Mediterranean gelatinous zooplankton: an updated snapshot of diversity, seasonality, and recent changes

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In the Gulf of Naples (Western Mediterranean Sea), gelatinous zooplankton (GZ) represent a major component of the planktonic community and have increased in abundance in recent decades. However, available information on the GZ community composition is scant and limited to outdated studies or to metabarcoding-based surveys lacking taxonomic resolution.

Here, we present updated information on the abundance and diversity of the main GZ taxa, particularly Hydrozoa and Thaliacea, observed at the long-term monitoring station MareChiara in the Gulf of Naples (40º48.500' N, 14º15.000' E). Our biannual (2023-2025) analysis integrates traditional net sampling (Jelly Net, 800 µm mesh; WP2 net, 200 µm mesh), microscopy, and molecular tools (DNA barcoding).

In total, 48 taxa (17 Hydromedusae, 24 Siphonophora, 3 Salpida, 4 Doliolida) were identified and counted. Salpida and Siphonophora dominated the GZ community and persisted regularly over time, peaking during spring–summer with no differences in abundance between net types. Hydromedusae and Doliolida were relatively less abundant and occurred more frequently in colder seasons, even though their abundance differed between the two nets.

The most recurring taxa of the GZ fauna included the siphonophores *Lensia subtilis*, *Muggiaea kochii*, and *Eudoxoides spiralis*, the hydromedusae *Liriope tetraphylla*, *Rhopalonema velatum*, and *Obelia* spp. Interestingly, the salp *Thalia orientalis* and the doliolid *Doliolum denticulatum* appeared to dominate the gelatinous filter-feeder community at present, having partially replaced the congeneric *T. democratica* and *D. nationalis*, endemic Gulf of Naples species.

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