

## ***Interactive comment on “A long term (1965–2015) ecological marine database from the LTER-Italy site Northern Adriatic Sea: plankton and oceanographic observations” by Francesco Acri et al.***

**Francesco Acri et al.**

annalisa.minelli@gmail.com

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- r. 19: We will modify line 17 as follows: “In this paper, we describe a 50 years (1965-2015) ecological database containing data collected in the Northern Adriatic Sea (NAS)”

- r. 46-47: We will modify the paragraph as follows, adding some references: “From the researcher point of view, open practices have been reported to give advantage, first of all, to open new frontiers in science (Science|Business Network’s Cloud Consultation

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Group, 2019) and provide solutions to urgent societal problems (Palen et al., 2015; Tai and Robinson, 2018); moreover, it allows gaining more citations, media attention, potential collaborators, and funding opportunities (Eisenbach, 2006; McKiernan et al., 2016, Tennant et al., 2019) and it is vital for leaving a heritage to future generations”

References to be added:

\* Science|Business Network’s Cloud Consultation Group (2019). Why Open Science is the Future (and how to make it happen). Science|Business. Brussels. Report available here: <https://sciencebusiness.net/report/why-open-science-future-and-how-make-it-happen>

\* Palen, L., Soden, R., Anderson, T. J., & Barrenechea, M. (2015, April). Success & scale in a data-producing organization: The socio-technical evolution of Open-StreetMap in response to humanitarian events. In Proceedings of the 33rd annual ACM conference on human factors in computing systems (pp. 4113-4122). ACM.

\* Tai, T., & Robinson, J. (2018). Enhancing climate change research with open science. *Frontiers in Environmental Science*, 6, 115.

\* Eysenbach, G. (2006). Citation advantage of open access articles. *PLoS biology*, 4(5), e157. DOI: 10.1371/journal.pbio.0040157

\* Tennant JP, Crane H, Crick T, Davila J, Enkhbayar A, Havemann J, Kramer B, Martin R, Masuzzo P, Nobes A, Rice C, Rivera-López BS, Ross-Hellauer T, Sattler S, Thacker P, Vanholsbeeck M. 2019. Ten myths around open scholarly publishing. *PeerJ Preprints* 7:e27580v1 DOI: 10.7287/peerj.preprints.27580v1

- r. 97: Yes, Adriatic Sea is part of the Mediterranean area, we will modify the sentence as follows: “and the notable sea-level range, relatively to the rest of the Mediterranean area..”

- r. 102-103: We will modify the text, better specifying the periods of trophic changes and relative references: “The basin has undergone overfishing (Fortibuoni et al., 2010),

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marked eutrophication (during the 70s; Giani et al., 2012), followed by a phase of oligotrophication (years 2000s; Mozetic et al., 2010) and by a recent increase of nutrient concentrations (since 2007; Totti et al., 2019)."

Reference to be added:

Giani et al., 2012. Recent changes in the marine ecosystems of the northern Adriatic Sea, *Estuarine, Coastal, and Shelf Science*, Volume 115, 2012, Pages 1-13, ISSN 0272-7714, <https://doi.org/10.1016/j.ecss.2012.08.023>.

- r. 108-109: The authors agree in referencing Table 2 here since it gives a complete overview of all the parameters examined. We will modify the sentence as follows: "The LTER-Italy parent site NAS includes four research sites (Gulf of Trieste, Gulf of Venice, Po Delta and Romagna Coast, Senigallia-Susak Transect; Figure 1), where meteorological and biological data, mainly on plankton (Table 2), are gathered both during oceanographic cruises and at fixed point observatories."

- r. 110 -111: The dataset we describe here refers to the whole NAS, which includes also the 4 LTER research sites but is a much wider area, described in detail in the text (lines 93-112). The Authors believe that additional descriptions only of the four research sites could be a little bit misleading.

- r. 119: We will better explain the level of metadata and accessibility of data by adding the following sentence after line 130: "In particular, methodological protocols and associated documentation changed through time. Several sensors are described and extensively documented through the GET-IT platform (see Paragraph 5), where it is possible to visualize all the observations related to a specific instrument or method. Other protocols have undergone a deep metadata process by analyzing ancillary historical metadata (Scovacicchi, 2017). In this case, it is not immediately possible to obtain data related to a specific protocol, but it is still possible to filter data by method by importing the .csv file in a spreadsheet."

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ps: the partial upload of data through GET-IT platform is justified in rows 270-288.

- Tab. 2:

\* We will add to the table the name of pH sensors (pH glass membrane and pH electrode) and Oxygen sensor (Oxygen Polarographic sensor).

\* For the indication of depth coverage and sampling frequency range we will add this sentence in paragraph 3 (rows 121-123): "Sampling frequency: e.g., data coming from CTD, such as temperature, oxygen, and pH, are registered in real-time at each meter in depth; other parameters, like nutrients and phytoplankton, are sampled at a much lower time-frequency and at variable depths. The depth coverage ranged between 0-63 m, the sampling frequency from monthly to seasonal"

\* We will change the measurement unit ( $\mu\text{m dm}^{-3}$ ) of nutrients as requested

- Tab. 1: We will change the caption as follow: "Operation periods of the different research vessels between 1965 and 2015 and number of observations"

- r. 182: We will add the following sentence at rows 182-183 in order to clarify the level of quality assurance of data: "Samples collected during each cruise, whatever the station, were then analyzed in the laboratory by means of diverse techniques. Since 2000 analytical quality of nutrients and chlorophyll analyses is assessed through participation to the Quality Assurance of Information for Marine Environmental Monitoring In Europe (QUASIMEME; <http://www.quasimeme.org>) international laboratory proficiency-testing. The complete ..."

- r. 204: We will modify the sentence as follows: "To deal with this issue, internal education and recurring calibration of taxonomic competence were carefully considered, with training periods and intercalibrations phases."

- r. 206: Here we will add the following sentence in order to complete the list of taxonomic references we adopted: "Since 2006 the taxonomic revision of the phytoplankton species has been made according to the global algal database of taxo-

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nomic, nomenclatural and distributional information “Algaebase” ([www.algaebase.org](http://www.algaebase.org)), for the zooplankton the Marine Planktonic Copepods catalog (<https://copepodes.obs-banyuls.fr/en/links.php>, Razouls et al., 2005-2019) has been used. In the past, for phyto and zooplankton analyses several texts and monographs were used (Berard-Therriault et al., 1999; Harris et al., 2000; Heimdal, 1993; Hendey, 1964; Hustedt, 1930-1966; Pascher, 1915; Peragallo and Peragallo, 1897-1908; Rampi and Bernhardt, 1980; Schiller, 1931-37; Throndsen, 1993; Tomas, 1997)”

References to be added:

\* Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005-2019. - Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en> [Accessed September 24, 2019]

\* Berard-Therriault L., Poulin M., Bossé L. 1999. Guide d'identification du phytoplancton marin de l'estuaire et du golfe du Saint-Laurent. NRC Research Press, 387 pp.

\* Harris, R.P., Wiebe, P.H., Lenz, J., Skjoldal, H.R. and M. Huntley. 2000. ICES Zooplankton Methodology Manual, Academic Press, USA. pp. 684

\* Heimdal B. R., 1993 Modern Coccolithophorids in: Marine phytoplankton a guide to naked flagellates and coccolithophorids. Tanos editors, Academic Press: 147- 248.

\* Hendey, N. I., 1964. An introductory account of the smaller algae of British coastal waters. Part V: Bacillariophyceae, Diatoms. Fishery Invest. Lond. Ser. IV 5, 317 pp.

\* Hustedt F., 1930-1966. Die Kieselalgen von Deutschland, Österreichs und der Schweiz mit Berücksichtigung der übrigen Länder Europas sowie der angrenzender Mehresgebiete. In : Rabenhorst's Kryptogamen-Flora von Deutschland, Österreichs und der Schweiz. Akad; Verlag. m. b. H. Leipzig. 7 : Tl. 2. 920 pp. : Tl., 2 845 pp. ; Tl. 3, 816 pp.

\* Pascher A. 1915. Chlorophyceae. In: Die Susswasser Flora Deutschlands, Oesterre-

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ichs und der Schweiz. Verlags von Gustav Fisher, Jena, Heft 5, 250 pp.

\* Peragallo H, Peragallo M., 1897-1908. Diatomees Marine de France et des Districts Maritimes Voisins. Micrographe Editeur Grez sur Loing (S. et M.), 419 pp.

\* Rampi L., Bernhardt M., 1980. Chiave per la determinazione tassonomica delle Peridinee Pelagiche Mediterranee: C.N.E.N., Roma (RT/B10 (81)13): 1-98.

\* Schiller J., 1931-37. Dinoflagellatae (Peridineae) Monografischer Behandlung. In : Rabenhorst Kryptogamen-Flora von Deutschland, Österreichs und der Schweiz. Verlag. m. b. H. Leipzig. 10 (3) -1, 1-617, (1931-1933), (10) 3-2, 1-590, (1933-1937).

\* Sournia A., 1993. Atlas du phytoplancton marin. Editions du Centre National de la recherche Scientifique. (1), 1-219, (2) 1-297.

\* Throndsen J., 1993. The planktonic marine flagellates in: Marine phytoplankton a guide to naked flagellates and coccolithophorids. Tanos editors, Academic Press: 7-131.

\* Tomas, C. R., 1997. Identifying Marine Phytoplankton. Academic Press, Arcourt Brace & Company.

- r. 215: We decided not to add coordinates of standard sampling stations to the database because the substantial validity of these stations is limited to the period prior to the advent of GPS on board. In fact, after 90s standard sampling stations started to lose their significance since station names were no more related to the name of the station but to coordinates themselves. Furthermore, the coordinates of standard sampling stations used as a reference in sampling until 90s are available as “stationsAll.csv” file via GitHub at the following link: <https://github.com/CNR-ISMAR/econaos/tree/master/sampleData>

- r. 227-228: The authors decided to individuate as abiotic parameters nutrients, alkalinity, and transparency. Biotic parameters are chlorophyll, phaeo-pigments, phytoplankton, and zooplankton. In the updated version of the data paper, we will add a graph to

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Figure 5 indicating their trend over the 50 years.

- r. 301-302: We will delete the link to the dataset at row 116, but the link to the database is mandatory for the journal both in the abstract and in the "data availability" section. This prescription is reported in the ESSD guidelines for authors.

- r. 316-317 e r335-337: We will add some sentences to evidence the importance to collect metadata covering more than the possible all the observations, in particular:

\* r. 322: "...in the development of water quality indicators. However, these potential uses appear constrained by issues that are intrinsic to long-term series and that are related to the obvious variations, across the years, in sampling coverage and frequency and in analytical methodologies. In this respect, it is crucial to appropriately document the data, collecting and making available most ancillary information as possible on the changes occurred in time for each parameter measurement. This process was thoroughly carried for the 50 years NAS dataset so that the potential users might know which could be the proper application and the limitations of the dataset."

\* r. 336 "...to identify and compare reliable trends. The consistency and the coherence of the dataset require efforts in supplying the proper metadata, which could document the methodological changes that occurred through the years, thus allowing the potential users to evaluate the restrictions as well as the most suitable uses of the dataset."

- r. 340-341: For the limitation to data access we will modify and add a sentence in the "data availability" section (r. 310) : "Thanks to an agreement between the eLTER Research Infrastructure and the EUDAT Collaborative Data Infrastructure (CDI), the dataset is automatically available also in the B2Share catalog (<http://hdl.handle.net/21.11125/4672def7-4aeb-47e0-a325-311d02860967>) and, through this, in the EOSC (European Open Science Cloud) and GEOSS (Global Earth Observation System of Systems) catalogs. Since we opted for CC-BY license on our data, data is immediately fully available for download and reuse upon citation. There are no embargo rules or any further limitations in this specific case.

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For new data entry, we described in the conclusions paragraph a possible envisaged approach as follows (r-341): "Currently, a dynamic update and integration of the published dataset is not yet supported by specific tools nor integrated in automatic procedures; anyway, it is foreseen to go on with the promotion of a full open science approach to Long Term Ecological Research also in the coming years and extend the dataset through the publication of updates and possibly through the integration of different long-term datasets."

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-111>, 2019.

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