

Editorial by Michele Mossa



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THE SEA, OUR LIFE

The sea plays a vital role in everyday life both directly and indirectly. Consider, for example, its influence and importance on climate and temperature, tourism, fisheries and important natural resources contained in the sea, such as oil and minerals.

The sea has always played an important role in history. For example, the Mediterranean Sea, the "Mare Nostrum" of the ancient Romans was for centuries the cradle of civilization. In fact, some of the greatest civilizations of the ancient world have grown and flourished on its shores: the Egyptians (even though their civilization grew also on the banks of the Nile), the Phoenicians, the Mycenaeans and Greeks, especially in their maximum expansion of Graecia Magna, the Middle East (the Persians, Assyrians and Babylonians), the Chinese Han dynasty, and finally the Romans and Arabs.

The sea has also been increasingly used for centuries for trade and cultural relations between the West and the East. It is also a major economic resource. Many activities are based on the sea and its products. Just think of the fishing and service industries, such as tourism, whose existence rely heavily on the sea.

Considering the sea as a huge natural resource, often taken as such by coastal communities, it is clear that research topics related to maritime hydraulics and coastal defense are fundamental. However, it should also be noted that coastal communities have used the sea also for flushing waste under the mistaken belief that the scale of the sea permits an unlimited and indiscriminate discharge.

Therefore, there is a great need to safeguard the sea and its coastline and, with this aim, it is necessary to study ocean currents and wave fields in order to understand their influence on hydrodynamic and biological processes, their contribution to the dispersion of pollutant loads the relationship between them and the weather, and more recently as an energy source. For example, a rational planning of

waste water disposal must avoid eutrophication, the accumulation of heavy metals and toxic compounds which, assimilated by marine organisms, may enter the human food chain. In addition, special care must also be taken to avoid damage to the ecosystem that could make whole stretches of coastline unsuitable for bathing.

Today, another much-debated and pressing issue is coastal defense from erosion and, in general, risks to the marine environment and to areas close to the sea. This issue receives constant public attention, especially during the summer, when many swimmers can directly observe the damage done to many beaches.

All the topics mentioned above deserve special attention from the scientific community and require the development of specific research programs using experimental, numerical and field monitoring approaches, avoiding a sterile debate between these schools of thought, and considering the positive aspects of each one. The scientific and technical contribution to these problems is very useful also for local governments which are responsible for coastal management and for the proper protection of the sea environment. In fact, local authorities must also consider careful and rigorous scientific preliminary studies before any construction work and management in coastal areas is carried out, analyzing all the possible side effects that may result from careless design or maintenance.

In other words, human impact on coastal areas must combine both environmental and socio-economic aspects, taking into account the conflicting economic and ecological points of view.

This is why this issue of Hydrolink is devoted to coastal and maritime hydraulics.