

County of Primorje and Gorski Kotar
Department of Construction and Environmental Protection
Public Institution »Priroda«



Biological *diversity*

of littoral and submarine habitats of
the County of Primorje and Gorski Kotar

Threatened species conservation guidelines for boaters and visitors in costal areas



For information regarding protected and threatened species or if you wish to report any prohibited acts to protected nature in the County of Primorje and Gorski Kotar, please call the Public Institution “Priroda”, primarily dedicated to managing protected nature areas and areas of the National Ecological Network in the County of Primorje and Gorski Kotar.

■ **Contact:** Public Institution „Priroda“, Grivica 4/1, 51000 Rijeka, 051/352-400, mob. 091/1352-400

Other important contacts:

- County Protection and Rescue Centre, tel.: 112
- Ministry of the Interior, tel.: 192; Maritime Police
- Ministry of Culture, Nature Protection Inspector, tel.: 051/311-302
- Natural History Museum of Rijeka, tel.: 051/553-670
- Eco Centre “Caput insulae Beli” - Cres Island, tel.: 051/840-525
- Mediterranean Monk Seal Group; mob.: 098/351-254
- Aquarium Pula - Sea Turtle Rescue Centre, tel.: 052/381-402
- “Plavi svijet” Association, Veli Lošinj, tel. 051/604-666

This brochure presents but a small number of protected and strictly protected plant and animal species in the water area and coastal zone of the County of Primorje and Gorski Kotar which the actions of boaters and visitors to coastal areas could affect the most. To learn more about other threatened species (protected and strictly protected), please visit *the Web site of the State Institute for Nature Protection, www.dzsp.hr*.

For their cooperation and assistance in making this brochure, the Public Institution “Priroda” wishes to thank - Mediterranean Monk Seal Group, Eco Centre “Caput insulae Beli”, Cres Island - Griffon Vulture Rescue Centre, Sea Turtle Rescue Centre - Aquarium Pula.

Griffon Vulture

The cliffs of the Kvarner Bay islands of Cres, Krk, Prvić and Plavnik are the nesting sites of the last population of griffon vultures in Croatia. Nesting on cliffs rising out of the sea is a characteristic of the Kvarner population of griffon vultures. Watching these birds with a wingspan of 2.8 meters as they soar the sky in groups and “comb” the ground in search of carrion - mainly dead sheep - is an unforgettable experience. Our behaviour towards the griffon vulture can help to ensure that future generations will also be able to marvel at this natural phenomenon.

How can we help to conserve the Griffon Vulture?

- Should you notice a griffon vulture that is hurt, has been poisoned or is unable to fly, please contact the relevant institution (dial emergency service number 112 or the Beli Rescue Centre at 051/840-525) to ensure the bird is rescued in time and delivered to the Beli Griffon Vulture Rescue Centre on Cres Island.
- Please report any inappropriate behaviour you witness that affects griffon vultures (such as someone hunting or disturbing them, climbing to their nests, taking their eggs, etc) to the County Protection and Rescue Centre at 112.
- Please do not sail at high speed below the cliffs where griffon vultures are nesting.
- Please do not climb the cliffs within the ornithological reserve or at other sites that griffon vultures frequent or where they might nest. Please do not approach the birds.
- Please do not disturb any vultures you might see on the cliffs. Do not clap your hands, yell and or in any other way create noise. Do not linger in your vessels beneath cliffs with nesting vultures.

(Gyps fulvus)



(Tursiops truncatus)

Bottlenose Dolphin

The Bottlenose Dolphin is the best known and most widespread dolphin species. It lives in almost all the seas and oceans around the world. Bottlenose dolphins are the last representatives of the whale and sea mammal group living in the Adriatic Sea. Contamination, over-fishing, high pollution loads during the tourist season and other factors contribute to reducing the number of habitats in which this endangered and highly protected species may survive.

How can we help to conserve this species?

Dolphin encounters are an unforgettable experience. However, if we do not wish to disturb and agitate them, we need to adhere to seven simple rules published on the Web pages of the Blue World Association:

- Approach slowly, keeping parallel with the direction in which the dolphins are swimming. Avoid sudden changes in speed or direction.
- Put the engine in idle and let the dolphins come to you voluntarily. Do not make sudden noises, especially with the engine, as this will alarm the dolphins.
- Make sure there is only one vessel within a 100-metre radius surrounding the dolphins, and not more than three vessels within a 200-metre radius. Do not remain in the dolphins' vicinity for more than 30 minutes.
- Leave the area by gradually accelerating until the vessel is more than 100 metres away from the dolphins.
- Do not feed the dolphins and, on no account, should you attempt to swim with them. Dolphins can weigh up to 300 kg and what may be a playful nudge for a dolphin could result in injury to you.
- Please report any inappropriate behaviour you witness that affects dolphins to the County Protection and Rescue Centre at 112.



Seahorses

There are two species of Seahorse living in the Adriatic Sea. Endangered and under strict protection, the Seahorse is a fragile fish of unusual shape. It hides among the leaves of marine phanerogams and among algae, using its flexible tail to hold onto undersea vegetation. Because they are poor swimmers, seahorses are an easy target for unconscientious divers who often hunt them. Once caught, they are usually dried and sold as souvenirs.

How can we help to conserve the Seahorse?

- Show you do not support the killing of seahorses by not buying dried specimens sold in souvenir shops.
- Protect the marine phanerogam meadows, the habitat of the Seahorse.
- If you witness anyone catching or selling seahorses, please report this to the County Protection and Rescue Centre at 112.



(Hippocampus spp.)



Biological
diversity

(Monachus monachus)



The Mediterranean Monk Seal

The Mediterranean Monk Seal (*Monachus monachus*) is the only species of seal living in the Mediterranean Sea. The species was first scientifically reported in 1779, based on an individual found in the marine area of Cres Island. The Adriatic Sea has numerous sites - in particular, underwater caves - that are the species' favoured habitats, and many of these sites have been named after this marine mammal. Today, the Mediterranean Monk Seal is highly endangered, and it is estimated there are only 350 - 450 individuals remaining in the world, scattered throughout the Mediterranean Sea in several small populations. Although the Mediterranean Monk Seal has been officially protected in the Adriatic since 1935, this did not, unfortunately, stop the species from being hunted, and the last individual in the Adriatic was killed in 1964. Sporadic sightings became increasingly rare, and the Mediterranean Monk Seal was thought to be extinct. In recent years, however, sightings have become more frequent, and the seal is once again considered to be a permanent habitant of the Adriatic Sea, particularly the marine area around Cape Kamenjak in Istria and the Cres-Lošinj archipelago.

What can we do to preserve the Mediterranean Monk Seal in the marine area of the County of Primorje and Gorski Kotar?

Encountering a Mediterranean monk seal is an

extraordinary experience. How should we behave in such an occasion? Here are a few general guidelines posted on the Web pages of the Croatian Ministry of Culture, Directorate for Nature Protection.

■ How to behave when encountering a Mediterranean monk seal in the sea

Should you sight a Mediterranean Monk Seal while swimming or diving, be sure to stay still and not to try approach the animal or make any sudden moves that might disturb it or chase it away. Slowly and calmly, swim as far away from the animal as you can.

■ How to behave when encountering a Mediterranean monk seal in front of or inside a cave

It is prohibited to enter caves listed as potential habitats and whelping sites of Mediterranean monk seals (competent Public Institution to inform the public accordingly). Should you encounter a Mediterranean monk seal while visiting other caves, stay calm and do not make any sudden moves. Entering deeper into the cave is not recommended as the seal could become upset and aggressive, especially if it is a female with a pup. Head back towards the cave entrance, staying close to the cave wall to prevent the seal from feeling trapped. In this way, the cave entrance will remain free, enabling the seal to escape if it feels threatened. Under no circumstances should you attempt to swim or dive deeper into the cave.

■ How to behave when encountering a Mediterranean monk seal on the seashore

Should you spot a Mediterranean monk seal on the seashore, be sure to stay calm and not make sudden moves. The best thing to do is find a hiding place from which to observe the animal. If a Mediterranean monk seal is on land, this does not necessarily mean that it is in need of human intervention. It could be an individual that is moulting or perhaps in a deep sleep. If possible, take a photo of the animal and carefully observe it to estimate its size and note its colour, behaviour and other details relating to the encounter.

■ How to behave in a boat/motor boat encounter with a Mediterranean monk seal

Pleasure rides in boats/motor boats are prohibited in areas where there have been frequent sightings of Mediterranean monk seals or where there could be a seal with a pup (competent Public Institution to inform the public accordingly).

Should you spot a Mediterranean monk seal while riding in a boat/motor boat, you should stop your vessel and wait until the animal moves away.

- In all three cases listed above, you should seek to stay at least 50 metres away from the animal.
- Should you sight a Mediterranean monk seal, please report this to the Mediterranean Monk Seal Group that will bring all information together and submit it to the Directorate for Nature Protection of the Ministry of Culture and to the State Institution for Nature Protection.
- Should you witness anyone intentionally harassing a Mediterranean monk seal, please report this to the County Protection and Rescue Centre 112.

■ Important contacts

Directorate for Nature Protection Inspection Rijeka
Ivanka Jelenić, MSc, Senior Inspector
tel: 051/311-302; mob.tel: 098/406-313
e-mail: ivanka.jelenic@min-kulture.hr

State Institute for Nature Protection
tel: 01/5502-900
e-mail: vrste@dzzp.hr

Public Institution "Priroda"
tel: 051/352-400
e-mail: info@ju-priroda.hr

Mediterranean Monk Seal Group
mob.tel: 098/351-254
e-mail: jasna.antolovic@zg.t-com.hr

Police Department
tel: 192

(Caretta caretta)

Sea Turtles

The three sea-turtle species living in the Adriatic Sea today are very rare and, because of this, they are strictly protected. Turtles are the only sea-dwelling reptiles that leave the sea to spawn on beaches. The Adriatic, however, has only a few sandy beaches, and it is not likely that turtles use them for nesting or they do so only exceptionally. The loggerhead sea turtle (*Caretta caretta*) is the most common turtle species in the Adriatic. A large part of the sea-turtle population is caught in fishing nets, and a portion is sold on the black market.

What can we do to help conserve the sea turtle?

- Should we find a wounded sea turtle, we must see to it that it reaches the Sea Turtle Rescue Centre at the Pula Aquarium (address: Verudela b.b., 52100 Pula, tel. 052/381-402) or we should call emergency service number 112.
- We can safeguard the sandy beaches that are their nesting sites.
- Please report any inappropriate behaviour you witness that affects sea-turtles to the County Protection and Rescue Centre at 112.



Biological
diversity

Marine phanerogams, Neptune Grass

Four species of marine phanerogams (flowering plants) grow in the soft seabeds of Kvarner Bay. These plants create marine meadows. The largest meadows are made of Neptune Grass (*Posidonia oceanica*), growing at depths from 1 - 35 metres. The other species grow in shallow sea and are found more rarely. Marine phanerogam meadows are habitats teeming with marine life, and they are of exceptional importance to the survival of an entire array of numerous small organisms. They are irreplaceable habitats where fish and other commercially important species spawn, and where fry find shelter. All marine phanerogam species fall in the category of strictly protected taxa.

How can we help to conserve the habitats of marine phanerogam meadows?

- By avoiding dropping anchor in places where these meadows grow.
- By adhering to instructions for boaters to prevent the transfer of the invasive *Caulerpa*, a tropical green alga that is perilous to marine phanerogams.
- By carefully planning land-based construction projects to prevent any type of marine pollution, in particular, pollution from undersea sewer drainpipes, to which marine phanerogam meadows are especially vulnerable.

(Posidonia oceanica)



(*Cystoseira* spp.)



Algae

Of the many and diverse algae living in the Adriatic Sea, some species of green, brown and red algae are protected. The best known among the strictly protected species of brown algae are the Adriatic *Fucus virsoides* and *Cystoseira* spp., growing in shallow sea subjected to wave dynamics. Visitors to the Adriatic can easily spot these species in such habitats. Some species of calcareous red algae are also strictly protected, such as the species of the genus *Lithophyllum*, which are limestone-encrusting and form carpets or calcareous shelves in the spray zone.

How can we help to conserve algae?

- We can help by not pulling up the “bushy” stipes of brown algae and by not breaking off parts of the carpets of calcareous red algae found along the shoreline.
- If you witness anyone uprooting or intentionally damaging protected and strictly protected species of algae, please report this to the County Protection and Rescue Centre at 112.



Corals, Gorgonians

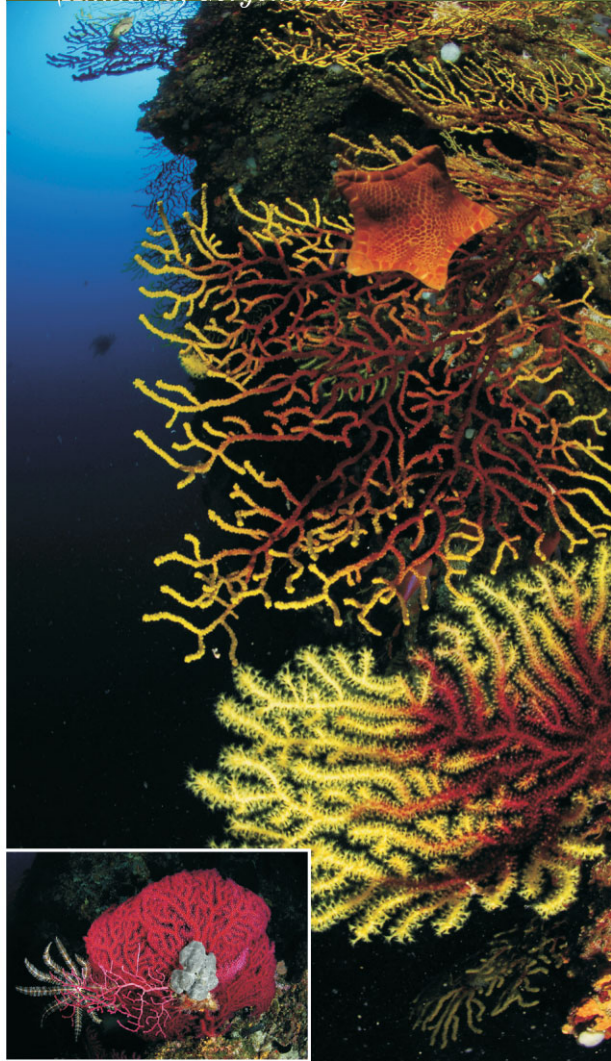
The world of corals with its multitude of colours and shapes is sure to enthrall any visitor to the depths of the Kvarner Bay. It is because of this unique undersea beauty that the Kvarner Bay is a favourite site of divers. As often as not, we are witnesses to divers taking a “souvenir” or two from the sea-bottom. What is enchanting to see on the seabed, however, loses all its beauty once it is wrested from the sea floor and brought to the surface.

How can we help to conserve gorgonians and corals?

- Remember that five types of corals (Anthozoa) in the Adriatic Sea are strictly protected, while another 14 species are protected.
- Admire gorgonians and corals in their habitats, and leave them there.
- Rather than taking a “sample”, take an underwater photo instead!
- If you witness anyone picking, illegally selling or intentionally damaging protected and strictly protected species of corals, please report this to the County Protection and Rescue Centre at 112.

Biological
diversity

(Anthozoa, Gorgonacea)



(Pinna nobilis)

Noble Pen Shell

The Noble Pen Shell is the largest bivalve of both the Adriatic and the Mediterranean Sea. Using its sharp, pointed end, the Noble Pen Shell embeds itself in soft sandy seabeds at depths of 2 – 30 metres. It plays an important part in sea meadows of marine phanerogams. Because of its beauty and decorative appeal, it is a highly valued as an ornament as well as a souvenir. Due to overfishing, however, Noble Pen Shell populations have been completely destroyed in many tourist areas. The Noble Pen Shell is under strict protection, and collecting, fishing and trading in this species is strictly prohibited in the Adriatic Sea, as well in all parts of the Mediterranean.

What can we do to help conserve the noble Pen Shell?

- We might be tempted to dive in and collect a pen shell should we see it on the sea floor. By resisting this temptation, however, we would be making a great contribution to protecting submarine plant and animal life.
- If you witness anyone fishing for or selling noble pen shells, please report this to the County Protection and Rescue Centre at 112.



Date Mussels

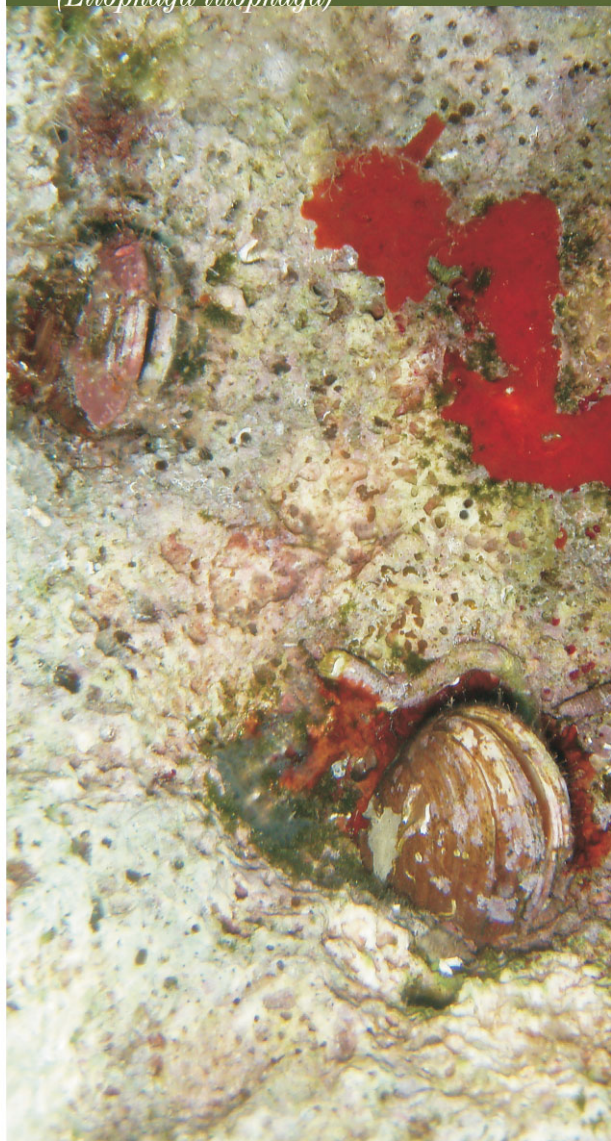
A strictly protected species of molluscs, the Date Mussel lives on and bores into rocks of hard craggy coastlines. Results obtained in the Adriatic region demonstrate that breaking rocks to harvest date mussels causes long-term and, for the most part, irreversible damage. In places where date mussels have been illegally harvested, the biological and fishing potential of the rocky coast is substantially endangered. Remember that it takes 50-60 years for date mussels to grow 7-8 cm, and that the habitats of devastated coasts regenerate very slowly.

How can we help to conserve the Date Mussel?

- Should you notice anyone harvesting date mussels or selling them in fish markets or restaurants, please report this to the County Protection and Rescue Centre 112.
- Fines for poaching and selling date mussels range from 6,000 to 30,000 HRK.



(Litophaga litophaga)



(Porifera)

Sponges

Some sponges have beautiful shapes and colours, and many divers cannot resist plucking them from their habitat. We should bear in mind, however, that once these sponges reach the surface, they lose their original beauty and appeal. In the Adriatic Sea, some ten species of sponges are under strict protection, the best-known being the Sea Orange (*Tethya* spp.) and also some Demospongiae, as for example, the branching sponges of the genus *Axinella*.

How can we help to protect sponges?

- It is mostly divers who can admire the diverse world of sponges in the Adriatic, and, in doing so, they should take care not to remove any sponges from undersea habitat.
- If you witness anyone picking, fishing out or illegally selling strictly protected species of sponges, please report this to the County Protection and Rescue Centre at 112.



Lattice Sea-Lavender

On saline crags, to which reach droplets from waves breaking on the shore, only a small number of plants, especially adapted to such habitats, can grow. One such plant is the lattice sea-lavender, with its “lacy” branching stems resembling a lattice and its many, small blue flowers. Because of the many people coming in summer to swim and sunbath on the crags, this species has, in places, become endangered and is now strictly protected. Other, even greater threats to coastal vegetation are the discharge of oil in the sea and increasingly frequent contamination of the coast, to which the lattice sea-lavender is particularly vulnerable.

How can we conserve this species?

- We can do so by walking only in areas along the shoreline where there is no coastal vegetation growing.
- We can take care not to contaminate the seashore, in particular, with substances such as oils, petroleum and gasoline.
- If you witness anyone threatening protected and strictly protected plant species or causing damage to/polluting their habitats, please report this to the County Protection and Rescue Centre at 112.

(Limonium cancellatum)



(Eryngium maritimum)

Sea Holly

The Sea Holly is a striking, thorny plant with greyish cone-shaped flowers. It is found exclusively on sandy seashores, which have become a very rare and endangered habitat due to throngs of summer tourists. In addition to several types of such singular saline habitats, the Sea Holly is among the most endangered plant species in the County of Primorje and Gorski Kotar.

How can we help to conserve this species?

- Do not pick or uproot the flora of sandy seashores.
- Admire the beauty of these plants and impress upon others the importance of their conservation.
- If you witness anyone threatening protected and strictly protected plant species or causing damage to/polluting their habitats, please report this to the County Protection and Rescue Centre at 112.



Sea Medick

The Sea Medick is a small plant with very hairy, felted leaves. Belonging to the Pea family (genus Fabaceae), it has coiled seed pods and is found exclusively in coastal sandy saline habitats. In the County of Primorje and Gorski Kotar, there are only a small number of habitats left in which the Sea Medick can survive, as most of its former habitats have been destroyed because of the needs of seaside tourism. The Sea Medick is a strictly protected species.

How can we help to conserve this species?

- Conserve the sites on sandy beaches on which vegetation still grows.
- Remember that by picking, pulling out and destroying rare plants of coastal sands we are depleting their already low and endangered populations.
- Do not litter the beach or throw refuse into the sea.
- Remember that sea contamination caused by oil and other types of waste usually ends up on the beach, destroying its specific plant and animal life.
- If you witness anyone threatening protected and strictly protected plant species or causing damage to/polluting their habitats, please report this to the County Protection and Rescue Centre at 112.



(Medicago marina)



(Glaucium flavum)



Yellow Horned Poppy

Seeing the large, beautiful yellow flowers of the Yellow Horned Poppy is a delight to anyone who enjoys the unusual shapes and colours of wild flowers. What makes this experience even more intense is the fact that this plant grows exclusively on pebbly and sandy beaches during the tourist season when the coastline is “invaded” by tourists. Because of the impact of people on its habitat, the Yellow Horned Poppy is a strictly protected and highly endangered species, and it is listed in the Red Book of Endangered Species.

How can we help to conserve this species?

- The only way to ensure the lasting conservation of some of the few remaining Kvarner populations of yellow horned poppies would be to fence in their habitats using lightweight wire mesh. Until this measure has been implemented, we ask bathers to watch out for bushes of yellow horned poppies, to take care not to trample them and to keep beaches free of pollution.
- If you witness anyone threatening protected and strictly protected plant species or causing damage to/polluting their habitats, please report this to the County Protection and Rescue Centre at 112.

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An underwater photograph of a vibrant coral reef. In the lower-left foreground, a large, dark brown starfish with lighter brown spots rests on the seabed. The reef is covered in various colorful corals, including prominent red and orange branching corals. The water is clear and blue, with sunlight filtering down from the surface, creating a bright, shimmering effect. The entire image is framed by a white border with decorative, rounded corners.

Biological *diversity*

»While enjoying and marveling in the natural assets of the coastal and marine environment, we should take care to protect the rich plant and animal life of the Adriatic sea and littoral, regardless of whether the organisms we encounter are protected, strictly protected or are under no regime of protection!«

