

## Name that beche-de-mer! Toolkit to aid recognition of different species

*Sea cucumbers are soft-bodied marine invertebrates that live on the seafloor which, as the name suggests, resemble cucumbers. There are over 1000 different species in the world, of which around 30 are of commercial value in the Pacific region. So, how can we tell them apart?*



Dried and processed sea cucumbers are called beche-de-mer. Can you tell the different species apart? Image: © SPC

### A critical role

Ecologically, sea cucumbers play a critical role in physical and chemical processes of ecosystems such as nutrient recycling and cleaning sediment and sand. Economically, they are also highly valuable as the processed form – beche-de-mer – is exported, mainly to Asia, as a popular seafood delicacy. Protecting them is therefore of vital importance to maintain healthy ecosystems and for the livelihood of many coastal communities in the Pacific. Being able to identify those species most at risk of over-exploitation is an essential step towards their protection. The Pacific Community (SPC) has produced a [toolkit](#),<sup>1</sup> gathering existing or newly developed resources for training and raising awareness, to support the management and conservation of the species.

### CITES protected

In 2021, the [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#)<sup>2</sup> (CITES) added two

of the highest value sea cucumber species (*Holothuria whitmaei* and *Holothuria fuscogilva* – commonly known as black teatfish and white teatfish) to its Appendix 2 list, which means that exporting countries are now required to prove that these species are fished in a sustainable way, otherwise exporting them is prohibited. To do this, a “non-detriment finding” must be rendered by a state scientific authority, which bases its opinion on the best available information that allows it to assess the risks. This information includes the state of the stocks, the recruitment rate of the species, current management measures, and the strength of control capacities. This latter point translates to the ability of key people to identify sea cucumbers in their natural habitats, or the processed beche-de-mer, and it is for this purpose that the training and video tutorials have been developed.

Identifying these species is necessary for any monitoring authority and for the fishers themselves. However, recognising the species might be tricky to the untrained eye, but even to those familiar with sea cucumbers and beche-de-mer.

<sup>1</sup> [https://www.spc.int/DigitalLibrary/FAME/Collection/Toolkit\\_Sea\\_cucumbers](https://www.spc.int/DigitalLibrary/FAME/Collection/Toolkit_Sea_cucumbers)

<sup>2</sup> <https://cites.org/>

## Recognising key species

The electronic toolkit, available in English and French, contains short awareness videos; training videos, identification cards; posters, and information leaflets. Alongside the on-line and in-person training sessions, it provides a reference point for species identification. This is especially important for the CITES-listed species as well as for other highly exploited species.

This toolkit offers guidance to fishing communities and interested parties, such as fisheries extension officers, monitoring, control and surveillance officers, or customs officers, who need to be able to recognise the key species. Where there may be ambiguity in visual identification, as some species can be difficult to distinguish from others both in the live and processed form, explicit visual and audio descriptions aid the user in telling them apart. For example, at a market or at border controls, how could you distinguish the CITES protected species, black teatfish and white teatfish (*Holothuria whitmaei* and *Holothuria fuscogilva*), from other species, and from each other?

Below are stills from the identification videos that detail how to identify different species:

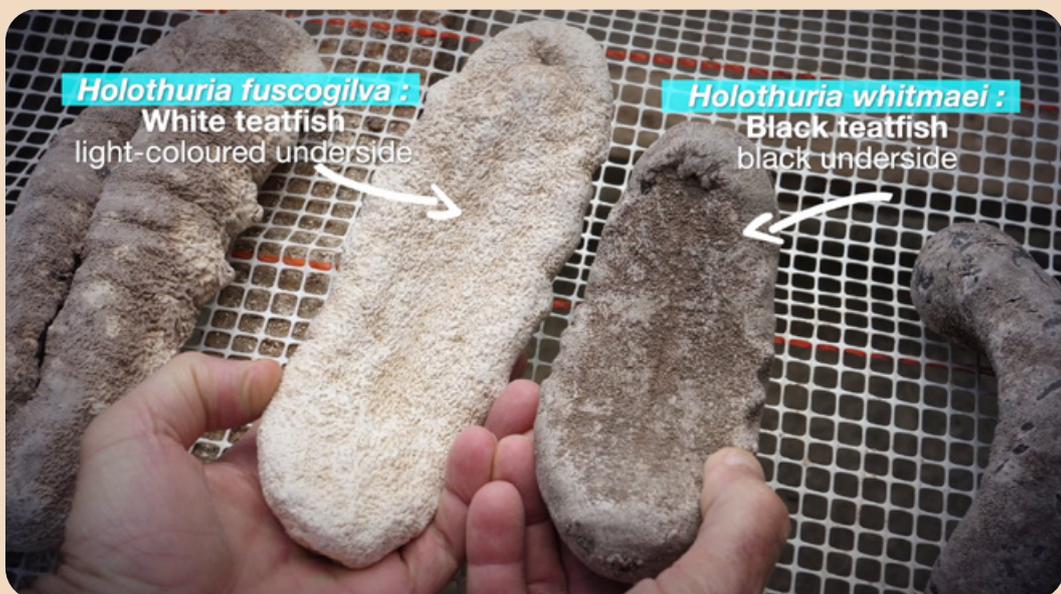


During processing, sea cucumbers are cut open and gutted, salted and cooked in several drying or smoking stages, until they become dry and as hard as rocks. They shrink a great deal and can lose up to 90% of their weight. *Holothuria whitmaei* and *H. fuscogilva* are the only ones cut open on their backs. Other species are cut open on their undersides. If you see a dorsal incision: bingo, that is probably a *H. whitmaei* or *H. fuscogilva*.



*H. fuscogilva* and *H. whitmaei* have “teats” on the margins of their underside (this is why they are called “teatfish”). These teats remain visible, even when the specimen is dry.

A glance at the colour will allow you to distinguish *H. whitmaei* from *H. fuscogilva*: *H. fuscogilva* has a light-coloured underside, unlike the *H. whitmaei*.



And what about *Holothuria scabra* (commonly called sandfish) and *Holothuria lessona* (the golden sandfish)?

These are the only species that must be cleaned of their chalky covering to be marketed. Once that layer has been removed, they become translucent. Our tip: use a torch/flashlight to check. With *H. lessona* and *H. scabra*, the light will shine through. With other species, such as the look-alike *Actinopyga palauensis*, for example, the beche-de-mer stays opaque.



To tell them apart, *H. lessona* has an almost smooth body, whereas *H. scabra* is markedly wrinkled. *H. scabra* is also generally smaller than *H. lessona*.



## There's an app for that

Once users feel confident enough to test their identification skills, they can visit the sea cucumber module in the web applications developed by SPC's Coastal Fisheries Programme.<sup>1</sup> The module uses pictures and multiple-choice type questions with three different skill levels available – beginner, advanced and expert. A score is given at the end of each session, enabling users to see how well or how poorly they perform with sea cucumber identification.

In addition to the online toolkit, training sessions in New Caledonia within the framework of the PROTEGE project,<sup>2</sup> have been delivered jointly between SPC's FAME division and Climate Change and Environmental Sustainability (CCES) programme. Further sessions will be developed for the region in the coming months.

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Access the toolkit  
[https://www.spc.int/DigitalLibrary/FAME/Collection/Toolkit\\_Sea\\_cucumbers](https://www.spc.int/DigitalLibrary/FAME/Collection/Toolkit_Sea_cucumbers)



Test your identification skills – register to use this handy app: <https://www.spc.int/CoastalFisheries/LearnFishID/Trainee>

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<sup>3</sup> <https://www.spc.int/CoastalFisheries/LearnFishID/Trainee>

<sup>4</sup> <https://protege.spc.int/>