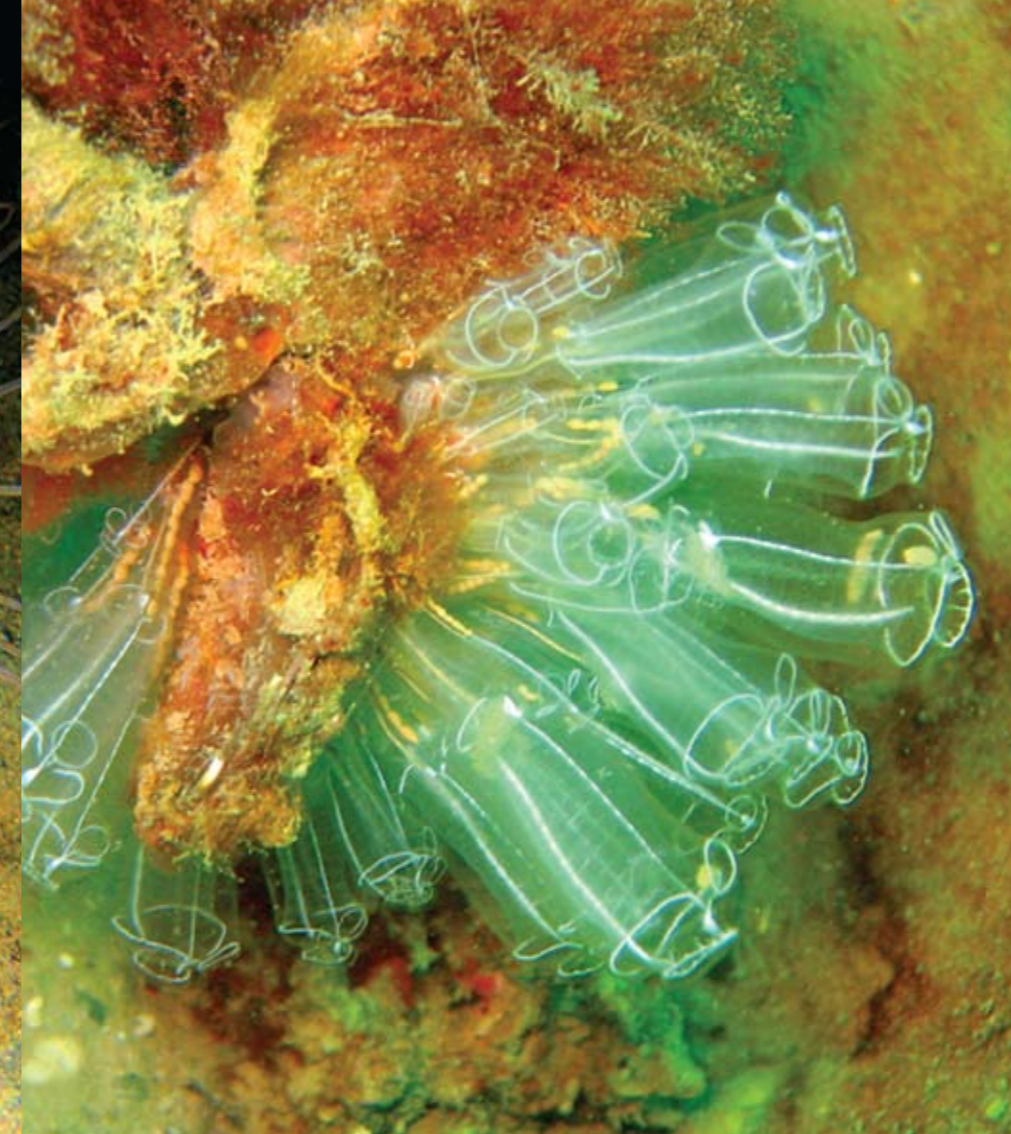
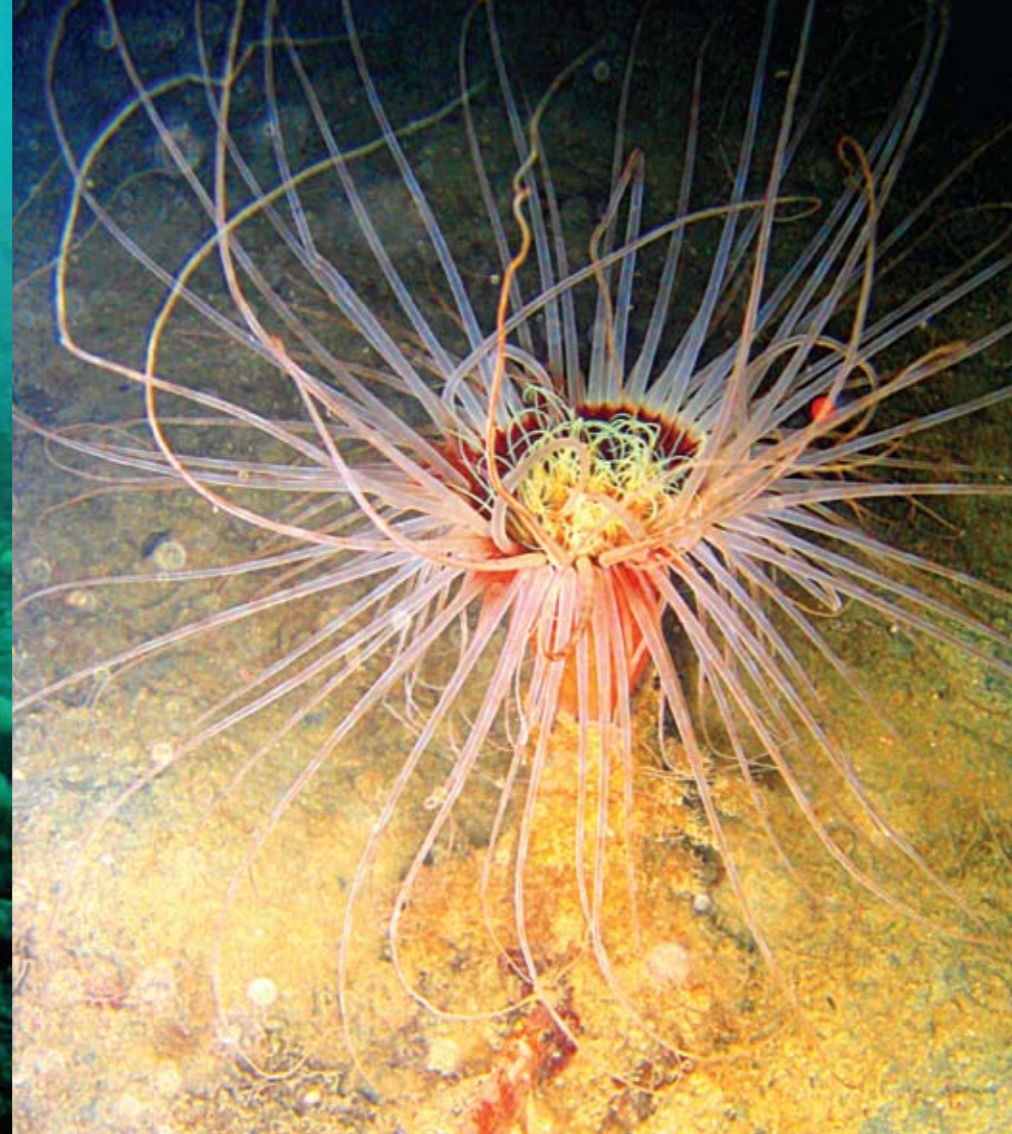




THE TEGNÙE OF CAVALLINO TREPORTI

THE HIDDEN TREASURES OF THE ADRIATIC SEA
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THE TEGNÙE

WHAT ARE THE "TEGNÙE"?

The upper Adriatic Sea with its mainly sandy-muddy sea-bottoms is generally perceived, in terms of the aquatic realm, rather unspectacular. But in this sabulous underground, beside numerous relicts, you can find rock-formations which are called "Tegnùe" in Venetian. These rocks lodge manifold ecosystems and are characterized by an enormous, in the Mediterranean Sea even unique biodiversity.

Already several centuries ago, resident fishermen doubted about the theory that the seabed of the upper Adriatic Sea was formed only out of sand and mud, because their nets entangled at the sea-bottom. The Venetian term "Tegnùe" denominates this supposition: "area of retain". On the one hand fishermen were afraid of these regions because of the

risk to break their nets, on the other hand these regions had the most abundant fish stocks, beneath some species which exist nowhere else in the world. However they could not discover and they supposed that the remains of an ancient sunken city entangled their nets.

Scientists kept on negating the existence of natural rock formations in the upper Adriatic Sea until the late sixties, when undersea-researches disclosed the secret of the Tegnùe. In 1966 the marine-geologist Antonio Stefanon discovered the first rock-formations on the eve of Grado. Additional researches confirmed their occurrence in a profundity of 10 to 40 metres, dispersed in the region from the estuaries of the Po River to Grado. The rock-formations diversify considerably concerning their structure, morphology and dimension.

HOW DID THEY EMERGE?

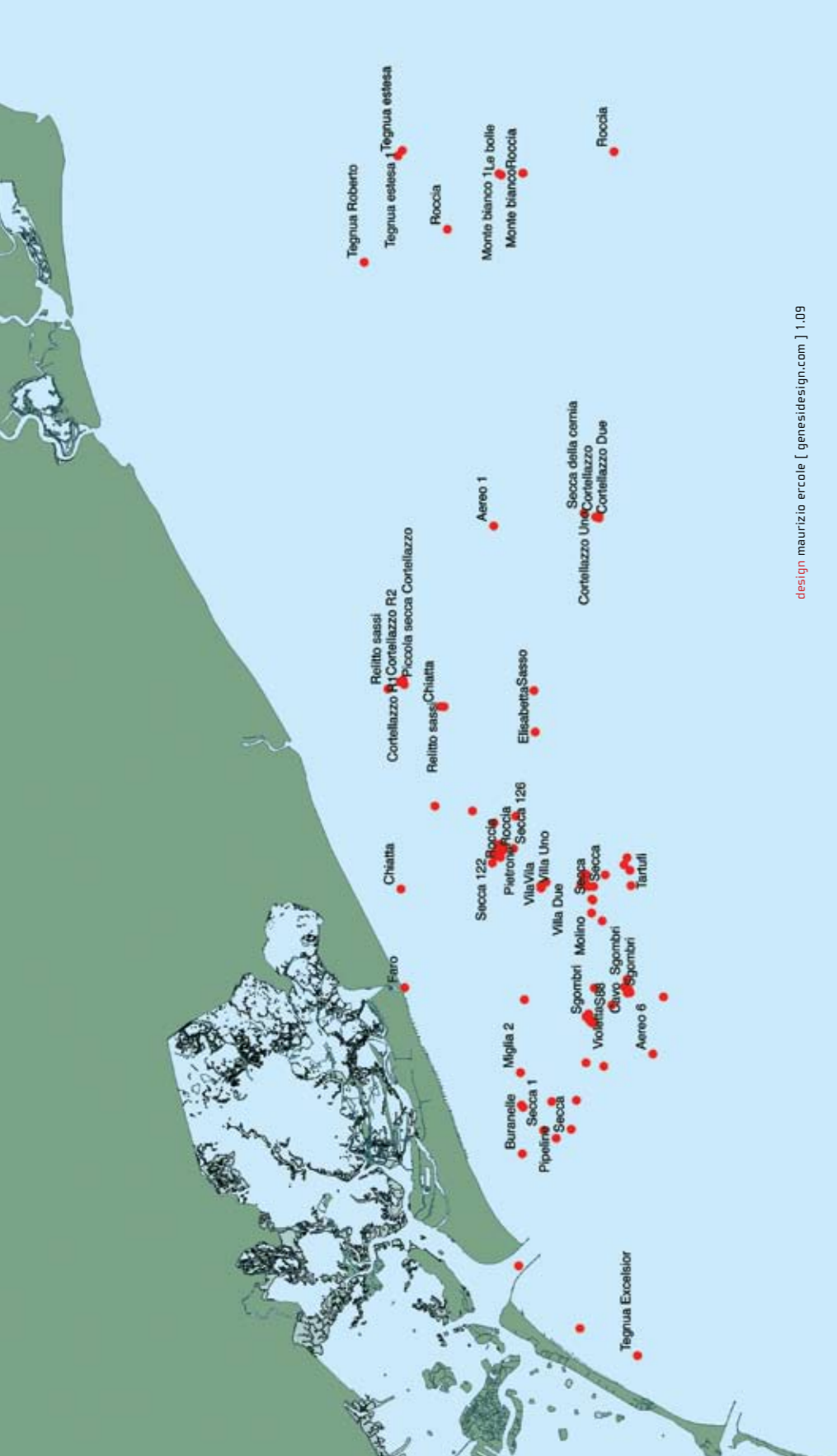
The Tegnùe represent a geological particularity, due to the fact that they are not deeply ingrained in the ground. Sediments in the size of a few

kilometres give them hold. With the aid of a lateral cut one detected that the Tegnùe is composed by 2 different types of rock: a calcareous core and an organogenetic coating. The calcareous core has been created in succession to a cementation of sediments, influenced by methane, supposedly aided by different microorganisms.

This sedimentary rock must have been formed inside the sediments. By erosion it appeared at the sea-bottom where it acts as an habitat for an unique flora and fauna. The depositions, shells and calcareous skeletons of the ones served as a substrate for other species. This phenomena enabled the creation of an organogenetic rock-structure, formed out of different strata. The Tegnùe represent a counterpart of the tropical corals in the Adriatic Sea. While a coral reef is formed by the reproduction of animal microorganisms, so-called madrepora or reef-builders, the Tegnùe are built by other organisms of bio-construction. The animal microorganisms need clear water and constant temperatures. They live in a symbiotic relationship with a unicellular algae, called zooxanthellae

and depend on their photosynthetic activity to enable their reproduction. These algae live inside the corals and allow them to absorb calcium carbonate from the water, required to produce their typical calcareous skeleton. By contrast, the upper Adriatic Sea is characterized by a numerousness of organic substances and plankton, turbid water and an extensive fluctuation of temperature. As the water-temperature reaches from 5°C in winter to 25°C in the summertime, it is impossible that corals colonise this area.

The creation of the organogenetic rock of the Tegnùe is aided by other organisms of construction, such as moss animals, polychaetes or anthozoa. Maily you can find calcareous algae, which, thanks to special pigments in their cell-wall, are able to absorb the sparsely available brightness as a form calcareous lamina in often considerably dimensions. In the Mediterranean Sea subsist a similar structure to the organogenetic, the coralogen, however existing in depths exceedingly difficult to reach by divers.



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WHY ARE THE TEGNÙE SO IMPORTANT?

The Tegnùe fulfil a meaningful function for the ecosystem of the upper Adriatic Sea. Above all, they are the only hard and natural substrate in these sea-areas and represent an oasis of environmental gradients and micro-ambients, promoting a rich and manifold flora and fauna, in the homogeneously sandy-muddy underground.

Only upon these hard substrata can sessile organisms, like sponges or sea-squirts, colonise. But not only: the Tegnùe act as a reproduction-area for many species. Many of the vagile-living animals, such as calamaries, need a solid underground to affix their eggs or the like. Furthermore, the Tegnùe give shelter and protection and offer a rich variety of nutriment (plankton, dissolved organic matter) and represent in this way an adequate living space for the first development stages of numerous species. According to the current level of knowledge, organic rocks like the Tegnùe do exist exclusively in the upper Adriatic Sea.

DIVING TO THE TEGNÙE (STARTING AT CAVALLINO TREPORTI)

Offshore Cavallino are located some of the most meaningful Tegnùe, taking center stage of one of the most important environmental projects. To observe these natural treasures in the slightly turbid water, it is recommended to bring a powerful undersea-lamp. In the covering layer of the Tegnùe, a permanent struggle for life occurs. It is difficult to distinguish between the single organisms and species. Here is the habitat of the filter feeders (or suspension feeders), animals that feed by straining matter and food particles from the water. Beneath, you can find the distinctive lemon-sponge (*Tethya citrina*), sea-oranges (*Tethya aurantium*), sponge *Geodia cydonium*, the sponges *Axinella cannabina* and *Axinella damicornis* or the species of the sea-squirts, like *Conicum masivas* and some exponents of the Claveliniade. Moreover, cnidaria, sea cucumber (*Cerianthus membranaceus*) and several types of anemones, such as *Parazoanthus axinellae*, colonies of hydroids and moss-animals. True sea slugs and tube

worms (*Sabellaria spallanzanii*). Such a variety of sessile animals and the possibility to take shelter attract cores of other species, among fishes and crustaceans. The rock-formations are often populated by the species of *Trisopterus minutus capelanus*, lobsters (*Homarus gammarus*), conger (*Conger conger*), sciaena (*Sciaenops ocellatus*), brases (*Diplodus annularis*) but also *Lythronus dalli*, blennies and catsharks. Promotive ecological conditions enable this enormous biodiversity, mainly in terms of sea-currents, which avoid an aggradation of the rock-formations. The Tegnùe are unique and outstanding, so ever very sensitive and fragile, easily destructible by unawareness of divers. All the more it is important to respect certain rules.

THE "MADONNA DELLE TEGNÙE"

To sensibilise the general public to the need of protection, the 10th of September 2008 has been sunken a statue, made by Sergio Della Mora, an artist from Jesolo. The "Madonna delle Tegnùe" (1,8 high, weight 18 tonnes) is situated in a depth of 4,4 miles offshore Cavallino, near the

"Tegnùe d'Ancona" and has been dedicated to the recently deceased apnoea-champion Rossana Maiorca.

DO YOU WANT TO ATTEND DIVING-LESSONS OR VISIT THE TEGNÙE?

Contact the diving-centres along the sea at Cavallino Treporti. Diving courses are available at different levels. Further information you can get at the local tourist information centre:

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