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# HOW MANY SHARKS IS TOO MANY?

Shark population numbers have become a hot topic in recent months, but are the arguments economical or ecological?

BY STEFANIE BRENDL

You may wonder why this question is being asked. Certainly, if you're snorkeling around a bunch of sharks, that might be too many for you. Yet, this question is aimed at the total population of sharks in the ocean. What is the right balance of sharks regionally and globally?

First, you have to consider what we generally know about shark populations. From the mid-1970s through the '90s, shark stocks rapidly declined throughout the Eastern U.S. (Atlantic and Gulf) due to high rates of harvest, mostly commercial. After stricter management was put into place, some of the species are now starting to show signs of recovery. Considering how depleted most species were, the comeback will take many years. For example, hammerhead sharks declined by more than 90% in the Atlantic Ocean and Gulf of Mexico from 1981 to 2005, silky sharks by 90%. In its most recent stock assessment for sandbar sharks, NOAA's Highly Migratory Species Division determined in 2018 that the population was overfished, with an anticipated recovery date of 2070. Dusky sharks were determined as overfished with a rebuilding timeline of 2170. Some species — such as bull, tiger and nurse sharks — have not had any proper stock assessment. "Signs of recovery" doesn't mean that the populations are back to where they should be. It's just the beginning of a very long road ahead.

Overfishing isn't the only factor endangering shark populations. They are also under great pressure due to habitat destruction. Mangroves and salt marshes, which are nursery habitats for sharks, are disappearing, and as little as 2% of the southeast Florida coral reef tract remains.

The issue of shark population is now in the spotlight because in recent months, some commercial and recreational anglers have begun to complain that a growing number of sharks are taking their fish, sometimes quite literally, off of their line. Whenever we hear the outcry of "there are too many sharks," it is usually linked to someone seeing them as competition, rather than basing their view on facts, research and science. There doesn't appear to be a single case study in which sharks had to be culled to protect another species. Sharks are not an invasive species that has to be reduced to regain balance, because there were never too many sharks in the ocean in the first place. Ecosystems are optimized to have just the right amount of predators to what the system supports. It is human activity that introduces additional stress to this finely tuned balance.

There are indeed more sharks in certain areas than there were a decade or two ago, mostly due to successful management practices. When anglers witness a regional recovery of some species, it may look alarming compared to the years when they hardly ever saw a shark. Decades of overfishing had shifted the baseline to a "new normal" — coastal waters nearly devoid of sharks.

Several more factors must be considered for the rise in concern from anglers. Tens of millions of recreational saltwater fishing trips take place every year. It is estimated that recreational anglers took more than 42 million saltwater fishing trips statewide in Florida during 2018. Add to that the commercial fishing numbers, and one can see that there is a tremendous amount of fishing going on that relies on the same region and resources. This increase in activity causes an increase in interactions. More anglers means more competition and, in some cases, an increased desire to cull shark populations. But without scientific data, it's hard to know how big of a problem this really is.

The fear that there are too many sharks is more about economic than environmental concerns — for example, the loss of catch and commercially valuable fish, gear damage, increased mortality of released fish, and the concern that fishing elsewhere to avoid sharks will impact the overall fishing experience. Additionally, there is some worry that interactions will lead to a negative attitude toward sharks in general. But all of this is based on the assumption that it is more important to keep fishers happy and to protect their experience and income over what is crucial to maintain a healthy ocean ecosystem and what is fair to sharks.

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It is a bit unrealistic to expect sharks, after millions of years of evolution, to stop acting like sharks. They are designed by nature to go for easy prey, to take out the weak, the struggling and the sick. Fishing makes the caught prey vulnerable. It is the human action that endangers the fish that is being released, not the shark's presence. Just as the negative image of sharks is projected and promoted by humans, not by sharks. We cannot blame fish for giving themselves a bad name when they do exactly what they were designed to do by nature. The hate of sharks is projected by us.

So why do fishers have more interactions with sharks than anyone else? It's because of

the noise, smell and vibration that is created by boat engines, chum, lures, trolling and spearfishing — they are all triggers for sharks. They can hear and sense the activity from miles away. A gaggle of sharks behind a boat does not mean there is an overpopulation of sharks. It means the sharks in the area are following what nature has taught them to do over millions of years. Follow the noise and the smell, then take the fish that is thrashing around and struggling. Sharks are simply good at what they do.

The question has been posed whether shark populations could explode if they were left alone? That argument ignores the difference between prey animals and predators. Prey species reproduce in large numbers because they have to overcome predation by having lots of offspring all the time. So without predators, that reproduction rate can quickly turn into an explosion of a species.

Nature has determined a clever way to limit predator numbers. Sharks reproduce in a way that keeps numbers limited. They sexually mature late and then have a small amount of offspring. Survival and reproduction also depend on how much prey is available. Additionally, the smaller predators are hunted by the bigger ones. So big sharks eat little sharks, which is an important factor many people ignore when they wonder about an increase of small sharks. It's most likely because we have fished out the big guys. If sharks had evolved to reproduce and hunt without limits, they would have eaten themselves out of existence a long time ago. Instead, they existed in perfect balance for millions of years.

It is us, the human-animal, that has changed that balance dramatically over the past 50 to 100 years — and not for the better. To declare that we should now attempt to create balance by killing more sharks shows that we have not learned from our past mistakes.

Yes, people need to eat and make a living, and having sharks "steal" your fish can be frustrating. But making dramatic changes to the ocean ecosystem to make your life easier is not the solution. For too long we have been looking at sharks as nothing more than a resource or a nuisance. And that has gotten us to the dilemma we are in right now.

Why all that matters becomes clear when we look at the bigger picture. A lack of sharks can have many negative effects, such as smaller predators taking over and decimating reef fish, which results in changes such as increased algae covering that kills corals. Or it can cause changes in the behavior of animals that graze seagrass beds. That, in turn, affects the wide range of animals that live and thrive in these ecosystems. Sharks are also in charge of the important task of cleaning up the dead, culling the weak and sick, and keeping diseases from spreading. The strongest survive, and that is what keeps our fish populations healthy.

Why would we risk losing all that? Especially considering the added difficulties we face in the ocean. We cannot easily replace predatory fish once we lose them. We cannot reintroduce sharks as we have done with wolves on land. In the ocean, our only path of action is to

protect sharks and help their numbers recover naturally. And since most shark species reproduce extremely slowly, achieving recovery is a highly complex and multi-decade-long endeavor. The good news is that we have seen that shark populations will recover if we give them a chance. And the even better news is that all we have to do is stop overfishing sharks. In most cases, no further action is needed. Just leave them alone, and nature will find a way to repair the damage.

At some point, we have to learn and accept that our rights to resources in the ocean are not what they used to be. We know what has gone wrong in the past, so we know how to avoid making the same mistakes. Far more important than any recreational activity or economic gain is that we protect biodiversity in the ocean because that will affect all resources and the quality of life on this planet.

As more and more of us want to use the ocean for work and fun, the pressures on marine life increase. We see it as our right to pursue our livelihoods and hobbies without restraint. And when anything, including the very animals that live in that natural system, intrudes on our activities, we get territorial. Going after predatory species because they represent competition to human hunting or farming is not a new thing. But it is a question that a sector of the commercial and recreational fishing industry is asking, and it's important to not ignore that sentiment. One cannot deny that the ocean is changing and that this is most obvious to people who spend the most time on the water. However, this viewpoint is also skewed by many factors. While some people feel restrictions on fishing are an infringement on their personal rights, the hard truth is that the rights to marine resources and a healthy ocean go beyond ocean users. As with most things in this crowded world, human demand clashes with a sustainable natural world.

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The presence of sharks indicates that the biomass is healthier than in areas where there are no sharks. Simply put, more sharks means more fish. Losing fish to sharks is probably the lesser of the problems when we need to consider how quickly we are losing biodiversity and healthy habitats for fish.