ACTIVITY REPORT 2024

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coral GUARDIAN

50% of coral reefs have disappeared since the 1950s.

Our planet won’t wait.

Let’s take action together – starting today.

OUR MISSION

To protect coral reef ecosystems through local actions and the mobilization of an international community.

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IN BRIEF

12 YEARS

of work dedicated to protecting coral reefs alongside local communities

6 PROGRAMS

of coral reef restoration supported since the beginning

75,866 CORALS

restored across the three supported projects

13,640 PEOPLE

reached through local awareness campaigns in Indonesia, Spain, and Kenya

Over

11 MILLION

people reached worldwide since the beginning

OUR IMPACT IN 2024

9,975 corals transplanted in the **Flores Sea**

160 corals transplanted in the **Mediterranean Sea**, with **over 200 corals treated monthly**

597 kg of waste collected in Spain

A total of 152.8 hectares protected through our projects in Indonesia, Spain, and Kenya

92 people involved in the project **in Spain**

441 children and tourists educated about coral reef protection in Indonesia

1 new coral restoration project supported in Kenya

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EDITORIAL

It is with great emotion that I write this first editorial, after stepping into the role of President of Coral Guardian in 2024, following in the footsteps of Olivier. I would like to extend my heartfelt thanks to you, our dear community, for your support, your interest in our organization, and the overwhelming kindness I have felt during these first steps together.

We share a passion, strong values, and a clear vision one that puts people at the heart of the protection and restoration of marine ecosystems. This shared foundation strengthens our growing community and amplifies the impact of our actions.

I would especially like to thank Olivier and Martin (co-founder of Coral Guardian) for their trust, as well as the Board of Directors and the leadership team for their collective support during the transition we carried out together this year.

For 12 years now, Coral Guardian has built strong foundations in the field of coral restoration, placing local communities at the core of its projects, working hand in hand with the scientific community, and raising awareness at all levels. The organization has grown both locally and internationally, extending its impact across multiple reefs and communities.

Much of this progress has been made possible thanks to the founding vision carried since the beginning, and the unwavering commitment of our operational teams, staff, volunteers, and partners, all working every day with passion for this vital cause.

The year 2024 marked a decisive milestone: over 10,000 corals were restored, our field and outreach activities expanded, our community grew, and our scientific and organizational strategy was further strengthened. Coral Guardian has reached a new level, laying solid foundations for future ambitions.

In this period of growth, our outlook matches the urgency of the challenge. On a human level, by supporting new projects in France and abroad. On a scientific level, by deepening collaborations with universities and research centers, and improving knowledge-sharing through data digitization.

Today, we count over 200 organizations engaged in coral restoration worldwide, and a growing wave of citizen involvement.

“Together” is the keyword of our vision. Thank you to our teams, volunteers, and partners for their outstanding commitment. Together, we are a community of “Guardians”, a united family connecting local initiatives to global awareness of a living ecosystem, from the tiniest coral to the people who depend on it.

Romain BERNARD

President

CONTENTS

PARTICIPATORY MARINE CONSERVATION

Coral Guardian's main mission is to protect and restore coral reef ecosystems worldwide by involving local communities. To achieve this, we establish partnerships with local organizations and provide them with technical, scientific, financial, and communication support for long-term collaborations.

We support projects in Indonesia, Spain, and, as of this year, Kenya! All projects address both ecological and social aspects of coral ecosystem restoration, adapting methods, approaches, and priorities to each specific context.

DISCOVER NOW OUR HIGHLIGHTS FROM 2024!

PARTICIPATORY MARINE CONSERVATION

CORAL GUARDIAN COMMUNITY

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Since 2019, through our Blue Center, we have offered support to motivated local organizations to develop their coral conservation projects, providing short- or long-term assistance. The Blue Center is now evolving into the Coral Guardian Community.

To the associations benefiting from this support, we provide management, technical, and awareness tools, opportunities for network development, and increased visibility. Financial support and regular follow-up are also available, enabling teams to quickly build their skills and best meet the needs of their projects.

Our partners within the Coral Guardian Community:

- Are nonprofit, field-based associations;
- Involve local communities at every stage of their projects;
- Are motivated to develop coral reef restoration projects for the benefit of communities that depend on these ecosystems.

> Long-term collaborations with local stakeholders allow us to learn from each other and discover new solutions from our shared experiences to protect coral ecosystems.
>
> – *Florina Jacob, Coral Guardian Field Project Manager*

2019
program launched

8
local associations supported since the beginning

2024
first program supported on the African continent

4 countries across **4** continents

1 new team member recruited to expand our project support efforts

PARTICIPATORY MARINE CONSERVATION

PROGRAM IN INDONESIA, IN THE FLORES SEAS

WES FOUNDATION

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PROJECT OVERVIEW

- **2015**, project launched
- At Pulau **Hatamin**, in the Flores Sea, Indonesia
- In collaboration with the local organization **Yayasan WES**
- Issue: Reef degradation caused by **destructive fishing practices**
- Objective: To **restore coral reefs alongside local communities** in order to strengthen ecological resilience and support the economies of surrounding villages.

SINCE THE BEGINNING

8
full-time staff in the local team

74,812
corals transplanted

3
times higher fish density on restored reefs compared to control sites after more than 8 years of restoration

1.2
hectares of marine protected area

7
times more fish caught (kg) around the Hatamin MPA in 2019 compared to 2016, supporting local livelihoods

5
training exchanges with various restoration stakeholders across Indonesia

750
villagers from the fishing community of Seraya Besar sensitized (through 2 presentations of results) and/or involved in the project

2024 IN SUMMARY

9,975
corals transplanted

3
active eco-tourism partnerships

344
eco-volunteers hosted on Hatamin Island

162
children regularly participated in English classes and awareness activities about the importance of coral reefs

1
training session for the local team on coral biology and ecology

Restoration Actions

The project team's routine involves continuing reef restoration activities through the coral fragment nursery technique. This enabled us to restore 124 m² of reef area over the year.

We also tested a new methodology designed to minimize the use of materials (such as metal wire), applying mechanical pressure directly on coral fragments.

Finally, we diversified the coral species in our transplantations by including opportunistic fragments coral pieces naturally detached from the substrate by wave action or other mechanical forces of various genera and morphologies such as Montipora, Seriatopora, Isopora, etc., to increase biodiversity in the restored reefs.

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© Julien Holleville - Coral Guardian

© Murdi - Coral Guardian

Local Awareness Actions

In 2024, our community awareness program focused on strengthening activities with children and adults from the Seraya Merannu community and the town of Labuan Bajo.

For children, in addition to English classes and awareness sessions on the importance of corals held at two local schools, we regularly organized restoration workshops and educational games on Hatamin Island. This year, the local team welcomed over 30 primary school children from Seraya Merannu village to the island a significant increase from 10 children last year. They participated in coral transplantation and, guided by our team, engaged in games designed to raise awareness about threats to coral reefs and how to help restore them.

For adults, we presented the results of the biodiversity monitoring conducted in 2023 on Hatamin Island, comparing them with control and reference sites, to the villagers of Seraya Merannu. We also showed videos from our series "Chronicles of Coral Guardians." The event was a warm and friendly evening aimed at raising community awareness about the state of the reef around Hatamin Island and highlighting the daily work of the project team.

With over 60 participants, including fishermen, women, children, elders, and local authorities, the event was a great success!

Eco-Volunteering Program

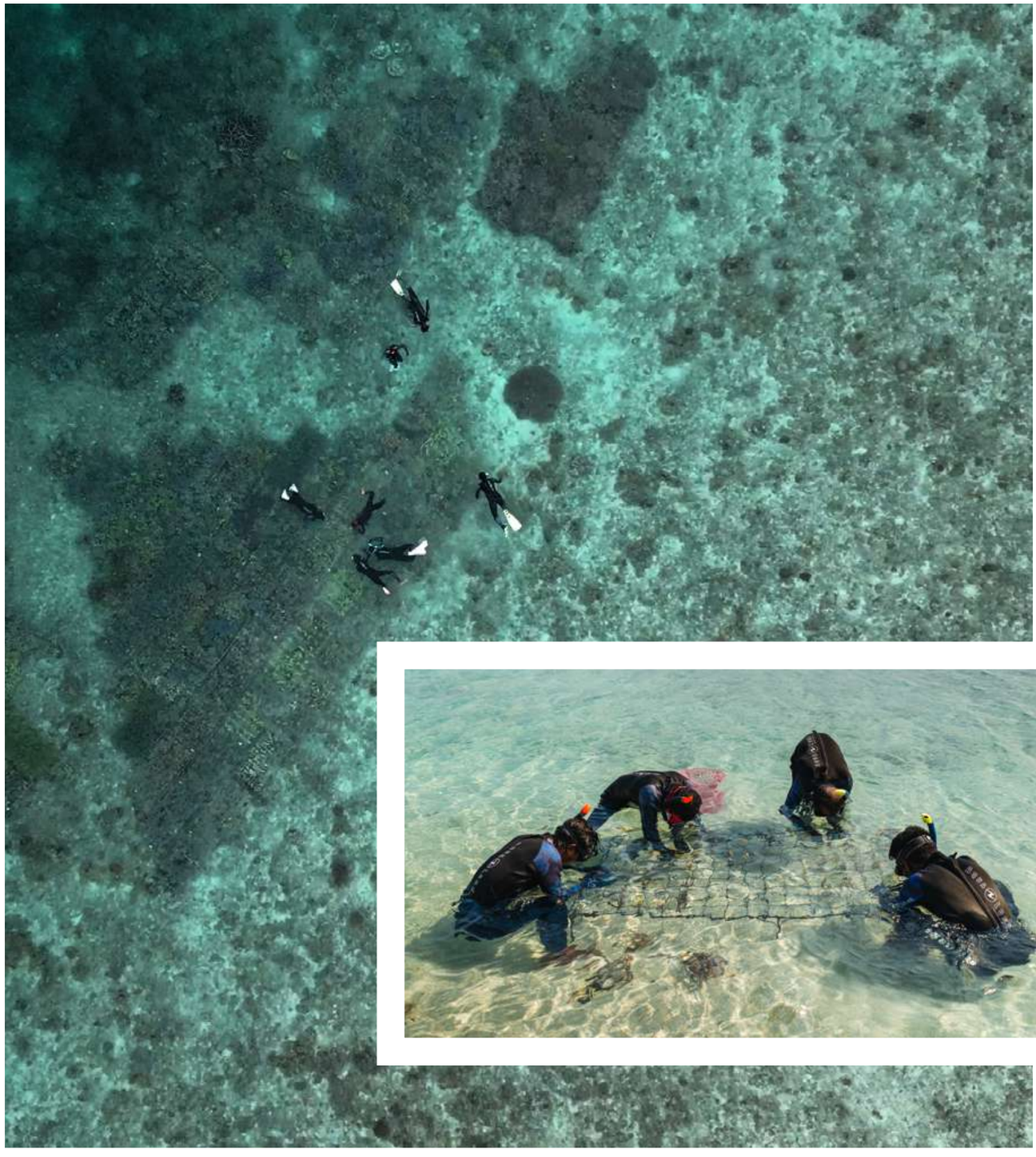
Following a reorganization of the eco-volunteering program in 2024, three partnerships with committed travel agencies were activated to diversify the project's economic model:

First, with the French travel agency Mahalo, we hosted groups of eco-volunteers for one week to give them an immersive experience alongside the local team. They participated in activities such as coral transplantation, handling, awareness-raising, and monitoring, while exchanging knowledge about each other's cultures, languages, and professions.

A new partnership launched in 2024 with the liveaboard tour agency SeaTrek (boats dedicated to tourists visiting points of interest like Komodo National Park) aims to raise tourist awareness about the importance of coral reefs through restoration work on Hatamin Island. During a half-day visit, groups of tourists mainly from Europe, the United States, and Australia receive briefings from our local team about the reefs and the project's history before taking part in coral collection and transplantation.

This year, 280 tourists participated, with 100% of them very satisfied with the experience!

Finally, we partnered with the Australian educational travel agency Impact Adventures to include a visit to Hatamin Island in their exchange trips for Australian youth in Indonesia, allowing them to practice Indonesian and participate in coral restoration alongside the team.



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Meeting Between the Coral Guardian France Team and WES

In August 2024, the French team traveled to Indonesia, with Julien Holleville, treasurer and long-standing member of the association, leading the mission.

The agenda included auditing the restoration zones, evaluating the tourism activities developed with local partners, and conducting the annual scientific monitoring of fish populations and marine substrates to track trends across different sites.

During this mission, the local team participated in a new training session provided by the Coral Triangle Center on coral biology and identification, as well as Marine Protected Area management.

We also supported a training session conducted by the local Yayasan WES team for members of the neighboring Le Pirate hotel, which is eager to develop a coral restoration project to involve their guests in reef recovery. This training focused on our coral restoration, monitoring, and handling methods.

Finally, we organized the first trip for the Hatamin local team to Nusa Penida (Bali)! The goal was to facilitate an exchange of experiences with the Nuansa Pulau restoration project: learning their restoration, handling, and monitoring methodologies. These three days of discovery in a different context proved rich in stimulating discussions for the Yayasan WES team.

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> We learned several things, especially that we need to renew our ecosystem, the place where the fish live because it's a matter of life or death. Since Coral Guardian's involvement, the ecosystem renewal has restored the site's full vitality.
>
> **- Abdur, Coral Transplanter in Indonesia**

PARTICIPATORY MARINE CONSERVATION

DEEP CORE PROJECT IN SPAIN, IN THE MEDITERRANEAN SEA

CORAL SOUL

PROJECT OVERVIEW

- **2020**, project launched
- In **Punta de la Mona**, Mediterranean Sea, Spain
- In collaboration with the local association **Coral Soul**
- Issue: Degradation of coral ecosystems due to **pollution in the Mediterranean**
- Objective: Support the **regeneration of Mediterranean coral ecosystems** and raise awareness among local stakeholders about their sustainable protection.

SINCE THE BEGINNING

3
full-time staff in the local team

1,054
corals restored

2,598
kilograms of waste recovered from coasts and seabeds

12,880
people locally sensitized

364
people involved in the project since the beginning (divers, boat captains, researchers, students)

3
nurseries placed between 30 and 36 meters deep for recovering chandelier corals (*Dendrophyllia ramea*)

3
universities involved in research related to cold-water corals and local pollutants

> The Deep CORE project has benefited from countless resources and advantages provided by Coral Guardian, both directly and indirectly. [...] Thanks to the trust, support, and expertise of Coral Guardian, we received guidance in developing the project from the basics of organizing an NGO to critical aspects such as fundraising and securing sponsors. We have also benefited from Coral Guardian's international visibility and positioning.
>
> **- Marina Palacios Miñambres, Director of Coral Soul**

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2024 IN SUMMARY

597
kilograms of waste recovered from coasts and seabeds down to 46 meters deep

163
corals repopulated this year

4,400
people locally sensitized to the protection of Mediterranean corals

19
project presentation events held

100%
of the targeted area fully cleaned

77%
coral survival rate
(average, after 4 years of recovery and transplantation efforts)

Restoration actions on coral seabeds

In 2024, we focused our efforts on the deeper coral seabed areas of Punta de la Mona.

The local team completed a 100% cleanup of the seabed in the Punta de la Mona zone down to 50 meters, covering a total of 2,062 m², with the help of 26 volunteer divers. They removed 597 kg of debris from the reef this year, bringing the total to 2,598 kg since the project began.

Regarding the underwater nurseries: three nurseries have been installed over the course of the project at depths of 30, 33, and 36 meters, each hosting coral colonies adapted to their respective depth range. We relocated one nursery to 36 meters to increase capacity for colonies from deeper zones, as all corals up to 33 meters depth have already been collected and are in recovery.

Awareness Actions

This year has been very dynamic, with many new milestones in our awareness efforts.

First, two new team members were recruited, strengthening the project's outreach activities. This allowed us to participate in more events and develop additional tools to raise awareness among the general public, schoolchildren, and government authorities.

Moreover, the local team launched a new project component: raising awareness among fishermen in several Andalusian localities. This initiative is co-funded by the Biodiversidad Foundation. Partnerships have been established with at least five fishermen's organizations along the Andalusian coast (Almeria, Granada, Motril, Cadiz, Malaga). Additional collaborations have been set up to create tools that educate fishermen about the state of the coral ecosystem in the area and the threats posed by abandoned fishing gear.

We also worked on highlighting the cultural importance of fisheries in Andalusia, their ecological knowledge, and the role fishermen play in protecting Mediterranean coral ecosystems.

PARTICIPATORY MARINE CONSERVATION

REEL PROJECT IN KENYA, IN THE INDIAN OCEAN

OCEANS ALIVE

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PROJECT OVERVIEW

- **2024**, project launch
- In **Kilifi**, Kenya, on the Indian Ocean
- In collaboration with the local association **Oceans Alive**
- Issue: degradation of coral reefs caused by **overfishing and coral bleaching**
- Objective: Support coastal communities in restoring coral reefs to **preserve marine biodiversity and improve sustainable livelihoods.**

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An ambitious project launch

At the beginning of the year, we opened a call for projects to select the next project supported by Coral Guardian. In this context, the Kenyan association Oceans Alive, based in Kilifi, 70 km north of Mombasa, was chosen.

Oceans Alive was founded in 2018 in response to the depletion of fish stocks that threatened the livelihoods of dependent communities. This association has been supporting local communities in the sustainable management of their coastal ecosystem resources for over 20 years.

The REEL project follows a pilot project launched by Oceans Alive in 2019 to restore reefs degraded by overfishing and destructive fishing gear. The partnership between Coral Guardian and Oceans Alive aims to expand coral restoration efforts in the Kuruwitu management area to diversify the livelihoods of local communities.

3-Year Project Objectives

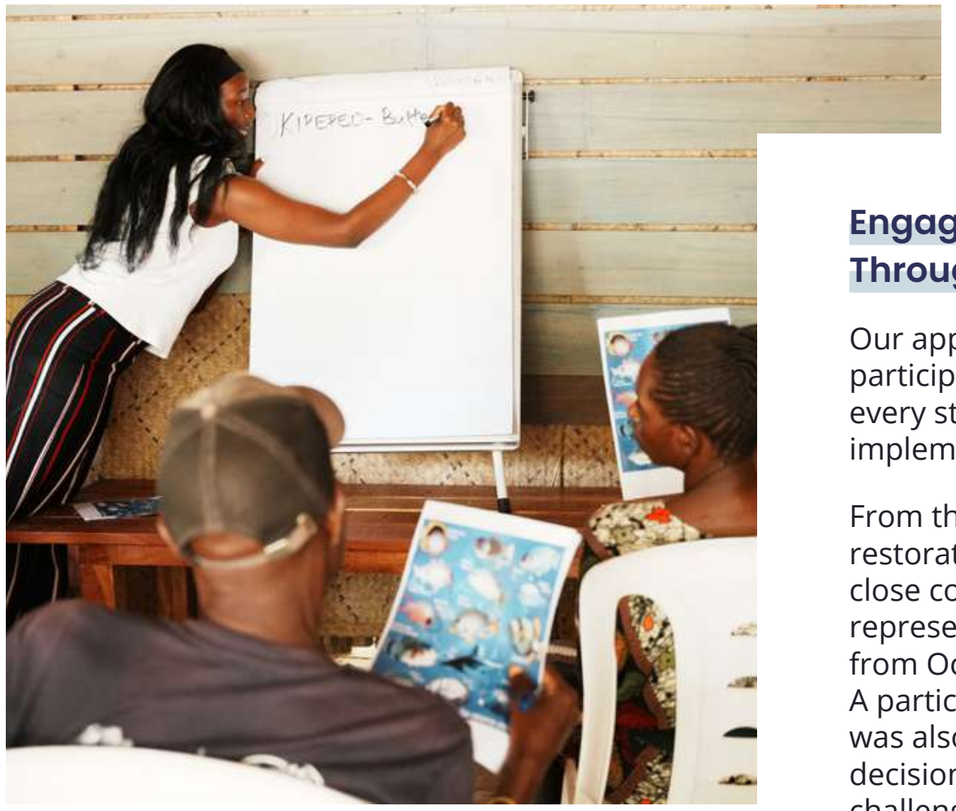
Our ambition is to protect and restore 50 hectares of coral reefs and associated ecosystems across two sites within the co-management area of Kuruwitu. Our goal is to strengthen ecosystem resilience while improving the livelihoods of local fishing communities who depend on these resources.

To achieve this, we are developing and testing three restoration techniques that are adapted to the local context, sustainable, and participatory. These include coral farming, transplantation, and monitoring of at least 14,400 corals across the two sites.

Community involvement lies at the heart of the project. Therefore, we train and support at least 60 trainees from local villages in reef protection and monitoring techniques.

Additionally, we conduct awareness-raising activities on multiple levels: local (across six sites in Kuruwitu), regional (in 16 neighboring zones), and international, to highlight the importance of coral reefs for livelihoods along the African coast, as well as the project's challenges and progress.

We are also working to create a network of stakeholders engaged in coral restoration, both in Kenya and throughout the Indian Ocean region.



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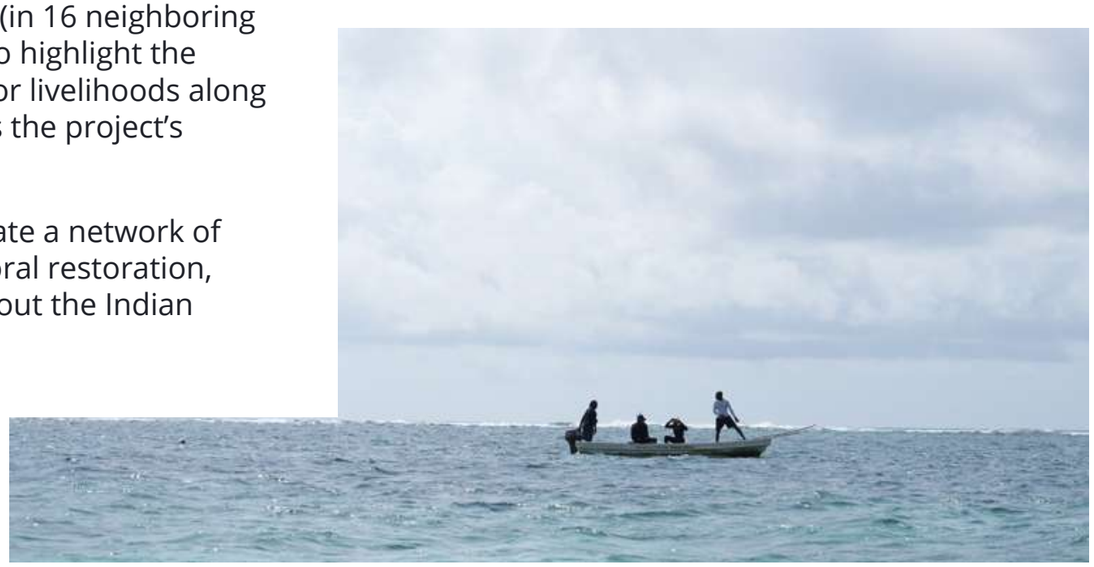

Engaging Local Communities Through Coral Restoration

Our approach is based on the active participation of local communities at every stage of the project from design to implementation and monitoring.

From the outset, the selection of restoration sites was carried out in close consultation with community representatives, supported by the teams from Oceans Alive and Coral Guardian. A participatory data collection process was also conducted to ensure informed decision-making that incorporates local challenges and priorities.

In 2024, we identified three restoration sites involving four villages. In the next phase, we launched a training internship program, a key component of the project. Over a six-month period, groups of fishers from various Kuruwitu communities take part in paid internships to learn coral restoration techniques, reef monitoring, and community outreach. The goal is to turn these interns into true ambassadors of the project and ensure long-term knowledge transfer.

In 2024, ten interns were recruited: six men and four women, aged between 25 and 62, from four different villages.

Restoration Methods Used

We are testing three coral restoration methods to identify the most suitable one for long-term impact:

- **Table nurseries with plugs** (original method developed by Oceans Alive): This technique enables large-scale coral propagation (up to 240 corals per table) and is easily replicable thanks to the use of concrete, a material that is readily available locally.
- **Artificial reefs** (also developed by Oceans Alive): These provide an excellent substrate for coral larval recruitment, create habitats for fish, and are easily scalable using concrete structures.
- **Metal frames** (method developed by Coral Guardian): Their main advantage is that they do not require a nursery phase and need minimal equipment.

Other techniques are currently being experimented with, using innovative materials.

In terms of monitoring, our protocols are co-designed by Oceans Alive and Coral Guardian to actively involve interns in the evaluation process and deepen their understanding of coral biology. Monitoring is carried out across three areas:

- **Biological**: measurement of coral linear growth, monitoring of bleaching and colony mortality.
- **Ecological**: observation of fish abundance and presence of key species, based on the criteria defined by Kawaka et al. (2017).
- **Social**: analysis of how the project is perceived by local communities through village-based surveys.

A fisheries monitoring component is also being developed to complement our approach.

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The REEL project we launched with the support of Coral Guardian has had a significant impact on the restoration of traditional fisheries and on the community. More and more community members are eager to join the training program, and a cultural shift has taken place, with active participation from women. I hope to see even more women joining the ranks of coral restoration trainees in the near future.

- Alice Mshai, Project Manager

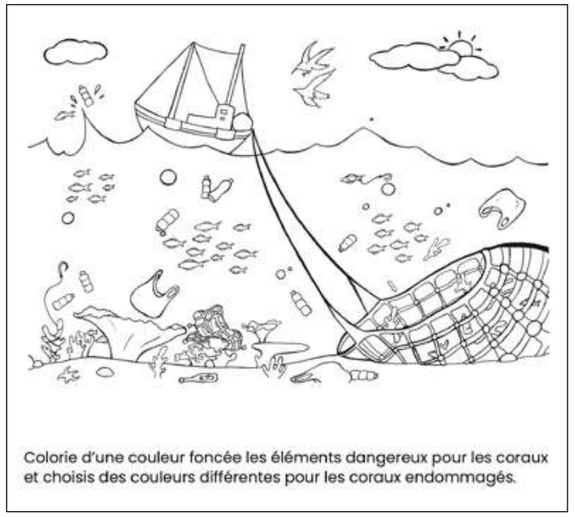
AWARENESS-RAISING ACTIVITIES

‘CORAL’ Exhibition

Since the end of 2019, we have been offering the photography exhibition CORAL. Created in partnership with our co-founder and photographer Martin Colognoli, the exhibition highlights the harmony between humans and nature. Viewers are immersed in the project we are carrying out in collaboration with the fishing village of Seraya Besar.

In 2024, the exhibition helped raise awareness among many people: at the Nausicaá National Sea Centre, the Now coworking space in Lyon, the Sophia Antipolis media library, and several libraries at the Université Côte d’Azur. Thanks to these events, many visitors were touched and educated about the threats facing coral reef ecosystems, as well as the local solutions we offer to support coral regeneration efforts by local communities.

> **The CORAL exhibition welcomed over 20 school classes around 240 children and was seen by many of our visitors throughout its display period. The children were delighted and amazed by this captivating world!**
>
> **- Valérie Zunino, Head of the Sophia Antipolis Media Library**



COLORING BOOK

In 2024, we continued to use our first coloring book, which focuses on the theme of tropical corals. This book is aimed at raising awareness among children living near the Marine Protected Area we help restore in Indonesia. Our local teacher, Imaculada Hane, used it to engage children in two different schools: one in the city of Labuan Bajo, and the other in the fishing village of Seraya Besar.

It is essential for us that future generations are aware of the environment around them and understand the importance of coral reef ecosystems for their communities.

Following the success of this first edition, we created a second version last year, this time focusing on cold-water corals. It directly references the Deep CORE project that we support in the Mediterranean.

Both fun and educational, this new book includes various activities and features illustrations made in partnership with the Condé School of Art in Lyon. It is now part of the 2024–2025 CNED (National Centre for Distance Education) curriculum as part of the “Year of the Ocean” initiative. It helps raise awareness among both primary and middle school students. Our aquarium partners, such as the Saint-Malo Aquarium and Lyon Aquarium, are also using it.

AWARENESS KIT

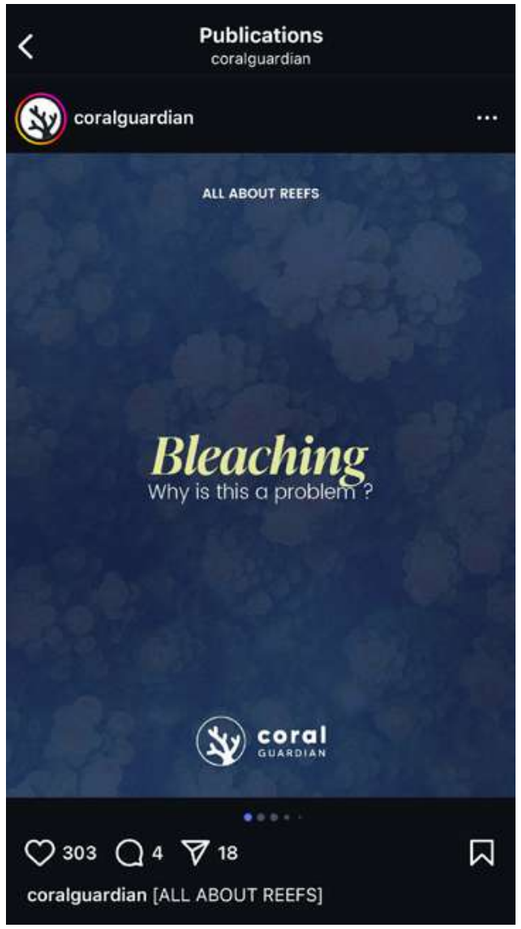
Our awareness kit is a completely free tool offered to anyone who wants to educate others about the importance of coral ecosystems. It includes a presentation with a coral-themed quiz, a video, postcards, a ready-to-use speech, and an informative sheet about coral biology and our actions!

Additionally, maps from the Copernicus Marine Service enrich the kit, adding more scientific detail and accuracy to our content.

With this kit, anyone regardless of their level of knowledge about corals can easily spread the message and adapt it to their needs and audience, thanks to this turnkey solution.

In 2024, the kit was used by more than forty individuals across France, the French overseas territories (DROM-COM), and internationally, including in Germany, the United States, Indonesia, Australia, and Canada.

Currently, the kit is available by request via email at info@coralguardian.org, and we plan to make it directly downloadable from our website in 2025.



SANDBOX

In 2024, we launched a new awareness module called the Sandbox! It is available at the Nausicaá National Sea Center. This interactive sandbox uses two major scenarios (one from our project in Indonesia and the other in Spain) to showcase the threats facing coral ecosystems, how to protect them, and the direct impact these issues have on local communities.

Designed for groups of teenagers, it can also be used with younger children when accompanied by a facilitator, as well as with adults!

"ALL ABOUT CORALS"

In 2024, we launched a series of posts on our social media platforms called "All About Corals". Created in collaboration with Florina Jacob, Julien Paulet, Margaud Berthomieux, Océane Conjard, and Laura Toffolo, this series breaks down scientific topics about coral ecosystems in a simple and accessible way. The goal is to raise awareness and answer common questions like: What is a coral? What is coral bleaching? What is a reef? And many more! We use clear, simple language and visual aids to help make these concepts easy to understand and engaging for everyone.

For the curious minds, these posts are still available on our Instagram, Facebook, and LinkedIn pages and we plan to continue publishing more throughout 2025!

SCIENCE

Science drives our coral restoration and protection actions in the field, both biologically and socially. The local associations we support are guided by our team in France to develop protocols that best monitor the progress of restoration programs — covering techniques used, coral health, and the local social impact of the projects. This is tailored to their specific interests and needs.

DISCOVER OUR SCIENTIFIC PROJECTS!

IN FRANCE

Launch of the Scientific Division

The Field and Science division is evolving to become the Scientific Division, fully dedicated to research and strengthening the scientific expertise of field projects.

Composition

- One division manager
- One division coordinator
- A Scientific Advisory Board

Operations

The Scientific Division works closely with the Field Division to:

- Analyze collected data
- Create and optimize monitoring protocols
- Develop new research projects

Science communication also plays a key role in this new structure.

Science Communication: REEF Blog

In 2024, our REEF blog published several articles thanks to the dedication of our volunteer writers, Laura Bastide, Aurélie Brulle, and Sophie Coxon. We extend our gratitude to the researchers who validated these contents, ensuring their scientific accuracy. Here is an overview of the **topics covered**:

A Fleet of Drifting Instruments in the Ocean for Monitoring and Protecting the Oceans? (February 28, 2024)

This article explores the role of Argo floats, a network of drifting devices providing in situ data for ocean monitoring.

The 10 Golden Rules of Coral Restoration (August 1, 2024)

Presentation of the fundamental principles for effective coral reef restoration, with contributions from Margaux Hein, Kate M. Quigley, and David J. Suggett.

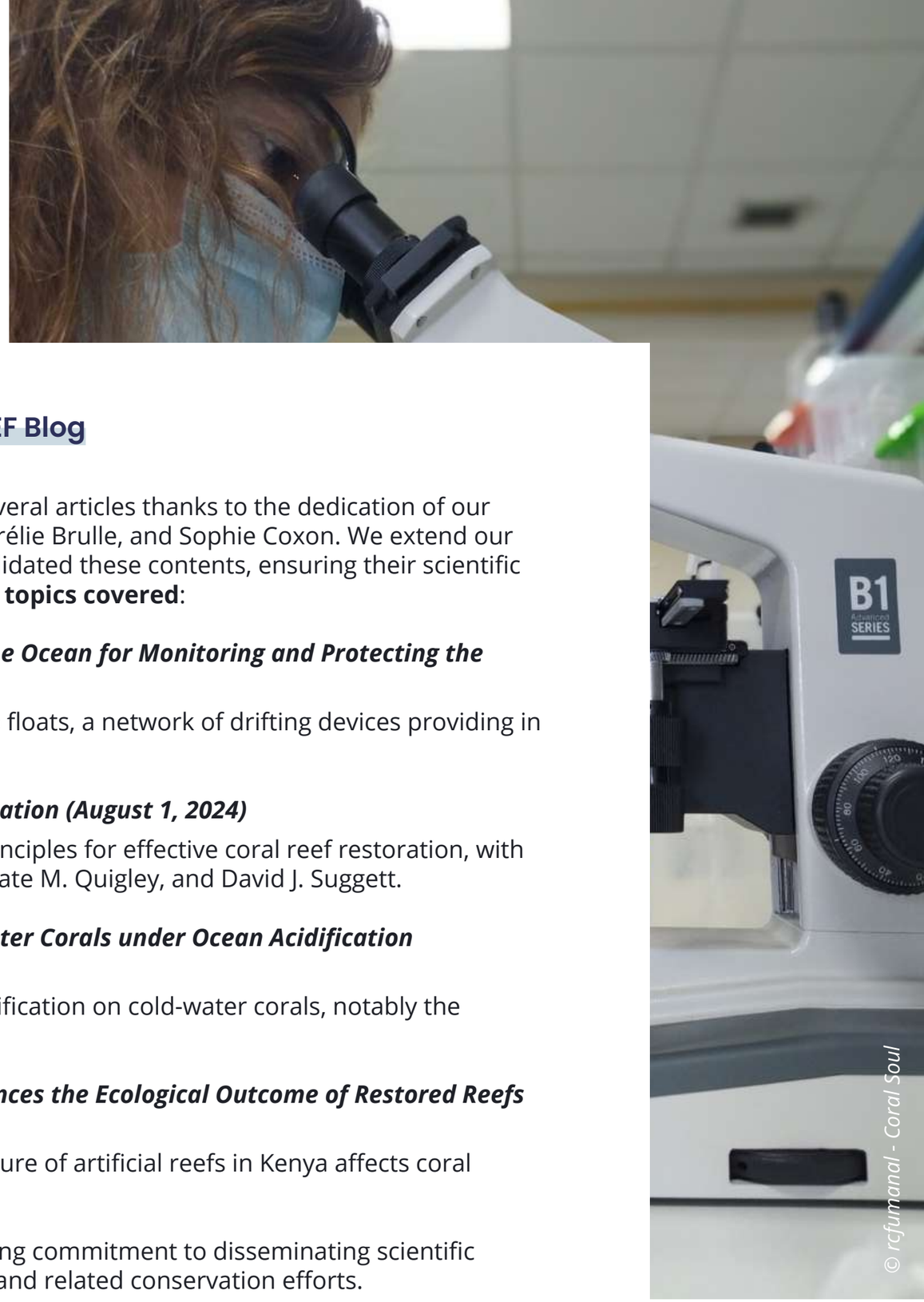
"Coralporosis": The Fate of Cold-Water Corals under Ocean Acidification (October 30, 2024)

Analysis of the impact of ocean acidification on cold-water corals, notably the species *Lophelia pertusa*.

The Design of Artificial Reefs Influences the Ecological Outcome of Restored Reefs (November 19, 2024)

Study demonstrating how the structure of artificial reefs in Kenya affects coral survival and associated biodiversity.

These publications reflect our ongoing commitment to disseminating scientific knowledge about coral ecosystems and related conservation efforts.



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SCIENCE

IN INDONESIA

Biological monitoring: fish and substrate

We continue monitoring our restoration zones as well as control sites identified in 2023. We monitored the substrate at the Hatamin site, referred to as the “restored” site, then at Seraya Besar, the “destroyed non-restored” site, and Seraya Kécil, the “healthy non-restored” site.

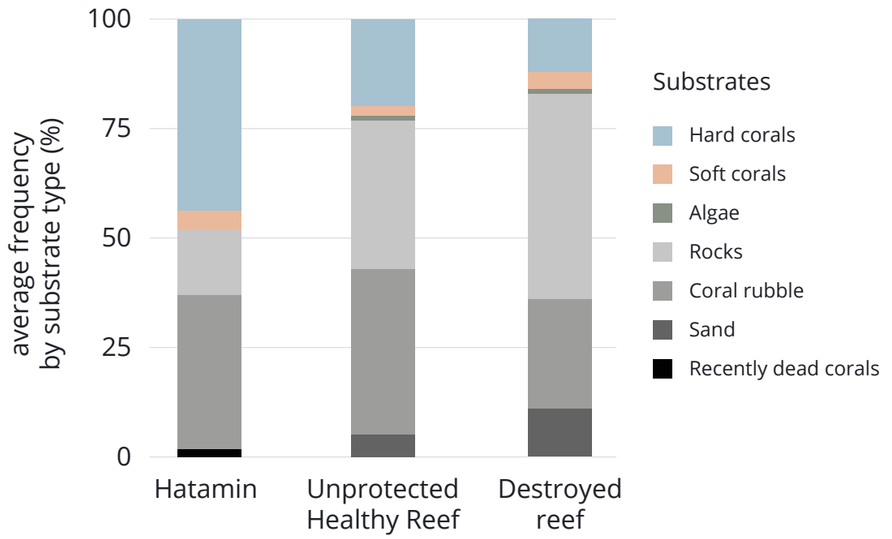
Regarding the live substrate, **the average hard coral cover is significantly higher within the restored Hatamin reef**, with an average cover of 48%, compared to 20% in the healthy unprotected reef and 12% in the destroyed reef. The presence of soft corals is similar across all three reefs (Hatamin 4%, destroyed reef 2%, healthy reef 4%). Algae cover was recorded at 1% in both control sites.

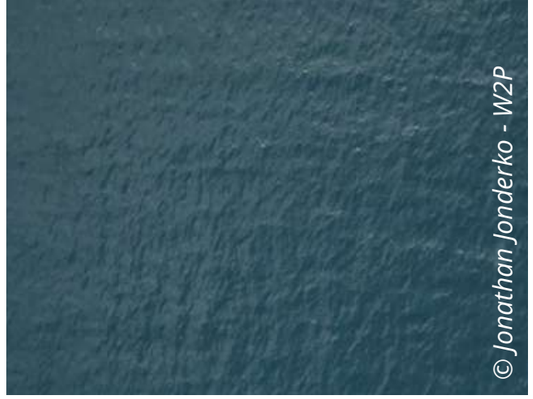
Regarding dead substrate, the frequency of coral rubble is similar between the restored reef and the healthy reef, with average covers of 35% and 38%, respectively. These are significantly higher than in the destroyed reef, where rubble represents 25% of the substrate.

The frequency of rocky substrate at Hatamin is significantly lower (15%) than in the healthy unprotected reef (34%) and the destroyed reef (47%). The average rock cover also differs significantly between the healthy unprotected and destroyed reefs. Sand cover is lower in the healthy unprotected reef (5%) than in the destroyed reef (11%). Recently killed corals were observed only at Hatamin, representing 2% of the substrate.

In all reefs, dead substrate is more prevalent than live substrate. The restored Hatamin reef has the highest live substrate (48%) compared to 23% in the healthy unprotected reef and 17% in the destroyed reef.

FREQUENCY OF BENTHIC CATEGORIES BY SITE (2024)



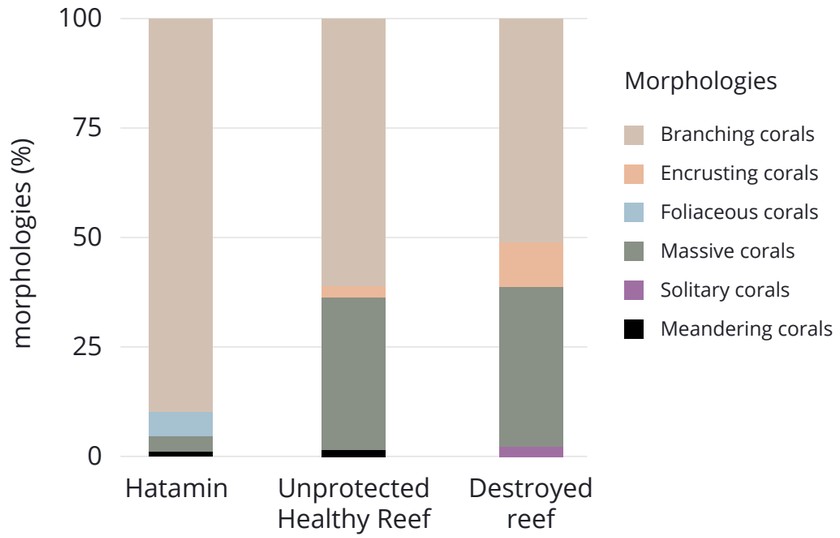


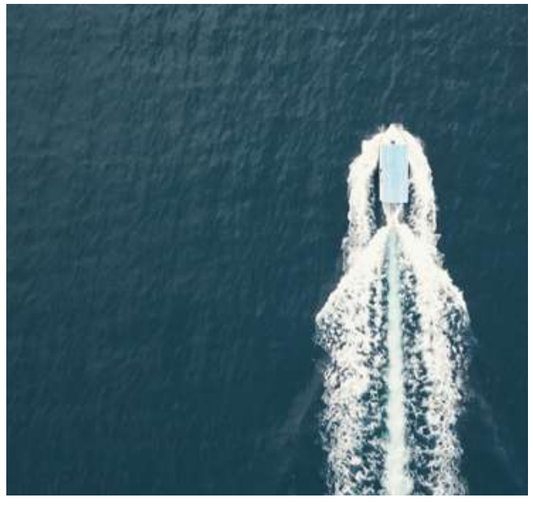
Branching corals are the dominant morphology across all three reefs. They account for 89% of the coral cover in the restored reef of Hatamin, significantly higher than in the two reference reefs (healthy reef: 61%, degraded reef: 51%). The presence of branching corals in the two reference reefs is also significantly different.

At Hatamin, massive corals represent 4%, significantly lower than in the other two reefs, where massive corals are the second most dominant form, with frequencies of 35% in the healthy reef and 37% in the degraded reef.

- → Foliaceous corals are present only at Hatamin, representing 6% of the coral cover.
- → Encrusting corals are absent at Hatamin but are found at the other sites, with a 3% cover in the unprotected healthy reef and 10% in the degraded reef.
- → Meandering corals are found only at Hatamin and the healthy unprotected reef, both at 1%.
- → The degraded reef is the only one where solitary corals have been recorded (2%).

CORAL COVER DISTRIBUTION
BY MORPHOLOGY AND SITE (2024)



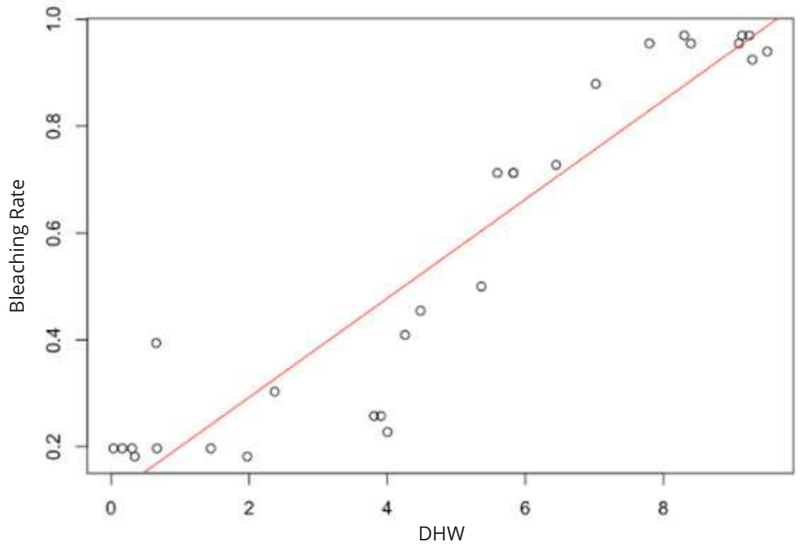


Temperature and Coral Bleaching Monitoring

Since 2022, we have been monitoring water temperature, coral bleaching, and mortality on a selection of coral tables across 7 different zones of our restoration site in Hatamin. To estimate thermal stress and coral bleaching thresholds in the area, we calculated an indicator called Degree Heating Week (DHW). This metric reflects the accumulated thermal stress in a region over the past 12 weeks by summing all temperatures that exceeded the bleaching threshold during that period.

We observed a correlation between DHW and total coral bleaching observed on the tables at Hatamin. Further zone-specific analyses, planned for this year, will allow for a more detailed understanding of the bleaching and mortality conditions faced by our corals.

Correlation between Degree Heating Week (DHW)
and Coral Bleaching Rate



SCIENCE

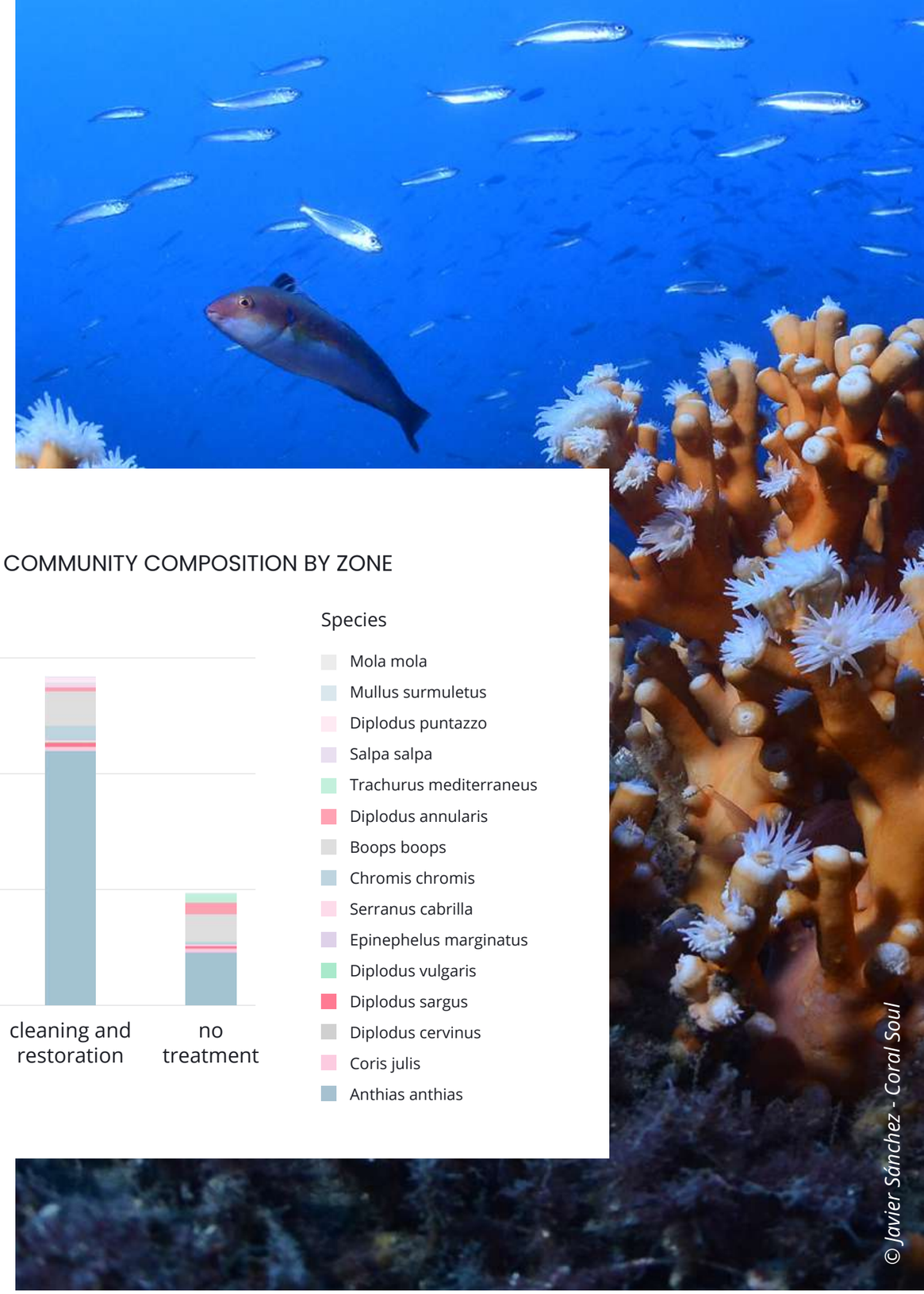
IN SPAIN

Study of Fish Abundance and Diversity in Three Zones of Punta de la Mona

To assess the ecological effects of reef restoration and cleaning, fish abundance and diversity have been monitored since 2022 in three zones: restored and cleaned, cleaned but not restored, and untouched.

Results show fish abundance to be nearly three times higher in the restored zone compared to the control zone, with clear increases year after year. Certain indicator species associated with coral cover, such as the carnivorous fish *Anthias anthias*, are much more prevalent in restored zones, although this strong dominance slightly reduces overall diversity.

Rare key species, such as the dusky grouper (*Epinephelus marginatus*) and the ocean sunfish (*Mola mola*), have also been observed in the treated areas. A more in-depth statistical analysis of monthly data will be carried out during 2025 to more precisely characterize the effects of cleaning and restoration.



© Javier Sánchez - Coral Soul

Bioaccumulation Study of Contaminants in Cold-Water Corals of Punta de la Mona

This project, completed in 2024, investigated the presence and bioaccumulation of organic contaminants in cold-water corals in the Bay of La Herradura. The study focused on two protected coral species (*Astroides calycularis* and *Dendrophyllia ramea*), as well as on seawater, sediments, and suspended particles, collected in winter and summer 2021.

Out of 218 chemical compounds analyzed, 94 were detected, mainly pharmaceuticals (PhACs), followed by polycyclic aromatic hydrocarbons (PAHs), personal care products (PCPs), industrial compounds (INDs), and pesticides (PESTs). Pharmaceuticals were found to be ubiquitous, including antibiotics, painkillers, illicit drugs, and lipid regulators. The main metabolites of cocaine and nicotine were detected at high frequency in the water, particularly in winter, due to slower degradation at lower temperatures.

The corals showed a strong capacity to accumulate these substances, particularly UV filters, ibuprofen, and drugs like methamphetamine. Punta de la Mona was the most contaminated site, due to untreated wastewater discharges and the presence of a marina.

While these effects are often studied in tropical reefs, this work highlights their potential impact on cold-water corals. In conclusion, the study recommends strengthening regulations on wastewater discharges and continuing research on the effects of emerging pollutants in temperate marine ecosystems.

Biometric Study of *Dendrophyllia ramea*

Cold-water corals, particularly *Dendrophyllia ramea*, grow very slowly (about 1 cm per year), making growth studies challenging and highlighting the importance of long-term research. A study was conducted this year aiming to compare the in situ growth of juvenile colonies and recruits at different depths and seasons within the protected area of Punta de la Mona. Thirteen juvenile fragments were transplanted onto ceramic plates at three depth ranges: 30–33 m, 33–36 m, and 36–39 m.

Photo Series:

Annual growth of colonies monitored for the biometric study. The first row corresponds to the biometric study of recruits, while the last two rows show juvenile colonies in the nursery.

© Javier Sánchez

In addition to these fragments, five natural recruits were monitored. Growth was measured every three months between August 2021 and November 2024 using a rigorous protocol, including measurements of height, width, thickness, number of polyps, and volume. **The recruits showed a much higher average monthly growth rate (22.4%) than the juveniles (0.057%)**. Growth was also greater at deeper depths, with a peak between 36–39 m. However, seasonal variations were not statistically significant.

Regarding the division and formation of new polyps, it was found that juveniles produced, on average, more new polyps than the recruits. Depth also influenced this production, with a peak at 36–39 m. The results suggest that recruits initially invest in growth to anchor themselves firmly, while juveniles focus more on polyp production.

Study of the Reproductive Cycle of *Dendrophyllia ramea*

A study on the reproductive cycle of *Dendrophyllia ramea* was initially launched through histological analysis of adult polyps, aiming to identify colony sex and explore the possibility of internal fertilization. However, a recent publication (Orejas *et al.*, 2024) from the same area concluded that reproduction is external although without direct evidence. Coral Soul's team therefore continued its research to better understand the actual reproductive mechanism.

Last year, they observed for the first time the release of sperm by two colonies, which allowed them to develop hypotheses on possible environmental triggers (such as the lunar cycle or temperature).

This year, monitoring efforts were intensified during the period when the phenomenon had previously been observed, with a focus on environmental parameters. During one of these monitoring sessions, **a previously undocumented synchronized spawning event was recorded in two nurseries** located at a depth of 36 m. This is the **first direct observation confirming external and synchronized reproduction in *D. ramea***, influenced by factors such as the lunar cycle, ocean currents, and temperature.

Shortly before the event, a 4°C drop in temperature was recorded, associated with weak but nutrient-rich currents favorable for gamete dispersal and post-spawning energy recovery. Male and female gamete release was observed and sampled for morphological analysis in the laboratory.

A scientific article is currently being prepared for publication. Following this major breakthrough, the histological study was suspended in order to redirect resources toward the study of spawning and its environmental triggers, to better understand the species' reproductive cycle.

Photo series:

Synchronized spawning of Dendrophyllia ramea colonies in the nursery (left), release of male gametes (center), and female gametes (right).

© Rafael Camacho

EVENTS

The year 2024 was full of events for Coral Guardian!

We first attended, as visitors, the **Diving Show**, the **World Impact Summit**, and **Change Now** at the beginning of the year.

Florina Jacob, our field project manager, helped lead a **webinar organized by Respect Ocean** in partnership with Ifrecor, focusing on how we concretely involve local communities in our coral restoration initiatives.

She also traveled with the manager of our partner project in Spain to the **European Coral Reef Symposium** in Naples.

Finally, the entire staff team along with the association's board gathered in Marseille during the summer for a sunny seminar!

PARTNERS

– THEY HAVE SUPPORTED US

Like any organization, Coral Guardian does not grow alone.

A BIG THANK YOU

to our ecosystem of financial, operational, and institutional partners. Your ongoing commitment and trust motivate us to keep developing our projects.

Dedicated professionals, scientific experts, volunteer IT specialists, scientists and creatives, entrepreneurs and artists, your support gives us the energy needed to carry our vision as far as possible. We warmly thank you.

Our strategic partners

H2O at Home

Humble

avril COSMÉTIQUE BIO

Green Got

yepoda 예쁘다

Mirova FOUNDATION

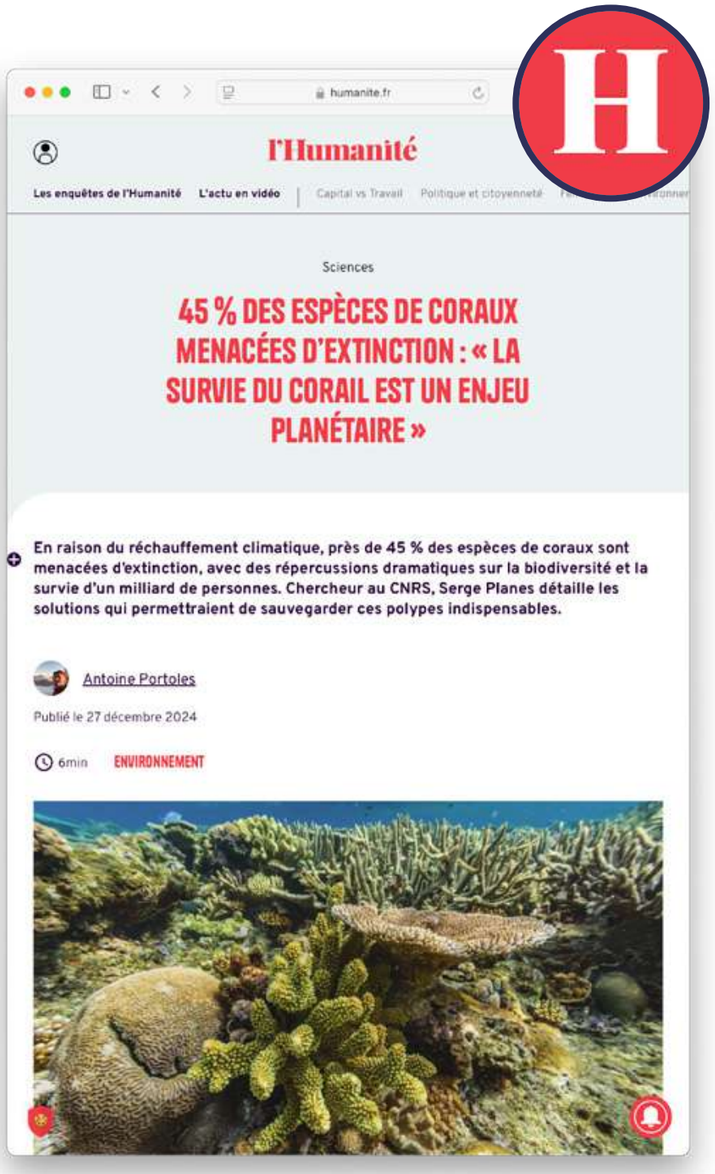
LAGOON

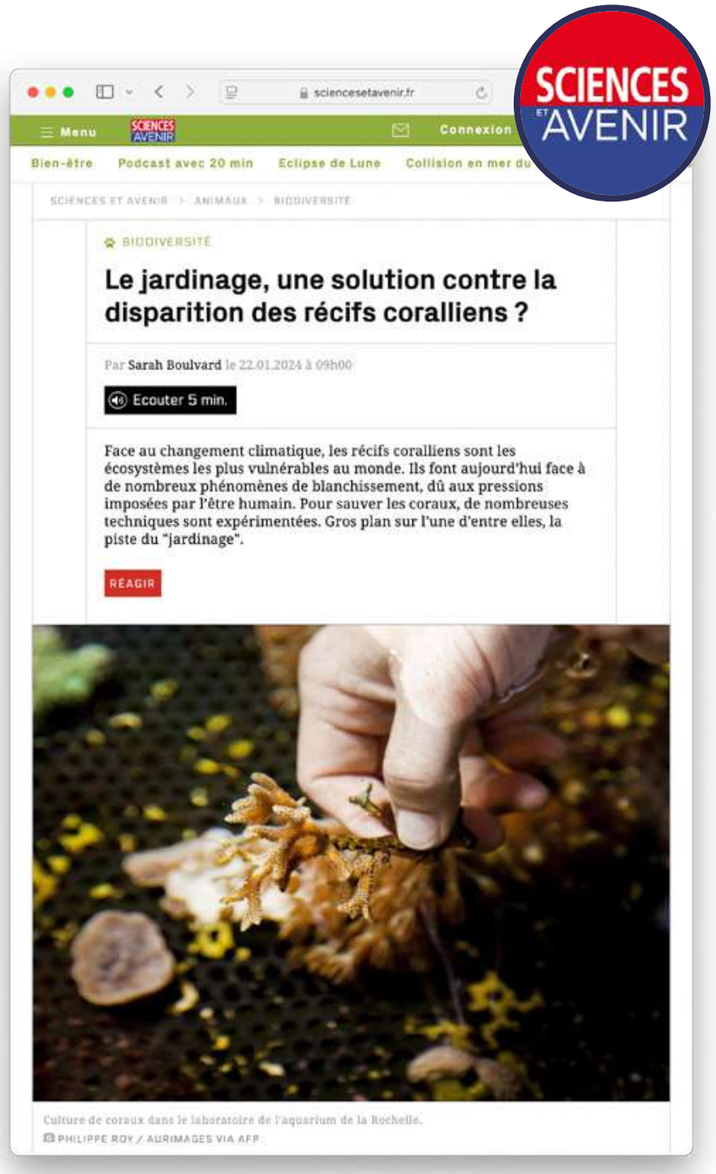
and also...

1% Pour la Planète
Albertine Swim
Groupe Aqualung
Alliance Optique
Apnée Swimwear
Axsense
Groupe Bertrand
Circulab
Davidson Consulting
Destinations Conseils
Eco Elio
ELCIA
Ekibio
F2M Frenchmade
Fondation Léa Nature
Fondation Lemarchand
Fonds de dotation Le Poids du Vivant
Fonds de dotation Wild Angels
JEM
Joone
Les Petits Prödiges
Limestreams
Mercator Ocean
Neowood
Patyka Paris
Pixpay
Ponant
RedSea Europe
Reeflr
Sorio
Synetis
Ta Belle Mer
W2P Productions

PRESS AND MEDIA

- FOCUS ON 3 ARTICLES





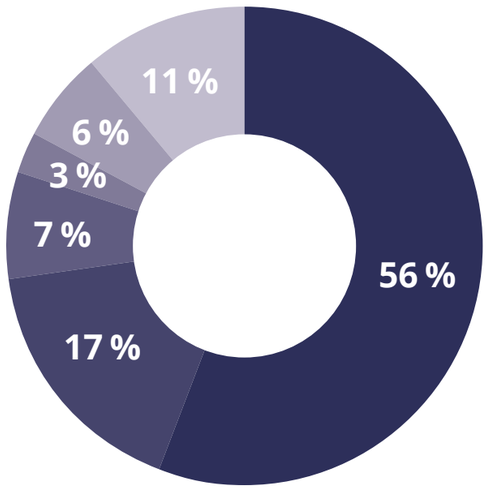
Find all publications about our 2024 activities at
WWW.CORALGUARDIAN.ORG/EN/PRESS-ROOM/

FINANCIAL REPORT

- OUR SOCIO-ECONOMIC MODEL

COST BREAKDOWN

- Marine conservation programs
- Awareness campaigns
- Communication
- Scientific research
- Fundraising expenses
- Operating costs

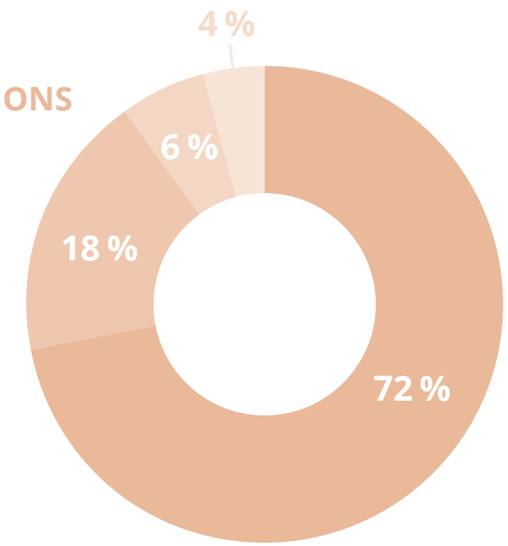


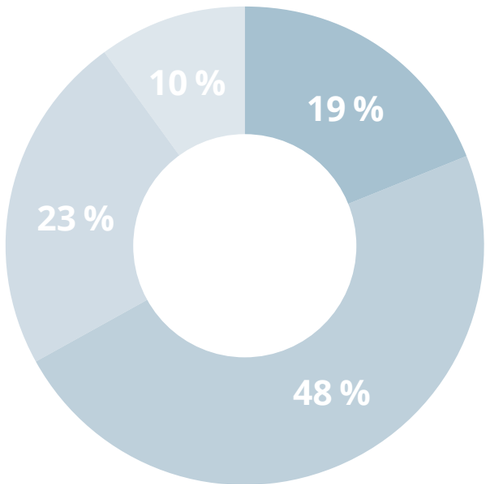
Coral Guardian's model relies on a **balance between public generosity, partnerships with private actors, public grants, and in-kind voluntary contributions.**

This hybrid model ensures our independence, financial resilience, and environmental and social impact.

SOURCES OF DONATIONS

- Companies
- Individuals
- Online donation platforms
- Foundations





EXPENSE ANALYSIS BY PROJECT IN 2024

- Indonesia
- Spain
- Kenya
- Other projects (awareness, etc.)

RESOURCES

Coral Guardian's resources in 2024 amounted to **€947,546**, marking strong growth compared to the previous fiscal year. Public generosity remains a key pillar, representing nearly 88% of operating income through individual donations (€209,409) and corporate sponsorship (€620,827).

Other operating income totaled €116,640, notably including funds linked to dedicated grants.

IN-KIND VOLUNTARY CONTRIBUTIONS (IVC)

Non-financial resources are an important marker of our model. They amounted to **€23,448**, divided between:

- **Volunteering**: €13,999
- **Free provision of goods and services**: €9,449

These contributions strengthen our operational capacities in the field, especially in intervention zones such as Indonesia, Kenya, and Spain.

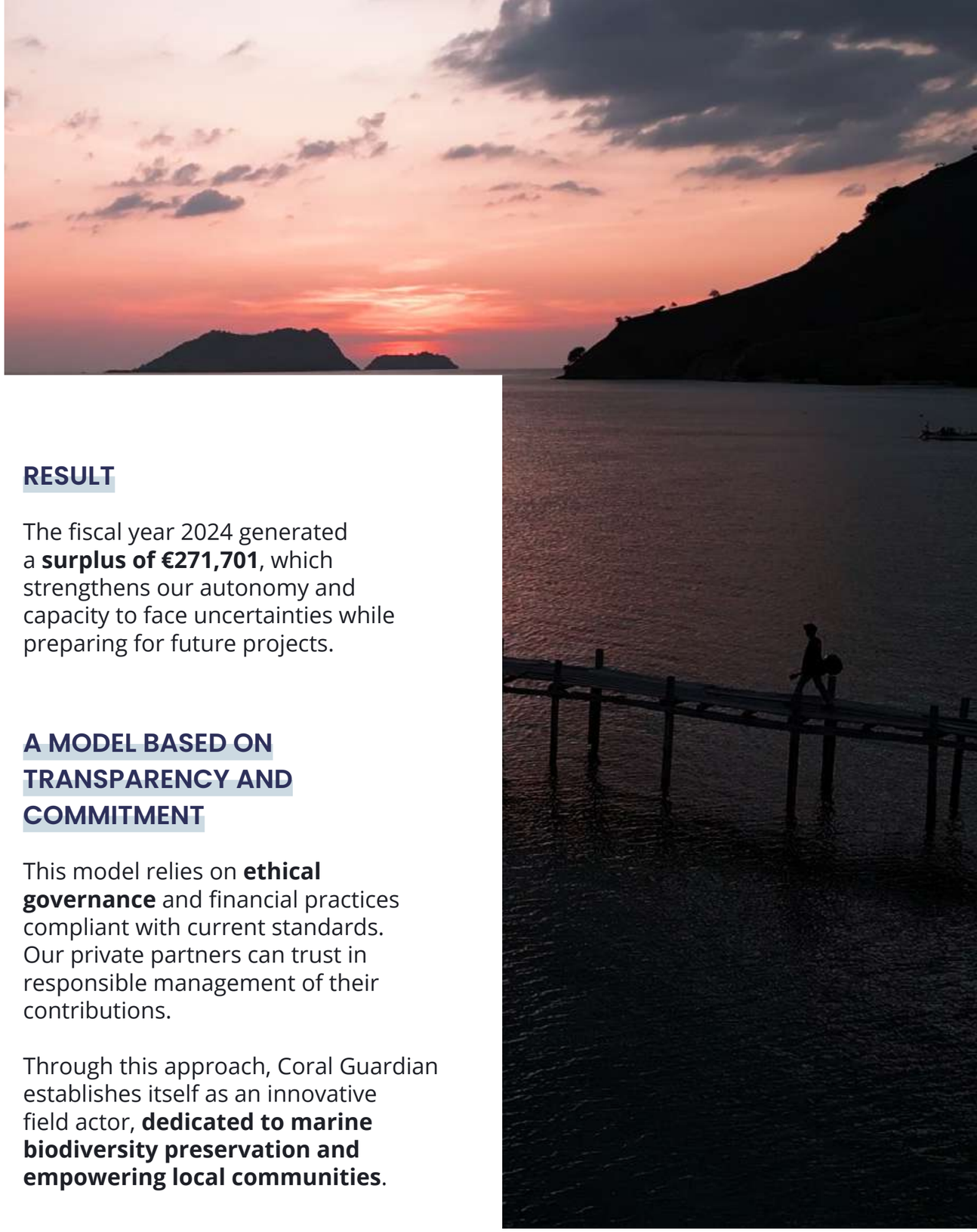
EXPENDITURES

Funds were primarily invested in social missions (€468,695), notably abroad, where Coral Guardian works on coral reef restoration in partnership with local communities.

We maintain rigorous management of our overhead costs, with:

- **Operating expenses**: €72,993
- **Fundraising expenses**: €41,307

The allocation rate of resources to social missions thus reaches over 69%, reflecting our commitment to maximizing the impact of every euro entrusted.



RESULT

The fiscal year 2024 generated a **surplus of €271,701**, which strengthens our autonomy and capacity to face uncertainties while preparing for future projects.

A MODEL BASED ON TRANSPARENCY AND COMMITMENT

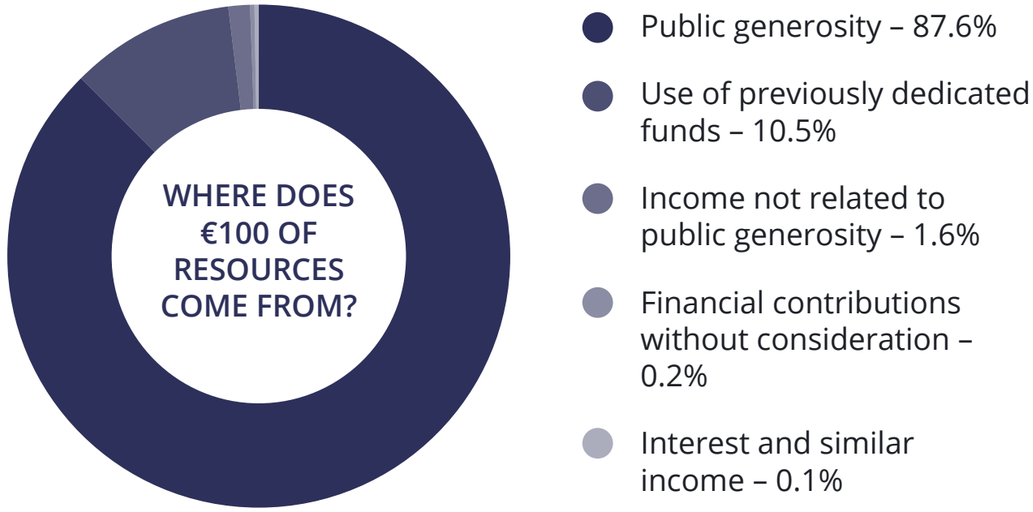
This model relies on **ethical governance** and financial practices compliant with current standards. Our private partners can trust in responsible management of their contributions.

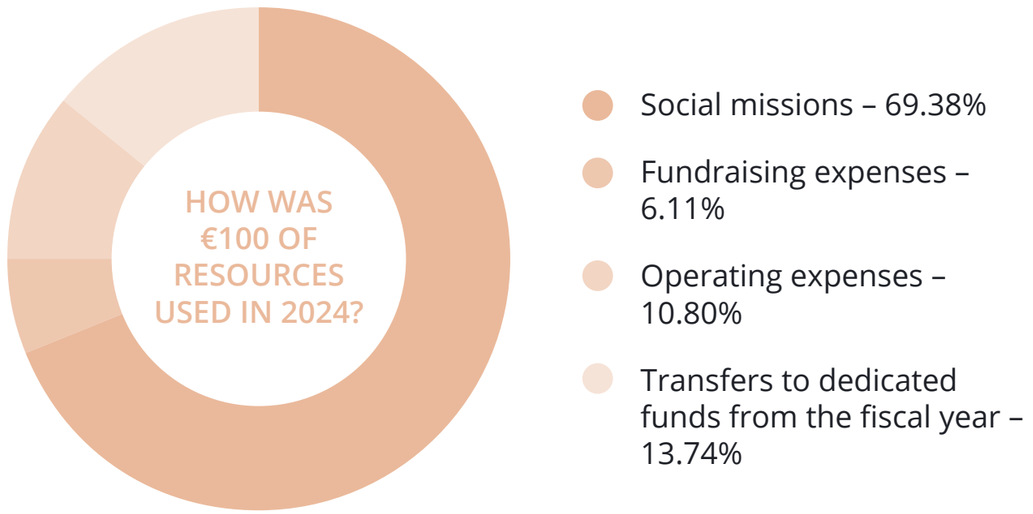
Through this approach, Coral Guardian establishes itself as an innovative field actor, **dedicated to marine biodiversity preservation and empowering local communities**.

CROD CER 2023-2024 – CORAL GUARDIAN

IN €, ACTUAL 2023-2024

INCOME AND EXPENSES	2024	2023
Income related to public generosity	830,236	606,444
Income not related to public generosity	14,832	-
Financial contributions without consideration	2,089	-
Other interest and similar income	670	-
Use of previously dedicated funds	99,719	-
TOTAL INCOME BY ORIGIN	**947,546**	**606,444**
Social missions	468,695	275,523
Fundraising expenses	41,307	58,141
Operating expenses	72,993	47,763
Provisions and depreciation allocations	-	1,468
Transfers to dedicated funds from the fiscal year	92,849	99,719
TOTAL EXPENSES BY DESTINATION	**675,844**	**482,615**
SURPLUS OR DEFICIT	**271,701**	**123,829**





IN-KIND VOLUNTARY CONTRIBUTIONS

INCOME BY ORIGIN	2024	2023
Voluntary contributions linked to public generosity	23,448	14,589
TOTAL INCOME BY ORIGIN	**23,448**	**14,589**
Voluntary contributions to social missions	19,577	14,589
Voluntary contributions to operations	3,871	-
TOTAL EXPENSES BY DESTINATION	**23,448**	**14,589**

Find the full report of our annual accounts here:

WWW.CORALGUARDIAN.ORG/EN/ABOUT-CORAL-GUARDIAN/

SIMPLIFIED BALANCE SHEET

ASSETS (€)	2024	2023
Fixed assets	6,041	445
Receivables and prepaid expenses	24,903	33,246
Marketable securities and cash equivalents	620,036	351,405
Prepaid expenses	526	4,338
TOTAL ASSETS	**651,507**	**389,433**

LIABILITIES (€)	2024	2023
Equity and retained earnings	528,557	256,856
Dedicated funds	92,849	99,719
Debts	30,101	32,859
TOTAL LIABILITIES	**651,507**	**389,434**

ALL THESE ACTIONS
WOULD NOT HAVE COME TO
LIFE WITHOUT THE TEAMS

IN FRANCE, INDONESIA,
SPAIN, AND KENYA.

FRANCE

employees ○, volunteers ○ & freelancers ○

COCO TAMLYN
DIRECTOR OF THE ASSOCIATION

FLORINA JACOB
FIELD PROJECT MANAGER

NEYDA RADOUANE
PARTNERSHIPS MANAGER

FLORENCE LACROSSE
PROJECT MANAGER

MARGAUD BERTHOMIEU
COMMUNICATIONS AND AWARENESS INTERN

JULIEN PAULET
FIELD AND SCIENCE INTERN

OCÉANE CONJARD
COMMUNICATIONS AND AWARENESS MANAGER

JULIETTE VILLECHANOUX
TEMPORARY FIELD PROJECT MANAGER

SOLÈNE JONVEAUX
SCIENTIFIC PROJECT OFFICER

DR. ROMAIN BERNARD
PRESIDENT

JULIEN HOLLEVILLE
TREASURER

MARTIN COLOGNOLI
CO-FOUNDER AND BOARD MEMBER

BRUNO BRETON
MEMBER OF THE BOARD OF DIRECTORS

DR. OLIVIER DETOURNAY
MEMBER OF THE BOARD OF DIRECTORS AND SCIENTIFIC COUNCIL

CAROLINE BOURGEOIS
GENERAL SECRETARY

DR. LEÏLA EZZAT
PHD, AQUATIC ECOLOGIST, EPFL

VLADIMIR OSPINA
ARCHITECT AND ILLUSTRATOR

ANNE-SOPHIE MOURAUD
COMMUNICATION AND AWARENESS SUPPORT

LAURIE-ANNE DELANNOY
TRANSLATOR

CAROLE PETETIN
GRAPHIC DESIGNER

LAURA TOFFOLO
GRAPHIC DESIGNER

LAURA BASTIDE
SCIENTIFIC MEDIATION AND COMMUNICATION

NESSIM KLEICHE
FIELD DATA ANALYSIS SUPPORT

AURÉLIE LELONG-BRULLE
SCIENTIFIC MEDIATION AND COMMUNICATION

JULIEN BROCHARD
DEVELOPER

YANN FARINES
IT EXPERT

GREG COLLIN
DEVELOPER

MAXIME BERAUD
BIOLOGICAL DATA ANALYST

LAURIE MARTINEZ
BIOLOGICAL DATA ANALYST

KENYA

employees of Oceans Alive

REMMY SAFARI SHOKA
COORDINATOR OF PARTICIPATORY PROJECTS

NANCY OGEGA
PROJECT MANAGER (REEL PROJECT)

ALICE MSHAI
ASSOCIATION PROJECT OFFICER

VINCENT MWANGI
FINANCE MANAGER

KATANA NGALA
LEADER OF CORAL TRAINING TEAM

MWALEWA KOMBO
CORAL AWARENESS TRAINER

SAID KOMBE
CORAL AWARENESS TRAINER

ANTHONY KARIUKI MACHARIA
COMMUNICATION MANAGER

JOHN BALARIN
TECHNICAL ADVISOR

INDONESIA

employees of WES Foundation

JONASH CASTILO MURDINI
LOCAL DIRECTOR

SUHARDIN RONI
CAPTAIN

ABDULLAH WEO
CORAL GUARDIAN

MURDIANTO
CORAL GUARDIAN

ABDUR RAHMAN MALWELAN
CORAL GUARDIAN

SAHRIL
CORAL GUARDIAN

IMMACULADA HANE
ENGLISH TEACHER

VALENTINA LIMEK TUKAN
ECOTOURISM OFFICER

SPAIN

employees ○ & volunteers ○ of Coral Soul

MARINA PALACIOS MIÑAMBRES
PROJECT DIRECTOR OF DEEP CORE AND PRESIDENT OF THE CORAL SOUL ASSOCIATION

ZAIDA PARRA
PROJECT COORDINATOR

EFRÉN PARRA
GRAPHIC DESIGN LEAD

AIMARA ARROYAVE
ENVIRONMENTAL EDUCATION LEAD

AIXA DORN
SCIENTIFIC TECHNICIAN OF THE DEEP CORE PROJECT

ELIAS RUIZ
ENVIRONMENTAL EDUCATION TECHNICIAN

JOSÉ MACÍAS
COMMUNICATIONS MANAGER

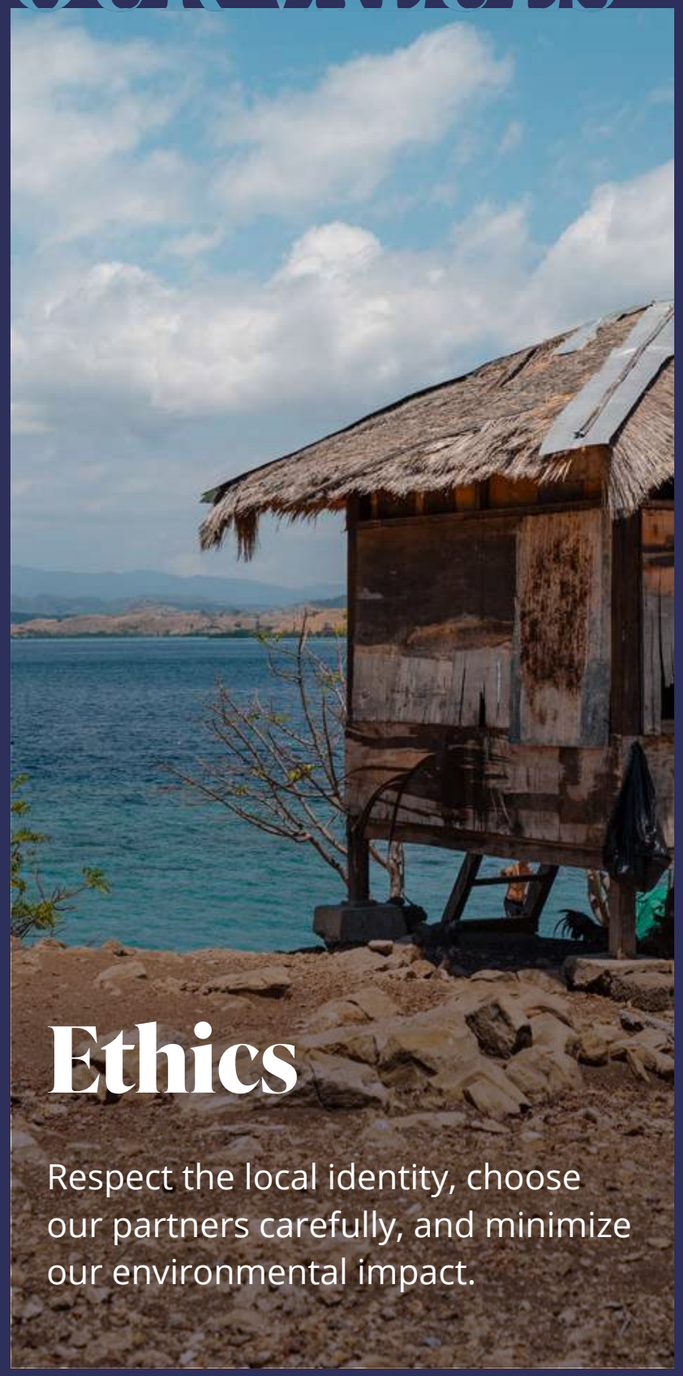
NACHO MARTÍN
PRESIDENT OF THE CORAL SOUL ASSOCIATION

RAFAEL CAMACHO
ASSOCIATION SECRETARY, TECHNICAL DIVER, VOLUNTEER PHOTOGRAPHER AND VIDEOGRAPHER, CEO OF BUCEONATURA

SALVADOR BLANCO
VOLUNTEER TECHNICAL DIVER, CORAL TRANSPLANTER, MEMBER OF BUCEONATURA

JAVIER SANCHEZ
VOLUNTEER UNDERWATER PHOTOGRAPHER, CEO OF DIFFERENT SCUBA SCHOOL

OUR VALUES

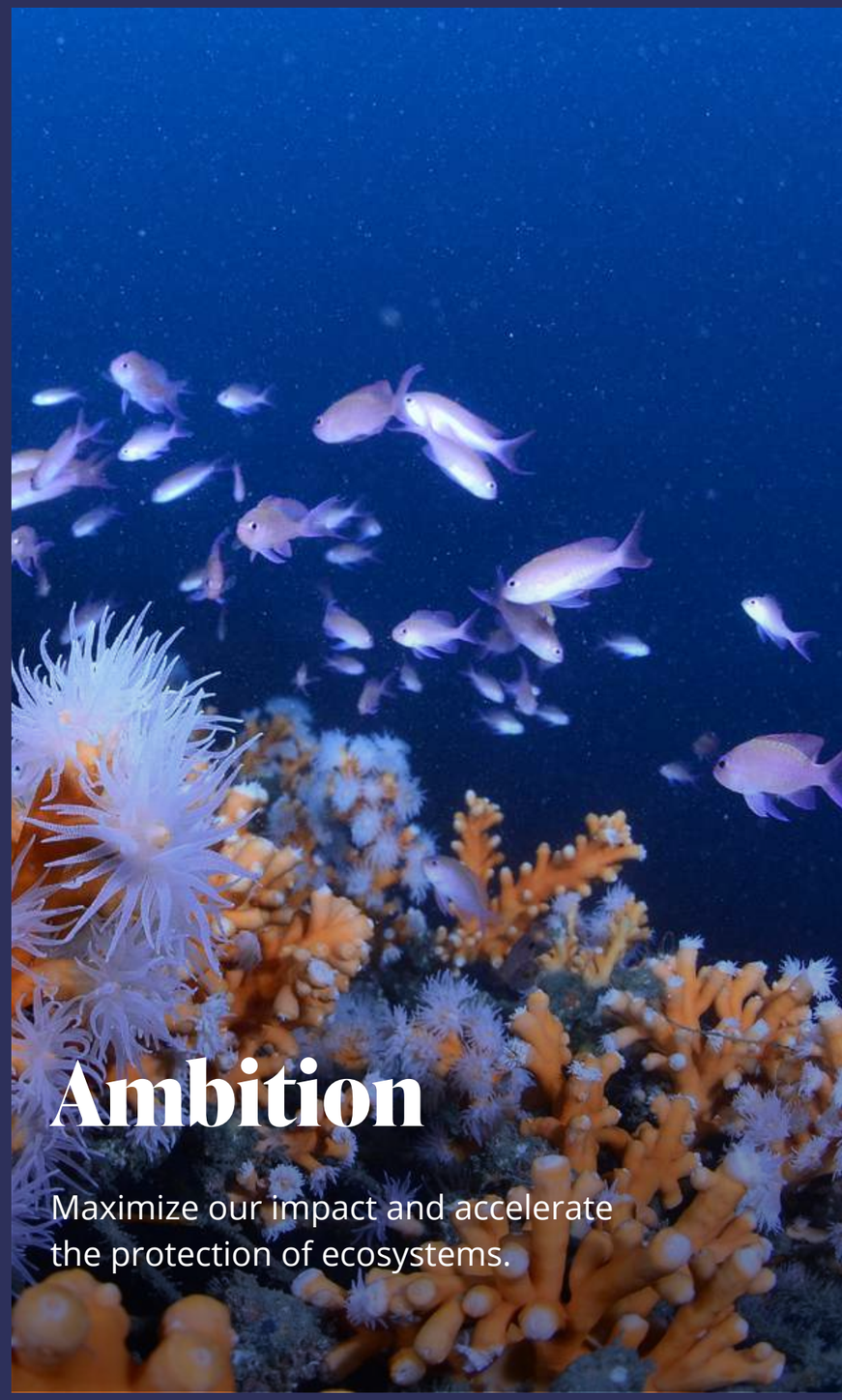


Ethics

Respect the local identity, choose our partners carefully, and minimize our environmental impact.

Collaboration

Encourage exchange and build our work on strong partnerships.

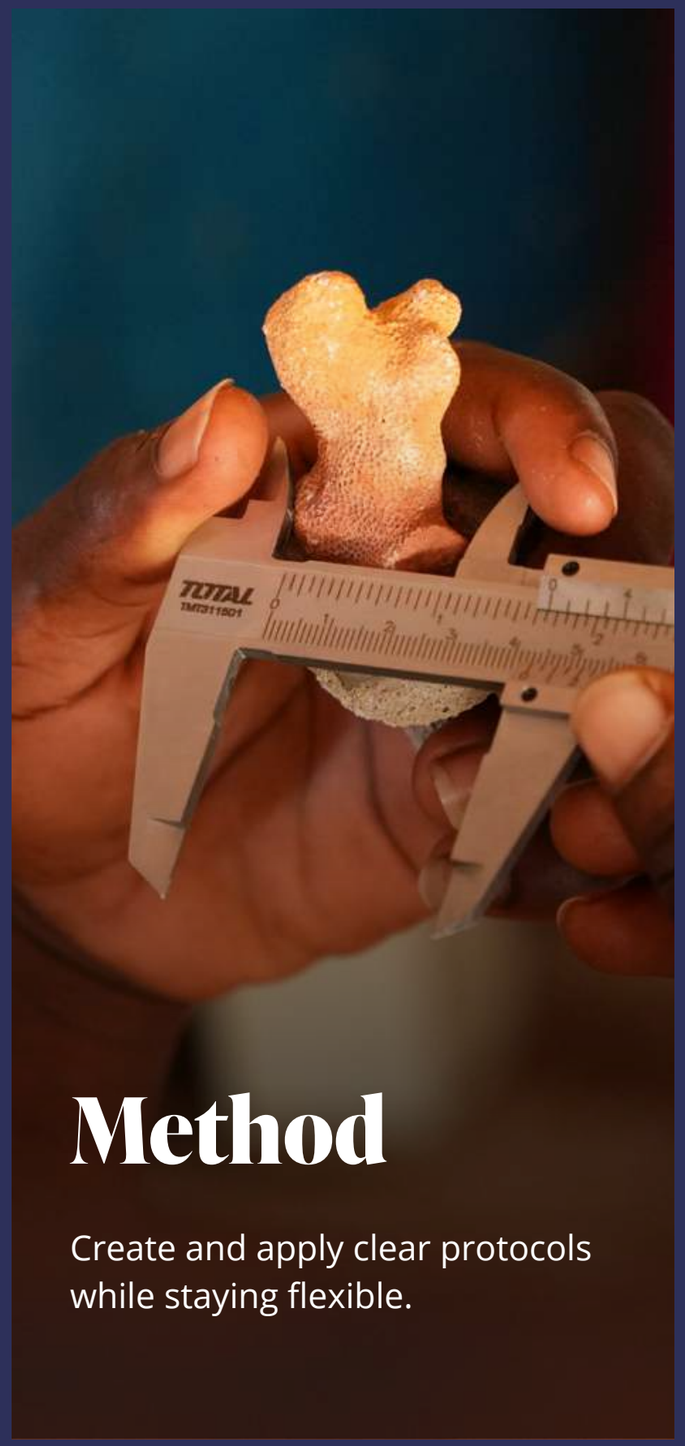


Ambition

Maximize our impact and accelerate the protection of ecosystems.

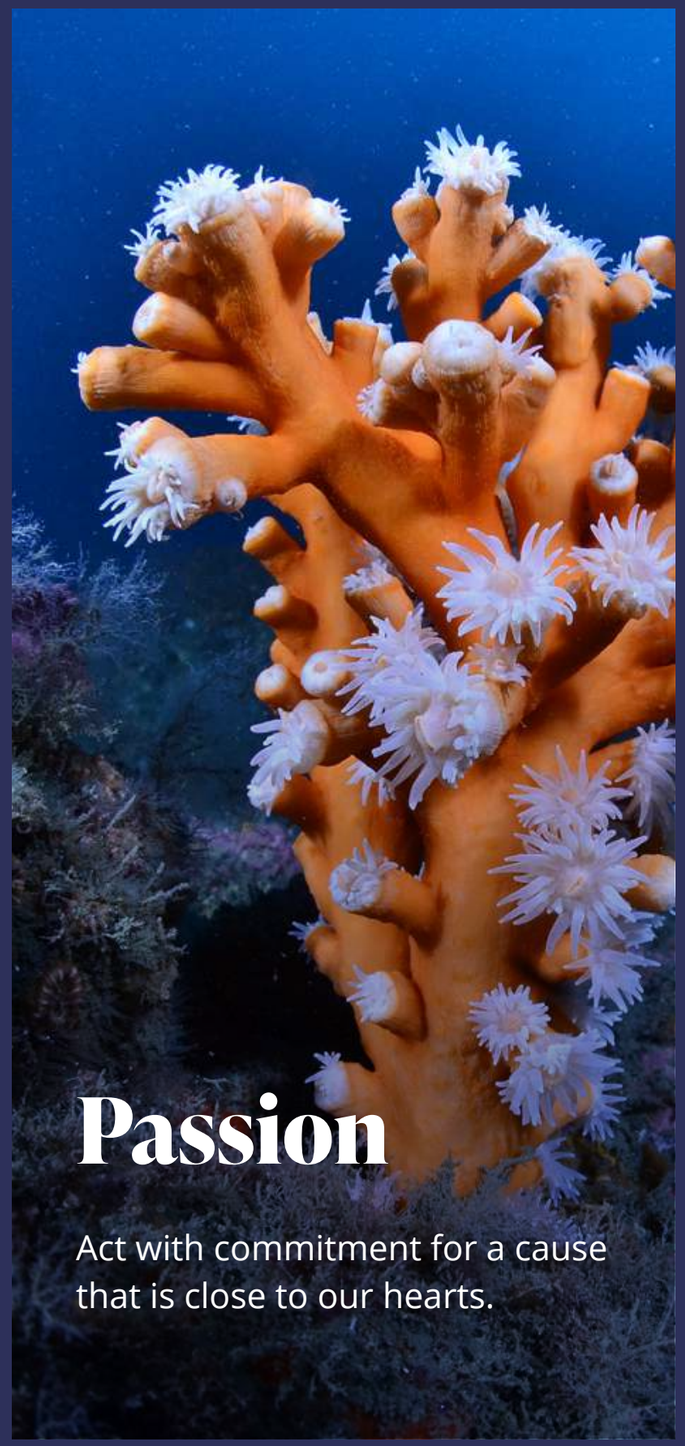
Authenticity

Remain true to our journey, our values, and our transparency.



Method

Create and apply clear protocols while staying flexible.



Passion

Act with commitment for a cause that is close to our hearts.

FACEBOOK /coralguardian

LINKEDIN @coral-guardian

INSTAGRAM @coralguardian

YOUTUBE /coralguardian

CORALGUARDIAN.ORG

info@coralguardian.org