Template for the review of the draft standards and guidelines associated with the draft regulations on exploitation of mineral resources in the Area

I. Background

1. The draft regulations on exploitation of mineral resources in the Area (ISBA/25/C/WP.1) require that certain issues are addressed in accordance with, or taking into account, standards and guidelines to be developed by the organs of the Authority. The standards will be adopted by the Council and will be legally binding on Contractors and the Authority, whereas the guidelines will be issued by the Legal and Technical Commission or the Secretary-General and will be recommendatory in nature.

2. Stakeholder consultation is an integral part of the process decided upon by the Commission for the development of the standards and guidelines (ISBA/25/C/19/Add.1).

3. The Legal and Technical Commission will consider the comments received through stakeholder consultation during its current session.

4. The drafts include a cover page containing background and contextual information on the approach taken by the Legal and Technical Commission in developing each standard and guidelines. Please note that stakeholder comments are not sought on this cover note.

5. Issues of format and consistency across the standards and guidelines will be reviewed by the secretariat and the Legal and Technical Commission once the content of the various standards and guidelines is finalized following stakeholder consultation.

II. Submitting Comments

6. To ensure that your comments are given due consideration, please send them by e-mail to ola@isa.org.jm, at your earliest convenience but **no later than the date announced on the ISA website for the relevant draft standards and guidelines.**

7. When submitting comments, please adhere to the following guidance as much as possible:

   a. Please provide all comments in writing and in an MS Word .doc or .docx format using the table provided below.

   b. The table format allows for an unlimited number of comments to be added. To add more comments, you may add more rows.

c. Please provide full contact information for the individual/Government/organization submitting the comments.

d. Please avoid commenting on issues related to format, grammar, spelling or punctuation, unless it affects the overall meaning of the text, as the document will be formatted and edited when the final draft is prepared by the Legal and Technical Commission.

e. To facilitate the revision process please be as specific as possible in your comments. In areas where you feel additional or alternative text or information is required, please suggest what this text may look like or what information should be included.

f. Text may be copied from the draft into the table if stakeholders wish to use "track changes" in editing text (this is encouraged to ensure accuracy and avoid numbering errors).

g. If you refer to additional sources of information, please include these with your comments when possible or provide a complete reference or hyperlink.

h. All review comments will be posted on the ISA website, unless otherwise requested by the submitting entity.

8. Should you have any questions regarding the review process, please contact ola@isa.org.jm.

III. Template for Comments

9. Please use the review template below when providing comments.

10. Line and page numbers have been provided in the drafts. Please use these as a reference as illustrated in the table below.

TEMPLATE FOR COMMENTS

Document reviewed	
Title of the draft being reviewed:	Draft Guidelines for the establishment of baseline environmental data
Contact information	
Surname:	Poulton
Given Name:	Alex
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Organization (if applicable)**:**	Lyell Centre, Heriot-Watt University (Associate Professor of Oceanography)
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General Comments

I work in the upper ocean and find the text and approach in the current draft on this part of the guidelines a worrying back track relative to previous documents – specifically, the sections on Chemical oceanography and biogeochemistry (Part V) and the section on Biological Communities (Part VII) contain scientific errors, oversimplifications, and very little information relative to previous guidance. Mining activity in the open ocean will be associated with an increase in ship traffic and semi-permanent processing ships being resident in remote pristine pelagic (upper ocean) environments. I base these comments, and those below, on >20 years of experience in pelagic ecology and reading in great detail the previous guidance (i.e., ISBA_25_LTC_6).

Specific Comments

Page	Line	Comment
19	683	Whole paragraph misrepresents biogeochemistry as a purely seafloor-based science of observations and measurements. Ignores the 4-km of water on top of the seafloor where crucial biogeochemical processes occur and set the resource supply to the seafloor.
19	684	Marine biogeochemistry does not focus on seafloor processes only, it focusses on process throughout the water column, including their linkages.
19	685	Related to the above: Observations do not only focus on processes at the seafloor – the formation and export of organic matter exported from the surface waters are all biogeochemical processes.
20	700	Stating that upper ocean nutrient concentrations 'constitute a key control mechanism of organic matter availability at the seafloor' ignores the fact that full-ocean depth nutrient profiles are informative of other important aspects, for example the remineralization of material sinking down through the water column (decline in resource supply to the seafloor), and the mixing of water masses with different dissolved nutrient characteristics (determining the 'spread' of material added to the watercolumn).
20	709	The carbonate system **does not constrain** primary production or organic matter remineralization – it provides a signal of the degree of primary production and the amount of organic matter (carbon) that is sequestered to depth. It is not a controlling factor for organic matter production or remineralization.
20	736	Unclear why the following section ignores the sensors common on CTDs (e.g., oxygen sensors) or the new generation of sensors (e.g., for nitrate) when these would give more continuous profiles of key chemical constituents.
22	802	One CTD station/profile per zone will vastly under sample any localized variability on spatial variability, noting that current speeds decline with depth so that upper ocean properties may be more variable than deep ones. Triplicate (for e.g.) would be good to get representative upper ocean profiles – especially, to relate to satellite pixels which are ~4 km. Considering comparison between seasons/years, how will single profiles of properties be compared (statistically) across the different zones and different time periods? Variability will be impossible to detect from single profiles.
22	812	Whilst it is understandable to have higher vertical sampling resolution near

		the seabed, characterizing the upper biologically active part of the water column (productive layer, mixed layer, pycnocline, OMZ) will also require high vertical resolution.
24	874	There is no method for the pelagic/upper ocean with which primary production, respiration rate or remineralization can be 'determined' from the measurements listed above, certainly not in a quantitative sense (which is essential for baseline studies). Not clear what this section refers to from an experienced upper ocean perspective.
25	947	Simple discrete oxygen observations (as described in the preceding section) will not allow the determination of Net Community Production (NCP) or Net carbon export flux – NCP will require 24-hr oxygen bottle incubations and estimates of community respiration (R). I am assuming that the author(s) equate upper ocean Net Community Production (NCP) to Net Carbon Flux, but it is not made clear.
30	1134	Due to the large refractory DOC pool in the ocean, it is not possible to determine the contribution of labile DOC to Net Community Production by simply measuring DOC concentrations. You cannot measure a state variable and calculate a rate. DOC production by phytoplankton is usually done with radioisotopes.
31	1196	Spelling mistake of 'particular' and 'emphasis'.
31	1195	Upper ocean primary production cannot be determined from the quantity of sinking material, only the export of organic matter production via primary production. Typically, only 10-30% of upper ocean primary production is exported deeper than 100 m, and by 1-2 km this has been remineralized down to around 1% of surface production – what is seen at the seafloor is not the entirety of what was produced in the surface.
32	1230	Measurements of particulate matter in the water column **do not** allow you to determine primary production (a rate), but flux data allows export fluxes and carbon supply, as well as the attenuation of organic matter in the water column, to be calculated. This is a repeat of previous comments.
32	1234	POC does not ballast itself, rather it is the biominerals PIC and BSi that ballast POC export through the water column (not the euphotic zone). The reference Klaas and Archer (2002) refers to deep-sea sediment traps (1-2 km), not euphotic zone measurements.
42	1641	The rate of primary productivity cannot be determined from a state variable (i.e., chlorophyll-a), rate measurements are needed. Chlorophyll-a is an indicator of algal biomass, but in the open ocean there can be radical changes in cellular pigmentation which result in changes ratios and relationships between chlorophyll-a and carbon-biomass.
Additional rows can be added to this table by selecting "Table" followed by "insert" and "rows below"		

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