

Dear Topical Editor,

We appreciate you and the reviewers for your precious time in reviewing our Data description paper and providing valuable comments. The authors have carefully considered the comments. We hope the manuscript after careful revisions meet high standards of the ESSD. Below we provide the point-by-point responses. All modifications in the manuscript have been highlighted using track changes in Word.

Referee #1 Dr. Carstensen

“This science data manuscript presents a diverse collection of long-term monitoring time series from the Patos Lagoon Estuary and the adjacent coastal area. It provides a detailed description of the methods employed in collecting and analyzing the data, and the data sets are standardized and quality assured such that the data can be readily used for research and management. I only have two general comments and then a number of comments/editorial suggestions of technical nature”.

1. comments from referee

“First, datasets VI and VII appear to arise from exactly the same sampling program, even the associated environmental variables are exactly the same. If so, much of the information provided is redundant and it would be more logical to combine the two datasets into one single that includes both shrimps and fish assemblages. It is important to know, if the two data sets are actually subsets of the same sampling scheme, as this can have effect on how a combined dataset will be analysed”

Author's response: Your interpretation is correct. Dataset VI is a subset of the same sampling scheme of dataset VII and presents similar environmental variables as sampling efforts were carried out together to optimize our limited logistical and financial resources. Biological samples processing, identification and data analysis were performed by two different research groups, hence originating two distinct datasets that share the same environmental variables. The publication as two distinct datasets is justified considering the possibility of users to search dataset VI or VII separately in the GBIF platform depending on their taxonomic interest. Although the PLEA datasets are presented together in this data paper, in the repository they can be found as individual datasets. Publishing separate datasets in the repository further contributes to them being findable and mainly, reusable (FAIR principles).

Author's changes in the manuscript: We have included the following text (line 330-331): “The datasets VI and VII are subsets of the same sampling scheme and the associated environmental variables are the same”.

2. comments from referee

“Second, the abbreviation PLEA is introduced in the beginning but not always consistently employed throughout the manuscript. Please check the nomenclature for consistency”.

Author's response: The use of the abbreviation PLEA (Patos Lagoon Estuary and Adjacent marine coast) has been corrected as suggested in the revised manuscript.

Author's changes in the manuscript: Changes in the revised manuscript: line 18, 114, 134, 158/159, 210, 236, 306 and line 320.

3. comments from referee:

“Comments/editorial suggestions of technical nature.

Detailed comments:

Line 21: Add ‘The’ before ‘database’.

Line 50: Add ‘the’ before ‘Southern Hemisphere’. Replace ‘temporal data series’ with ‘time series’.

Line 66: Add ‘the’ before ‘Southern Hemisphere’.

Line 76: Delete duplicate ‘discharge’.

Line 84: Replace ‘to result in change in biodiversity’ with ‘to affect biodiversity’.

Line 102: Use small letter ‘l’ in latitude and longitude.

Table 1 footnote: last dataset should be ‘VIII’ and not ‘VII’.

Table 2 footnote: same as for Table 1.

Line 179: insert ‘associated with the phytoplankton sample’ before ‘were’.

Line 182: No comma before ‘for’.

Line 205: Place ‘were used’ at the end of sentence.

Line 223: insert ‘to’ before ‘the database’.

Line 242: ‘was’ should be ‘were’. Please check for use of plural form of the verb in relation to ‘data’, as data is the plural form of datum.

Line 246: Should be ‘monitored monthly’ (change order).

Line 251: Do you mean ‘wooden posts’ or ...?

Line 266: This sentence is unclear. ‘was’ should be ‘were’. Replace ‘applied’ with ‘calculated’.

Line 271: ‘re-evaluated’.

Line 288: ‘laboratory’ with small letter.

Line 292: ‘before the uploading to the database. Data were ...’

Line 302: Should start with ‘Water temperature ...’

Line 303: ‘sampling occasion’.

Line 305: insert ‘the’ before ‘methodology’.

Line 310: PLEA instead?

Line 333: PLEA instead?

Line 338: ‘were’ should be ‘was’.

Line 362: ‘in Section 3.2 for more details’

Line 656: ‘all datasets’ technical information has been’.

Line 666: ‘associated’

Line 674: remove comma after ‘researchers’.

Line 708: Not sure if ILTER has been spelled out before. Check and correct.”

Author's response: Your editorial suggestions of a technical nature have been accepted.

Author's changes in the manuscript: All suggestions were accepted and done in the manuscript. All modifications in the manuscript have been highlighted using track changes in Word.

4. comments from referee

“Line 184: If the sample for DSi was frozen then the authors should verify that this does not affect the sample. Problems with polymerization have been reported numerous times.”

Author's response: In fact, it would be ideal to have freeze the filters were the samples were concentrated, instead of frozen samples. However, if samples are frozen for a short time, no modifications in the Chlorophyll structure are observed.

5. comments from referee

“Line 195: The authors mention that new methodologies were introduced! This needs to be elaborated with respect to what was changed and when”.

Author's response: Actually, there was a mistake in our statement at line 202. For phytoplankton counting there was never changes in methodology, but in people involved in the cells counting. However, each change of personnel responsible for the determination in cells abundance occurred after a training and under the supervision of a senior researcher in this area. When technical assistance changed, duplicated analyses were carried on for quality control, that guaranteed the high quality of the data along all project. We have improved the description in the revised manuscript.

Author's changes in the manuscript: We have included the following text (line 196-202): "People involved in sampling activities and technical assistance for nutrient analysis and of phytoplankton counting changed during the years (six persons), but always under supervision of the same responsible researchers. However, each change of personnel responsible for the determination in cells abundance occurred after training and under the supervision of a senior researcher in this area. When technical assistance changed, duplicated analyses were carried on for quality control that guaranteed the high quality of the data along all project."

Anonymous Referee #2

6. comments from referee

"This manuscript describes the datasets available from a LTER site, the Patos lagoon, one of the largest in South America. The data sets contain main parameters such as physicochemical data, phytoplankton, micro and meso-zooplankton and others relevant for conservation, such as the bottlenose dolphin. The manuscript is well presented, the data are relevant and include several organisms. Despite that some relevant part of the ecosystem are missing (e.g. heterotrophic prokaryotes in the plankton or in the benthos, contaminants) the dataset is of sufficient quality and responds to the FAIR principles. I suggest to account for these missing parameters in the discussion, showing to be aware that such components are key in order to assess environmental quality and that these should also be considered for future implementations of the observatory. The quality control schemes are sensitive and adequate, also considering the amount of data that the dataset contains. The relevance of the dataset is well presented and the conclusions supported by evidence."

Author's response: Thank you for the comments. We recognize the importance of the missing parameters addressed in your comment. In fact, since the beginning of LTER-PLEA we have planned for the inclusion of heterotrophic prokaryotes in the sampling protocol but we never managed to have the necessary expertise in our group. Contaminants are another relevant set of variables for urbanized aquatic ecosystems that we wish we could monitor within the PLEA. Despite the relevance of these and other parameters, constant funding cuts have prevented us from expanding the set of Biological groups and environmental parameters analyzed. Thank you for your time during this review process.

Author's changes in the manuscript: We have included the following text in the Potential use and Conclusions (line 739-741): "Despite the wide range of variables monitored, we acknowledge that several components that are key to assess ecosystem quality are missing from our dataset. We have plans to monitor contaminants and heterotrophic prokaryotes in the near future".