



FINDNA



## DNA Toolkit: A rapid, inexpensive DNA testing system for CITES- listed sharks that can be used during inspections

Approximately 17% of the shark fin trade is managed via an Appendix II listing in the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES). Shark fins, meat, and other products are commonly traded across international borders, with CITES-listed species requiring the proper permits to ensure legality and sustainability of the shipment.

Border control personnel can easily identify dried, unprocessed shark fins using visual techniques. This facilitates straightforward implementation of CITES obligations for many countries. However, for some countries processed fins, along with meat and many other products are traded internationally, and may require DNA testing to identify the species of origin.

A DNA-testing system called “DNA Toolkit” has been developed. It can be used to test all shark products and determine if they are derived from CITES-listed species or not. The toolkit can currently test for 10 of the 12 following CITES-listed sharks (scalloped, smooth, & great hammerheads; great white; silky; oceanic whitetip; porbeagle; common, pelagic, & bigeye threshers). Any product that yields a positive result from this system but is not accompanied by CITES documentation is likely to be from a CITES-listed shark species and therefore illegal.

Additional tests will be developed for any species that are added to CITES listings during the CoP18, such as the mako sharks, wedgefishes, and giant guitarfishes, and made publicly available prior to the required implementation dates.

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This DNA Toolkit was successfully field tested and used to make seizures by the Agriculture, Fisheries, and Conservation Department and Customs (AFCD) in Hong Kong, SAR as documented in the peer-reviewed scientific literature (<https://www.nature.com/articles/s41598-018-34663-6>).

For more information about this system and other identification tools, see [CITESsharks.org](http://CITESsharks.org) or contact Demian Chapman, [dchapman@fiu.edu](mailto:dchapman@fiu.edu)

### KEY TOOLKIT FEATURES

- **Fast:** 14-94 products can be tested within 3.5 hours.
- **Portable:** Systems can be used in port areas, as long as there is shelter and a source of electricity.
- **Easy:** A one-day training session is all that is required for customs personnel to become users.
- **Cost-effective:** It only costs \$USD1 per test product.
- **Straightforward:** It uses off-the-shelf technology.
- **Not just for sharks:** The basic approach can be adapted for any CITES listed animal or plant species; see <https://onlinelibrary.wiley.com/doi/full/10.1111/csp2.39> to learn about how this system was adapted for CITES-listed European eels.

