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# Second annual reporting on ingress of seabirds at RIAS (action C6)

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COFINANCIAMENTO COORDENAÇÃO PARCEIROS

# Second annual reporting on ingress of seabirds at RIAS (action C6)

## Project LIFE Ilhas Barreira

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# Summary / Resumo

This report describes the results obtained at RIAS in 2021 regarding the reception and treatment of injured or weakened seabirds from the Algarve region.
Between January 1st and December 31th 2021, 1496 seabirds (1045 live and 541 dead) were admitted at RIAS hospital from Algarve region.
The most common seabird species admitted at RIAS hospital were gulls. Yellow-Legged Gull was the most common species (61%), followed by Lesser black-backed Gull (24%) and Audouin's Gull (9%).
The main causes of admittance of seabirds at RIAS hospital was "Paretic Syndrome" with 64% of the animals, trauma of unknown origin with 14% of the individuals and weakness with 11%.
During 2021 it was possible to release back to nature 610 seabirds, which represents a 58% release rate. From Deserta Island it was possible to release 51 birds (75% release rate).
As planned in the project, infrastructure improvements have been finished at the center in order to be able to respond properly to current requirements.

Este relatório descreve os resultados obtidos no RIAS em 2021 relativamente à receção e tratamento de aves marinhas feridas ou debilitadas, provenientes da região do Algarve.
De 1 de janeiro a 31 de dezembro de 2021 foram recebidas no RIAS 1496 aves marinhas (1045 vivas e 541 mortas).
As espécies mais comuns foram gaivota-de-patas-amarelas (61%), gaivota-d'asa-escura (24%) e gaivota-de-Audouin (9%).
As principais causas de ingresso de aves marinhas no RIAS em 2021 foram "Síndrome Parético" com 64% dos casos, trauma de origem desconhecida em 14% dos casos e debilidade em 9%.
Ao longo de 2021 foi possível devolver à natureza 610 aves marinhas recuperadas o que representa uma taxa de libertação de 58%. Provenientes da Ilha Deserta foi possível devolver à natureza 51 aves (taxa de libertação de 75%).
Como previsto no projeto, finalizaram-se as melhorias de infra-estruturas no centro de forma a ser possível dar uma resposta adequada às exigências atuais.

# 1| Introduction

In 2008, the Portuguese Marine IBA (Important Bird Area) inventory (published by SPEA), identifieda marine IBA at Ria Formosa. The existing baseline information proved to be insufficient, and this IBA never became legally binding. Between 2012 and 2015, Portugal made an important step towards the implementation of the Natura 2000 network in the marine environment, by establishing new marine SPAs (Special Protection Areas). Nevertheless, this process was not aimed towards the conservation of Audouin's Gull (*L. audouinii*). At the time, the breeding information and distribution data for this species in Portugal was considered insufficient. Since then, further work has been developed and new insights indicate that, nowadays, there is a stable meta-population breeding in the uninhabited Barreta Island. Climate change and derived sea-level rise are global scale problems threatening most of the coastal habitats, among which the barrier islands are not an exception and, as holders of unique ecosystems, they need urgent attention. These islands are also threatened by human pressure and it is urgent to implement measures that can reduce these threats. LIFE Ilhas Barreira aims to characterize the local ecological requirements and conservation threats of the target species and habitats in Ria Formosa, and particularly at Barreta Island, to implement effective conservation actions. This project represents an important step towards the present and future sustainable management of the SPA at Ria Formosa.

## 1.1 Project objectives

The main objectives of the project are:

1. Understand the main threats to the target species (Audouin's Gull and Little Tern *S. albifrons*) and habitats, both on land and at sea;
2. Recover the Grey Dunes habitat and assess the effect of gulls on this habitat;
3. Promote the sustainable use of the Ria Formosa barrier islands and marine area, focusing on fisheries and tourism;
4. Evaluate the effect of climate change and other drivers of change on the eco-morphology of the barrier islands system;
5. Understand the breeding ecology, foraging behaviour and spatial distribution of Audouin's Gull and Little Tern;
6. Evaluate and mitigate bycatch impacts on seabirds and assess the future effect of the discard ban policy on Audouin's Gull local population, engaging the local fisherman community;
7. Evaluate possible competitive interactions and predation from Yellow legged-gull (*L. michahellis*) towards the target species;
8. Protect breeding areas for Audouin's Gull and Little Tern (restricting tourist access,controlling predators, increasing surveillance and implementing environmental awareness campaigns);
9. Review the marine IBA limits and update the marine area of the SPA.

## 1.2 Contextualization of RIAS in the project

RIAS - Wildlife Rehabilitation and Investigation Center is the only wildlife hospital in Algarve and it is located in Ria Formosa Natural Park, Olhão. Near 1500 seabirds are admitted every year in RIAS. As expected, the higher numbers derive from most common species, e.g. Yellow-legged Gulls, Lesser Black-backed Gulls, Northern Gannets and Black-headed Gulls. Since 2009, RIAS has received more seabird species of conservation concern, namely Audouin's Gulls, Balearic Shearwaters and Little Terns. However, rehabilitation success was extremely low for these 3 species, 27%, 0% and 0%, respectively. The particular requirements of these 3 species (ecology and handling) together with the lack of specialized enclosures, and the critical body condition of the birds were the main factors for such low success rate. All injured seabirds found during the fieldwork activities performed under other actions during the project (e.g. A4, A5, C1, C3, C5, etc) will be brought to RIAS by the project team.

Admittances in RIAS are expected to significantly increase along the life time of the project due to the intensive fieldwork occuring in the area. Improving the center responsiveness through an upgrade of rehabilitation facilities and increase training of RIAS staff is the first step. The main aim of this action is to specialize RIAS in the recovery of seabirds by improving technical skills and rehabilitation facilities adapted to the reception, treatment and recovery of this group of birds. A dedicated rehabilitation area for seabirds will be set in RIAS. A properly equipped pool allows seabirds a better and faster recovery. Seabird adapted fence will limit this area. Finally, an upgrade on the necropsies lab is foreseen. Better knowledge on mortality causes is urgent. This improvement will enable RIAS to preserve higher numbers of dead carcases during busier seasons to be analysed later during calm periods.

Since the project will focus on seabird species that have a concerned conservation status, successful rehabilitation will have a significant positive impact at the population level. During the first year of the project, new equipment will be acquired and RIAS facilities will be upgraded. In the second year, a seabird recovery course will be organized for the project team. By the end of the project, we expect to increase by 20% the success rate of seabirds rehabilitation in RIAS hospital.

# 2 | Objectives of Action C6

The main purpose of this action is to specialize RIAS hospital in the rehabilitation of seabirds by improving technical skills and facilities adapted to the reception, treatment and rehabilitation of this group of birds.

Since the project will focus on bird species that have a high conservation status, rehabilitation and releasing them back to nature will have a positive impact on the populations of birds.

During the first year of the project, the structures for the recovery of seabirds and the acquisition of new equipment for the clinic will be improved.

In the second year of the project a practical workshop on seabird recovery will be organized for project technicians and partners.

The recovery of seabirds will take place throughout the project.

# 3| Improve seabirds' facilities

In 2021 the new container house installed during 2020 to improve the necropsy lab (Fig. 1) was daily used. Two freezers were bought to improve the work.

**Figure 1 |** Necropsy Lab in the container house.

The new intensive care room for birds in critical condition (Fig. 2) created during 2020 was daily used and that allowed us to improve our response capacity for the recovery of the project's target species. Two plastic boxes adapted to seabirds were bought.

**Figure 2** | New intensive care room for birds in critical condition and more sensitive species. Plastic box adapted to seabirds, northen gannet while recovering.

During 2021 it was also possible to upgrade the exterior facilities for seabirds recovery. A pool and filters were installed and also 2 smaller water tanks were adapted to receive seabirds while recovering (Fig. 3)

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**Figure 3** | Pool, filter and water tanks for seabirds recovery.

# 4| Seabirds admittances at RIAS

Between January 1st and December 31th 2021 RIAS received a total of 3226 animals (2481 live and 745 dead). Of these, 1496 were seabirds from all over the Algarve and, more specifically, 90 seabirds were from Ilha Deserta.

In this report we will give an overall analysis of seabird admittancesat RIAS hospital during 2021, always giving special emphasis to birds coming from Desert Island.

## 4.1 Species

During 2021 the most common seabird species admitted at RIAS hospital from Algarve region were gulls (Table 1). Yellow-Legged Gull was the most common species (61%), followed by Lesser black-backed Gull (24%) and Audouins Gull (Fig. 4; 9%). Most of the birds from the Algarve region were admitted alive (70%).

**Table 1** | Seabird species admitted at RIAS hospital from Algarve region.

| | Algarve Region | |
|---|---|---|
| **Species** | **Alive admittance** | **Dead admittance** |
| *Chroicocephalus genei* | 0 | 1 |
| *Chroicocephalus ridibundus* | 27 | 5 |
| *Fratercula artica* | 0 | 1 |
| *Ichthyaetus audouinii* | 18 | 119 |
| *Ichthyaetus melanocephalus* | 5 | 1 |
| *Larus fuscus* | 279 | 84 |
| *Larus michahellis* | 694 | 223 |
| *Melanitta nigra* | 1 | 0 |
| *Morus bassanus* | 18 | 12 |
| *Phalacrocorax carbo* | 1 | 3 |
| *Puffinus mauretanicus* | 1 | 0 |
| *Sterna sandvicensis* | 0 | 1 |
| *Sternula albifrons* | 1 | 1 |
| **TOTAL** | **1045** | **451** |

**Figure 4** | Audouin Gull in recovery.

From Deserta Island, the most common seabird species were also gulls (Table 2): 77% Yellow-Legged Gull, 16% Lesser black-backed Gull and 6% Audouin's Gull. Northen Gannet and Little Tern were also admitted in smaller numbers (1% both).

Most of the birds from Deserta Island were admitted alive (76%) at RIAS hospital.

**Table 2** | Seabird species admitted at RIAS hospital from Deserta Island.

| | Deserta Island | |
|---|---|---|
| **Species** | **Alive admittance** | **Dead admittance** |
| ***Ichthyaetus audouinii*** | 1 | 4 |
| ***Larus fuscus*** | 10 | 4 |
| ***Larus michahellis*** | 55 | 14 |
| ***Morus bassanus*** | 1 | 0 |
| ***Sternula albifrons*** | 1 | 0 |

Most seabirds admitted at RIAS during the winter are migratory species or wintering in the region. Thus, it is normal, in the months of September to February, to increase the inflow of seabirds.

One of the main causes of admittances at RIAS is the Paretic Syndrome (Fig. 5) and the monthly distribution of admittances (Chart 1) reflects the highly seasonal pattern of this pathology, which usually presents a maximum in April and another in October. In addition to these 2 peaks, and due to the environmental factors, outbreaks may appear in other months of the year, as occurred in February 2021.

**Figure 5** | Gull with Paretic Syndrome symptoms in the intensive care.

The maximums observed in July refer to the admittance of dead Audouin Gulls. The necropsies findings were caquexia, kidney damage and arthritis. Samples were taken and send for anatomophatological analysis. The results were compatible with articular gout caused by kidney failure: cronic nefritis and cronic degenerative artrosinovitis with urate deposits. There are many reasons for kidney failure, being dehydration the most common one in wild birds.

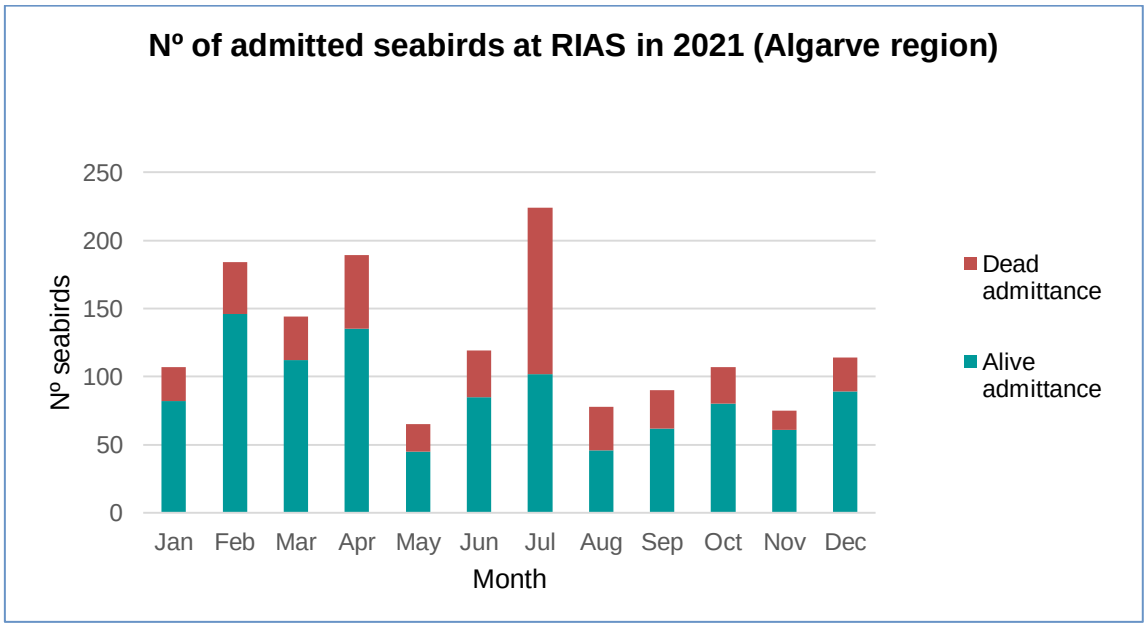


**Chart 1** | Monthly distribution of admittances of seabirds at RIAS in 2021 (Algarve region).

Analyzing the deliveries from Deserta Island (Chart 2), there is a maximum in the month of April, coinciding with paretic syndrome outbreak.
It should be noted that the effort of collecting birds on the Desert Island varies according to the availability of the project technicians, and is not constant throughout the year.

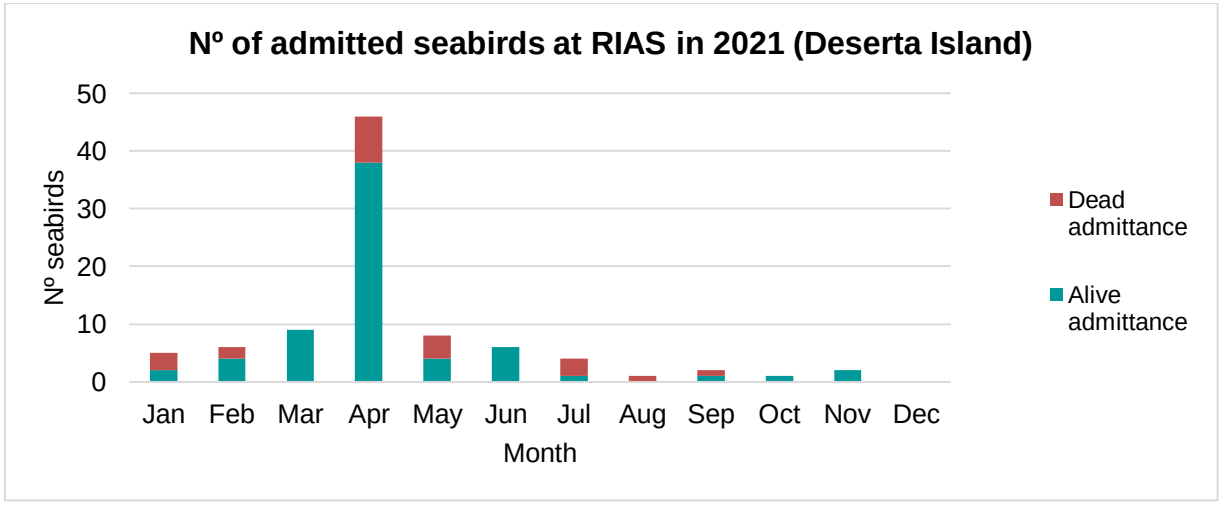


**Chart 2** | Monthly distribution of admittances of seabirds at RIAS in 2021 (Deserta Island).

## 4.2 Admittance causes

In 2021 the main cause of admittance of seabirds at RIAS hospital was "Paretic Syndrome" with 64% of the animals presenting this patoloy (Table 3). The animals considered as "Paretic Syndrome" present symptoms highly compatible with food poisoning caused by ingestion of biotoxins. The second most relevant cause of admittance in 2021 was trauma of unknown origin with 14% of the individuals and weakness/ malnutrition situations with 11%. The 3 most common causes of admittance were found to represent 90% of all arrivals.

**Table 3** | Causes of admittance of seabirds at RIAS in 2021 (Algarve region).

| | Algarve Region |
|---|---|
| **Admittance cause** | **Number of admittances** |
| **Run over by car** | 10 |
| **Ilegal Captivity** | 3 |
| **Weakness / malnutrition** | 159 |
| **Unknown** | 22 |
| **Illness** | 17 |
| **Electrocution** | 1 |
| **Predation** | 2 |
| **Orphan** | 61 |
| **Fishing net / Hook** | 43 |
| **Paretic syndrome** | 963 |
| **Trauma** | 215 |

Regarding admittances from Deserta Island, in 2021 the main cause of admittance of seabirds at RIAS hospital was also "Paretic Syndrome" with 89% of the animals (Table 4). The second most relevant cause of admittance with 34% of the individuals was weakness/malnutrition situations with 4%.

**Table 4** | Causes of admittance of seabirds at RIAS in 2021 (Deserta Island).

| | Deserta Island |
|---|---|
| **Admittance cause** | **Number of admittances** |
| **Weakness / malnutrition** | 4 |
| **Unknown** | 2 |
| **Predation** | 2 |
| **Fishing net / Hook** | 1 |
| **Paretic syndrome** | 80 |
| **Trauma** | 1 |

## 4.3 Destination

Between January 1st and December 31th of 2021, 1496 seabirds (1045 live and 451 dead) were admitted at RIAS hospital from Algarve region (Chart 3). Of the 1045 seabirds admitted alive, 184 were euthanized, 127 died within 48h, 60 died within 48h but less than one month, and 6 died after the first month of hospitalization. 58 birds were still in recovery at the end of 2021 and carried over to 2022. During 2021 it was possible to release 610 seabirds to nature (Fig. 6), which represents a 58,4% release rate.

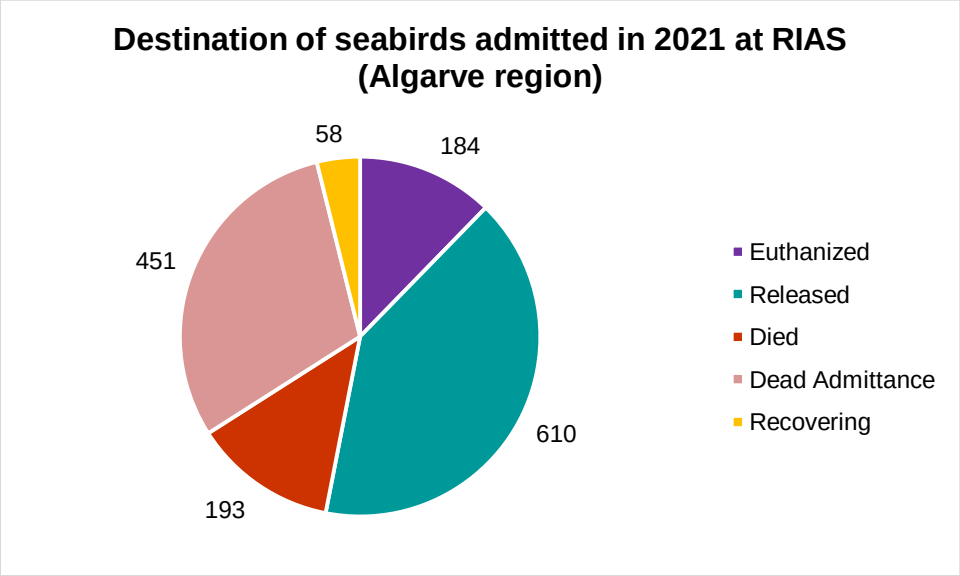


**Chart 3** | Destination of seabirds admitted in 2021 at RIAS (Algarve region).

**Figure 6** | Release back to Nature of a yellow-legged gull.

From Deserta Island, 90 seabirds (68 live and 22 dead) were admitted at RIAS hospital during 2021 (Chart 4). Of the 68 seabirds admitted alive, 5 were euthanized, 9 died within 48h and 3 died within 48h but less than one month of hospitalization. During 2021, from Deserta Island, it was possible to release 51 seabirds to nature, which represents a 75% release rate (2020 release rate was 50%).

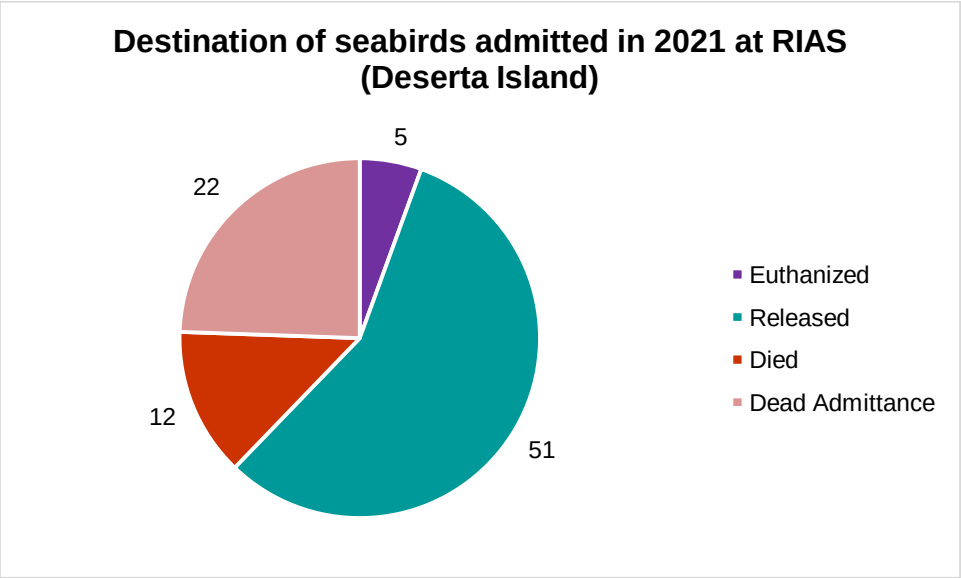


**Chart 4** | Destination of seabirds admitted in 2021 at RIAS (Deserta Island).

Knowing that seabirds - with the exception of gulls - are extremely sensitive when kept in captivity (usually presenting capture myopathy) it becomes important to analyze how long these birds are kept alive in recovery. In 2021, 40% of the Northen Gannets died within 48h and 23% died within 48h but less than one month of hospitalization. Two birds were released to nature and 1 was still in recovery at the end of 2021 and carried over to 2022.

Northen Gannets which died during recovery were necropsied in order to diagnoses the cause and improve the protocols. The lesions found were pale breast muscles and kidney lesions. Samples were taken and sent for anatomophatological analysis. The results were compatible with capture myopathy: adrenal gland hyperplasia, cronic miositis with muscular atrophy and cronic intersticial nefritis.

Durind 2021 all admitted seabirds, except gulls, gannets and cormorants, died during the first few days of hospitalization.

If we analyze the release rates within the order Charadriiformes (Chart 5), we find that the species with the most successful recovery in 2021 was Black-headed Gull (18 birds released) followed by Lesser black-backed Gull (179 birds released), Yellow-Legged Gull (407 birds released) and Mediterranean Gull (2 bird released). The least successful was Audouin's Gull (1 bird released).

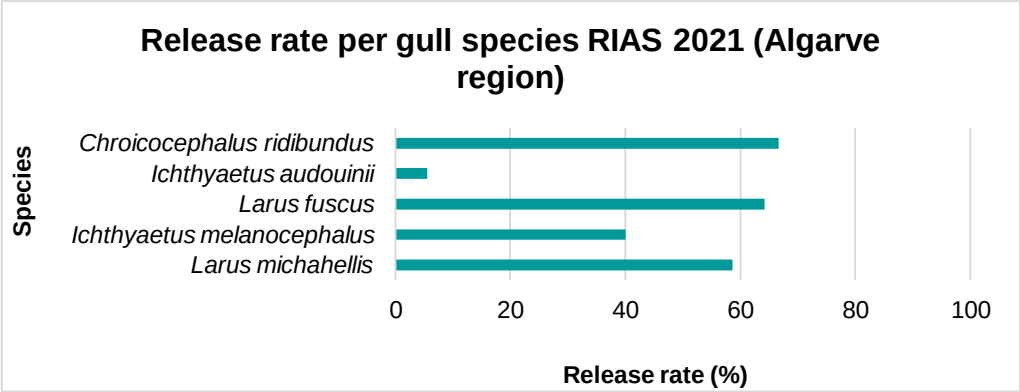


**Chart 5** | Release rates within the order Charadriiformes in 2021 (Algarve region).

## 4.4 Entities envolved

Regarding the entities that delivered seabirds to RIAS during 2021 (Table 5), it was found that 70% of the seabirds collected in the Algarve were delivered by ICNF Park Rangers and 33% by SPEA staff.

**Table 5** | Entities that delivered seabirds to RIAS during 2021 (Algarve region).

| Number of birds delivered per entity (2021) – Algarve region | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Species** | **Animaris** | **Fire Department** | **Councils** | **ICNF** | **General Person** | **Coastal Guard** | **RAALG** | **RIAS** | **SEPNA - GNR** | **SPEA** | **Univ. Coimbra** |
| ***Chroicocephalus Genei*** | | | | | 1 | | | | | | |
| ***Chroicocephalus ridibundus*** | | | 1 | 23 | 6 | 1 | | 1 | | | |
| ***Fratercula artica*** | | | | 1 | | | | | | | |
| ***Ichthyaetus Audouinii*** | 2 | | | 54 | 5 | | | 75 | | 1 | |
| ***Ichthyaetus melanocephalus*** | | | | 4 | 1 | | | | 1 | | |
| ***Larus fuscus*** | | 1 | 2 | 240 | 93 | | 4 | 13 | 2 | 7 | 1 |
| ***Larus michahellis*** | 1 | 2 | 3 | 704 | 127 | | 11 | 13 | 7 | 38 | 11 |
| ***Melanitta nigra*** | | | | | 1 | | | | | | |
| ***Morus bassanus*** | 1 | | | 22 | 6 | | | | 1 | | |
| ***Phalacrocorax carbo*** | | | | 3 | 1 | | | | | | |
| ***Puffinus mauretanicus*** | | | | | | | | | 1 | | |
| ***Sterna sandvicensis*** | | | | 1 | | | | | | | |
| ***Sternula albifrons*** | | | | 1 | | | | | | | 1 |

Regarding the seabirds collected in Deserta Island during 2021 (Table 6), 48% were delivered at RIAS by SPEA staff and 22% by ICNF Park Rangers.

**Table 6** | Entities that delivered seabirds to RIAS during 2021 (Deserta Island).

| Number of birds delivered per entity (2020) – Deserta Island | | | | | | |
|---|---|---|---|---|---|---|
| **Species** | **Animaris** | **ICNF** | **GeneralPerson** | **RAALG** | **SPEA** | **Univ. Coimbra** |
| ***Ichthyaetus audouinii*** | 2 | 1 | 1 | | 1 | |
| ***Larus fuscus*** | | 5 | | 1 | 7 | 1 |
| ***Larus michahellis*** | 1 | 14 | 1 | 7 | 35 | 11 |
| ***Morus bassanus*** | 1 | | | | | |
| ***Sternula albifrons*** | | | | | | 1 |

## 4.5 Geographical origin

In 2021, most of the seabirds received in RIAS came from 4 municipalities in the Algarve region (Table 7): Portimão (24%), Faro (20%), Loulé (14%) and Albufeira (10%).

Birds collected at Desert Island (Faro) represent 6% of the annual total received at RIAS in 2021.

**Table 7** | Geographical origin of the seabirds received at RIAS in 2021.

| | **Municipalities** | **Nº of seabirds** |
|---|---|---|
| **Faro** | Albufeira | 156 |
| | Aljezur | 7 |
| | Castro Marim | 7 |
| | Faro | 308 |
| | Lagoa | 107 |
| | Lagos | 118 |
| | Loulé | 213 |
| | Olhão | 97 |
| | Portimão | 366 |
| | Silves | 72 |
| | Tavira | 14 |
| | Vila do Bispo | 12 |
| | Vila Real de Santo António | 19 |

# REFERENCES

RIAS (2020). Centro de Recuperação e Investigação de Animais Selvagens (RIAS) – Relatório de Actividades 2020. Olhão

RIAS (2021). Centro de Recuperação e Investigação de Animais Selvagens (RIAS) – Relatório de Actividades 2021. Olhão