



**STRANDED TURTLE REPORT ON
BALI ISLAND IN 2022
YAYASAN BALI BERSIH**



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Yayasan Bali Bersih is the legal partner of the Westerlaken Foundation in Indonesia. One of Yayasan Bali Bersih's programs is the 'Marine Environment Program', which aims to preserve and protect the coastal and marine environment.

Our marine environment program focuses on the welfare of whales, dolphins and sea turtles. The foundation acts as a first responder for whale, dolphin and sea turtle strandings, actively confronts the captive industry, works towards sustainable dolphin watching practices and undertakes marine research.



Foreword

It is within an urgent sense of responsibility that we present this "Report of Stranded Turtles on Bali Island in 2022". As we delve into the events surrounding the strandings of these magnificent marine creatures on the shores of Bali, it is crucial to recognize the significance of their presence and the pressing need for conservation efforts.

Turtles, as ancient and vulnerable inhabitants of our oceans, have captured the hearts of people worldwide with their grace and resilience. However, they face numerous challenges, particularly in the face of human activities and environmental changes. The purpose of this report is to shed light on the alarming incidents of turtle strandings in Bali, aiming to understand the root causes and develop effective solutions.

The research and field investigations conducted for this report have been a collaborative effort involving dedicated individuals, organizations, and government agencies committed to marine conservation. Their invaluable support and contributions have made this research possible, and I extend my deepest gratitude to each of them.

Through meticulous data collection and analysis, we strive to unravel the factors behind the strandings, including human-related threats and ecological disruptions. Furthermore, we explore the impact of pollution, climate change, and habitat degradation on the local turtle populations, aiming to raise awareness about the urgency of preserving their habitats and ensuring their survival.

We hope that this report serves as a call to action, inspiring all stakeholders, from policymakers to the general public, to join hands in safeguarding Bali's coastal biodiversity and protecting these ancient mariners. The findings and recommendations presented here should be used as a compass to guide us toward a more sustainable future for both turtles and the marine environment they call home.

Together, let us embrace the responsibility to conserve and cherish these incredible creatures, ensuring that future generations can continue to marvel at the sight of turtles gracefully navigating our oceans. May this report ignite the flame of conservation in all our hearts and inspire collective efforts in creating a better world for both wildlife and humankind.

Denpasar, 7 August 2023

Author,



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Introduction

Turtles are a group of marine reptiles that have existed for over 100 million years, making them one of the oldest creatures on Earth. Their presence plays a crucial role in maintaining the balance of marine ecosystems, as turtles act as predators, feeding on jellyfish and marine plants, and contribute to the distribution of algae seeds and marine sediment bioturbation. Unfortunately, the current turtle populations face various threats, such as illegal hunting, marine pollution, climate change, and habitat destruction due to human activities. Therefore, there is a need for more intensive conservation efforts to ensure the survival and sustainability of a healthy marine ecosystem (Velez-Zuazo *et al.*, 2020; Hamann *et al.*, 2021).

Stranded turtles are a phenomenon that frequently occurs in various coastal regions worldwide and is an urgent issue in marine conservation. Research on stranded turtles is crucial as it provides in-depth insights into the factors causing these incidents and their impacts on turtle populations and the marine ecosystem as a whole (Peltier *et al.*, 2021).

Studt *et al.* (2019) show that stranded turtles can be caused by various factors, including interactions with human activities such as accidental fishing capture, collisions with ships, and climate change leading to shifts in food distribution. The varied causes of turtle strandings demand comprehensive research to identify and understand the issues faced by turtle populations.

Additionally, research on stranded turtles has significant implications for turtle conservation efforts. Leuteritz *et al.* (2020) emphasize that a profound understanding of the factors causing turtle strandings can be used as a basis to develop effective conservation strategies. Information from this research can help formulate appropriate prevention measures, enhance the protection of crucial turtle habitats, and strengthen sustainable fisheries management efforts.

Research on stranded turtles also contributes to a better understanding of overall marine ecosystem health. Arthur *et al.* (2018) highlight that stranded turtles often carry clues related to environmental conditions and water quality. Research on stranded turtles enables the analysis of the microbiological quality of seawater samples and the identification of potential pollutants impacting animal and human health.

Research on stranded turtles plays a crucial role in protecting turtle survival and maintaining the broader sustainability of marine ecosystems. The efforts of this publication support the development of policies and concrete actions to preserve biodiversity and maintain the balance of the marine environment for the well-being of future generations.

Report of Stranded Turtles on Bali Island in 2022

In this report, Yayasan Bali Bersih reports on the number of stranded turtles found or handled by the foundation along various beaches on Bali Island throughout the year 2022.

The turtle species that were frequently stranded on Bali Island in 2022 are:

1. *Lepidochelys olivacea* or Olive Ridley Sea Turtle (total of one individual stranded in 2022)

Conservation status : **Vulnerable (Decreasing)**
Family : Cheloniidae
Order : Testudines
Phylum : Chordata
Kingdom : Animalia

2. *Chelonia mydas* or Green Sea Turtle (total of five individuals stranded in 2022)

Conservation Status : **Endangered (Decreasing)**
Order : Testudines
Family : Cheloniidae
Subfamily : Cheloniidae
Phylum : Chordata
Kingdom : Animalia

3. *Eretmochelys imbricata* or Hawksbill Sea Turtle (total of one individual stranded in 2022)

Conservation Status : **Critically Endangered (Decreasing)**
Order : Testudines
Family : Cheloniidae
Phylum : Chordata
Kingdom : Animalia

In 2021, a total of 39 turtles were found stranded (Yayasan Bali Bersih, 2021). Whereas in the following year, in 2022, this number notably diminished to just 7 (seven) stranded turtles. This decline could be attributed to a combination of factors, such as strengthened conservation efforts, improved coastal management practices, and heightened community awareness about the importance of protecting these majestic sea creatures. The drop in stranded turtle incidents reflects a potential positive shift in the overall health of the marine ecosystem surrounding Bali, and underscores the significance of continued collaborative conservation initiatives.

Based on the data above, there was a significant increase in strandings during November-December 2022 (with six turtle species stranded), while only one turtle species was stranded in February 2022.

Turtles are frequently stranded during November-December due to their reproductive and migratory cycles. According to the research by Revuelta *et al.* (2018), this period is critical for female turtles that come ashore to nest at specific beaches. During the nesting process, females search for suitable nesting sites, often traveling long distances from open waters to reach the shore. This movement increases the risk of getting disoriented, especially when approaching coastlines that have undergone topographical changes due to human activities.

Moreover, research by Hays *et al.* (2018) suggests that changes in temperature and ocean currents during this period can also influence the migratory paths of turtles, causing some individuals to become disoriented and eventually stranded on unfamiliar shores. As a result of these findings, it is essential for relevant stakeholders to enhance their understanding of turtle migration and reproductive behaviors during November-December to reduce the rate of strandings and protect their populations in their natural habitats.

Below are further details on the turtle species stranded on Bali Island in 2022.

Table 1. Turtle Species Stranded on Bali Island in 2022

No	Date	Species (Scientific Name)	Location Found
1	10/2/2022	Hawksbill Sea Turtle (<i>Eretmochelys imbricata</i>)	Padma Beach
2	1/11/2022	Green Sea Turtle (<i>Chelonia mydas</i>)	Perancak Beach
3	1/12/2022	Green Sea Turtle (<i>Chelonia mydas</i>)	Banyuwedang
4	6/12/2022	Green Sea Turtle (<i>Chelonia mydas</i>)	Perancak Beach
5	10/12/2022	Green Sea Turtle (<i>Chelonia mydas</i>)	Lovina Beach
6	28/12/2022	Olive Ridley Sea Turtle (<i>Lepidochelys olivacea</i>)	Echo Beach
7	28/12/2022	Green Sea Turtle (<i>Chelonia mydas</i>)	Kuta Beach

Map of Turtle Strandings on Bali Island in 2022

A total of seven recorded cases of turtles from various species were stranded in 2022, as reported by Yayasan Bali Bersih. Based on the data, the most commonly stranded turtle species along the coastal areas of Bali were Green Turtles (five individuals), with the majority of incidents occurring on the beaches of West Bali. Unfortunately, necropsies were not conducted on the stranded turtles due to the condition of the carcasses, which were already decomposed and had been stranded for a long time. However, they could still be identified.

The influence of the rainy season and extreme weather also contributed to the turtle stranding events. During the rainy season, a significant amount of marine debris, including wood and plastic waste, gets washed up on the beaches of southern Bali. This was evident in the increased number of turtle stranding cases from November to December 2022 (6 incidents).

These findings are in line with the research by Hays *et al.* (2016) and Arthur *et al.* (2018), where climate change and marine pollution were identified as factors contributing to turtle strandings. Here are the explanation:

- **Climate Change:** Changes in climate, such as rising sea temperatures and alterations in current patterns, can affect turtle migrations and lead to them becoming disoriented and stranded on unfamiliar shores.
- **Marine Pollution:** Marine pollution, including plastic debris and hazardous chemicals, can cause health issues in turtles, impairing their ability to swim and forage, thus increasing the risk of strandings.

Other factors contributing to turtle strandings include:

- **Human Disturbances:** Human activities like accidental capture during fishing (bycatch), non-selective fishing methods, and collisions with vessels are major factors leading to turtles being stranded on beaches.
- **Disease:** Viral and bacterial infections can adversely affect turtle health, reducing their swimming ability and causing strandings.
- **Habitat Changes:** Changes in coastal topography due to reclamation, infrastructure development, and beach erosion can lead to turtles getting disoriented while searching for nesting sites and eventually getting stranded on the shore.
- **Internal Factors:** Some turtles may strand due to internal health problems, such as physical injuries or genetic abnormalities, which can affect their swimming and survival in the sea.

Below is the map depicting the locations of stranded turtles on Bali Island in 2022. In the Jembrana region, there were two stranding incidents on the same beach, resulting in a single point on the map.

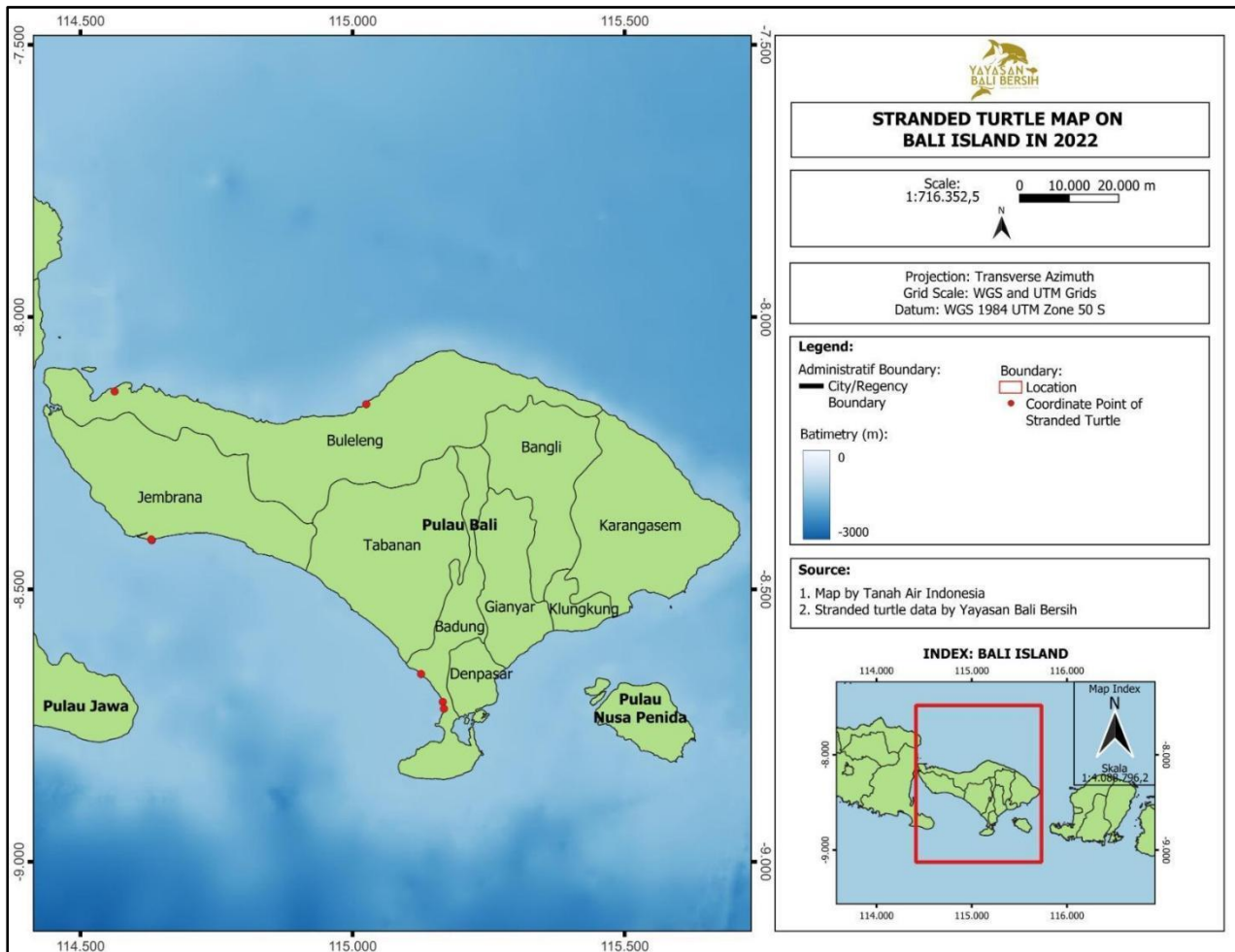


Image 1. Map of Stranded Turtles on Bali Island in 2022

The data collection efforts were carried out through coordination with:

- Socialization conducted by Yayasan Bali Bersih with officers of DLHK (*Dinas Lingkungan Hidup dan Kebersihan*) Kabupaten Badung, Badan Pengelola Kawasan Pariwisata Pesisir Kedonganan (BPKP2K), residents, and beach visitors.
- Collaboration with BPSPL (*Balai Pengelolaan Sumberdaya Pesisir dan Laut*) Denpasar through a network of turtle observers in Bali, sharing information specifically regarding stranded turtle cases, as well as cooperation with BKSDA (*Balai Konservasi Sumber Daya Alam*) Bali.
- Reports from residents, tourists, and beach visitors, submitted either directly or through social media posts.
- Collaboration with environmental observer communities in Bali, which frequently conduct beach cleaning activities and share information if stranded turtle carcasses are found on the beach.

Handling/Actions

The actions taken in each of the stranded turtle events above varied depending on the condition of the turtle carcasses when found. The main actions carried out included identifying the turtle species, including its gender and body size, documenting the incident, and then burying the carcass near a location far from the coastline.

Out of the seven turtle reports, no turtle carcasses were suitable for necropsy due to their advanced state of decomposition and a long period of stranding.

Here are details of handling each stranded turtle species:

1. Stranded Loggerhead Turtle (*Eretmochelys imbricata*) on Padma Beach

The loggerhead turtle was found dead on 10th February 2022, with an unknown cause of death. The main action taken was to identify the species, which was a female loggerhead turtle with a size of 46.5 cm x 32 cm. Documentation of the incident was done, and the turtle was buried at a location far from the coastline.





*Image 2. Stranded Loggerhead Turtle in Pantai Padma
Data and documentation by: Mr. Ngurah from DLHK Kabupaten Badung*

2. Stranded Green Sea Turtle (*Chelonia mydas*) on Perancak Beach

On 1st November 2022, a green turtle was discovered stranded and dead in Perancak, entangled in a fishing net. The turtle was found by a foreign national/tourist. Similar to the previous case, the main action taken was to identify the species, which was a green turtle. The carcass was documented and then buried away from the coastline.

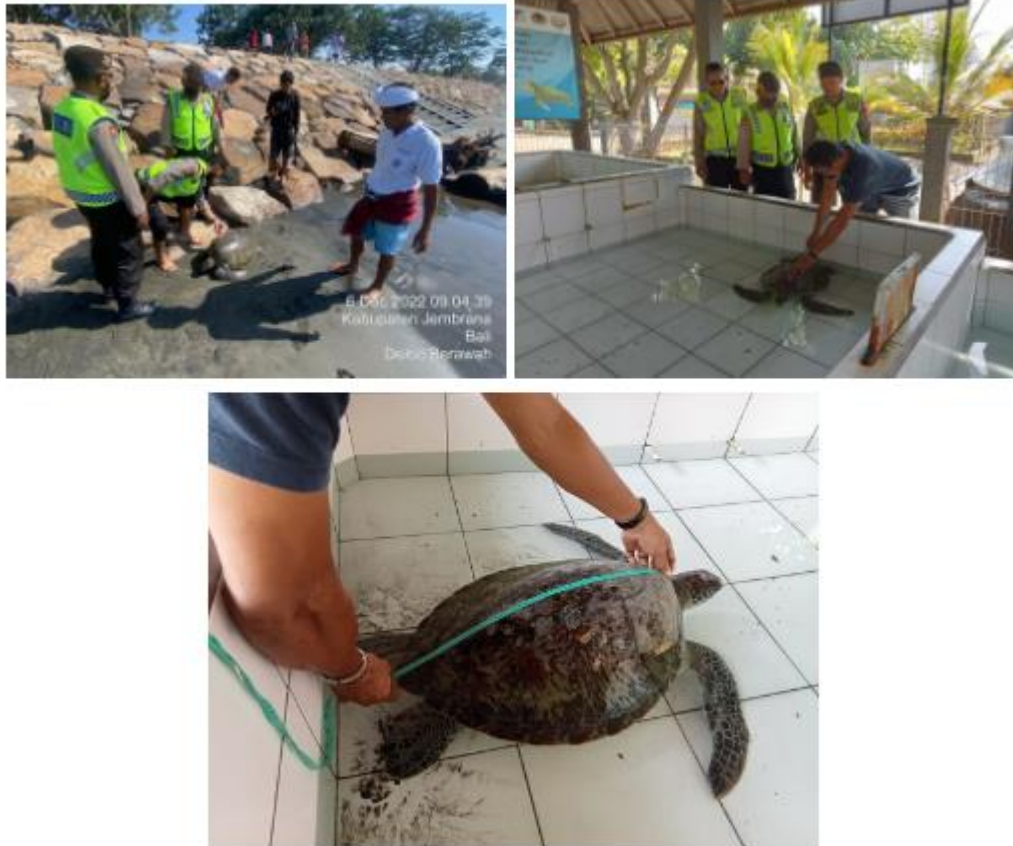




*Image 3. Stranded Green Sea Turtle (Chelonia mydas) in Perancak Beach
Data and documentation by: Mr. Anom from Kurma Asih*

3. Stranded Green Sea Turtle (*Chelonia mydas*) on Banyuwedang
On 1st December 2022, a green sea turtle was found stranded and alive. The turtle was discovered by Drh. Deny Rahmadani was subsequently handed over to the West Bali National Park (TNBB). The turtle was rehabilitated by TNBB and no photo was taken. This stranded data was shared by Drh. Deny Rahmadani.
4. Stranded Green Sea Turtle (*Chelonia mydas*) on Perancak Beach
On 6th December 2022, a female green sea turtle measuring 61 cm x 56 cm was stranded and alive on Perancak Beach. The Jembrana Police discovered the turtle. As with the previous cases, the main actions were species identification, documentation, and getting rehabilitated by Kurma Asih.





*Image 4. Stranded Green Sea Turtle (Chelonia mydas) in Perancak Beach
Data and documentation by: Mr. Anom from Kurma Asih*

5. Stranded Green Sea Turtle (*Chelonia mydas*) on Lovina Beach

On 10th December 2022, a female green sea turtle was found stranded and dead. The turtle's size was unknown and showed injuries on the head, marks from a fishing net on the right front flipper, and a fractured skull, indicating a predator attack. The turtle was taken to the JSI (Jaringan Satwa Indonesia) Banyuwedang seapen for care. The main actions taken included species identification, detailed documentation of injuries and conditions, and appropriate care at the seapen.



*Image 5. Stranded Green Sea Turtle (Chelonia mydas) on Lovina Beach
Data and documentation by: team of JSI*

6. Stranded Olive Ridley Sea Turtle (*Lepidochelys olivacea*) on 28/12/2022

On 28th December 2022, a dead and decomposed Olive Ridley sea turtle measuring 80 cm x 65 cm was found. The turtle was discovered by Yayasan Bali Bersih. The main action taken in this case was to identify the species and document the incident, as the carcass was already in an advanced state of decomposition. It was subsequently buried away from the coastline.



*Image 6. Stranded Olive Ridley Sea Turtle (*Lepidochelys olivacea*) on Echo Beach
Data and documentation by: Yayasan Bali Bersih*

7. Stranded Green Sea Turtle (*Chelonia mydas*) on Kuta Beach

On 28th December 2022, a dead and decomposed green sea turtle measuring 25 cm x 20 cm was found. The turtle was discovered by Mr. Tika. Similar to the previous case, the main actions taken included species identification, documentation, and burial of the carcass.



*Image 7. Stranded Green Sea Turtle (*Chelonia mydas*) on Kuta Beach
Data and documentation by: Mr. Tika from Whatsapp Group of Info Penyu Bali*

Conclusion

This report is based on information received from various sources. The collaboration of stakeholders involved in turtle conservation in Bali is essential to create a well-structured database that can serve as a reference for future data. We express our gratitude to DLHK Kabupaten Badung, BPSPL Denpasar, BPKP2K, TCEC Serangan, and the residents for their contributions to data collection, field handling, and the completion of this report.

Recommendations

Yayasan Bali Bersih proposes several recommendations for better database management in the future:

- Conduct further awareness campaigns on turtle conservation, especially for coastal communities.
- Propose a unified reporting system for stranded turtle incidents.
- Engage with stakeholders from both government and NGOs in turtle conservation efforts.
- Continue data collection activities in the coming years.
- Collect data on nesting turtles and hatching turtles.

For further information, please contact the caseworker: **Pande Ketut Cahya Krisnanta Arioka, S.Si. (082211872080/081238445600).**

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