Comments from Public Consultation on ECV Requirements 13/01 – 13/03 2020 for:

# Plankton

## ECV Product: Zooplankton diversity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | Zooplankton diversity | | | | |
| **Definition** | Number of species per unit | | | | |
| **Unit** |  | | | | |
| **Note** |  | | | | |
| **Requirements** | | | | | |
| **Item needed** | **Unit** | **Metric** | **[1]** | **Value** | **Derivation and References and Standards** |
| **Horizontal Resolution** | km |  | G | 100 |  |
| B |  |  |
| T | 2500 |  |
| **Vertical Resolution** | m |  | G | 10 |  |
| B |  |  |
| T | surface |  |
| **Temporal Resolution** |  |  | G | Monthly |  |
| B |  |  |
| T | Annual |  |
| **Timeliness** |  |  | G | 1 |  |
| B |  |  |
| T | 2 |  |
| **Required Measurement Uncertainty** | % |  | G |  |  |
| B |  |  |
| T | 5 |  |
| **Stability** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Standards and References** |  | | | | |
| **Adaptation and Extremes** | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| **Adaptation[2]** |  |  |  | | |
| **Extremes[3]** | Y |  |  | | |

[1]Goal (G); Breakthrough (B)(not mandatory, more as one possible); Threshold (T), for definitions see [Guidelines](http://tiny.cc/ecv-review)

[2] Is the ECV Product directly relevant to support Climate Adaptation?

[3] Can the ECV Product be used to monitor climate extremes or aspects of extremes?

NO COMMENT

## ECV Product: Zooplankton biomass

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | Zooplankton biomass | | | | |
| **Definition** | Weight of zooplankton by volume | | | | |
| **Unit** | mg/l | | | | |
| **Note** | can be dry weight or wet weight | | | | |
| **Requirements** | | | | | |
| **Item needed** | **Unit** | **Metric** | **[1]** | **Value** | **Derivation and References and Standards** |
| **Horizontal Resolution** | km |  | G | 100 |  |
| B |  |  |
| T | 2500 |  |
| **Vertical Resolution** | m |  | G | 10 |  |
| B |  |  |
| T | surface |  |
| **Temporal Resolution** |  |  | G | Monthly |  |
| B |  |  |
| T | Annual |  |
| **Timeliness** |  |  | G | 1 |  |
| B |  |  |
| T | 2 |  |
| **Required Measurement Uncertainty** | % |  | G |  |  |
| B |  |  |
| T | 5 |  |
| **Stability** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Standards and References** |  | | | | |
| **Adaptation and Extremes** | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| **Adaptation[2]** |  |  |  | | |
| **Extremes[3]** | Y |  |  | | |

[1]Goal (G); Breakthrough (B)(not mandatory, more as one possible); Threshold (T), for definitions see [Guidelines](http://tiny.cc/ecv-review)

[2] Is the ECV Product directly relevant to support Climate Adaptation?

[3] Can the ECV Product be used to monitor climate extremes or aspects of extremes?

NO COMMENT

## ECV Product: Phytoplankton diversity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | Phytoplankton diversity | | | | |
| **Definition** | Number of species per unit sample | | | | |
| **Unit** |  | | | | |
| **Note** |  | | | | |
| **Requirements** | | | | | |
| **Item needed** | **Unit** | **Metric** | **[1]** | **Value** | **Derivation and References and Standards** |
| **Horizontal Resolution** | km |  | G | 100 |  |
| B |  |  |
| T | 2000 |  |
| **Vertical Resolution** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Temporal Resolution** |  |  | G | Weekly-seasonal |  |
| B |  |  |
| T | decadal |  |
| **Timeliness** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Required Measurement Uncertainty** | % |  | G |  |  |
| B |  |  |
| T | 5 |  |
| **Stability** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Standards and References** |  | | | | |
| **Adaptation and Extremes** | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| **Adaptation[2]** |  |  |  | | |
| **Extremes[3]** |  |  |  | | |

[1]Goal (G); Breakthrough (B)(not mandatory, more as one possible); Threshold (T), for definitions see [Guidelines](http://tiny.cc/ecv-review)

[2] Is the ECV Product directly relevant to support Climate Adaptation?

[3] Can the ECV Product be used to monitor climate extremes or aspects of extremes?

### Comment 1

|  |  |
| --- | --- |
| Author: Koji Sugie | Email: sugie@jamstec.go.jp |
| Concerning the unit, the number of species per unit water volume (not per sample) must be used.  Measuring and terminology of diversity need caution. In a strict sence in ecology, the number of species per unit water volume should be described as the species density (Gotelli and Colwell, 2001). In addition, diversity is different and independent index from species density or species richness. Biodiversity may be better wording here. It should be noted that the number of species increases with sampling effort, i.e., the examined water volume (Cermeno et al. 2014; Sugie and Suzuki, 2015, 2017). It is better to fix sampling effort such as 100 or 500 mL etc...  Refs.  Gotelli, N. J. and R. K. Colwell. 2001. Quantifying biodiversity: procedures and pitfalls in the measurement and comparison of species richness. Ecol. Lett. 4: 379–391.  Cermeño, P., I. G. Teixeira, M. Branco, F. G. Figueiras, and E. Marañón. 2014. Sampling the limits of species richness in marine phytoplankton communities. J. Plankton Res. 36: 1135–1139.  Sugie, K. and K. Suzuki. 2015. Size of dominant diatom species can alter their evenness. PLoS ONE, 10, e0131454, doi:10.1371/journal.pone.0131454.  Sugie, K. and K. Suzuki. 2017. Characterization of the synoptic-scale diversity, biogeography, and size distribution of diatoms in the North Pacific. Limnol. Oceanogr. 62: 884 –897.  Thank you, | |

### Comment 2

|  |  |
| --- | --- |
| Author: Erin Satterthwaite | Email: satterthwaite@nceas.ucsb.edu |
| Will marine bacteria/microbes be included as an ECV? Their role is vitally important both from a carbon cycling perspective but also from a human health perspective.  Citation: nature.com/articles/s41579-019-0222-5 | |

## ECV Product: Chlorophyll-a concentration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | Chlorophyll-a concentration | | | | |
| **Definition** | Concentration of chlorophyll-a pigment in the surface water | | | | |
| **Unit** | µg l-1 | | | | |
| **Note** |  | | | | |
| **Requirements** | | | | | |
| **Item needed** | **Unit** | **Metric** | **[1]** | **Value** | **Derivation and References and Standards** |
| **Horizontal Resolution** | km |  | G | 4 |  |
| B |  |  |
| T |  |  |
| **Vertical Resolution** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Temporal Resolution** |  |  | G | weekly |  |
| B |  |  |
| T | decadal |  |
| **Timeliness** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Required Measurement Uncertainty** | % |  | G | 30 |  |
| B |  |  |
| T | 30 |  |
| **Stability** | % |  | G | 3 |  |
| B |  |  |
| T | 3 |  |
| **Standards and References** |  | | | | |
| **Adaptation and Extremes** | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| **Adaptation[2]** |  |  |  | | |
| **Extremes[3]** |  |  |  | | |

[1]Goal (G); Breakthrough (B)(not mandatory, more as one possible); Threshold (T), for definitions see [Guidelines](http://tiny.cc/ecv-review)

[2] Is the ECV Product directly relevant to support Climate Adaptation?

[3] Can the ECV Product be used to monitor climate extremes or aspects of extremes?

NO COMMENT

## ECV Product: Phytoplankton biomass

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | Phytoplankton biomass | | | | |
| **Definition** | Weight of phytoplankton by volume | | | | |
| **Unit** | mg/l | | | | |
| **Note** |  | | | | |
| **Requirements** | | | | | |
| **Item needed** | **Unit** | **Metric** | **[1]** | **Value** | **Derivation and References and Standards** |
| **Horizontal Resolution** | km |  | G | 100 |  |
| B |  |  |
| T | 2000 |  |
| **Vertical Resolution** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Temporal Resolution** |  |  | G | Weekly-seasonal |  |
| B |  |  |
| T | decadal |  |
| **Timeliness** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Required Measurement Uncertainty** | % |  | G |  |  |
| B |  |  |
| T | 5 |  |
| **Stability** |  |  | G |  |  |
| B |  |  |
| T |  |  |
| **Standards and References** |  | | | | |
| **Adaptation and Extremes** | | | | | |
|  | Relevant? (Yes/No) | Sugg. Req. sufficient? (Yes/No) | Explanation | | |
| **Adaptation[2]** |  |  |  | | |
| **Extremes[3]** |  |  |  | | |

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### Comment 1

|  |  |
| --- | --- |
| Author: Koji Sugie | Email: sugie@jamstec.go.jp |
| Is this samples for phytoplankton biomass collected by plankton net? Otherwise, the unit mg/l cannot be available. I recommend the µg carbon per litter (µg C/L), because in microscopic analysis, researcher usually convert carbon biomass from cell volume of each phytoplankton using allometry.  Thank you. | |