



**HAL**  
open science

## Identifying CITES-listed sea cucumbers: An identification guide

Marie Di Simone, Arnaud Horellou, Frédéric Ducarme, Chantal Conand

### ► To cite this version:

Marie Di Simone, Arnaud Horellou, Frédéric Ducarme, Chantal Conand. Identifying CITES-listed sea cucumbers: An identification guide. SPC Beche-de-mer Information Bulletin, 2023, 43. hal-04078789

**HAL Id: hal-04078789**

**<https://hal.science/hal-04078789>**

Submitted on 28 Apr 2023

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# Identifying CITES-listed sea cucumbers: An identification guide

Marie Di Simone,<sup>1</sup> Arnaud Horellou,<sup>1</sup> Frédéric Ducarme<sup>2</sup> and Chantal Conand<sup>2</sup>

## Introduction

CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, has the mission of preventing international trade from causing the extinction of a species, either by regulating or trade prohibition. In this context, from the end of the 1990s, groups of experts were formed to examine the issue of the trade in sea cucumbers (Bruckner 2006), the importance of which is similar to that of shark fins. However, no listing proposal has been submitted to the Conference of Parties for almost 20 years.

Finally, in 2019, sea cucumbers were included in CITES Appendix II, with three easily identifiable species – the “teatfish” from the subgenus *Holothuria* (*Microthele*) (Di Simone et al. 2021). This French proposal had been presented by the European Union, the United States, Kenya, Senegal and the Seychelles. This was the first proposal for sea cucumbers presented to a Conference of the Parties.

## Difficulties in identifying sea cucumbers

After 17 years of unsuccessful attempts, this first CITES listing of sea cucumbers raises the question of the implementation of controls and reporting on a group little considered by non-specialists. Commercial data are most often reported by

groups (“sea cucumber”) rather than by species, preventing clear identification of the most popular species. Moreover, control authorities themselves are not competent and have no tools to differentiate goods containing sea cucumbers. The question arises as to how to certify that a package containing sea cucumbers is legal or not, if nobody is able to certify that they are not species that are currently listed on CITES. These animals, mainly exported to Asian markets, should be distinguished at the species level by fisheries officers, traders and other specialists to better target overexploited species.

Identifying sea cucumbers is a matter for specialists. Indeed, most works are based on spicules, small structures in calcium carbonate that require dissection and microscopy to be observed. In 2012, the Food and Agriculture Organization of the United Nations published the first edition of a guide to sea cucumbers of global commercial importance (Purcell et al. 2012). This guide identified 58 species that are significantly represented in international trade and mainly fished for in the Pacific and Indian oceans, bound for China and, to a lesser extent, Viet Nam. A new edition of the guide extends to other regions and other species, and is in the process of being published (Purcell et al. 2023). It allows an expert to identify the different species of sea cucumbers with laboratory criteria. These methods, however, are not compatible with the reality on the ground, especially with control authorities.

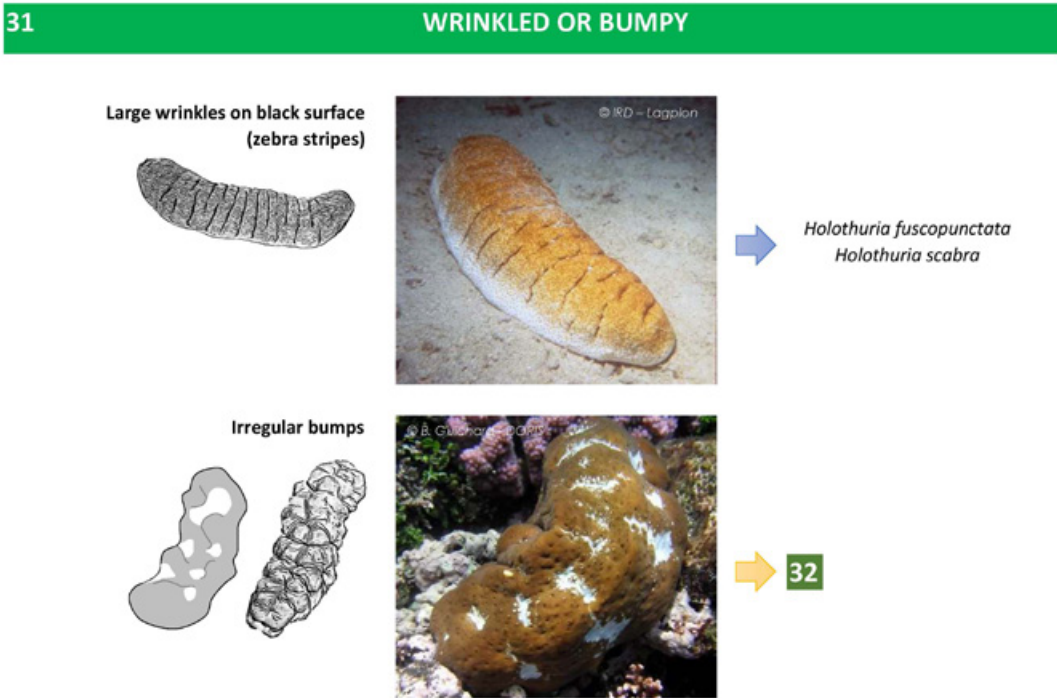


Figure 1. Excerpt from the identification key for live specimens of sea cucumbers. Source: Di Simone et al. 2022

<sup>1</sup> French CITES Scientific Authority, Muséum national d’Histoire naturelle. marie.di-simone@mnhn.fr and arnaud.horellou@mnhn.fr  
<sup>2</sup> Muséum national d’Histoire naturelle. chantal.conand@mnhn.fr

## Realisation of a simplified identification guide on sea cucumbers

The French Scientific Authority for CITES<sup>3</sup> has therefore decided to produce a simplified identification guide, based on the FAO scientific guide, in a long-term vision on sea cucumbers, their trade and the constitution of more precise data (Di Simone et al. 2022). This guide presents 56 species of sea cucumbers, protected or not by CITES, traded worldwide, for food consumption. It is supposedly vulgarized

and simplified for being used by non-specialists, including enforcement authorities whose mission is to detect what is potentially illegal.

This guide makes it possible to recognize traded species using two identification keys: one for live specimens (Fig. 1) and one for dried specimens (Fig. 2). Each species is described in the form of a sheet presenting the morphological and/or distinctive characteristics, as well as the description of the spicules for specialists (Fig. 3).

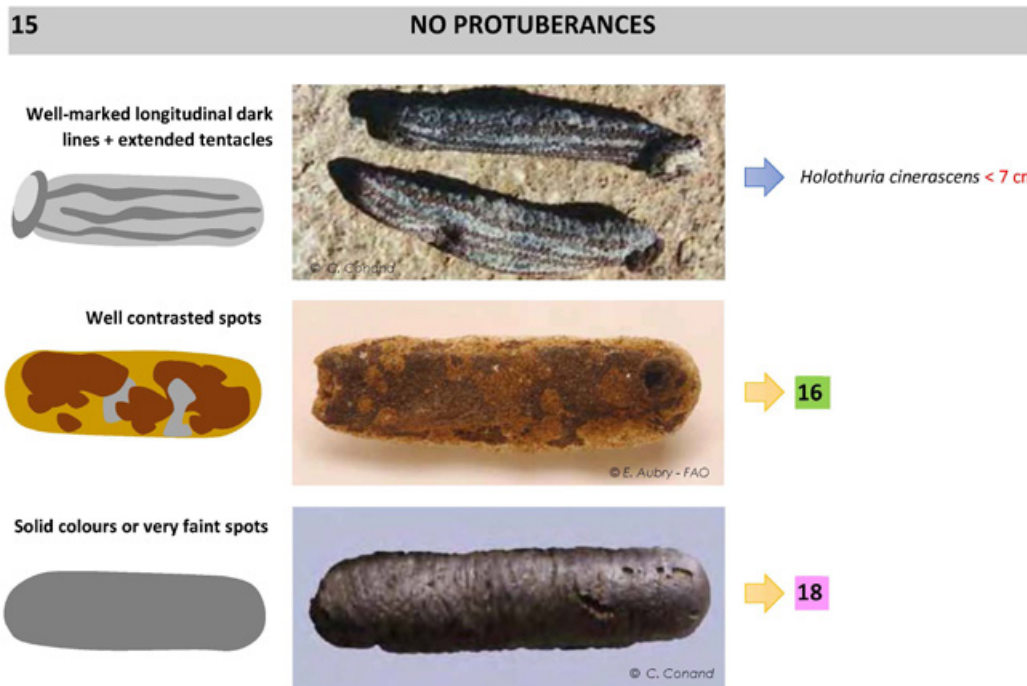


Figure 2. An excerpt from the identification key for dry specimens of sea cucumbers. Source: Di Simone et al. 2022

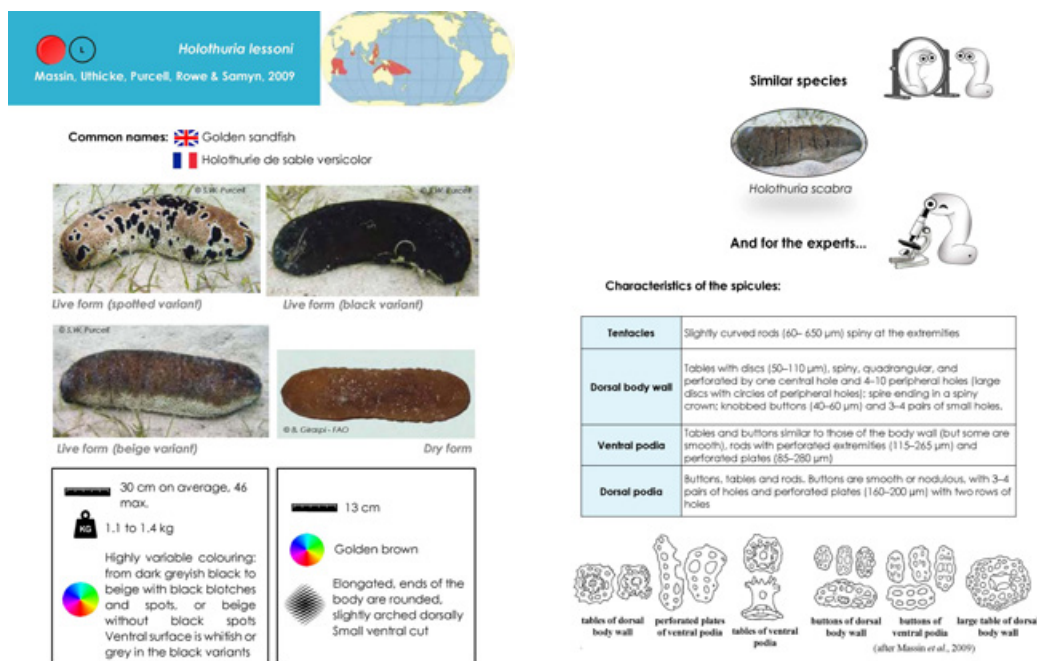


Figure 3. Example of a species sheet. Source: Di Simone et al. 2022

<sup>3</sup> Patrinat (Office français de la biodiversité, Centre national de la recherche scientifique, Muséum national d'Histoire naturelle, Institut de recherche pour le développement)



Figure 4. The cover of the sea cucumber identification guides in English, French, Spanish and Mandarin.

Permalinks to download the guide are given below:

English version: <https://inpn.mnhn.fr/docs/CITES/Guide-identification-concombres-de-mer-2022-EN.pdf>

French version: <https://inpn.mnhn.fr/docs/CITES/Guide-identification-concombres-de-mer-2022-FR.pdf>

Spanish version: <https://inpn.mnhn.fr/docs/CITES/Guide-identification-concombres-de-mer-2022-ES.pdf>

Chinese version: <https://inpn.mnhn.fr/docs/CITES/Guide-identification-concombres-de-mer-2022-CN.pdf>

In addition to being published in the three official languages of CITES (French, Spanish and English), the guide is also translated into Chinese. Given that the largest import market for sea cucumbers is, by far, China and its neighbouring countries, China is demanding that Mandarin be a new official language of CITES. And, also given that enforcement authorities require maximum efficiency, publishing this guide in Mandarin is important, both for the conservation of sea cucumbers and for the challenges of applying the Convention's commitments to China.

## Support for CITES sea cucumber listing proposals

This guide also supports a long-term sea cucumber strategy. It is an important tool for implementing the CITES listing of teatfish and for future sea cucumber listings. It supported the proposal to include the genus *Thelenotia* in Appendix II presented by France under the European delegation during CoP19, which took place in Panama in November 2022 (Di Simone et al. 2023). The proposal was accepted, and three additional species of sea cucumbers are now listed in CITES. All CITES authorities around the world, as well as the fisheries concerned, will have an obvious need for increased skills.

## References

- Bruckner A. 2006. Proceedings of the CITES workshop on the conservation of sea cucumbers in the families Holothuriidae and Stichopodidae. Silver Spring, MD, USA: US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.
- Di Simone M., Conand C. and Horellou A. 2021. The listing of three sea cucumber species in CITES Appendix II enters into force. SPC Beche-de-mer Information Bulletin 41:3–4. <https://purl.org/spc/digilib/doc/273hx>
- Di Simone M., Horellou A., Ducarme F. and Conand C. 2022. Identification guide. Commercial sea cucumbers. Paris: Patrimoine naturel. 227 p. <https://inpn.mnhn.fr/docs/CITES/Guide-identification-concombres-de-mer-2022-EN.pdf>
- Di Simone M., Horellou A. and Conand C. 2023. The listing of three new holothurian species in CITES Appendix II. SPC Beche-de-mer Information Bulletin 43:17–19.
- Purcell S.W., Samyn Y. and Conand C. 2012. Commercially important sea cucumbers of the world. FAO Species Catalogue for Fishery Purposes, No. 6. Rome: Food and Agriculture Organization of the United Nations. 150 p.
- Purcell S.W., Lovatelli A., González-Wangüemert M., Solís-Marín F., Samyn Y. and Conand C. 2023. Commercially important sea cucumbers of the world. FAO Species Catalogue for Fishery Purposes, No. 11. Rome: Food and Agriculture Organization of the United Nations. 273 p.