

THE MAR PICCOLO AND THE MAR GRANDE OF TARANTO - ITALY

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The Mar Piccolo of Taranto is located North of the town of Taranto (Fig. 1) and has a surface area of 20.72 km². It is an inner, semi-enclosed basin with lagoon features divided by two rocky promontories into two inlets, called First Inlet (Primo Seno) and Second Inlet (Secondo Seno) which have a maximum depth of 13 and 8 m, respectively. The Mar Piccolo is connected with the Mar Grande through two channels, the Navigabile channel and the Porta Napoli channel, of which only the former is important for the water exchange in the basin. Tidal range does not exceed 30-40 cm. The presence of both 34 submarine freshwater springs (locally called "Citri") and the outfalls of small tributary rivers influence the salinity (Pastore, 1993). The scarce hydrodynamism and the reduced water exchange with the nearby Mar Grande determine, mainly in summer, a high water stratification.

The Mar Piccolo basin is subject to urbanization, industry, agriculture, aquaculture and commercial fishing as follows:

- 14 pipes discharge sewages from the northern area of Taranto and nearby cities into the Mar Piccolo;
- the ship-yard of the Italian Navy with its dry-docks is located in the First Inlet;
- the largest mussel farm in Italy (ca. 12,000 tons y⁻¹) is present, which facilities are widely distributed in both the inlets (Fig. 2);
- the fishing-boat fleet is localized in the First Inlet;
- small rivers and freshwater springs which drain the surrounding agricultural soils flow into both the inlets. The most important river mouth, the Galeso river, is located in the First Inlet with a flow ranging between 350 and 700 l sec⁻¹ according to the seasons. In the First Inlet, the most important freshwater springs are the "Citro Galeso" (mean flow: 600 l sec⁻¹) and the "Citro Citrello" (mean flow: 350 l sec⁻¹). In the Second Inlet, the most important freshwater spring is the "Citro Le Kopre" (mean flow: 100 l sec⁻¹).

The Mar Piccolo was been studying since the first years of the last century from different points of view (Cerruti 1925, Vatova 1972). The diversity of bacteria (Cavallo *et al.*, 1999; 2000; Cavallo & Stabili, 2002), zoobenthos (Prato *et al.*, 2000; Prato & Biandolino, 2005), phytobenthos (Pierpaoli, 1923; Cecere *et al.*, 1991; 1992), phytoplankton (active stages and resting

stages) (Caroppo & Cardellicchio, 1995; Rubino *et al.*, 1998; 2005) and necton (Pastore, 1993) are considered, with particular respect, in the last years, to non-indigenous species (Carriglio *et al.*, 2004; Cecere & Petrocelli, 2004). Chemico-physical studies are also carried out for both seawater (Strusi & Pastore, 1975) and suspended matter (Alabiso *et al.*, 1997; 2000; 2003). Moreover, extensive studies are performed as well, concerning the impact of metals (Hg, Pb, Cd, Cu, Zn, Ni and V) IPAs and PCBs in marine sediments (Cardellicchio *et al.*, 2003; 2004). Due to many years of studies, interesting long time series are available.

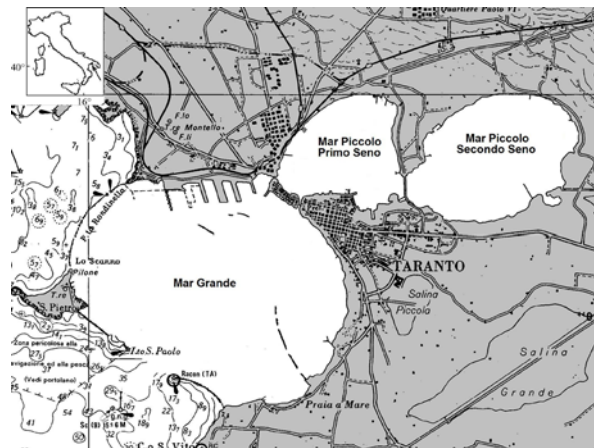


Figure 1 – Map of the Mar Piccolo and the Mar Grande basins (picture of G. Alabiso).



Figure 2 – Mussel farm plants in the Mar Piccolo (picture of M. Pastore).

The Mar Grande basin is delimited by the mainland, the Old Town Island, the two Cheradi Islands and by two artificial reefs and communicates with the Ionian Sea through two openings (Fig. 1). It has a surface area of about 36 km² and a maximum depth of 35 m. In the Mar Grande the most important base of the Italian Navy and the merchant harbour as well as many mussel farm plants are localized. Also the Mar Grande basin was been studying since the beginning of the XXth from several points of view (Cerruti 1925, Vatova 1972). The Mar Grande and the Mar Piccolo represent a system of basins (Mar Grande, First Inlet and Second Inlet of the Mar Piccolo) with a marked gradient of confinement which makes it an interesting study site from different points of view.

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