

THEME SECTION

The Red Sea Programme: sailing a nutshell of hope in Red Sea waters

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Science is one of the few areas in which Arabs and Israelis can cooperate on common goals in a non-political context. After the signing of the 1993 Oslo peace agreement, there was widespread optimism that the dialogue and trust created by scientists would support the political peace process. The importance of science for peace was recognized by the German government, which supported the initiative of leading Israeli, German, Egyptian and Palestinian scientists to develop a major project of regional cooperation in marine science in the Red Sea area.

This initiative led to the creation of the 'Red Sea Programme' in 1995, coordinated by the Center for Tropical Marine Ecology in Bremen. With strong financial support from the German Ministry for Research and Technology and under the auspices of the Nobel Laureate Erwin Neher in Göttingen, the programme became one of the major multinational research networks in the area, with about 70 participants, including Jordanians, who joined the activities in 1997. Throughout its existence and beyond its termination, scheduled for 2001, the programme had important spin-offs to other scientific endeavours, such as the 1999 international Red Sea cruise of the RV 'Meteor' and the US-sponsored 'Red Sea Peace Park' between Israel and Jordan.

The Red Sea Programme was built on existing personal contacts between individual Middle East and German scientists and on traditional links between the German marine science community and the research

institutions in Red Sea countries. The aim of the programme was to carry out cutting edge research on defined themes using a number of multinational teams. Research centered around: (1) ocean processes of the Gulf of Aqaba and northern Red Sea, (2) coral reef ecology, (3) calcification and palaeoclimate, (4) microbial processes at marine interfaces and (5) neurophysiology and toxins of reef organisms.

Most of the research activities took place at the Interuniversity Institute in Eilat (Israel) and the Aqaba Marine Science Station (Jordan), at opposite sides of the northern Gulf of Aqaba, with short-term cruises and land-based expeditions of individual teams to Egyptian waters. Sophisticated equipment was provided to the Interuniversity Institute in Eilat and its vessel was operated partly out of Red Sea Programme funds.

The RV 'Meteor' cruise leg 44/2, which was also coordinated by the authors with Gotthilf Hempel as chief scientist, provided the unique opportunity to carry out synoptic interdisciplinary research on a wider regional scale. Research focussed on pelagic processes during the winter/spring transition period, particularly on the dynamics of vertical mixing and microbial production in a weakly stratified oligotrophic water column.

The cruise was a real challenge to the coordinators and all participants: when leaving port in the Mediterranean no working permit for the Red Sea had reached us, except for the northernmost tip of the Gulf of Aqaba. While passing the Suez Canal, we still had no assurance as to who of the Middle East partners would

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be able to embark in Suez. But finally, programme scientists from all nationalities joined the cruise.

The Gulf of Aqaba is like a bathtub, ca. 165 km long and 15 km wide—not very large for a big research vessel to operate in for 15 d. The freedom of movement was mostly limited to a narrow central strip along the dividing line between Egyptian and Saudi territories. This resulted in a series of repeated transects. Fortunately, the cruise hit the rapid transition from winter to spring hydrographic conditions. This was well reflected in the narrow-meshed spatial and temporal series of samples and data sets.

In addition to closing gaps in our understanding of the ecology of the Red Sea, a major goal of the Red Sea Programme and the RV 'Meteor' cruise was to build the research capacity and infrastructure to enable cooperation on a more equal footing in the region. This involved on-the-job training of students in state-of-the-art research techniques, as well as a broad spectrum of introductory and specialized courses in Eilat and Aqaba with excursions to various coral sites along the Sinai and Jordan coasts. In those courses Arab, Israeli and German students and lecturers worked together. Several young Egyptian and Jordanian scientists obtained their PhD in Germany, while Palestinian PhD students were enrolled at Israeli universities. German MSc and PhD students and PostDocs did their field work in Egypt, Israel and Jordan. Regular scientific conferences served as fora for interdisciplinary discussions, particularly for young scientists. Special attention was given to joint publications reflecting the multinational cooperation under the Red Sea Programme. Human resource development was accompanied by the provision of modern equipment to the partner laboratories, allowing young researchers and postgraduates to carry on collaborative research in their home institutions after the end of the programme. More than 80 PhDs and MScs emerging from the programme or related to it, now constitute the core of a young generation of talented young scientists enriching the science capacity of the

region, and of the Arab institutions in particular. The Red Sea Programme contributed to the establishment of a new department of marine science at the Palestinian Al Quds University and to the strengthening of the various branches of the Egyptian National Institute of Oceanography and Fisheries.

The following 7 contributions to *Marine Ecology Progress Series* were selected from a large collection of papers based on the Red Sea Programme and the RV 'Meteor' cruise (the full list is available at www.zmt.uni-bremen.de). They reflect the multinational character and wide scope of these activities, leading from nitrite and phytoplankton dynamics (Al-Qutob et al., Post et al.) to grazing (Sommer et al.) and to the dynamics of bacterioplankton (Grossart & Simon). The reef research is represented by 2 papers on the effects of the reef framework on nutrient cycling (Rasheed et al.) and of shore-based industry on fish populations (Khalaf & Kochzius). Palaeoenvironmental and biological effects on corals are tackled by the closing article (Al-Rousan et al.).

The multinational and multidisciplinary authorship reflects the spirit of the Red Sea Programme and the RV 'Meteor' cruise. We hope that the papers demonstrate that heavy constraints do not rule out good science, provided the scientific partners are willing to bridge gaps and overcome barriers, and provided they find support from some wise administrators.

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