PhD in Evolutionary Biology and Ecology

Università di Roma Tor Vergata

A REAPPRAISAL OF PHYTOPLANKTON OF LATIUM COASTAL SEAWATERS

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Current knowledge on phytoplankton dynamics in Latium coastal waters is still scanty, with only few works focussed on community composition and spatio-temporal changes in surface waters, within 500 m from coastline. On those study occasions, the collaboration between the Regional Environmental Agency, ArpaLazio and the Laboratory of Biology of Algae, University of Rome Tor Vergata, led to a first appraisal of phytoplankton in Latium coastal waters, with over 250 *taxa* recorded, including toxic species, identified with light and electron microscopy. (Bianco *et al*. 2006; Congestri *et al*. 2004, 2006). This PhD project represents the opportunity for a reappraisal of phytoplankton of Latium Region in the framework of the "Marine Strategy" European directive.

The Marine Strategy Monitoring Programme foresees the evaluation of phytoplankton assemblages and their physico-chemical environment along 4 transects, each including 3 sampling stations (located at 3, 6 and 12 NM). In this ongoing monitoring programme water samples are collected bimonthly at 0.5 m and at DCM (Deep Chlorophyll Maximum) permitting to assess, for the first time, phytoplankton composition and temporal distribution in deeper and 'offshore' waters with respect to past activities. Phytoplankton species composition was investigated using light (bright field and phase contrast) and fluorescence microscopy in bottle and net samples collected from July 2015 to December 2017. This study, however, is based on a more comprehensive phytoplankton assessment, which will be available from the combination of data from different national monitoring programmes (L. 979/82 and Water Frame Directive 2000/60/EC) after a revision and an alignment of data collected.

Statistical analysis performed on the whole dataset, that includes physico-chemical data, based on more than one thousand samples collected from 2002 to 2017, will provide an overview on the variation of the phytoplankton assemblages, in terms of taxonomic composition and size structure, from surface to deeper waters as well as from coast towards open water.

This project will give the possibility to expand current knowledge on phytoplankton composition and spatio-temporal distribution in regional coastal waters and will give the opportunity to provide information about community response to a coast-offshore gradient in terms of land run-off, or more generally environmental changes generated from antropic pressures on the marine ecosystem, in order to contribute to the definition of Good Environmental Status, as required by Marine Strategy Frame Directive.

Bianco I., Congestri R., et al. 2006 -Biol. Mar. Med.13 (1): pp.947-950.
Congestri R., Bianco I., et al. 2006 - Biol. Mar. Med. 13 (1): pp.54-60.
Congestri R., Bianco I., Albertano P. 2004 - In Steidinger K.A., Landsberg J.H., Tomas C.R. & Vargo G.A. (Eds) – Proc. of the Xth Int. Conference on Harmful Algae. Florida Fish and Wildlife Conservation Commission and Intergovernmental Commission of UNESCO.