



**TRAFFIC**

HOW-TO GUIDE FOR

# **3D PRINTING SHARK FINS**

TO AID THE IDENTIFICATION OF  
CITES LISTED SHARK SPECIES



# YOUR GUIDE TO 3D FINs

THIS DOCUMENT PROVIDES GUIDANCE FOR 3D PRINTING AND PAINTING REPLICA SHARK FINs FROM CITES-LISTED SPECIES. IT ALSO PROVIDES GUIDANCE ON THE ADAPTATION OF SCAN FILES (A PROCESS KNOWN AS RETOPOLOGISING), SHOULD THIS BE REQUIRED.

## STEP 1 DOWNLOADING THE SHARK FIN SCAN FILES

The first step involves accessing the [scan files of the 22 dried shark fins](#), which can be found [here](#). The scan files are for 10 shark species and two identified to a family level. All of them, except the Blue shark *Prionace glauca*, are listed in CITES Appendix II:

- **Bigeye Thresher *Alopias superciliosus***
- **Blue Shark *Prionace glauca***
- **Bowmouth Guitarfish *Rhina ancylostoma***

- **Common Thresher *Alopias vulpinus***
- **Giant Guitarfish Family: *Glaucostegidae***
- **Great Hammerhead *Sphyrna mokarran***
- **Oceanic Whitetip *Carcharhinus longimanus***
- **Porbeagle *Lamna nasus***
- **Scalloped Hammerhead *Sphyrna lewini***
- **Silky Shark *Carcharhinus falciformis***
- **Shortfin Mako *Isurus oxyrinchus***
- **Wedgefish Family: *Rhinidae***



**appendix II** includes species in which trade must be controlled in order to avoid utilisation incompatible with their survival

## ADAPTED FINs FOR IDENTIFICATION

A second set of fin scan files has been developed primarily intended for use by front-line enforcement officials for fin identification, rather than for training purposes. These scan files have been adapted so that each fin printed from a scan file contains the common name of the shark and the type of fin (e.g. Oceanic

Whitetip - dorsal), in English, debossed along the leading edge of the fin. It also includes a small flat square section on the fin to which a QR code can be attached, with the QR code linking to a web-page with additional guidance on identification features for that fin.

## STEP 2 ADAPTING THE SHARK FIN SCAN FILES

Should there be a need to have the shark names for each fin in a language other than English, this can be done through the process of retapology. Some 3D printing companies may be able to suggest a service provider skilled in retapologising. Where you are not able

to access a service provider with these skills, please contact [markus.burgener@traffic.org](mailto:markus.burgener@traffic.org) or [simone.louw@traffic.org](mailto:simone.louw@traffic.org) and we will assist as far as possible. Where adaptation is not required, you can go straight to step three.

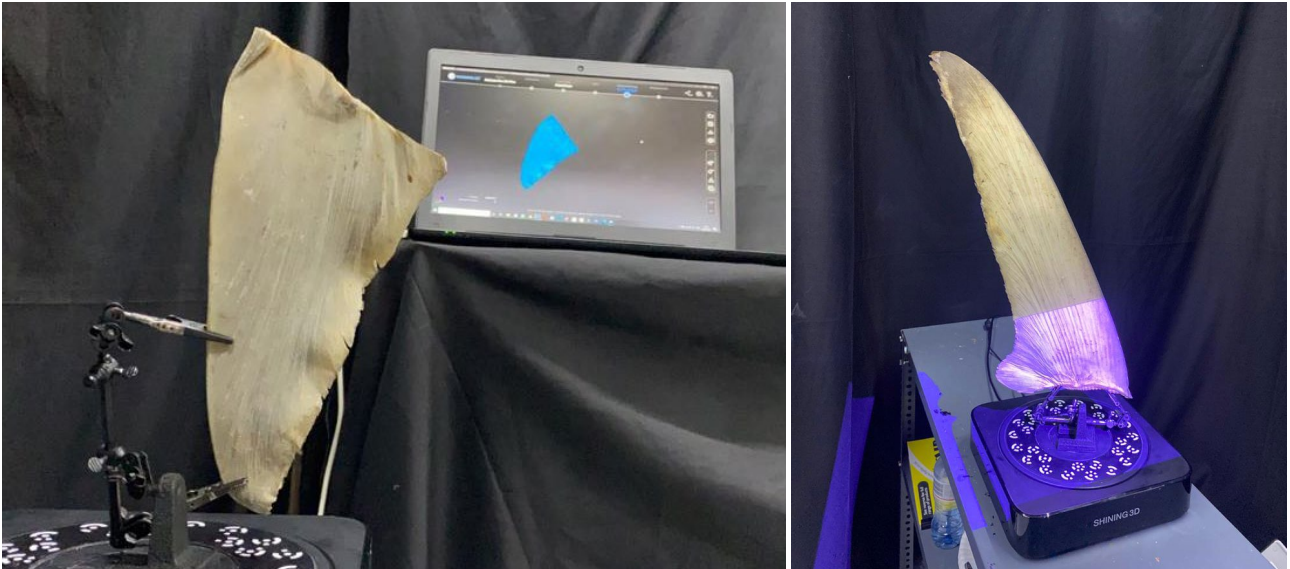


FIGURE 1

*Blue and Mako shark fins 3D being laser scanned creating a digital representation of the real fins*

## STEP 3 3D PRINTING THE REPLICA SHARK FINS

Once the scan files have been downloaded, they can be sent to a service provider for 3D printing. It is advisable to print using a selective laser sintering process, with nylon as the primary material, as this provides for a good strength

to weight ratio, and the surface has a slightly rough sandpaper-like texture similar to real dried shark fins, which also allows for better adhesion of paint.



*The replica shark fins after 3D printing using sintered nylon as the main material (Bowmouth Guitarfish caudal fin, Oceanic Whitetip dorsal fin, and Great Hammerhead pectoral fin)*

## STEP 4 PAINTING THE REPLICA FINS

The painting of the replica fins is the most challenging step in the process. Service providers skilled in painting need to be identified for the painting of the replica shark fins. These could be artists or companies and individuals that work on special effects in the film sector.

Images of the sides and base of each fin and the painting process, including the airbrush colours and different paint brushes used for achieving the correct markings, can be downloaded [here](#).



*Replica shark fins after painting (Bowmouth Guitarfish caudal fin, Oceanic Whitetip dorsal fin, and Great Hammerhead pectoral fin)*

## STEP 5 PRINTING AND ADDING QR CODES

Unique QR codes have been created for each fin. When scanned with a QR code scanner from a cellphone, a link is made to a webpage on the TRAFFIC website that provides additional identification information for that fin. The QR codes for all 22 shark fins can be downloaded

here <https://www.traffic.org/3d-replica-shark-fins/>. Once downloaded the QR codes can be printed onto a variety of materials, such as thin plastic, or laser engraved onto TroLase Foil, and then attached with a strong adhesive onto the special raised sections of the replica fins.



TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

**For further information contact:**

TRAFFIC  
Global Office  
David Attenborough Building  
Pembroke Street  
Cambridge CB2 3QZ  
UK

+44 (0)1223 277427  
[traffic@traffic.org](mailto:traffic@traffic.org)  
[traffic.org](http://traffic.org)

UK Registered Charity No. 1076722,  
Registered Limited Company No. 3785518.