

“Great white sharks are bottom-feeders, at least when they're little”

The article is about great white sharks and their habit of searching the ocean floor to clean up small pieces of food as opposed to hunting large prey. This behavior is especially seen in juveniles. The research was done on 40 juvenile great white sharks between the years 2008 and 2019. The researchers would capture the sharks and study the contents of their stomachs. About one-third of the food the shark ate consisted of Australian salmon, however about 20% of their diet consisted of prey that swam just above the ocean floor or hid buried in the sand. Sharks decide what they eat at different times depending the way their constant changing world is modified. It is more important to understand that the sharks have their particular diet largely due to human behavior. For example, the Australian salmon is an important part of the shark's diet, but fishing pressure and the change in the temperature of the ocean makes the population of the salmon less than it has in the past (Letzter, 2020).

This article shows the ocean supports a great diversity of life and ecosystems. As the ocean wildlife is affected by human activity, creatures like the great white shark must change its eating behavior. The shark probably ate a lot more middle dwelling creatures such as the Australian salmon, but people have decreased the population of those fish for human consumption. Therefore, the interconnection with humans is the shark has to directly compete with humans for the same food. Since the shark can adapt to eating more species near the ocean floor it does so to survive. This article also proves that even though there is a large fascination from humanity with the apex predator of the ocean, we still have a lot to learn about them.

Maintaining ocean literacy and through studies like the one conducted in the article can help us understand the effects of our overfishing. As we consume more Australian salmon, there is less for the sharks to eat. Furthermore, the populations of other species who may not historically have been measurably eaten by the great white sharks may deplete significantly. As a result, the ecosystem will be in flux and affect an immeasurable amount of species. With further research we can discover whether intervention in Australian salmon fishing will need to be done.

“Researchers study catastrophic disease events in marine mammals”

Although researchers have very limited knowledge on infectious diseases in marine mammals it is important to try to understand what causes these events. There was an event in 2000 where over 10,000 Caspian seals perished in four months. It was later discovered that they all died of canine distemper. Two scientists from the Center for African Resources: Animals, Communities, and Land Use (CARACAL), Claire Sanderson and Kathleen Alexander worked to discover the reasonings behind the occurrence of such diseases in marine mammals. The main concern is these mass mortalities can cause an imbalance in the ecosystem or even an extinction of a species. Through their literature review, Sanderson and Alexander found that between 1955 and 2018, infectious diseases caused mass mortality in 14 percent of the marine mammal species. Among those diseases, 72% were viruses, which were found to be twenty

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times more deadly than that of bacterial outbreaks. The most common viral outbreaks were caused by influenza A and morbillivirus (Candy, 2020).

Sanderson and Alexander evaluated traits of the species in an attempt to find factors that influence the mass outbreak. They focused on sociality, position on the food chain, and habitat of the species. The majority of marine mammals that experienced the mass mortality were pinnipeds. The unique characteristics of these pinnipeds is they spend a lot of time on land and in water. Not only that, but the environmental variables such as the temperature of the ocean surface were a significant factor to disease outbreaks in marine mammals. Nearly 61% of these events occur when there are abnormal ocean surface temperatures. This causes a major concern as the climate continues to change. The polar regions where many pinnipeds live need ice to thrive. As the ice sheets get smaller, the concentration of the species increases. The melting ice also decreases the salinity of the ocean causing the prey for the pinniped species to decrease. Of the species studied, 37% were listed as endangered (Candy, 2020).

The earth's singular ocean is affected by climate changes all over the earth. As the temperature in the air becomes warmer, the polar ice caps are melting and it is changing the structure of the water and affecting all species. Humanity and the oceans are interconnected, and pinnipeds are an important link because they are both aquatic and terrestrial creatures.

Humankind needs to strive to become more aware of these climate changes that seem to be a catalyst for the spread of infectious diseases in these import species. As these species leave the planet, the ecosystem becomes out of balance and humankind will be forced to adjust or suffer the dire repercussions.

Archipelagos Institute creating sanctuary for marine animals

The Aegean Marine Life Sanctuary is an initiative that has been formed in Leipsi, an island in the Aegean Sea. The sanctuary is an environmentally conscious effort that will treat injured and sick creatures and perform scientific and environmental research.

Working with the Archipelago Institute of Marine Conservation and several universities, the sanctuary looks to rehabilitate ailing dolphins and take in animals released from dolphinariums. They will also take in other marine wildlife like seals and turtles. It will provide the creatures with a long-term place to live until they are ready to be released in the wild if that day ever comes. There are no plans to make this sanctuary a tourist attraction so the animals can rehabilitate in peace.

It is essential for the dolphins to maintain their natural instinct, so they will be rehabilitated by being fed live fish from a farm as opposed to frozen fish. The capacity of the enclosure is six dolphins. It is important for the sanctuary to keep the dolphins who were kept in captivity from the wild dolphins who are injured.

The sanctuary will be a perfect place for research and studies, not just on the fauna of the ocean, but also the flora in the hope of figuring out a way to absorb more carbon dioxide to lower the effects of climate change (Elafros, 2020).

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The studies the sanctuary is planning on sea plants trying to absorb the carbon dioxide will be interesting in the fight against climate change. Furthermore, the ocean and humans are so connected that a sanctuary for dolphins need to be created due to the irresponsible human activity of placing a creature that lives in a large open ocean into a tank. The sanctuary actually creates an intervention to take away habits formed by human interaction by the dolphins.

It is important for people to have a clear understanding that the captivity of dolphins is extremely detrimental for the individual animal and the species. Since it does not appear the end of these dolphin aquariums are going to completely disappear, it is great to see sanctuaries like this one is opening to give the creatures a chance.

The first modern-day marine fish has officially gone extinct. More may follow

In 1804, French zoologist Fracois Peron took the only photo of the smooth handfish. It is an interesting fish with pectoral fins that look like arms and a crest on the top of its head i. The smooth handfish is thought to be from shallow water off the Tasmanian coast. There has never been a smooth handfish seen since. Unfortunately, in March of 2020, the International Union for Conservation of Nature declared the shallow handfish extinct. It is the first bony fish to go extinct in the modern world. It is likely extinct due to the loss of habitat and fishing practices detrimental to the species.

Although there are still thirteen different handfish species, they are also threatened to become extinct due to human activity. Out of the thirteen species only four have been seen over the last two decades (The first modern-day marine fish, 2020).

The ocean and its species are interconnected. A new species of lifeform becomes extinct due to human irresponsibility. Due to humans running their habitat, pollution, and fishing habits the rest of the handfish are also threatened. Ocean literacy is important to humanity because as these species start to disappear so does a healthy ocean. If there is no healthy ocean then there will be little human benefit.

Mercury with that? Shark fins served with illegal doses of heavy metals

Ever since 960 AD when Emperor Taizu of China decided to eat shark fin soup to show off how powerful he was, the dish became a status symbol. It was highly desired in China, but disappeared around 1949 after the Chinese Communist Party took over. However, it came back in the 1980s, still a dish of prosperity. In order to fulfill the demand for shark fin soup, about 100 million sharks are killed every year. Although shark fins can be traded with a special permit, most of the shark fins are obtained and traded illegally.

There have been several studies done on mercury levels in sharks themselves, but not the concentration of mercury within the fins. In the first study of the final product that goes to the consumer, Florida International University took 267 samples of shark fin from the 9 most common species used for Shark Fin Soup. These species included blue sharks, silky sharks, scalloped hammerheads, smooth hammerheads, bull sharks, shortfin mako sharks, great hammerheads, oceanic whitetips and blacktip sharks. The study utilized nitric acid and a spectrometer to test the fins for mercury. According to the Centre for Food Safety, the legal amount of mercury is 0.5 parts per million. Most of the fins resulted in five to ten times more than the legal amount. The great hammerheads had an average mercury level of 55.52 parts per million. This is because they are a large shark that can eat very large prey. The larger the prey, the higher the mercury level. Furthermore, hammerheads possess the most sought out fins in the industry. Their fins can be sold for up to \$1000 a kilogram.

The interconnection of humans and the ocean is evident in the shark fin industry. Besides the cruelty of obtaining shark fins, the mercury pollution is primarily due to human activity. In the last 100 years, the amount of mercury in the ocean has nearly tripled. The top predators are the most affected because they are at the top of the food chain. Humans put mercury in the ocean through gold mining, poor waste management and burning coal, wood, and oil. High mercury levels can affect marine life by inhibiting the reproduction and locomotion of the creatures .

Humanity has to become more ocean literate and understand that pollutants they are adding to the water is affecting marine wildlife in a negative way. Not only are the animals being negatively affected, but when humans become the top of the food chain they start to consume heavy amounts of mercury. Mercury can have a perverse effect on brain and neural functions in people. Better waste and mining management needs to be innovated and enforced (Mercury with that?, 2020).

Learning about penguin's diet may save marine life

Monash University and scientists from the Phillip Island Nature Parks did a study on penguins who live in south-eastern Australia. These particular waters are warming four times the global average due to climate change. The study looked to discover the prey the penguins were eating and the availability of that food. It was found that the penguins consume about 1300 tons of biomass. If the penguins can change the type of prey they are after, they may be able to survive an environment affected by humans and climate change. The study confirmed that penguins are extremely adaptable.

With the interconnectedness of humans and the ocean environment, we are putting tremendous pressure on predators like penguins as we compete with them for species like

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sardines and red cod. Human beings need to become more literate on the food chain of the ocean to sustain a healthy ocean. The penguins of Phillip Island are extremely important predators and may intrude on prey that would be detrimental to lose if they do not have enough of their normal prey to eat (Staff, 2020).

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