

***Interactive comment on “Dynamics of
microphytoplankton abundance and diversity in
NW Mediterranean Sea during late summer
condition (DYNAPROC 2 cruise;
September–October 2004)” by S. Lasternas et al.***

Anonymous Referee #1

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This manuscript deals with a topic rarely found in the oceanographic literature today, i.e. the study of microplankton dynamics following the species composition approach. Although the goal originally pursued by the authors -the influence of the autumn disturbance caused by winds- was not found during the cruise, the ms still contains features of interest for the audience. Thus, the characteristic depicted by figure 6, in which species and populations with different trophic status were segregated in time and vertically in the water column is particularly relevant, despite the vertical segregation of autotrophic and heterotrophic plankton was already described for the NW Mediterranean

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in the eighties of the last Century (e.g. Estrada 1985, in Mediterranean marine ecosystems, Moraitou-Apostolopoylou M., Kiortsis V, eds. Plenum Press; Estrada and Salat 1989, in Topics in marine biology, Ros J.D ed, Scientia Marina). However, the oceanographic research requires of repeated observations before a given feature or process is accepted as a general rule in the sea, and I think this is the main value of the ms, in addition to its evident importance as part of a special issue containing the results of the DYNAPROC 2 cruise. Nevertheless, the ms needs some improvements before publication. Specifically, emphasis is put on the almost nil effect of environmental disturbances to infer that the system was close to the steady state and, therefore, conclude that the change observed in regularity was due to competitive exclusion. Nonetheless, plankton distribution in the sea is essentially heterogeneous and observations at a fixed point may be strongly affected by currents, which habitually transport plankton patches with different composition and trophic status. Surface currents, in turn, are influenced by wind, and at least 3 wind events with velocities higher than 30 knots occurred during the period of observations. Consequently, it is difficult to accept, without information on surface currents, that transport did not influence the observed plankton evolution.

Specific comments

Microphytoplankton should be replaced by microplankton in the title, because pigmented, non-pigmented and mixotrophic species are considered in this study. In fact some sub-headings use microplankton instead of microphytoplankton. Check the spelling.

In the last sentence of the abstract it is mentioned that the value of taxonomic studies is discussed especially in the context of global change and as indicative of warming. Obviously, knowing the taxonomic composition is fundamental to understand how global change operates in the sea, but I could not find where the results were discussed in the context of global change. Moreover, global warming, as part of global change, acts in the ocean not only through increasing temperature; it also induces changes in ocean circulation. This means that species substitution or changes in total or relative

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abundance of species can result from changes in water masses as consequence of modifications in the circulation.

Although meteorological and hydrological results are given in other companion papers (Andersen et al.; Raybaud et al.), the results are presented, and later discussed, within the environmental context: maximum abundance under or below thermocline, diatoms located in or at around the deep chlorophyll maximum, *Scrippsiella* in the intrusions of low salinity water. Therefore, it would be of great value the inclusion of few figures showing these main features, which could facilitate go directly throughout the paper without reading other papers

I find the discussion too long and somewhat unnecessary in some cases. For example, the important role played by large dinoflagellates as consumers or the advantage of taxonomic determinations do not need many words, since the two things are well known within the oceanographic community. Taxonomic determinations are not frequently used because of the great effort and long time needed to get the information, which can be obtained with less accuracy but more rapidly using other techniques.

Figures 1 to 4, but specifically figures 1 and 2 are too small, at least in the version that I have got. It is extremely difficult to see the numbers and isolines.

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