

REEF ADAPT

Walkthrough Guide for the Reef Adapt Application

Welcome to the Reef Adapt Application! This guide will walk you through the core steps of using the application to explore and analyse data related to marine habitat formers.

Reef Adapt is an innovative online platform designed to revolutionise the way we approach marine restoration and management in the face of climate change. Developed by a team of dedicated scientists and marine managers from across Australia, this tool integrates cutting-edge genetic data with environmental insights to inform strategies for restoration and conservation of marine ecosystems.

Reef Adapt predicts suitable areas to source material for restoration or assisted gene flow activities designed to bolster resilience to climate change. For technical information about how the tool works, see:

Reef Adapt: A tool to inform climate-smart marine restoration and management decisions, Communications Biology (2024). DOI: 10.1038/s42003-024-06970-4.

If you have any questions about the tool, contact george.wood@flinders.edu.au.

Who is this made for?

- People who are conducting habitat restoration
- Marine Managers who are checking proposals
- Scientists interested in restoration or population genetics of marine habitat formers

Follow these steps to navigate the application effectively:

1. Select the Genus of Interest:

- Begin by selecting the genus that you are interested in working with. This step helps to narrow down the search and focus on specific types of marine species in the database.

2. Check and Select the Species, Region, and Marker of Interest

- Once you've selected the genus, you'll need to check and select the specific species of marine life you want to study, along with the geographic region and molecular marker of interest. This step ensures that you're analysing data relevant to your research objectives. If multiple molecular markers are present, SNP is the highest quality of data available, and is therefore recommended.

3. Click "Submit"

- After selecting the species, region, and marker, click on the "Submit" button. This action will display the geographical region where Reef Adapt predictions are available, corresponding to your selections on the application interface.

4. Click inside the transparent white region displayed: (Click the site location that you are looking to restore)

- Use your mouse to click inside the displayed region on the map. This action will allow you to select a specific location within the chosen region for further analysis.

5. Check Latitude and Longitude:

- After clicking inside the region, verify that the latitude and longitude coordinates displayed are correct. If needed, you can edit these coordinates by typing the desired values in the provided input boxes.

6. Select the Year of Interest:

- Choose the year of interest for your analysis. You can select either the present year (e.g., 2020) or a future projection year (e.g., 2050), depending on your research focus.

7. Click "View Results":

- Once you've selected the year, click on the "Calculate" button to perform the analysis based on your chosen parameters. This action will generate results based on the data available for the selected location and year.

- The app will highlight areas in green (suitable for sourcing material that is 'local' to your chosen site) or red (suitable for sourcing material putatively suitable for 2050 conditions).

8. Repeat Steps 6 and 7 (Optional):

- If you wish to compare results for multiple years or locations, you can repeat steps 6 and 7 to analyse different scenarios. Simply select a new year or location and click "Calculate" again to view additional results. (It is recommended to do both 2020 and 2050 to compare results and make a more informed decision.)

9. Generate and Download Report:

- Once you are satisfied with the results, click on the "Generate" button to generate a report summarising your analysis. Note: The generate report button will take a screenshot of the application, so generate wisely.

Then, click on the "Download Report" option to save the report to your device for further review or sharing.

10. Reset Chosen Fields:

- If you need to start over or make changes to your selections, simply repeat steps 1 through 3 to reset all chosen fields and begin a new analysis.

11. Collecting your source material

- Ensure that you have the appropriate permits for any collections you plan to make. We recommend that you source your material from as many sites as possible within the area identified, to maximise genetic diversity.