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

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

Project LIFE Ilhas Barreira

RIAS/ALDEIA – Centro de Recuperação e Investigação de Animais Selvagens

RIAS/ALDEIA project coordination
Fábia Azevedo

Technical / scientific team
María Casero, Vera Marques

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Summary / Resumo

This report describes the results obtained at RIAS in 2020 regarding the reception and treatment of injured or weakened seabirds from the Algarve region.
Between January 1st and December 31th 2020, 1908 seabirds (1291 live and 617 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 (57%), followed by Lesser black-backed Gull (27%) and Audouin's Gull (12%).
The main causes of admittance of seabirds at RIAS hospital was "Paretic Syndrome" with 78% of the animals, trauma of unknown origin with 11% of the individuals and orphan situations with 3%.
During 2020 it was possible to release to nature 750 seabirds, which represents a 58% release rate.
As planned in the project, infrastructure improvements have begun at the center in order to be able to respond properly to current requirements.

Este relatório descreve os resultados obtidos no RIAS em 2020 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 2020 foram recebidas no RIAS 1908 aves marinhas (1291 vivas e 617 mortas).
As espécies mais comuns foram gaivota-de-patas-amarelas (57%), gaivota-d'asa-escura (27%) e gaivota-de-Audouin (12%).
As principais causas de ingresso de aves marinhas no RIAS em 2020 foram "Síndrome Parético" com 78% dos casos, trauma de origem desconhecida em 11% dos casos e órfãos em 3%.
Ao longo de 2020 foi possível devolver à natureza 750 aves marinhas recuperadas o que representa uma taxa de libertação de 58%.
Como previsto no projeto, iniciaram-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), identified a 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 globalscale 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 2020 a new container house was installed to improve the necropsy lab (Fig. 1). Also a desktop and a freezer were bought to improve the work.

Figure 1 | Necropsy Lab in the container house.

Despite not being foreseen in the project, and due to the change of location of the necropsy room, we managed to create a new intensive care room (Fig. 2) for birds in critical condition and more sensitive species, thus expanding our response capacity and improving the conditions for the recovery of the project's target species.

Most of the rehabilitation facilities were upgraded on time, except the pool and filters installation for seabirds recovery. This delay was due to the inhability of pool technicians to respond to our requests during the pandemic. We expect to finish this action during February 2021.

Figure 2 | New intensive care room for birds in critical condition and more sensitive species.

4| Seabirds admittances at RIAS

Between January 1st and December 31th 2020 RIAS received a total of 3168 animals (2317 live and 851 dead). Of these, 1908 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 admittances at RIAS hospital during 2020, always giving special emphasis to birds coming from Desert Island.

4.1 Species

During 2020 the most common seabird species admitted at RIAS hospital from Algarve region were gulls (Table 1). Yellow-Legged Gull was the most common species (57%), followed by Lesser black-backed Gull (27%) and Audouins Gull (Fig. 3; 12%).

Most of the birds from the Algarve region were admitted alive (68%).

Figure 3 | Audouin Gull in recovery.

	Algarve Region	
Species	**Alive admittance**	**Dead admittance**
Sterna sandvicensis	0	1
Stercorarius skua	2	0
Puffinus puffinus	1	0
Phalacrocorax carbo	1	2
Morus bassanus	27	10
Larus michahellis	821	263
Larus melanocephalus	1	0
Larus fuscus	396	115
Larus audouinii	19	216
Hydrobates pelagicus	1	0
Gavia immer	0	1
Chroicocephalus ridibundus	22	8
Calonectris diomedea	0	1
TOTAL	**1291**	**617**

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

From Deserta Island, the most common seabird species were also gulls (Table 2): 62% Yellow-Legged Gull, 18% Lesser black-backed Gull and 17% Audouin's Gull. Northen Gannet and Black-headed Gull were also admitted in smaller numbers (2% e 1% respectively).

Most of the birds from Deserta Island were admitted dead (62%) at RIAS hospital.

	Deserta Island	
Species	**Alive admittance**	**Dead admittance**
Chroicocephalus ridibundus	1	0
Larus audouinii	7	8
Larus fuscus	7	9
Larus michahellis	19	37
Morus bassanus	0	2

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

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. 4) and the monthly distribution of admittances (Chart 1) reflects the highly seasonal pattern of this pathology, that 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 2020.

Figure 4 | Yellow-legged gull showing symptoms of Paretic Syndrome.

The maximums observed in July and August refer to the admittance of dead Audouin Gulls. Necropsies were done and all the gulls were cachectic and presented kidney lesions. Samples were taken for analysis but to date the results are not known.

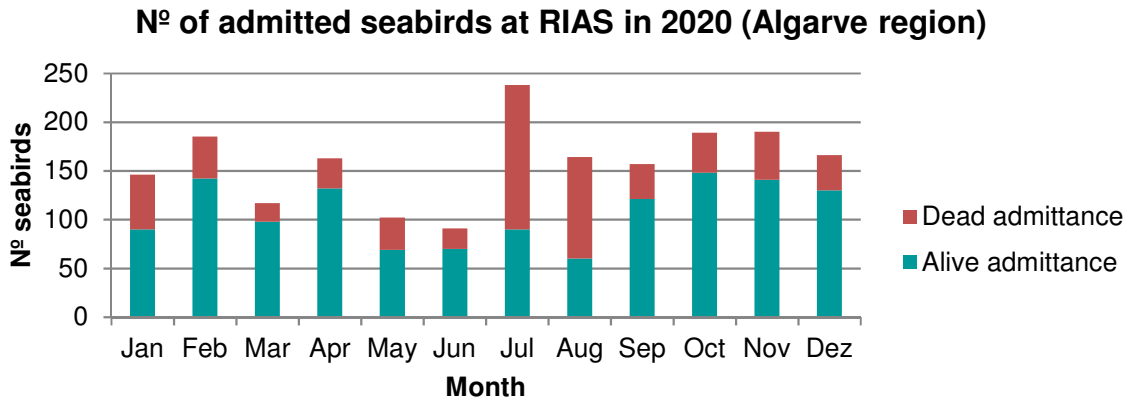

Chart 1 | Monthly distribution of admittances of seabirds at RIAS in 2020 (Algarve region).

Analyzing the deliveries from Deserta Island (Chart 2), there is a maximum in the month of January, coinciding with the beginning of the fieldwork of the LIFE Barrier Islands Project, and a greater effort was made to collect dead birds to determine the causes of mortality.
The maximum in July corresponds to the end of the nesting season, when weakened juvenile birds or birds that did not survive were collected.
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.

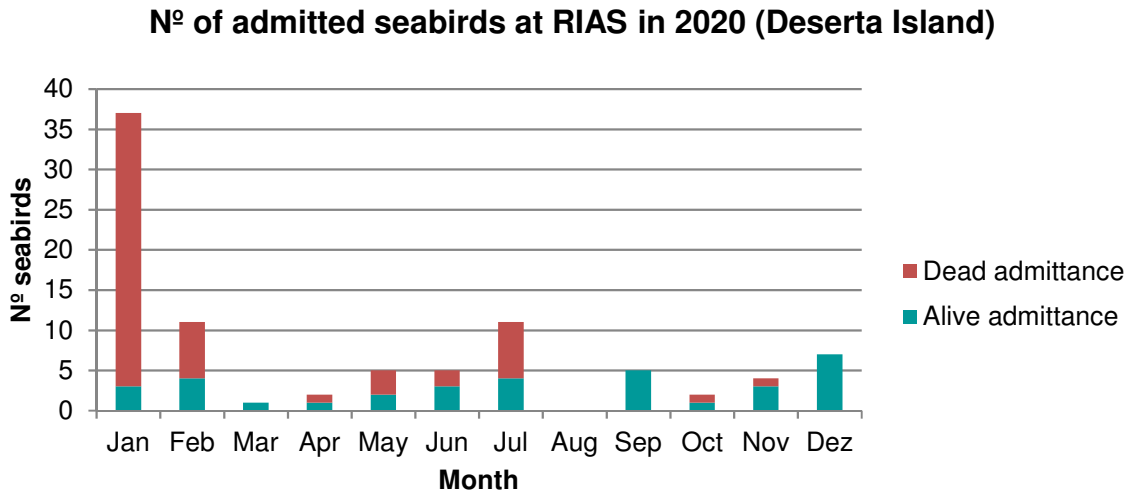

Chart 2 | Monthly distribution of admittances of seabirds at RIAS in 2020 (Deserta Island).

4.2 Admittance causes

In 2020 the main cause of admittance of seabirds at RIAS hospital was "Paretic Syndrome" with 78% 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 2020 was trauma of unknown origin with 11% of the individuals and orphan situations with 3%. The 3 most common causes of admittance were found to represent 92% of all arrivals.

	Algarve Region
Admittance cause	**Number of admittances**
Run over by car	14
Accidental Capture	1
Weakness/ malnutrition	31
Unknown	40
Illness	10
Oiled	1
Predation	1
Orphan	49
Fishingnet / Hook	41
Paretic syndrome	1497
Shot	7
Trauma	216

Table 3 | Causes of admittance of seabirds at RIAS in 2020 (Algarve region).

Regarding admittances from Deserta Island, in 2020 the main cause of admittance of seabirds at RIAS hospital was also "Paretic Syndrome" with 58% of the animals (Table 4). The second most relevant cause of admittance with 34% of the individuals was "Unknown Cause" as they were corpses collected in an advanced state of decomposition, and it was impossible to determine the cause of death.

	Deserta Island
Admittance cause	**Number of admittances**
Weakness/ malnutrition	1
Unknown	31
Illness	2
Oiled	1
Fishingnet / Hook	1
Paretic syndrome	52
Trauma	2

Table 4 | Causes of admittance of seabirds at RIAS in 2020 (Deserta Island).

4.3 Destination

Between January 1st and December 31th of 2020, 1908 seabirds (1291 live and 617 dead) were admitted at RIAS hospital from Algarve region (Chart 3). Of the 1291 seabirds admitted alive, 218 were euthanized, 177 died within 48h, 62 died within 48h but less than one month, and 8 died after the first month of hospitalization. One animal was transferred to another rescue center and 75 were still in recovery at the end of 2020 and carried over to 2021. During 2020 it was possible to release 750 seabirds to nature (Fig. 5), which represents a 58% release rate.

Figure 5 | Release back to Nature of a yellow-legged gull.

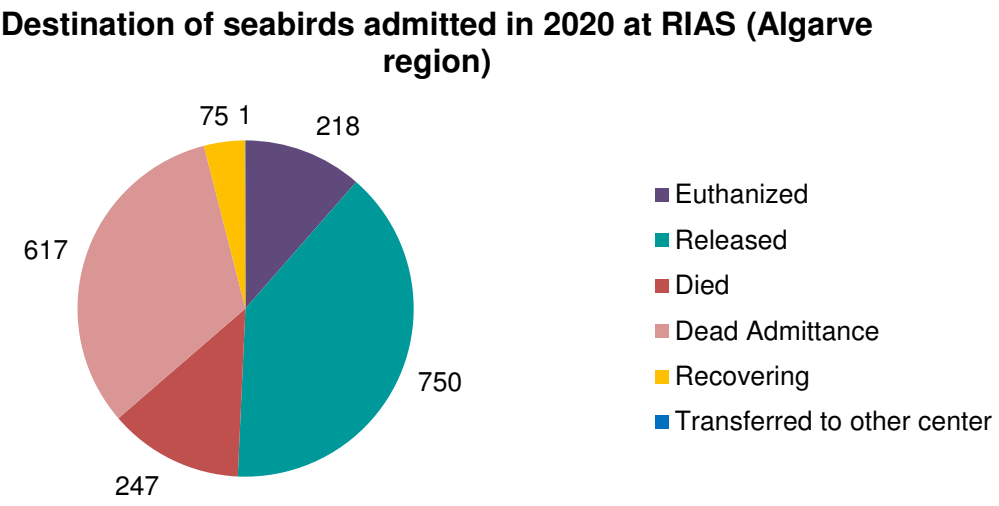

Chart 3 | Destination of seabirds admitted in 2020 at RIAS (Algarve region).

From Deserta Island, 90 seabirds (34 live and 56 dead) were admitted at RIAS hospital during 2020 (Chart 4). Of the 34 seabirds admitted alive, 4 were euthanized, 7 died within 48h and 2 died within 48h but less than one month of hospitalization. Four animals were still in recovery at the end of 2020 and carried over to 2021. During 2020, from Deserta Island, it was possible to release 17 seabirds to nature, which represents a 50% release rate.

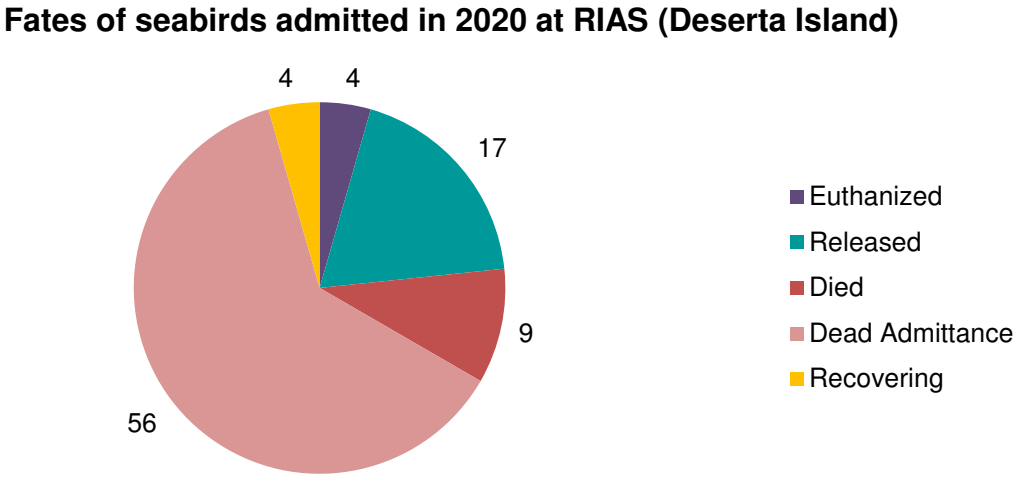

Chart 4 | Destination of seabirds admitted in 2020 at RIAS (Deserta Island).

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 2020, 44% of the Northen Gannets died within 48h and 30% died within 48h but less than one month of hospitalization. One individual was transferred to another recovery center in northern Portugal (CRAM-Ecomare) so that it could complete the recovery process.

Durind 2020 all admitted seabirds, except gulls, 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 2020 was Mediterranean Gull (1 bird released), followed by Yellow-Legged Gull (516 birds released), Lesser black-backed Gull (226 birds released) and Black-headed Gull (6 birds released). The least successful was Audouin's Gull (1 bird released).

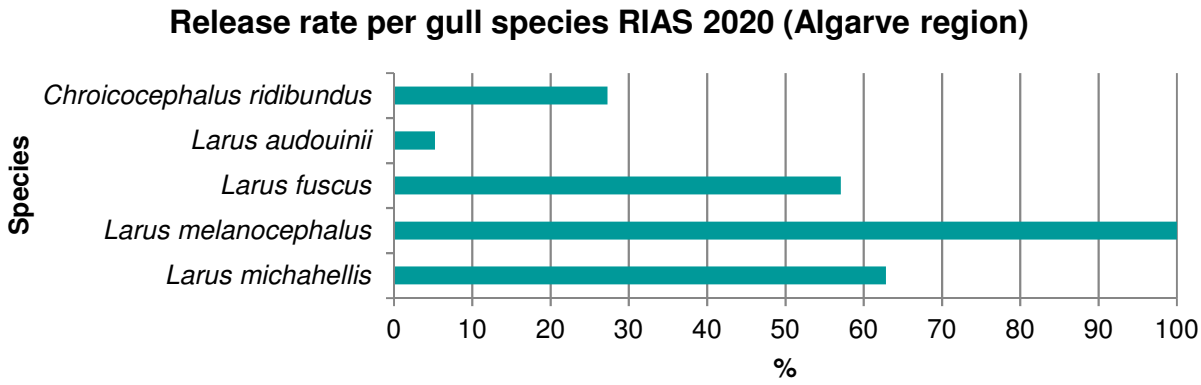

Chart 5 | Release rates within the order Charadriiformes in 2020 (Algarve region).

4.4 Entities envolved

Regarding the entities that delivered seabirds to RIAS during 2020 (Table 5), it was found that 77% of the seabirds collected in the Algarve were delivered by ICNF Park Rangers and 16% by general people.

Table 5 | Entities that delivered seabirds to RIAS during 2020 (Algarve region).

Species	Number of birds delivered per entity (2020) – Algarve region									
	Fire Department	Councils	Gesar	ICNF	General Person	RIAS	SEPNA - GNR	SPEA	UAlg - CCMAR	Univ. Coimbra
Calonectris diomedea				1						
Chroicocephalus ridibundus				23	6	1				
Gavia immer					1					
Hydrobates pelagicus					1					
Larus audouinii	1			222	2	7	1	1	1	
Larus fuscus	1	1	2	349	121	20	13	2	2	
Larus melanocephalus						1				
Larus michahellis	1	2	1	847	181	28	15	8		1
Morus bassanus				27	9		1			
Phalacrocorax carbo				2		1				
Puffinus puffinus				1						
Stercorarius skua				2						
Sterna sandvicensis				1						

Regarding the seabirds collected in Deserta Island during 2020 (Table 6), 79% were delivered at RIAS by ICNF Park Rangers and 12% by SPEA staff.

	Number of birds delivered per entity (2020) – Deserta Island				
Species	**ICNF**	**RIAS**	**SPEA**	**UAlg - CCMAR**	**Univ. Coimbra**
Chroicocephalus ridibundus	1				
Larus audouinii	13		1	1	
Larus fuscus	11	1	2	2	
Larus michahellis	44	3	8		1
Morus bassanus	2				

Table 6 | Entities that delivered seabirds to RIAS during 2020 (Deserta Island).

4.5 Geographical origin

In 2020, most of the seabirds received in RIAS came from 4 municipalities in the Algarve region (Table 7): Portimão (26%), Faro (23%), Loulé (16%) and Albufeira (13%).

Birds collected at Desert Island (Faro) represent 5% of the annual total received at RIAS in 2020.

District	Municipalities	Nº of seabirds
Faro	Albufeira	249
	Aljezur	5
	Castro Marim	15
	Faro	432
	Lagoa	66
	Lagos	129
	Loulé	311
	Olhão	118
	Portimão	490
	São Brás de Alportel	2
	Silves	50
	Tavira	15
	Vila do Bispo	10
	Vila Real de Santo António	15

Table 7 | Geographical origin of the seabirds received at RIAS in 2020.

REFERENCES

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