



Articulated Manta Ray



MajerDave

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Summary

This "print-in-place" model has poseable joints when printed at 75% scale or less. More poseable the smaller you go.

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UPDATE ATTACHED 4-1-24:

I just heard from a maker about a problem with the tail and found that I made a modeling mistake (actually several). I feel so bad!!! I made a few mantas with the updated design but should have checked the STL before uploading. Problems are now fixed.

1-6-2024: Updates based on feedback from all the helpful comments on your makes!

1- Tail that swivels (the OG "Manta 5" had a swivel printing in air and fused together). Don't be afraid to flex it side-to-side and "crack" it to get it moving,

2- Fixed meshing error in one tail joint, and

3- Made tail more robust (feedback was a weak tail).

The updated print is the purple/gold model made at 100% scale (9.5" long which was the limit of my bed) and the green ones made at 40% (or 3.75" long). Lower than 40% and the joints start to fuse.

Note I added some pictures of the green one with the maximum expected flexure for both directions which may be hard to tell as the joints get stiffer when printing smaller.

This is my first effort of an articulating print-in-place model.

I used a BIBO with 0.2mm layers with 0.4mm nozzle at 80% scale so it would fit in my print bed. The eyes were painted black. The transition from white to blue was done by changing filament at 2.5mm mark. Based on reviewer feedback, at 50% scale the tail becomes brittle. I would suggest using 75% scale. At 100% scale it behaves like a flexi.

Fun Feature: all articulation joints are designed to have some hold at selected positions (posable) when printed in 70 to 80% scale range. The joints just don't "flop". This ability does deteriorate with use while using PLA. PETG should hold up better.

TIP: To get the tail side-to-side swivel working, I recommend to carefully hold the tail at the thick end with a pair of pliers and the head with your hand. It will take some force to initiate the swivel action. Do not apply pressure to the articulating tail or flaps. The swivel can go about 45 degrees in either direction.

Don't forget to notice the gills that communicate with the mouth.

I would love to get any feedback so I can improve or modify as needed.

Model files



manta-6-mini-update-4-1-24.stl

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