Ocean Missions

2020 - 2021 IMPACT REPORT

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Contents

Ocean Missions

Conservation, Education and Research
at the Edge of the Arctic

Founded in 2019, Ocean Missions is an Icelandic non-profit organization based at the edge of the Arctic, in Húsavík, Iceland. We began our efforts because of the deep need for more conservation and sustainable tourism in the unique and fragile Icelandic environment and nearby Arctic regions. We are based in Húsavík, the so-called “whale town” of Iceland—one of the best destinations worldwide to see whales in the immensely biodiverse Skjálfandi Bay

https://oceanmissions.org

INTRODUCTION

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KEY NUMBERS

25 major clean ups around Iceland in 2020 and 2021
6126 kg in total of marine litter collected in 2020 and 2021
Help from **307** volunteers
First data set on microplastic pollution in Skjálfandi Bay and potential effects in trophic chain

Microplastics found in 60**%** of the total transects in Icelandic ocean surface waters
4 tonnes of trash in less than **2** km of coastline collected on the Langanes peninsula
First citizen science day tours - Whale Sails and Science
More than **2000** nautical miles sailed on schooner Ópal
First volunteer/exchange programs in 2021 with at least **2** volunteers for the season

OUR VISION

We inspire people to take straight actions to save our oceans.
We empower small coastal communities in the Arctic regions to aim for sustainability development and to protect their coasts and marine resources.

We believe that bringing people together with the same purpose creates waves of change and generates positive impacts.

SCIENCE

Ocean conservation

"Science constitutes the fundamentals for any step towards conservation actions and political change"

Being part of the scientific community give us access to provide **scientific arguments** in collaboration with experts on different aspects of the marine environment to better **address environmental challenges** and to provide **effective solutions** to avoid the collapse of our marine ecosystems.
One of the important roles of our work is to disseminate the message of science in a powerful way that touches hearts and minds in a worldwide audience. This is important to **broaden the impact** of crucial scientific discoveries about our oceans, to reach a bigger audience (including policy makers) and to support the implementation of **urgent collective solutions.**

Ocean Ambassadors

"We owe so much to the natural world that it should come natural to us to give back and feel at peace with our inner self and all living beings around us"

An Ocean Ambassador is an ocean representative that **has been credited for taking actions to support and contribute to the oceans' protection**. Ocean Ambassadors looks after the planet every single day of their lifes and makes small or big, pure actions to fullfil their ambition to make a positive change. An Ocean Ambassador spreads positivity and inspires others to join the movement.

During our expeditions we train the participants to become Ocean Ambassadors that will speak for the oceans and leave an **ocean legacy full of HOPE.** There is always a "before" and an "after" once you experience sailing with us in Ópal and being an Ocean Ambassador often comes automatically as a new life style.

Travel with a purpose

"Eco tourism is not an option any more, it is a necessity"

The transition to green business is urgent and its application can appear overwhelming and difficult for business developers and companies.
We want to expand our model of **“slow travel”** and **“travel with a purpose”** in other regions of the planet and help tourism operators and company managers to introduce or enhance a greener component in their activities.

BLUE MISSIONS

We strive to educate people about the crucial importance of our oceans and engage them in the excitement and beauty of scientific research

SAILING EXPEDITIONS

PLASTIC POLLUTION

Those plastics found at sea are a serious danger to marine life and can potentially be ingested and then possibly trapped the animals' digestive tract or tissues.

During the microplastic pollution surveys, our data were collected thanks to a homemade LADI manta trawl (protocol by CLEAR) https://civiclaboratory.nl/

Plastic travels with the ocean currents all over the world, even in hostile areas far from human activities like the Arctic. According to a previous research done by the marine biotechnology company BioPol, located in Skagaströnd, Northwest Iceland, from **160 to 230 tonnes of microplastics** are annually carried into the ocean around the country. Most of the microplastics found came from car tires and roads.
Our goal is to understand **how plastic pollution impacts Icelandic coastal landscapes and the sea life in Icelandic waters.**

MARINE BIODIVERSITY

During our expeditions, we study **whales**, **seabirds** and more recently **zooplankton communities**. Studying biodiversity give us valuable information on the ecology, distribution and health status of the different species that live in or visit Icelandic waters.
Up to **23 different cetaceans species** have been found in Icelandic waters. The photo-identification data of whales allows researchers to **recognize** individuals, **study migration** patterns and movement and to **estimate** how many individuals are coming back to these rich feeding Icelandic waters.
Bird surveys consist of monitoring the distribution range and seasonality while determining potential threats to their survival

In Iceland there are **25 seabirds species** and an estimated **4500 seabird colonies,** and some species are considered vulnerable under the IUCN criteria, such as the Atlantic puffins.
The recent collect of zooplankton samples is important as they are an **essential element of the marine food chain** as these organisms serve as food for the majority of the marine life. Additionally, phytoplankton produces more than **50% of the oxygen** we breathe, and whales presence contributes to the recycling of nutrients needed for the creation of that oxygen.

WHALE SOUNDS AND NOISE POLLUTION

Sound is the primary way of underwater communication for many aquatic organisms. They use it to find **prey**, to **locate mates** and **offspring**, **avoid predators**, **orientate themselves** in the blue and to gather important information about their surroundings.
However, the ocean is **no longer a quiet place** and that noise pollution is increasing to certain levels that can imply an imminent threat to sea life and marine ecosystems. **Noise pollution** enters the oceans in different forms, with boat traffic being the main cause followed by dredging and extraction of deep-sea marine resources. Our study at a local scale, consists of **monitoring noise levels from whale watching boats** in order to find **noise level thresholds** that can be used as a tool to help manage responsible whale watching in Skjálfandi Bay.

RESPONSIBLE WHALE WATCHING

Whales are one of the many attractions for people to visit Húsavík – the so called **capital of Whale Watching and our home town.**
Skjálfandi Bay is a very **important feeding ground** for large baleen whales that come here every summer to feed in these nutrient rich waters, such as **humpback whales**, **minke whales** and even **blue whales**. Yet, whale watching activities can cause **significant stress and disturbance** to whales when it is not done responsibly. We work very closely with whale watching companies for a **respectful approach** to these wonderful creatures and its environment. We **monitor** whale watching practices, **promote education** and **awareness** for companies and tourists, and help implementing greener environmental policies.

SKJÁLFANDI BAY, A PLACE TO PROTECT

Today our oceans are at the limits of their resilience and only just over 2% of the world's ocean is fully protected.

In 2021 we entered in "**The UN Decade Of The Oceans**". What happens in the next 10 years will determine what happens in the next 10.000 years. What happens to the oceans will happen to us.
Our infinite commitment to the oceans, together with shared ambitions with our partners, has led us to achieve the role of "champions" on a big mission: to denominate the **first HOPE SPOT area in Iceland**. This is an exciting project in alliance with **MISSION BLUE** to sum up on their efforts to denominate HOPE SPOTS around the world.

HOPE SPOT with Mission Blue

"HOPE SPOTS" are special places that are scientifically identified as critical to the health of the ocean. Our Hope Spots are championed by local conservationists whom we support with communications, expeditions and scientific advisory" - Mission Blue

MISSION BLUE inspires action to explore and protect the ocean. Led by legendary oceanographer **Dr. Sylvia Earle**, Mission Blue is uniting a global coalition **to inspire** an upwelling of public awareness, with **access and support for a worldwide network** of marine protected areas.
The final aim is to contribute to the Global Ocean Alliance target to safeguard **at least 30% of the world´s oceans by 2030** to secure healthy oceans for future generations. To date, 30 countries, have joined the #30by30 movement.
Our mission as "champions" for the HOPE SPOT in Iceland is to guide the nomination process by gathering scientific arguments and support from stakeholders to prove the potential as a HOPE SPOT. The proposed area spans from Skjálfandi Bay to Eyjafjörður and includes Grímsey Island in the North.

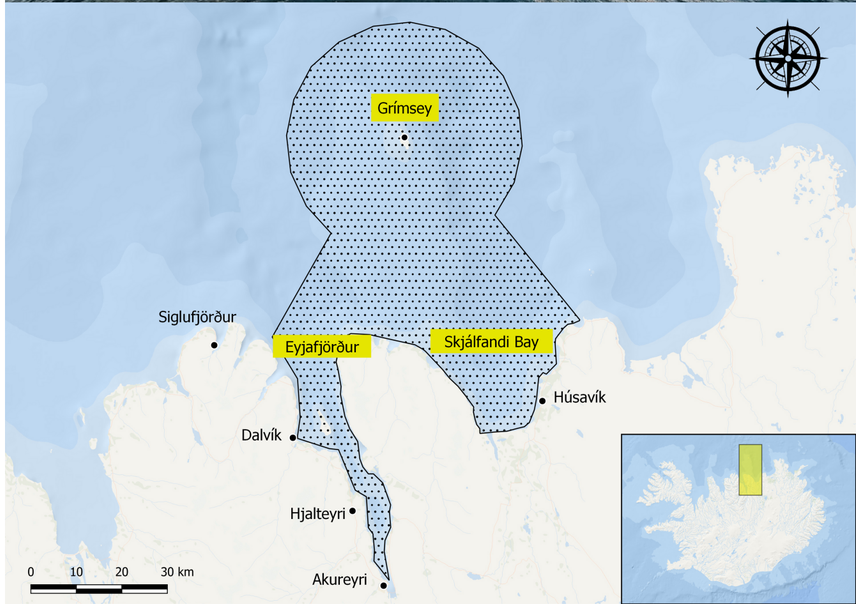
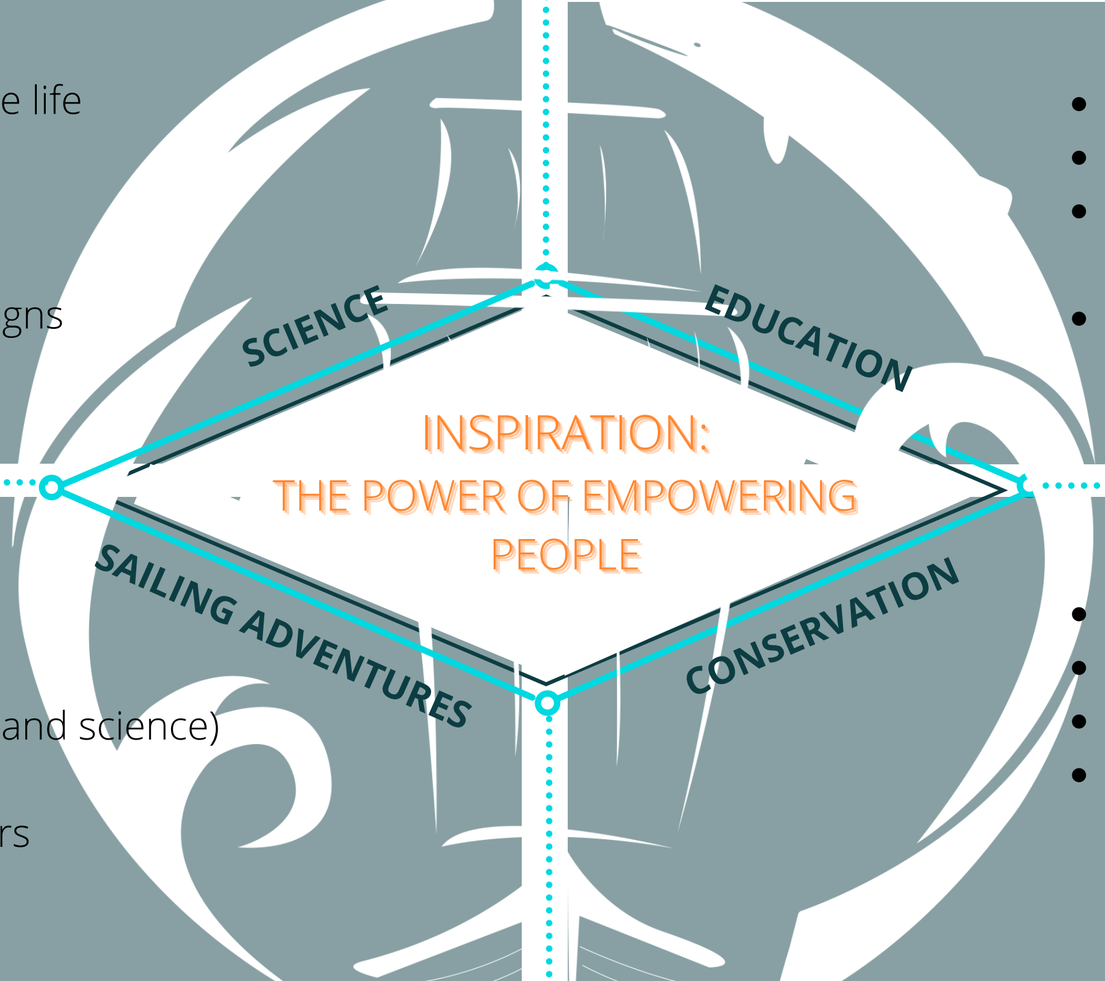


Figure 1: Map representing the proposed area for the Hope spot in Iceland

- Plastic pollution and effects on marine life
- Sea birds monitoring
- Whale research
- Entanglements in fishing gear
- Noise pollution and quieter boat designs

- Clean-up networking
- Sustainability workshops
- Ocean literacy for schools, citizens and tourists
- Science communication and public outreach



- 7 day expeditions
- Mini expeditions
- Day citizen science tours (whale sails and science)
- Traditional sailing and navigation
- Collective missions with other partners

- Protecting endangered species
- Supporting the creation of MPAs
- Responsible tourism (Eco-tourism)
- Sustainable management of marine resources, green innovation and development of coastal communities

ACHIEVEMENTS

"Every action in our lives touches on some chord that will vibrate in all eternity"
E.H Chaplin

RESULTS

2020 Expeditions

Spring: 28th May - 3th June

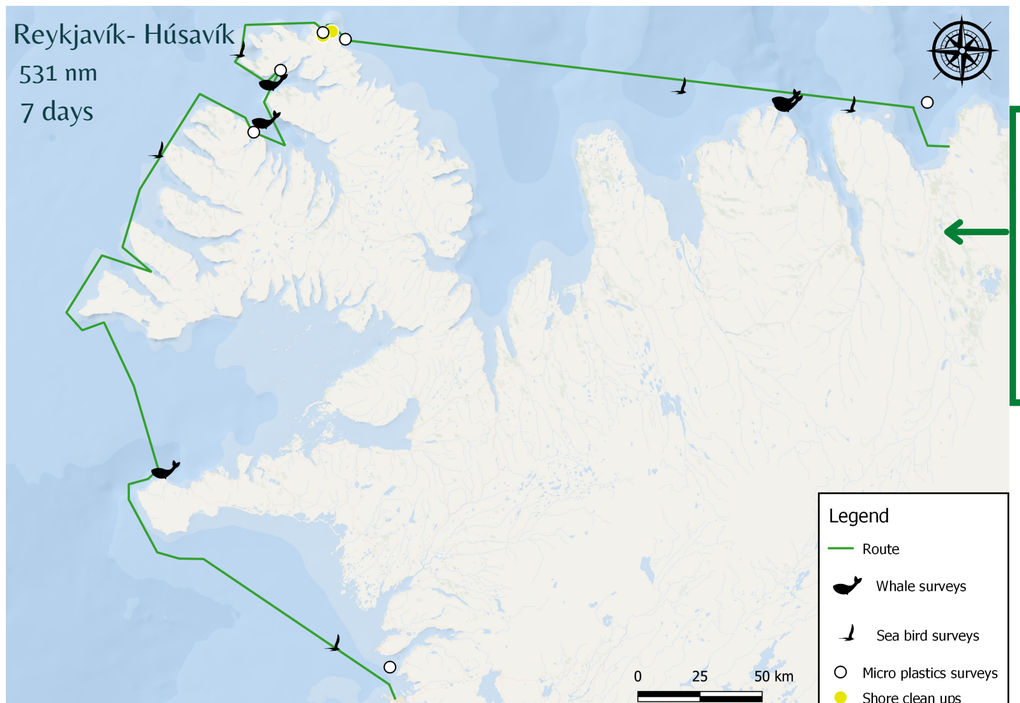
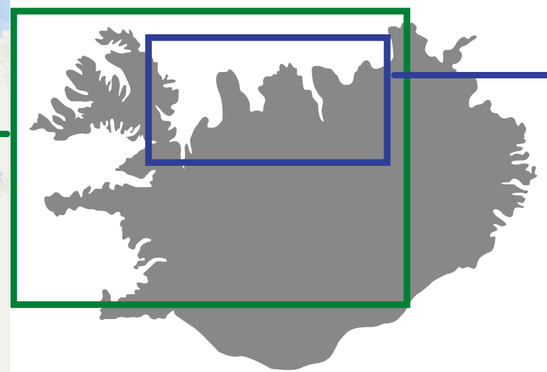


Figure 2: Map representing the expedition during May 2020.



Iceland

Autumn: 28th September - 3th October

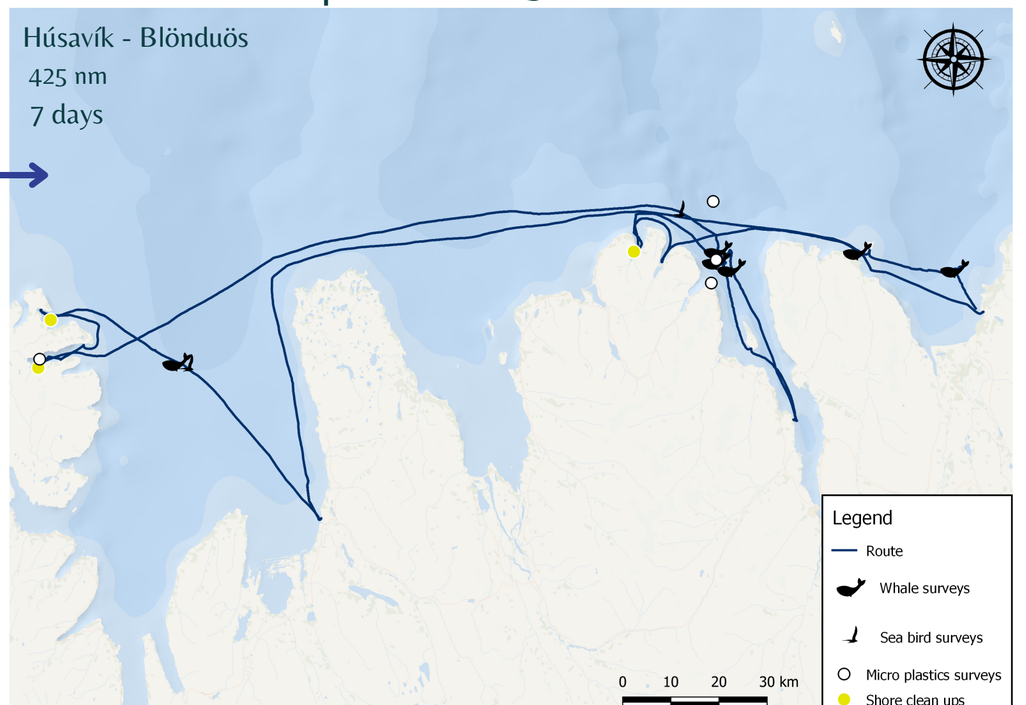


Figure 3: Map representing the expedition during September 2020.

2020 Expeditions

Microplastics

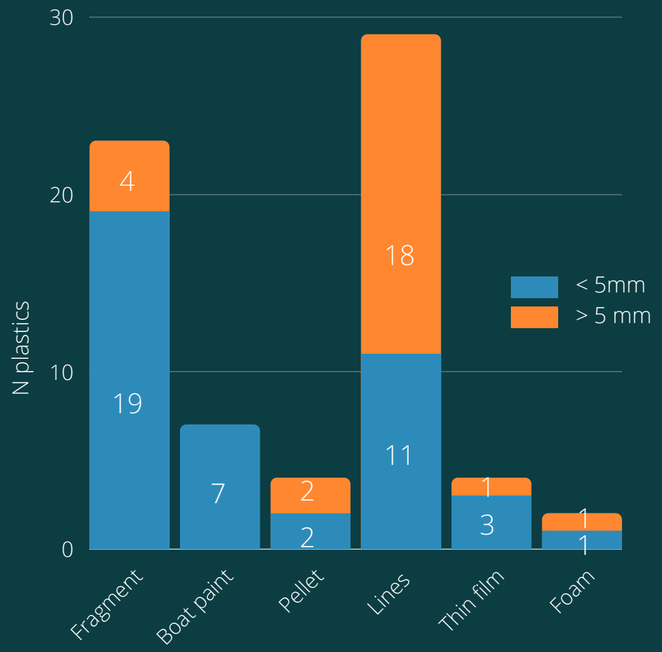


Figure 4: Type of microplastics found in May and September 2020 expeditions

The most abundant type of microplastics were lines (Figure 4). In most of the cases, it was not possible to determine the origin of the item. To date, the data indicates that **fishing lines may be the most prominent microplastic type** in the surveyed Icelandic marine environment.

The results also indicate that currents and weathering have a significant influence on the distribution and movements of microplastics in Iceland.

2020	TOTAL	TOTAL including BP
< 5mm	31 particles	62 particles
> 5mm	27 particles	27 particles
MP presence (%)	55 %	55 %
BP presence (%)		16.5 %

Table 1: Microplastics (MP) and boat paint (BP) found in May and September 2020 expeditions

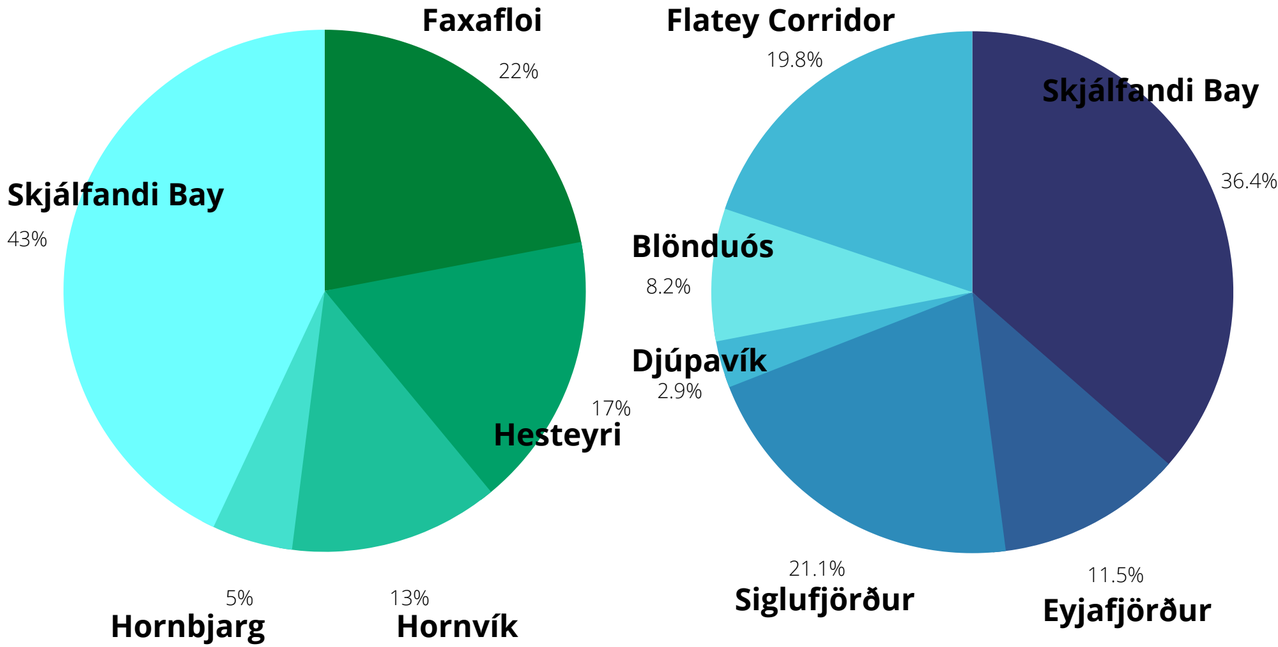


Figure 5: Microplactics presence in surveyed areas in Iceland in May 2020 (lef) and September 2020 (right) , including boat paint

2020 Expeditions

Whale Surveys

Photo-identification consists of taking a photo of part a cetacean's body considered their "identifying feature". For the humpback whale, the tail is used for this. A database of individuals observed allows us to know the movements of the animals by following their detection in different places.

Most of the whales were found in Ísafjörðurjup and Eyjafjörður, with extraordinary sightings where more than **10 humpback whales** were feeding in the area, some of them in groups of four.There was one match made in 2020 with a whale from the University of Iceland´s Húsavík Research Centre catalogue, nicknamed "Pikachu". There was also an exciting match between a whale that was previously recorded on the breeding grounds in the Dominican Republic that we recorded north of Eyjafjörður.

Bird Surveys

Two important species of birds were spotted and are considered as rare sightings in Iceland. The **sooty shearwater** and the **king eider** are both migratory birds and vagrants in Iceland. The sooty shearwater spends the summer nesting on the Greenlandic coasts and then travels to West Africa in the Southern Hemisphere to spend the winter. Small numbers of king eiders spend the summer in Iceland and winter in Greenland and Svalbard.

Sooty shearwater
(Ardenna grisea)

King eider
(*Somateria spectabilis)*

In the expeditions of 2020, we start conducting zooplankton sampling. The aim is to **study the zooplankton communities** and **relate abundance of plankton with microplastics and whale's presence** to look for trends. This is important because the presence of microplastics increases the absorption of other toxic chemicals that can be transferred through entire food chains by ingestion.

The most abundant types of zooplankton were: **copepods, decapods, amphipods, and euphausiacea.**

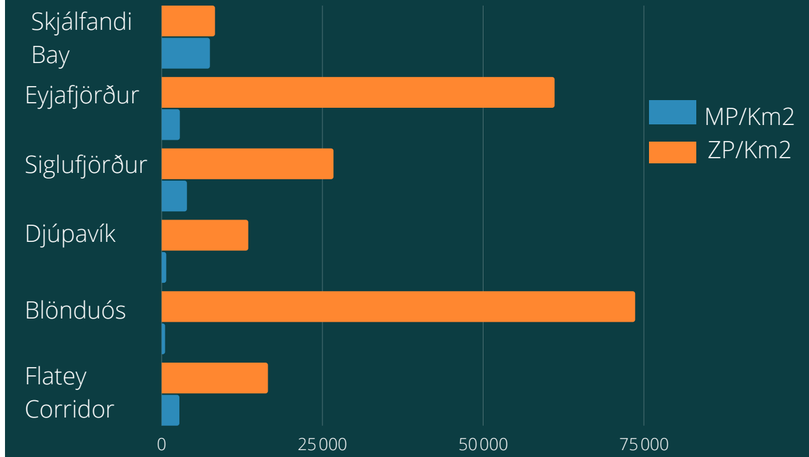


Figure 6: Microplastics (MP) and zooplankton (ZP) collected in different regions in Iceland

Different Species of zooplankton

It was clear that the whales were feeding on krill (euphausiacea) as 90% of all the ZP samples were **Euphausiacea**. The sampling took place place where we saw at least 10 whales feeding, in Eyjafjörður, so this confirms that the euphausiacea plays a big role in the humpback whale's diet.

RESULTS

2021 Expeditions

Spring: 14th - 21th May

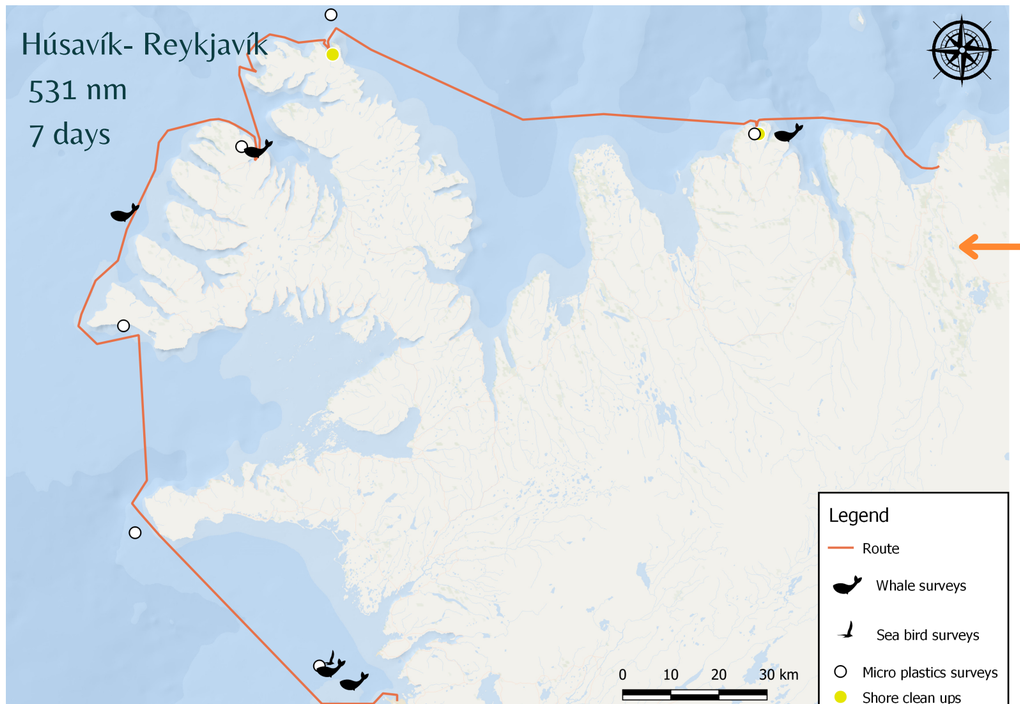
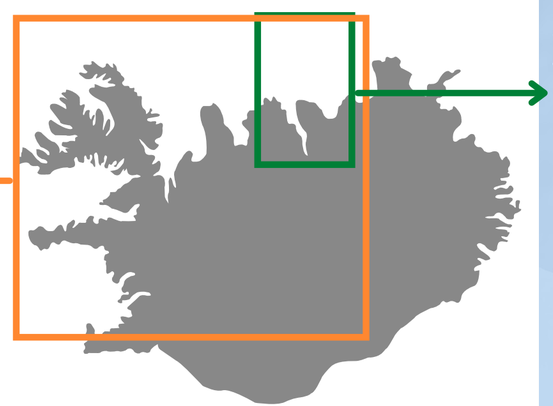


Figure 7: Map representing the route on the expedition in May 2021



Autumn: 27th September - 3th October

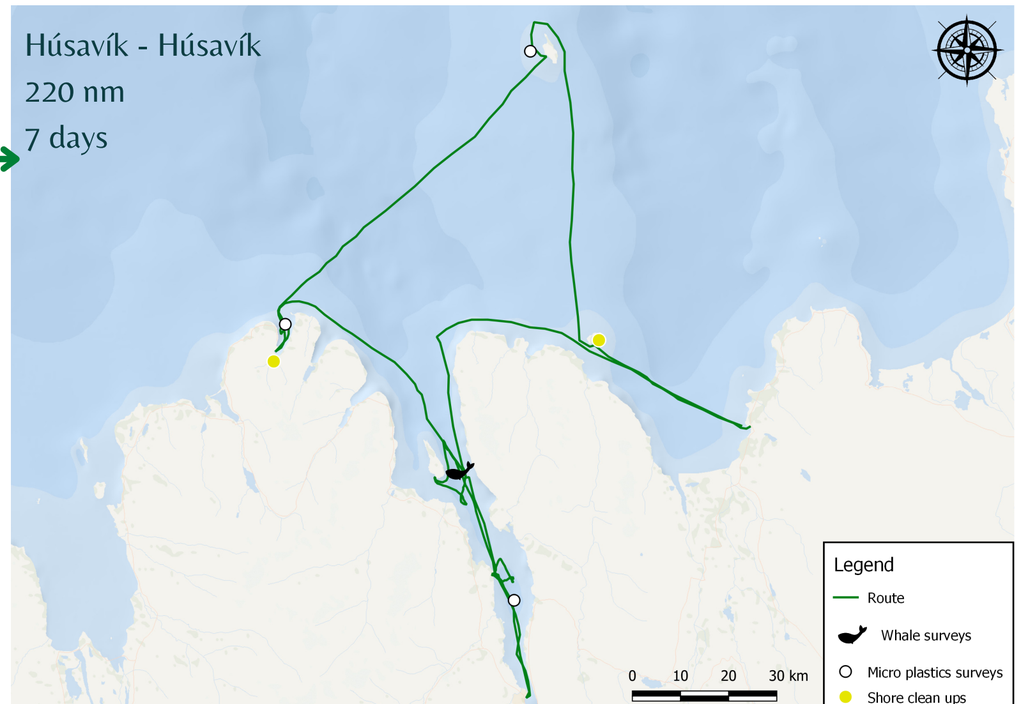


Figure 8: Map representing the route on the expedition in September 2021

2021 Expeditions

Microplastics

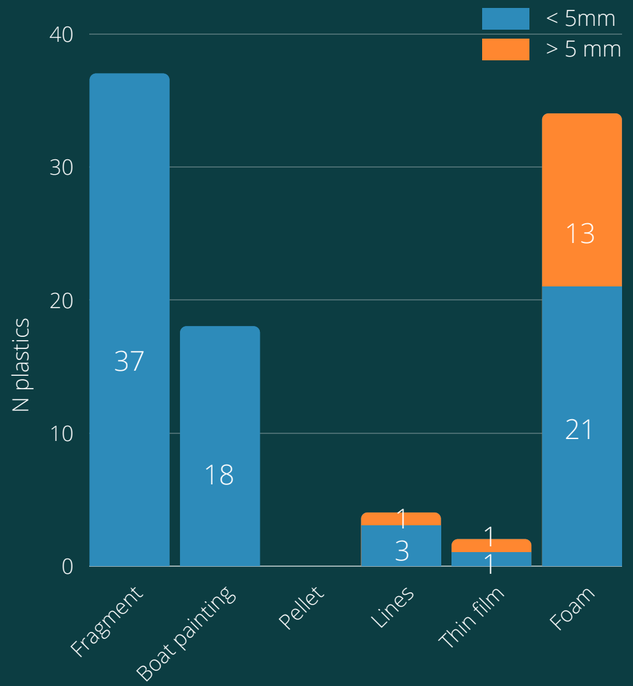


Figure 9: Type of micro plastics collected in May and September 2021 expeditions

In the year of 2021, the most abundant type of microplastics were mostly fragments all in the under 5 mm category (Figure 9).

2021	TOTAL	TOTAL including BP
< 5mm	58 particles	73 particles
> 5mm	21 particles	20 particles
MP presence (%)	64 %	69 %
BP presence (%)		12.5 %

Table 2: Microplastics (MP) and boat paint (BP) found in May and September 2021 expeditions

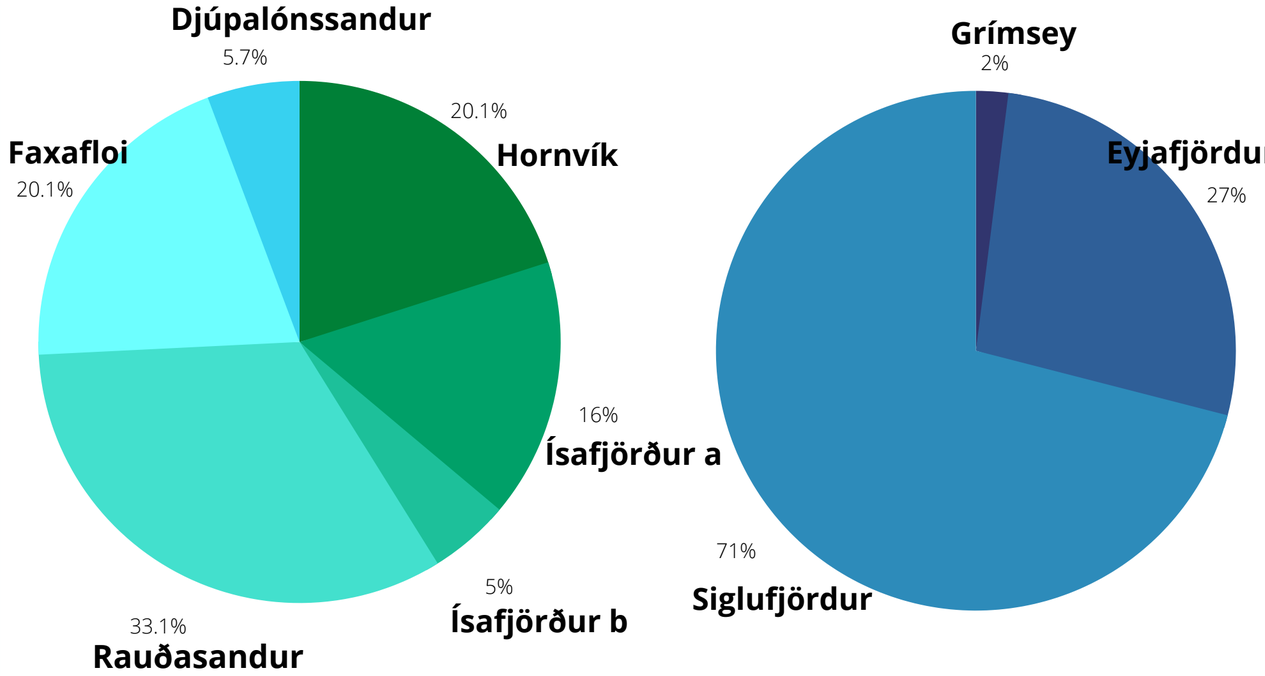


Figure 10: Microplactics presence in surveyed areas in Iceland in May 2021 (left) and september 2021 (right), including boat paint

2021 Expeditions

Whale surveys

During the expeditions 2021, one humpback whale ID match was confirmed with the University of Iceland's Húsavík Research Centre catalogue. This whale is nicknamed "Piju" and he/she has been seen in four previous years in Skjálfandi Bay and was then photographed in Eyjafjörður in the autumn expedition the 29th of September 2021.

Bird surveys

During the September 2021 expedition, a very rare bird species for Iceland was recorded on Grímsey Island: a citrine wagtail (*Motacilla citreola*). This was only the 17th record of this bird in the country, which usually breeds in the summer months in central Asia, expanding as far westwards as Poland.

Látrabjarg cliff is one of Europes biggest bird cliffs at 14 km long and up to 441 m high, and one of the most crowded bird cliffs in the world. Amongst the thousands of guillemots, razorbills and Atlantic puffins, an interesting bird sighting can be recorded here: a solitary Northern gannet that been nesting here, outside of it's normal range in Iceland, without a mate for several years.

RESULTS: Clean-up efforts 2020 and 2021

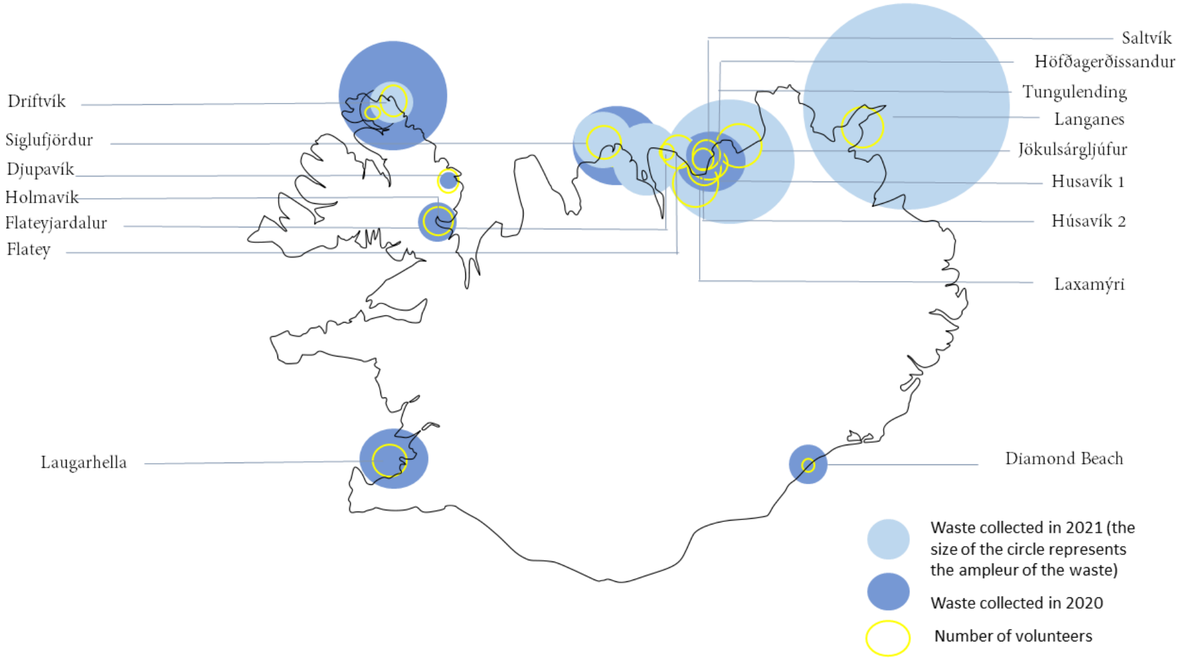


Figure 11: Map representing the clean up efforts in 2020 and 2021

RESULTS: Clean ups 2020 and 2021 - type of debris

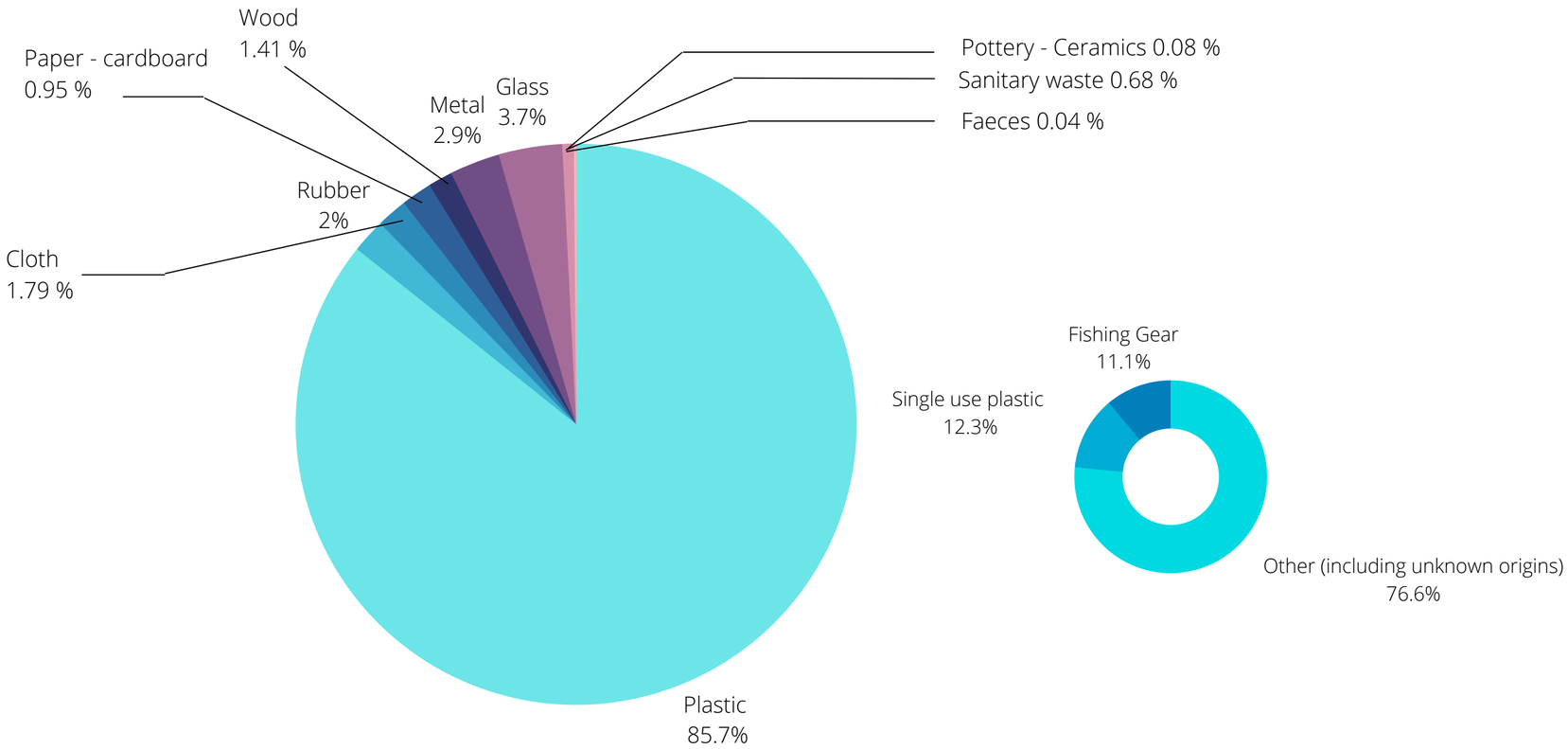


Figure 12 and 13: Representation of the different type of maco debris in 2020 and 2021 (100 m OSPAR SURVEYS)

Total efforts 2020 - 2021

307

volunteers

6126 kg

collected, equivalent to the weight of 1 elephant

SMALL COMMUNITITES- LOCAL IMPACT

Education is our legacy

"I need the sea because it teaches me" Pablo Neruda

At Ocean Missions we always aim to inspire others to care for our oceans.

We believe that to educate people, and mostly children, about science and the protection of the blue will increase their knowledge and awareness so that they become responsible and committed citizens who will protect our planet.

January 2020

Formalized agreement of cooperation with North Sailing

February 2020

Ocean Missions joins Atlantic crossing onboard Twister sail boat on Horizon Expedition to inspire the change

May 2020

Spring Expedition

June 2020

First Landscapes Conservation Course – Ocean literacy for local kids

July 2020

Assesing the health of puffin colonies in the Puffin island, Skjálfandi Bay , with The Puffin Patrol and Náttúrustofa

September 2020

September Expedition

October 2020

Deployment of acoustic bouys in the continental shelf off Iceland to study the overlap of whales presence and boat traffic (a WWF initiative in collaboration with the University of Iceland, North Sailing and Ocean Missions)

May 2021

First 2 volunteer positions during the summer

Launch of weekly citizen tour: "Whale, Sails and Science" in Skjálfandi Bay for a long term study on microplastic pollution

June 2021

Opening of the "Mini-Lab" at Húsavik harbour: an educational platform to engage with locals and visitors and talk about ocean conservation

Monthly coastal clean ups project starts with volunteers around Húsavík area

Sailing the Edge of the Arctic for 3 days onboard Ópal

July 2021

Local financial support to convey 3 courses for kids about ocean literacy and coastal landscapes

Reduce, Reuse, Recycle Workshop

OM team joins the annual University of Iceland marine mammals course to teach acoustic and plastic pollution

"Ocean of plastic" exhibition: presentation at the Whale Museum, Húsavík

August 2021

Surveys of local people to support the implementation of the first Hope Spot in Iceland

The Clean up Project in Langanes

Creation of a group with local stakeholders to address sustainable development in the region

October 2021

"Whale Course" at Börgarskoli -secondary school -in Húsavík

Media coverage

© Ása Steinars

TV SHOW “3 OP REIS” (Dutch TV):

TV SHOW “Iceland with Alexander Armstrong” (host of BBC One) UK TV

VIDEO PROMOTION WITH 66°North AND ÁSA STEINARS

TV SHOW “LANDINN” (Icelandic TV - RUV):

DV Iceland newspaper – Clean up efforts in Langanes

Educational Material book (Icelandic) – Clean Ocean – Plastic in the Arctic. Landvern (page 49):

ECO EXERIENCIAS INTERNATIONAL FESTIVAL .Fuerteventura. Canary Islands. Presentation of a Manifest for Sustainable tourism. With the presence of the directors of Spanish TV channels (to be continued...).

Partners

NORTH SAILING

ECOWILDLIFE TRAVEL

WORLD OF WAVES

Universitatis Islandiae Sigillum

RUC Roskilde University Denmark

Nordurflug

NordMar Plastic

Government of Iceland

matís

Awards

The Safina Center

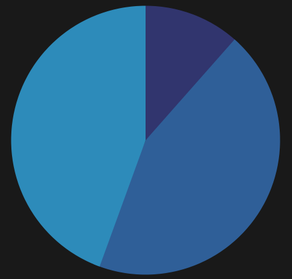
In 2021, the founder of Ocean Missions, Belen Garcia Ovide, won the award from the Safina Center, a non-profit organization, of a $5000 grant to help with Ocean Missions work - **Advancing the case for Life on Earth.**
She is willing to fully dedicate it to achieving Ocean Missions goals, which are hand in hand with the goals of The Safina Center!

This fund is given to support **passionate women on their professional careers to make a positive difference for the planet**! Our goal is clear: save our oceans, push for a global awakening movement and give back what we owe to nature!

NGO Expenses

2 years (2020 & 2021)

Salaries and related expenses	2800 €
Equipment and operating expenses	10700 €
Expeditions expenses	10800 €
Total expenses	24300 €



44.4 %
Expeditions expenses

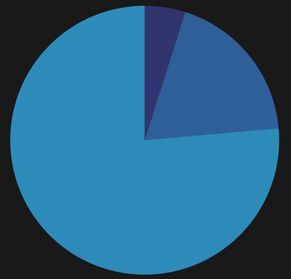
11.5 %
Salaries and related expenses

44 %
Equipment & operating expenses

Revenue Sources

2 years (2020 & 2021)

Donations	1900 €
Funds, trusts	7300 €
Expeditions	29800 €
Total revenues	39000 €
Net Assets:	14700 €



76.4 %
Expeditions

4.9 %
Donations

18.7 %
Funds, trust

We are very excited to keep working next year and I am really looking forward to see what challenges will come. Overcoming challenges should be part of our biology and our personal growth. This would not have been possible without the support of all the amazing people that has offered help and have joined the mission along the way. Thanks to all of us, the world is already a little bit better

We are not alone!

Belén García Ovide
Founder and Project Manager at Ocean Missions

Ocean Missions Team

Heimir Hardarson - captain of Ópal
Daniel González - biologist
Charla Basran - whale biologist
Belén García Ovide - marine biologist

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Ocean Missions

TALK TO US!

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