



Co-financed by the European Commission's LIFE instrument



## PROJECT LIFE MADEIRA MONK SEAL

### LAYMAN'S REPORT

LIFE13 NAT/ES/000974

Mediterranean monk seal conservation in Madeira and development of a conservation status surveillance system



# LIFE MADEIRA MONK SEAL

Layman's Report

LIFE13 NAT/ES/000974

*"Mediterranean monk seal conservation in Madeira and development of a conservation status surveillance system"*

## Project Designation

LIFE Madeira Monk Seal

## Executive Coordination

Pablo Fernández de Larrinoa (Fundación CBD-HABITAT)

## Project Management

Rosa Pires (IFCN, IP-RAM)

## Coordinating Beneficiary

Fundación CBD-HABITAT

## Associate Beneficiaries

Instituto das Florestas e Conservação da Natureza, IP-RAM  
Secretaria Regional de Ambiente e Recursos Naturais e Alterações Climáticas

## Country – region

Portugal – Madeira

## Project duration:

June 1<sup>st</sup> 2014 to December 31<sup>st</sup> 2019

## Total budget

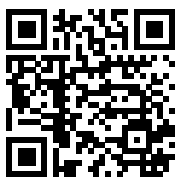
1.143.364 €

## EC financing

670.808 € (58,7%)

## Website

<https://www.lifemadeiramonkseal.com>





# THE LIFE MADEIRA MONK SEAL PROJECT

Presenting the LIFE13 NAT/ES/000974 project: "Mediterranean monk seal conservation in Madeira and development of a conservation status surveillance system".

In this document, we will tell you about the adventure of carrying out an ambitious project to save the world's rarest and most endangered seal species, iconic in the island of Madeira: the Mediterranean monk seal (*Monachus monachus*), or "lobo-marinho" as it is commonly called in the Madeira archipelago.

## Will you join us?

To save one of the world's most extraordinary animals,  
in one of the most beautiful islands on the planet



## BENEFICIARIES



Secretaria Regional  
**de Ambiente, Recursos Naturais  
e Alterações Climáticas**



The Fundación CBD-HABITAT and the Instituto das Florestas e Conservação da Natureza (IFCN, IP-RAM) are the project's main executors. The former is an international private entity, specializing in the conservation of endangered species, with over 20 years' experience protecting and studying the monk seal in Cabo Blanco (Mauritania). The latter is the Regional Government of Madeira, via the Secretaria Regional do Ambiente e Recursos Naturais e Alterações Climáticas,

responsible for nature conservation and continuing the monk seal conservation work initiated in 1988 by the defunct Service of the National Park of Madeira. It should be noted that these entities have been working together for more than 20 years under the CMS/UNEP Action Plan for the Conservation of the Monk Seal in the Eastern Atlantic.



# THE MONK SEAL



adult male



adult female



subadult



juvenile



pup



youngster

The monk seal is, possibly, one of the world's most beautiful animals. It is also an extraordinary animal, different from other seals in that it lives in temperate waters, it is the only species of this genus and it is the most primitive of all pinnipeds.

**They are big (males can weigh over 300 kilos!). They do not usually live past 22 years of age and they are sociable (although males can be quite territorial).**

## PAST IN MADEIRA

When Madeira was discovered, precisely 600 years ago, these seals were its main inhabitants. However, due to their fat and exceptional "leather", in those times, they were highly valued and a colony of monk seals was worth its weight in gold. So, they were hunted to the brink of extinction and, in the 20th century, their interaction with fishing gear was their worst enemy. Only a few animals were able to survive, in the hiddenness of caves in the Desertas Islands.

**In 1988, when monk seal conservation work began in the Desertas Islands, only 6 specimens were estimated to remain. The region's most emblematic species was about to disappear forever!**

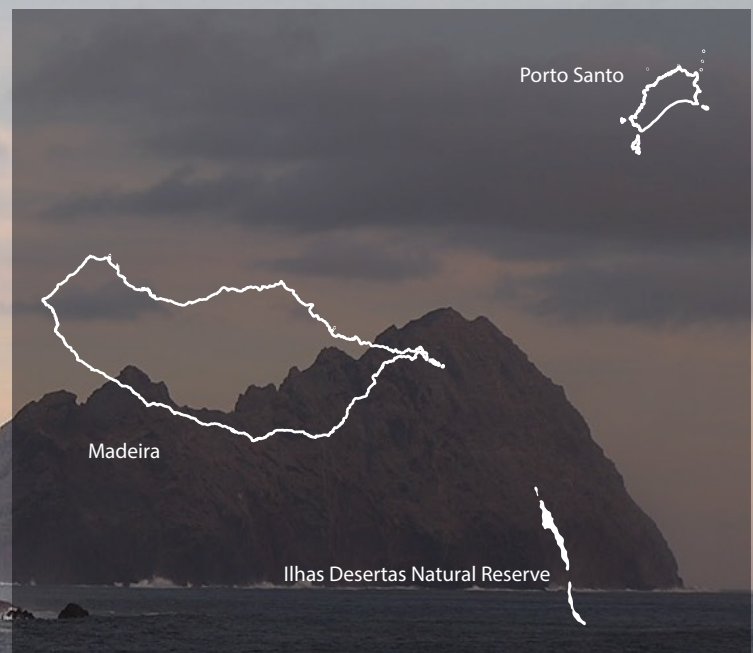
Thus, in 1990, the Desertas Islands Nature Reserve was created, with the primary purpose of protecting this species.



This species has followed a similar path throughout the entire world. There are fewer than 700 individuals comprising the remaining colonies between the Eastern Mediterranean and the Atlantic.

Despite this species being highly endangered and difficult to observe, the people of Madeira have always appreciated their "lobos-marinhos". Monk seals are a distinctive element and a symbol of their identity, as you can see on the coat of arms of the Autonomous Region of Madeira.

**One of the world's most beautiful animals is also one of the most endangered**





## MAIN OBJECTIVES

The LIFE Madeira Monk Seal project's main goals have been the following:

- 1. To design a monitoring system that makes it possible to know whether their conservation status will improve or worsen over time.**  
*Therefore, to know how many monk seals there are, where they live, where they feed and what kind of problems they face.*
- 2. To develop an Action Plan for the Conservation of the Monk Seal in the Madeira Archipelago, making it possible to improve their situation.**  
*An Action Plan identifies the main threats to a population or species and sets out the necessary measures to reduce or eliminate those threats.*
- 3. To test the application of non-invasive methodologies previously developed for other larger populations.**  
*The methodologies were previously developed for the world's largest monk seal population, in Mauritania. It was sought to demonstrate that they would also be effective on a smaller population, such as Madeira's.*
- 4. To overcome already known obstacles to the conservation of the monk seal in Madeira.**  
*To improve the protection of the caves used by the monk seal, to reduce disturbances caused by tourists and private persons, to raise awareness and participation among the local population, etc. have all been challenges towards which the project has made an effective contribution.*

This project was limited solely to the islands of Madeira and Desertas, places inhabited by the monk seal almost exclusively.



Fotália and her pup



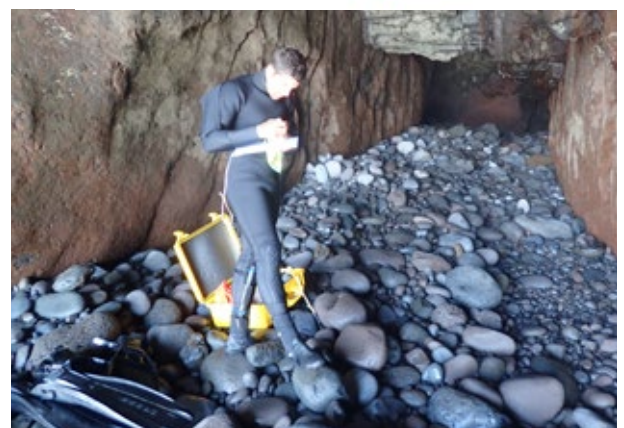
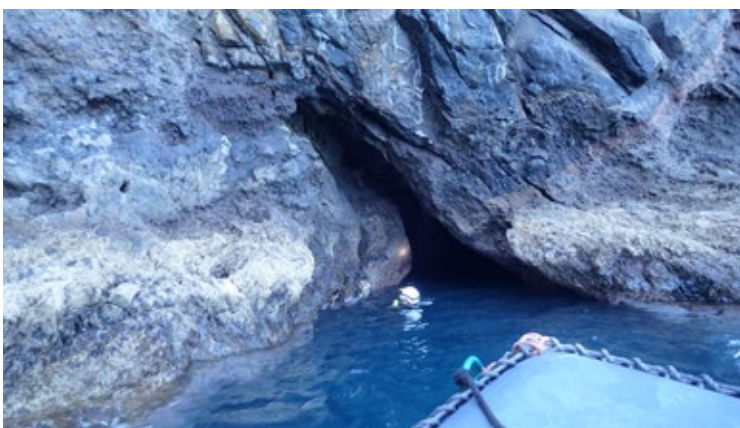
# MARKING CAVES OF INTEREST TO THE MONK SEAL IN MADEIRA AND THE DESERTAS

Schematic of a charted cave

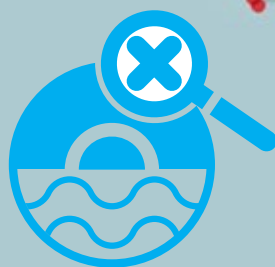
The entire coast of the Madeira island (153 km) and the Desertas islands (37 km) was covered to find every existing cave, submerged or unsubmerged.

Those caves that were sheltered from sea disturbance and had an inner beach, were considered of interest to the monk seal for resting and/or breeding.

**141 cavities were located. Out of those, 26 were of interest to the monk seal.**



Cavities located in the archipelago







Marking caves of interest  
to the monk seal  
in Madeira  
and the Desertas



Watch this video



# AUTONOMOUS SURVEILLANCE AND MONITORING SYSTEMS

In the caves of interest to the monk seal, permanent monitoring systems were installed, which had been designed to withstand potentially extreme maritime conditions, as well as the darkness in those spaces. These systems collect photographs once an hour, making it possible to know whether or not the monk seal is using the caves throughout each day, as well as to individually identify the specimens.

**More than 500,000 pictures were taken, over 10,000 of which showing monk seals, which has made it possible to characterize the population in its onshore habitat.**

Using these systems, the threats to this sensitive habitat were also identified, such as human disturbance and the accumulation of marine litter.



**34**

monitoring systems manufactured



**18**

caves with tracking systems set up



**10**

caves used by the monk seals



**325.000**

hours of cave surveillance and monitoring



**2**

breeding spots detected

Watch this video



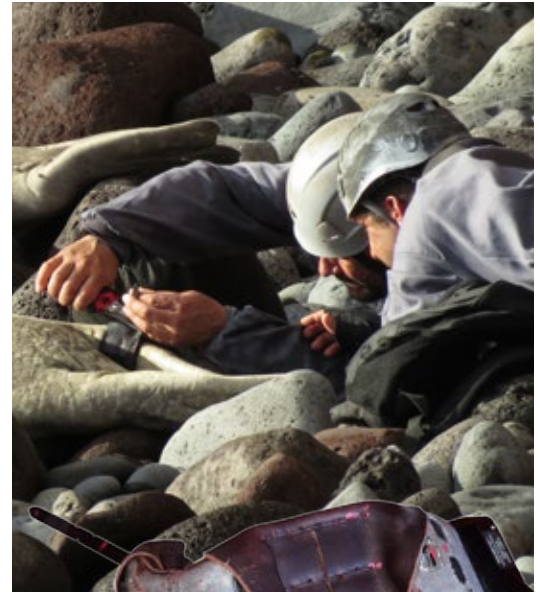


# SATELLITE TRACKING SYSTEMS

To non-invasively tag the seals with a GPS system, handmade bracelets were placed on the specimens' rear flippers while they slept.

4 adult specimens were marked with 5 satellite tracking systems.

**They mainly feed along the shoreline and seldom dive deeper than 200 meters.**



**7**

handmade bracelets



**5**

bracelets placed



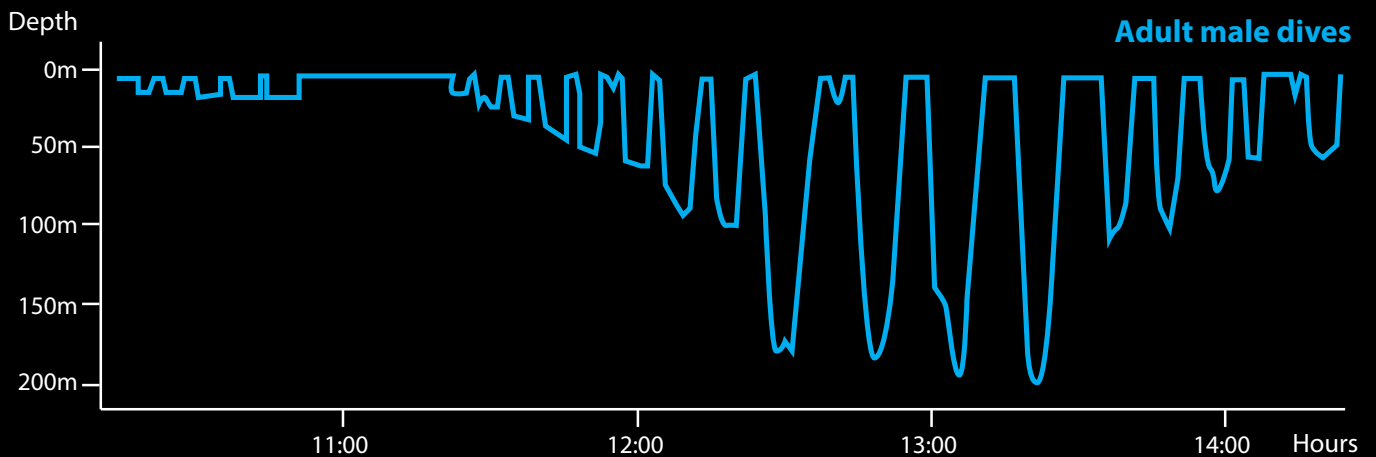
**291**

days of GPS tracking



**1115**

days of diving tracking





# SOS MONK SEAL NETWORK AND INTERVENTION PATROLS

The SOS Monk Seal Network was created and promoted, with the following objectives:

- To get the Madeiran community involved in the monk seal conservation work;
- To log as many sightings of monk seals in the region as possible;
- To inform people about the appropriate behavior whenever encountering a wild animal, in order to safeguard both the animal's well-being and the human's safety;
- To effectively respond to monk seal emergency or life-threatening situations.

# REDE SOS LOBO MARINHO




Towards that end, elements were formed within the National Republican Guard, Municipal and Volunteer Firefighters, Madeira Maritime Zone Command, Municipal Councils, among other entities, to ensure a coordinated and effective response to any occurrences involving monk seals.

When anything representing a problem to a monk seal is detected, an intervention takes place to protect and monitor the animal. More than 30 such interventions have already been carried out.



17  
sea tourism companies participating



11  
diving clubs participating

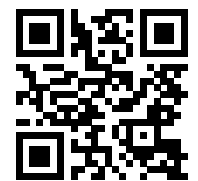


30  
public entities participating

More than 600 warnings and notifications have been received.

Everyone's participation is essential to the proper functioning of the SOS Monk Seal Network. Participate!

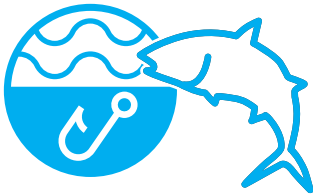
Watch this video





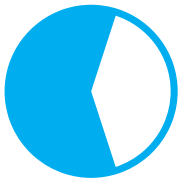
# OBSERVING MADEIRA'S FISHING FLEET

To determine the fishing industry's attitude towards the monk seal, as well as to which degree fishing zones overlap with these seals' maritime habitat, a sociological study aimed at the fishermen was carried out based on questionnaires and observation on board fishing vessels.



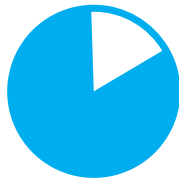
Thus, 98 interviews of fishermen and captains were conducted on 45 vessels.

During observed fishing trips, practically no interactions with monk seals took place. The only two occurrences logged involved traps placed near the coast, overlapping this species' maritime habitat.



60%

fishermen does not know how many seals there are in Madeira



82%

fishermen believe that the seals should be kept safe at reserves



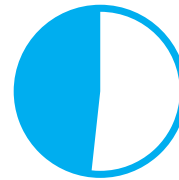
2/3

captains consider monk seals disruptive to fishing



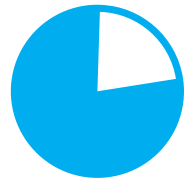
30%

fishermen stated they would not like to see the monk seal population grow



47%

fishermen denied having spotted any seals on fishing events



78%

fishermen say monk seals do not cause any damage



229

fishing trips were observed



22

participating ships



1.670

hours of observation



8.045

kilometers covered

Watch this video

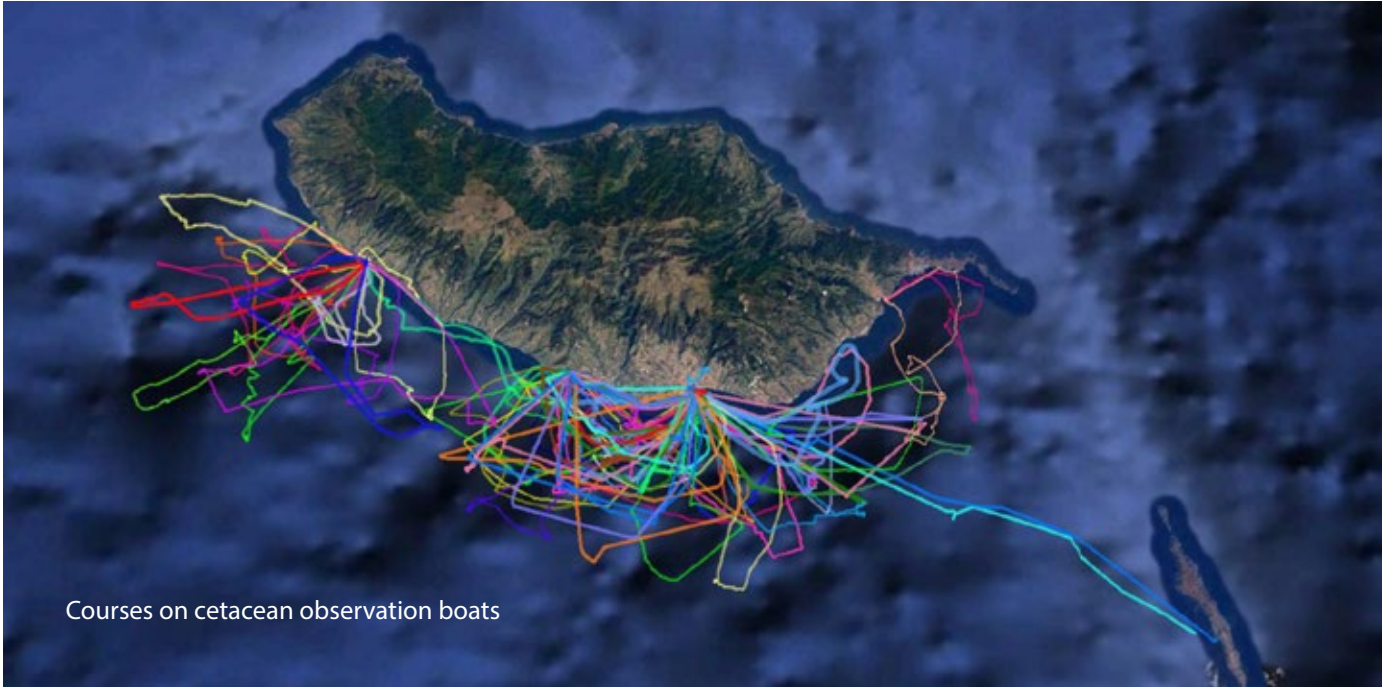




## OBSERVATIONS ON CETACEAN OBSERVATION SHIPS

To determine the level of interaction between sea mammal observation activities and the monk seal, and in compliance with the Regional Legislative Decree No. 15/2013/M, dated May 14th 2013, which regulates this activity in the Autonomous Region of Madeira, 113 sea tourism trips were observed.

**Virtually no interaction with the monk seal was observed. The cetacean observation areas do not overlap with the monk seal's maritime habitat, which is closer to shore.**



Courses on cetacean observation boats





## MARINE LITTER CLEAN-UP IN THE MONK SEAL'S HABITAT

Caves and beaches used or potentially usable by monk seals were cleaned up, removing all of the debris accumulated by the sea over the years.

Several environmental education and awareness actions were carried out, to alert the public to the dangers of marine litter.



**113**

observed trips  
carried out



**26**

participating  
ships



**319**

hours of  
observation



# HOW IS THE MADEIRA MONK SEAL POPULATION?

This seal population inhabits places that are hidden and very difficult to reach, which is why there was no appropriate system to characterize and monitor it. Using the methodologies developed in the other Atlantic population and implemented in this project, it became possible to identify their terrestrial and marine habitat, to determine its demographic condition and to understand which threats it currently faces.

## How many monk seals survive in the Madeira Archipelago?

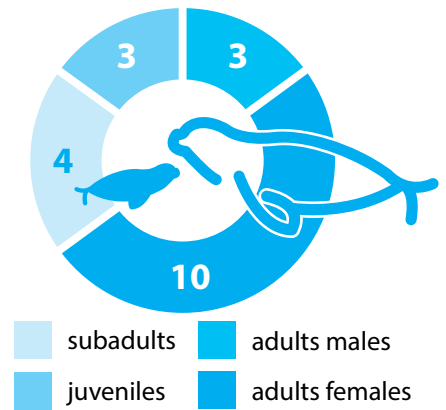
From the 6 surviving individuals in 1988, the population began to steadily recover until it reached 20 individuals (over 1 year of age) in 2018. Despite the increase, it continues to be an extremely vulnerable and endangered population.

**Although this is the world's most endangered seal population, its steady recovery is promising.**

The population is comprised of 10 adult females, 3 adult males, 4 subadults and 3 juveniles.

**Adult females make up half of the population and are the great protagonists that have allowed this species to stay alive so far.**

Composition of the Madeira archipelago monk seal population



4

pups born annually



6

years is female's first reproductive age



50%

of females bear no pups each year



1,8%

annual population growth



62%

pups die during their first year of life



96%

of the animals survive past 1 year of age





## WHERE DO THEY LIVE?

At present, the monk seal population is distributed across Madeira and Desertas Islands (Ilhéu Chão, Deserta Grande e Ilhéu Bugio). In Desertas Islands, 9 caves are used by monk seals. It should be noted that 7 are used solely as resting spots and 2 as breeding spots. Besides these caves, the Tabaqueiro open beach is also commonly used by the breeding females during the reproductive season. In Madeira Island, they only use 2 caves.

**Tabaqueiro beach, along with the two reproduction caves in Desertas, are vital to the monk seal population.**

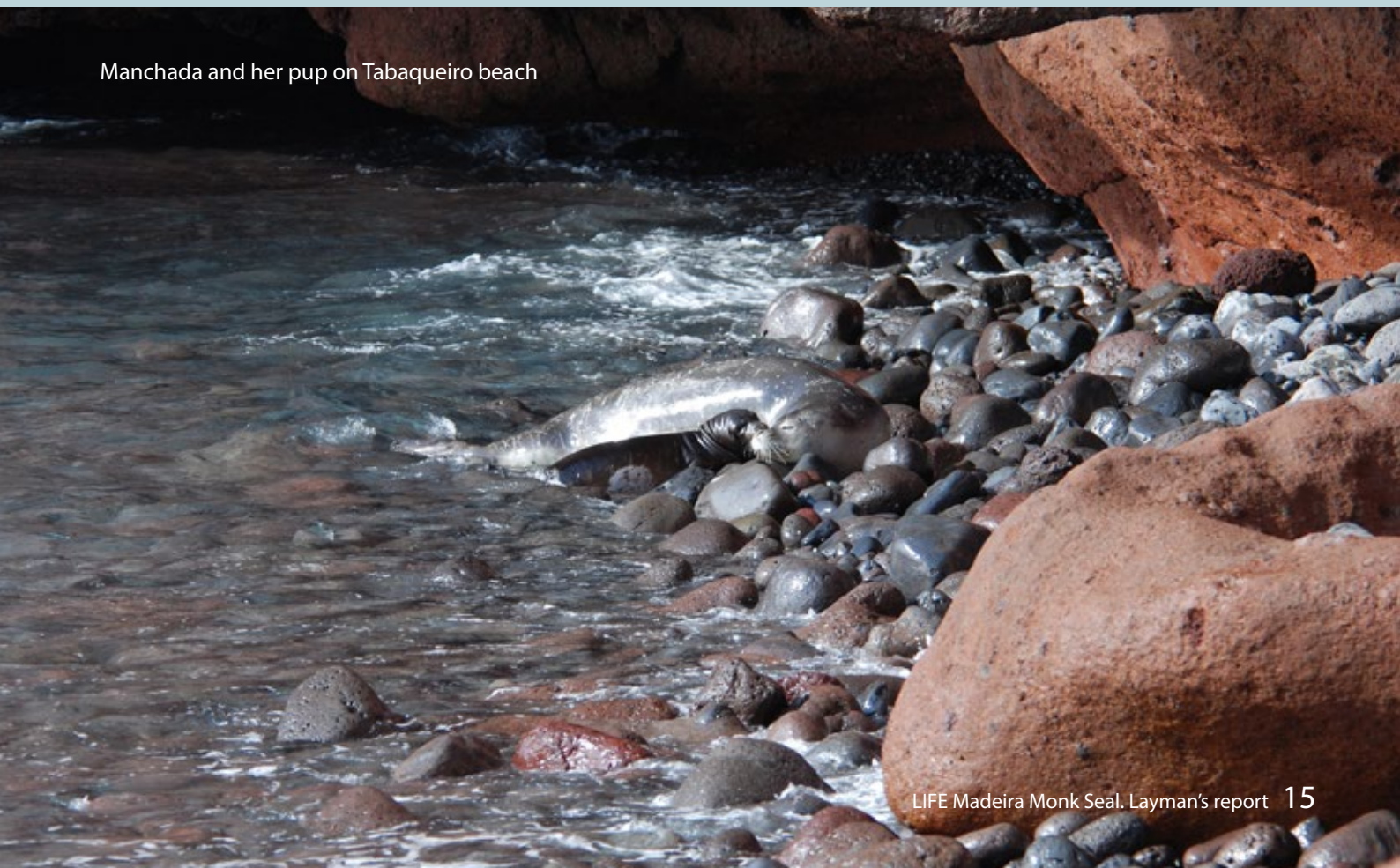


GPS tracking of two adult females

## WHERE DO THEY FEED?

Seals mostly use the marine environment to forage from the shoreline to 200 meters depth.

Manchada and her pup on Tabaqueiro beach





## WHAT ARE THE THREATS?

### INTERACTIONS WITH FISHERIES

Fishing activity has been the monk seal's main cause of death, from the 50s during 20th century. However, measures implemented by the government of Madeira have contributed to make it a less significant threat at present, although their interaction with traps and direct persecution by a small number of people are real current threats.

**Some kinds of fishing equipment, such as traps and direct persecution, represent some of the major threats to this species.**



Juvenile monk seal found dead inside a trap east off Deserta Grande, in the Partial Reserve area

Monk seals trying to get inside traps

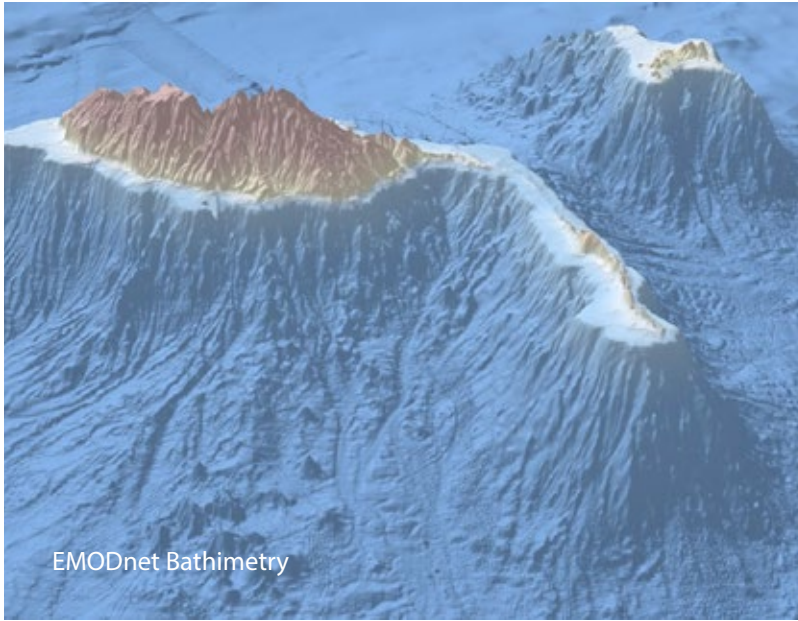




## **DISTURBANCE BY TOURISM AND RECREATION INDUSTRIES**

Nature tourism activities at sea, especially diving and wildlife watching can be a cause of disturbance to the animals if they are not done adequately. The monk seal is a wild animal and it must be watched from a distance.

**If you ever watch a monk seal, keep your distance and enjoy the moment without disturbing it. You will be experiencing a unique and unrepeatable moment.**



## **THE HABITAT IN WHICH THEY TAKE SHELTER IS NOT THEIR OWN**

Before man arrived in Madeira, monk seals used to occupy not only caves, but also open beaches. On the beaches, those seals were exposed to humans and few of them survived. However, the use of caves for breeding makes the pups vulnerable to the most extreme maritime conditions, which translates into a death trap for the newly-born baby seals.

**Half of the pups will die during their first few weeks of life.**

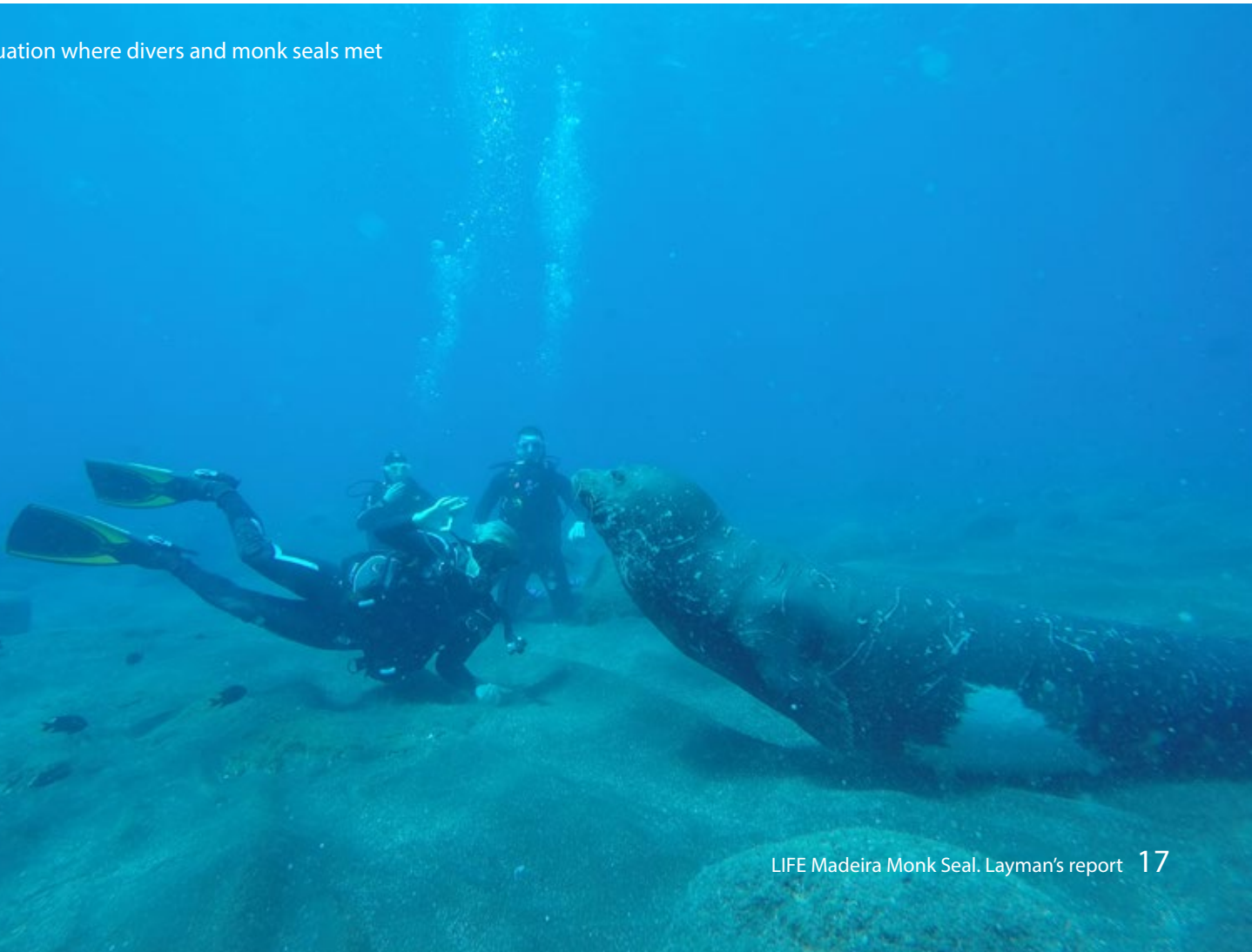
### **SMALL AND POOR FEEDING HABITAT**

The seals feed in shallow waters, without much space on the archipelago's small insular shelf. These are waters of very low fertility, which together with intensive coastal fishing has led to a degradation of the coastal environment's quality, resulting in food scarcity for the seals.

### **FEW ADULT MALES**

There are currently only 3 adult males in Madeira. A reduction in their numbers could jeopardize the population's continuity.

Situation where divers and monk seals met



# PRODUCTS

The methodologies applied in the monitoring of the monk seal have allowed for a more exact knowledge of the monk seal population's conservation status in Madeira. Thus, the LIFE Madeira Monk Seal Project has resulted in 2 products that will be a reference in the coming years towards the conservation of the species.

- **ACTION PLAN FOR MONK SEAL CONSERVATION IN MADEIRA ARCHIPELAGO.**

This plan describes the current state of the species, the current and future threats to the population, and the conservation and protection actions needed to minimize or eliminate those threats. Its main objective is to bring the population to a favorable conservation scenario.

- **PROTOCOL TO SURVEY THE MONK SEAL'S CONSERVATION STATUS AND ITS HABITAT.**

This protocol, based on the aforementioned methodologies, will allow the Regional Government of Madeira to monitor the status of the species and its habitat over time and to report that status to the European Union every 6 years, according to articles 11 and 17 of the Habitats Directive.





## DISSEMINATION

- Website [www.lifemadeiramonkseal.com](http://www.lifemadeiramonkseal.com) with information and up-to-date news on the project.
- Diffusion campaigns launched on the **Facebook** social network and via the IFCN, IP-RAM **Environmental Educational Program**.
- Creation of an **exhibition**, at the Desertas Islands Reception Center, with life-size monk seal models.
- **Thousands of visitors to the Desertas Islands and Ponta de São Lourenço** have had contact with the project, in tours guided by conservation agents.
- More than **300 awareness actions** (traveling exhibitions, lectures and workshops) involving over **8000 students/participants** in Madeira and Porto Santo.
- Participation in **8 international scientific/technical meetings**, organization of **2 workshops**.
- Diffusion of the project via **social media on a regional and national level** (newspapers, radio stations and television) highlighting the article published on National Geographic.
- Diffusion of the project via the **Monaco explorations mission** in Madeira.
- **Informative plaques** referring to the Project were placed on the Desertas Islands, Ponta de São Lourenço and Museu da Baleia.
- **Diffusion Material:** t-shirts, caps, informative roll-ups, posters and magnets.
- Over **10 awareness and marine litter clean-up actions** on Madeira beaches, highlighting the MaRaM campaign, encompassing over **3500 people**.

Download our pets







# MADEIRA MONK SEAL IDENTIFICATION CATALOG







## CATALOG INTRODUCTION

Each of the specimens making up the Madeira archipelago's monk seal population is well known by the technicians who work closely with these animals and is individually identified.

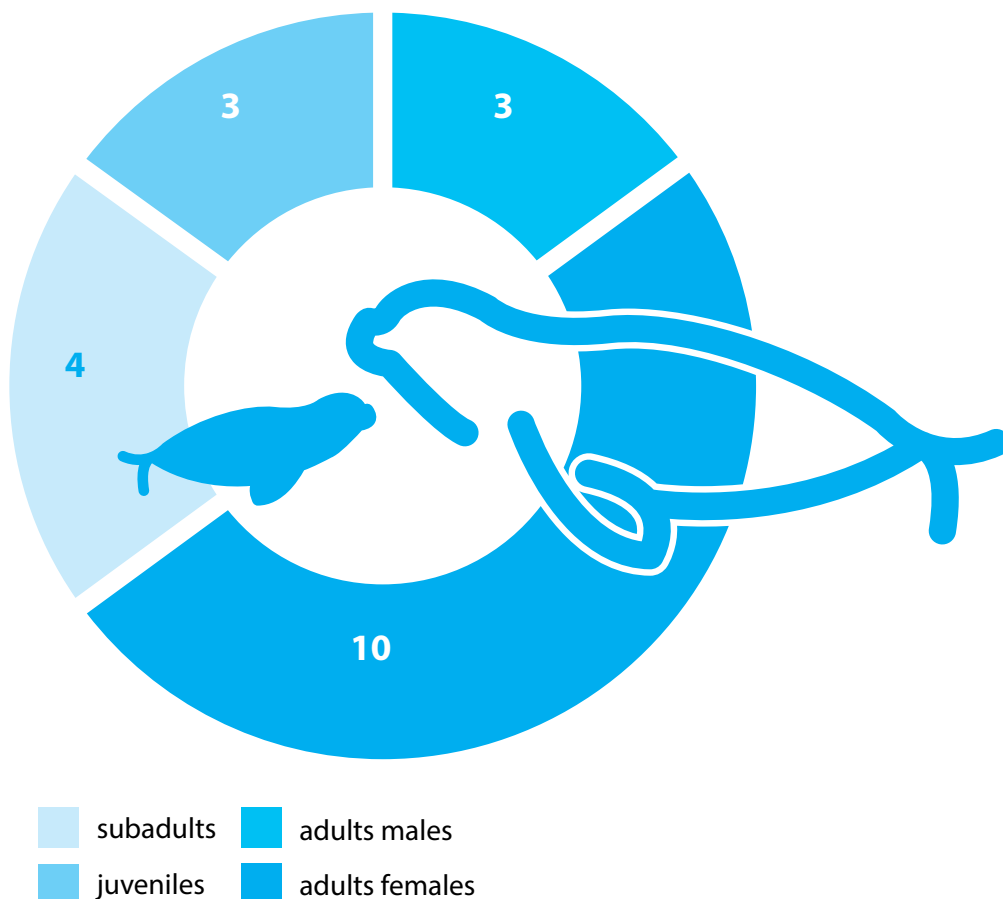
The following is a presentation of the **20 specimens** (over 1 year old) that are being properly monitored, including some data about their life story.

These are difficult animals to observe, since there are so few of them and they mostly use beaches hidden inside caves, and also because encounters at sea are few and far between.

If you are fortunate enough to encounter any of these magnificent animals, do not interfere with its activity and avoid disturbing it. Besides, this is how you can observe their natural behavior.

**If you are able to take any pictures, please, notify Rede SOS Vida Selvagem – 961957545.**

Those pictures are vital to aid in the monitoring of this species.





## Mascarilha

Adult male

Birthdate	Age (2019)	Gender	Mother
2000	19	M	



## São Lourenço

Adult male

Birthdate	Age (2019)	Gender	Mother
2007	12	M	





# Pontinhos

Adult male

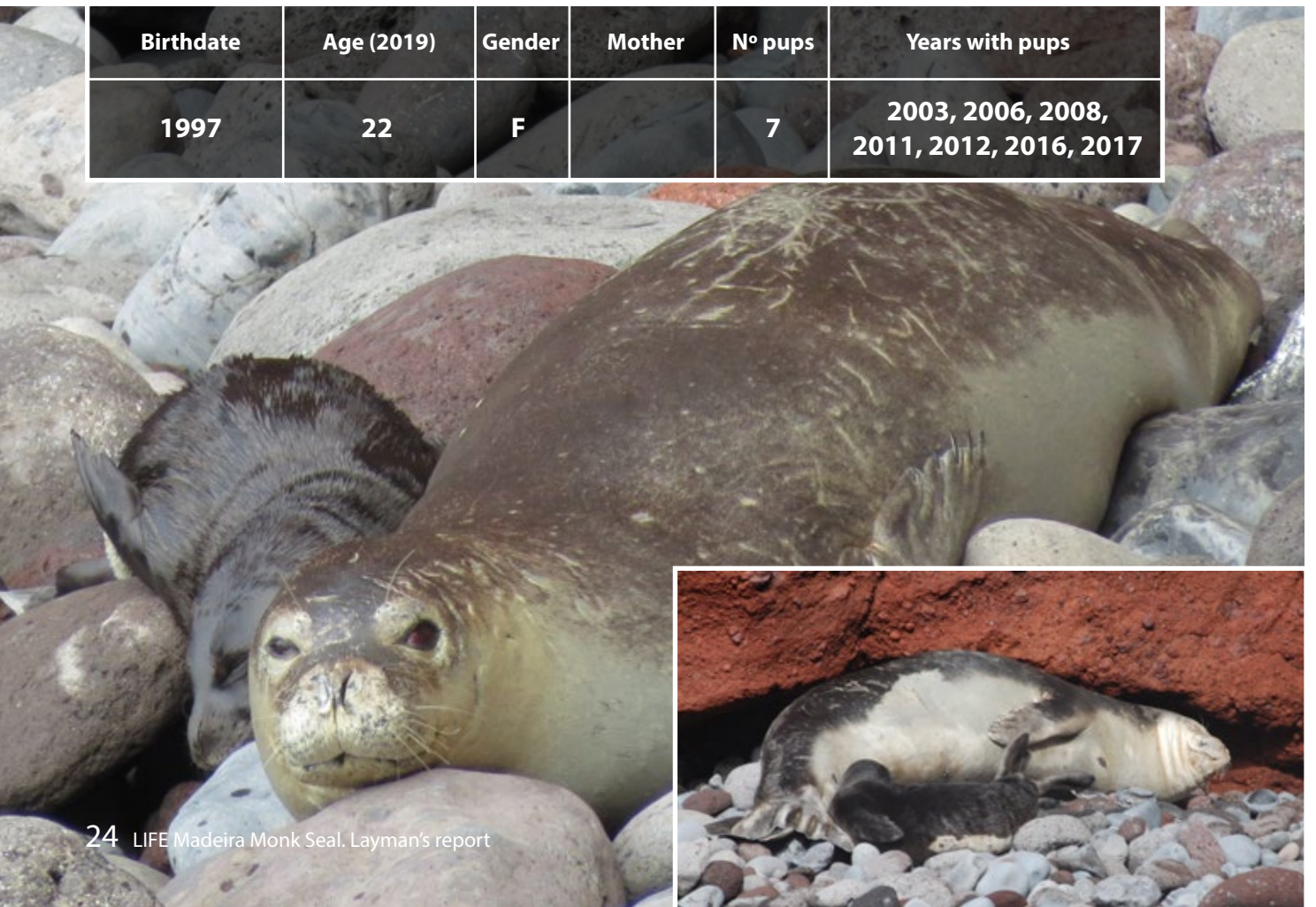
Birthdate	Age (2019)	Gender	Mother
2011	8	M	



# Fêmea Y

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
1997	22	F		7	2003, 2006, 2008, 2011, 2012, 2016, 2017





## Loma

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
1998	21	F		1	2012



## Manchada

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2002	17	F		5	2011, 2012, 2013, 2014, 2015





# Tria

Adult female

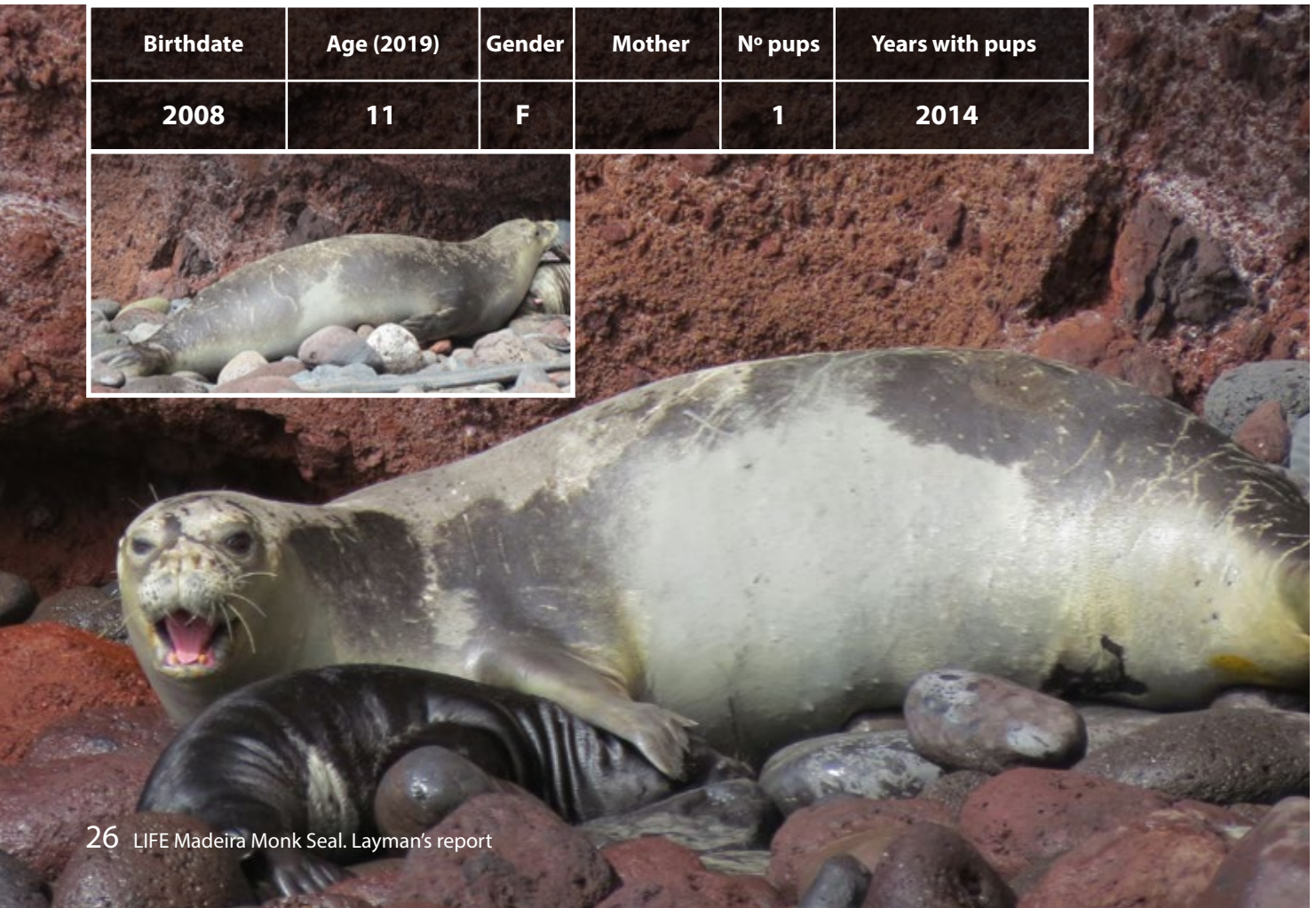
Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2002	17	F		4	2013, 2014, 2016, 2017



# Fotália

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2008	11	F		1	2014





## Mancha Branca

Adult female

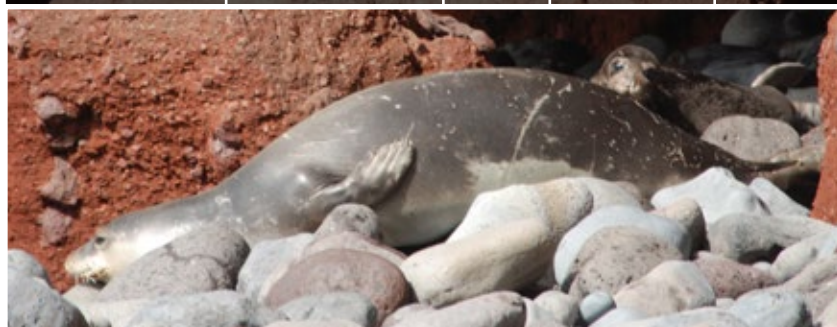
Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2007	12	F		3	2015, 2016, 2017



## Parêntesis

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2008	11	F		3	2014, 2015, 2017





# Maminhas

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2010	9	F		1	2016



# Eva

Adult female

Birthdate	Age (2019)	Gender	Mother	Nº pups	Years with pups
2011	8	F		1	2018

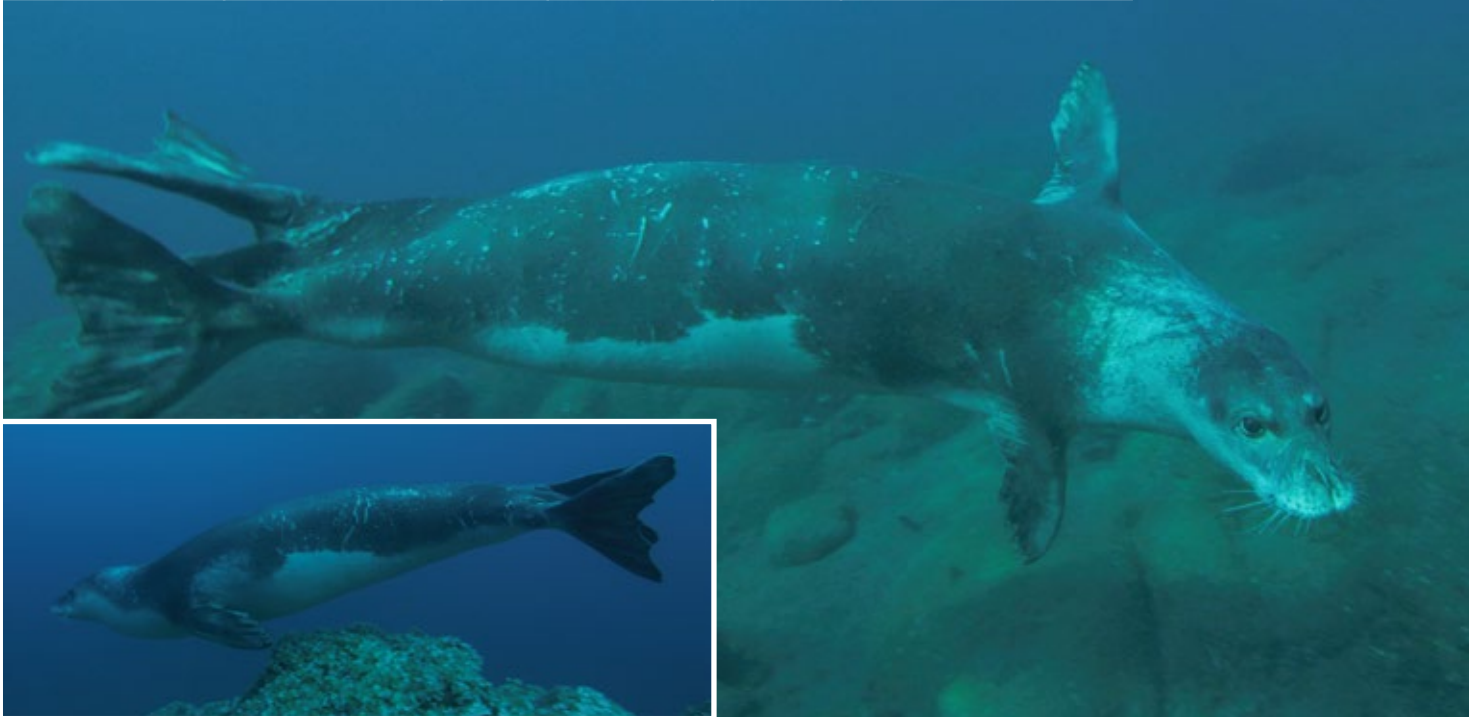




## Birisca II

Adult female

Birthdate	Age (2019)	Gender	Mother	N° pups	Years with pups
2012	7	F	Fêmea Y	0	



## Lira

Inmature

Birthdate	Age (2019)	Gender	Mother
2013	6	F	Manchada





## Subadulto 5

Inmature

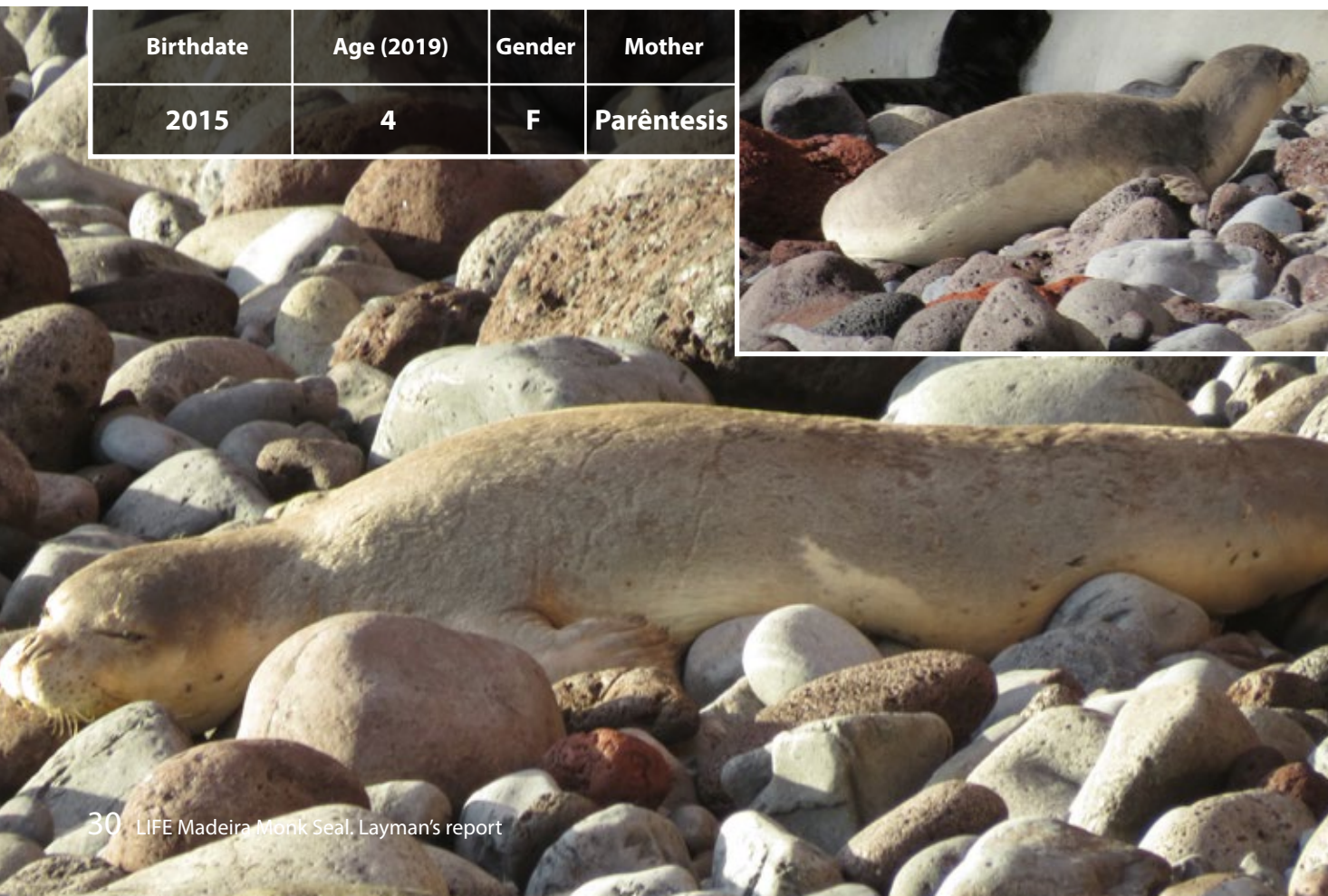
Birthdate	Age (2019)	Gender	Mother
2014	5	F	Tria



## Subadulto 6

Inmature

Birthdate	Age (2019)	Gender	Mother
2015	4	F	Parêntesis

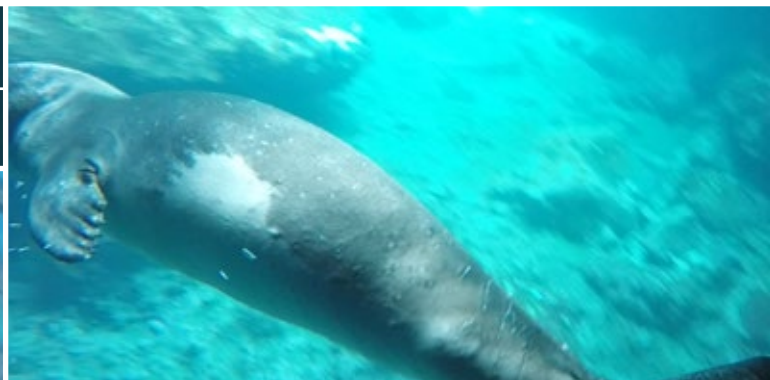




## Subadulto 7

Inmature

Birthdate	Age (2019)	Gender	Mother
2016	3	M	Tria



## Subadulto 8

Juvenile

Birthdate	Age (2019)	Gender	Mother
2017	2	M	Fêmea Y





## Subadulto 9

Juvenile

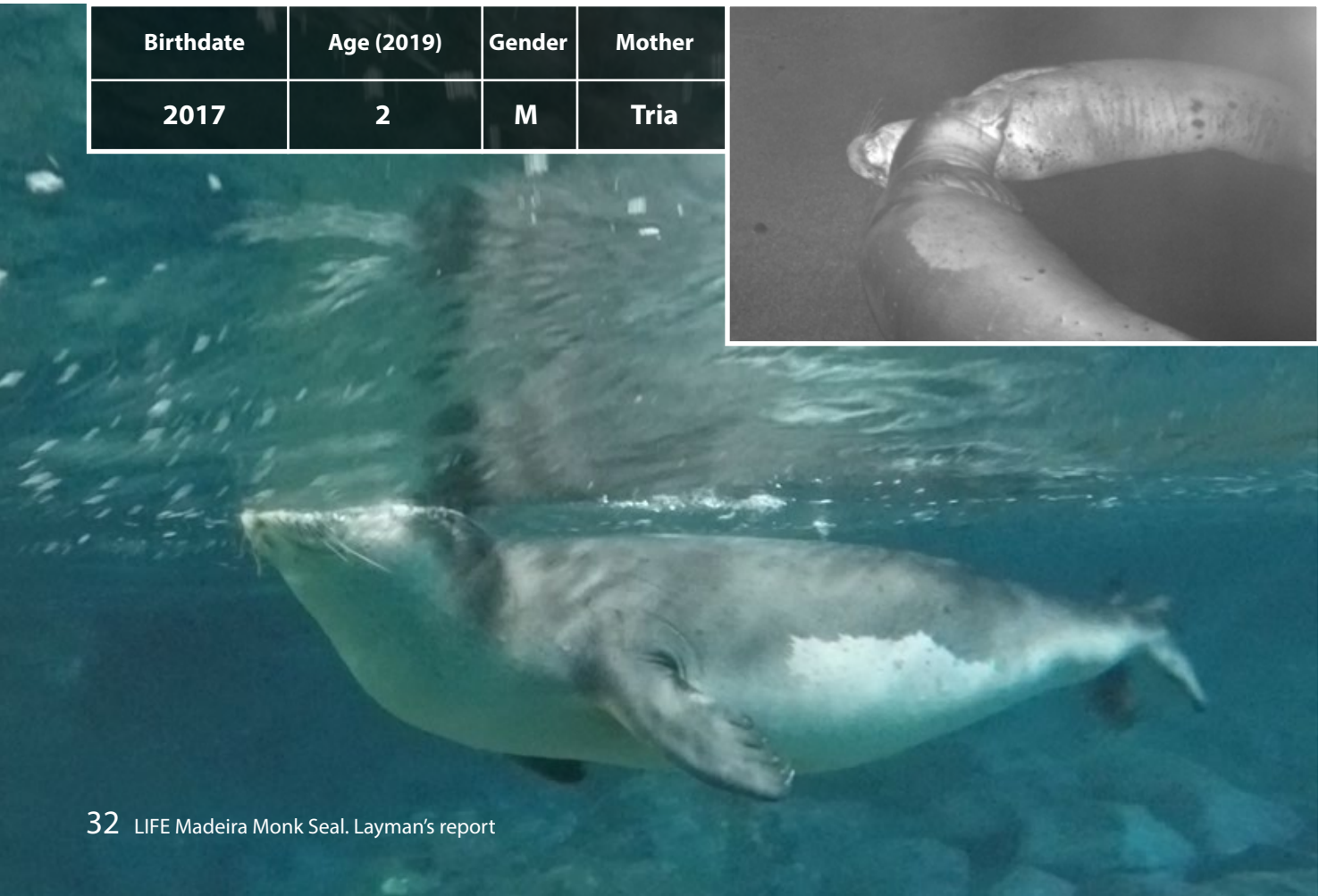
Birthdate	Age (2019)	Gender	Mother
2017	2	F	Parêntesis



## Subadulto 10

Juvenile

Birthdate	Age (2019)	Gender	Mother
2017	2	M	Tria









## ACKNOWLEDGEMENTS

The LIFE Madeira Monk Seal Project team appreciates the cooperation of many entities, organizations, societies and volunteers who participated in some of the Project's actions.

**Thanks to the owners, captains and crews members of the following fishing ships:**

Albatroz, Araus, Baía de Câmara de Lobos, Baía do Paul, Bruno, Capitão Jesus, Cláudia Raquel Andrade, Diva, Estrela do Norte, Felicidade Rocha, Figueiral, Ilhéu Chão, Ilhéu da Cal, Isabel Conceição, Lúcia Lima, Mestre Gregório, Pedro e Fátima, Pérola do Norte, Príncipe da Paz, Rainha Santa, Ribeira do Paul, Tatiana.

**Thanks to the owners and crews members of the following sea tourism companies and diving clubs:**

Ema Freitas, Gavião, Horizonte do Atlântico, H2O-Adventure Made Lda, Lobossonda, Magic Dolphin A.M.Lda., Madeira Native Motion, Madeira Sea Emotions, Nautipos Fishing Lda, Nautisantos, On Tales Lda., Palheiro Ferreiro, Rima Boat tours, Rota dos Cetáceos, Santa Maria Colombo, Visões Aquadélicas, VMT Madeira, Anthia Diving Center, Atalaia Diving Center, Azul Diving Center, Explora Madeira, Madeira Oceano's, Haliotis, Madeira Divepoint, Mero Diving Center, Scuba Madeira, Scorpio Madeira.

**Thanks to other entities:**

Clube Naval do Funchal, Harmony in Nature, Ilha Peixe, Estação de Biologia Marinha, Quinta do Lorde.

**Operational actors in the SOS Monk Seal Network:**

Volunteer and Municipal Firefighters of the Autonomous Region of Madeira, Municipal Councils of Madeira and Porto Santo, Madeira Maritime Zone Command and Captaincy of the Port of Funchal, National Republican Guard and Museu da Baleia.

**Students that participated:**

Carolina Caires, Gonçalo Ornelas, Luis Berimbau, Marta Araújo, Rodrigo Teixeira.

Our **special thanks** go to the Parques Reunidos Foundation, the Loro Parque Foundation and the Iberian Association of Zoos and Aquaria (AIZA).





# CREDITS

## **Fundacion CBD-Habitat team**

Pablo Fernández de Larrinoa, Fernando Aparicio, Miguel A. Cedenilla, Nuria El Khadir, Soledad Centenera, Mercedes Muñoz, Sonia Zapata.

## **IFCN team**

Rosa Pires, Dilia Menezes, Paulo Oliveira, Carolina Santos, Isabel Freitas, and the technicians and conservation agents, especially Sérgio Pereira.

## **Design**

Ameio

## **Photographs**

LIFE Madeira Monk Seal team, Nuno Sá, Ana Madeira, Henrique Alves, Cipriano Correia, Wilfried Pilzer-Madeira Dive Point, André Moreira - Madeira Sea Emotions, Pedro Gomes - Scorpio Madeira.

## **Cover photography**

Nuno Sá.

## **Back cover photography**

Rosa Pires.

## **English traslation**

Portuguesalia.

## **Printed by**

Tipografia Natividade

## **Print run**

500 copies

## **Legal Deposit**

464174/19

## **Maps**

Carto, Google Earth

Funchal, Madeira 2019







<https://www.lifemadeiramonkseal.com>

Co-financed by the European  
Commission's LIFE instrument

