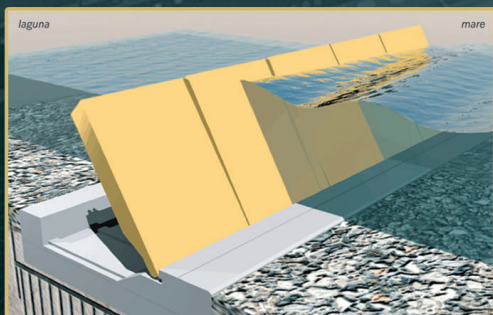


MOSE. VENETIAN CHALLENGE

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M.O.S.E. CHALLENGE

VENETIAN

The largest lagoon in the Mediterranean, 550 square kilometres of shallow waters, muddy shoals, sandbanks, canals and fish farms. A fragile, fortunate isle, which man has inhabited for centuries, learning to live in harmony with a continuously changing environment, where life itself is measured by the rhythm of the tides. The Venetian Lagoon connects to the sea by way of three broad inlets, Lido, Chioggia and Malamocco.

The constant ebb and flow of the tides gives life to the depths and the sandbanks of the lagoon, making this a unique environment that is among the most productive and rich in the entire Mediterranean.

An indissoluble relationship links Venice to her salty, fresh and brackish waters, an inexhaustible resource, yet at the same time a threat to the city's survival. The city's history has always been associated with controlling the water, which over the centuries has involved both minor and major interventions in the lagoon, aimed at safeguarding the delicate balances that constantly play off each other.

By its very nature, the lagoon is an unstable environment, which risks being engulfed by the sea if the erosive forces of the tides prevail, or becoming landlocked by sediment brought by rivers and the sea.

Its muddy waters jealously conceal an infinite variety of life forms.

To some extent, the lagoon bottom is a secret, hidden world, made up of vast underwater prairies of seed- and flower-producing marine plants called phanerogams, adapted to living in water. These alternate with immense dark expanses of bivalve mollusk skeletons, shells of every shape and size.

Here life and death alternate in an endless merry-go-round.

The huge quantities of organic and inorganic sediment carried by tidal currents are the fountain of life, yet their presence also blocks the sun's rays, an indispensable source of energy for all primary organisms like plants and green algae.

A difference of a few centimetres in average water depth is enough to radically alter living conditions in the lagoon, forcing all its inhabitants to move about continuously.

In an environment governed by such severe rules of life, man has sought to adapt by building stable, long-lasting settlements.

The result is an entire city whose most secret, hidden crannies are reflected in its innumerable waterways. Careful observation of Venice's banks and canals reveals a stratum rich in organic encrusta-

tions and algae on all its buildings, marking the average tidal flow.

But tide levels are also subject to considerable variation, due to astronomical and meteorological factors.

The real threat for Venice today is the increasing frequency of high tides and the possible constant increase in average sea levels caused by climate change.

Especially at ebb-tide, the force of the water weakens and sometimes damages the banks and the foundations of the buildings.

The future of Venice plays out far from the city, where the lagoon meets the sea and where, every day, 200 million cubic metres of water flow through the inlets.

Thus, it was decided to protect Venice with a massive system of Mobile Barriers: M.O.S.E. (Modulo Sperimentale Elettromeccanico).

Work began in 2003 and, with 40% now completed, should be finished by 2014.

The construction of the mobile barriers that disappear into the seabed is a highly complex engineering and naval operation.

The barriers are made up of steel sluice gates hinged on reinforced concrete structures anchored to the seabed.

The figures are impressive: the three separate sites employ almost 2000 workers, mainly engineers and highly skilled workers. Some of the equipment used is unique in size and technology.

As well as the sluice gates, placed on concrete caissons anchored to the seabed, each inlet will have new ports and navigation channels to allow ships to pass even when the gates are in operation.

In particular, the Malamocco channel, once completed, will be the largest in the Mediterranean, able to allow medium-sized oil tankers to pass, even when the difference in level between the sea and the lagoon is over a metre.

Will the M.O.S.E. project solve the problem of Venice? What impact will the construction and the finished work have on the natural environment of the Venetian lagoon?

Amazing underwater footage, 3-D simulations, scientific analyses and the opinions of international experts will allow us explain one of the most important operations man has ever undertaken, an operation designed to save Venice, declared a UNESCO World Heritage Site in 1987.

