

LAYMAN'S REPORT



LIFE ARTINA • 2023

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LIFE ARTINA

Seabird Conservation Network in the Adriatic - LAYMAN'S REPORT

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We also deeply appreciate the researchers, experts, and government officials who have helped us in shaping the future of seabird conservation in Croatia.

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Note: The hyperlinks used throughout this report are available in digital format. Please visit www.lifeartina.eu for a digital copy of the report.

SUMMARY

The LIFE Artina project tackles conservation issues of seabird species in Croatia, focusing on three species: Audouin's gull, Scopoli's shearwater, and Yelkouan shearwater. Under this five-year project, extensive research, conservation work, and stakeholder collaborations have been undertaken to protect and restore the habitats crucial to the survival of these seabirds.

This Layman's Report provides an overview of the project's objectives, activities, achievements, and the long-term impacts it has generated. By focusing on the conservation of these seabird species, the project aims to contribute to the overall biodiversity and ecological balance in the Adriatic.



INTRODUCTION

"Because of the complex relationship society has with nature, it is obvious that our response to saving it must extend from every possible quarter too. With an increasing global footprint, mankind is intensifying the crisis for wildlife, but as individuals, we can all be part of the solution for saving it too."

*Sir David Attenborough
The Guardian, 2014*



Nature functions as a complicated system in which each living organism plays a crucial role in maintaining its stability. The extinction of any species within this system can disrupt the overall balance and weaken it. Therefore, to preserve nature around us, it is of great importance to protect species within their native habitats or ecosystems, providing wildlife with more space to help stop the decline in biodiversity.

Seabirds are vital components of marine ecosystems, performing various functions essential for environmental health and stability. Regrettably, they face multiple challenges due to human activities and changing environmental conditions. Threats such as habitat degradation and loss, invasive species, impacts of climate change, overfishing, bycatch, and marine pollution endanger their survival.

However, addressing these challenges goes beyond simply protecting specific areas or species. Effective conservation requires ensuring their proper management and connectivity, enabling different species to move and interact across ecosystems.

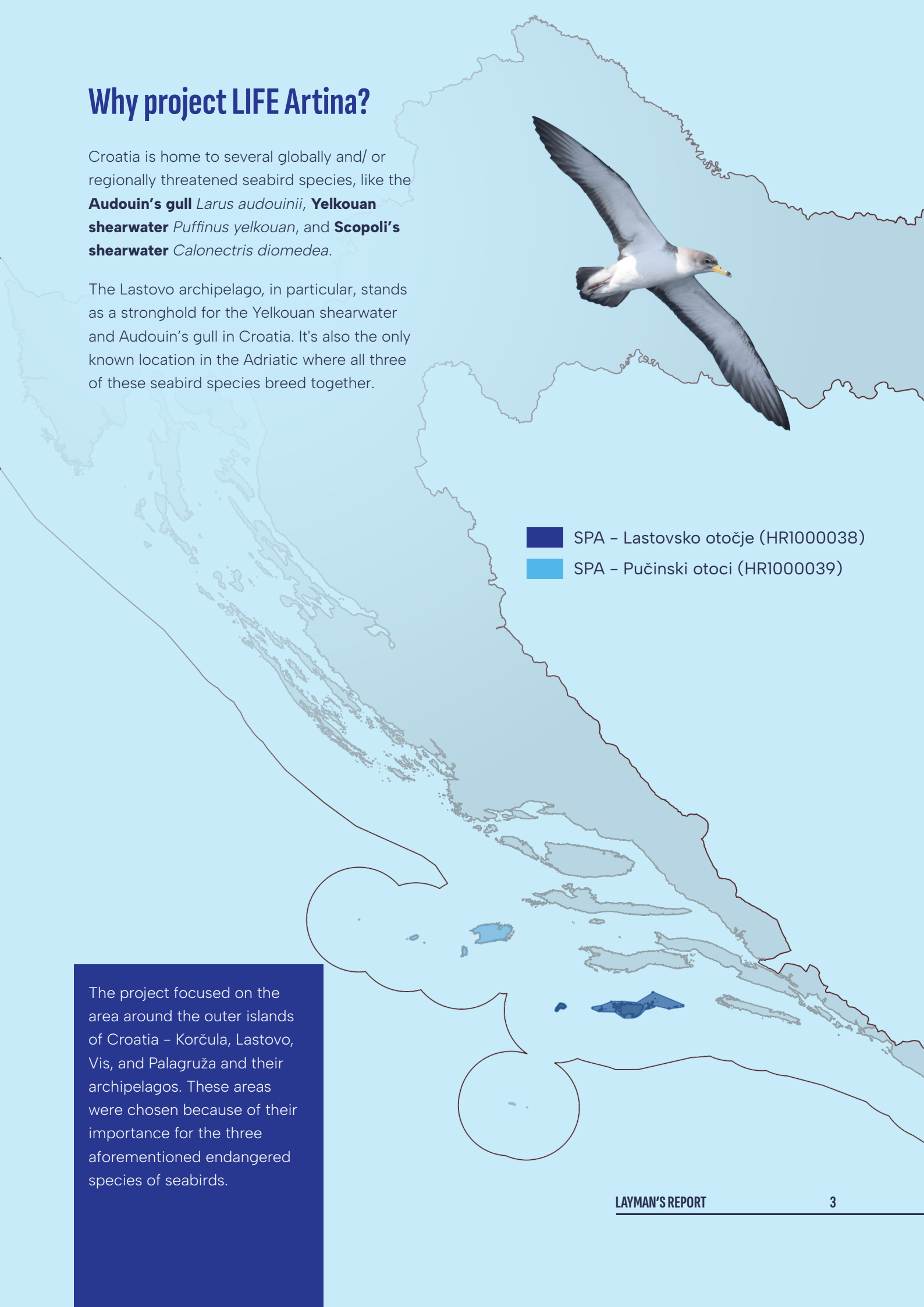
Conservation initiatives for seabirds involve a range of strategies, including habitat protection and restoration, research and monitoring, mitigation of human impacts, and raising awareness among communities and stakeholders. To ensure the protection of seabirds among other actions it is crucial to preserve and effectively manage their habitats, not only the land on which they breed, but also areas at sea which they use for foraging and resting.



Why project LIFE Artina?

Croatia is home to several globally and/ or regionally threatened seabird species, like the **Audouin's gull** *Larus audouinii*, **Yelkouan shearwater** *Puffinus yelkouan*, and **Scopoli's shearwater** *Calonectris diomedea*.

The Lastovo archipelago, in particular, stands as a stronghold for the Yelkouan shearwater and Audouin's gull in Croatia. It's also the only known location in the Adriatic where all three of these seabird species breed together.

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- SPA – Lastovsko otočje (HR1000038)
 - SPA – Pučinski otoci (HR1000039)

The project focused on the area around the outer islands of Croatia – Korčula, Lastovo, Vis, and Palagruža and their archipelagos. These areas were chosen because of their importance for the three aforementioned endangered species of seabirds.

Shearwaters spend most of their lives at sea, a lifestyle known as pelagic. During the breeding season, however, they visit islands to lay a single egg each year. They are known for their haunting calls and unique nesting habits, mainly choosing burrows, cavities, and rocky crevices which they mostly attend at night. They are also known to live long, more than 20 years, requiring several years before attaining sexual maturity. The Yelkouan shearwater is an endemic species of the Mediterranean & Black Seas, while the Scopoli's shearwater migrates to the Atlantic each winter.

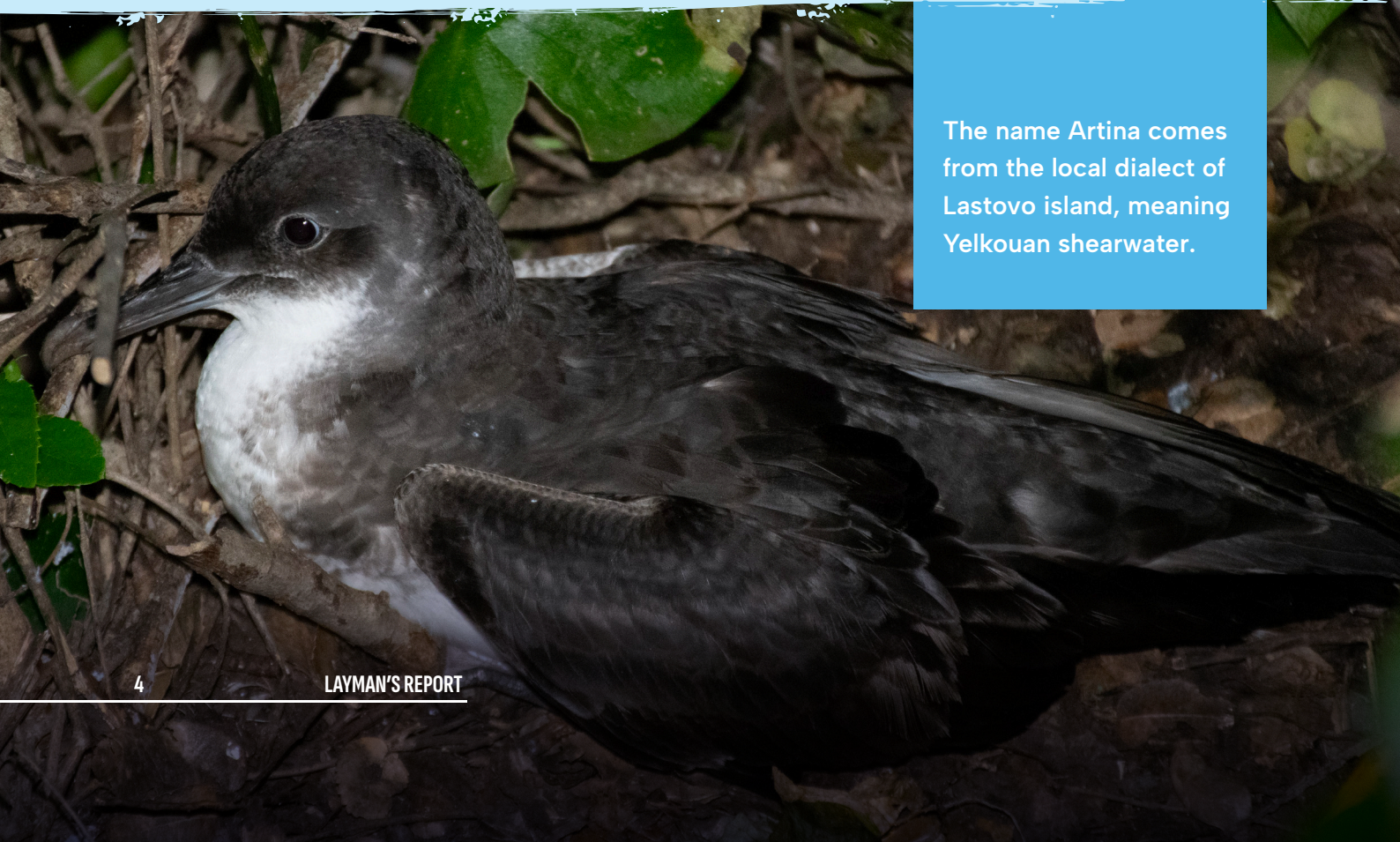
The Audouin's gull, an elegant gull with grey-green legs and red bill, has its northern breeding range extending into Croatia. A relatively small population of 25–50 pairs can be found here. Unlike some other gull species in the region, Audouin's gulls are more closely connected to the marine environment with a diet based on fish, a characteristic that sets them apart from the others.

LIFE Artina Project, the first of its kind in Croatia, was developed to address the challenges these seabirds face and to enhance their conservation status in the Adriatic. Our main goal was to designate new protected areas in the marine environment important for the conservation of seabirds. The identification and

establishment of protected areas are not only important for the safeguarding their populations but also for preserving broader marine ecosystems of which these birds are integral components.

The project also aimed to assess, reduce, and mitigate threats to seabirds and to remove invasive species,

namely the ship rat from their colonies. In addition, the LIFE Artina project assessed other threats by evaluating interactions between fisheries and seabirds; monitoring marine litter; raising awareness of the importance of seabird conservation among tourists, and locals, especially children.

A close-up photograph of a Yelkouan shearwater, a dark grey seabird with a white underbelly, sitting on a nest made of dry twigs and leaves. The bird is looking towards the left of the frame. The background is filled with green leaves and brown twigs, creating a natural, textured environment.

The name Artina comes from the local dialect of Lastovo island, meaning Yelkouan shearwater.

LIFE Artina's specific objectives are:



TO IDENTIFY
marine SPAs at sea in
southern Croatia for
the Audouin's gull,
the Scopoli's
shearwater and
Yelkouan shearwater.



TO UNDERSTAND
and assess the main
threats affecting
seabird populations
on land and at sea in
the project area and
define actions to
mitigate them.



TO ERADICATE
terrestrial invasive
species (ship rats) on
shearwater breeding
colonies and control
yellow-legged gulls
at breeding colonies
of Audouin's gulls.

CONSERVATION OF SEABIRDS

50%

The Lastovo archipelago is home to more than 50% of the Croatian populations of three seabird species of international and national concern, namely the Yelkouan shearwater, the Scopoli's shearwater and the Audouin's gull.

The LIFE Artina project provided the first opportunity to study these three seabird species more thoroughly in Croatia. Through extensive research, we gained valuable insights into their foraging behaviour, migration patterns, and habitat preferences. This knowledge has served as a compass guiding our targeted conservation efforts, including the designation of new Important Bird & Biodiversity Areas (IBAs).

Furthermore, our comprehensive approach combined research, predator control, testing bycatch mitigation measures, marine litter monitoring, education, and international collaboration, all aimed at securing the long-term survival and well-being of seabird populations and promoting the overall health of the marine ecosystems they inhabit.

Conservation actions

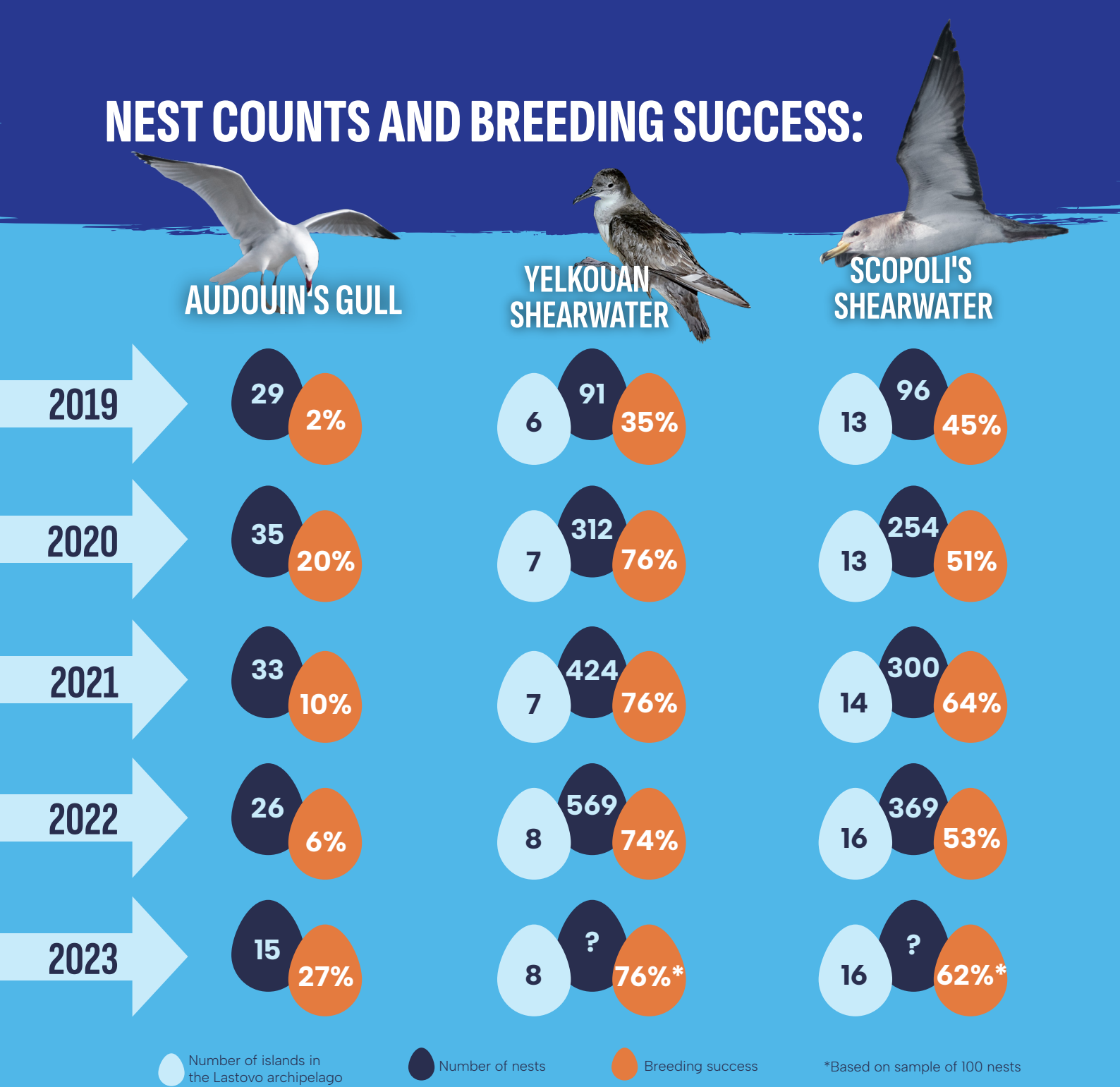
Research and Monitoring

Regular monitoring of seabird populations was conducted to assess their abundance, breeding success, and overall health. These data have provided us with valuable insights into population trends,

habitat usage, and threats as well as conservation efforts' effectiveness. Through our efforts, **the breeding success of the Yelkouan shearwater has increased by 39%, and the Scopoli's shearwater by 8%.**



NEST COUNTS AND BREEDING SUCCESS:



Different survey methods were used to map the shearwater colonies and nests, as well as to estimate the number of breeding pairs of Audouin's gull on different islands. Based on surveys before the start of LIFE Artina, the focus was primarily on the islands that were either known to have breeding seabirds or those with habitat conditions suitable for their breeding (e.g., availability of nesting holes, shelter from high waves, vegetation density, etc.).

The increase in the number of shearwater nests found over the years was partially the result of more thorough efforts to locate their nests, but also due to our conservation work to improve breeding conditions on their colonies by removing the rats. On the other hand, targeted conservation work for Audouin's gull has been more difficult to implement, because the species changed its breeding locations every year.

THREAT ASSESSMENT

Threats recognized during the LIFE Artina project are:



PREDATION BY
INVASIVE SPECIES



LIGHT
POLLUTION



DISTURBANCE
FROM TOURISM AND
RECREATIONAL
ACTIVITIES



NEGATIVE
INTERACTIONS
WITH YELLOW-
LEGGED GULL



OTHER
POTENTIAL
THREATS
(e.g., marine litter,
bycatch)

Invasive Species Control

Implementing measures to eliminate or control invasive species on breeding islands of seabirds, such as rats and feral cats, is crucial to prevent predation, habitat disruption, and population decline. Rats, introduced to these islands by man, are one of the main threats to seabirds. They prey on eggs, chicks, and sometimes even adult birds. This is particularly concerning because shearwaters reproduce at a slow rate, laying just one egg per year. During our project, we implemented rat eradication programs, involving a combination of bait stations with rodenticides and traps on several islands with breeding



colonies. **As a result, we have managed to permanently remove rats from 6 islands and control their populations on 5 more.** Through these efforts, which helped to

increase the number of shearwater pairs breeding successfully, our actions have significantly improved the current and future conservation status of the species.

- Rat eradication not successful
- Rat population controlled since 2020.
- Rat-free since 2020.
- Always rat-free

46 ISLANDS AND ISLETS

15 RAT-FREE ISLANDS

5 ISLANDS WITH RAT CONTROL SINCE 2020.



Most of the islands in the Lastovo archipelago are within the swimming range of rats, which can travel up to 750 metres, from other rat-infested islands. For these islands, annual rat control efforts are of great importance to consistently improve the breeding success of the three seabird species. However, the island of Sušac, being uninhabited, far away from other islands, and offering abundant nesting opportunities, stands out as a great location for both shearwater species which are currently still present there. The future aim should therefore definitely be to permanently **remove rats from this island**, creating a safe environment where shearwaters can continue to thrive without the threat of rat predation.

Light pollution

Both shearwater species also face the threat of light pollution caused by settlements and ships. While adult birds might visit their nests less often or abandon nests completely,

young birds in particular may strand on land due to confusion caused by strong lights. **We have created information leaflets addressing light pollution with guidelines on what to do when**

encountering disoriented birds, and engaged in discussions with the owners of local restaurants situated close to the largest shearwater breeding colony on Lastovo.

Disturbance

Seabirds are sensitive to disturbance, especially during the breeding season, and human activities like tourism can cause nesting failure (e.g., mooring, noise, light, etc.). Considering that tourism plays a significant role in Lastovo's

economic development, raising awareness among tourists, local residents, and stakeholders regarding the importance of reducing disruptions can positively impact breeding success for these bird populations.

To raise awareness among boat owners and site users we have created information leaflets and engaged in discussions with them to help spread the word among tourists on seabirds and threats they encounter.

Negative interactions with yellow-legged gull

For the Audouin's gull, the most impactful threat is the competition with and predation by yellow-legged gulls which breeds on the same islands. During the project, camera traps recorded several cases of egg and chick predation. In order to attempt and control the yellow-legged gull population the method of egg piercing (previously proven successful in other countries) was carried out for

two years on specific colonies. However, this effort was eventually stopped as it became obvious that Audouin's gull was simply heavily outnumbered by yellow-legged gulls in the Lastovo archipelago (with ~30 pairs vs. ~1600 pairs) and because the Audouin's gull changed its breeding sites each year which made it difficult to do targeted conservation work. Also, by tagging 20 yellow-

legged gulls we have noticed that the species regularly feeds on open landfills in Bosnia and Herzegovina. Therefore, future efforts should focus on improving waste management by closing such sites which will reduce feeding opportunities for yellow-legged gull, thereby indirectly benefiting Audouin's gull. Subsequently, **we have generated a report on Audouin's gull breeding habitat improvement.**



Bycatch mitigation

It's a well-recognized fact that fishing practices impact seabird populations. Previous studies in the Mediterranean region have indicated that longlines and gill nets are the primary types of fishing gear associated with the bycatch of seabirds. Through the LIFE Artina project, we conducted research aiming to understand the extent of seabird bycatch in Croatia and assess interest in implementing measures to

prevent it. Bycatch is present but the scale of it still needs to be better understood. The key to this is to raise fishermen's awareness of the importance of reporting on bycatch and scientific observer's capacities. We have also explored several methods that would reduce the bycatch of seabirds (and other sensitive marine species) In collaboration with fishermen, the following

modified fishing gear was tested:

- 1) signal (LED) lights for set nets**
- 2) additional weights for demersal (set) longlines**
- 3) hookpoods – devices for releasing the hooks of pelagic (floating) longlines under the sea surface.**

Subsequently, **we have generated recommendations arising from the testing of modified gear to reduce seabird bycatch.**

The tests indicated that various techniques during fishing can effectively lower seabird bycatch rates, with a greater impact when multiple measures are employed concurrently. Also, novel fishing gear should be simple, tailored to specific fishing methods, cost-effective, feasible, secure, and incentivized economically or socially. In addition, it showed how important it is to increase the awareness of the fishermen and other key stakeholders about the seabird bycatch and their role in it. Find out more about our findings in our video.

Marine litter

Marine litter impacts the well-being and survival of seabirds by polluting both their nesting and foraging habitats. Through the LIFE Artina project, we have carried out monitoring of marine litter on the island of Lastovo and

the surrounding sea, which represented the first scientific research of marine litter of that kind, based on a unified methodology in the area of the Lastovo archipelago. It was also the first multi-year study of the dynamics and

composition of marine litter on the Croatian side of the Adriatic, in which spring and autumn aspects of observation were included. Subsequently, **we have generated mitigation measures arising from the monitoring to reduce marine litter.**

Sources of collected marine litter could be linked to fishing and mariculture, tourism and recreational activities, poor management of municipal waste disposal sites, sewage, and shipping. A large source of waste, both floating and on beaches, came from fishing (polystyrene granules from caches for storing fish on fishing boats), and sources that could not be precisely identified.

More information can be found in our [report](#) on marine litter and mitigation measures.

Habitat Protection

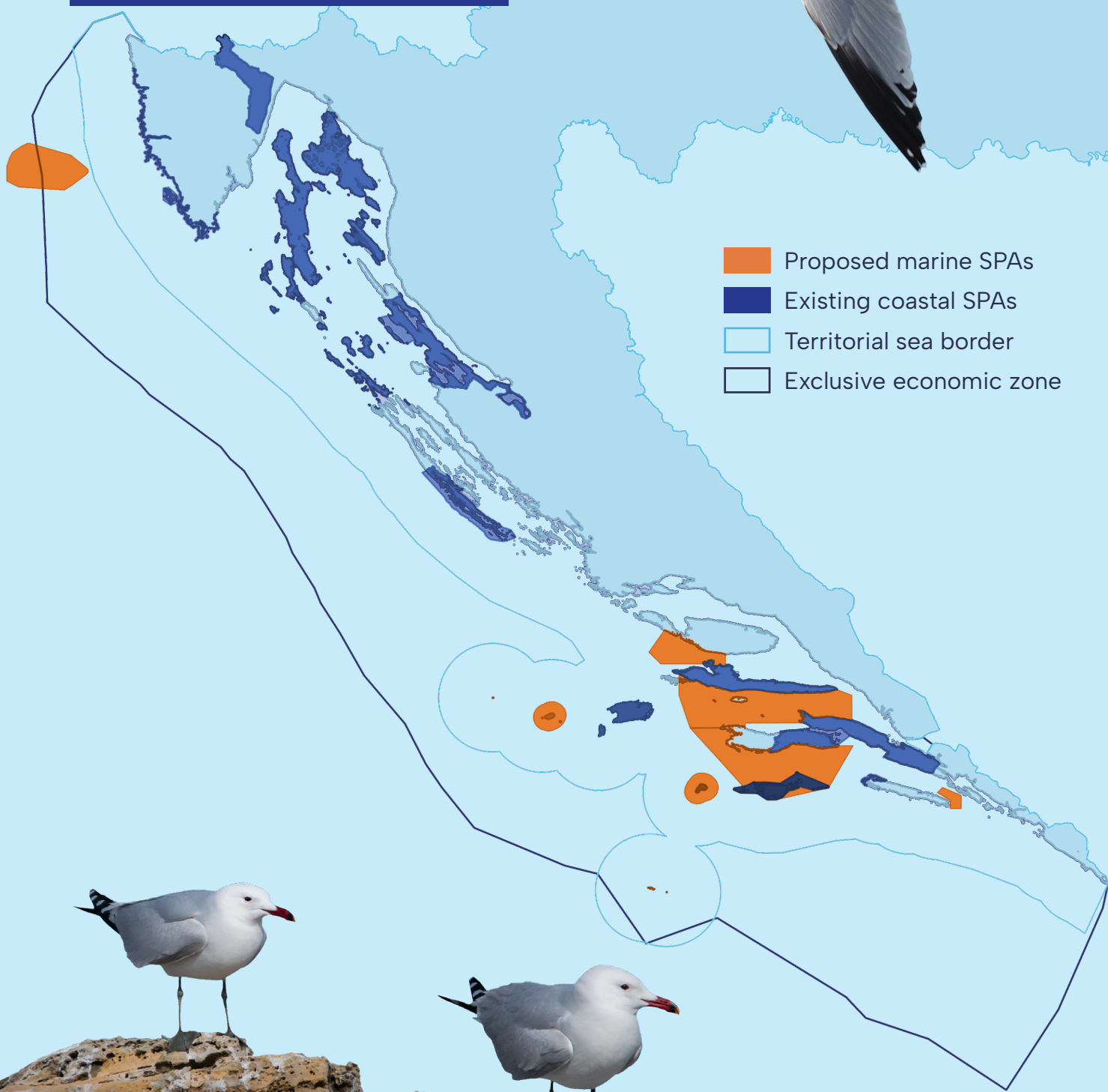
Seabirds rely on specific habitats for breeding, nesting, foraging, and migration, and the conservation of these habitats is important for their survival. Habitat protection involves the establishment of protected areas that serve as safe zones where seabirds can breed, feed, and rest without disturbance or human

interference. By designating and effectively managing these areas, we can ensure the long-term viability of seabird populations. Through a combination of different research methods, the LIFE Artina project team designated **five new Important Bird & Biodiversity Areas (IBAs) for seabirds and expanded**

the borders of two existing ones. This is the first time that areas for birds located exclusively at sea have been designated in Croatia. With this, we have finally become a country that cares for its seabirds not just on land, but also at sea! These new areas should soon become part of the Natura 2000 ecological network, a network of protected areas of importance for the entire EU. The focus in the future should be **effective management** of these sites, monitoring of their status, and establishment of a connected network of areas to support the migrations of birds and ensure their survival.



By putting GPS tags on 40 Yelkouan shearwaters, 40 Scopoli's shearwaters, and 25 Audouin's gulls, we have followed these seabirds during the chick-rearing period of their life cycle during their journeys at sea and identified the areas they visit most frequently.



- Proposed marine SPAs
- Existing coastal SPAs
- Territorial sea border
- Exclusive economic zone



HOW SUCCESSFUL WERE WE?

✓ We have designated 5 new marine IBAs for seabirds, and 2 existing ones were expanded.

✓ 15 islands and islets of the Lastovo archipelago are now rat-free.

✓ We have tracked the movements of 40 Yelkouan shearwater, 40 Scopoli's shearwater, and 25 Audouin's gulls and identified important areas for these seabirds at sea. Some of the Yelkouan shearwaters we tracked flew over 800 km to find food for their chicks.

✓ We have recorded Scopoli's shearwaters and / or Yelkouan shearwaters on 6 new islets.

✓ We have gained a better knowledge of marine litter presence and composition.

✓ We have tested three mitigation measures to reduce the bycatch of seabirds in cooperation with 6 local fishermen.

✓ The breeding success of the Yelkouan shearwater has increased by 39%, and the Scopoli's shearwater by 8%.

✓ We have ringed 527 Yelkouan shearwaters, 190 Scopoli's shearwaters and 65 Audouin's gulls.



ADVOCACY & RAISING AWARENESS



To ensure the effective conservation of seabirds, we have had to extend our efforts beyond dedicated conservation activities and engage in advocacy, awareness-raising and networking as well. These actions have helped to promote policies and legislation that safeguard seabirds, as well as educate the public about the challenges these birds face. Public knowledge allows the community and other stakeholders to support and act. During our project, we have carried out a wide range of activities for various stakeholder groups.



ENGAGING THE NEXT GENERATION:

Nature Education for Kindergarten and School Children

We have developed several educational programmes specifically adapted to kindergartens and primary school students in the project area. Through **these programmes**, we have collaborated with **eight educational institutions** from Korčula, Lastovo and Vis islands and organized a total of 70 different workshops for children.

The children learned first-hand what it is like to be a researcher allowing them to understand the goal and importance of the project and its activities. The goal was to get them interested in nature protection and understand better the importance of seabirds and the threats they face, but they learned so much more!

For instance, what it means to be an environmentally responsible individual and a true little protector of nature, and what habits and behaviours they can use every day to create a better and healthier future for all living things.

ACTIVITY	NUMBER OF WORKSHOPS / EXHIBITIONS	NUMBER OF CHILDREN
EDUCATIONAL WORKSHOPS	54	169
FIELDWORK WORKSHOPS	5	103
BOAT EXCURSIONS	5	136
EXHIBITIONS „Future for Seabirds“	5	525

INVOLVING A LARGER AUDIENCE

To raise awareness among the larger audience about the challenges faced by seabirds, particularly shearwaters, and Audouin's gull, it was important for us to communicate information about our project using multiple approaches and advocate for the long-term conservation of seabirds. We have also produced different awareness-raising materials that can be found on our [website](#).



Media

A total of 291 media content related to the LIFE Artina project have been published which included interviews, articles published in national and local newspapers and magazines, posters on ferries to Lastovo during summer months, and the use of radio broadcasts and jingles. We have also used the official project website and the social media profiles of all of our partners to keep everyone up to date on project developments and updates. Furthermore, we have created a [short film](#) in order to

highlight the importance of seabird conservation through our project in a simple and interesting manner. This film was promoted on social media, and at different public and other expert events, with the purpose of not only

emphasizing the need for seabird conservation but also the importance of efficient protected area management. It has also underlined the importance of creating new protected areas for seabirds, particularly at sea.



Educational Trail

Educational trails often feature information boards, which are an excellent way to interpret specific topics for nature walkers, especially in protected areas. This allows visitors to absorb important knowledge while enjoying their time on the trail. As part of our initiative, we have designed and set up an educational trail, appropriately named "Artina". A total of six educational boards have been placed along the old pedestrian path that has always connected Zaklopatica Bay and the town of Lastovo. Given that



numerous nautical visitors come here, a large portion of them choose to visit the hidden gem of the island, the town of Lastovo, and they often use this trail. Additionally, both Scopoli's and Yelkouan

shearwaters nest on the small islet Škoj od Zaklopatice, located at the entrance of the Zaklopatica Bay where their nocturnal calls can be heard. This was another reason for selecting this particular location.

Engaging Public Events & Meetings

Through our project, we have put a lot of effort into collaboration with the local community and organizations, researchers, and authorities to help us ensure the long-term survival of seabird populations

while protecting biodiversity. **We have organized 27 events with more than 1550 participants attending, as well as 6 web-based workshops with more than 200 people.** These events

have drawn a wide audience, including those who were already interested in seabirds and their conservation, as well as those who were unfamiliar with these topics, and helped us to get people involved and interested. Additionally, workshops, conferences, and round tables have allowed professionals from various organizations to engage in discussions, fostering the development of future collaborative projects and initiatives.





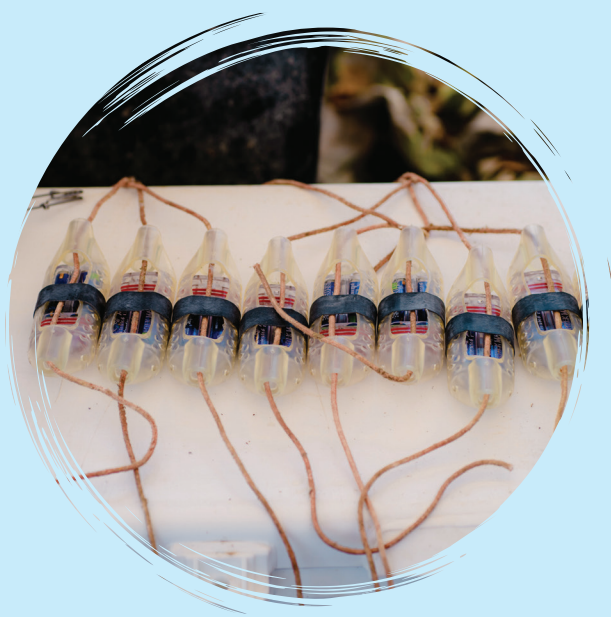
We have communicated our results and activities to the local community of Lastovo through **a series of public lectures**. These sessions have covered significant actions such as monitoring marine litter, addressing seabird bycatch, conducting rat eradication efforts, and sharing research findings.

Coastal clean-up actions have been organized on Lastovo between 2020 and 2022. In **31 actions**, approximately 400 local volunteers actively participated, removing **14 tons of marine litter from the beaches and underwater, mostly plastic**. To help reduce waste, we have also arranged three organic waste composters for Lastovo restaurants.



For three years, we held a public event called "The Night of the Albatross" on the island of Lastovo and one year on the island of Vis. **Over 250 people have attended** these events, which included exhibitions and interactive games such as puzzles, memory challenges, and a plastic sea fishing game.

We have also organized webinars, meetings and activities on various topics like the collaboration between the civil sector, public institutions for managing protected areas, educational institutions; hands-on training for implementing educational programs for public institutions in nature conservation; hands-on training for marine litter monitoring; 6 coastal clean-up actions at multiple locations on the islands and on-shore. These activities have supported project results dissemination, transfer and replication.



We have held a panel discussion with representatives of Croatia's fishermen and various institutions of Croatia. The discussion focused **on the outcomes of testing modified fishing gear to reduce seabird bycatch** and strategies to reduce it, which resulted in seabird bycatch mitigation recommendations.

Our final conference brought together 55 participants from across Europe, including people working for (inter)national organizations in the field of nature conservation, fisheries sector, civil society organizations, state institutions, and regional and international experts. The event was divided in five thematic sessions, allowing for networking, sharing best practices and lessons learned from our project, as well as discussing future efforts to preserve the populations of Adriatic and Mediterranean seabirds. The Conference Book of abstracts is available [here](#).



Socio-economic Impact

A study has been conducted to understand the broader socio-economic impact of the project and to identify the changes the project might have made in knowledge, awareness and attitudes among target groups towards seabird conservation. The surveys have included over 330 participants in the initial study, and more than 300 participants have been part of the final analysis – representatives of Lastovo

local community, school children engaged in project educational activities and tourists. The surveys indicated that respondents have enhanced their knowledge about seabird species and are more inclined to support conservation. Nevertheless, there is a decline in support for future projects of a similar nature, along with concerns about the project's discontinuation and threats that seabirds will have to face.

The findings from this research highlight the crucial role of community involvement in nature conservation projects. They reveal that when local communities are actively engaged and informed, there is a noticeable positive impact on their knowledge, awareness, and willingness to support conservation efforts. The Socio-economic study is available [here](#) and the Public attitude survey final report can be found [here](#).

Networking & Result Replication

To exchange valuable knowledge and experience, enabling us to learn from each other's successes and challenges we have collaborated closely with other experts in the field to protect seabird populations in the Adriatic and Mediterranean. We visited other **LIFE projects** (LIFE Diomedee, LIFE Ilhas Barreira & Biosecurity for LIFE) where

we have learned more about bycatch mitigation, other approaches to invasive predator control, island biosecurity and working with local communities. Furthermore, we have organized the BirdLife Marine Task Force Meeting on Lastovo in 2022, and a project closing conference in Seget Donji in 2023, both of which were attended by experts in the

field of seabird conservation. Lastly, we have visited the Public Institutions of Dubrovnik-Neretva county, Split-Dalmatia county and the city of Zagreb, as well as the National Parks of Mljet and Brijuni in-person to discuss the replication and transferability potential of the LIFE Artina project results in these areas.



HOW SUCCESSFUL WERE WE?

✓ We have collaborated with 8 educational institutions.

✓ We have held 70 educational workshops and excursions for children.

✓ We have exchanged experiences with experts and jointly developed recommendations for the conservation of seabirds in the Adriatic and the Mediterranean.

✓ We have exchanged knowledge with three other LIFE projects.

✓ We have conducted a socio-economic survey with more than 600 participants involved to assess the project's impact on various stakeholders.

✓ We have created a [short film](#) about project goals and results and about the seabird [bycatch](#) in Croatia.

✓ A total of 291 media contents related to the LIFE Artina project have been published by various media.

✓ We have organized 27 events with more than 1550 participants attending, as well as 6 web-based workshops with more than 200 people.

✓ Over 250 people have attended "The Night of the Albatross" events on Lastovo and Vis.

✓ Approximately 400 local volunteers have actively participated in 31 clean-up actions, removing 14 tons of marine litter from the beaches and underwater, mostly plastic.

✓ We organized a final conference, attended by 55 national and international participants, celebrating the project and discussing next steps.

✓ We have visited 5 public institutions in Croatia to show some of the conservation work in person and discuss opportunities for replicating the project results in those areas.



FOR THE FUTURE...

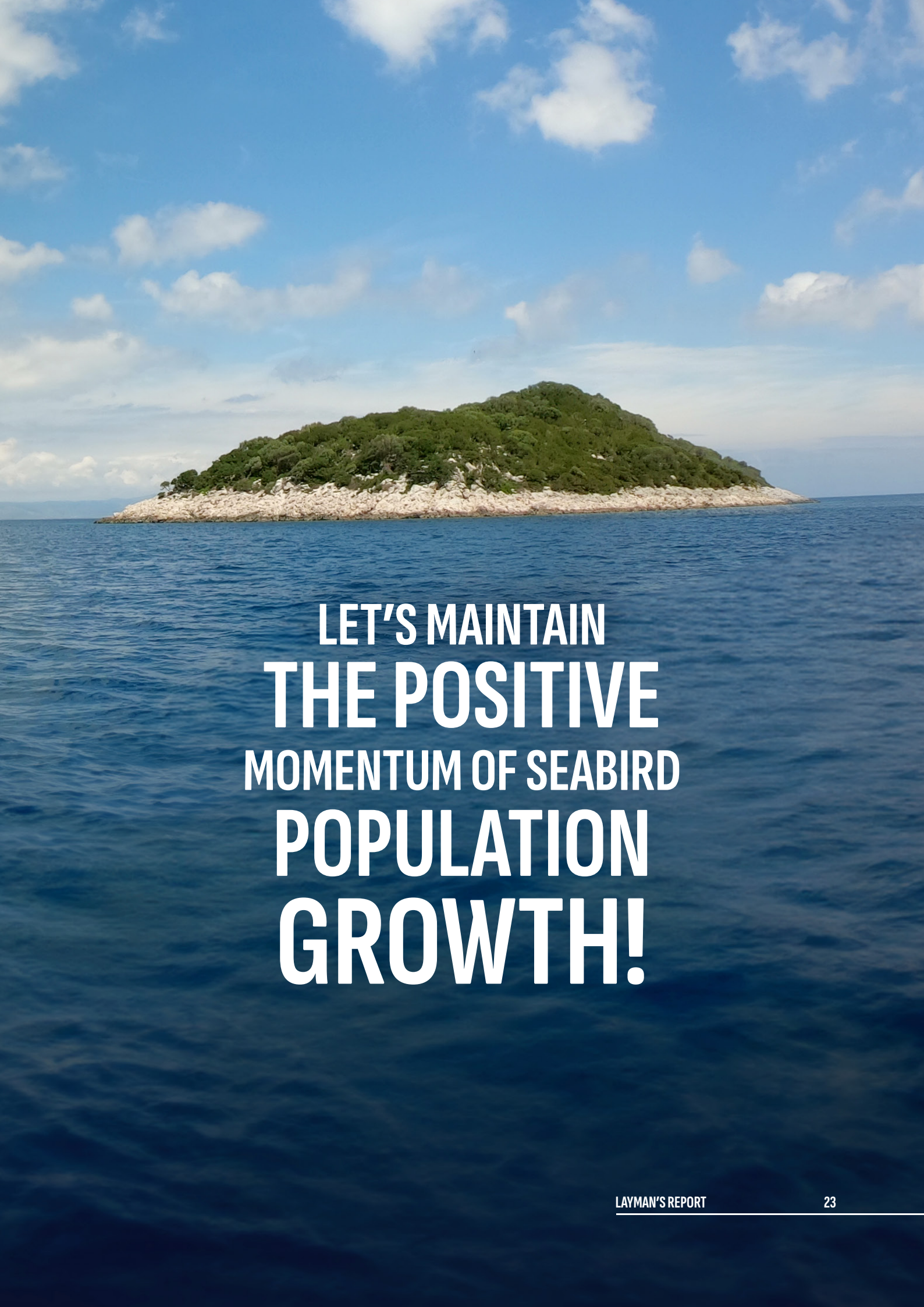


Our project has achieved significant success and laid good foundations for the conservation of seabirds in the Adriatic, especially in the project area, thanks to our dedicated efforts. To sustain and prolong this success, it is imperative to continue carrying out conservation actions. They should include monitoring of seabird populations, collaboration with authorities and other stakeholders, and being

up-to-date on emerging threats such as climate change, pollution, and invasive species, as well as promoting sustainable fishing practices. Continuation of rat control in nesting areas is key to successful breeding of seabirds, as are biosecurity measures to prevent rats from returning to islands from where they were successfully removed. For their better survival at sea, we have to monitor bycatch and further

develop mitigation measures together with fishers, and ensure healthy seas with enough fish. Improving waste management and combating marine litter remains both a global and local priority. It is important to continue involving the local community in conservation actions and raising their awareness. This helps in creating a more environmentally conscious society that actively participates in and supports nature conservation.

The next important step is to advocate for the newly designated IBA areas to become Special Protection Areas and to be integrated in the network of NATURA 2000 sites. We are hopeful that this will be realized in the near future, and are happy to be consulted for suggesting management measures for these new areas. Effective management of both the existing and newly designated areas for preserving seabirds' ecological role and promoting a healthier marine environment is important and needed. Future initiatives can build upon the successes of the LIFE Artina project and contribute to the long-term sustainability of seabird populations and their habitats in the Adriatic.



**LET'S MAINTAIN
THE POSITIVE
MOMENTUM OF SEABIRD
POPULATION
GROWTH!**

PUFFINUS YELKOUAN

YELKOUAN SHEARWATER



FAMILY	Procellariidae
APPEARANCE	medium-sized seabird with highly contrasted belly and back , fine dark beak , with tubular nostrils and marked angle with the head
WING SPAN	78 – 90 cm
FLIGHT	flight beaten and glided, swings sideways, close to the surface
LIFE SPAN	up to 25 years
LIFE STYLE	mostly pelagic
DIET	small pelagic prey such as anchovies, sardines, sprat, and squids; also planktonic crustaceans and discards from fishing ships
NESTS	on offshore islands and coastal cliffs, in caves, under boulders and vegetation and nests in burrows which are only visited at night to avoid predation
BREEDING SEASON	March to July
ACTIVE ON COLONIES	nocturnal
CLUTCH SIZE	one egg per year
WINTERING	migrates mostly to the Eastern Mediterranean (including the N. Adriatic Sea) and to the Black Sea during the post-breeding period whereas some individuals stay relatively close to their breeding areas in the Mediterranean Sea
THREATS	fishery bycatch, introduced predators (rats, cats), mortality induced by urban lights, hunting and egg harvesting, marine pollution
CONSERVATION STATUS	Vulnerable (on a global level) Vulnerable (Croatia)

NESTING SITES

● certain

● possibly extinct

The next time you find yourself on a ferry, take a glance towards the back, and you might spot them flying above the sea surface. Surprisingly, they're often closer to you than you might think!



CALONECTRIS DIOMEDEA

SCOPOLI'S SHEARWATER



FAMILY *Procellariidae*

APPEARANCE medium-sized, **contrasted back** (brown to grey-brown) and **belly** (white), the fine yellow beak (**light colored at the base and dark at its extremity**) with tubular nostrils and marked angle with the head, pink webbed feet

WING SPAN 110 – 125 cm

FLIGHT flies lazily on arched wings and performs slow wingbeats

LIFE SPAN more than 30 years

LIFE STYLE mostly pelagic

DIET fish, squids, crustaceans, zooplankton, discards from fishing boats

NESTS burrows, rock crevices or natural hollows, on the ground under the vegetation, under roots, in caves, boulder fields or inland on rocky slopes

BREEDING SEASON June to October

ACTIVE ON COLONIES nocturnal

CLUTCH SIZE one egg per year

WINTERING adults leave their Mediterranean breeding grounds in October exit into the Atlantic Ocean and move rapidly southwards. Most populations spend the winter in the East Atlantic Ocean and move south in areas off the West coast of Africa and the East coast of Brazil. Some just winter in the Mediterranean.

THREATS fishery bycatch, introduced predators (rats, cats), mortality induced by urban lights, hunting and egg harvesting, marine pollution

CONSERVATION STATUS Least concern (on a global level)
Nearly threatened (Croatia)

NESTING SITES  certain
 possibly extinct

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LARUS AUDOUINII

AUDOUIN'S GULL



FAMILY	<i>Laridae</i>
APPEARANCE	elegant slim gull with long legs and narrow wings. Adults: light grey body with a paler white head, grey-green legs , red bill , dark eyes
WING SPAN	117 – 128 cm
FLIGHT	steady flight gliding for longer periods than other similar gulls
LIFE SPAN	up to 25 years
LIFE STYLE	mostly coastal
DIET	primarily fish; also aquatic and terrestrial invertebrates, small birds, marine plants, and discards from fisheries
NESTS	breeds on exposed rocky cliffs and on sparsely vegetated offshore islands or islets, nowadays also in dune habitat
BREEDING SEASON	late-April to July
ACTIVE ON COLONIES	diurnal
CLUTCH SIZE	1–3 eggs per year
WINTERING	disperse widely around the Mediterranean coast; almost all juveniles and some adults migrate past Gibraltar during July–October to winter on the North African coast, all the way down to Senegal. During their migration, thousands of birds stop over the Algarve. Some birds also winter in the Aegean Sea.
THREATS	presence of predators (e.g. fox, badger), lack of suitable nesting places aside from some artificial sites (e.g. ports, salt pans), human disturbance, reduction of fishing discards, fisheries bycatch
CONSERVATION STATUS	Vulnerable (on a global level) Endangered (Croatia)

NESTING SITES

-  certain
-  possibly extinct

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LARUS MICHAHELLIS

YELLOW-LEGGED GULL



FAMILY

Laridae

APPEARANCE

large gull with a grey back, a yellow bill with a red spot under the tip (as adults), a red ring around the eye and yellow legs; the longest-flight feathers are black with white spots on the extremities

WING SPAN

120 – 150 cm

FLIGHT

easy flight thanks to large wings, like all gulls

LIFE SPAN

more than 20 years

LIFE STYLE

mostly coastal

DIET

omnivores and opportunistic foragers (e.g. fish, invertebrates, reptiles, small mammals, bird eggs and chicks, but also garbage)

NESTS

sparse mound of vegetation built on the ground or cliff ledges, coastal dunes, rocky or sandy islands, lagoons, coastal marshes, salt marshes; also in urban areas (on house roofs)

BREEDING SEASON

mid-April-early May until July

ACTIVE ON COLONIES

diurnal

CLUTCH SIZE

1-3 eggs per year

WINTERING

some remain in the same area all year round while others disperse across the Mediterranean or spend the winter in mild areas of western Europe, or western Africa. Often found in ports, harbours or near refuse dumps.

THREATS

oil pollution, bycatch in longline fisheries, habitat destruction and disturbance from tourism and egg harvesting

CONSERVATION STATUS

Least concern (on a global level)
Least concern (Croatia)

NESTING SITES



certain



possibly extinct



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