

# The Shark`s World ~Hammerheads~

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# AN INTRODUCTION TO: THE HAMMERHEAD SHARK

## INTRODUCIOTN

Of all the sharks in the world, perhaps the easiest to identify at first glance are hammerheads, a group of sharks so named for the distinctive structure of their heads. Hammerheads are distributed in tropical and warm temperate oceans. The "hammer" shape is called a cephalofoil. There have been many theories tossed around over the years for the use of the cephalofoil including : prey manipulation,



sensory reception, maneuvering, & perhaps even scaring away predators. The unusual t-shape head design, which contains their nostrils and eyes occurs in all eight species of hammerhead.

Family Sphyrnidae - **Hammerhead Sharks**  
eight species:

- Sphyrna blochii* - winghead shark
- Sphyrna corona* - mallethead shark
- Sphyrna lewini* - scalloped hammerhead
- Sphyrna media* - scoophead shark
- Sphyrna mokarran* - great hammerhead
- Sphyrna tiburo* - bonnethead or shovelhead shark
- Sphyrna tudes* - smalleye hammerhead
- Sphyrna zygaena* - smooth hammerhead

*Sphyrna couardi* - white fin hammerhead \*

\* "Another nominal species that until some years ago was valid, and some still believe it is, is *Sphyrna couardi*, now currently considered as a simple synonym of *Sphyrna lewini* (McEachran and Séret, 1987) From the book, "Hammerhead Sharks" by Alessandro De Maddalena & Alex "Sharkman" Buttigieg (in print)



# THE HAMMERHEAD SHARK

Hammerheads are swimming noses. Literally. They have the ability to detect chemicals (like blood) in solution concentrations as low as one part per million! Hammerheads swing their heads from side to side like a metal detector to sample water with their noses. They will also swim in a zig-zag pattern for miles tracking the scent of wounded prey. Located on the underside of the "hammer" are sensors called ampullae of Lorenzini that allow the hammerhead to detect very weak electrical fields. They can also detect chemical and thermal changes in the water. They can detect an electrical signal of half a billionth of a volt! They can use this special ability to detect prey buried in the ocean out of sight. Every animal, including fish have a heartbeat that produces an electrical field. The hammerhead can detect this field and zoom in on hidden prey. From the soon to be published book, "Hammerhead Sharks" by Alessandro De Maddalena & Alex "Sharkman" Buttigieg, "Skates and rays are the favorite prey of hammerhead sharks: since these cartilaginous fish usually camouflage themselves remaining partially or totally hidden under the sandy marine bottom, the 'hammer' is one perfect instrument to locate them." The hammerhead uses its head to also push and hold prey to the bottom. It has been said that the head of the hammerhead shark is analogous to the antennae of an insect! With the jury still out on all the functions of the cephalofoil, one can only say there is so much more to study. More to be revealed.

Another superior sense hammerheads have is their hearing. They can hear sounds in the entire range we can, but their specialty is low frequency vibrations. The hammerhead's ear also contains canals for balance and motion detection. One of the most fascinating and unusual characteristics hammerheads have is its frequent schooling. They are the only shark species to do this and the reason why is still up for debate. The schools can contain hundreds of hammers.



Another odd fact is that they only school during the day. They break up at night to do their feeding. A couple of the theories tossed around by biologists for this is perhaps they school to reduce the risk of predation from larger sharks or that there's an order of dominance that exists in the schools based on age, size and sex. Keep in mind that hammerheads range in size depending on the species for example a *Sphyrna tiburo* or bonnethead may grow to 3.5ft while a *Sphyrna Mokarran* or great hammerhead can get to approximately 19ft. The schools can be more social in composition and may perhaps aid in mate selection.



# THE HAMMERHEAD SHARK



Hammerheads have evolved for over 25 million years. They use internal reproduction whereas most ocean dwellers reproduce externally. Hammerheads have live births with a litter size of about 15 - 30 pups. Hammerhead courtship is a violent affair. The male will bite the female until she succumbs, allowing mating to occur. Internal fertilization allows a safe environment for sperm and egg to unite. The embryo develops within the female inside a placenta and is fed through an umbilical cord. Gestation is about 10-12 months.

Pups are born head first, with the tip of the hammerhead flexible and folded backward to make them more streamlined for birth. After the hammerhead gives birth, the babies are on their own with no help from parents.

Hammerheads, as with all sharks, play a crucial role in the health of our oceans and our planet. Their populations are dwindling rapidly all over the world due to the strong market for shark fins. Hammerheads are especially at risk due to their schooling behavior and the predictability of schools' locations. The great and the scalloped hammerhead are listed on the World Conservation Union's (IUCN) 2008 Red List as endangered. The smalleye hammerhead is listed as vulnerable. Shark finning is largely unregulated and more needs to be done to change this. Oceans provide over 70% of the world's oxygen. Without the top predators of the sea keeping the ecosystem in check this will drastically offset the balance, which will have disastrous effects for us all.

## References:

- "Hammerhead Sharks" by Alessandro De Maddalena & Alex "Sharkman" Buttigieg (in print)
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