

SAYA DE MALHA DAILY

A Newsletter by Dominique and François



N°6, THE WEEKENDER, 5-6th November 2022

Where are we ?

East of Saya de Malha, Box 2 and 3, 9.41° South 60.03° East
Sunny, choppy seas, Wind 21.38 knots, Air temperature 26°7 Water temperature 26°5

SCIENTIFIC DIVING

Why scientific diving?



The main purpose of scientific diving is to collect samples in situ and in vivo. It complements ship-based sampling techniques such as dredging or trawling, which cover larger areas and removes both substrate and organisms, visual surveys which document marine life in real time over longer periods and help understanding species and habitats distribution, and oceanographic data loggers which describe the ocean physical characteristics from the surface to the seafloor.

Benthic scientific diving allows for viewing marine life in their natural habitat at close range and at seascape scale before they are removed either by brushing or sucking from the seabed. As one scientist says: Observing is important but sampling is necessary to describe marine life morphologically and genetically, in particular the very small organisms, which are essential to marine food chains. Scientific diving also is about the human dimension, which cannot be easily replaced by a machine. Finally diving allows for awe inspiring encounters with the marine wildlife such as fish, whales or manta rays, which is the icing on the cake!

Diving technology and safety

Diving is limited in time and depth by the human body. Overcoming those limitations is a combination of technology and safety procedures.

Rebreathing diving means that divers carry a special breathing apparatus which recycles their exhalations back into their tank and adjusts the air mix back to breathable air. This type of system does not produce bubbles usually associated with the presence of divers and is unintrusive. Rebreathing allows dives down to 120 m depth for longer periods. As divers go deep, they are exposed to increased pressure, which causes the air in their body's air spaces to compress. On ascending back to the surface, deep diving requires decompressions stops often up to 2 hours, depending on the length and depth of the dive, to avoid the formation of bubbles in their body which can cause serious problems (The Bend).



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Diving is a risky endeavor and so dive preparation and safety procedures are paramount.

The vessel crew and the dive team need to collaborate closely to ensure smooth and safe dives. The crew is responsible for operating cranes and small boats and the ship decompression chamber. The diving health and safety supervisor and the ship doctor are on board to oversee emergency rescue in the event of a diving accident or any accident on the diving boats. The chief scientist designates the dive location, and the diving team coordinator is responsible for the planning and running of each dive. During the dive, the skipper closely monitors the divers. One of the difficulties facing the dive team is to locate the dive location, as the ship is not equipped with a multibeam echosounder, it is difficult to get a good idea of the seabed topography. Conditions at sea can change rapidly and are closely monitored each day. Flexibility is necessary to quickly adjust procedures. Before and after a dive, there is a briefing to ensure all issues arising in any one dive has been resolved.



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Who dives?

The expedition diving team consists of 5 divers as well as the boat skippers and two volunteers. Each day, the divers board the two small boats launched from the expedition vessel which contains diving equipment and sample crates. On each dive divers collect samples from the sea floor which are loaded into crates and coolers and brought to the surface for sorting and future analyses.



Line Le Gall, Algae specialist and diving team coordinator



Grégoire Moutardier, MNHN, volunteer diver.



Stéphane Hourdez, Polychaetes specialist with the CNRS Banyuls, Travis Misorp, diving boat skipper



Terry Jeanne free-lance diver from Seychelles, assisting the diving team.



Sven Bender underwater cameraman.



Emmanuel Vassard, volunteer rebreathing diver with Line's team.

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What happen to the samples?

As soon as brought on board, samples are sorted out by group, visually and under binocular microscope, before being placed in alcohol in labelled boxes and tubes or dried. Each member of the diving team has taxonomic specialist expertise, completed by other specialists on board.



Mariette Dine, from Seychelles Ministry of Fisheries and Blue economy assists with the sorting of algae, Benoit Guillot a amphipod specialist with the University of Bordeaux.



Grégoire Moutardier is volunteer diver and marine naturalist, and Philippe Bouchet a mollusc specialist, both with the Muséum National d'Histoire Naturelle.

Did you know...

At the end of the 19th century, the painter Louis Tinayre was recording natural colours of animals collected when on board one of 4 Prince Albert the 1st oceanographic vessels, the *Princess Alice*. This tradition is continued by Elise Rigaud, artist in residence with the expedition.



Diving by Chloé Vanderlynden, MADCAPS team artist!

