

## Editorial

# We Are Killing Our Oceans One Species At A Time

We are killing our oceans one species at a time! Recent research shows that our oceans are in trouble, with whole populations of species in danger of extinction, and things might be reaching a point of no return. A recent report on the conservation and extinction rate of sharks and rays revealed that these top of the food chain predators are in serious decline and many are facing extinction.<sup>1</sup> Of the 1,041 species of sharks and rays, 25% were threatened with extinction and almost 54% of these species were classified as being Threatened or Near Threatened as defined by the International Union for Conservation of Nature (IUCN) Red List.<sup>2</sup> The main reasons behind these frightening numbers are human caused- overfishing and habitat degradation or loss.

The extinction of a specie or numerous species, the causes behind their extinction, and what role human interaction plays is a controversial and a vast, complicated topic.<sup>3</sup> However, what can't be ignored, is how the loss of just one key species can dramatically affect a whole ecosystem. This fact has been studied and reported in the scientific



Figure 1: A spotted dogfish. Reproduced with permission from author.

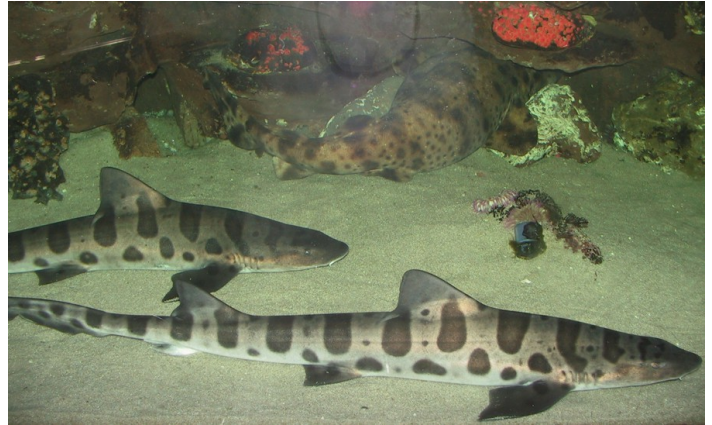


Figure 2: Leopard sharks. Reproduced with permission from the author.

literature. The most classic example, is the reduction of sea otter numbers along the Pacific coast of North America due to uncontrolled hunting for their fur.<sup>4</sup> With sea otters no longer available to control the population of sea urchins, the urchins expanded in vast numbers and were decimating the kelp beds which are an extremely rich ecosystem filled with valuable resources for humans. Relating this back to sharks, Myers *et al* published a paper (2004) in Science revealing that the loss of apex predatory species (great sharks) resulted in an increase of elasmobranchs (rays, skates, small sharks) that in turn wiped out scallops which terminated a fishery that had been in existence for centuries.<sup>4</sup> Another example showing the ecological importance of maintaining healthy populations of top predators.

So why should we care that the ocean ecological infrastructures are changing. Logically it is to our advantage to have viable healthy oceans. As seen above, whole fisheries can be lost, and like the scallop fishery, this can have a direct catastrophic economical effect on thousands of humans dependent on these fisheries for their livelihood. As well, to the thousands of humans worldwide who depend on these species as their daily source of protein, the loss of these species

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Figure 3: A guitar shark. Reproduced with permission from author.

could result in starvation and loss of life. Without healthy oceans, it is possible that certain species of marine mammals would disappear forever, something which has happened recently with the Chinese River dolphin which was declared extinct in 2006.<sup>5</sup> The vaquita, a highly endangered small porpoise found in the Gulf of California (Mexico) with a population ranging between 100-250 individuals, would seem to be next marine mammal that future generations of humans will only get to see in books or on the internet.

A diverse oceanic ecology allows for the thousands of species to interact with each other, dependent on each other, and thereby maintain healthy ecosystems. Not only is this necessary for all of these animals but it is essential for humans as well. I often wonder how it was that before the colonization of North America, the ecosystems of the oceans were in balance and were filled with a richness of diversity. In less than 500 years humans have changed that delicate balance.

Yes, it would seem that **we are** killing our oceans one species at a time.

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