

# FISHY BUSINESS

S'pore researchers find mislabelled shark and ray products on market, many of which are from endangered species

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The dried fish or salted fish sold at stores here may not be as innocuous as they seem.

Such fish products could actually be harvested from species facing extinction, but buying them in Singapore is easy, say scientists from the National University of Singapore (NUS) and Wildlife Conservation Society.

The researchers bought 176 shark and ray samples between June and December in 2019 from fishery ports and retailers such as supermarkets, dried goods shops, seafood restaurants and traditional Chinese medicine halls.

Sharks and rays are part of a group of cartilaginous fish called elasmobranchs.

A DNA analysis was then done on these products, which included fresh whole fish, fillets and fins, as well as dried or cooked products.

By matching the DNA in the samples to a global database, the researchers could then determine that many of the products had been mislabelled.

DNA barcoding, as this tech-

nique is called, is a useful tool for identifying species as some processed and cooked fish products may be difficult to identify visually.

A total of 131 of the 176 shark and ray samples collected were of species threatened with extinction, said NUS marine biologist Huang Danwei, who supervised the study.

Of the 131 samples, 33 were found to be of critically endangered species, such as the giant guitarfish and the bottlenose wedgefish – which are both rays.

Another 36 were endangered species, including the pelagic thresher shark and the devil fish – a type of ray – while 62 were of species vulnerable to extinction, such as the silky shark.

Their findings come as another international research group found a 71 per cent decline in global abundance of oceanic sharks and rays since 1970, a period that saw a doubling of fishing pressure and a tripling of shark and ray catches.

The global study was published last month in scientific journal *Nature*, while the Singapore study was accepted in the journal *Aquatic Conservation: Marine and Freshwater Ecosystems* in Decem-

131

Number of samples that were of species threatened with extinction, out of 176 shark and ray samples bought between June and December in 2019.

33

Number of samples that were of critically endangered species.

36

Number of samples that were of endangered species.

62

Number of samples that were of species vulnerable to extinction.

ber last year.

In 2019, all 16 species in the giant guitarfish and wedgefish families were added to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Cites), which Singapore is a signatory to.

Cites Appendix II lists species in which trade must be controlled. This means a permit or certificate must be issued before a listed species can be exported.

An import permit may also be needed if required by national law.

Assistant Professor Huang said the diverse forms and processing methods of the specimens in the study suggested that visual identification is a major challenge.

The Cites listing came into effect in November 2019, but accurate trade data and product labelling are needed to assess its effectiveness going forward, he added.

“There are also several instances of products being erroneously labelled. These issues compromise the ability to monitor the trade of each endangered species,” he said.

On the food safety front, the Singapore Food Agency said fish products can be declared using a generic term “fish” as people with fish allergies would need to avoid

fish regardless of the fish type.

But the National Parks Board (NParks) said it conducts regular surveys at the fishery ports to ensure that there is no sale of Cites-listed species without permits.

“Samples from import consignments declared as shark fins and rays will also be collected for identification and analysis,” said Dr Adrian Loo, group director for wildlife management of NParks.

Using this approach, NParks managed to take enforcement action against a trader selling a wedgefish imported without permits, he added.

NParks had also engaged the traders through briefings and visits to the fishery ports prior to and after the listing of guitarfish and wedgefish species on Appendix II in November 2019. Advisories and posters were also put up at the fishery ports and distributed at selected wet markets where the sale of wedgefish was seen previously.

Under the Endangered Species Act, those found illegally importing, exporting and re-exporting any Cites-listed species can be fined up to \$50,000 per species, jailed for up to two years, or both.

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Above: A bottlenose wedgefish, also known as a shovelnose ray, in a 2019 file photo. In 2019, the wedgefish was added to Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, which Singapore is a signatory to. It lists species in which trade must be controlled. ST PHOTO: DESMOND WEE



Researchers found the critically endangered bottlenose wedgefish, labelled as (from left) dried shark meat, cooked shark meat and shovelnose ray meat, for sale here. They used DNA barcoding, by matching the DNA in the samples to a global database, to identify the species as some processed and cooked fish products may be difficult to identify visually. The issue of mislabelling compromises the ability to monitor the trade of endangered species, says study supervisor and marine biologist Huang Danwei. PHOTOS: CHOO ET AL (2021)