



# Open Coral AI Quick Guide

Learn how to measure coral coverage from your data with Open Coral AI.

DEMO VERSION

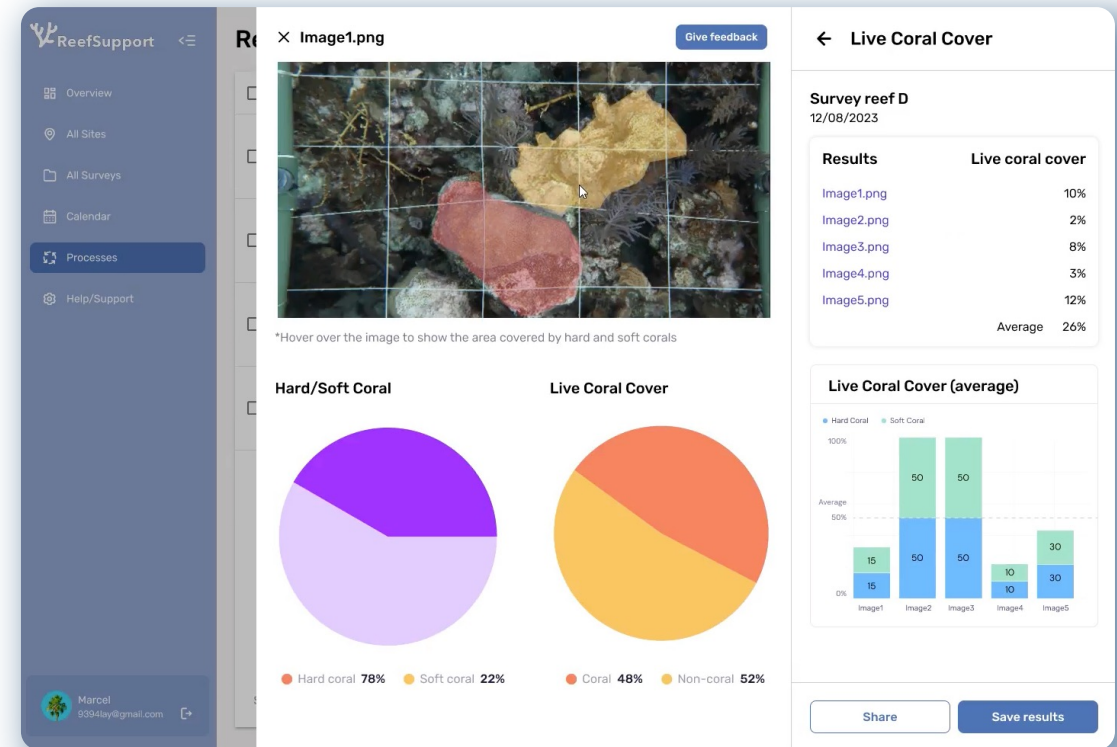
Dec 2023

# About Open Coral AI

Open Coral AI, developed by Reef Support, taps on AI (computer vision and deep learning) to accelerate the analysis and reporting of coral reef health globally.

Unlike existing tools that require specialized equipment and expertise, Open Coral AI is designed to be a free, simple and accessible online tool, inviting citizen scientists to actively participate in coral monitoring efforts. At its current version, the open source tool aims to help reef managers, researchers and students to determine live (hard and soft) coral coverage of monitoring sites.

By fostering the “blue-community” - forging partnerships to continuously improving the AI model, we seek to make a positive and lasting impact on science and research of ocean health. We welcome all individuals and organizations that wish to use (or contribute to) the Open Coral AI tool, which you can contact the Reef Support team directly for request. (email: [hello@reef.support](mailto:hello@reef.support)).



Learn more at [www.reef.support/opencoralai](http://www.reef.support/opencoralai)

# How do we calculate live coral cover of a site?

We calculate the average live coral cover (% of the photo area covered by hard and soft corals) from all images taken within a single survey as a best estimate for the live coral cover of a particular site.

$$\text{Live Coral Cover} = \frac{\sum_n^N (\text{Hard} + \text{Soft Cover})_n}{N}$$

(of N many photos taken  
on this particular site,  
on this particular day)

This means that for results and long-term monitoring to be optimal, the manner in which the photos are taken for (future) surveys need to follow a consistent standard protocol, which are highlighted in the next few pages.

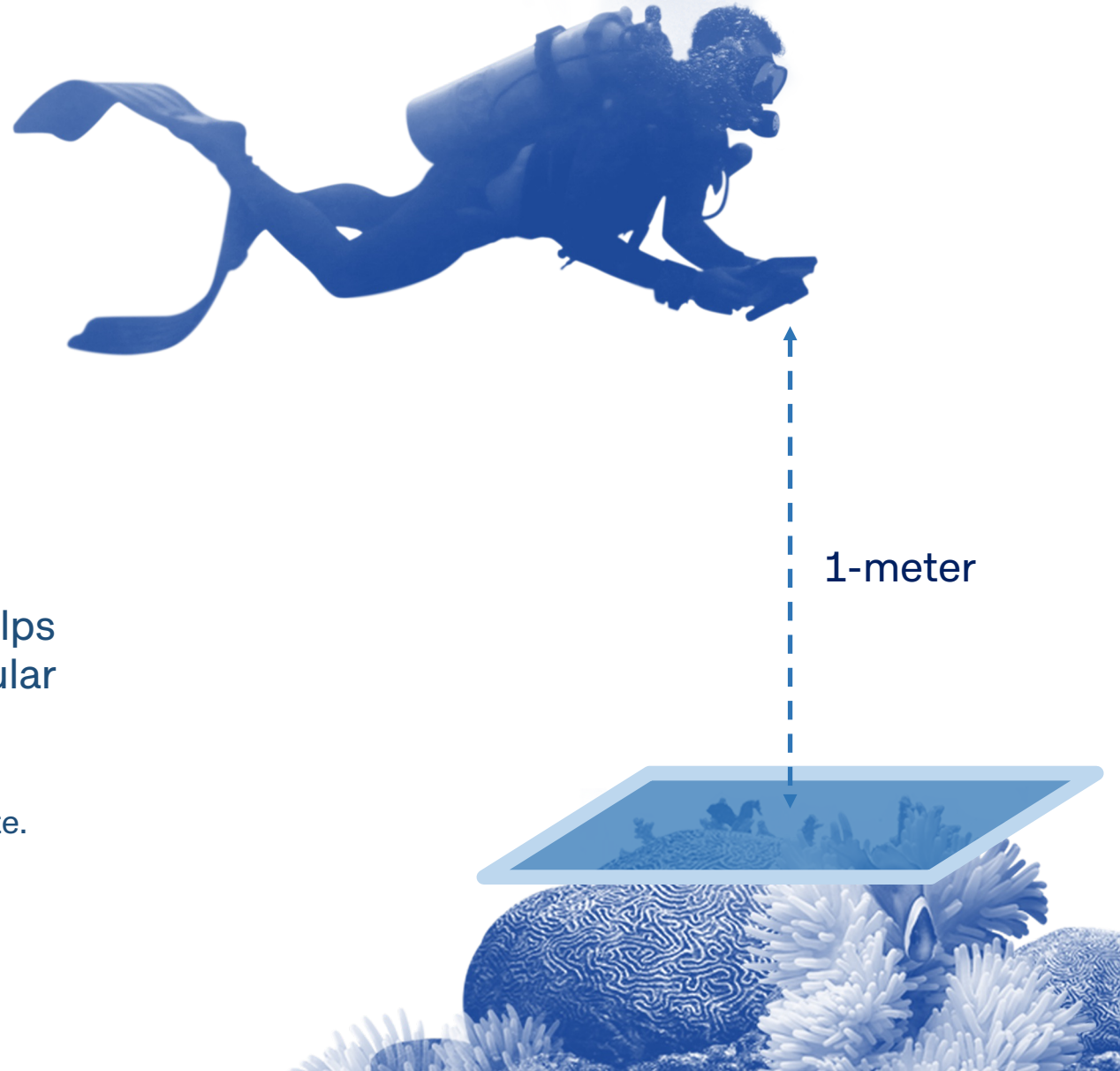
## COLLECT DATA (DIVER)

# Optimal distance

Choose a site where you can ensure clear photos of benthic features with optimal visibility at 1-meter (perpendicular) distance from the seafloor.

Optimal ratios of photos are square (1:1) as it helps with AI training more easily, but regular rectangular photos (4:3) will also work.

More tips and tricks on camera (settings) found on our website.



## 2 Types of Data



With quadrant



Without quadrant

For current version of our AI, we prefer to train and process images without the quadrants, as it interferes with detection of corals, especially when they overlap and ‘cut’ the corals.

## Already data ready?

Then head to our demo page, upload up to 3 photos, where you can view and assess the results of our model applied to your data.

One thing that we would appreciate a lot is feedback on model's results on your data (see next page), which we would take into account on improving the tool for everyone.

To get started, click here: <https://demo.reef.support>



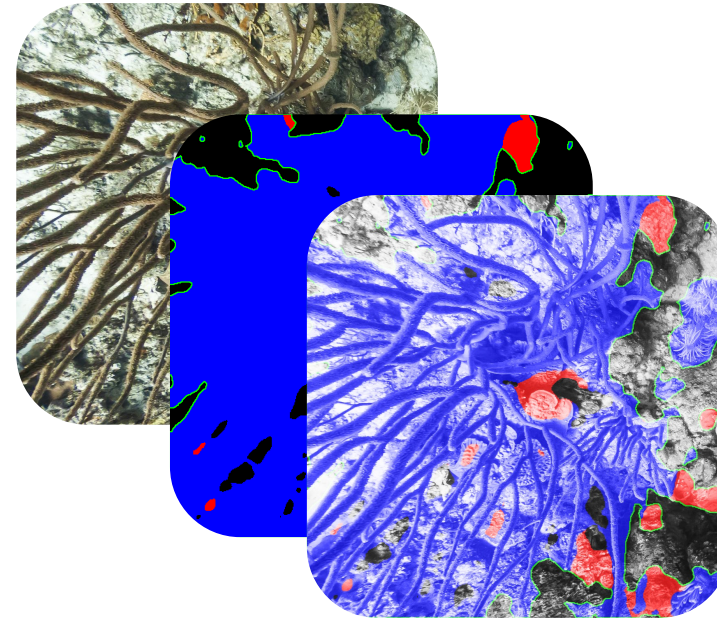
Open  
Coral AI

Powered by ReefSupport

# Download results and share/provide feedback

On the results page, you can right click the “Download Button” to get your results in a CSV file, plus all the segmented AI masks so you review the results in detail.

\*We highly recommend that you attach these files when sending in your feedback to us, so we can discuss how to improve on the results.



coral\_cover.csv

All files and feedback can be sent to: [hello@reef.support](mailto:hello@reef.support)

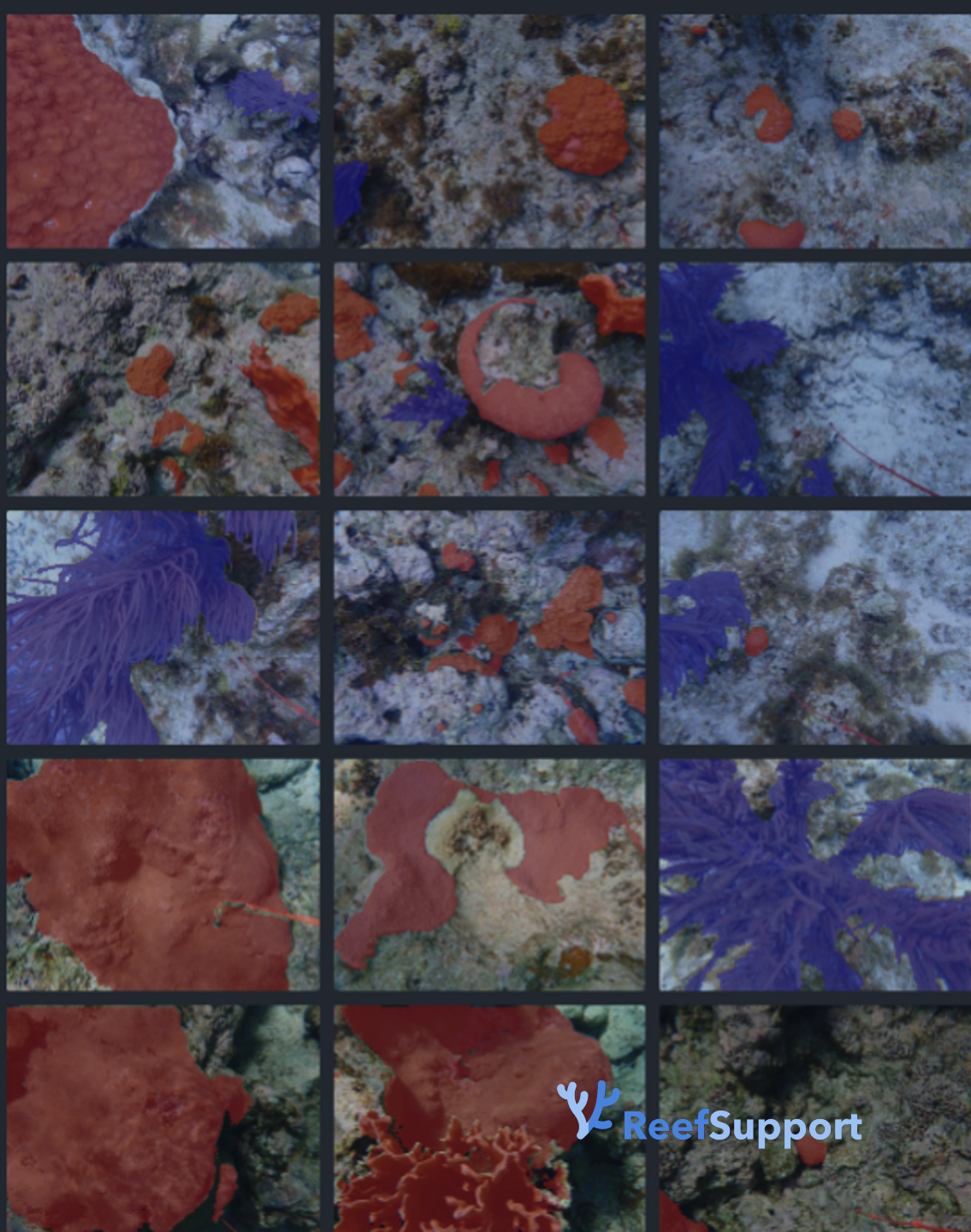
TRAIN AI WITH YOUR DATA

# Improving the Results

The way to get better results for your unique sites and species is to fine-tune the general OCAI model with your own collected data. In order to use your data as a training set, we still have to segment the frame into 2 main classes: hard and soft corals. There are 2 ways to achieve this:

1. We provide you/your organization with training on how to label the data through the platform
2. We engage labelling experts on your behalf

For both options, the data will go through a final verification stage, where external experts will perform a quality control, and our team will perform a series of tests to derive the best custom model results. To get started, please contact our team (email: [hello@reef.support](mailto:hello@reef.support))





## Potential Issue #1

The model takes a while to “wake up” after being idle for a while.

Hence, when you are unable to upload the image at the first try and see “Upload failed. Please retry” (Fig A.), try again with the same upload in 3 – 5 minutes, it should work now.

[Other issues/suggestions can be directed to our email.](#)

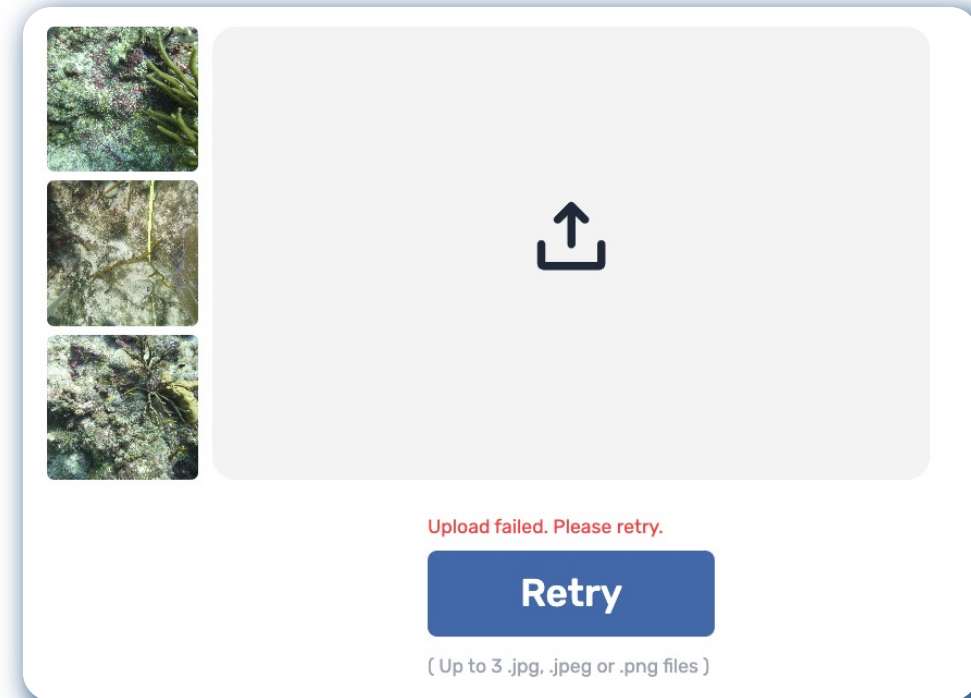
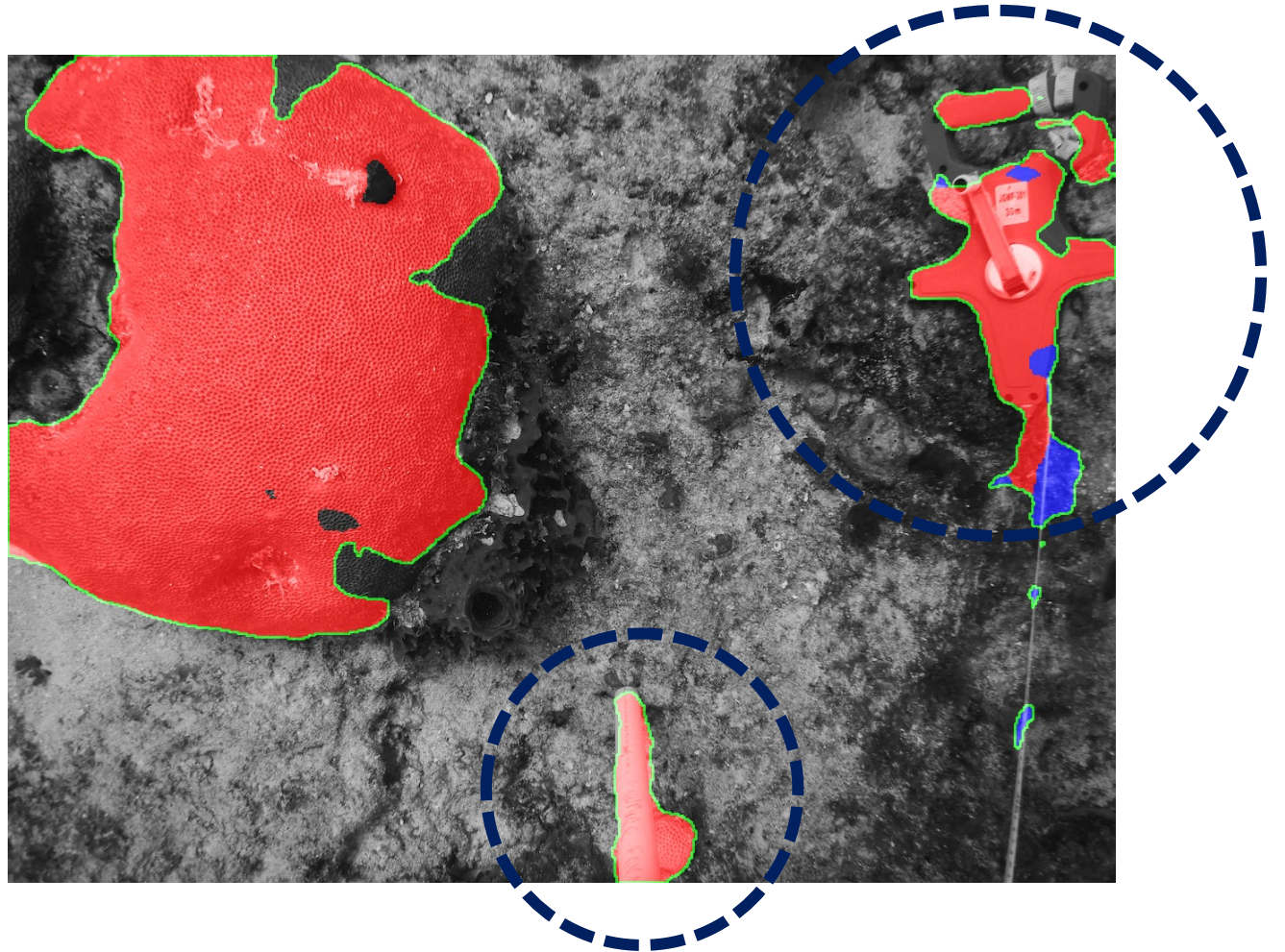


Fig A. Upload Error

## Potential Issue #2

”Non-coral” objects like transect lines, tapes, and quadrants will confuse the model at times.

The best solution to avoid this is to crop/exclude any objects found within the frame.



# CONTACT INFO

All feedback and requests should be directed to:

Email: [hello@reef.support](mailto:hello@reef.support)

## Address:

Space Business Innovation Centre  
Kapteynstraat 1  
2201 BB Noordwijk  
The Netherlands  
Phone (WA): +31 641571462

[www.reef.support](http://www.reef.support)



[marcel@reef.support](mailto:marcel@reef.support)



[nikole@reef.support](mailto:nikole@reef.support)



[yohan@reef.support](mailto:yohan@reef.support)