

# MARINE FAUNA OF THE MLJET NATIONAL PARK (ADRIATIC SEA, CROATIA). 1. ANTHOZOA

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Fifty-two anthozoan species were recorded and collected in the area of Mljet National Park during surveys from 1995 to 1998. General and ecological data are presented for each species, as well as distribution and local abundance. Recorded species account for about 60% of anthozoans known in the Adriatic Sea, and for about 45% of anthozoans known in the Mediterranean Sea. Eight of these species were not recorded previously in the Adriatic Sea. Eleven species are considered to be Mediterranean endemics. The heterogeneity of substrates and benthic communities is considerable in the Mljet National Park, with anthozoans present on most different kinds of substrates and in a wide range of benthic communities. Remarkably, the colonial coral *Cladocora caespitosa* builds a large »reef-like« structure in the Veliko Jezero, in the area characterized by strong bottom hydrodynamism.

**Key words:** marine fauna, Anthozoa, Mljet, Adriatic Sea

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Prilikom istraživanja podmorskog dijela Nacionalnog parka Mljet od 1995. do 1998. godine zabilježene su i sakupljene 52 vrste koralja. Za svaku vrstu izneseni su opći i ekološki podaci, te su zabilježeni nalazi i lokalna brojnost. Pronađene vrste predstavljaju oko 60% dosad pronađenih koralja u Jadranskom moru i oko 45% u Sredozemnom moru. Osam vrsta koralja pronađeno je po prvi put u Jadranskom moru, dok se jedanaest vrsta smatra endemima Sredozemnog mora. U Nacionalnom parku Mljet nalazimo razne vrste podloga i razne bentoske zajednice, te koralji pokazuju značajne prilagodbe na različite podloge i prilike u okolišu. Dobar primjer za to je kolonijalni koralj *Cladocora caespitosa* koji tvori »greben« u Velikom Jezeru, u okolišu s jakim pridnenim morskim strujama.

**Ključne riječi:** morska fauna, Anthozoa, Mljet, Jadransko more

## INTRODUCTION

Mljet, together with Korčula and Lastovo, belongs to the group of outer south Dalmatian islands. With a surface area of 100.41 km<sup>2</sup> it is the eighth largest of the Adriatic islands.

Morpho-structurally, Mljet is a ridge-monocline, developed on the outer rim of the Adriatic shelf. The geology of the island is characterized by prevailing Mesozoic carbonate deposits with a typical monocline structure. The coast is predominantly of the abrasional type, mainly low and rocky. Steep cliffs are developed mostly along the southern coast. Along the northern coast there are many islets like Pomeštak, Glavat, Moračnik, Tajnik, Kobrava and others.

Mljet is situated in the oligotrophic area of the coastal part of the southern Adriatic, under the direct influence of the open sea. Salinity is rather high, with small annual oscillations ( $38.42 \times 10^{-3}$  in summer and  $38.10 \times 10^{-3}$  during the winter months). Water transparency in summer measured with the Secci-disc is 31 meters. Surface temperature varies from 10.9 °C in winter up to 27.5 °C in summer.

A special feature of Mljet Island is its two marine lakes (Veliko and Malo Jezero). They are in fact two depressions that were flooded by the sea in the postglacial period. The larger part of the inlet named Veliko Jezero (Great Lake) has an actual maximum depth of 47 m, while the smaller inner part named Malo Jezero (Small Lake) is only 21 m deep. This body of water communicates with the open sea through a narrow channel that is presently 4.5 m deep and about 60 m long.

On November 11<sup>th</sup> 1960, the north-western part of the island of Mljet was proclaimed a National Park. The few scarce data about the marine benthos around the Island of Mljet were collected by Brusina in 1894, and during the »Hvar« expedition after World War II (1948 to 1949). Shortly after the »Hvar« expedition, Mljet was visited by Ercegović, who was the first to investigate the marine vegetation at several locations around the island. As for the lakes, they have always been of great interest to scientists. Their geology, chemistry, sedimentology, hydrography and planctonology are thus rather well known (ZAVODNIK, 1995). On 15<sup>th</sup> January 1996 the National Park area was extended to the sea.

During four years (1995–1998) »Thais« – Society for Exploration and Conservation of Nature investigated more than 60 sites in the sea surrounding the island to a depth of 40 m and compiled an inventory of more than 650 plant and animal species (Fig. 1). Some of these species were not previously noted in the Adriatic Sea, some are Mediterranean endemics and several are rare or endangered.

Information about Anthozoa from the Adriatic Sea can be found in older literature such as GRUBE (1840); HELLER (1868); GRAEFFE (1884); STOSSICH (1885); BABIĆ & RÖSSLER, (1912); KRUMBACH (1914); CORI (1928) and VATOVA (1928). Knowledge of anthozoan fauna was increased by the contributions of BROCH (1953) and ABEL (1955), but a large amount of literature and original data on Adriatic anthozoans was then assembled by PAX & MÜLLER (1962) in their regional monograph. These authors mentioned 79 species (61 hexacoral and 18 octocoral species) based broadly on Pax's personal research between 1906 and 1956, but only 7 species were reported for the island of Mljet. Their monograph covered the area from Trieste to

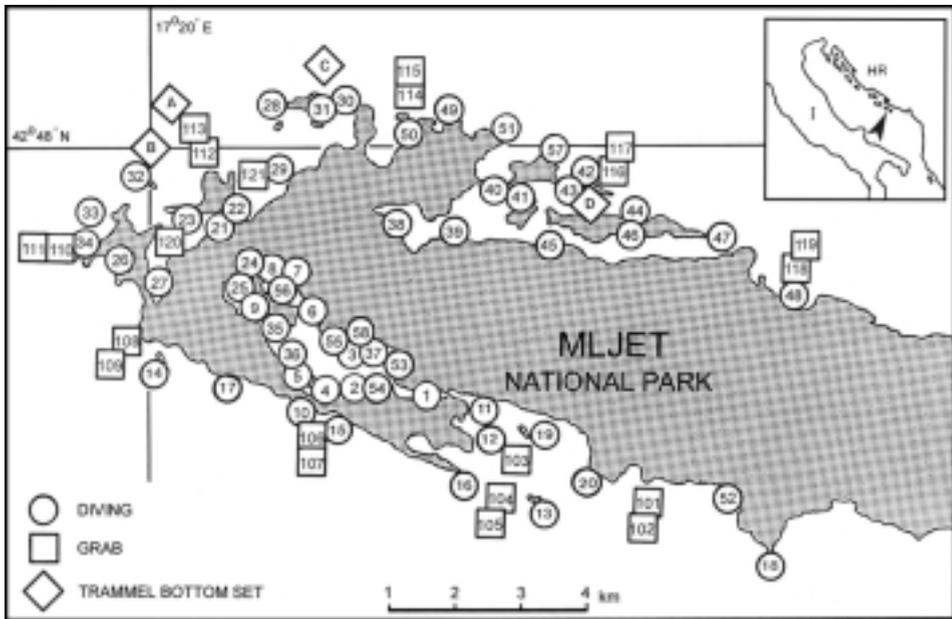


Fig. 1. Sampling sites in National park »Mljet«.

Dubrovnik, but only a few areas in the northern part of the Adriatic Sea were thoroughly explored, compared with modern standards. This was before the age of SCUBA diving, which had a large impact on research in marine biology. Adriatic scleractinians were revised by ZIBROWIUS & GRIESHABER (1977) who added six species to the list of Adriatic fauna. In recent literature concerning Mljet, anthozoans were noted by DRAGANOVIĆ (1980), BELAMARIĆ *et al.* (1995) and OREPIĆ *et al.* (1997).

## MATERIALS AND METHODS

Surveys of the benthic communities organized in recent years by »Rudjer Boskovic Institute« – Center for Marine Research Rovinj and »Thais« – Society for Exploration and Conservation of Nature were focused on the National Park on Mljet island. Samples were collected by SCUBA divers on rocky and sandy bottoms at depths varying from 5 to 50 m. Observations were made along 100 m line-transects. Hand corers (250 ml volume; 3 replicates per station) in shallow coastal waters and the Van Veen grab (0.1 m<sup>2</sup>) at deeper shelf areas were used for taking sediment samples (especially coarse sand). Besides the bottom type and its configuration, abundances of large and well recognizable species were noted. Other organisms were collected for laboratory identification. Collected specimens were first preserved in 4% formalin and later transferred to 70% ethanol. Sediment samples were preserved *in toto* using 70% ethanol. Species reported herein were identified according to PAX & MÜLLER (1962), SCHMIDT (1972), ZIBROWIUS (1980) and WEINBERG (1998).

## RESULTS

Within the materials collected 52 anthozoan species were identified (43 hexacorals and 9 octocoral species). Species are arranged here in alphabetical order within the higher taxa.

### HEXACORALLIA

#### ANTIPATHIDAE

*Antipathes subpinnata* Ellis & Solander, 1786

*Stations:* MLJ-49, 50, 51.

*Depth:* 20–40 m.

*Material:* Three colonial specimens collected (one per station), up to 18 cm long. Polyps with 12 tentacles. Horny black to brownish axial skeleton armed with numerous tiny thorns.

*Habitat:* Rocky and gravelly bottom.

*Remarks:* Relatively rare species in the Adriatic Sea. The depth range from Mljet is remarkably shallow for the Mediterranean. Previously reported by HELLER (1868) near Lastovo island and recently (1997) by B. Furlan (pers. comm.) near Svetac island at 70 m depth.

#### CERIANTHIDAE

*Cerianthus membranaceus* (Spallanzani, 1784)

*Stations:* MLJ-1, 3, 4, 5, 14, 17, 18, 28, 30, 31, 35, 36, 39, 41, 42, 43, 47, 48, 50, 52, 55, 57.

*Depth:* 10–45 m.

*Material:* 1–3 individuals found per station. Marginal tentacles arranged in pseudocycles, up to 10 cm long, pale buff shading to white at the tips. Labial tentacles plain buff, dark brown or white.

*Habitat:* All individuals were buried in coarse sand.

*Remarks:* A common species in the Adriatic Sea, often abundant in coarse gravel or muddy sand.

#### EPIZOANTHIDAE

*Epizoanthus arenaceus* Delle Chiaje, 1823

*Stations:* MLJ-D, 30, 47, 48, 53, 58.

*Depth:* 10–20 m.

*Material:* Stolon-like band formed by coenenchyme with polyps arising at irregular intervals. Polyps variable in size, up to 10 mm tall and 5 mm in diameter. Colour of polyps translucent yellowish white. Colonies recorded on lost fisherman's net (MLJ-D), empty shells of gastropods and bivalves (MLJ-30, 53, 58) and on living gastropod *Hexaplex trunculus* (Linnaeus, 1758) (MLJ-47, 48).

*Habitat:* Colonies encrust rocks, stones or shells.

*Remarks:* Colonies may easily be overlooked unless the polyps are expanded, because the stolon is often overgrown by other incrusting organisms.

## PARAZOANTHIDAE

*Parazoanthus axinellae* O. Schmidt, 1862

*Stations:* MLJ-D, 10, 13, 14, 16, 17, 18, 19, 28, 29, 30, 31, 32, 34, 40, 41, 42, 43, 44, 46, 47, 49, 50, 51, 52, 57.

*Depth:* 5–55 m.

*Material:* Basal encrusting coenenchyme forming broad stolons which branch and anastomose. Polyps set close together, up to 15 mm tall and 5 mm in diameter. Tentacles moderate to long. Polyps yellow to orange. Colonies found on the sponges *Axinella canabina* (Esper, 1794), *A. damicornis* (Esper, 1794), *A. verrucosa* (Esper, 1794) and on the green algae *Codium bursa* (Linnaeus) C.Agardh. In the coralligenous biocoenosis it is common on rock in caves and crevices especially at stations MLJ-49, 50 and 51.

*Habitat:* Colonies encrust mostly sponges of the genus *Axinella*, rarely rocks, shells, polychaete worm tubes and dead gorgonians.

*Remarks:* A common and well known species along the eastern Adriatic coast (PAX & MÜLLER, 1962).

## ALICIIDAE

*Alicia mirabilis* Johnson, 1861

*Station:* MLJ-13.

*Depth:* 14 m.

*Material:* One individual found on bedrock. When observed during a night dive, the specimen was expanded, about 30 cm high with tentacles more than 30 cm long. Column surface covered by irregularly spaced prominent groups of warty outgrowths which were more densely crowded in the lower part. Long tentacles attenuated towards the end, typically floating in the current. Column and tentacles of a transparent greenish brown.

*Habitat:* Infralittoral and circumlittoral zones at 10–50 m depth, on rocky and gravel bottoms. Also recorded near *Posidonia* meadows and on the leaves of *Posidonia oceanica*.

*Remarks:* This is a species new for the Adriatic Sea. Previously known from the western Mediterranean and the northeastern Atlantic (CHINTIROGLOU *et al.*, 1997).

## ACTINIIDAE

*Condylactis aurantiaca* (Delle Chiaje, 1825)

*Stations:* MLJ-5, 14, 21, 22, 30, 31, 38, 39, 40, 41, 43, 44, 46, 47, 48, 50, 52, 53, 55.

*Depth:* 5–25 m.

*Material:* Column wider than the base and disc. Colour of the column pale with orange longitudinal stripes. Disc pale with dark brown stripes. Tentacles moderate in length, neatly and hexamerously arranged. Colour of tentacles fluorescent light green with purple tips. Diameter of Mljet specimens' disc up to 20 cm.

*Habitat:* Burrows in mud, sand or gravel.

*Remarks:* The pontoniid shrimp *Periclimenes amethysteus* (Risso, 1827) can be found in association with this anemone.

***Actinia equina* Linnaeus, 1758**

*Stations:* MLJ-1, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 57.

*Material:* Anemone with broad base, wider than column. Column and tentacles usually dark red. At the station MLJ-47 various shades of green with irregular yellow spots were recorded. Diameter of base up to 50 mm, span of tentacles up to 70 mm. Abundant in the mediolittoral zone.

*Habitat:* Occurs attached to any convenient hard substratum in exposed or sheltered sites.

*Remarks:* Present in Soline channel (MLJ-1), but not found in Veliko and Malo Jezero.

***Actinia cari* Delle Chiaje, 1841**

*Stations:* MLJ-14, 16, 31, 39, 51.

*Depth:* 0,5–3 m.

*Material:* One individual at MLJ-39, more at the other stations, from 2 (MLJ-16) to 11 (MLJ-31). Diameter of base ranged from 7 to 25 mm. Column low, smooth and cylindrical, up to 15 mm tall. Usually brown or green and are invariably marked with dark concentric lines.

*Habitat:* In the shallow infralittoral in the photophyllous algae community. Attached to bare rocks and stones. Commonly at 0.5 to 3 m depth, exceptionally at 20 m.

*Remarks:* *A. cari* is a Mediterranean endemic and is generally considered a rare species (SCHMIDT, 1972).

***Actinia striata* (Rizzi, 1907)**

*Stations:* MLJ-14, 51.

*Depth:* 0,5 m.

*Material:* Seven specimens from MLJ-14 and one from MLJ-51. All specimens with basal plate not larger than 15 mm. Column up to 10 mm tall. Colour red-brown with dark vertical lines.

*Habitat:* Infralittoral species, living on hard substrate, often between algae.

*Remarks:* Often found in groups of three or more individuals.

***Bunodactis verrucosa* (Pennant, 1777)**

*Stations:* MLJ-40, 41, 52.

*Depth:* 0,5–15 m.

**Material:** Three specimens (one per station). Basal plate exceeding 20 mm in diameter. Disc greenish with well developed verrucae and dark radial lines in between. Tentacles brilliant green.

**Habitat:** Usually in shaded places down to 20 m depth. At station MLJ-52 one specimen found in a *Posidonia* meadow. The other two specimens were collected on a sheltered rock and under boulders.

**Remarks:** Well camouflaged and difficult to detect, even when present in abundance.

***Anemonia viridis*** (Forsk., 1775)

**Stations:** MLJ-1, 2, 8, 11, 13, 14, 17, 21, 22, 24, 25, 27, 29, 30, 32, 34, 38, 39, 40, 41, 43, 47, 48, 52.

**Depth:** 0–10 m.

**Material:** Abundant at all stations. Column variable in height, often short and covered by tentacles. Column greyish to yellowish brown with irregular pale streaks, tentacles bright grass-green with purple tips.

**Habitat:** Occurs mainly from about mid-tide level down to 25 m depth, mostly at locations exposed to strong wave action. Also recorded in sheltered places. At station MLJ-21, at the innermost end of the cove, this species fully covers about 80 m<sup>2</sup> and is emerged during low tide. Population density is approximately 70 individuals per m<sup>2</sup>.

**Remarks:** The most commonly observed actinian species in the Mljet National park and in the Croatian part of the Adriatic Sea.

***Phymanthus pulcher*** Andres, 1883

**Stations:** MLJ-30, 40, 41, 52, 53.

**Depth:** 5–15 m.

**Material:** Relatively rare, a few individuals per station. Base up to 3 cm in diameter, column up to 5 cm. Tentacles up to 1 cm long. Oral disc and tentacles green, column orange to yellow. Upper part of column with adhesive white verrucae.

**Habitat:** Typically on biogenic substrate. Occasionally near *Posidonia* meadows (MLJ-40, 52) and in coralligenous biocoenosis (MLJ-41). This species usually occurs from 15 to 70 m depth (PAX & MÜLLER, 1962).

**Remarks:** The species is a Mediterranean endemic.

***Cribrinopsis crassa*** (Andres, 1883)

**Stations:** MLJ-14, 30, 31, 40.

**Depth:** 5–10 m.

**Material:** Column variable in height, becoming tall and trumpet-shaped when fully extended. Verrucae small, yellow with red tips, arranged in 48 longitudinal rows. Disc wide with moderately long tentacles. Colour of the tentacles fluorescent light green with streaks and purple tips.

**Habitat:** Under stones, in rock holes and in *Posidonia* meadows.

**Remarks:** When not disturbed, column height up to 15 cm (observed at the station MLJ-31).

## CORALLIMORPHIDAE

*Corynactis viridis* Allman, 1846 (Fig. 2)

*Stations:* MLJ-13, 14, 30, 31, 42, 43, 47, 49, 50, 51.

*Depth:* 3–30 m.

*Material:* At all stations in dense aggregations. Because of imperfect reproductional fission anemones remain connected by a narrow strand of basal tissue. Tentacles short with tiny wart-like nematocyst batteries and a well defined acrosphere. Size of whole anemone up to 10 mm. Coloration very variable. At most stations the anemone column was pink and tentacles yellowish. Only at station MLJ-31 the column was green and tentacles brown.

*Habitat:* Usually on rock, in particular on vertical rock surfaces (stations MLJ-49, 50 and 51). At station MLJ-14 aggregations were found beneath an overhang at 28 m depth.



Fig. 2. *Corynactis viridis*. Station MLJ-51. Scale bar = 2 cm.

*Remarks:* The distribution of *C. viridis* in the Mediterranean and Eastern Atlantic has been presented in detail by den HARTOG *et al.* (1993). In the Adriatic Sea this species was found at islands of Jabuka (ZAVODNIK *et al.*, 2000), Prvić, Vis, Lastovo, Hvar and Brač (personal records).

## AIPTASIIDAE

*Aiptasia diaphana* (Rapp, 1829)

*Stations:* MLJ-5, 25, 26, 29, 35.

*Depth:* 1–10 m.

*Material:* Base cylindrical adhering to a well-developed limbus. Column greyish white. Tentacles long, thin and brownish-green due to the zooxanthellae. At Mljet stations, *A. diaphana* was noted in abundant populations (up to 20 individuals per m<sup>2</sup>).

*Habitat:* Under stones or beneath overhangs at a relatively shallow depth.

*Remarks:* In the field it resembles *A. mutabilis*, but *A. diaphana* is usually of a smaller size.

*Aiptasia mutabilis* (Gravenhorst, 1831)

*Stations:* MLJ-1, 4, 13, 14, 22, 28, 30, 31, 40, 41, 47, 48, 50, 51, 53.

*Depth:* 1–15 m.

*Material:* A few individuals per station. Column variable in shape, up to 10 cm tall, greenish brown and often with irregular white streaks. Disc wider than column, concave, brown with white spots. Tentacles thick, steeply graduated in size. Colour of tentacles translucent brown to green with white streaks.

*Habitat:* On the lower shore under stones or beneath overhangs and among algal holdfasts.

*Remarks:* A well camouflaged species, not rare in the Adriatic.

## AURELIANIDAE

*Aureliania heterocera* (Thompson, 1853)

*Stations:* MLJ-14, 30.

*Depth:* 20–40 m.

*Material:* Only one specimen at each station. Base wider than column, up to 30 mm in diameter. Column bell-shaped when expanded, up to 25 mm high. Colour of column slate grey. Tentacles brown, closely set to disc edge. Each tentacle consists of a short stalk and a terminal point shaped knob.

*Habitat:* At station MLJ-14 one specimen on rock at 24 m depth, at station MLJ-30 one specimen on gravel sand at 38 m. The depth range of this species is between the lower shore and 600 m (SCHMIDT, 1972).

*Remarks:* The broad base may be suitable for living free on soft substrata. Colour of column and tentacles may vary from brown, grey, orange to dark red.

## HORMATHIIDAE

*Hormathia coronata* (Gosse, 1858)

*Stations:* MLJ-31.

*Depth:* 40 m.

*Material:* Bell shaped column divided into orange scapus and brown scapulus with pale scapular ridges. Tentacles short and light brown. Irregular white streaks on disc and tentacles. Base diameter 15 mm, specimen height 25 mm.

*Habitat:* The only specimen was found inside the shell of a dead violet heart urchin *Spatangus purpureus* (O. F. Müller, 1776) on muddy gravel sand at 40 m depth. Pre-

viously found attached to organic substrata (polychaete tubes, shells etc.), stones and rock down to 100 m depth (SCHMIDT, 1972).

*Remarks:* Considered a Lusitanian species.

***Amphianthus dohrni* (Koch, 1878)**

*Stations:* MLJ-30.

*Depth:* 34 m.

*Material:* Seven individuals collected. Base adherent and variable in shape, often elongated. Column short, cylindrical. Tentacles short, irregularly arranged in four cycles. Disc flat and oval in outline. Colour of the column buff with faintly visible white streaks. Disc buff, orange on its outer part. Tentacles translucent buff.

*Habitat:* Occurs on various gorgonians, polychaete tubes and other organic structures from 10 to 1000 m depth (SCHMIDT, 1972). At station MLJ-30 three specimens were collected on gorgonian *Eunicella singularis* (Esper, 1791), and four specimens attached on a nearby rock.

*Remarks:* Rarely observed and collected elsewhere in the Mediterranean too (SCHMIDT, 1972).

***Calliactis parasitica* (Couch, 1838)**

*Stations:* MLJ-D, 6, 11, 13, 14, 18, 27, 29, 30, 31, 40, 41, 43, 45, 47, 50, 52, 53, 54.

*Depth:* 5–20 m.

*Material:* Base wider than column, capable of firm adhesion. Column with a grainy appearance. Acontia emitted when the anemone is disturbed. Disc concave, wide when fully expanded. Tentacles moderate in length and very numerous. Diameter of base up to 60 mm, height of the column up to 80 mm. Colour of column buff or light brown with brown freckles, often arranged in longitudinal stripes. Disc and tentacles translucent cream or yellowish. *C. parasitica* was collected from shells of the gastropod *Hexaplex trunculus* (Linnaeus, 1767) inhabited by hermit crabs of the genera *Pagurus* and *Dardanus*.

*Habitat:* Usually found in association with hermit crabs. Commonly more than one anemone attached on the gastropod shell inhabited by hermit. Specimens were also recorded from hard substrata such as stones or rock. A typical sublittoral species occurring down to about 60 m depth.

*Remarks:* Species well known for its commensal association with hermit crabs.

***Adamsia palliata* (Bohadsch, 1761)**

*Stations:* MLJ-D, 14, 15, 20, 25, 30, 31, 40, 46.

*Depth:* 2–15 m.

*Material:* Base and lower part expanded laterally, forming two lobes enveloping a hermit crab and its gastropod shell so that the disc is beneath the crab with the two lobes on its dorsal side. Upper part of the column short and cylindrical. From the lower part of the column long acontia are emitted at the slightest provocation. Base of specimens collected at Mljet up to 45 mm. Column white with pink spots. Tentacles white or yellowish, acontia usually pink, rarely white.

*Habitat:* Common on sand and gravel down to 200 m depth (SCHMIDT, 1972).

*Remarks:* This anemone lives almost exclusively in association with the hermit crab *Pagurus prideauxi* Leach, 1815, as noted at Mljet stations. Rarely other species of hermit crabs are involved. Normally one anemone per crab. At station MLJ-40, however two anemones were hosted by a single hermit crab.

## HALCAMPOLIDIDAE

### *Halcampoides purpurea* (Studer, 1878)

*Station:* MLJ-30.

*Depth:* 21 m.

*Material:* One specimen collected. Column about 10 cm high. Disc small, about 1 cm in diameter. Tentacles 12, up to 10 cm long. Pharynx visible inside the transparent column. Column transparent pink with white streaks. Disc and tentacles transparent, greyish brown or pink. Specimen 60 mm high, embedded in coarse sand deposited in crevice between rocks.

*Habitat:* Coarse sand, inside and outside caves and near the *Posidonia oceanica* meadow.

*Remarks:* *H. purpurea* is mainly nocturnal, remaining buried in the sand during the day. In addition, when an expanded individual is touched or disturbed, it immediately disappears into the sand. This is the reason why it was rarely recorded. This is a species new for the Adriatic Sea. Previously known from the western Mediterranean (BOERO *et al.*, 1991; CHINTIROGLOU *et al.*, 1997). Unless the individual has been narcotised, the tentacles tend to invaginate when preserved in formalin.

## ISOPHELLIIDAE

### *Telmatactis forskali* (Ehrenberg, 1834)

*Stations:* MLJ-31, 40.

*Depth:* 6–15 m.

*Material:* Two specimens collected, one per station. Column cylindrical up to 5 cm high (MLJ-31). Colour of column red-brown with pale rings. Tentacles short and brown.

*Habitat:* Bedrock.

*Remarks:* Relatively rare species in the Adriatic Sea. Our specimens were collected from the burrows of the date shell *Lithophaga lithophaga* (Linnaeus, 1758).

## SAGARTIIDAE

### *Cereus pedunculatus* (Pennant, 1777)

*Stations:* MLJ-5, 11, 14, 30, 31, 40, 41, 53, 54, 57.

*Depth:* 5–30 m.

*Material:* Base a little wider than the column. Column tall in extension. Disc always wider than the base when fully expanded. Tentacles numerous and short. Diameter of the disc up to 80 mm, height of column very variable, but at least 100 mm. Column beige or dark grey with light grey stripes. Colour of disc and tentacles grey to brownish with dark grey or white lines.

*Habitat:* When on hard substrate usually inserted with its base in a deep hole or crevice into which it can withdraw when disturbed. Rarely recorded on soft substrate, buried in mud or sand (stations MLJ-41 and MLJ-57).

*Remarks:* A common species in the Adriatic Sea.

## POCILLOPORIDAE

### *Madracis pharensis* (Heller, 1868)

*Stations:* MLJ-13, 14, 16, 18, 42, 49, 50, 51, 57.

*Depth:* 10–45 m.

*Material:* Colonial coral with low closely packed corallites. Simple columella connected with septa. Septa slightly exert. Diameter of the calices up to 3 mm. Polyps translucent white (without zooxanthellae) or brownish green (with zooxanthellae). At Mljet colonies were recorded on steep cliffs in the upper part of crevices.

*Habitat:* Roof of caves and crevices or sheltered places.

*Remarks:* Depending of the light level, this species can be zooxanthellate, or azooxanthellae as in caves. When transferred to the sunlight outside the cave, colonies become zooxanthellate. Prior to the development of modern diving methods *M. pharensis* was rarely recorded in the Adriatic Sea. In fact, it is widely distributed and common in the eastern Adriatic Sea (ZIBROWIUS & GRIESHABER, 1977 and personal observations).

## FAVIIDAE

### *Cladocora caespitosa* (Linnaeus, 1767) (Fig. 3)

*Stations:* MLJ-2, 3, 31, 44, 53, 54.

*Depth:* 1–25 m.

*Material:* Corallites closely spaced, up to 360 per dm<sup>2</sup>, height may exceed 150 cm in old colonies. Corallites circular, 3–6 mm in diameter. Septa from 30 to 44, number not always related to corallite diameter.

*Habitat:* Hard or soft substrate, down to 40 m depth, but only in light exposed areas due to the presence of zooxanthellae.

*Remarks:* *C. caespitosa* is the most common colonial, zooxanthellate coral of the Mediterranean euphotic zone. At station MLJ-53 colonies of *C. caespitosa* form the largest bioherm of this species ever recorded, covering an area of 650 m<sup>2</sup> at depths from 5 to 20 meters (KRUŽIĆ, 2001). This bioherm thrives under special conditions of currents, temperature and sedimentation. The rich endofauna of the colonies is dominated by filter-feeders and deposit-feeders. Details will be presented in another paper.

## CARYOPHYLLIDAE

### *Caryophyllia smithii* Stokes & Broderip, 1828 (Fig. 4)

*Stations:* MLJ-D, 11, 13, 14, 16, 18, 27, 28, 30, 31, 39, 42, 43, 44, 47, 49, 50, 51, 57, 102, 103, 107, 109, 112.



**Fig. 3.** Bioherm of *Cladocora caespitosa*. Station MLJ-53.

*Depth:* 10–105 m.

*Material:* Solitary subcylindrical, constricted in the lower part with exert septa. Pali encircling columella. Columella composed of twisted lamellae or rods. Costae well developed at the upper margin of theca. Tentacles of polyp long in full extension.



**Fig. 4.** *Caryophyllia smithii*. Station MLJ-31. Scale bar = 1 cm.

Long axis of calice up to 23 mm, height up to 50 mm. Quite abundant at all stations.

*Habitat*: Attached to rocks or shells down to 105 m depth (MLJ-107).

*Remarks*: Specimens collected at deeper stations (MLJ-43, 102, 103, 107, 109, 112) are larger than those from shallow sites. Some specimens from station MLJ-30 were infested by the coral symbiotic barnacle *Megatrema anglicum*.

### *Caryophyllia inornata* (Duncan, 1878)

*Stations*: MLJ-D, 1, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 26, 27, 28, 30, 31, 32, 35, 36, 39, 40, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 57.

*Depth*: 1–45 m.

*Material*: Similar to *C. smithii*, but calice outline more circular. Corallum cylindrical. Calice diameter up to 12 mm, height up to 15 mm.

*Habitat*: Attached to rock in caves, crevices or other sheltered places.

*Remarks*: One of the most common scleractinian species in the Adriatic. Specimens from the station MLJ-13, 16 and 18 were infested by the coral symbiotic barnacle *Megatrema anglicum*.

### *Caryophyllia cyathus* (Ellis & Solander, 1786)

*Station*: MLJ-D.

*Depth*: 58 m.

*Material*: About ten live specimens, attached to lost fisherman's net, were hauled up from a depth of 58 m. This is a remarkably shallow depth for *C. cyathus*.

*Habitat*: Circumlittoral, typically attached to hard substrata (ZIBROWIUS, 1980).

*Remarks*: PAX & MÜLLER (1962) and ZIBROWIUS & GRIESHABER (1977) have noted that *C. cyathus* had rarely been noted for Adriatic fauna by authors of the 19th century. PAX & MÜLLER (1962) reported to have seen a specimen from Šolta island in the Natural History Museum of Split. These not verified old records were considered as doubtful by ZIBROWIUS & GRIESHABER (1977). The records reported here are thus the first reliable ones from the Adriatic Sea.

### *Ceratotrochus magnaghii* Cecchini, 1914

*Stations*: MLJ-13, 14, 51, 57.

*Depth*: 10–40 m.

*Material*: Corallites from Mljet up to 20 mm high, diameter up to 7 mm. Columella well developed. Septa slightly exert. Theca thick with well conspicuous circular corrugation.

*Habitat*: Attached to rock, mostly in crevices, on cave walls and in steep-sided gullies.

*Remarks*: At all stations *C. magnaghii* was found under aggregations of calcareous red algae *Pseudolithophyllum expansum* (Philippi) Lemoine.

### *Coenocyathus cylindricus* Milne Edwards & Haime, 1848

*Stations*: MLJ-30, 49, 107.

*Depth*: 25–105 m.

**Material:** A small colony from under an overhang at 27 m depth (MLJ-30); a colony of about 10 polyps, incrustated by red algae and bryozoans, from under a small overhang at 54 m (MLJ-49); a dead colony (Fig. 5) from a grab sample in muddy coarse sand at 103 m depth (MLJ-107).

**Habitat:** Live colonies attached rock substrate.

**Remarks:** This species is not noted in the literature review of the Adriatic Sea by PAX & MÜLLER (1962). Our records are the first in this part of the Mediterranean Sea. A few previous records of this species are available from the south western Mediterranean and from the Atlantic coast of north western Africa, especially Morocco and Senegal (ZIBROWIUS, 1980, 1983).

***Paracyathus pulchellus* (Philippi, 1842)**

**Stations:** MLJ-14, 49.

**Depth:** 10–25 m.

**Material:** Inversely conical with a narrow base. Outline of calyx elliptical to circular. Septa exert with a finely granulate surface. Pali and columella well developed. Costae developed towards the upper margin of theca. Height of specimens from Mljet up to 20 mm, diameter up to 15 mm.

**Habitat:** Caves, crevices and other sheltered places.

**Remarks:** A specimen from station MLJ-14 was infested by 6 specimens of the coral symbiotic barnacle *Megatrema anglicum*. It is deposited in the Center for Marine Research Rovinj collection (No. 2097).



**Fig. 5.** *Phyllangia mouchezi*. Station MLJ-51. Scale bar = 1 cm.

***Polycyathus muelleriae*** (Abel, 1959)

*Stations:* MLJ-14, 15, 16, 39, 49, 51, 53, 57.

*Depth:* 10–35 m.

*Material:* Colonial species. Forming small clusters. Pali and columella well developed. Height of specimens from Mljet up to 25 mm, calice diameter up to 7 mm.

*Habitat:* Caves and crevices.

*Remarks:* Specimens were incrustated with calcareous red algae.

***Thalamophyllia gasti*** (Döderlein, 1913)

*Station:* MLJ-49.

*Depth:* 47 m.

*Material:* Small bushy colonies. Corallites up to 70 mm high, calice diameter up to 6 mm with exert septa. No columella and no pali. Polyps translucent white.

*Habitat:* Caves and crevices.

*Remarks:* A small colony was found in a crevice associated with *Corallium rubrum* (Linnaeus, 1758).

***Hoplangia durothrix*** Gosse, 1860

*Stations:* MLJ-13, 14, 16, 20, 30, 31, 39, 43, 47, 49, 50, 51, 53, 57.

*Depth:* 10–40 m.

*Material:* Colonial species forming small clusters. Costae well developed and prominent above. Corallites cylindrical up to 5 mm in diameter and 10 mm high. No pali and no columella. Septa slightly exert.

*Habitat:* Attached to rock in caves and crevices, usually at shaded or dark sites.

*Remarks:* At stations MLJ-49 and 51, colonies were found under aggregations of red algae thalli *Pseudolithophyllum expansum* (Philippi) Lemoine.

***Phyllangia mouchezii*** (Lacaze-Duthiers, 1897) (Fig. 5)

*Stations:* MLJ-13, 14, 29, 49, 50, 51.

*Depth:* 15–40 m.

*Material:* Colonial species forming clusters by extratentacular budding. Outline of calice circular. Septa exert. Theca with fairly distinct costae. Polyps translucent white to pink. Living colonies were collected from the entrance of crevices. Diameter of colonies up to 15 cm, calice diameter up to 10 mm.

*Habitat:* Hard bottom in sheltered niches.

*Remarks:* *P. mouchezii* is considered by ZIBROWIUS (1980) to be a more thermophilic species uncommon in the colder parts of the Mediterranean.

***Sphenotrochus andrewianus*** Milne Edwards & Haime, 1848

*Station:* MLJ-30.

*Depth:* 26 m.

*Material:* Solitary, free wedge-shaped and laterally compressed. Material comprises 8 juveniles (up to 1.5 mm high) and 2 rather small adults (up to 5 mm high) extracted from coarse sand samples.

*Habitat:* Coral lives interstitially in infralittoral coarse sand or shell gravel.

*Remarks:* It is the first record of *S. andrewianus* in the Adriatic. It is probably not widely known that the Mediterranean fauna comprises a scleractinian with this unusual interstitial way of life. Easily overlooked because of its small size, *S. andrewianus* should be searched for throughout the eastern Mediterranean in the type of coarse sand it is known to inhabit in the western basin and in the Adriatic. The lancet *Branchiostoma lanceolatum* (Pallas, 1774), which has been reported as far to the east as the coast of Israel (GOTTLIEB, 1956), may be a good indicator of the right quality of sand required by *S. andrewianus*.

## FLABELLIDAE

### *Monomyces pygmaea* (Risso, 1826)

*Stations:* MLJ-13, 16, 49.

*Depth:* 25–50 m.

*Material:* Solitary species with a variable shape of corallite, often compressed. Calice subcircular to very elongate. A few individuals were collected from each station. Corallite up to 20 mm high, diameter up to 12 mm.

*Habitat:* Cave walls and crevices, or sheltered rocky surfaces.

*Remarks:* All collected specimens were encrusted by calcareous red algae, serpulids and bryozoans.

## GUYNIIDAE

### *Guynia annulata* Duncan, 1872

*Stations:* MLJ-13, 30.

*Depth:* 20–30 m.

*Material:* Several specimens in a cave at 20 m (MLJ-13) and dead specimens in sediment under an overhang at 26 m depth (MLJ-30).

*Habitat:* The »vermiform« tiny coral lives attached on the surface of caves or in some coralligenous community. Dead specimens could be found in the sediment inside and outside of caves.

*Remarks:* Further records of *G. annulata* from the Croatian part of Adriatic Sea are from the islands of Prvić and Veli Ćutin (KRUŽIĆ *et al.*, 2002)

## DENDROPHYLLIIDAE

### *Dendrophyllia ramea* (Linnaeus, 1758) (Fig. 6)

*Station:* MLJ-49.

*Depth:* 43 m.



Fig. 6. *Dendrophyllia ramea*. Station MLJ-49. Scale bar = 3 cm.

**Material:** One colony collected at the entrance of an overhang. Colony was 25 cm high, with a basal plate 3 cm in diameter. Expanded polyps showed long and thick tentacles. Polyp yellow to orange, tentacles white.

**Habitat:** Circumlittoral species, on shady, rocky bottom with moderate hydrodynamism.

**Remarks:** PAX & MÜLLER (1962) reported having seen a specimen of *D. ramea* of unknown origin at the Natural History Museum in Trieste. However, the authors believed that the specimen was collected elsewhere in the Adriatic Sea, not in the Trieste region. Extrapolating from older, not necessarily reliable Adriatic literature (*D. ramea* has often been confused with *D. cornigera* (Lamarck, 1816)), they were convinced that *D. ramea* was rather widespread throughout the Adriatic. This was strongly doubted by ZIBROWIUS & GRIESHABER (1977). The present record is the first accurately documented in the Adriatic Sea. Larger colonies have been described from other areas (ZIBROWIUS, 1980).

***Balanophyllia europaea* (Risso, 1826) (Fig. 7)**

**Stations:** MLJ-1, 2, 3, 5, 6, 7, 12, 13, 15, 16, 18, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 39, 40, 41, 43, 44, 46, 47, 48, 49, 50, 51, 52, 53, 57.

*Depth:* 0,5–40 m.

*Material:* Solitary, zooxanthellate coral. Calice circular in young specimens, more or less compressed in adults. Specimens from Mljet up to 40 mm in height, up to 25 mm in diameter. Septa slightly exert. Polyp colour translucent green to yellow.

*Habitat:* Hard bottom in euphotic zone.

*Remarks:* The most common solitary scleractinian coral from the euphotic zone. At station MLJ-40 up to 50 specimens per square meter were recorded.

***Balanophyllia regia* Gosse, 1860**

*Stations:* MLJ-13, 15.

*Depth:* 5–15 m.

*Material:* Solitary, azooxanthellate coral. Calice circular, height up to 15 mm, diameter 10 mm. Quite abundant, associated with the zooxanthellate *Balanophyllia europaea*. All specimens were incrustated by calcified red algae, some settled next to each other, in contact.

*Habitat:* In shallow infralittoral bedrock from near the surface to 15 m depth.

*Remarks:* This is a species new for the Adriatic Sea. *B. regia* is widespread in the western Mediterranean and has been recorded also in the western part of Crete. In the northeast Atlantic, it is known from the British Isles to Morocco and the Canary Archipelago (ZIBROWIUS, 1980, 1983). Considering that *B. regia* also inhabits the Crete area, far into the eastern Mediterranean, its discovery at some southern islands of Croatia (Jabuka, Lastovo and Mljet) is no longer a big surprise. A few spec-



**Fig. 7.** *Balanophyllia europaea*. Station MLJ-52. Scale bar = 1 cm.

imens from stations MLJ-13 and MLJ-15 were infested by the coral symbiotic cirriped *Megatrema anglicum*.

***Leptosammia pruvoti*** Lacaze-Duthiers, 1897

*Stations:* MLJ-13, 14, 15, 16, 17, 18, 19, 20, 28, 30, 31, 32, 34, 40, 41, 42, 44, 47, 48, 49, 50, 51, 52, 57.

*Depth:* 10–55 m.

*Material:* Corallite variable in shape, from short to tall and from cylindrical to conical. Height up to 50 mm, diameter of calyx up to 15 mm. Columella large and spongy in texture. Costae fairly distinct. Disc and tentacles yellow, rarely orange.

*Habitat:* Attached to rock, usually on cave roofs or crevices. Some specimens were incrustated by calcareous red algae, sponges and bryozoans.

*Remarks:* Common along the eastern Adriatic coast.

## OCTOCORALLIA

### CORNULARIIDAE

***Cornularia cornucopiae*** (Pallas, 1766)

*Stations:* MLJ-14, 49.

*Depth:* 25–35 m.

*Material:* Polyps arising from a slender stolon. Colonies usually form small clusters. Fully extended polyps up to 15 mm high. Colour of polyps translucent white to brownish.

*Habitat:* In shaded places on rocks, or at the entrance of crevices.

*Remarks:* At each station a few clusters were found at the entrance of crevices.

### ALCYONIIDAE

***Alcyonium palmatum*** Pallas, 1766

*Station:* MLJ-D.

*Depth:* 83 m.

*Material:* Colonies with finger-like lobes of irregular shape. Two colonies collected, up to 120 mm high, polyps up to 7 mm. Colour of coenenchyme of one colony red and of the other pink to white, polyps white.

*Habitat:* Sandy bottom.

*Remarks:* Colonies hauled up in fishermen's net. Rather common in the eastern Adriatic Sea.

***Alcyonium acaule*** Marion, 1878

*Station:* MLJ-119.

*Depth:* 87 m.

*Material:* Colony with many small, branching finger-like lobes. A single colony collected by grab, 60 mm high, polyps up to 5 mm. Coenenchyme blood-red, polyps red with white tentacles.

*Habitat:* Sandy silt with small shells.

*Remarks:* Usually collected on hard substrate. Relatively common in the Adriatic Sea.

***Alcyonium coralloides* (Pallas, 1766)**

*Stations:* MLJ-13, 30.

*Depth:* 20–40 m.

*Material:* Encrusting colony with polyps up to 6 mm high. Coenenchyme deep red with white or yellow polyps.

*Habitat:* Epibiontic, usually forms encrusting sheets on gorgonians, shells and rock.

*Remarks:* Typical of coralligenous biocoenosis. At Mljet, *A. coralloides* was found on the gorgonian *Eunicella singularis* (Esper, 1791).

MAASELLIDAE

***Paralcyonium spinulosum* (Delle Chiaje, 1822)**

*Station:* MLJ-51.

*Depth:* 14 m.

*Material:* Seven colonies were collected. Colonies consist of aggregates of polyps interconnected each other by stolons. Stolons short and brownish, polyps opaque to translucent brown, oral disc of polyps fluorescent green. Polyps up to 15 mm high.

*Habitat:* In crevices on rocky bottom, under stones and in *Posidonia oceanica* meadows.

*Remarks:* At the only station covering a surface of 1 m<sup>2</sup> of rock. One colony encrusting the ascidian *Microcosmus sabatieri* Roule, 1885.

CORALLIIDAE

***Corallium rubrum* (Linnaeus, 1758)**

*Stations:* MLJ-14, 16, 49, 51.

*Depth:* 25–50 m.

*Material:* Branching colonies with massive blood-red calcareous axis and sclerites embedded in coenenchym. The colonies are arborescent with an average height of 10 cm. White polyps (autozooids) protrude from calyces with eight regular lobes and can reach 10 mm when fully extended. Colonies from Mljet up to 10 cm high, with base up to 8 mm thick.

*Habitat:* Lives in caves or under overhangs between 5 m (personal observations) and 200 m depth (WEINBERG, 1976), in clear water and at reduced sedimentation.

*Remarks:* Typical species of coralligenous biocoenosis. In the past it was fairly common and commercially important in the eastern part of the Adriatic Sea (PAX &

MÜLLER, 1962), but due to human activities, *C. rubrum* became rare, or even disappeared at many sites. At Mljet only small populations were found in crevices. An albino specimen was observed at station MLJ-49.

## GORGONIIDAE

*Eunicella singularis* (Esper, 1791) (Fig. 8)

*Stations:* MLJ-13, 30.

*Depth:* 15–40 m.

*Material:* General morphology of colonies largely depends on local hydrodynamic conditions. Colonies are composed of relatively long and straight branches, growing parallel to each other with few ramifications. In most cases branches are oriented in one plane. Colour of colonies varies from bright white (without zooxanthellae) to a dirty greyish white (with zooxanthellae). Colonies from Mljet are up to 40 cm high. Polyps, often on all sides of the branches, up to 3 mm long when fully expanded. Polyps translucent yellow with gastrodermal cavity visible inside.

*Habitat:* On rocks, but also on some larger shell or stone on coarse sand bottom. Colonies are usually oriented across prevailing water currents. This is a photophilic species which occurs on horizontal and subhorizontal surfaces.

*Remarks:* Found at Mljet on hard substrates, at localities with strong water current. The gastropod *Neosimnia spelta* (Linnaeus, 1758) was recorded on the coral branches, together with the encrusting *Alcyonium coralloides* (Pallas, 1766).



Fig. 8. *Eunicella singularis*. Station MLJ-30. Scale bar = 1 cm.

## VERETILLIDAE

*Veretillum cynomorium* (Pallas, 1766)

*Station:* MLJ-B.

*Depth:* 30 m.

*Material:* Single specimen, 15 cm high. Colour pale yellow. Polyps up to 5 mm long when fully expanded, translucent white with gastrodermal cavity visible inside.

*Habitat:* Silty or sandy-silty sediment.

*Remarks:* Single colony collected in fishermen's net. Cosmopolitan species, rarely recorded in the Adriatic Sea.

## PTEROEIDIDAE

*Pteroeides griseum* (Linnaeus, 1767)

*Station:* MLJ-30.

*Depth:* 52 m.

*Material:* Single colony 20 cm high, pen shape. Central axis moderately wide. Polyps clustered in small groups on rachis just dorsally to the leaf basis. Colour of colony greyish white, polyps white.

*Habitat:* Sandy or muddy sediments from 20 to 300 m depth.

*Remarks:* Colony from coarse sand with silty fraction. Rare in the Adriatic Sea. Occasionally taken by fishermen's gear on silty bottoms.

## DISCUSSION &amp; CONCLUSIONS

Even though representative regional data exist (PAX & MÜLLER, 1962; ZIBROWIUS & GRIESHABER, 1977), the anthozoan fauna inventory of the Adriatic Sea deserves further attention. Diversity of benthic communities in the Mljet National Park marine area is high. Samples thus originated from various bionomic assemblages: well illuminated zones, *Posidonia oceanica* meadows, semi-dark habitats, submarine caves and sandy or silty deposits. The total of 52 anthozoan species collected in the researched area comprises about 60% of anthozoans recorded for the Adriatic Sea, and about 45% recorded in the Mediterranean. Eleven species are commonly considered Mediterranean endemics (*Condylactis aurantiaca*, *Phymanthus pulcher*, *Cribriopsis crassa*, *Aiptasia diaphana*, *Cereus pedunculatus*, *Cladocora caespitosa*, *Ceratotrochus magnaghii*, *Alcyonium palmatum*, *Alcyonium acaule*, *Paralcyonium spinulosum* and *Eunicella singularis*).

With regard to anthozoan ecology, there are species that clearly settle at a well defined and characteristic substratum, whereas others have a broad habitat range. The mediolittoral belt is inhabited by *Actinia equina*, on bedrock and in rockpools. *A. cari* and *A. striata* are attached to barren stones and rock in the shallow infralittoral. Characteristic species of the photophilic algae community are *Anemonia sulcata*, *Aiptasia mutabilis* and *Balanophyllia europaea*. Other anthozoan species in this

community are less conspicuous and have a scattered distribution. The large »reef-like« area covered by the coral *Cladocora caespitosa* is most remarkable, occupying 650 m<sup>2</sup> (station MLJ-53) in Veliko Jezero (seawater lake). It benefits from strong currents, optimal temperature and a high organic input. The large colonies contribute a continuous dome and reef-like structure that can be termed a coral bioherm (PEIRANO *et al.*, 1998). According to available information, the one in Veliko Jezero at station MLJ-53 is the largest recorded in the Mediterranean Sea.

In the precoraligenous facies certain anthozoans were recorded such as *Caryophyllia smithii*, *Phyllangia mouchezi*, *Eunicella singularis* and *Alcyonium acaule* which, by origin, belong to the coraligenous biocoenosis (PÉRÈS & GAMULIN-BRIDA, 1973). A typical coraligenous community is rich in cave species and shadowed niche inhabitants, such as *Parazoanthus axinellae*, *Caryophyllia inornata*, *Ceratotrochus magnaghii*, *Paracyathus pulchellus*, *Thalamophyllia gasti*, *Monomyces pygmaea*, *Guynia annulata*, *Leptopsammia pruvoti* and *Corallium rubrum*. The latter is rare at Mljet Island. It is presumed that the population was devastated by local fishermen before the boundary of the National Park was extended seawards in 1996. Some colonial species (*Madracis pharensis*, *Hoplanguia durothrix*, *Polycyathus muelleræ*) cover large surfaces on the roofs and walls of caves and tunnels, especially at stations MLJ-13 and MLJ-16. Still enigmatic is the absence at Mljet of the Gorgonians *Eunicella cavolinii* and *Paramuricea clavata*. These are abundant in the coralligenous formations of neighbouring islands such as Lastovo and Hvar. Could the reason for their absence at Mljet be adverse currents that do not favour larval settlement in the studied area?

The black coral *Antipathes subpinnata* had been rarely recorded in the Adriatic Sea. At Mljet, it was now collected at three stations, all rather shallow for this species. Likewise the scleractinian *Dendrophyllia ramea* was recorded at only a 43 m depth. *Posidonia* meadows shelter *Cribrinopsis crassa*, *Bunodactis verrucosa*, *Paralcyonium spinulosum* and *Halcampoides purpurea*, all living in the sediment between the rhizomes. For *H. purpurea* this was the first record in the Adriatic Sea. Other species were collected from detritic deposits where they are buried: *Cerianthus membranaceus*, *Condylactis aurantiaca*, *Veretillum cynomorium* and *Pteroeides griseum*. They present an irregular local distribution pattern. *Sphenotrochus andrewianus* is the only scleractinian living in coarse sand. It is probably not rare in the Adriatic, but easily overlooked due to its small size.

A major problem when discussing anthozoan records in the Adriatic Sea is the sparseness and lack of precision (year, locality) of earlier collection data. No real historical survey series exist and attention given to different parts of the Adriatic was unequal. Some of the species studied seem to be really rare and to occur only locally. The new findings do not indicate recent settlements, but simply show that limited populations were previously overlooked. This category is represented by the species which are reported here for the first time in this part of the Mediterranean: *Alicia mirabilis*, *Halcampoides purpurea*, *Caryophyllia cyathus*, *Coenocyathus cylindricus*, *Sphenotrochus andrewianus*, *Guynia annulata*, *Dendrophyllia ramea*, and *Balanophyllia regia*. Since actinian fauna is still insufficiently investigated, we may expect the addition of some more species.

As far as scleractinians are concerned, it should be remembered that *Balanophyllia regia* had been previously found as far east as the island of Crete (ZIBROWIUS,

1979; 1980). Additional species can be expected to occur in the more southern parts of the Adriatic Sea, confirming the general impression that biodiversity increases towards the south, away from the north where more extreme environmental conditions prevail. This is the reason why findings of *Astroides calycularis* in the Kvarner region, in the northern and colder part of the Adriatic, as reported by PAX & MÜLLER (1962) are considered to be doubtful. *A. calycularis* is a well known southern thermophilic species that would not survive the winter period in the northern region. Up to now, this species was found only at Glavat Islet near Lastovo Island, not far away from the Island of Mljet, where possibly small overlooked populations may occur.

Scarcity of deep water data is another problem when analysing the Adriatic Scleractinian fauna, but this does not directly pertain to the Island of Mljet. New research input may confirm the occurrence of additional species in the Jabuka depression and in the deeper southern part of Adriatic Sea. Although earlier indications by PAX & MÜLLER (1962) were considered unreliable by ZIBROWIUS & GRIESHABER (1977), new records, for example of *Desmophyllum cristagalli* and *Dendrophyllia cornigera*, would not be totally unexpected.

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## S A Ž E T A K

### Morska fauna Nacionalnog parka Mljet (Jadransko more). 1. Koralji (Anthozoa)

P. Kružić

Prilikom istraživanja podmorskog dijela Nacionalnog parka Mljet od 1995. do 1998. godine nađene su ukupno 52 vrste koralja što predstavlja oko 60% dosad nađenih koralja u Jadranskom moru i oko 45% u Sredozemnom moru. Osam vrsta navodi se po prvi put u Jadranskom moru (*Alicia mirabilis*, *Halcampoides purpurea*, *Caryophyllia cyathus*, *Coenocyathus cylindricus*, *Sphenotrochus andrewianus*, *Guynia annulata*, *Dendrophyllia ramea* and *Balanophyllia regia*). Jedanaest vrsta nađenih koralja su endemi Sredozemnog mora. Uzorci koralja sakupljeni su unutar različitih biocenoza; od osvijetljenih, biocenoze fotofilnih alga i biocenoze morske cvjetnice *Posidonia oceanica*, do zatamnenih biocenoza poput biocenoza polutamnih ili potpuno tamnih špilja, te na tvrdoj stjenovitoj podlozi ili mekoj podlozi poput pijeska ili zamuljenog pijeska. Najčešće vrste koralja u biocenozi fotofilnih alga su moruzgve *Anemonia sulcata*, *Aiptasia mutabilis* i kameni koralj *Balanophyllia europaea*. Na postaji MLJ-53 u Velikom jezeru nalazi se greben kamenog koralja *Cladocora caespitosa*, površine oko 650 m<sup>2</sup>. Prema dosadašnjim spoznajama radi se o najvećoj ovakvoj tvorevini u Sredozemnom moru. U koraligenskoj biocenozi na Mljetu nalazimo scijafilne vrste koralja poput *Parazoanthus axinellae*, *Paracyathus pulchellus*, *Phyllangia mouchezi*, *Leptopsammia pruvoti* i *Corallium rubrum*. Vrste *Madracis pharensis*, *Caryophyllia inornata*, *Thalamophyllia gastii*, *Ceratotrochus magnaghii*, *Monomyces pygmaea* i *Guynia annulata* tipične su za biocenoze polutamnih i potpuno tamnih špilja. Pomalo začuđuje izostanak vrsta *Eunicella cavolinii* i *Paramuricea clavata* budući da su te dvije vrste inače

česte u ovom dijelu Jadrana. Isto tako su vrste *Antipathes subpinnata* i *Dendrophyllia ramea* nađene na puno plićim lokalitetima nego što je to karakteristično za te dvije vrste. Na pomičnom dnu nađene su vrste *Cerianthus membranaceus*, *Condylactis aurantiaca*, *Veretillum cynomorium* i *Pteroeides griseum*, dok je vrsta *Sphenotrochus andrewianus* jedina vrsta kamenih koralja koja živi u intersticijalnim prostorima ljuštarnog sedimenta.