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Weddell Sea MPA data layers have been deposited with the data publisher PANGAEA

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Abstract This paper informs EMM 2019 about the data layer products, which were developed for WSMMPA spatial planning, and lists the DOIs to the respective PANGAEA entries. By depositing these data layers with PANGAEA, we provide transparency regarding the WSMMPA development process and follow the discussion under CCAMLR about the need to make reference material on MPAs easily accessible to the scientific community.

In the framework of the project *Weddell Sea Marine Protected Area (WSMPA)* we collected, compiled, cleaned, and analysed extensive environmental and ecological data sets (almost 50,000 data files) over the last six years. From these files, hundreds of data layers were produced using diverse modelling techniques and geographic information systems to obtain a representative and holistic picture of the wider Weddell Sea ecosystem, ranging from environmental (e.g., topography, sea ice dynamics) to oceanographic (e.g., temperature, salinity) to biological features (e.g., species distribution, biodiversity patterns). The analysis of these data led to the proposal of an approximately 2 million-km² area for protection in the Weddell Sea (the WSMMPA). This proposal (CCAMLR-XXXVII/29) was submitted to CCAMLR in 2018 but was not adopted by the CAMLR Commission.

We continue to work towards a scientifically sound WSMMPA proposal. This includes, among other things, ensuring that the MPA planning process with its scientific analyses is as transparent as possible. To this end, we published all data layers developed in the course of the WSMMPA spatial planning process, as we noted at the EMM Working Group Meeting in 2015 (see WG-EMM-15 report, paragraph 3.30).

The data layers with metadata description (incl. e.g. description of analytical data processing) are available via the data publisher PANGAEA, either as ArcMAP packages (as mxd. file, containing a map document with all associated files) or as individual GIS files for those who use another GIS-software instead of the ESRI software (ArcMap). The shape and raster files were processed in such a way that they can be easily used for the analysis of MPA scenarios or other geo-statistical analyses in the Weddell Sea.

The following PANGAEA entries lead to the data layer products developed within WSMMPA planning initiative and used in the MARXAN WSMMPA model:

- 1) Pehlke, Hendrik; Brey, Thomas; Teschke, Katharina (2019): Spatial distribution of a flying seabird (Antarctic petrel) and penguins (Adélie penguin, Emperor penguin) in the wider Weddell Sea (Antarctica) with links to ArcGIS map packages. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899520>
- 1) Teschke, Katharina; Pehlke, Hendrik; Brey, Thomas (2019): Spatial distribution of demersal and pelagic fishes in the wider Weddell Sea (Antarctica) with links to ArcGIS map packages. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899591>
- 2) Pehlke, Hendrik; Teschke, Katharina (2019): Pelagic regionalisation approach in the wider Weddell Sea (Antarctica) with link to ArcGIS map package. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899595>
- 3) Pehlke, Hendrik; Brey, Thomas; Teschke, Katharina (2019): Spatial distribution of seals in the wider Weddell Sea (Antarctica) with links to ArcGIS map packages. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899619>
- 4) Teschke, Katharina; Pehlke, Hendrik; Brey, Thomas (2019): Spatial distribution of zoobenthos (sponges, echinoderms) in the wider Weddell Sea (Antarctica) with links to ArcGIS map packages. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899645>
- 5) Teschke, Katharina; Pehlke, Hendrik; Brey, Thomas (2019): Spatial distribution of zooplankton (Antarctic krill, ice krill) in the wider Weddell Sea (Antarctica) with links to ArcGIS map packages. *PANGAEA*, <https://doi.org/10.1594/PANGAEA.899667>

With the publication in PANGAEA we provide transparency regarding the WSMMPA project and comply with the request by CCAMLR to make reference material on MPAs (including data layers, etc.) available, at least on the CCAMLR website in the Members-only section (e.g., WG-EMM-15 report, SC-CAMLR-XXXIV/01). A link between our PANGAEA entries and the CCAMLR website is conceivable and could be briefly discussed at the upcoming EMM Working Group Meeting (WG-EMM-19).

References

CCAMLR-XXXVII/29 (2018): EU proposal to establish the Weddell Sea MPA (WSMMPA), Delegation of the European Union. Working paper submitted to the CAMLR Commission Meeting, Hobart, Australia, 22 Oct to 2 Nov 2018, 35 pp.

WG-EMM-15 (2015): Report of the Working Group on Ecosystem Monitoring and Management (Warsaw, Poland, 6 to 17 Jul 2015). In: SC-CAMLR-XXXIV, Report of the thirty-fourth meeting of the Scientific Committee (Hobart, Australia, 19 to 23 Oct 2015), Annex 6, 217-313.

SC-CAMLR-XXXIV/01 (2015): Proposal for managing scientific reference material to support ongoing discussions in the Commission, Delegation of Australia. Working paper submitted to the CCAMLR Scientific Committee, Hobart, Australia, 19 to 23 Oct 2015, 2 pp.