MAPPING MACROALGAE BIOMASS IN THE MAR PICCOLO OF TARANTO (SOUTHERN ITALY, MEDITERRANEAN SEA) BY MEANS OF HIGH RESOLUTION SATELLITE REMOTE SENSING

Carla Micheli1, Ester Cecere2, Tamara Cibic2, Luigi De Cecco1, Antonella Petrocelli1, Vito Pignatelli1, G. Portacci1, Fernando Rubino1, Flavio Borfeccia1.

1ENEA, Italian National Agency for New technologies, Energies and Sustainable Economic Environment. Research Centre Casaccia 2400/00123 Roma, Italy.
2Consiglio Nazionale delle Ricerche (CNR), Istituto per l’Ambiente Marino Costiero IAMC, 74123 Taranto, Italy.
3OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Sezione Oceanografia, Via A. Piccard 54, 34151 Trieste, Italy.

An integrated method based on the most recent satellite remote sensing techniques was implemented for mapping the biomass of the aquatic vegetation growing in the Mar Piccolo of Taranto (Southern Italy, Mediterranean). This lagoon is constituted by two water bodies delimited by a narrow land strip located near a strongly urbanized coastal territory of Ionian sea that is affected by local anthropogenic impact factors (urban settlement coupled with industrial and navigation activities). Here we have assessed the distribution of two photosynthetic populations of the macro-algae growing in the two inlets of the lagoon:

CAULERPA PROLIFERA

and

HYPNEA CORNUTA (KÜTZING) J. AGARDH.

During 2014, the highest biomass trends (g/fresh weight) remotely measured by means of atmospherically corrected Landsat 8 OLI multispectral data were recorded in the Mar Piccolo (Taranto) and C. prolifera and H. cornuta were identified by Landsat 8 OLI true color photosynthetic (Mediterranean) bands. The distributions were assessed in situ by the OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale), Sezione Oceanografia, Via A. Piccard 54, 34151 Trieste, Italy.

The satellite derived thematic maps of distribution are in agreement with the in situ collected data of the macro-algae C. prolifera and H. cornuta as well as with phytoplankton communities obtained from laboratory analyses. Investigated in the two inlets of Mar Piccolo of Taranto. Our results showed that the monitoring applications through HR remote sensing techniques can effectively support the sustainable management of Mar Piccolo di Taranto.

REFERENCES


