

# Additional comments on the Gap Analysis of the draft ISA Environmental Regulations

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**National  
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## Four questions

- Is the concept of 'Vulnerable Marine Ecosystems' suitable for deep-sea mining?
- How can the Regulations be aligned with Strategic Environmental Management Plans (SEMPs)?
- How can expert advice be operationalised for assessing Environmental Impact Statements (EISs) and Environmental Management and Monitoring Plans (EMMPs)?
- Should mitigation, restoration and offsetting actions be included in the Regulations?

# Draft Regulation 41

## Matters to be taken into account by the LTC

- (e) the importance of protecting biological diversity and marine ecosystems
- (f) the importance of protecting Vulnerable Marine Ecosystems and habitats
- (c) the relevant Strategic Environmental Management Plan
- (n) any advice or reports sought from Appropriately Qualified Experts
- (k) the effect of measures, either in whole or part, to mitigate any adverse effects on the Marine Environment



# vulnerable marine ecosystems

- Background
- Key concepts
- Definitions
- Criteria

The vulnerable marine ecosystem (VME) concept emerged from discussions at the United Nations General Assembly (UNGA) and gained momentum after UNGA Resolution 61/105. VMEs constitute areas that may be vulnerable to impacts from fishing activities.



## VME Database

The VME Database is a global inventory of fisheries measures adopted in areas beyond national jurisdiction to prevent significant adverse impacts of bottom fisheries on vulnerable marine ecosystems. [More...](#)

Launch application



International Frameworks



Deep Sea Guidelines



Regional Fishery Bodies



VME Tools



Survey - Research Projects

## Additional inputs

- Ardron JA, et al. A systematic approach towards the identification and protection of vulnerable marine ecosystems. *Marine Policy* (2013)  
<http://dx.doi.org/10.1016/j.marpol.2013.11.017i>
- Report of the Workshop on Vulnerable Marine Ecosystems (La Jolla, CA, USA, 3 to 7 August 2009), Annex 10 to the Report of the Twenty-Eighth meeting of the Scientific Committee; 2009.  
<https://www.ccamlr.org/en/system/files/e-sc-xxviii-a10.pdf>



## Criteria for Vulnerable Marine Ecosystems (VMEs)

Uniqueness/rarity (contains rare species - that cannot be compensated for by [setting aside] similar areas)

Functional significance of the habitat (fish nursery, structural complexity for other species)

Fragility – susceptible to degradation

Life history traits that make recovery difficult

Adult motility

Larval dispersal and genetic connectivity

Seabed features – e.g. seamounts

# Is the term 'Vulnerable Marine Ecosystem' fit for purpose for deep-sea mining?

- **Yes and No** and depends in part which mineral resource is being addressed

- Seamounts



- Hydrothermal vents



- Inactive vent fauna



- Polymetallic nodules and abyssal sediment



**How can VME criteria be applied when all species can be classified as VMEs?**

## Lists of VMEs

- **Classified VMEs**

- Corals, sponges, cold seeps, hydrothermal vents, xenophyophores

- **What is not classified**

- Sea pens, sea anemones, hydroids, polychaetes, enteropneusts, sipunculids, echiurans, nematodes, isopods, amphipods, tanaids, kinorynchs, tardigrades, decapods, gastropods, scaphopods, bivalves, cephalopods, pycnogonids, asteroids, ophiuroids, echinoids, crinoids, holothurians, bryozoans, tunicates, benthopelagic taxa



## What is the solution ?

- Probably not to customise VME criteria for deep-sea mining – e.g. for lower productivity, lower biomass, slow recovery
- An ecosystem-based approach (Draft Regulation 6)
- Use spatial management measures which utilise the Precautionary Approach and Adaptive Management with time
- Spatial management recognises uniqueness and rarity through representativeness which CAN be compensated for by [setting aside] similar areas
- There will be significant adverse impacts, but over what % will this be acceptable to society?

## Aligning the Regulations with Strategic Environmental Management Plans (SEMPs)

Draft Reg 41 requires the LTC to consider exploitation applications in the context of the SEMF

The Authority is responsible for producing the SEMF

Highly dependent on the submission of baseline data by contractors

Data at the time of the EIS submission is too late

Can the Environmental Regulations ensure greater and timely data provision by contractors?



David Shale

## How might expert advice be operationalised?

Review of the Environmental Impact Statement (EIS), the baseline data and the Environmental Management and Monitoring Plan (EMMP) will be extensive and complex

It is unlikely the Secretariat or LTC will have the range of skills necessary for the review

The process of engaging experts for impartial assessment, e.g. from an accredited pool of experts may need specifying in the Regulations

Open reporting of EIS, EMMP, reviewers' comments and contractors' responses



Swimming sea cucumber

## Can mitigation and restoration actions be taken?

Contractor actions to reduce compaction and the spread of plumes

Are other actions possible?

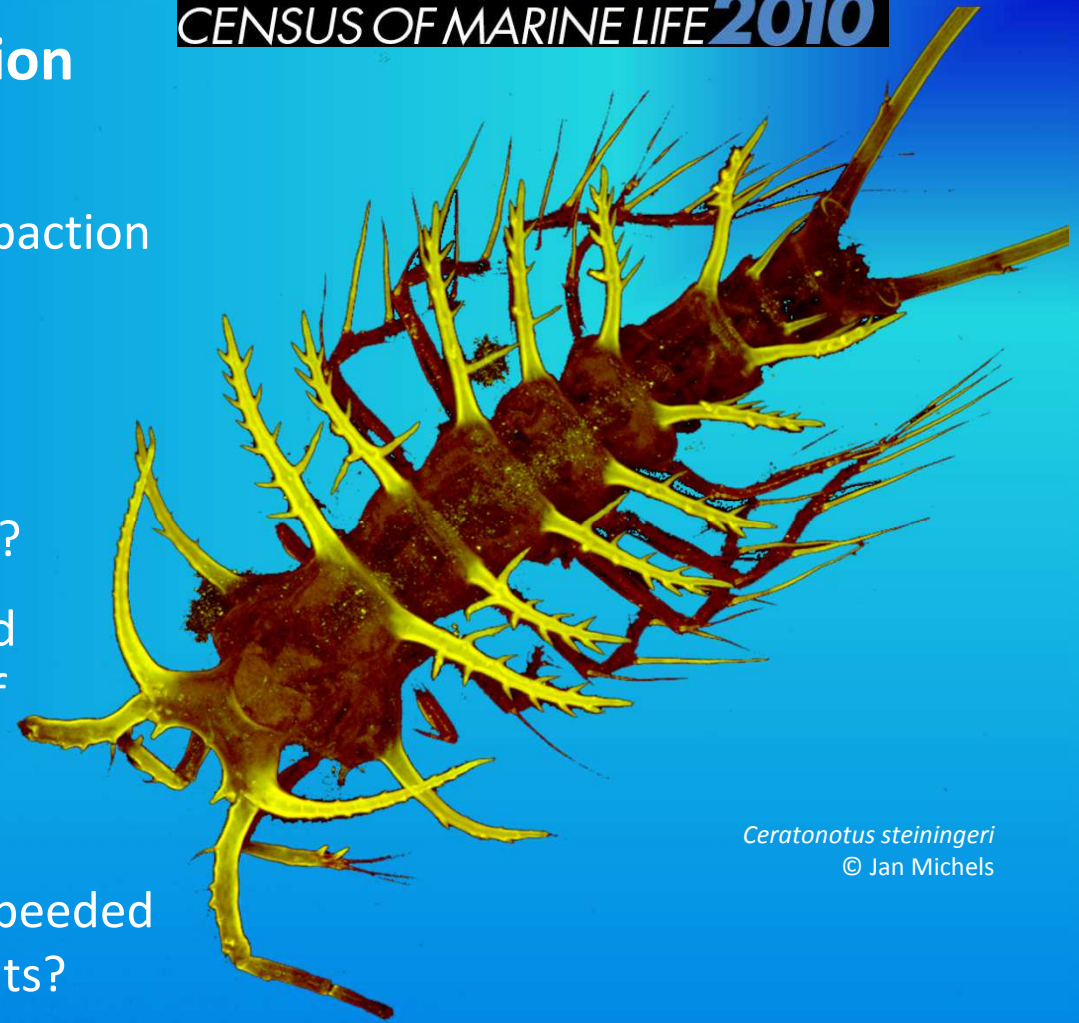
Can hydrothermal ecosystems be rebuilt through artificial chimneys?

Plumes will lead to unconsolidated sediments – can the production of microbial exopolymers be stimulated to bind sediments?

Can recolonisation processes be speeded up by providing phytodetrital inputs?

Should false manganese nodules be introduced to the seabed?

Should offsetting be regulated?



*Ceratonotus steingeri*  
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