



Food and Agriculture
Organization of the
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Identification of sponge species

Species identification is important for ecological, evolutionary, systematic, and biodiversity studies, many of which contribute to the development of conservation and management plans.

Many marine species can be identified using pictorial guides that highlight their main physical characteristics. However, there are also many marine species of lesser-known groups, such as sponges, that are hard to identify with photographs or illustrations due to their lack of complex morphological characters, and thus require specialized techniques.

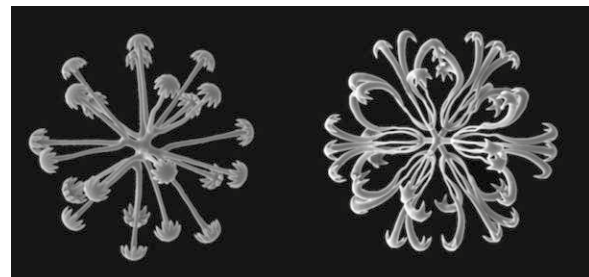
Identifying sponges

The identification of sponges is very difficult due to their unique morphological traits and intraspecific variability in shape and colour. Therefore, proper identification often requires collection and microscopic examination of their skeleton.

Common features used to identify sponges are the following:

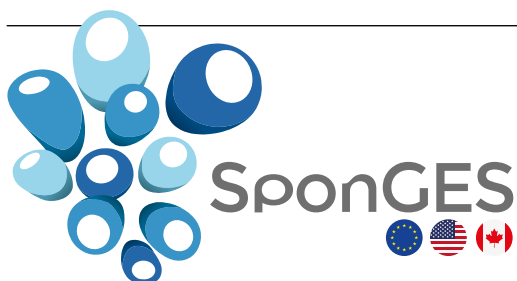
- ⚙️ **Spongins fibres** – organic skeletal elements made of collagen and forming very complex networks in many sponges.
- ⚙️ **Dispersed collagen filaments** – skeletal material found in all sponges
- ⚙️ **Spicules** – inorganic elements present in almost all sponges' skeleton and made of either calcium carbonate or silica.

The composition, geometry and arrangement of these components can be diagnostic at different



taxonomic levels. For example, the classes of known sponges are separated based on these characteristics: the Calcarea have calcium carbonate spicules, the Hexactinellida, siliceous spicules and the Demospongiae, siliceous spicules and sponging fibres or both.

Still, many observable morphological characters can be used to aid in sponge identification including overall shape, distribution of surface pores, colour, texture and size. Knowledge of other non-morphological characteristics, such as the ecological traits of the different species can also be useful in sponge identification. Several tools, such as posters and field guides, and designed to be used by non-specialist individuals while at sea have been developed. A selection of these is provided in the FAO Vulnerable Marine Ecosystems webpage (www.fao.org/in-action/vulnerable-marine-ecosystems/background/vme-tools/en/). New tools, including the ones developed through SponGES will be incorporated in the FAO VME webpage.



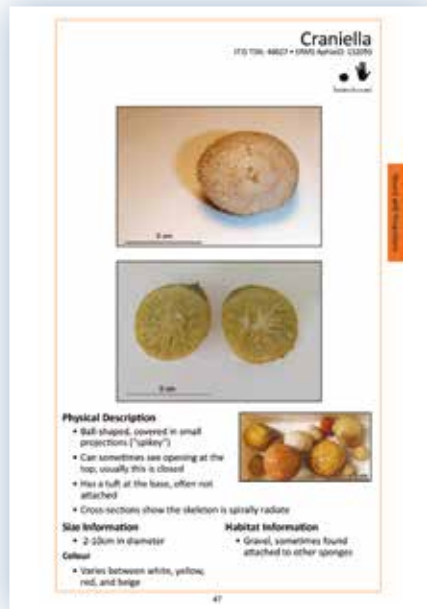
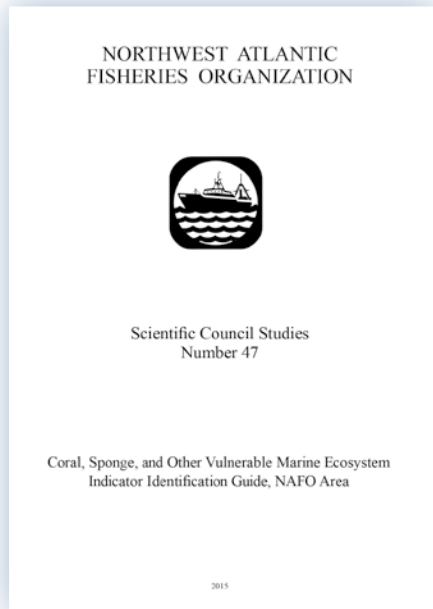
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A selection of sponge identification tools



AN EXAMPLE OF SPECIES IDENTIFICATION POSTERS FOR DEEP-SEA SPONGES OF THE INDIAN OCEAN AND THE MEDITERRANEAN SEA

www.fao.org/3/a-i6324e.pdf



CORAL, SPONGE, AND OTHER VME INDICATOR IDENTIFICATION GUIDES FOR THE NORTHWEST ATLANTIC AREA

archive.nafo.int/open/studies/s47/s47.pdf

The FAO VME DataBase (<http://www.fao.org/in-action/vulnerable-marine-ecosystems/background/vme-tools/en/>) contains some of the existing tools developed for the identification and protection of vulnerable marine ecosystems (VMEs) – including for sponges.

All photos courtesy of DFO, Canada



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