Benthic Macroinvertebrates

Littoral・Profundal

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8月23日25年

Sampling Sites: IE1 (Profundal)

Sampling Sites: Littoral

Relative Positions

Benthic Macroinvertebrates: Profundal Zone

Bothrioneurum vejdovskyanum

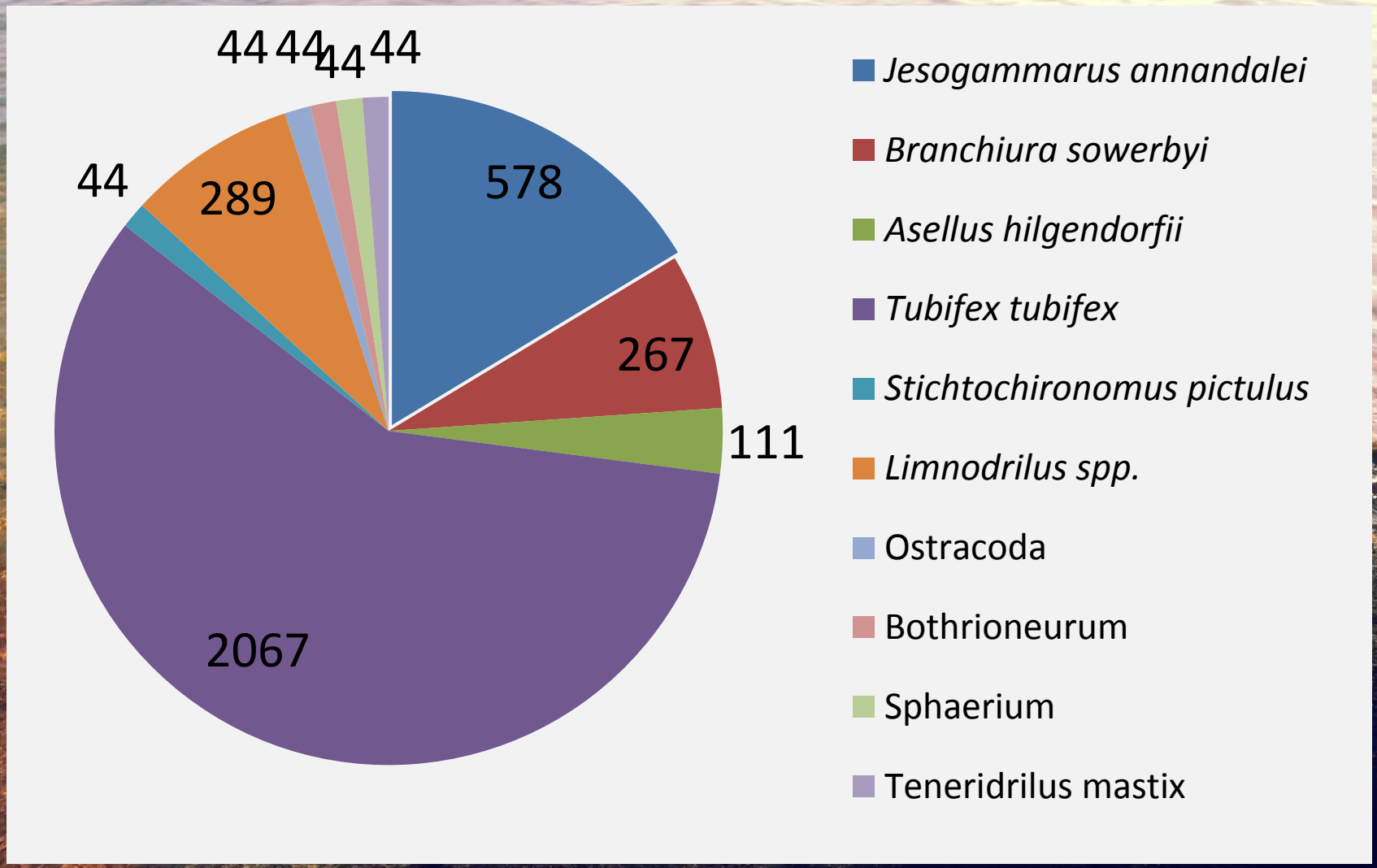
Tubifex tubifex

Branchiura sowerbyi

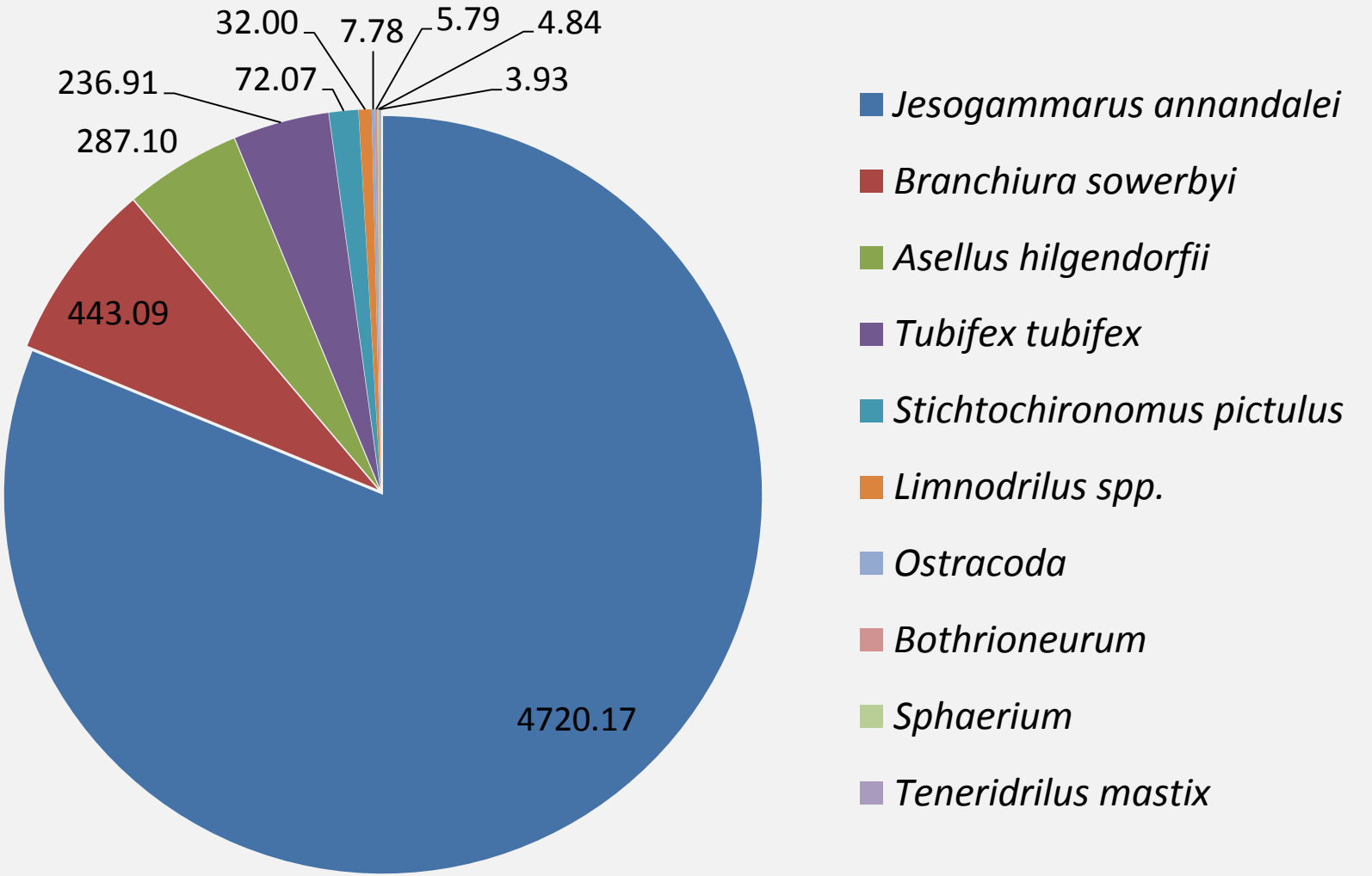
Asellus hilgendorfii

http://www.hydra-institute.com/de/ifah/Gewaesserokologie/Aquatische%20Neozoen_Steckbriefe.php
http://www.animalsandearth.com/en/photo/view/id/108836-isopod-asellus-hilgendorfii-japan#/1/tag/Asellus Hilgendorfii/viewed/
http://www.biolib.cz/en/image/id10870/
http://www.lberi.jp/root/jp/62pick/tayosei_db/data/Bothrioneurum-vejdovskyanum/index.html
http://www.caudata.org/daphnia/

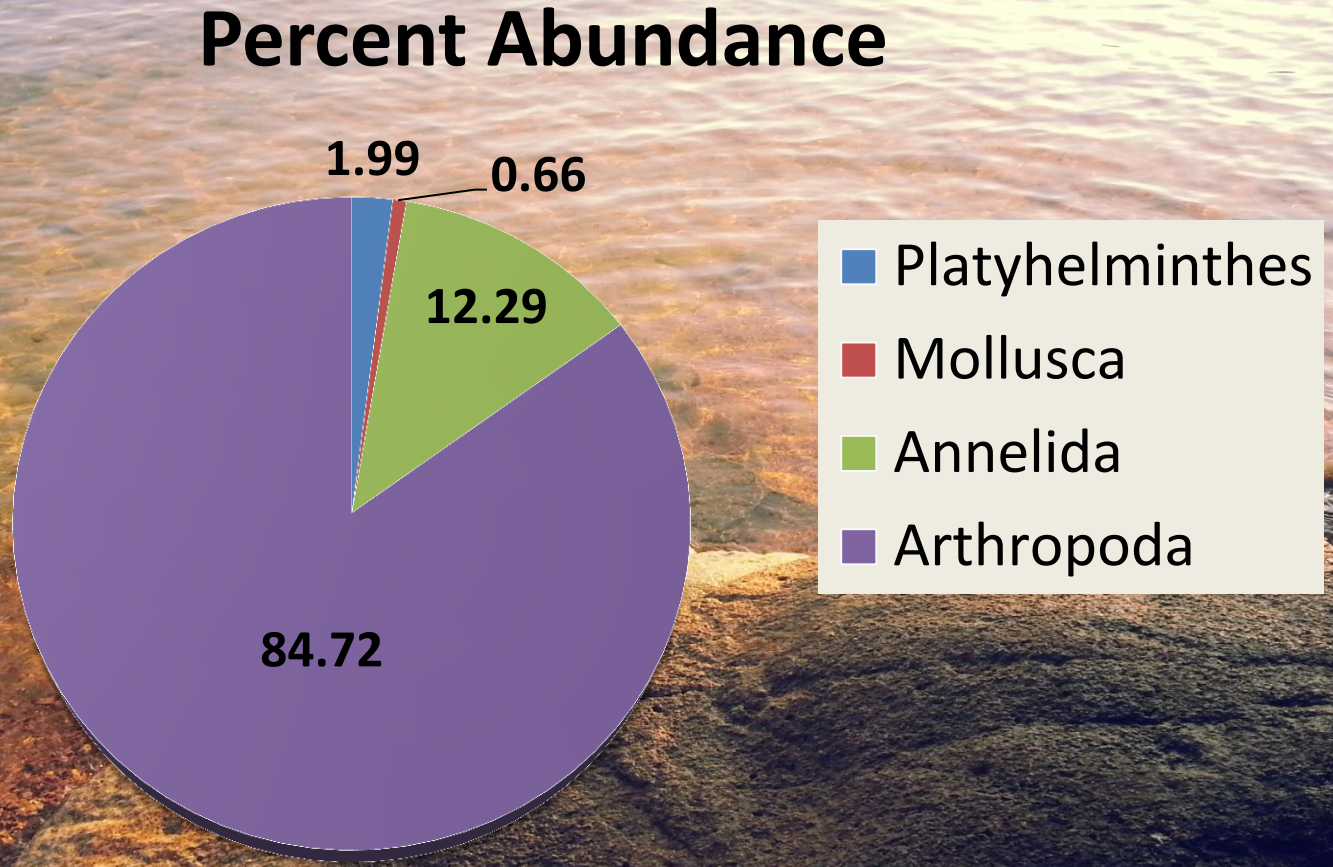
Macroinvertebrate species composition in the profundal zone based on abundance per m^2



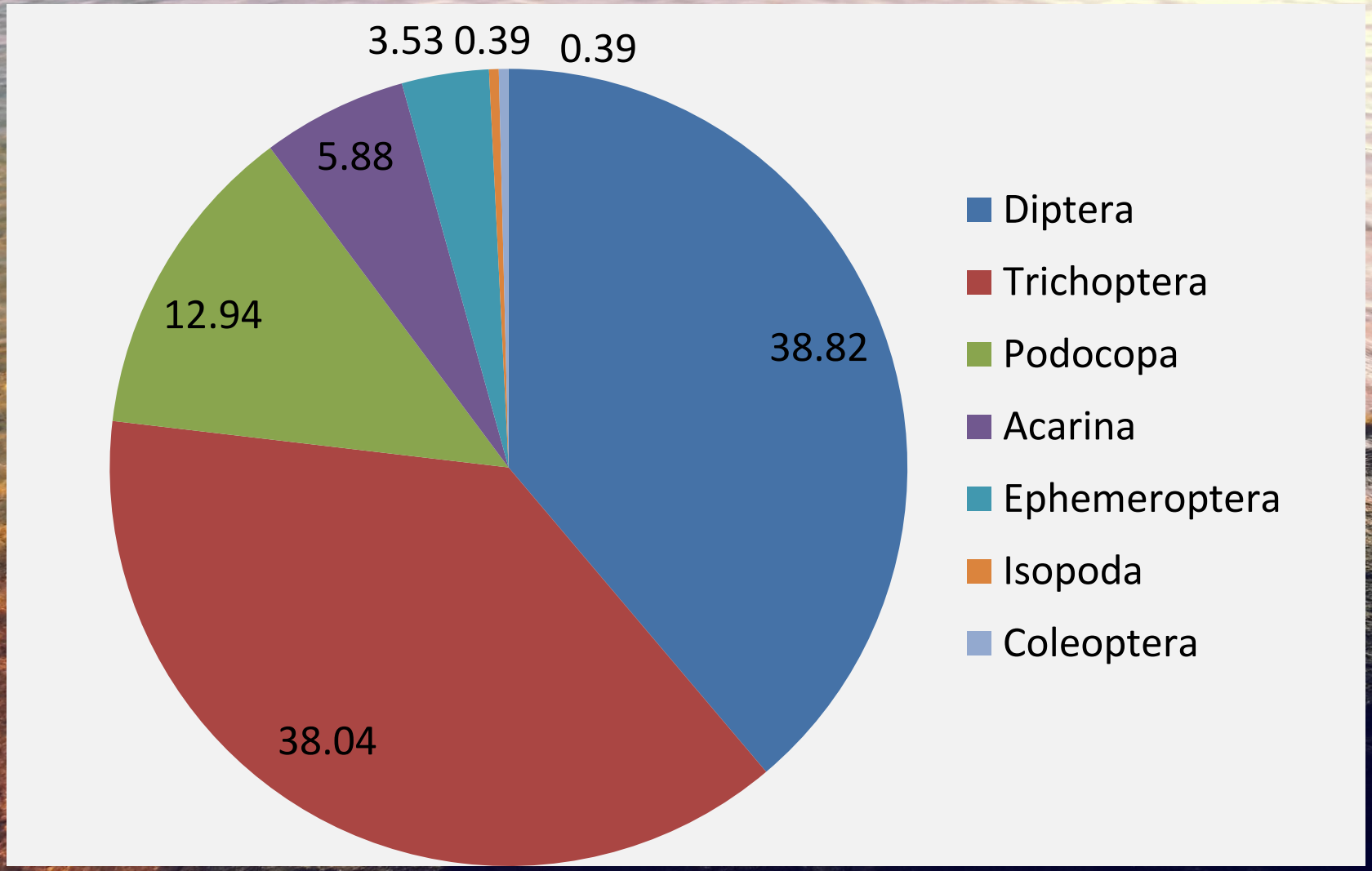
Biomass-based community composition (mg/m^2) of macroinvertebrates in the profundal zone.



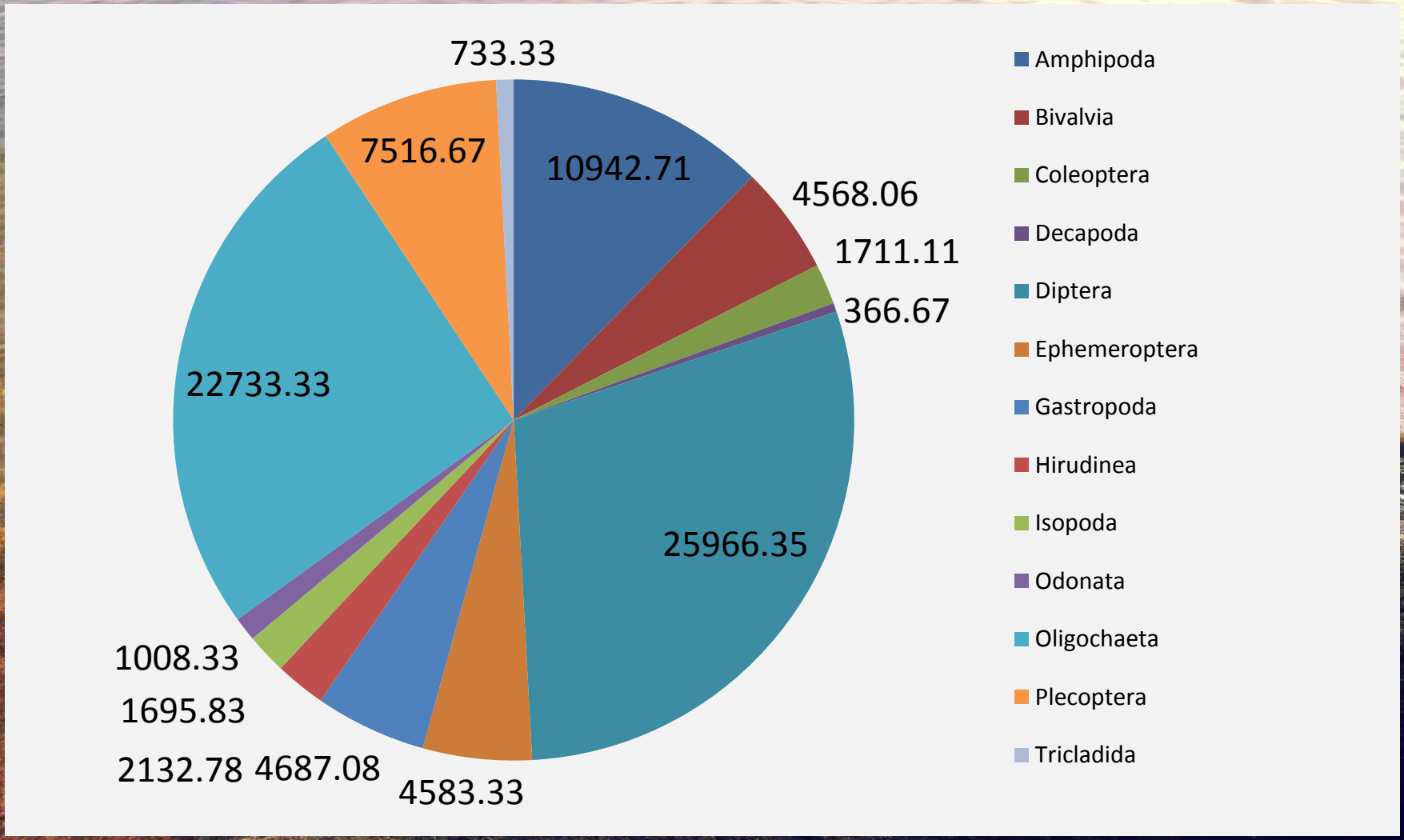
Benthic Macroinvertebrates in the Littoral Zone



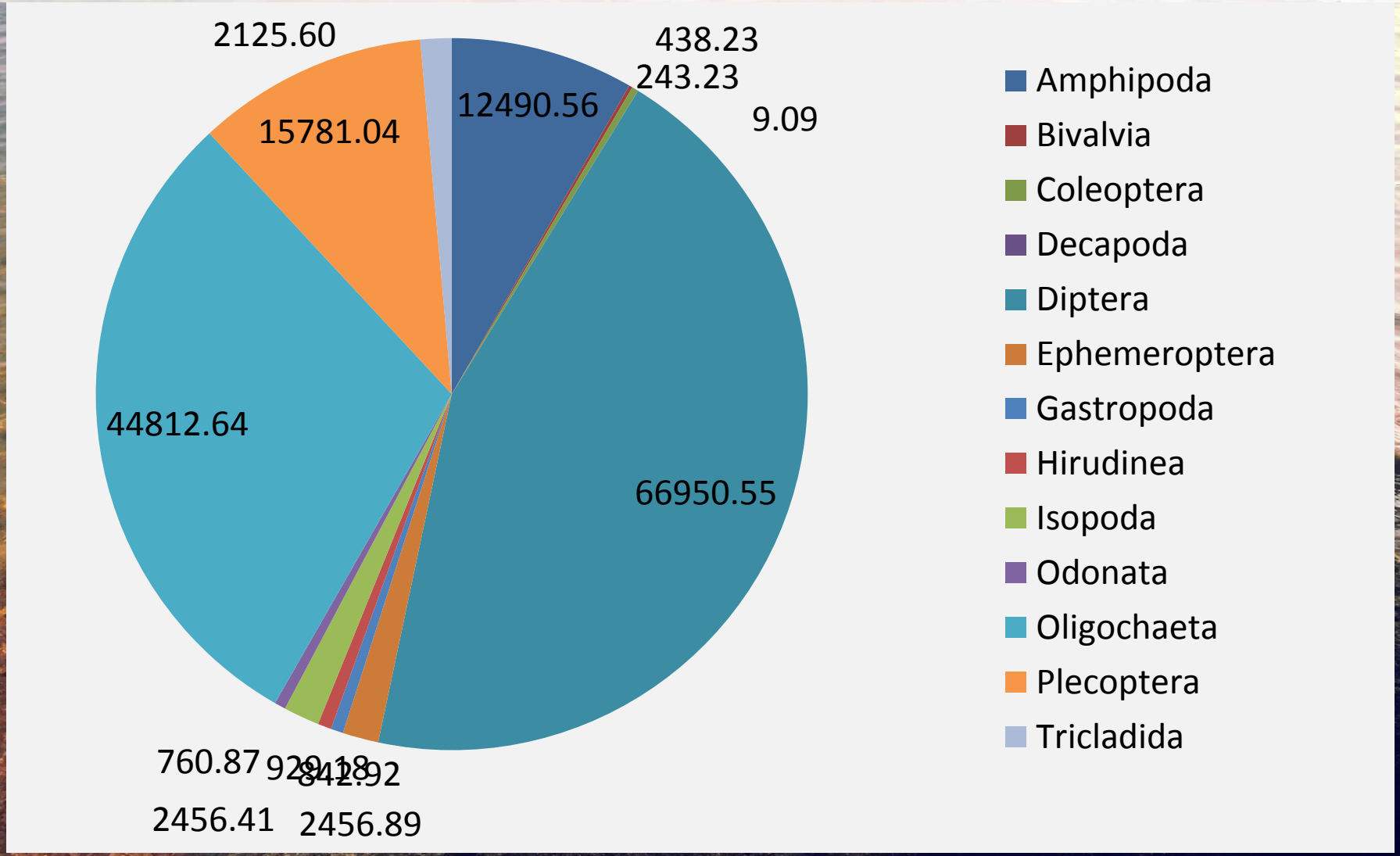
Percent Abundance per Arthropod Order



Macroinvertebrate species composition in the littoral zone (per m^2) based on abundance



Biomass-based community composition (mg per m^2) of macroinvertebrates in the littoral zone



Comparison of Two Sites

- What are the factors that affect community structure of macroinvertebrates in aquatic environments?
  - Substratum type, water trophic status, and hydro-period; oxygen level and depth; competition and predation and the type of food resources; complexity and number of different habitats
  - habitat heterogeneity (from the presence of different substrates) in the littoral zone might have caused the diversity of benthic macroinvertebrates in the area

Comparison of Two Sites

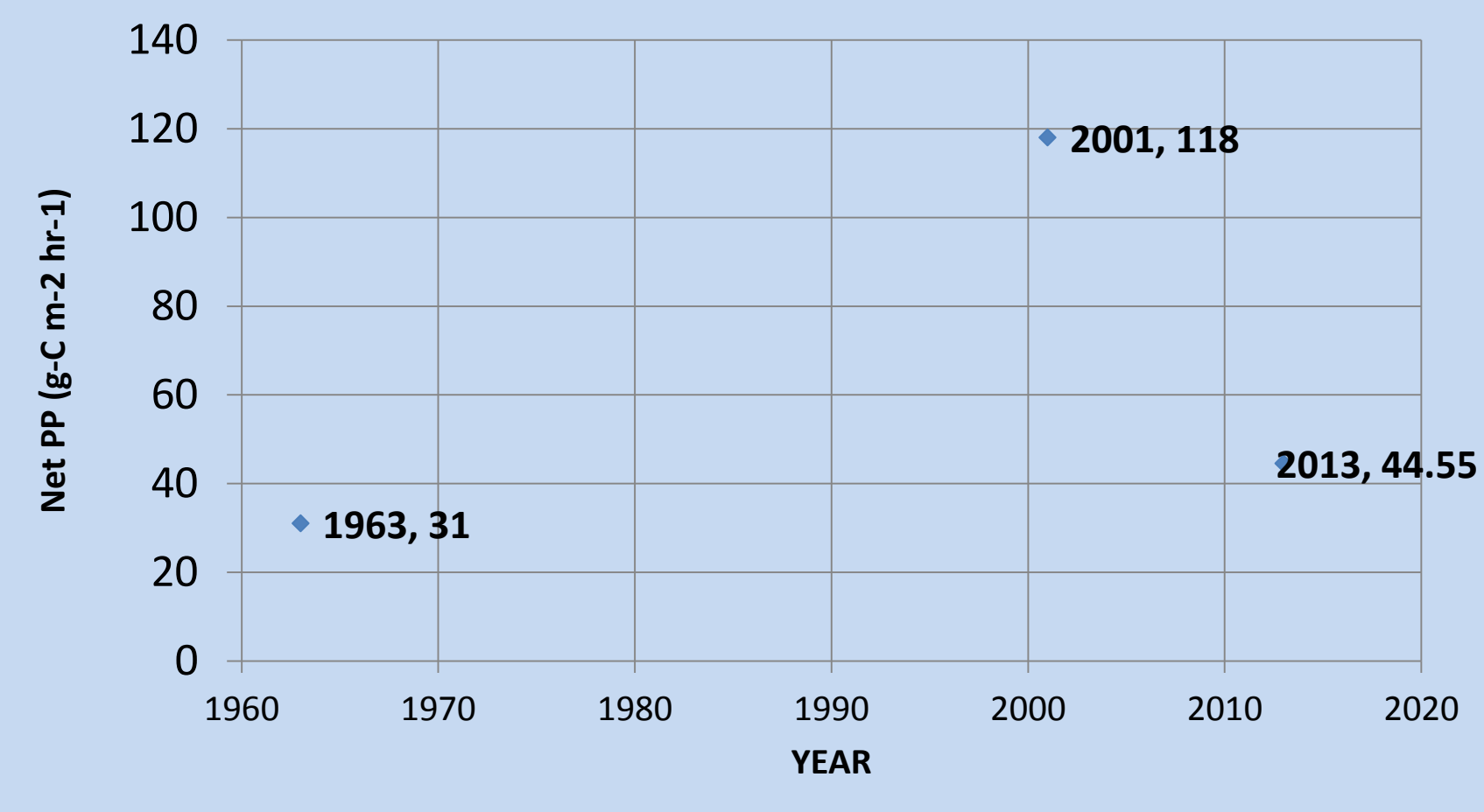
- As cited by Osmond (1995), there are four feeding groups of macroinvertebrates: shredders, filter-collectors, grazers, and predators.
  - filter-collectors (Diptera, Trichoptera, Podocopa, and Ephemeroptera) are most dominant in the littoral zone
    - High density of dissolved organic matter and planktons might have caused this dominance.
  - In the profundal zone, annelids might have dominated because the sediment in the profundal zone is rich in organic matter and is oxygen deprived.


Thank you.

Productivity of planktonic and benthic Algae

- Only the data on the primary productivity of epilithic algae can be compared with historical data since this year's data on the primary productivity of planktonic algae were erroneous.

Net primary productivity of epilithic algae from 1963 to 2013



Net Primary Productivity

- Net primary productivity of epilithic algae started low in the 60s, then increased through the years and decreased again in the recent year
- This trend also reflects the trophic condition of the lake in the given years.
- Nozaki (2001) concluded that the sharp increase in the net primary productivity of the epilithic algae in the 90s was due to the development of filamentous algae in the lake which might have been caused by eutrophication.
- The decrease in the productivity from 2001 to 2013 could mean the transition of the lake from being eutrophic to mesotrophic or oligotrophic.