

Tripreport Tunisia

The evaluation if marinecultures.org (MC) can develop Sponge Farming in Tunisia was extremely successful. All our expectations were exceeded several times over. We were welcomed everywhere.

Our local partner, the Institute de la Science et da la Technologie de la Mer (INSTM) is very well positioned nationally and has a well functioning network of field offices along the Tunisian coast. The whole trip was well organized by Karim Ben Mustafa down to the details, it could not have been better. After a kickoff meeting in Tunis with the ISTM director, we headed south with two cars, a Zodiac, and a four-person ISTM team.

Tunisia is the world's largest sponge 'producer' and almost every Tunisian family has a link to sponge fishing or trading somewhere. The history of the sponge trade goes back to the 14/15 century. Inscriptions were found on a border stone with Algeria that established tariffs for wheat, olives and sponges. This sponge production heritage was very much felt in all three communities visited. The population has been affected by the drastic decline in sponge revenues. While in the 80's up to 30, once even 35 tons (dry weight!) were 'produced' annually, in 2016 there were only three and last year only 1 or 1.5 tons. The fishermen of Zarzis no longer find sponges off their coast. They already have to go as far as Lampedusa with their boats. And dive up to 60 meters deep what is connected with a high safety risk.

The stocks in the Mediterranean Sea are massively overfished and probably additionally decimated by diseases and climate changes. All the more it is important to build up cultures with the 'last' of the sponges that can be found, which will preserve Tunisia's cultural heritage and help to regenerate the battered natural stocks. (The environment of sponge farms benefits greatly from sexual reproduction). The present project has a component of biodiversity conservation not previously considered.

We had agreed with ISTM in advance of the trip on the following:

Evaluation of a research and development project for ecologically responsible and financially sustainable sponge cultures.

INSTM and MC are jointly conducting an awareness campaign to "introduce" the concept of sponge culture in the ocean. On a small scale, for low to middle income fishermen. It aims to promote sponge cultivation as a means of livelihood, job creation and a source of income for cultivators*.

In the three sponge strongholds, Zarzis, Djerba and Kerkenah, we held a total of 13 presentations including film screenings over the two weeks, summarizing the economic and financial success of the technique in Zanzibar. In the presence of local NGO's, environmental associations, professional groups, a possible private partner and a sponge trader as well as other Tunisian associations were discussed. All supported by the local authorities and with the support of the administrations and those services that deal with the dissemination of sustainable fisheries and aquaculture.

The research results already obtained by INSTM on growth rates of the sponge *Hippospongia communis* (Lamarck, 1814) were also explained.

Meetings were held in Jdeiria, Kraten, El Bibane, Zarzis, Ajim, Mellita, Ouled Ezzdine, Ramla, Ouled Ezzedine, etc.; the reception was always appropriate to Tunisian hospitality, warm and courteous. Following the presentations, open and honest discussions and debates took place, addressing relevant questions and issues:

- Choice of growing areas, which species to grow
- what survival/success rates, what growth rates, and what financial return can be expected
- which technical approach should be followed
- can the experiences of Zanzibar be "transferred" to the marine environment of the southern Mediterranean or not?
- how to protect against diseases and deaths
- from where and how to obtain the 'mother' sponges
- how to work in harmony and together with the administration in the placement of cultivation areas and especially their protection
- what financing is needed
- what is the contribution and support of the INSTM and what MC
- how to sell the production, which market should be built up
- etc.

Our answers were convincing. The decisive challenges could be clearly identified and possible solutions discussed. The conclusion of the meetings was the same everywhere: There is a high interest in the introduction of sponge cultures. Many fishermen would have liked to start right away. However, before setting up productive farms, there is a need to establish pilot nursery farms for a research and development project in advance, which will allow to acquire the necessary knowledge for a roll-out.

The following research topics for the pilot project were agreed upon:

General: growth rate and mortality of local sponge species used commercially. Six test farms in different habitats, 2 per community.

Influence of the location of cultivation.

- Growth rate and mortality depending on depth
 - Growth rate and mortality depending on habitat.
- (Flow and exposure already optimized by choice of farm location).

Cultivation technique

- Growth rate and mortality depending on the size of the cutting (golf ball/tennis ball size)
- Growth rate and mortality depending on season
- In which season to start / when not to cut)

Collection effort / how much time and money is spent

- to find 100 new sponge fragments
- which material and which means of transport are used

- which costs are incurred

effort for breeding / how much time and money is spent

- to get a breeding stock of 1000 sponges
- to produce another 1000 new fragments

Effects of the breeding

- on the natural sponge population
- on seagrass and other local habitats near the test farms
- socio-economic impacts

INSTM and Marinecultures.org are able to collaborate with all local, regional and national partners that support this scientific approach and will establish an action plan that will be submitted to regional partners for consultation. In parallel, INSTM will apply for the necessary permits and together MC and INSTM will clarify and secure funding for the 1-year research and development project.

In the current evaluation phase, INSTM has contributed the following: salaries of the four employees involved, two vehicles, trailer with Zodiac and outboard motor, gasoline, diving equipment and scuba tanks as well as office and storage space. MC in turn financed the costs for telephone and internet, accommodation and meals for the four INSTM project participants as well as the additional travel, visa and salary costs for the three MC project participants (MC expenses to date ~14'000 CHF).

The success of the pilot project would be that enough sponges can be procured, they survive and grow and a price can be generated which generates a minimum income of ~400€/month or more. With this, a Tunisian family of 4-5 people can currently cover the most important expenses. Equally important is the research on the impact of the test cultures on the natural sponge stocks, on the surrounding habitat of the test farms as well as the social and economic impact.

If all turns out positive, a follow-up 'roll out' project can establish production farms and multiply the expertise of the farmers who collaborated in the implementation of the pilot project.

Another goal is to find fishermen among the potential partners to carry a roll out project and establish sponge cultures in the visited regions with a financial development contribution that MC would provide for each farm until it reaches the commercial exploitation phase.

A big thank you to all who support us.



Final meeting with governmental institutions



Headquarter INSTM



Visit of a sponge trader



The team