidelines on the prevention, control and mitigation of pollution



**Mapping:** Guidelines on the mapping of the Area



**Serious harm:** Guidelines on the interpretation of serious harm



**Baseline data:** Guidelines on the expected scope and standard of baseline data collection

*"For environmental data, especially biological data, there needs to be a standardized practice on how to collect and process samples as well as a way to ensure these practices are being performed. Training of contractors to specifically collect data or having assigned monitors aboard vessels may be necessary"*

**DATA COMPARABILITY**

# BINDING S & G W1 BREAKOUT 3

- 1** **Impact assessment:** Guidelines for environmental impact assessment and preparation of an environmental impact statement
- 2** **Monitoring:** Guidelines for the monitoring and evaluation of and reporting of results for the environmental effects of activities in the Area
- 3** **Pollution:** Guidelines for the control of pollution
- 4** **Mapping:** Guidelines for mapping seabed habitats and resources in the Area
- 5** **Serious harm:** Guidelines on the interpretation of serious harm
- 6** **Baseline data:** Guidelines on the expected scope and standard of baseline data collection



# TECHNICAL INPUT REQUIRED

RESULTS OF DOSI MINERALS WORKING GROUP CONSULTATION

# SCIENTIFIC INPUT

W3



CONSULTATION

- 1 **Baseline data:** Guidelines on the expected scope and standard of baseline data collection
- 2 **Impact assessment:** Guidelines for environmental impact assessment and environmental impact statement
- 3 **Marine scientific research:** Guidelines on protocols and procedures for research in the Area
- 4 **Stakeholder involvement:** Guidelines on the involvement of stakeholders in the development of standards and guidelines is key. A transparent process also - ie knowing who drafts the text, who suggests changes (presumably stakeholders), were those suggestions taken into account (why not?).
- 5 **Environmental assessment:** Guidelines on the assessment of environmental impacts and the application of best environmental practice
- 6 **Environmental monitoring and evaluation:** Guidelines on the application of best available scientific evidence
- 7 **Monitoring and evaluation:** Guidelines on the application of and reporting of results for the environmental effects of activities in the Area
- 8 **Environmental management and monitoring:** Guidelines on the application of and reporting of results for the environmental effects of activities in the Area
- 9 **Monitoring and evaluation:** Guidelines on the application of and reporting of results for the environmental effects of activities in the Area
- 10 **Management plan:** Guidelines for the preparation of environmental management and monitoring plans

"Clarify where in the flowchart that scientific/technical input/review is needed"





# RECOMMENDED RESOURCES/ EXAMPLES

RESULTS OF DOSI MINERALS WORKING GROUP CONSULTATION

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# SCIENTIFIC PAPERS



**Jones, D.O.B., Durden, JM, Murphy, K., Gjerde, KM, Gebicka, A, Colaco, A. Morator, T, Cuvelier, D. Billet, DSM (2019), Existing environmental management approaches relevant to deep-sea mining**, Marine Policy Volume 103, May 2019, Pages 172-181; <https://doi.org/10.1016/j.marpol.2019.01.006>



**Washburn, T. W., Turner, P. J., Durden, J. M., Jones, D. O. B., Weaver, P., Van Dover, C. L. (2019) Ecological risk assessment for deep-sea mining.** Ocean & Coastal Management. 176: 24-39. DOI: 10.1016/j.ocecoaman.2019.04.014



**Durden, J. M., Murphy, K., Jaeckel, A., Van Dover, C. L., Christiansen, S., Gjerde, K., Ortega, A., Jones, D. O. B. (2017) A procedural framework for robust environmental management of deep-sea mining projects using a conceptual model.** Marine Policy 84:193-201. DOI: 10.1016/j.marpol.2017.07.002



Recommendations provided by relevant projects in the field (e.g., EU FP7 MIDAS)



# INDUSTRY REFS



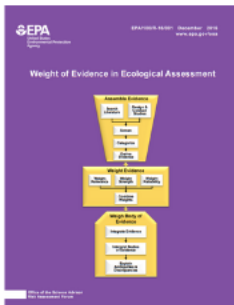
**UK aggregates levy:**  
Review UK EIA processes



**SCHEER (Scientific Committee on Health, Environmental and Emerging Risks)**  
Suggested guidelines for environmental risk assessment that could be adapted to the deep sea:



**Memorandum on weight of evidence and uncertainties 2018**  
[https://ec.europa.eu/health/sites/health/files/scientific\\_committees/scheer/docs/scheer\\_o\\_014.pdf](https://ec.europa.eu/health/sites/health/files/scientific_committees/scheer/docs/scheer_o_014.pdf) (pay particular attention on the environmental parts.)



**Suter, G. WEIGHT OF EVIDENCE IN ECOLOGICAL ASSESSMENT.**  
US EPA Office of Research and Development, Washington, DC, EPA100R16001, 2016. [https://cfpub.epa.gov/si/si\\_public\\_record\\_report.cfm?Lab=OSA&dirEntryId=335523](https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=OSA&dirEntryId=335523)

# Summary:



ADVANCING SCIENCE IN POLICY

**1) Goals and Objectives underpin whole framework - priority to develop**

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**2) Priority S&G's - Assessment Framework, Serious Harm, Impact Assessment, Baseline Data, Monitoring/Pollution & Management Plan**

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**3) Key to consider data standardisation as indicator for mandatory nature of S&G's, e.g. to enable REMP functioning.**

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**4) DOSI Minerals Working Group happy to conduct future consultations to scientific experts for ISA workshops if deemed useful.**

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# THANK YOU

WORKSHOP ON THE DEVELOPMENT OF STANDARDS  
AND GUIDELINES FOR THE MINING CODE

MAY 14TH | MS. AMBER COBLEY & DR DIVA AMON

ARTWORK TANYA YOUNG