



PADI AWARE
FOUNDATION™

DATA SUBMISSION GUIDELINES

INTERNET OF TURTLES

RED SEA TURTLES PROJECT™
Distinctive Specialty Course



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INSTRUCTOR GUIDE



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However, please note that the responsibility for the program's content remains with RED SEA PROJECT™, and the views expressed do not necessarily reflect those of the partners and supporters mentioned above.

in collaboration with:



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RED SEA TURTLES PROJECT™

Distinctive Specialty Course



Acknowledgements

RED SEA PROJECT™ is an international non-profit organisation dedicated to the protection and conservation of marine ecosystems and biodiversity in the Red Sea.

RED SEA PROJECT™ uses an inexpensive, simple, non-invasive method for the monitoring of marine turtles in the Red Sea. With the help of education and citizen science, anyone can help monitor and protect marine turtle.

RED SEA PROJECT™ collaborates with the PADI AWARE Foundation. this program is partially funded by the PADI AWARE Foundation's™ Mission Hub Community Grant

Visit www.redsea-project.com to learn more.

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RED SEA PROJECT™

OUR MISSION AND COMMITMENT TO SUSTAINABLE DEVELOPMENT GOALS

As an organization deeply committed to environmental protection and nature conservation, in the RED SEA PROJECT™, we have effectively integrated the Sustainable Development Goals (SDGs) into our mission and operations. The SDGs provide a comprehensive framework for addressing social, economic, and environmental challenges, and we have identified the goals that align most closely with our mission. We have conducted a thorough assessment of our impact on these goals, further reinforcing our dedication to global sustainability and collaborative action.

Through our alignment with the SDGs, we are determined to make a significant and measurable contribution to sustainable development in the Red Sea region. By focusing our efforts on the identified goals, we aim to create a positive and lasting impact on the environmental well-being of the area. Our commitment to the SDGs serves as a testament to our unwavering dedication to fostering sustainable development and protecting the natural beauty and resources of the Red Sea.



RED SEA PROJECT™ is an international non-profit organisation dedicated to the protection and conservation of marine ecosystems and biodiversity.

Registered: EU | AUT | ZVR-Zahl 1533647934

WHAT WE DO

The RED SEA PROJECT™ is an international non-profit organization dedicated to the protection and conservation of marine ecosystems and biodiversity. Our primary objective is to contribute to the realization of the United Nations Sustainable Development Goals' 2030 Agenda. As a grassroots conservation organization, we harness the power of education, research, and citizen science, collaborating closely with local communities, diving federations, and educational institutions to safeguard endangered species and the invaluable ecosystems they inhabit.

Our mission encompasses several key areas of focus:

- **Monitoring Marine and terrestrial Ecosystems and Mega-Fauna:** We conduct extensive monitoring efforts to better understand the state of marine and terrestrial ecosystems and the well-being of key species. By gathering data and implementing targeted conservation programs, we strive to preserve the Red Sea's unique biodiversity.
- **Environmental Awareness Programs:** We prioritize raising environmental awareness among children, local workers, tourists, and visitors. Through engaging and informative programs, we aim to foster a sense of responsibility and appreciation for the marine environment.
- **Education:** Our team work closely with first-class organizations and educational institutions to establish a modern and comprehensive educational curriculum centered around the Red Sea and its biodiversity. Together with our esteemed partners, we develop cutting-edge materials and programs that provide in-depth knowledge of the unique marine ecosystem.
- **Citizen Science:** We actively involve divers, snorkelers, and the local community in citizen science programs. By encouraging their participation in data collection and research activities, we promote a sense of ownership and empower individuals to contribute to nature conservation efforts.
- **Conservation Strategies and Eco-Tourism Planning:** We work closely with stakeholders to design and implement effective conservation strategies and sustainable tourism plans. By striking a harmonious balance between conservation efforts and responsible tourism practices, we aim to ensure the long-term viability of the Red Sea's natural resources.

Table of Contents

I- Introduction.....	8
II- Photographing Turtles.....	9
III- Data Submission Steps.....	10
IV- Frequently Asked Questions.....	18



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RED SEA TURTLES PROJECT™

The RED SEA PROJECT™ established the RED SEA TURTLES PROJECT™ in 2020 to monitor the population size, distribution, habitat usage, and migration patterns of these turtles throughout the year. By employing cost-effective, non-invasive monitoring techniques, individual turtles are counted, measured, and photo-identified. Photographic analysis of unique markings on the turtles' heads and carapaces enables accurate identification. Divers also record valuable data, such as behavior, sex, size, injuries, and any unusual observations. Additionally, the RED SEA PROJECT™ endeavors to safeguard the health of crucial ecosystems like seagrass meadows and coral reefs, which are essential for the survival of sea turtles. The collected data contributes to a better understanding of marine turtle populations in the Red Sea and aids in their protection.

As an integral part of the RED SEA TURTLES PROJECT™, the team organizes regular educational workshops and evening presentations to share accessible and non-invasive turtle monitoring techniques. Engaging both tourists and local community members as citizen scientists, the project encourages the sharing of information and documentation of turtle sightings. By collaborating with citizen scientists, the RED SEA PROJECT™ gains invaluable insights into the population structure and distribution of marine turtles, facilitating the implementation of effective conservation measures. The project's success is attributed to a combination of citizen science and fieldwork conducted by specialists. In 2023, over 8,000 turtle sightings were submitted to the Internet of Turtles platform, and multiple scientific publications were released. With the commitment of volunteers, interns, students, professionals, and tourists, this project is rapidly growing into one of the largest databases on marine turtles, furthering conservation efforts in the Red Sea.

PADI AWARE Foundation AWARE's Partnership with RED SEA PROJECT™

In 2022, PADI AWARE Foundation™ teamed up with the RED SEA PROJECT™ group to encourage divers and snorkelers to monitor marine turtles. This valuable relationship has seen RED SEA PROJECT™ monitoring and conservation tools promoted to thousands of divers worldwide. To learn more about the PADI AWARE Foundation• visit (www.padi.com/aware) To learn more about RED SEA PROJECT™ website (www.redsea-project.com).

**WILDME**

WILD ME

WILD ME's Mission

Our mission is to scale wildlife research and support conservationists by providing multi-feature techniques, speed, and accuracy in animal monitoring, replacing hours of human labor with minutes of computation to combat the ongoing sixth mass extinction. Wild Me promotes the cheaper and more scalable use of photography and AI-powered computer vision to identify individual wildlife, which avoids physically tagging animals and supports public integration using imagery taken from camera traps, aerial surveys, social media images and videos, tourists, and citizen science. We facilitate long-term data curation and collaboration, and empower researchers to leverage the potential of citizen scientists' contributions.

Problem

According to a 2020 study in the PNAS journal, a sixth mass extinction is underway, a trend signaled by widespread vertebrate losses that “may be the most serious environmental threat to the persistence of civilization, because it is irreversible”. Large-scale yet efficient responses and long-term population analysis are necessary for wildlife researchers to understand and respond to species' population decline. To effectively counter species' population decline, conservation projects require not only long-term data curation, collaboration, and engagement with the public, but also individual animal recognition capabilities. Researchers need access to advanced and adaptable computer science tools and technical experience to collect more animal imagery data, analyze it faster to identify individual animals, and use data to continuously optimize solutions in conservation. Isolated population studies provide insufficient amounts of data too sparsely, while manual data processing (by eye) adds years between studies so that results are unclear or too late for effective large-scale conservation action.

WILD ME's Solutions

We provide researchers with pioneering Codex platforms with advanced and adaptable computer science tools to collect more animal imagery data, analyze it faster in order to identify animals, and engage the public to continuously optimize solutions in conservation. These customizable platforms perform computational photo-identification for many species within minutes, enabling a global scientific community to collaborate online and identify individuals from these species from photos collected by tourists, tour operators, researchers, and the public. Our user base spans six continents of marine and terrestrial species research. Visit our platforms to discover the many species we support. visit (www.wildme.org)

I. Introduction

This brief manual provides a quick overview of taking pictures of turtles for identification and shows you how to upload these pictures to the Internet of Turtles. Internet of Turtles (or IOT) is a global database that uses photographic images to identify unique turtles and match them to existing known individuals.

To ensure accurate data submission and proper utilization of the information for research purposes, it is essential to follow the steps outlined in this manual. If you encounter any issues, doubts, or queries, it is recommended that you consult with your dive instructor or reach out to the RED SEA PROJECT™ via email at info@redsea-project.com.

Make sure to read the manual carefully and refer to it whenever you have a question or need to verify your submissions. By adhering to the data submission guidelines precisely, you will ensure that turtles are entered into the correct database, contributing to ongoing research efforts.



These icons serve as visual indicators for steps in the process where individuals commonly make mistakes. It is crucial that you pay close attention and double-check your information at these specific points before finalizing your submission. By doing so, you can minimize errors and ensure the accuracy of your data. Take extra care to review your work before proceeding to the next step.

II. Photographing Turtles

- Make sure your camera is clean, fully charged, has a clear memory card, and is set to the correct time and date before heading out to conduct a survey.
- Photographs can be taken during either a SCUBA survey or (more commonly) while snorkeling.
- We need three (3) photographs for each turtle:
 - right side of the cheek
 - left side of the cheek
 - carapace
- Ensure all photographs are not blurry and are taken close enough to the turtle. A good rule of thumb is that the carapace should take up at least 70% of the photo.
- If using a GoPro, we recommend setting the camera to "linear" mode rather than wide angle, as it allows you to take a better close-up picture.
- For newer GoPro models, there is often a delay between pressing the shutter and when the photo is actually taken. Ensure that you are not moving until the photo is completed so that there is no blur.
- Please do not take videos; screenshots are of lower quality and do not contain metadata. Use still shots only.
- If the turtle has any scars, unusual markings, or tags, try to get pictures of these as well.
- Do not push snorkeling groups out of the way or interfere with dive activities in any way.
- If you observe a violation (i.e. someone touching a turtle) please record it. If you feel comfortable, it is ok to politely remind violators of the law but remember your own safety is paramount and we must maintain a positive image of the RED SEA PROJECT™.
- You will likely photograph more than one turtle on a survey. Make sure to take a photo in between turtles so you have a way to separate pictures from different individuals for correct data submission. If in a group, write on the slate who took pictures of what turtles and when.
- If a turtle begins to surface while you are photographing it, allow it to breathe and wait for it to dive back down before continuing.
- If the turtle is too deep to swim down to while snorkeling/freediving, wait for it to surface to obtain ID pictures from a respectful distance.
- DO NOT use a flash while taking pictures.
- Prioritize taking photos over measurements; ID pictures can be used regardless of known measurements.

III. Data Submission Steps

You have successfully taken pictures of some lovely turtles as part of the Red Sea Project and now you want to upload them to the Internet of Turtles – congratulations!

However, to make sure our pictures go to the correct place, we need to follow the following steps.

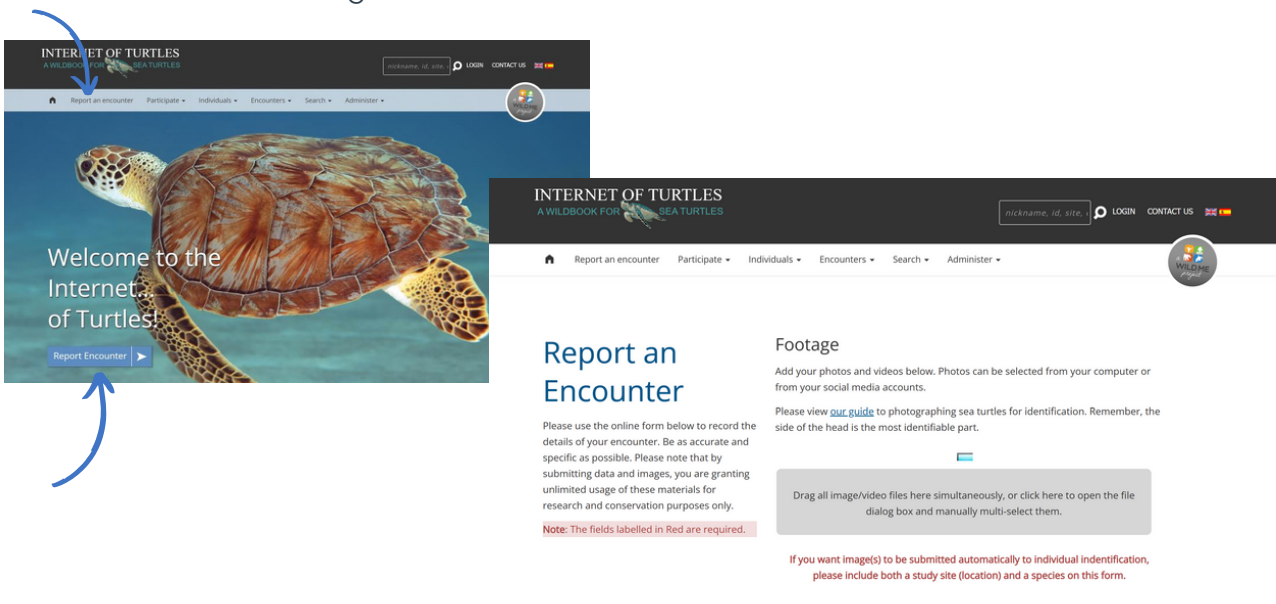
STEP 1

Open Internet of Turtles from this link:
[Internet of Turtles \(wildbook.org\)](http://Internet of Turtles (wildbook.org)).
You should see a Welcome screen (right) with a login button at the top right (see arrow).



STEP 2

Click on "Report Encounter" in either the blue rectangle OR at the navigation bar at the top left. Either link should then take you to the submission page shown below to the right.



STEP 3

Upload your photos. You should have clear, well-lit (but not with a flash of course!) pictures of each side of the turtle's face and the whole carapace. Aim to make sure the carapace fills at least 70% of the picture. Include pictures of any marks, scars, injuries etc. Example pictures:



STEP 4

Enter the encounter date (day and time you took the photo of the turtle). If your camera was set to the correct date and time, you can use the image metadata to automatically enter date and time the image was taken. If not, we recommend using the drop down menu to select month, day, and time to avoid typing errors (see below).



IMPORTANT: Always check date is correct regardless of method used to fill it in.

INTERNET OF TURTLES
A WILDBOOK FOR RED SEA TURTLES

Submit Participate Individuals Encounters Search Administer

If you want image(s) to be submitted automatically to individual identification, please include both a study site (location) and a species on this form.

Date and Location

Encounter date: 2022-11-20 07:02

Examples:
 • 2014-01-05 12:30
 • 2014-03-23
 • 2013-12
 • 2010

Time: 07:02
 Hour: 07
 Minute: 02

location ID is also initiate m... automatically after this submission. You can first options on the Encounter page.

Now Done

STEP 5

Enter the locations where you photographed the turtle for the following questions:

(A) **Where were you?** Name of the site where you photographed the turtle. Please check with your instructor for the correct name, which can vary slightly from what you might have heard it as. For example, if you were in Abu Dabbab, you should write “Marsa Abu Dabbab” even though this may not be how you have been referring to it before. This ensures we have a standardized name for each location.



IMPORTANT: Always check name is correct. Lots of places have multiple spellings or names and we want to keep it consistent within the project.

Encounter location

location ID is required to start matching automatically after this submission. You can also initiate matching and select match-against options on the Encounter page.

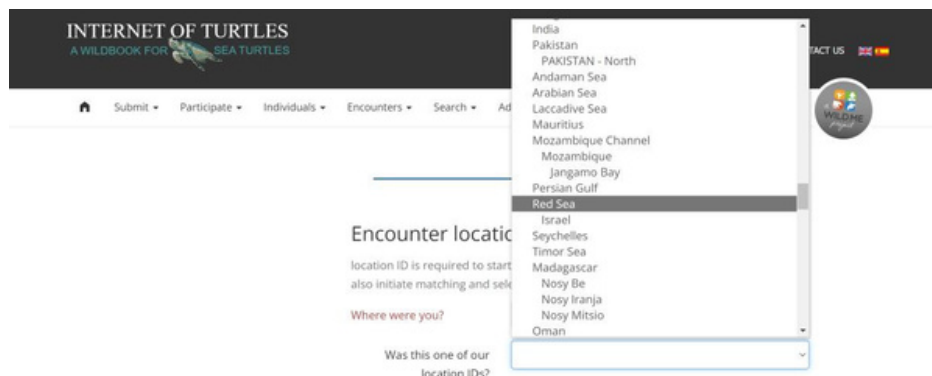
Where were you?

Was this one of our location IDs?

(B) **Was this one of our location IDs?** Select “Red Sea” from the pull down menu.



IMPORTANT: Make sure to select the Red Sea option listed below the Persian Gulf (see below). The list contains several "Red Seas" but we need to select this specific one. We are currently working with IOT to restructure this drop-down section and have a single Red Sea option. However, it will take time to merge them as they contain high volumes of data. Once the process is complete, we will update the manual and you will be informed.



STEP 6

Unfortunately, Internet of Turtles does not automatically place a pin on the map. You will have to navigate the map yourself to place the point where you saw the turtle.

Start by scrolling over to Egypt and zooming in a bit:

You can enter a GPS coordinate below or place a point on map to generate GPS coordinates of your location.



IMPORTANT: Although Internet of Turtles says you can enter GPS coordinates or place a point, you **MUST MANUALLY PLACE A POINT ON THE MAP**. Entering the GPS coordinates below the map will not provide the database with a location.

GPS Latitude ° GPS Longitude °

EXAMPLE: IF LOOKING FOR MARSABA ABU DABBAB:

Continue zooming into the Red Sea coast of Egypt and find Wadi el Gemal National Park along the coast and look north to see Port Ghalib and Marsa Alam.

You can enter a GPS coordinate below or place a point on map to generate GPS coordinates of your location.




GPS Latitude ° GPS Longitude °

STEP 6 (continued)

Marsa Abu Dabbab is located between Port Ghalib and Marsa Alam. Look for the dark "bean shape" and zoom in on this area.

You can enter a GPS coordinate below or place a point on map to generate GPS coordinates of your location.



Map | **Satellite** | Full screen


Port Ghalib
بورق غالب

Marsa Alam
مرسى علم

GPS Latitude ° GPS Longitude °

After zooming in on this area, you can find Marsa Abu Dabbab Bay to the left of the bean shape. It is currently labeled as "Plaz Abu Dabbab" on the map.

You can enter a GPS coordinate below or place a point on map to generate GPS coordinates of your location.



Map | **Satellite** | Full screen

Hilton Marsa Alam Nubian Resort
هتلون مرسى علم

Plaz Abu Dabbab

Abu Dabbab III

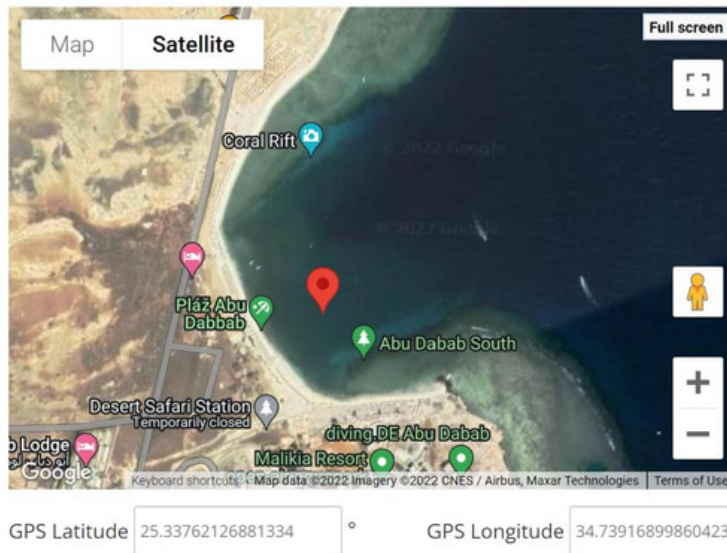
Sataya Resort Marsa Alam

GPS Latitude ° GPS Longitude °

STEP 6 (continued)

Zoom further into the Bay and click on the approximate spot where you saw the turtle. Once you place the point, the GPS coordinates beneath the map will be automatically filled in.

You can enter a GPS coordinate below or place a point on map to generate GPS coordinates of your location.



If you did not photograph the turtle in Marsa Abu Dabbab, ask a program leader for the location on the map and adjust accordingly.

STEP 7

Enter the approximate depth to the sea floor where you saw the turtle (measurement should be in meters).

STEP 8

This is the section where you fill in your personal information. The ABOUT YOU section should be filled in with the name and email address of the person who is uploading the submission.

The name and email of the person who photographed the turtle should be entered into the ABOUT THE PHOTOGRAPHER section. If the same person who photographed the turtle is also entering the data, complete both sections with the same name and email.

About You

Your contact information

Name

Email

About the

photographer

Name

Email

STEP 9

Now you must select the project you want your submission to be associated with. Make sure you **ALWAYS** select the one called "RED SEA TURTLES PROJECT™." If you collected data in the specific region of any of the RED SEA TURTLES projects listed, please **ALSO** select this one (i.e., if you photographed turtles in Saudi Arabia, you would select both the RED SEA TURTLES RPROJECT™ AND the RED SEA TURTLES PROJCT™ Saudi Arabia).

The screenshot shows a form with the following elements:

- A multi-select dropdown menu labeled "Projects (multi-select)" with a blue arrow pointing to it. The menu is open, showing options: "RED SEA TURTLES PROJECT™", "RED SEA TURTLES PROJECT™ Aqaba", "RED SEA TURTLES PROJECT™ Saudi Arabia", and "RED SEA TURTLES PROJECT™ Sudan".
- A text input field labeled "Additional comments" with a blue arrow pointing to it.
- A dropdown menu labeled "Species" with a blue arrow pointing to it. The current selection is "unknown".



IMPORTANT: If you do not select the project correctly or fail to select a species, the encounter will be unable to be used by researchers.

You can leave the "Additional comments" box blank or include any comments or notes you had about the turtle.

Select the species of the turtle from the drop down list.

STEP 10

Expand the "advanced information tab."

▼ Do You Have Advanced Information? Click here to expand.

About the animal

Sex male female unknown

Status:

Sighting ID (to cross-reference with other catalogues)

Observed behavior:

Noticeable scarring

Life stage is:

Indicate sex (if known) of turtle. Remember that a long tail indicates male, shorter tail indicates female, and if carapace length is less than 55 cm it is a juvenile and sex should be put as unknown. Leave sighting ID blank and keep status as alive. Note observed behaviour and scarring (if applicable). Lifestage depends on size.

STEP 11

Fill in water temperature and width and length of carapace (if measured). For the measurements, if you used the stick then make sure you select “directly measured.” Only select estimated if you didn’t use a measuring tool.

MeasurementEvents

Type	Size	Units	Sampling Protocol
Water Temp.	<input type="text"/>	Celsius	directlymeasured ▾
Salinity	<input type="text"/>		directlymeasured ▾
Carapace W.	<input type="text"/>	cm	directlymeasured ▾
Carapace L.	<input type="text"/>	cm	directlymeasured ▾
Weight	<input type="text"/>		directlymeasured ▾



IMPORTANT: Make sure you put the width and length in the correct boxes (we sometimes write them in the opposite order on the slate).

Fill in any tag data you observed. Most turtles in Abu Dabbab are not tagged, but occasionally we find one who is.

STEP 12

You’re almost done! You can now enter in other email addresses of anybody else you saw the turtle with and who would like to be updated on future sightings.

Good job! Give your form a once-over to make sure everyone is correct and then click “Send encounter report.”

It may take a few minutes for the form to be sent through – just keep the tab open and DO NOT keep clicking on “send encounter report” as it will send it multiple times. If you have multiple turtles to do, open up a new tab and start filling in the next form while you wait for this one to send.

You should eventually get a confirmation email and see the page shown on the right once the submission has been sent.

Success

Thank you for submitting your encounter!

Images/Videos uploaded: [1a.JPG, 1b.JPG, 1c.JPG, 1d.JPG]

Files rejected, not valid images: none

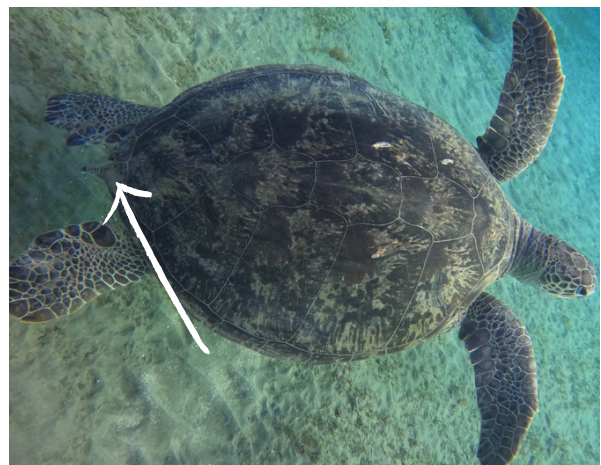
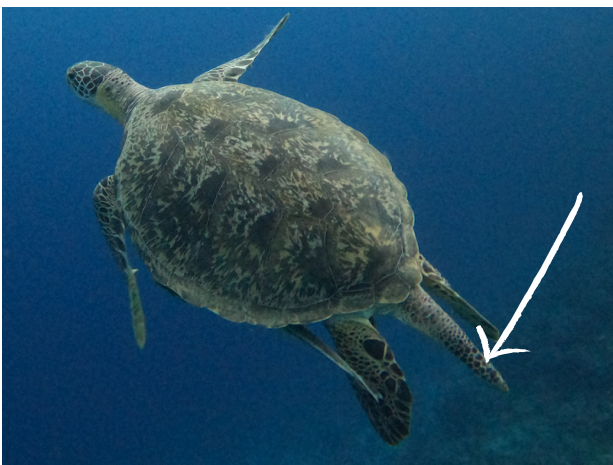
For future reference, this encounter has been assigned the number **f68eb2da-206d-4485-854d-4a4f6f8b23c2**.

If you have any questions: auto@iot.wildbook.org

[View encounter f68eb2da-206d-4485-854d-4a4f6f8b23c2.](#)

IV. Frequently asked questions

- **I only got pictures of one side of the face and the carapace - can I still submit my pictures?** Yes, you can! You can also submit if you have both sides of the face and no carapace or even just one side of the face. However, we will be unable to identify a turtle with only carapace pictures.
- **Can I edit my submission after I've sent it?** Yes, it is possible. For every encounter you submit, you should receive an email with a link to the submitted page. On this page, you can edit any information so long as you are signed into the Red Sea Project account.
- **What do I do if I'm submitting pictures I did not take?** If you know who the photographer was, put their name in the About the Photographer section and add your name in the "other email addresses" section. If you do not know who took the pictures, simply put yourself as the photographer.
- **I'm struggling to tell the difference between a male and female turtle - what should I put?** If you are really unsure, simply put sex as unknown. However, generally we only put this for turtles with a carapace less than 55 cm long. These are juveniles where the tail is not fully grown and thus cannot be used to assign sex. However, sex is generally easy to determine on adult turtles. The pictures below show a male turtle (left) and female turtle (right), both adults. The male's tail is much longer and generally extends at least as long as their back flippers.





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