Reply to comment on essd-2022-324 (https://doi.org/10.5194/essd-2022-324-RC2) by an Anonymous Reviewer.

The authors thank the Anonymous Reviewer for the time on reading and reviewing the manuscript. We sincerely acknowledge all the Reviewer suggestions that aimed to improve the manuscript readability and usability of the BENFEP database.

Our responses (plain text) to point-by-point comments are listed after Reviewer comments (italic and bold font) followed by the main changes to the manuscript (italic font). Please, refer to the annotated manuscript and companion files.

Comments on data usability: Supplement 1 indicates which names used by the original authors were synonymized with a given taxonomic name from WORMS, however it does not indicate which authors (or publications) used which names. If future taxonomic revisions are made such that previously synonymized names are assigned differently, there would be no way to deconvolve the data.

We acknowledge the Reviewer's concern about the incomplete information about the harmonization procedure which might preclude reusability. In order to make clear to the potential users the taxonomic concepts provided by each author, and to bring more transparency to the harmonization process, we have now included the following documents in the Supplement section:

Changes to the Supplement: Please, refer to the new Supplement section.

-The new Supplement File 1 incorporates more comprehensive taxonomic information (status, rank, order, family, class, AphiaID, etc) about the species harmonized in BENFEP (now BENFEP_v1) than the previously submitted file.

-The new Supplement File 2 includes the original authors' taxonomic concept for each species harmonized in BENFEP_v1 and listed in new Supplement File 1.

-The new Supplement File 3 includes specific remarks on the harmonization process.

Comments on data usability: If the data were provided as long data, then each entry could have both the synonymized name from WORMS and the name from the original authors. It would also be clear where subspecies were consolidated if other researchers wish to consider that aspect of diversity.
Because the data are sparse (have many zeros), using a long data format would also reduce the file size (not that it is very large as is). Further, adding new data to the database would be substantially easier because it could just be appended to the end of the existing data without having to add or modify columns. Using long data would also allow new data to be uploaded as separate compatible files without modifying the original contribution and allow other workers to more easily use the resource.

Thanks to the Reviewer for the suggestion, which has been also made by other two Reviewers. It is our goal to reach all type of potential users interested in benthic foraminifera, regardless of their preferred method to handle large datasets. For those who use more conventional software to read spreadsheet-type files, we keep the previously submitted format (BENFEP_v1_short). Those users will have the original authors' specific assignations in a separate file (Supplement File 2).

For those who prefer to access data using another type of software (e.g., geospatial software), we will provide the database in long format (BENFEP_v1_long). The long-format version integrates all the information provided in the short format plus taxonomic information for each species (File 1) and each author´s species assignations (File 2).

Please, refer to section 2.5 of the reviewed version of the manuscript, which integrates former sections 2.4 and 2.6. There, we explain the structure of the two formats of the database. Please, see the new Table C1 and Table C2, where we explain column names and column codes for BENFEP_v1_short and BENFEP_v1_long.

The authors note that R could be used to transform the data such that it is usable in ArcGIS, but do not recommend a function nor describe issues the user may encounter when doing so and how to avoid those issues. It would, of course, be better to provide the data in long format and then tell the reader how to turn it into wide data for ecological analyses in R. It would also be helpful to tell readers how to amend the formatting of the provided data table so that is it is readable in R. As presently formatted, a user could not simply read it into R.

We agree that it would be useful for readers to have some guidance on how to load BENFEP_v1_short in R. Consequently, we have now included a new file in the Supplement section dedicated to those explanations.

<u>Changes to the Supplement</u>: Please, refer to the new Supplement section.
Supplement File 5 now includes some suggestions on how to load the short format of the database in R, perform basic operations (e.g., build up a percent file), and to manage non-numerical data.

We would like to indicate that the previously submitted version of BENFEP provided as .xlsx format could be loaded in R. All submitted figures (except for the figures made in ArcGIS, and former Figure 5 which used an unabridged version of the previous Supplement) were made by sub-setting and managing the database directly from R.

Comments on data usability: The authors note that the database will be continually updated. What will be the mechanism of update? Will the Pangea file be replaced or will multiple versions be available through the same Pangea number? Is there a mechanism that will keep the database location stable? How will different versions be annotated such that version can be tracked? If errors are found and corrected in existing data, how will these changes be documented?

The reviewer is right, and we regret not having delved further into the process of updating the database. In order to facilitate updating, we have re-named BENFEP as BENFEP_v1 along the manuscript and in the PANGAEA repository. Besides, we have now clarified in the reviewed version of the manuscript how we plan to update BENFEP_v1 in the future.

<u>Changes to the text</u>: Text added and rephrased (section 5. Data availability and future plans, previously section 6).
The BENFEP_v1 database can be accessed from https://doi.org/10.1594/PANGAEA.947086 (Diz et al., 2022b). This database is conceived as a springboard to store future quantitative data of benthic foraminifera in the East Pacific and make them available to the scientific community. It will be open for any new quantitative data entry and thus, it welcomes any new data published or provided by any contributor. The database will be updated by the authors once a considerable number of new entries need to be incorporated or changes are required to update taxonomic categories to an existing version. New versions of BENFEP will be submitted and curated in PANGAEA. Collaborations with individual researchers and institutions are welcomed specially regarding potential expansion to other ocean basins.

We have consulted PANGAEA and they informed us that the new versions will have a different DOI identifier. However, there is the possibility to link newer and older versions and incorporate information about the new changes included in each version. Likewise, newer versions of BENFEP will be identified with the corresponding version number (currently v1).

Comments on data usability: Guidance on how to handle non-numeric data would also be warranted. What are the recommended process for including or excluding these entries? Would the recommendations be different depending on the situation or scientific questions? I would recommend using different non-numeric symbols for the different meanings. For example, if x does not mean <1% in all cases a user could not treat all x's in the same way and would have to carefully determine which x's mean what. In some cases, the meaning of the x does not appear to be described in the Notes column and/or is not consistently described in the same Remarks column such that automating that process would be difficult. For example, Bandy_Arnal_1957 has x's, but no indication as to what they mean in the Remarks. For Smith_1964 the Remark is in Remarks 2 rather than Remarks 1 like most of the remarks concerning x's.

We agree with the reviewer in that non-numerical data influence the management of the database. In any case, handling non-numerical data depends on the user's final purposes. For example, if an user wants to calculate sample species richness or species presence, they could replace the non-numerical data with "1", as the non-numerical data mostly indicates the presence of a species. In the case of using the data for percentage calculations, we would suggest removing them as they cannot be translated into a particular numerical value.

In order to guide users on the management of non-numerical data, we have now added a new section (3.6.3) dedicated to providing some explanations and referring the users to File 5 where they could find more practical information.

Changes to the text: Text added (new section 3.6.3. Non-numerical data).
There are 18 datasets which include non-numerical data ("x", "<1") in their records (see "remark_1"). Those data might interfere in the calculation of the relative abundances and some diversity indexes (e.g., Shannon Weaver). However, they provide useful information on species presence and therefore they are potentially useful for biogeography and calculations of species richness. General suggestions on how to manage non-numerical data in R can be found in Supplement File 5.

We inadvertently omitted to indicate the meaning of non-numerical data of Bandy and Arnal, 1957. This is now amended in the reviewed files.

The Reviewer is right in that the non-numerical data ("x", "<1") do not have the same exact meaning in each dataset but they could be summarized in four categories: species representing less than 1%, species absent from the split but present in the sample, fragments, and unknown. We considered that coding the different meanings of non-numerical data would result in confusion. In all the studies, except for Uchio (1960), "remark_1" explains the meaning of the symbol in the original publication (for Uchio dataset we could not find the meaning of "x"). Therefore, our suggestion is to use symbols as species "presence", but exclude them for analyses that require quantitative data.

We acknowledge the Reviewer's annotation about the remark section. Consequently, we have re-arranged the "remarks" columns in BENFEP_v1 sorting them by categories and adding this information to the text and Appendices accordingly. Please, refer to Tables C1 and C2.

Changes to the text: Text added (section 2.5, Structure of the database, integrates previous sections 2.4 and 2.6).
Meaningful annotations regarding the sample entry was spared in seven columns dedicated to the meaning of non-numerical data, comments about some species, assemblage characteristics, volume of the sample (when data are provided in density), size fraction, sample geolocation and others.

Changes to the Appendix: Please, refer to the new Appendices section.
Table C1 and Table C2 (previous Table B1) have been re-done to include explanatory notes on column names and column codes of BENFEP_v1_short (Table C1) and BENFEP_v1_long (Table C2).

Comments on data usability: Given the data are provided in different size fractions, some guidance on whether these data should be analyzed together or if they must be analyzed separately would be warranted. How should users handle sources that record only calcareous taxa? Is the scope of the data source clearly noted in the metadata and connected to the main data file such that a user could easily subset data with different characteristics? Information is provided in the remarks columns, but not in a standardized way that would allow easy subsetting.

Thank you for the annotation, but we cannot provide guidance on how to analyse data from different size fractions or type of test because we do not know what final user's goal would be when using BENFEP_v1. The metadata of BENFEP, specifically columns named "assemblage", "format", "fraction", "n100", "n200", "n300" were specifically designed and coded accordingly for filtering the samples; per size fraction, the type of assemblage, the format of the data, or the number of specimens analysed in a sample (see Table C1 and Table C2). This provides a ready-to-use method to filter different size fractions.

We have tested filtering and data assembling with "tidyverse" in R. Figures presented in the former submission and in the reviewed version of the manuscript are made this way. The "remarks" section is not

intended to provide this kind of information but only meaningful data about the meaning of symbols, geolocation, size fraction issues, etc. Please, refer to the reply above regarding the columns dedicated to remarks.

Regarding the calcareous and non-calcareous foraminifera. In BENFEP_v1_short, the foraminiferal taxa are not ordered alphabetically. The genera and species with non-calcareous tests are placed from column 24 to column 527. After the column "Indeterminate agglutinated", it follows genera with calcareous test (except for some species of the order miliolina with agglutinated walls). Consequently, in the case of short format finding non-calcareous and calcareous taxa is nearly straightforward. In BENFEP_v1_long, users should look for the classes, families, and genus with calcareous/non-calcareous tests.

Comments on data usability: In the BENFEPfile1 with the main data, sometimes there is a "0" in a cell but often the cell is empty. Is there a different meaning for a "0" as for an empty cell? When converting from wide to long data, entries with a "0" would be retained and need to be removed by the user unlike the entries where the cell is empty. Formatting all data consistently would be a best practice.

Thanks for the comment.
The "0" were slips in two entries: Butcher (1951) and Belanger et al. (2016). They should have been empty cells. We have now removed the "0.0" value from the species abundance data of these two entries.

Line 168: I'm not clear what is meant by "ranked abundance of individuals" and the N100, N200, N300 categories based on the text description. Looking at the spreadsheet, it seems this designates whether a sample had at least 100, 200, or 300 individuals in the total sample. Ensuring the language used in the text is the same as what is used in the spreadsheets would reduce any confusion.

We agree that the description was not clear. In the new version of the manuscript, we have re-phrased that sentence to match the information in Tables C1 and C2 (previously Table B1).

<u>Changes to the text: Text rephrased (section 2.5, structure of the database, integrates previous sections 2.4 and 2.6).</u>
Additionally, in columns 1556-1565 we coded whether the number of counted individuals in each sample is equal to or higher than 100, 200 and 300 individuals.

Line 159: If the original authors of the data sets do not note whether a specimen is calcareous or not, placing it under "Indeterminate calcareous" may be in error. An "Indeterminate unknown" category would be more accurate.

We agree with that, and therefore we have created a new column in BENFEP_v1 to include all indeterminate unknown foraminifera "Indeterminate unknown". This column in BENFEP_v1_short is the last one including quantitative data (column 1554) just before column ("total").

This is also another example of where the language of text does not match the language of the spreadsheet; in the spreadsheet there is a column "Calcareous Indeterminated" but no "Indeterminate calcareous."

Last minute language revision of the manuscript made us change to "Indeterminate calcareous" while "Calcareous Indeterminated" was already curated in PANGAEA. We have now amended that in the BENFEP_v1 files changing column names to "Indeterminate calcareous" and "Indeterminate agglutinated".

The column labeled "total" is confusing as there is not an accompanying column for the units of that total. Units of density may vary and it would be useful to know the actual units rather than just "counts per volume unit."

The column total should be used in conjunction with the format, otherwise, it leads to confusion. This was indicated in the main text, former section 2.6, it read: "column: Total, see also column: Format". We have re-phrased the text to better clarify it in the reviewed version of the manuscript.

We considered that splitting the column dedicated to the sum of species counts per sample into 3 "total" columns: "total_counts", "total_percent", "total_density" could be even more confusing. As mentioned above, metadata enables filtering the database by "format".

Changes to the text: Text rephrased (section 2.5, structure of the database, integrates previous sections 2.4 and 2.6).
A column representing the sum of species abundance per each sample (column "total") was added at the end of the species quantitative data. Users should check the column "format" for indications whether the value in the column represents the sum of percentages, counts or densities.

Following the Reviewer's suggestion, we have now added the units when data are provided in density. This information is placed in the dedicated column (remark_4). Please, refer to the comment above.

Line 104: I'm not clear what the authors consider to be quantitative vs. qualitative data. Does quantitative include raw counts, relative abundances, and densities whereas qualitative is just occurrence? Or does qualitative means something else? Perhaps just stating the type of data would alleviate confusion.

We are sorry for the confusion created. We have now better clarified what we consider quantitative at the beginning of section 2.2 (Data source and selection protocols)

Changes to the text: Text added (section 2.2).
We consider data as quantitative when the species abundance in an assemblage is provided as number of individuals (counts), relative abundance (percent) or density (number of individuals per volume unit).

The BENEPqual datafile lists localities with metadata and notes the type of data it provides, often noting that the data are available in or are semi-quantitative or are given a species groups. I am not clear what the authors feel a user should do with this information and some description of how this table could be used would be helpful. If these are localities where at least species lists could be obtained, providing the occurrence data rather than just the metadata would make this table of some use for diversity studies.

It was unfortunate the way we named the database BENFEPqual and the way we described its content because resulted in confusion.

"BENFEPqual" contained geolocations of samples which carried out benthic foraminifera assemblage studies but whose data were not available in the publications but presented in graphs, as non-quantitative information (rare, dominant, abundant) or species presence. The application of "BENFEPqual" is to geolocate samples/studies in the Eastern Pacific, identify the author, and the type of data and refer to the original source for species information.

Because this dataset is creating confusion, we re-organized the text referring to it as follows:

-We now refer to the dataset as a collection of geolocations of studies that could not be included in BENFEP_v1 because they do not meet the criteria for quantitative data. We provide access to the file in the main text and in the caption of Figure B1.

Changes to the text: Text added (section 2.2)
There are 31 documents published between 1929 and 2019 characterizing assemblages of living and dead assemblages of benthic foraminifera from surface sediments in the Eastern Pacific that could not be incorporated in BENFEP_v1 because species assemblage data are provided in graphs, as species presence or range of abundances (e.g. common, rare, abundant). The geolocation of the samples and the authors of those publications can be accessed from https://doi.org/10.1594/PANGAEA.947114 (Diz et al., 2022a) and they are represented in Figure B1.

Figure B1. Spatial distribution of samples in the Eastern Pacific from studies which do not provide quantitative assemblage data. The numbers refer to each author´s dataset. Sample geolocation and metadata can be found in https://doi.org/10.1594/PANGAEA.947114 (Diz et al., 2022a). The procedure for stations´ georeferencing and column coding follows the indications of sections 2.3 and 2.5. The map was made using ArcGIS software version 10.8.2. The global relief model integrates land topography and ocean bathymetry (Sources: Esri, Garmin, GEBCO, NOAA NGDC, and other contributions).

-We have removed references to the database by the name of "BENFEPqual" along the text. Consequently, we have eliminated previous section 4 "Complementary information to BENFEP: BENFEPqual".

We considered that these changes will contribute to alleviate confusion and improve the readability of the text.

I notice that Culver and Buzas's Smithsonian Contributions are included in the reference list, however not all the papers they drew from are present in BENEP or BENEPqual. What was the criteria by which sources in those compilations were excluded? Although the authors describe the method by which they search for the data, the criteria by which found sources were rejected is not described and need to be for a user to understand which scientific questions the data are suitable for answering.

As we indicated in section 2.2, the compilations of Culver and Buzas (1985, 1986, 1987) were an invaluable source of information to locate original benthic foraminifera quantitative studies. However, not all original studies (listed below) included in the three Culver and Buzas´ compilations could be integrated into BENFEP_v1, because they lacked quantitative data. Please, refer to the comment above about the definition of quantitative data we used in this study.

Considering that criteria, we include in BENFEP_v1 the metadata, geolocation and the species abundance of the studies of Bandy and Arnal (1957), Brenner (1962), Butchner (1951), Berger and O´Neil (1979), Erskian and Lipps (1977), Harman (1964), Landkford and Phleger (1973), McGlasson (1959), Morin (1971), Phleger (1964, 1965), Scott (1976), Smith (1973), Uchio (1960), Walton (1955), and Zalesny (1959).

We exclude from BENFEP_v1 the following two groups of publications:

The first group, incorporate studies for which quantitative assemblage data were not available in the original sources. These studies are: Arnal et al., (1980), Bandy (1953, 1961, 1963), Bandy et al. (1964a, b, c, 1965a), Cockbain (1963), Cooper (1961), Jones and Ross (1979), Martin (1930, thesis), Moyer (1929), Reiter (1959), Resig (1958, 1960), Todd and Low (1967), Watkins (1961). The geolocations of those studies are now accessed through the link indicated in the caption of figure B1 (https://doi.org/10.1594/PANGAEA.947114) .

The second group integrates taxonomic studies dealing exclusively with particular species occurrences (not assemblage-integrated data): Angel (1975), Arnal (1955), Bradshaw (1961, 1968), Bush (1930), Cushman (1910, 1913, 1915, 1917, 1925, 1927), Cushman and Grant (1927), Cushman and Martin (1935), Cushman and McCulloch (1939, 1940, 1948, 1950), Cushman and Moyer (1930), Cushman and Todd (1943, 1947), Cushman and Valentine (1930), Church (1929a,b, 1954, 1968), Detling (1958), Hanna and Crouch (1927), Douglas (1964), Goes (1896), Hamlin (1960), Lalicker and McCulloch (1940), Harrington (1956), Maurer (1968), McDonald and Diediker (1930), Nicol (1944), Palmer (1929), Rankin (1931), Scott (1976a, b), Sliter (1968, 1969, 1970, 1970), Phleger and Soutar (1973), Whiteaves (1886).

Finally, we could not have access to the following studies referenced in Culver and Buzas (1985, 1986, 1987): Bandy et al., 1965b, Echols (1969); Martin (1931, 1936), Natland (1933, 1938), Phleger (1951, 1957, 1967), Resig (1965), Steinker (1976), Scott (1974).

In this study, we prioritize integrating original sources which quantitative data, therefore merging Culver and Buzas (1985, 1986, 1987) datasets into BENFEP_v1_long would result in duplicated records.

If the original authors collected surface sediment samples and simply did not stain the sample to determine what is living, would that go under "living and dead" or "dead"? It seems that "dead" should only be applied to samples where staining was done and the stained and unstained individuals were counted separately. If the original authors simply did not do staining a surface sample will usually contain both living and dead individuals and I believe it is typical to consider this samples as "living and dead".

We appreciate the annotation of the Reviewer. "living and dead (LD)" referred only to studies that specifically stated that they studied living (rose bengal stained) and dead (un-stained) foraminifera from the same sample. In order to avoid confusion, we have changed living and dead to "living plus dead" along the text, Figures and in the Video supplement.

We have now explained what means living, dead, and living plus dead in the reviewed version of the manuscript section 3.3.

Changes to the text: Text added (section 3.3).
The Rose Bengal staining (Walton, 1952) is the only method used by authors to distinguish dead (non-stained) from living (stained) foraminifera at the time of sampling. Living plus dead refers to an assemblage were living (stained) and dead (non-stained) are counted together in the same sample.

We would like to explain that we did not artificially sum live and dead counts and when we curated "LD" is because the authors provided the living and dead counts combined.

However, in three entries we did not include the Living assemblage which the author provided separately. This happened in Smith (1964, 1973) and Patterson et al., (2000). We have now included these living samples in the reviewed version of BENFEP_v1.

In the case of Morin 1971, for example, both living and dead data are given for the same number of samples suggesting the samples were examined for both and they were counted independently, but in Niensted, 1986 only "dead" is noted even though the sample is 0-2 cm and presumably would contain living individuals, just none were confirmed living.

That is correct, Morin (1971) provides independent counts for live and dead assemblages, and this is reflected in the database and in Table A1. As indicated before, we did not sum Live and Dead counts when the authors provided them separately.

Nienstedt (1986) did not stain the samples and his/her assemblages are curated as dead (un-stained) ones.

Some description in the text as to what "living" and what "dead" mean in the text would be warranted and the data attributes made to match how benthic foram workers typically use the terms.

Please, refer to comment above.

The authors include information on the picking method and it would add clarity if they also described how different picking methods affect the species that are found such that a user may decide how to subset their data.

Regarding this issue, we consider that the implications of different picking methods for the species assemblage composition are something that is discussed in the literature. BENFEP_v1 database includes a wide array of techniques which have changed over the last seven decades. We consider that deciding the strengths, weaknesses or suitability of each method depends on the final purpose of the BENFEP_v1 database. We, therefore, prefer not to give any opinion on the different picking methods, and we refer the readers to the review by Schönfeld (2012), cited in our manuscript, for addressing the methodologies on recent benthic foraminifera studies.

Why is it important that the preparation methods changed over time (Figure 4)? How does that limit what can be done with the data? Does N/A in Figure 4 actually mean "not given" rather than "not applicable"?

Changes to the Figures:
We have removed previous Figure 4 from the reviewed version of the manuscript.

Similarly, how does the collection device potentially affect the data or is this not relevant to how a user might subset the data (Figure 3)?

The device used to obtain the sample might be relevant to evaluate the representativeness of the surface sediment assemblages as recent analogues. The discussion about this topic is now expanded in the reviewed version of the manuscript (section 3.6.4)

Changes to the text: Text added (new section 3.6.4, previously section 3.6.3).
One of the purported applications of BENFEP_v1 is to provide a quantitative estimate of recent benthic foraminiferal assemblages that could be later used in palaeoenvironmental interpretations (e.g., Fig. 6). The database integrates quantitative data obtained from oceanic regions with different depositional environments, sedimentation rates, carbonate preservations and types of assemblages, collected over different sampling years and using an array of sampling devices that might result in diversion from recent conditions. For example, dead benthic foraminifera obtained from surface sediments might not be representative of the surface if the sampling device fails to recover the sediment-water interface or sedimentation rates are very low. The 36% of the surface sediment samples were retrieved using different types of coring devices (gravity, piston, dart and Phleger corer, calculations using "dev_1"), which are sampling techniques that can cause perturbation or miss-sampling of the surface sediment (Weaver and Schultheiss, 1990). Since the studies included in our database did not date the surface sediment (except for Palmer et al., 2020), we cannot discard that some samples correspond to pre-Holocene conditions. The most comprehensive compilation of sedimentation rates from core-top samples is from the equatorial Pacific and shows highly variable values, ranging from 0.8 to 14.2 cm/ka (Mekik and Anderson, 2018), meaning that surface sediment samples in this region correspond to recent conditions (assuming that no perturbation occurred during sampling).

Micropalaeontology community is familiar with the benefits and caveats of using a particular sampling device for obtaining surface sediment samples, as these have been discussed in the literature (e.g. Schönfeld, 2012). It is left to the users to evaluate data quality following their own criteria and using the metadata provided in BENFEP_v1.

How does the distribution of living and dead sampling in the database along latitude impact the analyses that can be done (Figure 2)? While these facts about the data are useful, discussion of how to use the facts (beyond it showing where more data should be collected) would greatly help a reader.

BENFEP_v1 provides the user with the tools to filter data according to their own criteria and to decide whether data are robust or meaningful for their own purposes.

Minor notes:
Line 22: Last sentence of abstract seems to be missing something and could use revision for clarity ("studies dearth of quantitative data" … do you mean "with quantitative data" or "without quantitative data")

We have removed this sentence from the abstract. Please, refer to the comment above where we explain the re-organization regarding the formerly named "BENFEPqual" database.

Line 26: Please cite the source for the Large Maine Ecosystem scheme.

In the reviewed version of the manuscript, we have now added Sherman (1991) as a reference for the LME.

Line 29: What are "protection figures"? Please revise for clarity.

We have re-phrased the text in that line to:
Several areas of Eastern Pacific Ocean are at severe risk of species loss (Finnegan et al., 2015; Yasuhara et al., 2020, UNESCO, 2022) and consequently, some of them have been categorized as marine protected areas (Enright et al., 2021).

Line 102 says "391 benthic foraminiferal entities (those classified to genus genera level)."
But line 236 says "394 benthic foraminifera individuals identified as genera level" the numbers are inconsistent.

Those were mistakes which have been amended in the reviewed version of the manuscript. Please refer to the new BENFEP_v1 files and Supplement section.

Changes to BENFEP_v1 files:
The species numbers we presented in the submitted version have changed in the new reviewed version because we have received additional datasets (Mallon, 2011; Glock et al., 2020; Tetard et al., 2021) and we have included them. Besides, we have added the living counts of Smith (1964, 1973), Patterson et al. (2000), removed some samples with zero total abundance (wrongly included in the previous submission), and we have detected a few errors which are now amended.

Line 202: I'm not clear how a sample taken at 0-2 does not contain the surface of sediment and is thus "deeper sampling." Surely a "surface sample" must also have some width to it.

"Deeper sampling" was changed to "slightly deeper sampling" in the new version of the manuscript in order to clarify this aspect.

If the original data were given as a proportion rather than a percent, was this converted to a percent and reported as a percent even if not originally given in that form? If so, information about the precision of the originally reported data may not be preserved.

Belanger et al. (2016) dataset is the only entry provided in proportion. We multiplied their data per 100 to get the percent, and we have now indicated it in "remark_7".

Figure 5: I don't quite understand the notation in the legend. Would a sample sieved at 150 um be colored red or blue? I assume the (vs] are telling me the answer, but I'm not familiar with the notation.

We are sorry that the figure was not clear enough. We now provide an alternative version of the figure. We believe this new plot is clearer than the former one.

Changes to the Figures: new Figure 4 (previously Figure 5).
In the reviewed version of the manuscript, we have re-done Figure 4. We have calculated the relative contribution of each size fraction (>61, >62, etc) independently and represented it as a portion of the pie chart in the new Figure 4.

Figure 6: The color scaling is a bit odd because all they are not equal width. The blue bar would only be 5-10 species whereas all the others are wider bins. What would this plot look like if it didn't only have valid species but also contained the sp. A, sp. B designations for each genus? This plot may show more about taxonomic resolution of the data than anything real about the diversity of genera. Some discussion about how to appropriately interpret this plot would be warranted.

In the reviewed version of the manuscript, we now provide an alternative version of the figure. We believe this plot is much clearer than the former one.

Changes to the Figures: new Figure 5 (previously Fig. 6)
In the new version of the manuscript, we provide a new version of Figure 5 with equal spacing in the colour scale and with the revised taxonomic list of BENFEP_v1 (see new Supplement File 1). For this figure, we now consider only the species-level assignations per genus (not taxa below species level).

The same plot but with taxa below species level and designations to genus level ("sps") is provided below.

We consider that showing the number of species-level assignations per genera is more meaningful that counting all the "sps" and varieties which could artificially increase the number of "species".
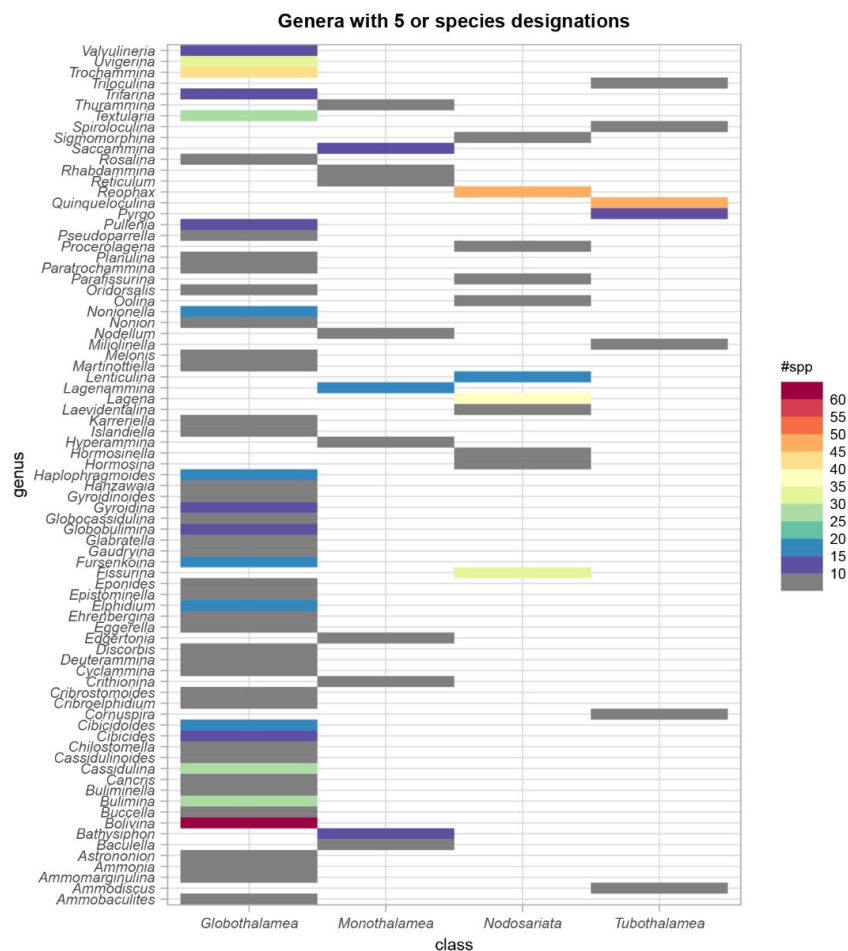
Figure 7: Plotting absences in C is a bit odd because an absence at a locality does not necessarily indicate that the taxon did not live there. Blue dots on a blue ocean are very hard to see and the majority of points are some shade of blue or green in this figure.

We agree that absence does not necessarily mean that the taxon did not live there. We wanted to indicate the presence of a species plus the whole sample set in BENFEP_v1. The latter was wrongly indicated by 0. In the new version of the manuscript, we have replotted Figures 6A-E

Changes to the Figures: new Figure 6 (formerly Figure 7)
In the new version of the manuscript, we provide a new version of the Figure 6C where species "presence" is indicated separately from "station". The colour scales of the other figures 6A, B y D have been also changed to improve the readability.

In D, it seems that "biodiversity" may be heavily affected by sample sizes and taxonomic decisions and probably should just be called "number of taxa present in database" rather than some measure of "diversity."

The Reviewer´s comment is right. We acknowledge his/her suggestion and changed the figure caption accordingly to "number of taxa".