

Trip Report

THE GREAT HAMMERHEADS OF BIMINI

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SUPERSHARK

Our contributor Don Silcock reports on scuba diving in the Bahamas to photograph the imposing - and intimidating - Great hammerhead *Sphyrna mokarran*



Great Hammerhead *Sphyrna mokarran*
A Great hammerhead *Sphyrna mokarran* calmly exits the feeding area, passing in front of the photographer - note the chunk of fish bait in its mouth and the obligatory attending school of Jacks in tow, waiting for the scraps to fall off.



Bimini aerial map

An aerial image of North and South Bimini on the Bahama Banks and the deepwater channel separating it from Florida.

TEXT AND PHOTOS
BY DON SILCOCK

Like a fashion model up on the catwalk, Great Hammerheads *Sphyrna mokarran* sashay into your field of vision and, if they were human, you would probably say they have just “made an entrance”. Their strange mallet-like head, robust body girth and tall sickle-shaped dorsal fin makes them well-nigh instantly recognizable and most other sharks in the immediate area spot that too and give them a wide berth. The Great Hammerhead has a unique and distinguished presence in the water, cautious but confident and seemingly in control of the environment, and as they approach, their distinctive head sweeps from side to side causing the rest of their body to move in an almost snake-like manner.

My first close encounter with a Great Hammerhead shark was in the Solomon Islands and although it was fleeting, it left me thinking about how a Jamaican mate of mine used to walk in to the pub back in England - dressed in his best suit, cigar in hand and scanning the room in search of a date for the evening!

But like all sharks, these magnificent animals have been impacted dramatically by the seemingly insatiable demand for shark fin soup in China, the status dish of choice at the ubiquitous celebratory banquets. That large dorsal fin, which makes hammerheads so distinguishable, is very highly prized in the Hong Kong markets that cater to the Chinese shark fin trade. So, encounters with the Great Hammerhead shark are particularly rare these days, everywhere that is except in South Bimini where, come winter, a sizeable number of these elusive sharks aggregate around the island’s waters.

South Bimini – Great Hammerhead Central

The islands of North and South Bimini are located on the western edge of the Bahamas archipelago, just 53 miles to the east of Florida, making them very popular with well-heeled large boat owners from America’s Sunshine State. Bimini is known for a few things... it was a favorite haunt of

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Great Hammerhead *Sphyrna mokarran*

The intimidating sight of a Great hammerhead *Sphyrna mokarran* closely approaching the photographer head-on. Notice the multiple rows of ever-changing teeth, with the inner ones progressively taking the place of the outer ones which fall off or get damaged in the feeding process.



Great Hammerhead *Sphyrna mokarran*

The imposing, somewhat ominous and strikingly unmistakable shape of a Great hammerhead *Sphyrna mokarran* doing an overhead turn above the photographers - notice the aluminum case containing the fish bait in the background.



Bimini life

Lifestyle in the Bahamas is generally rather simple, easy and laid-back.

the famous American writer Ernest Hemingway and it was also from where a great deal of rum was smuggled over to Florida during prohibition in the 1920's. But perhaps it is most renowned known for its sport fishing, often being referred to as "big-game fishing capital of the world". Less well known though is that South Bimini is the location of Dr Samuel Gruber's Shark Lab where, for over 25 years, significant research has been conducted in to the sharks and rays of this part of the Bahamas. "Doc" Gruber is an enigmatic and charismatic individual who, as he approaches his 80th year, has few peers in the field of elasmobranch study and research. His story is truly inspiring and is told extremely well in Jeremy Stafford-Deitsch's book *Shark Doc, Shark Lab*. Doc Gruber picked Bimini because of its large resident population of lemon sharks that use the large, mangrove-fringed, lagoon system to the east of the north island as a nursery for its young, making it almost the perfect spot for research. Many academic papers have been produced from the extensive field research conducted by Gruber and his team, but what they did not tell the world about was that just off the beach, to the west of South Bimini island, is probably the best place in the world to see the Great Hammerhead shark. The Shark Lab first

became aware of the reliable presence of Great Hammerheads back in 2002 but managed to keep the news to themselves for over 10 years. Word did eventually get out and without doubt, South Bimini is now firmly established as Great Hammerhead Central!

But Why South Bimini?

The Bahamas are said to take their name from Baja Mar – the Spanish term for "shallow seas" - because the archipelago of 29 main islands and roughly 700 cays that form the country reside on top of two main limestone carbonate platforms called the Bahama Banks. Great Bahama Bank covers the southern part of the archipelago and Little Bahama Bank covers the northern part, with incredible channels as deep as 4000m separating the two. The small islands of North and South Bimini sit at the north-western tip of the Great Bahama Bank, isolated from the rest of the archipelago and physically closer to Miami than the nearest Bahamian city of Freeport. Their location means that to the north, south and east is the shallow water of the Great Bahama Bank which is typically some 10 to 15 meters in depth. While to the west is shallow water that slopes down to about 50m before

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Shark catwalk

A reasonably-sized Great hammerhead *Sphyrna mokarran* approaches confidently the fish bait being offered by the feeder - notice the remarkable difference in size and shape between the hammerhead and the attending Nurse sharks *Gynglymostoma cirratum* in the vicinity.



Beaches and bait

The fish bait used to attract the Great hammerheads is being prepared on one of the Bahamas' world-famous sand beaches before the actual boat trip to the dive site takes place.

plunging down in to the 2000m deep channel between Miami and Bimini, through which the rich waters of the Gulf Stream current flow north towards the Atlantic Ocean. The Gulf Stream is a profoundly important force of nature and in many ways, can be thought of as almost a conveyor belt of warm, nutrient-rich water bringing life to the areas it touches. Rich with larvae swept up as it flows up from the Gulf of Mexico, those larvae thrive in the current and are deposited at landfalls along the way, with the islands of Bimini being the first major way-point. Bimini is uniquely placed to benefit from that life-flow as they are the only islands in the area big enough to sustain a significant, large area of mangroves and sea-grass that provide the nursery those larvae need to grow into crabs, lobsters and conch. Which, in turn provide a source of food for the animals higher in the marine trophic food chain such as stingrays and sharks. Basically, Bimini can be thought of as a rich, self-contained ecosystem that has benefited greatly overall from the protection the Government of the Bahamas has enacted over the years.

The Role of Government

The Bahamas was one of the first countries to understand the importance of sharks to their seas and fish stocks, plus the growth of shark tourism means that live ones are immensely more valuable than the dead

and de-finned variety. That said, the country has never been at the leading edge of the conservation movement and has suffered from over-exploitation of its fish stocks over the years and periodic over-development of tourist resorts in ecologically sensitive areas. But there is no major industry in the country and its people generally have a deep and visceral understanding of the importance the health of their surrounding waters is to their long-term prosperity. Therefore, the establishment of the Bahamas National Trust in 1959 to manage the world's first marine protected area – the 112,640 acre Exuma Cays Land & Sea Park - can now be viewed as an incredible piece of foresight. The Bahamas have since added another 26 national parks covering over 1 million acres of land and sea, together with enacting substantial supporting environmental legislation, including making Exuma Cays a no-take marine reserve. Then in 2011 the government went one step further and became the 4th country in the world to establish a shark sanctuary by formally protected all sharks in Bahamian waters.

Face to Face

Any encounter with a large animal underwater is an incredible mixture of fear and excitement that is at its most intense just prior to entering the water for the first time. Sure, you have read about the animal from those that went before you and the pre-dive briefings are almost always excellent. But

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Great Hammerhead *Sphyrna mokarran*

The elegant, sinuous and yet stunningly powerful swimming style of the Great hammerhead *Sphyrna mokarran* is quite obvious in this portrait, taken as the big shark exits the feeding area on the right. Notice the strict discipline being adhered to by the divers at the feeding site.



Great Hammerhead *Sphyrna mokarran*

Approaching the photographer during a night time feeding session, the Great hammerhead *Sphyrna mokarran* clearly displays a bolder, more nervous swimming style and a more inquisitive, possibly more aggressive attitude.

when push comes to shove and it's time to get in the water, I can tell you that this heart of mine is beating at an increased tempo and you could say I am focused...

Hammerheads are known to be aggressive hunters that feed on smaller fish, octopus, squid, and crustaceans but are not known to attack humans unless they are provoked. In Bimini they are tempted in close by feeding them and the whole thing is carefully organized to give the participants maximum exposure to the animals. That is done by limiting the number of people in the water at any time to six participants, one "feeder" and a safety diver watching your backs. The feeder is in the middle with an aluminum bait box (to keep the sharks from getting over excited...) and there are three participants on either side who rotate positions after 15 minutes, so everybody gets a turn next to the bait box where it can get very exciting. There are usually 12 people on a trip, so after 45 minutes you get a tap on the shoulder as it's time to give up your place and return to the boat. The safety diver is there not because of the hammerheads who often roam around behind you, but because of the Bull Sharks that are also quite common in Bimini. The reality is that any real danger in Bimini comes from those Bull Sharks rather than the Great Hammerheads – hence the safety diver. All this is in about 12m of water, so air consumption is minimal, and deco is not really an issue, so the show goes on all day. But interestingly the first hammerheads only

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Great Hammerhead *Sphyrna mokarran*

Approaches to the photographer in full daylight show a relaxed, calm attitude by the shark. Such behavior is never to be taken for granted however and a strict discipline must be observed by all participants to the feeding session in order to avoid possible incidents.



Bimini life
The Bahamas enjoy a typically relaxed tropical island lifestyle.

show up about ten in the morning so it's a leisurely start every day. During the day it is very easy to become lulled in to a false sense of security as the hammerheads appear out of the distant blue, sashay in towards the baitbox where they basically take the offered bait and then exit to the left or right. After the first day or so and the initial excitement has dissipated somewhat, it all seems very predictable and seems a bit like a petting zoo – and then you do the night dive!

Feeding Time

The job of distributing the pieces of fish on any shark feed is clearly somewhat of a fairly high-risk endeavor, but with the Great Hammerheads it takes on quite another dimension. As the shark approaches the feeder it can see the offered bait and at the last minute the feeder flicks the bait slightly to the left or the right so that the participant at that side will get an up-close and very personal photo-opportunity. The shark sees where the bait goes and turns, but at that point the bait usually disappears under its mallet-shaped head, so it instinctively chomps away till it bites on the bait. The issue is then that if you are next to the bait box the shark is chomping away right in front or on top of you – at which point you are sincerely grateful that your camera housing is made of aluminum! Nine times out of ten the feeder flicks the bait upwards and the shark gets it with the first chomp, but things can get a bit hectic around the

bait box and when they do you really do know it was the right decision to bring that big DSLR....

After Dark

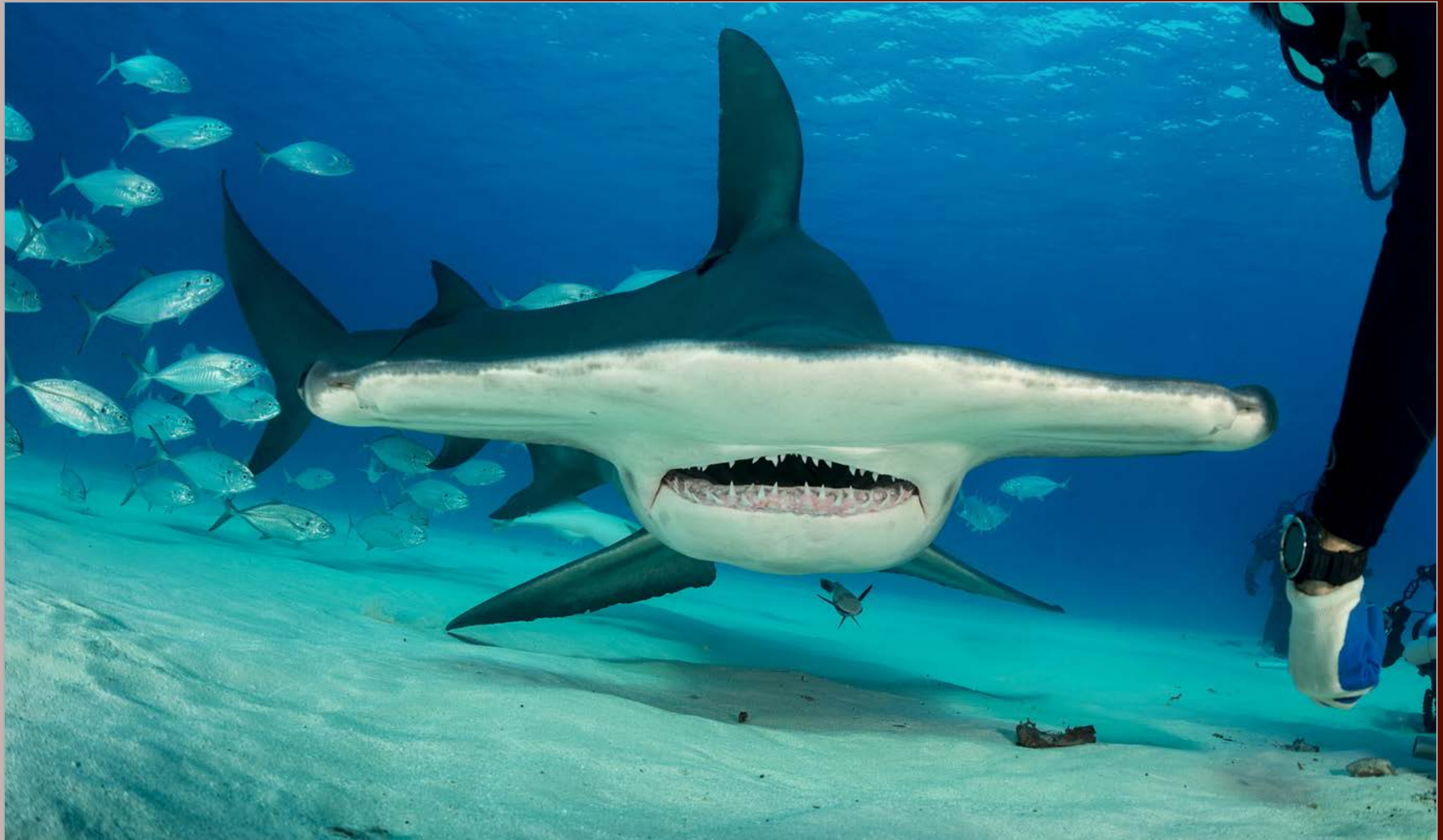
On one day we kept up the rotations till late afternoon and then after a break and change of tanks all 12 participants entered the water together for the dusk/night dive. This time there were two feeders, but we followed the same routine of rotating positions so that everybody got a turn next to the bait box. There were two very noticeable differences from the daytime petting zoo that we had all become accustomed to – first the hammerheads were much more active and far more aggressive at night. Instead of the slow sashay along the bottom towards the bait box, they came in quite fast and at chest height. Their body language was completely different, and I have to say it was all a bit intimidating and reinforces the fact that you are interacting with wild animals and you are completely in their space. Secondly, while we had been repeatedly warned about Bull sharks *Carcharhinus leucas*, I don't think any of us actually saw any during the day. That changed completely as dusk fell and we could see them cruising the feeding zone in the distance, but ominously coming closer each time. The feeders would bang on the bait box to scare them away, but within minutes they would be back doing the same thing. However, as night fell, it became harder and harder to see where

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Great Hammerhead *Sphyrna mokarran*

A power pass by a Great hammerhead *Sphyrna mokarran* as it exits the feeding area on the right of the image. With fish chunks and smell gradually spreading over the area the big predators have to be kept under careful observation to avoid their hunting instincts to take over.



Great Hammerhead *Sphyrna mokarran*

A beautiful and somewhat intimidating frontal portrait of the Great hammerhead *Sphyrna mokarran* facing directly the camera. The highly-developed head lateral lobes are thought to better aid the shark in detecting prey and chemical particles in the water column and under the sand, as Great hammerheads most often prey on large stingrays.



Great Hammerhead *Sphyrna mokarran*

A portrait in elegance and raw power as the shark swims by the photographer.

the Bull Sharks were... and then it dawned on me that if they were sneaking towards us from the front, there was a distinct possibility they were doing the same behind us! As you can probably tell, I am not a great fan of Bull sharks and I personally consider them the most dangerous and unpredictable of all sharks. So, it was a case of being glad when you have had enough when we got the signal that the feed was over, and it was time to head back under the boat. We had been given very strict instructions that only two people at a time were to be at the surface behind the boat at any time and we were to get out of the water as quickly as possible because of the presence of Bull sharks. It was with great relief when my turn came, and I produced an Olympic-like performance to get out of the water in record time!

The Ethics of it All

Feeding sharks as a tourist attraction is a contentious subject and there are two basic schools of thought about its overall wisdom. The nay-sayers are adamant that it induces dangerous behavioral changes in the sharks by conditioning them to approach humans for food and therefore promoting the same (potentially...) dangerous behavior that occurs when bears, lion or crocodiles are fed. The argument goes that sharks will be unable to differentiate between an encounter where they will be fed and one where they won't – thereby greatly increasing the risk to humans. The counter argument being the benefits that flow to the local communities from the tourism revenue and the lack of any

substantial evidence of behavioral change. There is no real data to support either case, so we are firmly in the realm of anecdotes and opinions... However, given that his life's work has been the study of sharks, the opinion of Doc Gruber deserves to be heard and like most things from him it is very clear. *"The relative risks are nil, and the relative benefits are great"* is how he describes it, while conceding that there is some alteration of the shark's behavior, but it is not significant and normal patterns of migration are not impacted. In other words, the availability of food in South Bimini during the main Great Hammerhead dive-tourism season does not change the way that the sharks behave overall. They turn up at the feeding stations for a snack, but continue to do all the other things they normally do. Plus, there is no evidence at all of increased aggression towards humans from the feeding of the Great Hammerheads. All that said, perhaps the biggest impact from these quite unique in-water encounters is that virtually all of the participants leave the Bahamas as confirmed shark ambassadors, which has to be a good thing given the ridiculous and irresponsible media coverage given to sharks generally. Sharks have an incredibly significant role to play in the ocean. Without them the dead, the dying, the diseased and the dumb of the oceans can pollute and degrade the health of those ecosystems and the genetic quality of its inhabitants. The many species of sharks are there for a reason and they have evolved superbly, in true Darwinian fashion, to execute their mission. Remove the sharks

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Great Hammerhead *Sphyrna mokarran*

An interesting image as the feeder on the left offers a fish bait chunk to the Great hammerhead *Sphyrna mokarran* approaching him at night. Those experienced in shark body language cannot avoid noticing the nervous, inquisitive approach of the shark to the food source.



Great Hammerhead *Sphyrna mokarran*

The last thing its prey will ever see as a Great hammerhead closes in and chomps down on its victim - in this case only a piece of fish. Night dives with hammerheads show them - like all other sharks - to be more nervous, active and aggressive than during the daylight hours.

and disruption occurs, something marine scientists refer to rather prosaically as “trophic cascades” – think of the shark as the first in a long-line of finely balanced dominos and if it is tipped over the rest start to go down as well. The impact of shark finning in the Caribbean illustrates the impact of such cascades extremely well, for when the shark population declined it removed one of the natural limitations on the number of groupers in those waters. Groupers have voracious appetites and also breed rapidly, but a healthy shark population would keep overall numbers in check and maintain that fine balance. But as the number of sharks declined it allowed the number of groupers to increase, who subsequently consumed a disproportionate number of reef fish, which meant that the naturally occurring algae was no longer being consumed and so the reefs started to die. There is no quick fix for these events because sharks grow slowly, mate intermittently, have long gestation periods and do not mass produce their young. But all that gets lost in the hype that sharks generate and the only way to really put it back in perspective is to see them in their own space. Simply stated, South Bimini is the best place to do that with the very special creature that is the Great Hammerhead. ●

Don is based from Bali in Indonesia and his website www.indopacificimages.com has extensive location guides, articles and images on some of the best diving locations in the Indo-Pacific region.