

SAYA DE MALHA DAILY

A Newsletter by Dominique and François



N°20, 22nd November 2022, FINAL ISSUE

Where are we ?

Port-Louis, Mauritius.

20°16 South, 57°50° East

Sunny, Calm Seas, Wind 10.35 Knots

Air Temperature 25°5, Water Temperature 25°8



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Mauritius

Mauritius, officially the Republic of Mauritius, is an island nation about 2,000 km off the coast of the African continent, east of Madagascar. It includes the main island, as well as Rodrigues, Agaléga and Saint Brandon. The islands of Mauritius and Rodrigues, along with nearby Réunion are part of the Mascarene Islands. The capital and largest city, Port Louis, is located on Mauritius, where most of the population is concentrated. The country spans 2,040 km² and has an exclusive economic zone covering 2.3 million km². By some accounts, Arab sailors were the first to discover the uninhabited island, around 975 AD. The earliest confirmed discovery was in 1507 by Portuguese, who otherwise took little interest in the islands. The Dutch took possession in 1598, establishing a succession of short-lived settlements before abandoning their efforts in 1710. France took control in 1715, renaming it Isle de France. In 1810, the island was seized by Great Britain. Mauritius became independent in 1968.

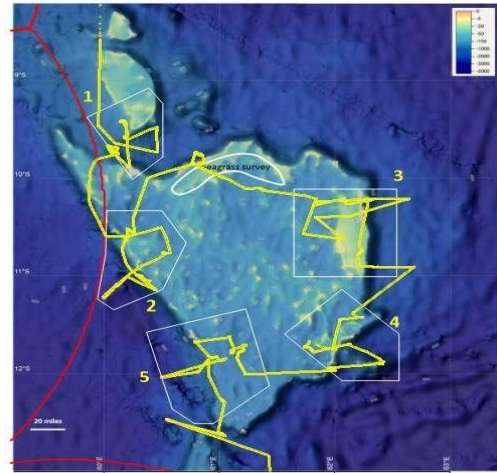
Owing to its geographic location and centuries of colonialism, the people of Mauritius are highly diverse in ethnicity, culture, language and faith. The island's government is a parliamentary system. According to the World Bank, the country is classified as a high-income economy. The country is a welfare state. The government provides free universal health care and free education. In 2019, Mauritius was ranked the most peaceful African country by the Global Peace Index.



Expedition Wrap-up

What was achieved

The area of the Saya de Malha Bank sampled across 5 pre-selected areas was 55 000 m², 1/10⁶ of the Bank total area. We used a range of sampling techniques from 20 m to 1500 m to characterize the physicochemical water bodies, phytoplankton and zooplankton, patterns of currents, benthic species diversity including flora, such as seagrasses and algae, and fauna, mostly invertebrates and some fishes. Some vertebrate fauna in the water column were also observed. In addition, a project investigated surface microplastics.



What we know so far

- The distribution of water bodies showed differences between the east and west of the Bank.
- Patterns of primary production based on chlorophyll analysis of phytoplankton collected in water samples and multinet sampling still need to be analysed.
- Some 300-400 species of molluscs, 300 species of crustaceans, 100 species of algae and 50 of fishes were collected. 20% of the molluscs living on the bank may be endemic. Most of the collected specimens have yet to be identified.
- Seagrasses meadows (main species *Thalassodendron ciliatum*) observed on Northern side of the Bank were healthy.
- Few sightings of large fish, some sightings of seabirds, and one of dolphins.
- 36 Manta nets deployed, average of 30 fragments of plastics, microplastic present on the West of the Bank.

Much of the results of the expedition will take time to analyse.



Implications for the management of the JMA

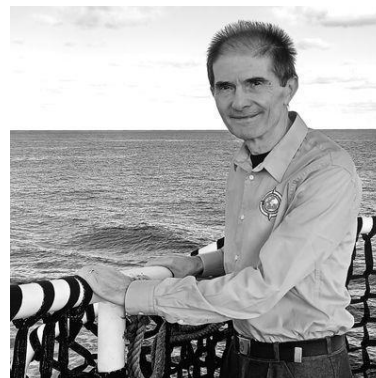
- The data on benthic biodiversity are promising based on invertebrates and fishes collected so far.
- Given the small area sampled compared to the total size of the Bank, the collected species and results so far, it is difficult to assess the impacts of natural processes, in particular currents and low productivity waters, and the potential impacts of human activities such as fishing on lack of large pelagic species observed.
- The assessment of the extent of seagrass beds was not possible during this expedition. Considering the importance of seagrasses in carbon storage, a separate investigation is needed to address this gap.
- The Island effect is present and most likely impacts on the overall circulation of the Indian Ocean.
- Overall, there is no doubt that the Saya de Malha is unique due to its formation and location and the benthic biodiversity found.



The Portraits

Gilles Bessero, Expedition Leader, Monaco Explorations

Gilles was born in Montbéliard, France in 1952. Growing up, he developed a strong interest in the marine world, inspired by Jules Verne and Jacques Cousteau, his ambition being to join the navy. Graduating from Polytechnique and the ENSTA, Paris, he joined the Naval Hydrographic and Oceanographic Service (SHOM) where he spent most of his career. He later joined the International Hydrographic Organisation (IHO) based in Monaco. As the director of Monaco explorations and expedition leader, "my first duty is to get everyone home safe and ensure cohesion". The Saya De Malha leg is very much about the JMA and working effectively with Seychelles and Mauritius to meet their needs. Building capacity is an important component of our mission,".



Knowledge Bengu, Captain of the *Agulhas II*

Knowledge was born in Durban, South Africa in 1980. Growing up in a family of teachers, he wanted to be a doctor but a neighbor who was a seafarer changed his mind. A high achiever and ambitious, he aimed to become an officer. Following his university degree in maritime studies, a cadetship with AMSOL and Master in captainship in 2012, he had his first command at 32 years old. He has been Captain of the *Agulhas II* for 10 years and is very proud of her. "Responsibility, discipline, respect, and following instructions are my approach to leadership. As a Captain, you are responsible at all times. The daily meetings have been essential to understand and adapt to the needs of the scientists, and coordinate and plan the day ahead to ensure smooth and safe operations".



Kniekeal Rajpoul, Chief Navigating Officer was born in Durban in 1996. Navigating was never part of the plan growing up, however, being from a military family, he was familiar with the navy and ships. On completing a maritime high school, he knew it was his calling. Sponsored by AMSOL he completed a university degree in maritime studies and was offered cadetship and 2 years later graduated as an officer. Now 2nd in command, his next step is to study for captainship. "What I love about the job is the adventure. I like working with people with different expertise from different cultures and backgrounds. Diversity is attractive. For me the highlight was being and learning about Aldabra and meeting Prince Albert II".



Francis Marsac, Expedition scientific Coordinator, IRD

Francis was born in 1956 in Sables-D'Olonne, France. He grew up with Cousteau books and films. As a young boy, he used to go out with his dad sailing and catching plankton in his home-made net using his mother's pantyhose and then observe them under a microscope. The Scripps Institution of Oceanography "Planet Ocean" inspired him to become an oceanographer. Visiting after completing his studies was very emotional time. "I was no longer an observer but an actor." He joined IRD, first in New Caledonia and then spent 26 years in the Pacific and Indian Oceans. "This expedition is challenging from a scientific point of view and from a diplomatic point of view given the unique governance of Saya de Malha. My role is to plan, facilitate, listen, problem solve and try to meet the expectations of all."

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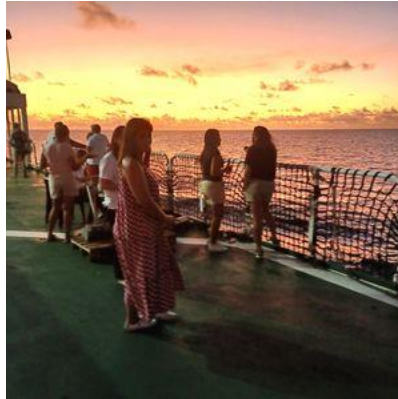
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What's on ?

The last evening it is celebration time from afternoon to last in the night. A Braai, the South African version of a Barbecue is set up on deck 5 and for the first time since we left, beer and wine are on sale!



Group Photo



Did you know ?



The music that calls every evening for dinner time is played by the Chief Navigating Officer from the Bridge!

Bye-bye Agulhas II !



Dominique and François