Proposal for the protection of Formicula island

thessaloniki 2022

This document has been prepared by the following bodies and is their common position for the protection of Formikula Island:

1. Environmental Organisation iSea, www.isea.com.gr
2. Tethys Research Institute, www.tethys.org
3. Blue Marine Foundation, www.bluemarinefoundation.com
4. Municipality of Lefkada, www.lefkada.gov.gr

Ecological importance of Formicula

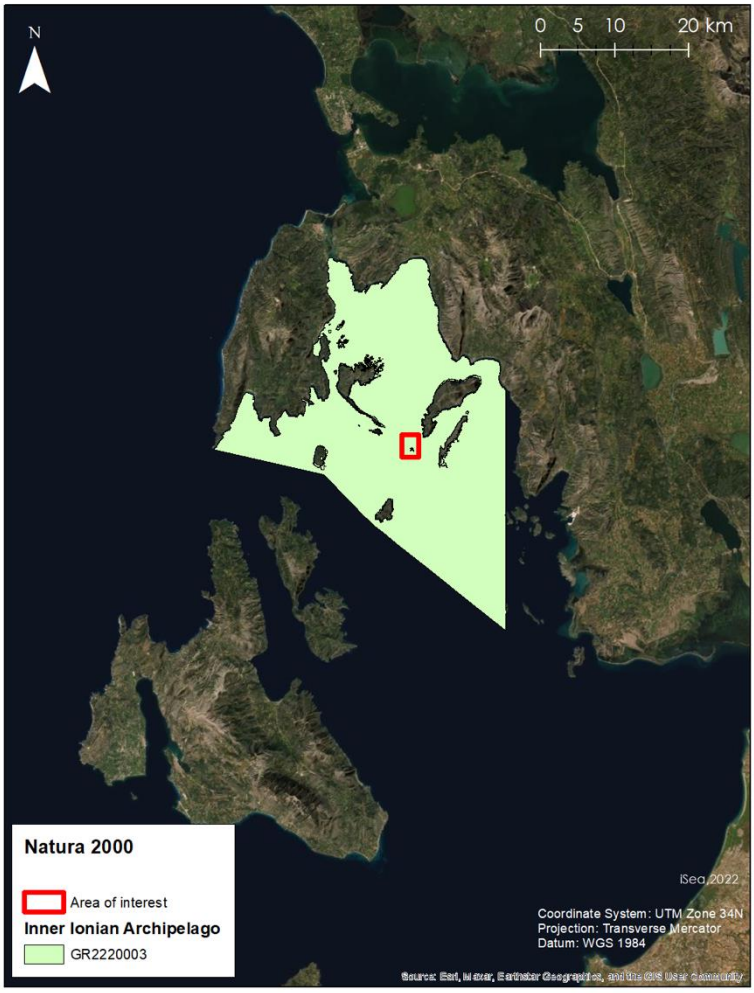

Figure 1: *The site "Inner Ionian Archipelago (Meganisi, Arkoudi, Atokos, Bromonas)" of the Natura2000 network in green and the area of interest where Formicula island is located, indicated in red.*

The Inner Ionian Sea Archipelago has a great ecological value due to the presence of a significant number of species of marine megafauna (dolphins, sea turtles, Mediterranean monk seals *Monachus monachus*, etc.) and the presence of extended *Posidonia oceanica* meadows. Under the Habitats Directive 92/43/EEC the monk seal is listed as a priority species, and P. oceanica as a priority habitat. The distinct morphology of the area's marine and coastal parts, characterized by the presence of many submerged caves (also a priority habitat according to the Habitats Directive 92/43/EEC), provides important habitat for the reproduction of the Mediterranean monk seal, a highly threatened marine mammal in the Mediterranean and listed as Endangered in the IUCN Red List of Threatened species. The site is also part of the wider Ionian Archipelago Important Marine Mammal Area - IMMA, which includes the presence of the Cuvier's beaked whale (*Ziphius cavirostris*), the fin whale (*Balaenoptera physalus*), the common dolphin (*Delphinus delphis*) and the common bottlenose dolphin (*Tursiops truncatus*). In the past, the Inner Ionian Sea Archipelago hosted an important resident population of the endangered common dolphin (Bearzi et al., 2005), but in less than 10 years their population collapsed from 150 to zero because of overfishing of sardines (*Sardina pilchardus*) and the consequent collapse of the stock (Piroddi et al., 2011). Two species of sea turtles are present in the area, the loggerhead (*Caretta caretta*) and the green turtle (*Chelonia mydas*), while the site has been also designated as an "Important Bird Area" (IBA) with code GR084 and is home several marine pelagic species such as the Yelkouan shearwater (*Puffinus yelkouan*) and the Scopoli's shearwater (*Calonectris diomedea*) as well as the European shag (*Gulosus aristotelis*). Finally, the area has

historically been important for the Mediterranean monk seal (Panou et al., 1993) with its presence appearing to have increased in recent years (Mpougas et al., 2019). Monk seal monitoring in the Inner Ionian Sea Archipelago, and more specifically around Formicula by the Tethys Research Institute over the last decade has allowed to photo-identify more than 30 seals, some of them showing a strong site-fidelity being observed in several consecutive years (Gonzalvo & Notarbartolo di Sciara, 2022). The condition of monk seals in the waters around Formicula, is at the same time very exciting (due to the unprecedented and increasing numbers of sightings lately, including pups) but in parallel very worrisome due to disturbance caused by tourism.

The benthic habitats (including *P. oceanica* meadows) have not been mapped, however in the official Natura2000 network data forms the habitat occupies an area of 8,895 ha (88.95 km^2), with the data characterization classified as "poor".

Threats and need for protection

Formicula, although an uninhabited island of just 0.15 km2, in the summer months is characterized by heavy traffic of boats, which often stop for leisure purposes. The regular presence of Mediterranean monk seals on the island has made it a destination for their observation which is done in an uncontrolled and often intrusive way. Some of the human activities regularly seen during the summer months include tourists chasing the seals, attempting to swim with them and entering the breeding or resting caves (Figure 2). At the same time, the uncontrolled anchorage within the boundaries of Posidonia meadows results in the fragmentation and degradation of the habitat, with characteristic signs of anchorage at the upper (shallow) boundary of the existing meadow (Figure 3) while on the main beach of the island, where boats normally concentrate, the meadow has receded completely.

Figure 2: *Recent pictures (2019-2021) indicating the harmful human interactions with Mediterranean Monk Seals and their main habitat.*

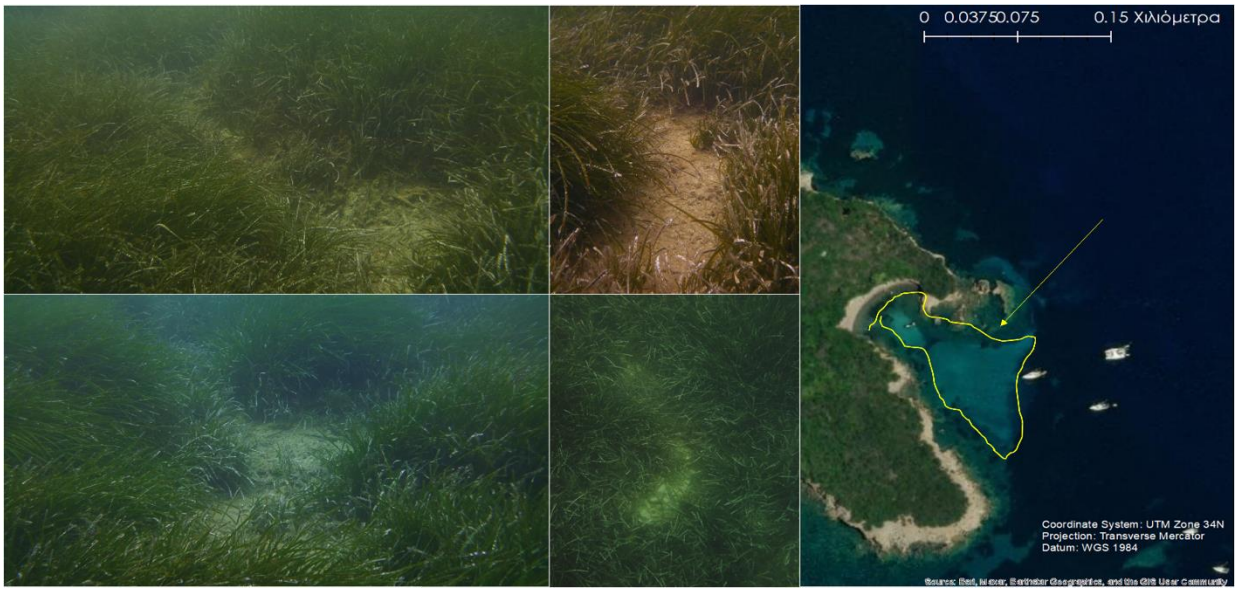

Figure 3: *alterations in the meadows recorded by iSea, as a result of the uncontrolled anchoring, while the meadow in the main beach has receded completely (image on the right)*

Based on the above, and because of an initiative led by the Monk Seal Alliance, a letter supported by 5 environmental organizations was sent (Appendix 1) to the Ministry of Environment and Energy, urging the Greek government to implement emergency measures to improve the protection of Mediterranean monk seals in Greece from uncontrolled disturbance by tourists. The letter is accompanied by a report produced by the Tethys Research Institute (Appendix 2) manifesting strong concern for the case of Formicula and proposing targeted measures to protect the Mediterranean monk seal in the area.

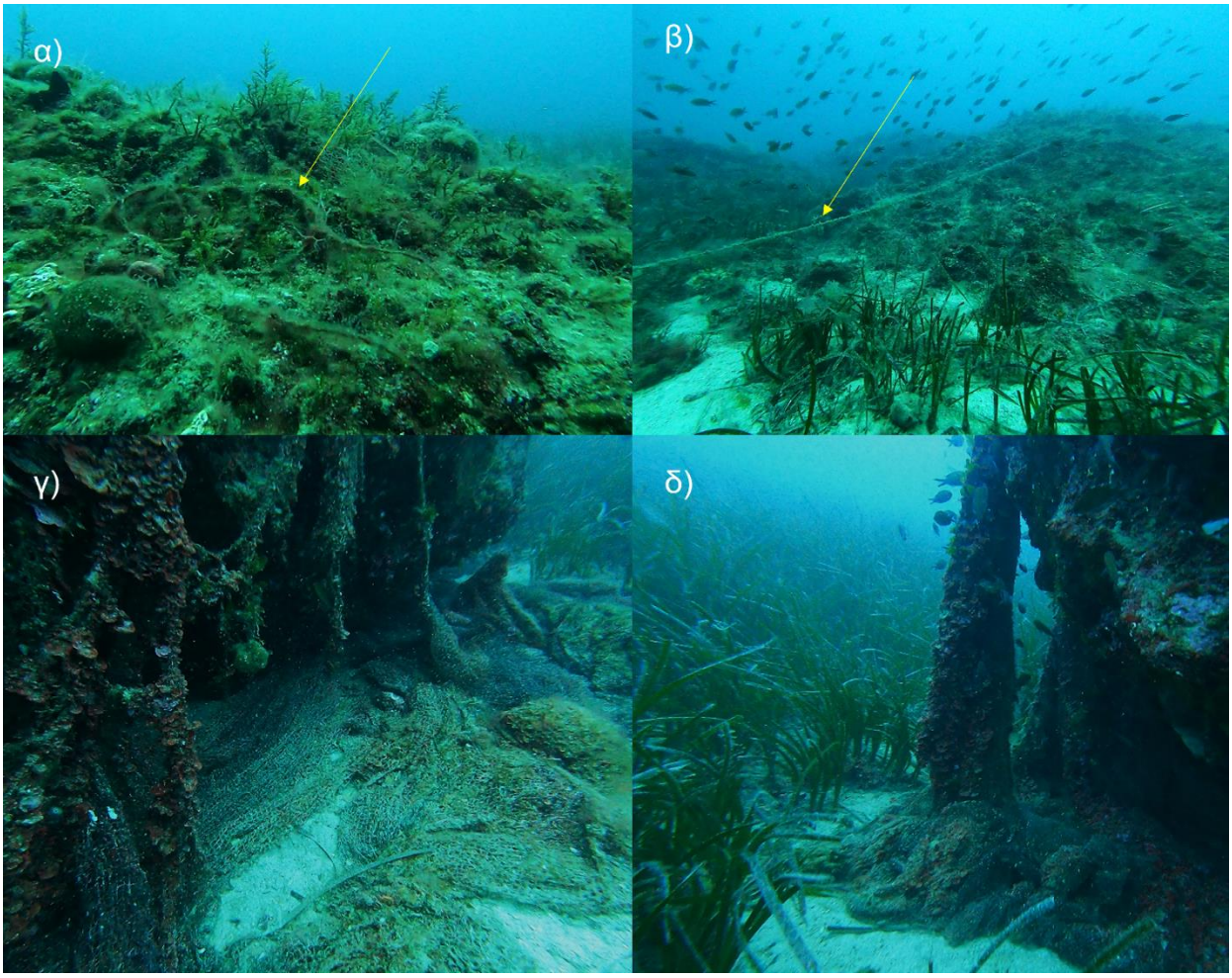

Figure 4: *abandoned fishing gear recorded by iSea during the mapping of Posidonia meadows around Formicula in April 2022*

Recently, iSea and the Blue Marine Foundation visited the area in the framework of the REPOSIDONIA project, to accurately map the *Posidonia* meadows around Formicula, reporting on the marine biodiversity of the location and assess the main threats to the benthic ecosytem. During the field visit, extensive alterations were found in the meadows as a result of the uncontrolled anchoring (Figure 3). A significant number of abandoned fishing gear (i.e., ghost nets) was also recorded (Figure 4). The latter complements the reports of the Tethys Research Institute on illegal beach seining fishing taking place in the area (Figure 5) but also on the widespread use of the area by recreational and professional fishers throughout the year.

According to iSea's mapping in Formicula and the shoals located at 1km towards the north, the *Posidonia* meadow cover amounts to 0.675 km^2. (Figure 8).

Figure 5: *Illegal fishing by beach seine in the entrance of two caves in the island of Formicula.*

These shoals should be considered as an integral part of Formicula island, as the meadow spreads uniformly across both sites. Moreover, there have been a few observations of monk seals, previously photo-identified along the shore of Formicula, performing long dives in these shoals, confirming their importance also as monk seal feeding habitat. The observation of Mediterranean seals in the location, possibly for feeding, makes its inclusion in protection measures particularly important.

Based on all of the above and on the evidence presented in the Tethys Research Institute brief, the co-signatories of this report propose the following measures for Formicula Island. These measures provide for the creation of zones that will limit activities and access while they also provide for the installation of special anchorages (eco-friendly mooring systems) for selected tourist-carrying boats permitted to briefly enter part of the area, that will drastically reduce the adverse effects of anchoring on top of *Posidonia* meadows and at the same time limit the boat presence and its derived human disturbance. Specifically, the following zoning is proposed:

ZONE 1 - Access Zone

Area: 0,045 km^2

Use: Access to this zone is allowed exclusively by mooring using the special anchorages, and only for selected tourist-carrying boats permitted. Swimming and free diving are allowed inside the area, while scuba diving and fishing (recreational and professional) are prohibited. The total number of boats is determined by the number of special anchorages for which a special study should be made for the capacity of the location. Based on our estimates, we propose a maximum number of 3 special anchorages (Figure 7). We further suggest developing and use of a mobile application for the safe navigation and mooring of boats within this zone, as it is proposed in the Priority Action Framework for Natura 2000 sites (p. 13, measure 14) produced by the Ministry of Environment and

Energy. This will facilitate the monitoring of illegal actions by the competent authority. In case of occurrence of a Mediterranean seal within Zone 1, bathers should keep a minimum distance of 30m. In addition, inside Zone 1, bright lighting is prohibited during the night as well as loud music throughout the day. See code of conduct at: https://www.ioniandolphinproject.org/mediterranean-monk-seals/monk-seal-watching-guidelines/.

Exceptions: Scuba diving is allowed for research purposes or for the maintenance of anchorages after the issuance of all necessary permits.

Figure 6: *Spatial demonstration of the zones proposed according to the results of the mapping of Posidonia oceanica and the brief submitted by the Tethys Research Institute.*

ZONE 2 - Strict Protection Zone

Area: 0.538 km^2

Use: Zone 2, in addition to the extensive presence of *P. oceanica* that has been fragmented to a large extent by mooring (Figure 3; Figure 7) is also characterized by underwater caves and rocks which host significant biodiversity and are an important habitat for a series of organisms that are prey items for sealsFor Zone 2, strict protection measures are proposed up to a distance of 200m from shore. These measures include prohibition to approach by any means of navigation and consequently any human activity (e.g., swimming, free and scuba diving, paddle surfing, kayaking, any form of fishing activity) within the 200m buffer zone.

If these measures are successfully implemented in Zone 2, this would also be an ideal location for the reintroduction of healthy individuals of the noble pen shell (*Pinna nobilis*), a species of community interest based on Directive 92/43/EEC). This measure it is proposed in the Priority Action Framework for Natura 2000 sites (p. 42, Measure 12) produced by the Ministry of Environment and Energy. In this regard, it is important to highlight that during the recent exploration by iSea more than 40 dead *Pinna nobilis* individuals were recorded.

Exceptions: Access is allowed for research purposes after all the necessary permissions have been granted.

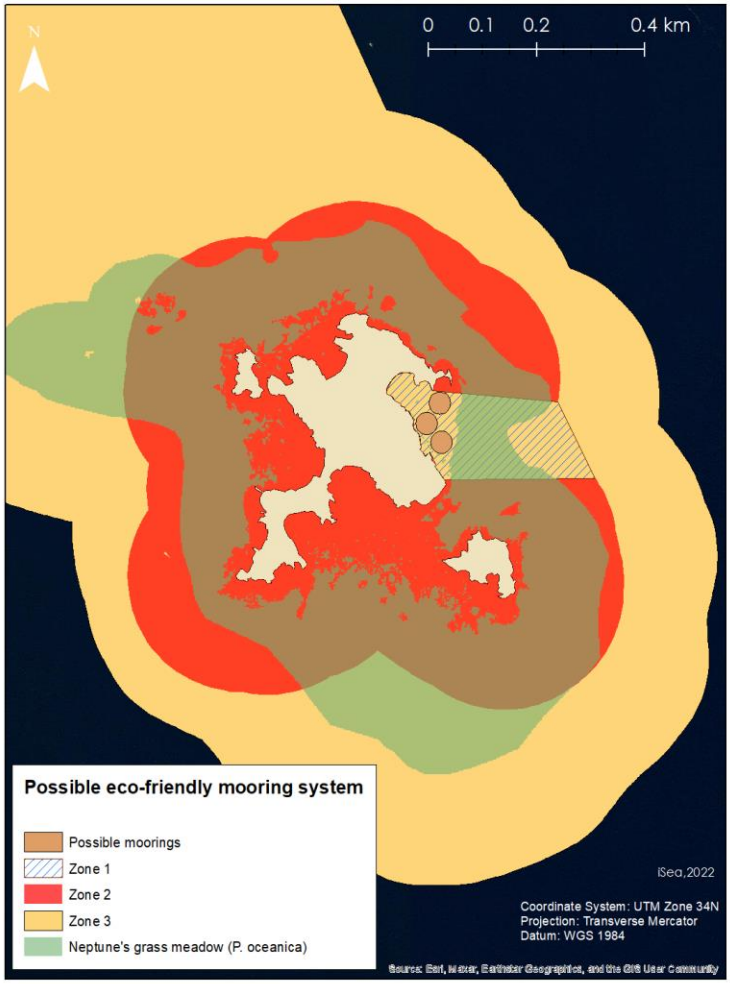

Figure 7: *Spatial demonstration of the possible eco - friendly mooring system in Zone 1 with a 40m diameter, to accommodate vessels larger than 10m.*

ZONE 3 - Controlled Access Zone

Area: 2,415 km2

Use: Zone 3 is designed at 200 m. around the mapped Posidonia meadow based on the presence of low-density meadows as well as the presence of the Mediterranean monk seal. Anchorage and fishing (recreational and professional) are prohibited in Zone 3 and vessels within the zone must navigate at "no wake"[1] (< 5 mph/<4 knots) to reduce the

[1] A 'no wake zone' is a section of waterway with a strict speed limit. When navigating through a no wake zone, it is generally required that the captain observe the slowest-possible vessel speed to maintain steerage, but no greater than 4 knots. The goal is to minimize the wake created by boats passing through the zone.

risk of disturbance to marine megafauna (Mediterranean monk seals, dolphins and sea turtles).

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Appendix 1: Letter from the Monk Seal Alliance to the Greek Minister of Environment and Energy

Mr. Konstantinos Skrekas
Minister of Environment and Energy
of the Hellenic Republic
Mesogeion 119
11526 Athens
Greece

Monaco, 18th of April, 2022

Subject: Appeal for urgent action to improve the protection of the Mediterranean monk seal in Greece

Excellency,

The Monk Seal Alliance is an international consortium of foundations supporting conservation projects of the Mediterranean monk seal and its habitat. Currently, the MSA is funding 8 projects that target the conservation of this endangered species throughout the Mediterranean and Atlantic for a total budget of € 2 757 000, three of which are implemented in Greece. The Alliance also contributes to coordinate efforts and enhance collaboration between stakeholders.

This letter is intended to share our deepest concern about the intense and growing pressures on the Mediterranean monk seal in Greece, and in particular those linked to tourism activities.

The emblematic Mediterranean monk seal (*Monachus monachus*) is one of the most endangered mammals in the world and the only species of seal that lives in the Mediterranean. Although systematic efforts to protect the Mediterranean monk seal in Greece were initiated as early as the 1970-1980's, the species was still considered as critically endangered until quite recently. It took decades of strong regional and national action to prevent its extinction, and indeed, its populations have at last made an encouraging comeback, counting today an estimated number of 400 individuals in Greece, representing half of the total global population. Your country is one of the most important habitats for monk seals worldwide, with observations of individuals or small groups even in areas where they had not been seen for a long period of time.

However, and despite the recent encouraging signs, we strongly believe that this is not a reason nor the time for complacency as several pressures still threaten the species' survival in Greece, most of which are anthropogenic, e.g. pressures from tourism and fishing activities and deterioration of suitable habitat.

Taking into consideration the above, it is with great pleasure that we received the news about your government having taken major commitments to protect *Monachus monachus*, notably through the imminent enactment of management plans for Natura 2000 areas designated throughout Greece and the currently ongoing adoption of a National Action Plan for the species. While we strongly applaud these initiatives of major importance for the future of the monk seals, **we are deeply concerned by the need to urgently implement the protection measures in the field and accelerate the processes to legislate and enforce regulations, especially in areas where tourism pressures are already intense and are foreseen to further intensify in the very near future.**

Excellency, to capitalize on your government's past longstanding efforts and crystal clear will to act, we respectfully urge you to:

A. **Complete the formal adoption through long-standing legislation of the National Action Plan for the Conservation of the Mediterranean Monk seal in Greece and most importantly expedite and ensure the full implementation of the stipulated actions therein as soon as possible**

B. **Accelerate the issuance of Presidential Decrees and Management Plans for all Natura 2000, whilst ensuring *all* relevant stakeholders are consulted, and implement the relevant management plans with effective means for *in situ* enforcement**

C. **Establish immediate, stricter measures to limit uncontrolled touristic pressure near sea caves that are important for the species in areas such as [redacted], where an increasing number of tourists have been observed** entering caves, harassing the resting seals and attempting to swim with them, causing serious disturbance to the animals and risking injuries from the seals, forcing the seals to abandon caves of suitable morphology due to the strong human presence during the tourist season. Besides diminishing the effects of conservation efforts undertaken over the past decades, uncontrolled human presence could have disastrous effects on monk seal populations, especially because the Greek tourist season coincides to the reproductive and birthing period of the species. We believe that the disturbance caused by human interaction and activities in a period when monk seal populations are recovering are thus a major issue that calls for your urgent action.

The Monk Seal Alliance is committed to continue its efforts to support Mediterranean monk seal protection in Greece and is ready to further contribute to your country's efforts in protecting this emblematic species. We stand ready to provide further details as needed: Monk Seal Alliance coordinator, Auriane Pertuisot, apertuisot@fpa2.org.

Thank you in advance for considering this important conservation issue and our specific request, vital to ensure that the Mediterranean monk seal can continue to thrive throughout Greece.

Yours sincerely,

MONK SEAL ALLIANCE

Varvara Alexandropoulou
Vice-President, Thalassa Foundation

Colonel Luc Fringant,
Vice-President, Sancta Devota Foundation

Lynda Mansson,
Director General, MAVA Foundation

Luigi Boitani, Chief Executive Officer, Segré Foundation

Olivier Wenden, Chief Executive Officer, Prince Albert II of Monaco Foundation

WITH THE SUPPORT OF :

Appendix 2: Tethys Research Istitute technical report for Formicula island

Urgent actions needed in Formicula to protect monk seals in their critical habitat

Giuseppe Notarbartolo di Sciara and Joan Gonzalvo

Tethys Research Institute, Viale G.B. Gadio 2, 20121 Milano, Italy

10 November 2021

Executive summary

The islet of Formicula, part of a Special Area of Conservation (SAC) in the Inner Ionian Sea Archipelago, Greece, contains key breeding, resting and feeding habitat for an important nucleus of the Endangered Mediterranean monk seal, a priority species in European legislation.

However, the continued presence of monk seals in Formicula is at risk due to disturbance caused by uncontrolled human presence, including boat-based tourism and fishing. In particular, the highest concern derives from the observed increase of private boat tourism in recent years, which has become extremely intense at the site, with visitors clearly seeking close encounters with the seals, both from their boats and in the water, and even entering caves containing neonate seals, without any form of control.

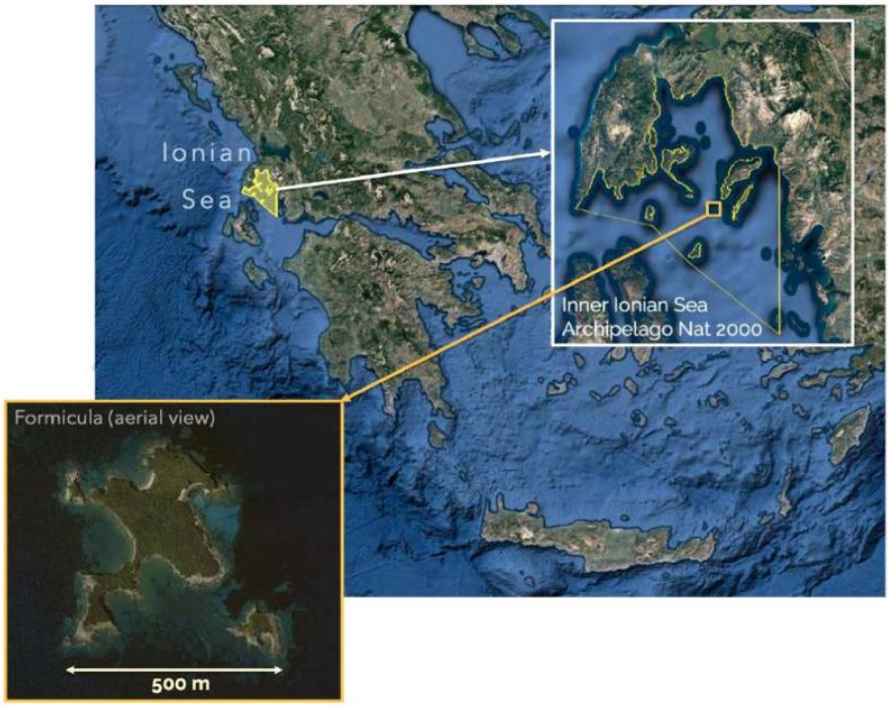
While the procedure for the implementation of appropriate management and conservation measures is ongoing as part of the process for the adoption of the SAC management plan, in consideration of the need for an urgent intervention before the start of the 2022 summer tourist season, we respectfully urge the competent authorities to consider adopting provisional limitation measures.

Such measures should contemplate the establishment of a 200 m-wide no-entry zone around Formicula, with the exception of a corridor to allow the access to a single bay on special permit to organised tours, subject to limited duration of visits and adoption of a code of conduct.

Background

The islet of Formicula is part of the Inner Ionian Sea Archipelago, 2.2 km southwest of the island of Kalamos and 14 km southeast of the island of Lefkada. Formicula is included in the Special Area of Conservation (SAC) "*Esoteriko Archipelagos Ioniou - Meganisi, Arkoudi, Atokos, Vromonas*" (Site Code: GR2220003), established by the Hellenic Republic with the intent of protecting marine habitats and species of European importance, including the endangered Mediterranean monk seal *Monachus monachus*. Formicula is also included in IUCN's global list of Important Marine Mammal Areas (IMMAs), as part of the "Ionian Archipelago IMMA" (https://www.marinemammalhabitat.org/portfolio-item/ionian-archipelago/) with Mediterranean monk seals as qualifying species.

Formicula is a small, uninhabited islet, with a maximum elevation <15m and covered with Mediterranean scrub. The islet hosts a variety of marine bird species and is part of a proposed Important Bird & Biodiversity Area (IBA) by Birdlife International. Its geology is conducive to the formation of numerous caves and cavities, both above the water line and underwater, creating ideal habitat for Mediterranean monk seals.



Mediterranean monk seals have been investigated and monitored by our organisation in Formicula since 2012[1], including with support from the Fondation Segré (2019– ongoing) and the Monk Seal Alliance (2021 – ongoing). This research has resulted, among other things, in the compilation of a catalogue of approximately 30 different monk seal individuals[2], suggesting that Formicula is one of the species' most valuable habitats at the global level.

Monitoring of some of Formicula's caves frequented by the seals and surrounding open waters is also possible through two autonomous and continuous monitoring systems[3] installed and maintained by the

Octopus Foundation (https://octopusfoundation.org/), a Swiss-based organisation concerned with the conservation of the marine environment, which we have been collaborating with for the past three years.

The regular monitoring of dolphins and seals conducted by us throughout a large portion of the Inner Ionian Sea since 1991 [4, 5, 6, 7, 8, 9, 10] brings us to consider Formicula a site of exceptional naturalistic value because of its faunal richness, and specifically for what concerns monk seals. Evidence from our observation and those provided through the Octopus Foundation cameras demonstrates that Formicula is an important monk seal breeding, resting, and feeding habitat.

Risks to monk seals in Formicula and recent trends

Leaving a site of such outstanding natural value without any form of protection, as it currently is, is of high concern. If no urgent action is taken, we fear that disturbance deriving from uncontrolled human activities may cause monk seals to abandon the area. **Possible threats to continued monk seal occupation of their key habitat in Formicula derive to a large extent from disturbance from boat-based tourism, to which possible negative interactions with fishing activities should be added.**

Boat-based tourism

Between May-October, and most dramatically July and August, boat-based tourism can be an intense source of disturbance for the seals in Formicula because of a combination between the small size of the site and the fact that the islet has become a popular destination for boaters.

The two types of tourism targeting Formicula are: organised and private. Organised tourism is conducted primarily by two vessels with a combined capacity of 200 passengers (*M/S Christina:* 50 and *Nikolaos:* 150), based in Nidri, which bring their customers on daily excursions across different locations in the Inner Ionian Sea Archipelago, including Formicula. When arriving in Formicula, these boats drop the anchor in the main bay (marked with a red star in the map on the following page), and the customers are allowed a 30-minute swim before they leave for a successive destination. By contrast, private tourism involves a multitude of medium to small pleasure craft – mostly sailing vessels, motorboats and RIBs – that go anywhere along the island's coast, at any time of day, and for whatever length of time they wish. During the summer months, it is not rare to see sailing boats and catamarans spending the night anchored in the above-mentioned bay.

Whereas organised tours present a minor concern, because their impact is spatially circumscribed and limited in time, and because the tour organisers are amenable to being made aware of the conservation concerns and even to collaborate through the spreading of awareness to their customers and the request for keeping to a code of conduct (the boat M/S Christina, one of such operations, is already actively cooperating with us in such manners), the uncontrolled behaviour of private boaters in Formicula is potentially devastating, and has already demonstrated its damaging potential last summer.

19 July 2021: M/S Christina (dark blue hull, second from left) and Nikolaos (double-decker, far right).

29 July 2021: M/S Christina together with other recreational boats.

Formicula: the red star indicates the bay where the two photos on the top were taken.

30 March 2020: adult male monk seal resting on the beach (arrow in the map on the previous page) of an empty Formicula during the pandemic lockdown (photos courtesy of G. Lilas, Ithaka).

Throughout the past five years we have observed a crescendo of highly concerning behaviour by private boaters in Formicula. The phenomenon, however, has been quite extreme in 2021 not only in terms of number of boats present in Formicula on any summer day, but also in terms of the observed behaviour of many visitors, who had come to Formicula unambiguously to have a "monk seal experience": searching for seals by boat, entering the water to swim with them, and even entering the caves. We have had reports that boat rental businesses in the area have started already in 2020 to advertise the presence of monk seal in Formicula and to encourage their customers to go there.

4 July 2019: tourist paddle-boarding in Formicula (we had to intervene to prevent this woman from getting in the water and swimming with the pictured seal). We noticed a recent important increase in this practice. Most companies chartering sailing vessels carry boards for their clients' use.

6 August 2019: tourists approaching a juvenile monk seal (arrow) both by dinghy and swimming.

30 July 2021: tourist snorkelling around Formicula and disrupting monk seal key habitat.

A particularly disturbing incident took place in July 2021, when a newborn monk seal pup was observed during a couple of days in a cave on the northern side of Formicula through the Octopus Foundation autonomous monitoring system, and was never seen again quite likely as a consequence of reiterated disturbance by unwitting tourists inside and outside the cave.

20 July 2021: an adult female swimming erratically in front of the cave where the Octopus monitoring system is installed (orange dot). These observations lasted for about two hours and the seal behaviour remained the same. We left Formicula before 10:30 when the recreational tourist boats start to arrive.

21 July 2021: monk seal newborn seen for the first time in the cave (images inside and outside of the cave by Octopus Foundation; date and time at top left corner)

22 July 2021: monk seal newborn still in the cave (last observation at 7:00 that same day)

22 July 2021: Large female (presumably the mother of the pup) still regularly milling in front of the cave

23 July 2021: a seal (presumably the newborn pup's mother) still swimming in front of the cave

23 July 2021: less than one hour later, a tourist dinghy beached inside the cave (top). Meanwhile, three tourists (arrows) snorkelling just outside (bottom)

After 23 July 2021, neither the newborn pup nor the presumed mother were seen again, despite continuous observations through the autonomous monitoring system and during the 12 additional surveys we did around Formicula between 29 July and 13 October.

The above observations support the notion that the word has been spreading lately that Formicula is a place where it is possible not only to sight but also to swim with monk seals, and to watch them by entering the caves where they rest and breed, without any control nor regulation. A brief tour over the Internet (Google, YouTube, Facebook, etc.) illustrates the increasing popularity of Formicula as a seal-watching destination.

3.2. Fishing

For most of the year, based on our observations, we surmise that small-scale fishing activities, as they are currently conducted in the vicinity of Formicula, are unlikely to negatively impact the continued frequentation of the site by monk seals.

Nevertheless, in September and October, we have seen a boat operate beach-seines off Formicula, which raises strong concern not only about the monk seals but also about the impact this fishing gear has on the *Posidonia oceanica* beds and on the conservation of demersal and inshore diversity[11].

Due to the high induced mortality of undersized fish of both commercial and non-commercial species, beach seining has been banned from EU waters since 2001.[12] However, implementing the ban of beach seines in Greece was prolonged until 2010[13].

Since the Government of Greece finally implemented the EU's ban on beach seining in May 2010, this highly destructive fishing gear has been occasionally used under exceptional circumstances (i.e. official derogation or experimental fishing) until 15th Dec 2020; a deadline given by the Greek government for fishermen to have access to subsidies (as much as 25,000 EUR/boat) in exchange for the withdrawal of this gear.[14] Since then, with no exceptions, beach seining is not allowed anywhere in Greece. Therefore, the beach seining currently happening in Formicula is illegal.

Beach seiner fishing on 13th September 2021 right in front of two of the monk seal caves present in Formicula (top). Same boat on 13th October 2021 (centre and lower images) with a monk seal swimming nearby while the net is being hauled out (arrow)

4. Possible impacts

The Mediterranean monk seal is one of the world's most threatened marine mammals, listed as Endangered in IUCN's Red List, and only a few hundred of them are estimated to survive in the whole of the Mediterranean Sea. The main causes of such status are direct killing by fishermen, bycatch in fishing gear and human encroachment and disturbance in their critical habitat.

Formicula contains monk seal critical habitat and is subject to intense human encroachment and disturbance for a portion of the year (the summer months) which is key to their survival because it involves breeding.

The levels of disturbance to monk seals we have observed in Formicula and documented in Section 3 above are consistent with the risk of discouraging the seals from continuing the frequentation of the islet's water and coasts, ultimately extirpating the species from a portion of its critical habitat. This is likely to have a seriously adverse effect not only on possible monk seal recovery but even on survival.

5. Measures needed

The actions in Formicula that we envisage as urgently needed are: a) area-limitation measures and b) awareness activities targeting specifically private boaters.

A management plan for the SAC prepared by a consulting company, which we had the opportunity of providing input to, is about to be submitted to the Greek Ministry of Environment and Energy. Based on our long-term research and observations in Formicula, the area-limitation measures that we have proposed for inclusion in the SAC management plan involve the delimitation of a 200 m-wide no-entry zone surrounding Formicula (in red in the map below), except for a corridor (in green, with "!") to allow access to the main bay under special permit released to the organised tours under precise conditions (e.g., code of conduct, time limitation).

Aware that once measures are in place the challenge to ensure compliance and enforce the rules needs addressing, we are planning to request permission to install cameras in Formicula to allow the remote control of human presence in the no-entry zone by the authorities.

Awareness activities are necessary because human behaviour generating disturbance to monk seals in their habitat is largely caused by a lack of knowledge and of understanding of the delicate conservation status of the monk seals and their behavioural requirements. We will conduct such activities at sea during our routine research and monitoring operations, as required in the projects supported by the Fondation Segré and the Monk Seal Alliance. We intend to conduct such awareness activities only with boaters found in Formicula to avoid spreading the word too broadly about the presence of seals in the site before legal protection is in place.

6. Request for urgent intervention

Based on the observed damage to monk seal breeding and resting behaviours in key habitat, caused by uncontrolled human activities; aware of the need of urgent intervention to mitigate such damage; and realising the complexity and time requirements of the finalisation of implementation of the SAC management plan (which may require years before real protection will be in place),

we respectfully urge the competent authorities

to consider adopting the following provisional measure: the delimitation of a 200 m-wide no-entry zone surrounding Formicula, except for a corridor to allow access to the main bay under special permit released to the organised tours under precise conditions (e.g., code of conduct, time limitation) (see map on previous page).

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[1] Currently under research permit ΑΔΑ: ΨΕΤΥ4653Π8-694, issued in March 2021 by the Greek Ministry of Environment and Energy, valid until 31 Dec 2023.

[2] Available on-line at https://www.ioniandolphinproject.org/mediterranean-monk-seals/idp-mediterranean-monk-seal-photoid-catalogue/ (updated to 2020; data from 2021 to be entered in the coming months).

[3] https://octopusfoundation.org/en/project/mediterranean-monk-seal-greece-iucn/#technologie

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Appendix 3: Posidonia mapping methodology on Formikula Island and results

The mapping of habitat type 1120* (seagrass meadows) has been achieved by using satellite imagery from WorldView 3 of Maxar from the date 23/07/2021. Atmospheric correction has been performed using the aquatic processor ACOLITE followed by supervised classification. The algorithms R Random Forests & Support Vector Machines in EnMAP 10 toolbox as plugin in QGIS and Maximum Likelihood in ENVI ver. 5.6.2. The classification results with the highest accuracy (95%) has been used as it comes from the Maximum Likelihood algorithm. The deep limit of the seagrass was visible in the satellite imagery only after the atmospheric correction, down to the depth of 35 m while validation has been done using updated field data that have been collected during the fieldwork performed in April 2022 by iSea.

Εικόνα 8: *Final results of the habitat classification of P. oceanica through remote sensing data. Accuracy: 95%.*