

A team dedicated to the quietude of cetaceans in Reunion: an action that adapts to an evolving context and emerging threats



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Context

Whale-watching has developed rapidly in Reunion Island (France), mainly since 2017, due to a record number of humpback whale (*Megaptera novaeangliae*) sightings during the austral winter breeding season and to a high demand for cetacean interactions. The activity is now well established and offers year-round tours, also targeting three species of coastal dolphin species (*Tursiops aduncus*, *T. truncatus* and *Stenella longirostris*). Since 2017, a team named "Quietude" has been involved in monitoring the activity and raising awareness among whale-watchers to ensure compliance with the local regulations and support the sustainable development of the activity.

... constantly evolving...

2017 - 2018

- High occurrence of whales
- **Intensification of the whale-watching activity** (#compagnies, vessels, daily tours)

2019 - 2020 - 2021

- Low occurrence of whales
- **Increase of nautical activities for dolphins**

2022

- High occurrence of whales
- **High level of whale and dolphin-watching activity**
- Diversification of practices

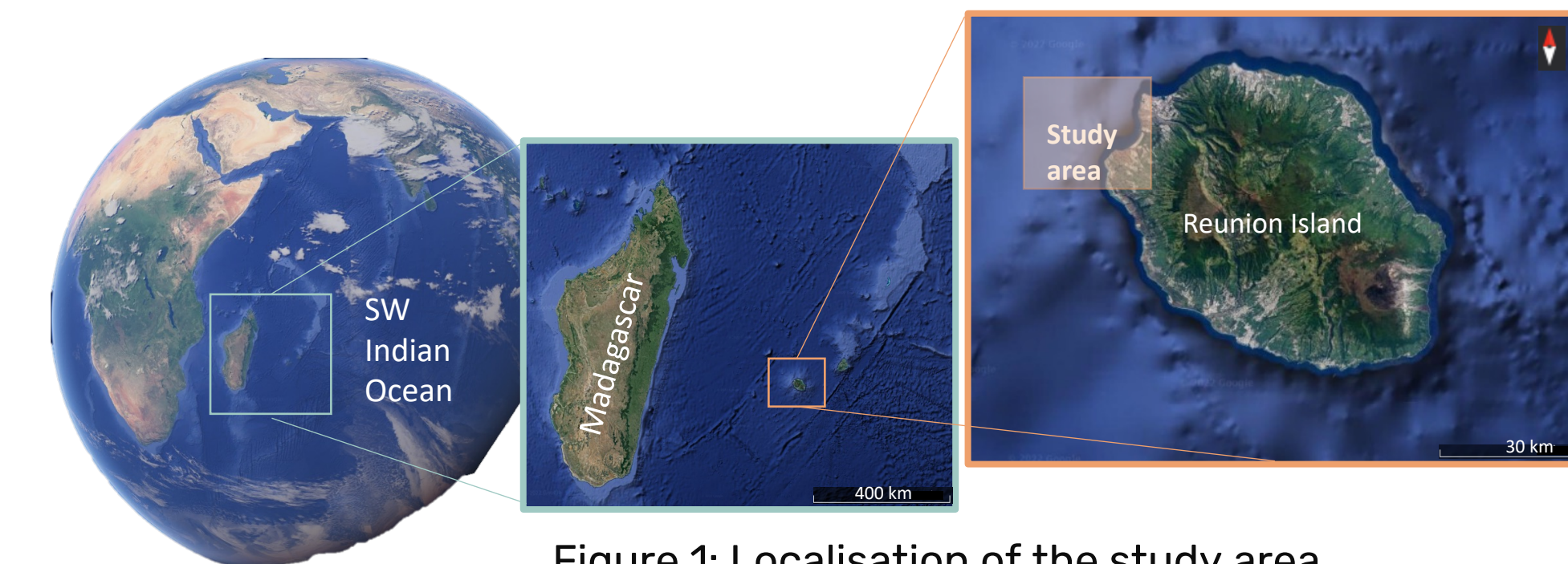


Figure 1: Localisation of the study area.

Method

Monitoring



Figure 2: Illustration of the Quietude team collecting behavioural cetacean data on the semi-rigid boat.

- Western coast of Reunion Island (Fig.1)
- **Biological data** on cetaceans and their **behavioural responses** to whale-watchers
- Nautical activities and **compliance** to regulations
- Semi-rigid boat (Fig.2)
- 1248 hours and 12330 km travelled at sea
- From July to October (**Breeding seasons of humpback whales**)
- From 2017 to 2022

Conservation

- Regular meetings with local stakeholders to **implement additional best practices** based on personal commitment
- VHF **communication system** to facilitate compliance and reduce pressure on animals
- **E-learning platform** focusing on sustainable whale-watching practices - omega.upility.fr (Fig.3)
- Various informative and educative tools (i.e. Sustainable whale-watcher handbook of Reunion Island)
- **Training** of marine professionals, divers, tourism professionals



Figure 3: Communication support of the platform OMEGA.



Figure 4: Illustration of an awareness-raising intervention to passengers on a rental vessel by the Quietude team.

Awareness-raising and communication

- **Patrolling the study area** to raise awareness for responsible whale-watching practices among whale-watchers (Fig.4)
- **Mediating and facilitating communication** between stakeholders at sea
- **Alerting the public and authorities** to safety issues or events

Main results

The compliance of whale-watching vessels with the regulations

Rate ranged from 67.7% to 75.7% between 2017 and 2022 and reached 94.7% in 2021. (Fig.5)

Behavioural responses of humpback whales and spinner dolphins to whale-watchers

- Whale **avoidance responses** increased from 14.9% to 22.2% between 2017 and 2018 and **decreased** from 20.4% to 5.9% in the 2019-2022 period. (Fig.5)
- **Avoidance responses by humpback whales and spinner dolphins** occur more frequently in case of **non-compliance** with regulations. (Hoarau et al. 2020; Quintana Martín-Montalvo et al. 2021)

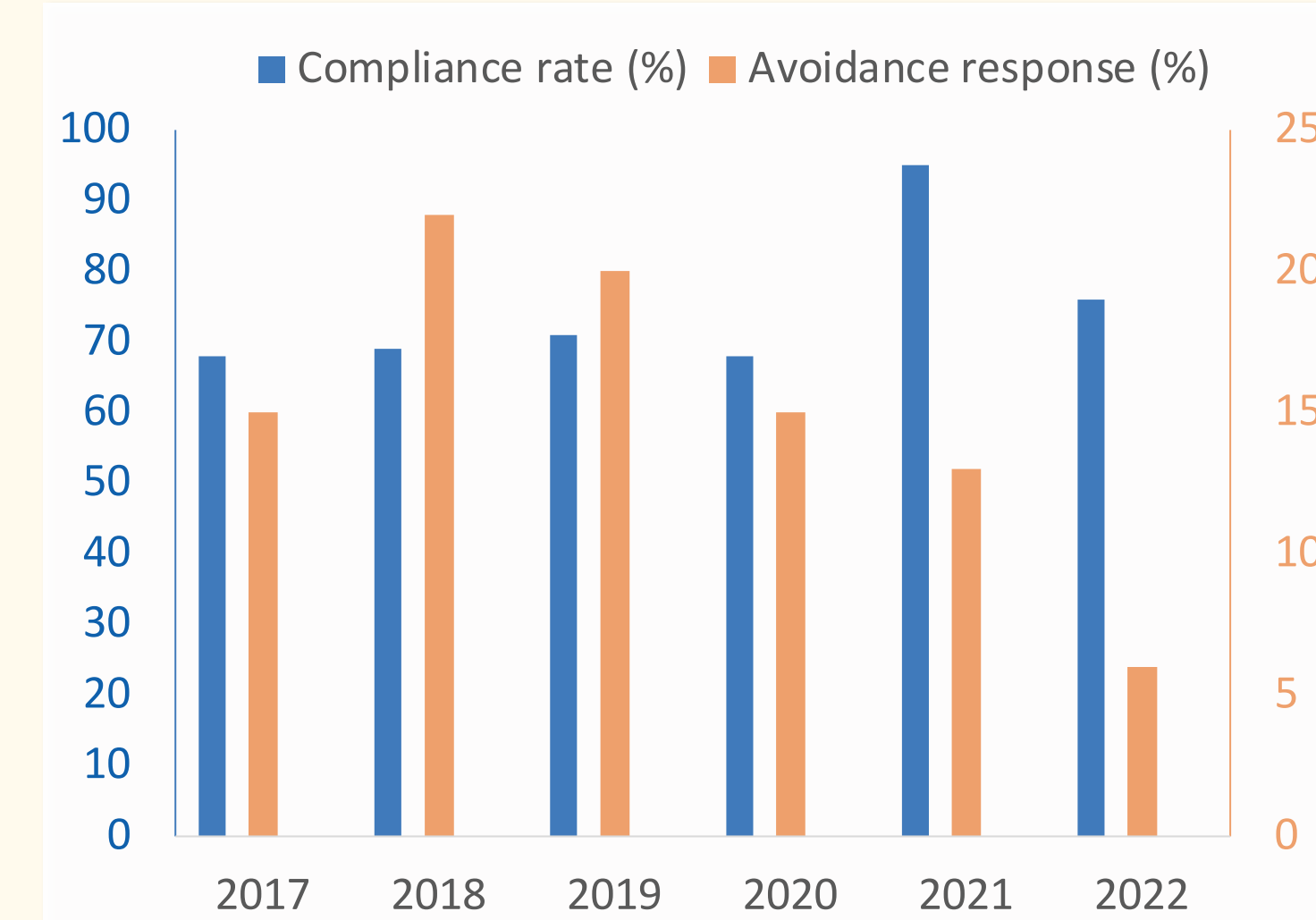


Figure 5: Evolution of humpback whale avoidance responses rate and whale-watchers' compliance rate from 2017 to 2022.

Additional studies on emerging threats

- A review of **recommendations for sustainable cetacean-based tourism in French territories** - Chazot et al. 2020
- A case study of **swim-with activities in Reunion Island** - Barra et al. 2020

Improvement of awareness and practices

- 1083 whale-watchers reached
- 15 training sessions
- 50 conferences and meetings
- **Better communication** between stakeholders at sea
- **Improved whale-watching practices**

Conclusion

Understanding the evolution of the nautical activities and the interactions between users and marine wildlife is a necessary basis to better assess the vulnerability of wildlife and to ensure the implementation of effective protection measures. Indeed, these actions have supported the enforcement of a local binding decree in 2019.

Six years of "Quietude" has allowed a gradual reduction in the daily pressure on the targeted animals and improved the communication between stakeholders at sea. It demonstrates that having a dedicated team to carry out both research and awareness-raising is complementary and fundamental to ensuring the conservation of cetaceans.

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