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The way I understand it, the first major pulse of shark fishing, when sharks really came under pressure from fishing for the first time, was around World War II when there was a high demand for vitamins as a supplement. This is when sharks were targeted worldwide and the market prices really went up. Since the development of a synthetic vitamins, that pressure had really been reduced, and consequently had reduced the fishing pressure on sharks.

The next major pressure, recently, has been for shark fins. It is used in Asian cultures for shark fin soup. Most of the sharks targeted today are targeted for their fins. And sometimes, the fins are cut at sea, so that a boat that is fishing can fill their hold with fins and then the rest of the body is discarded. A lot of times live sharks are brought on board. The fins are cut off, the sharks are thrown back into the water, many times still alive, and the fins are dried on deck and stored there.

It's difficult to imagine a scenario of the ocean without these top predators. The sharks are one of the very top predators and have been in place in the earth's ocean environment for billions of years. Studies have been conducted to look at the effects of removing apex predators from ecosystems including in the marine environment.

This was a very large experiment that was difficult to do. This experiment has only been done for model organisms such as starfish in the intertidal where the effects of removing a top predator can really be observed. We don't really know how that scenario would play out exactly with something like sharks, because it is such a large and uncontrollable environment. But all indications are that the diversity of species below the top predators are often disrupted when the top predator is removed.

What we have to do then is try to imagine what would happen in an ocean environment if we removed the top predator. In this case in essence what seems to be happening is that shark populations are declining dramatically. We are studying the ocean environment, and we are seeing the effects, but it's hard to know what the baseline is for something like that--so in other words what the oceans looked like before many of the top predators were removed. That is sort of a challenge that we have to overcome in research methods.

As far as we know it seems that a lot of the larger predators in the ocean, the larger fish, the tunas, the top predators, have been largely removed from the oceans through fishing. Those are the most desirable ones for the fishing industry. As that happens, there is a release on the prey that lives directly below in the food chain, so the diversity of animals has somewhat changed in the ocean. You can see this within a species when, for example, a shark population is targeted, the larger individuals are removed first. And so what you have left is a population of smaller individuals of a younger age.

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I would say there is enough scientific evidence to know sharks are really in trouble in the oceans and that their populations are not capable of rebounding the way some other fish populations are, due to their slow reproductive rates. But, the fact that the shark is sort of a demonized character in our minds prevents us from really focusing on sharks and the fact that they need our help.