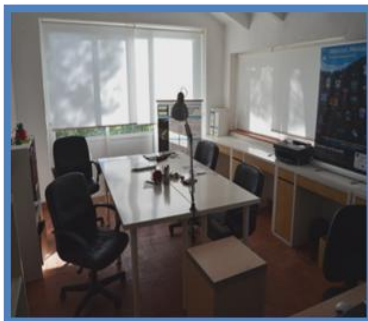


## SCIENTIFIC STATION IN MONTGÓ NATURAL PARK, DENIA (ALICANTE)

Given the geographic extent of the project LIFE CUBOMED -all the Mediterranean Spanish Coast- several actions of the project are performed on ceded facilities to ICM-CSIC by National Parks, located in Denia (Alicante). This location, within the Natural Park of El Montgó and near the Marine Reserve of Cabo de San Antonio, makes it an ideal place to carry out different kind of environmental samplings.



Besides the wet and dry laboratories, the Scientific Station (managed by the two project beneficiaries ICM-CSIC and University of Alicante) has the needed services to accommodate 6-8 people (rooms, kitchen, bathrooms, etc.), which facilitates the tasks for displaced staff.



In addition to technician and scientists of both institutions who work in this place, recent graduates and students enrolled in different scientific degrees (such as Biology, Marine Sciences, etc) assisted them in field work and laboratory studies.

### DEVELOPED ACTIVITIES

1. **ENVIRONMENTAL SAMPLING:** One of the most important locations for sampling *Carybdea marsupialis* in the Mediterranean Spanish Coast is Denia and neighbouring cities. In order to have a better knowledge about the biology and ecology of this species, different kind of samplings are performed including the monitoring of physical (currents), biological (zooplankton characterization and density) and chemical (nutrients) parameters.



2. **DATA COLLECTION:** Meteorological data, sea state, water clarity, temperature, salinity and currents, using drifters and wave models, are obtained in all sampling days.



3. **SAMPLING IN OTHER COASTAL TOWNS:** from Denia, the Cubomed Project also collects data in others towns of the region such as Javea, Calpe, Benidorm, Gandia, Valencia, Oliva, Guardamar del Segura, among others.



**4. WORKSHOPS FOR MARINE SCIENCE STUDENTS FROM THE UA:** Since 2012, field practices of Marine Ecology of the Bachelor's degree in Marine Sciences (University of Alicante) are conducted in this Scientific Station. Students take samples from the sea and measure physicochemical parameters, currents, among others. They also receive information about the LIFE CUBOMED project, and the problem of the proliferation of *Carybdea marsupialis* in the Mediterranean, as well as other species of gelatinous organisms.



**5. EXPERIMENTS:**

Besides sampling of planktonic phase of *C. marsupialis*, various experiments are carried out.

- **Detection of juvenile stage and polyps of *Carybdea marsupialis*:** by reviewing substrates under the binocular microscope. These substrates had been previously placed inside bags 200µm size mesh installed on the seabed.



- **Prototype plankton pump:** Specific pumps are designed and used to collect plankton and determine the influence of anthropogenic structures (breakwaters, piers) on the currents and with the distribution of zooplankton (prey) and *C. marsupialis* in all phases, mainly the juvenile stages.



## 6 LABORATORY:

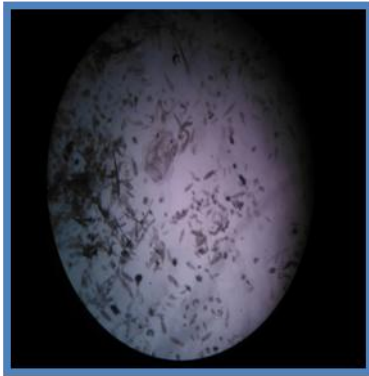
In the laboratories different tasks are performed:

- **Filtration of seawater samples:** Analysis of MPS, nutrients and chlorophyll.



- **Observation and classification of zooplankton:** Zooplankton samples are fixed with 4% formaldehyde for study: all individuals of *C. marsupialis* are counted and measured. In addition, the chitinous zooplankton and all gelatinous organisms (ephyrae, hydromedusae, syphonophora doliolids, etc.) are separated.

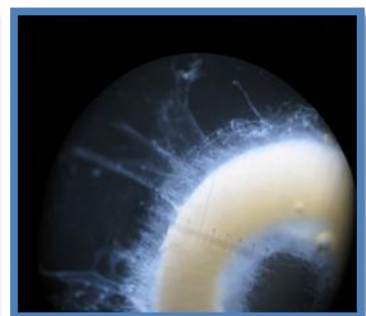
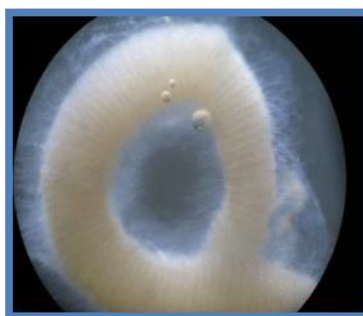




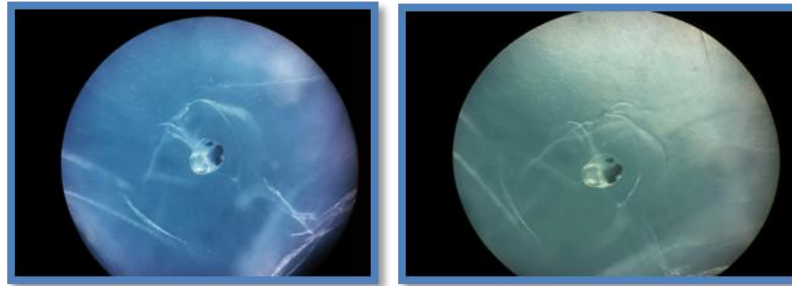
- **Reproduction experiments in aquariums:** Using adult specimens of *C. marsupialis*, several conditions are tested with the ultimate goal of obtaining planulae that can be developed into viable polyps.



- **Cnidocyst's experiments:** Different treatments (ethanol, vinegar, etc) are applied to the tentacles of *Carybdea marsupialis* to check cnidocyst discharge.



- **Experiments with rhopalia:** rhopalia extraction for subsequent statolith chemical analysis

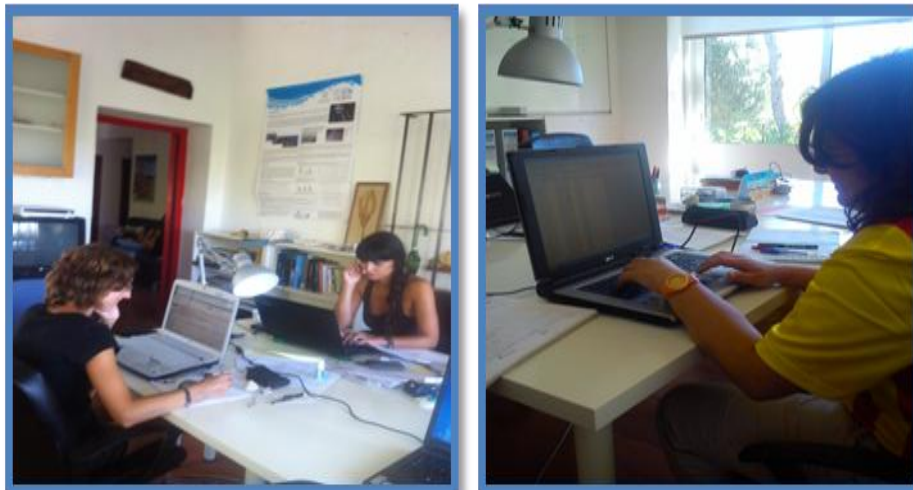


- **Aquarium maintenance:** maintenance of aquariums with polyps and ephyrae of *Cotylorhiza tuberculata* and other species.



## **7. DATA ANALYSIS:**

Complementing the field and laboratory work, once the physical, chemical and biological data are obtained, they are processed and analysed.



## **8. DISSEMINATION ACTIVITIES:**

The educative activities are one of the most relevant actions within the LIFE CUBOMED project in Denia:

- **Schools:** with the participation of more than 1500 students from primary and secondary schools, both from Denia and nearby towns. Students receive an educational talk with a projection on the biology of jellyfish as well as a guided tour inside the laboratories and the aquarium area.



- **Open days:** in collaboration with the Department of Environment of the City of Denia. During the educational talk, the staffs explains to the attendees the reproductive cycle of the jellyfish, the nutrition, the most common species in the Mediterranean, the importance of identification and notification in case of sighting or sting, and the problem of proliferation.



**9. COLLABORATION WITH BALEARIA FOUNDATION:** From Balearia's vessels that cover routes between Iberian Peninsula and the Balearic Islands we carry out jellyfish, debris and other gelatinous organisms' sightings and records.

