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## HOLOCENE MORPHO-SEDIMENTARY EVOLUTION OF THE MAR PICCOLO BASIN (TARANTO, SOUTHERN ITALY)

**ABSTRACT:** VALENZANO E., SCARDINO G., CIPRIANO G., FAGO P., CAPOLONGO D., DE GIOSA F., LISCO S., MELE D., MORETTI M. & MASTRONUZZI G., *Holocene morpho-sedimentary evolution of the Mar Piccolo basin (Taranto, southern Italy)*. (IT ISSN 0391-9838,2018).

The Mar Piccolo basin (Gulf of Taranto, northern Ionian Sea) is well-known in literature for the detailed records of Late Pleistocene sea-level changes. The Holocene deposits, however, have never been analysed in detail. In this paper, new geophysical datasets and the data from two wells have been used to investigate the morpho-sedimentary Holocene evolution of this basin. In addition, dating of peat samples and the occurrence of a tephra ("Pomici di Mercato" event – ca 8900 BP) provide the timing of the different evolution stages. Morphological features of the basal unconformity, sedimentological data from core analysis, and the areal distribution of lithofacies have allowed the identification/recognition of an incised-valley system occurrence which had formed during the last sea-level cycle. Furthermore, a polyphasic basal erosional surface, formed during fluvial incision and successive ravinement processes, has been identified. The sedimentary infill records fluvial to transitional environment units of a low energy semi-enclosed basin.

**KEY WORDS:** Coastal environment, Holocene, incised valley, semi-enclosed basin, Mar Piccolo, Ionian Sea.

**RIASSUNTO:** VALENZANO E., SCARDINO G., CIPRIANO G., FAGO P., CAPOLONGO D., DE GIOSA F., LISCO S., MELE D., MORETTI M. & MASTRONUZZI G., *Evoluzione morfo-sedimentaria olocenica del bacino del Mar Piccolo (Taranto, Italia)*. (IT ISSN 0391-9838,2018).

L'area del Mar Piccolo (Golfo di Taranto, Mar Ionio, Italia meridionale) è nota in letteratura per gli studi sui depositi relativi alle variazioni del livello del mare del Pleistocene superiore. I depositi relativi all'Olocene, invece, non sono mai stati oggetto di studi morfo-stratigrafici di dettaglio. In questo lavoro, nuovi dati geofisici, lo studio della stratigrafia di due pozzi a carotaggio continuo, la datazione di campioni di torba e il riconoscimento di un livello di *tephra* (evento "Pomici di Mercato" - ca 8900 B.P.) hanno permesso di dettagliare le fasi evolutive del Bacino del Mar Piccolo durante l'Olocene. I caratteri geometrici della superficie di *unconformity* basale e la distribuzione latero-verticale delle facies ci ha permesso di interpretare questo bacino come legato all'evoluzione di un sistema tipo *incised-valley*. È stata identificata una superficie erosiva polifasica, formata durante la caduta eustatica e rimodellata durante la risalita del livello del mare. Il riempimento post-glaciale ha uno spessore massimo di circa 30 m e registra la transizione fra depositi alluvionali di piana costiera a unità lagunari e di bacino di transizione di bassa energia.

**TERMINI CHIAVE:** Ambienti costieri, Olocene, valle-incisa, bacino marino protetto, Mar Piccolo, Mar Ionio.

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### INTRODUCTION

Coastal sectors are the world's most significant and intensely used areas settled by humans. The analysis of both coastal processes and paleo-environments, has generated a considerable body of literature (i.e. Kay & Alder, 2002; Schwarz, 2005; Anthony, 2009). Coastal areas are sensitive, transitional, morpho-sedimentary systems that respond rapidly to sea-level changes, and that, in the near future, will be subjected to sea-level rises. The duration and magnitude of the relative sea-level changes control: (a) erosional surface occurrence (location and timing), horizontal and vertical shoreline shifts (Posamentier & Allen, 1993;