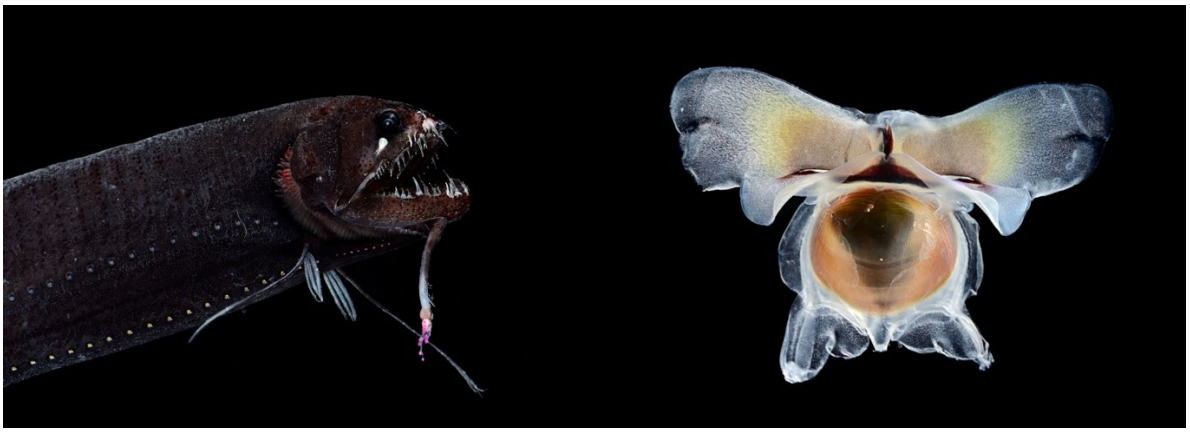
RV SONNE

Cruise SO285 „TRAFFIC 2“
Emden – Emden,
20th August – 2nd November 2021

6. Weekly report

Reporting period: 20th – 26th September 2021

This week we really got started with our station work in the southern Benguela upwelling system. We ran two transects from the centers of upwelling at the coast to the Benguela Current, which is moving northward along the South African continental slope. Due to the shallow water depths of only up to ~1000 m compared to the open ocean, the individual stations were short and followed in close intervals, resulting on average in five to six stations per day. However, they could not easily be run one after the other. Each method is designed for a specific part of the ecosystem and thus requires a specific time. Some instruments are therefore only used at night, while other measurements require daylight. All in all, this results in a tightly organized 24-hour program that demands a lot from everyone and leaves hardly any time to get into the analysis of the data. That's why we introduce our photographer Solvin Zankl and his work here on board in this week’s report.

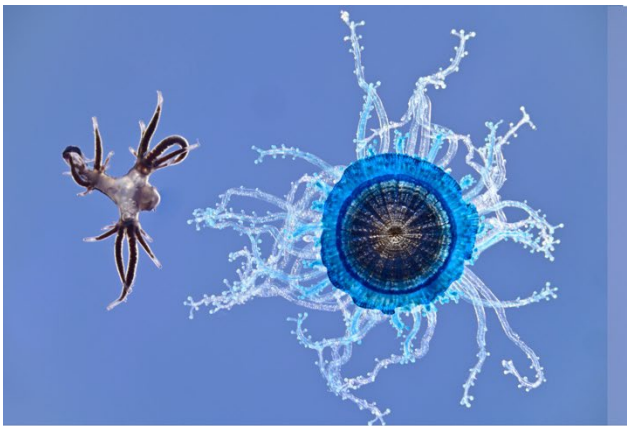


The dragonfish (*Echiostoma barbatum*) belongs to the baleen dragonfishes. With its luminous organs, barbel and long teeth, it represents the stereotype of the "typical" deep-sea fish. (Photo: Solvin Zankl)

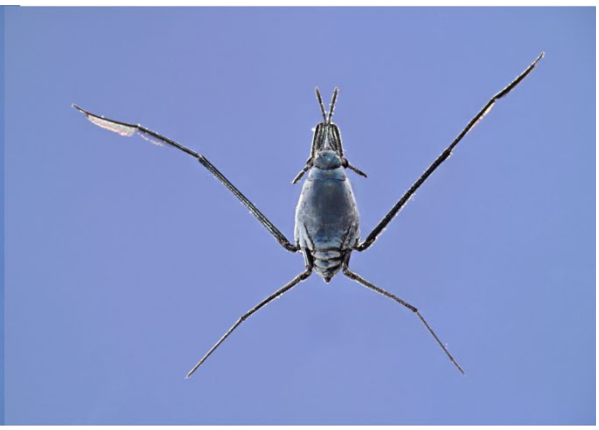
With its foot divided into two paddles, the winged snail (*Cavolinia sp*) flutters through the water. To gather food along the way, it weaves a web of viscous liquid and digests it along with its contents. (Photo: Solvin Zankl)

Many people may know Solvin Zankl and his images, which have been featured in renowned magazines such as Geo and which he presented together with Maike Nicolai in 2020 in the impressive book "Tiefseewesen - Einblicke in eine kaum erforschte Welt". Solvin specialized in photographing barely known marine animals, which he collects here on board from the biologists' net catches. With these images, hardly pronounceable names and abstract units such as "number of individuals per m^3" become living beings. They embody the fascination of a part of the marine ecosystem that is virtually unknown to us and, like insects, worms and microorganisms in the soil on land, help to recycle essential nutrients. Unlike soil, however, the ocean requires physical processes such as upwelling to return nutrients to the euphotic zone and enable the growth of phytoplankton.

During our daily work, we almost never see Solvin, because most of the time, he sits in a cooling chamber of about 20 m^2 inside the RV SONNE. Here, he observes the marine animals in aquariums specially designed by him, and waits for the right moment, when his models show their full beauty. To capture this moment, his aquariums are equipped with a special camera system. Its images give us, for the first time, insights into the almost unknown fauna of the Benguela upwelling system. Until now, our perception of the fauna of the Benguela upwelling system has been dominated by large marine creatures such as whales and robes and by commercial fishing. The small animals, however, rival their larger co-inhabitants in every respect, if only we could see them better. This is where Solvin's photography comes into play.



The "blue button" (*Porpita porpita)* is carried around on the water surface by winds and currents. Its tentacles are equipped with poisonous cnidocytes, which the thread snail (*Glaucus atlanticus*, left in the picture) can nevertheless eat. (Photo: Solvin Zankl)



Halobates or sea water strider is an insect and belongs to the group of bugs. The species *Halobates micans* inhabits the open sea and is the only bug species found so far in the Atlantic Ocean. (Photo: Solvin Zankl)

In addition to the deep-sea nets, Solvin has now also discovered the neuston catamaran on board the RV SONNE for the first time. Samples of this catamaran contain small animals that live in the upper twenty to forty centimeters of the water column. In their beauty, they are in no way inferior to life in the deep sea, and like deep-sea creatures, they have received little scientific attention so far. Images like Solvin's are helping to change that.
Next week, we will complete our work in the southern Benguela upwelling area and present our more 'abstract' preliminary results.

RV SONNE, at 30°S / 15°W, 26th September 2021
Tim Rixen
(Leibniz Center for Tropical Marine Research Bremen)