



Last cycle regressive-transgressive deposits of the Western Ligurian shelf

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The Ligurian continental shelf is a terrigenous platform characterised by variable extension and subsidence of the continental margin and thick accumulation of sediments originated by repeated regressive-transgressive cycles. Its genesis and evolution occurred during the Plio-Quaternary, even if early erosive modelling in some sectors has been dated to the Late Miocene. Its notable morphological variability is a result of its complex structural evolution: a continental shelf surrounding the Northern Apennines and associated with the Ligurian-Provençal Basin and the evolution of the Tyrrhenian Sea. The various sector of the Ligurian continental shelf show similar geological evolution during the Plio-Pleistocene. The sediments accumulated along the coast, firstly filling tectonic depressions in the substratum and then gradually forming a stacking pattern of several Pleistocene prograding wedges. In particular the sector of the continental shelf between Ospedaletti and the head of Taggia Canyon is very varied and the slope generally steep, with a very marked shelf break characterised by a progradant sedimentary body, defined in the literature as a “frontal accumulation”, consisting of sediments that are transparent to a high-frequency seismic signal (3.5 kHz) and lying above an LSST (Low Standing System Tract) sedimentary body that accumulated during the low stand following the last glacio-eustatic regression of 18.000-20.000 yr bP. We present the results of a Marine Geology campaign conducted by the Ligurian Region and the University of Genoa to distinguish, characterise and evaluate the volume of relic coastal deposits, submarine sources of sand and gravel on the continental shelf that are suitable for nourishing beaches undergoing erosion. The research program, financed by the European Union Interreg IIIb Medocc Project, involved collecting high-resolution seismic profiles (Sub Bottom Profiler 3.5 kHz and Boomer 200-400 J) and 23 vibrocores from the continental shelf of western Liguria between the city of Ospedaletti in the west and the head of the Taggia Canyon in the east. The study of

the seismic lines enabled us to distinguish transgressive sedimentary bodies covered with by a thin muddy Holocene cover. The calibration cores of the sedimentary bodies identified with seismic profiles recorded in this area permitted us to distinguish sandy and sandy-pebbly sediments of deltaic and littoral origin under a thin pelitic cover. The distribution of the transgressive sediments shows two areas in which transgressive deposits lie between a depth of 20-40 metres, parallel to the coast, on the inner shelf and 50-70 metres on the outer shelf. The depocentres of these two sedimentary bodies, although situated in the same sectors, lie perpendicular to the coast. These deposits should probably be related to the rocky substratum that, although dislocated and subsident, downthrown by normal faulting, crops out in many sectors of the inner shelf, and to fluvial and deltaic structures that drained into a somewhat limited coastal plain during the low stand.