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Text and photos  
courtesy of Rohan Perkins

**The shark is an apex predator that has been on this earth for over 400 million years—a predator that, through the media and our deep-seated fears, has been systematically targeted and hunted throughout the world's oceans, pushing many species close to extinction.**

"Four hundred million years to perfect—30 years to almost destroy." This simple, yet apt phrase from the Shark Education, Awareness and Survival program (SEAS) in Malaysia describes the situation that shark populations are in worldwide. It is the phrase that Scuba Junkie Mabul Resort on the east coast of Borneo has been using over the last seven years when talking passionately about the area in which they take people diving on a daily basis, and about the sharks that they have been trying to protect in the area over that time.

The fact is—contrary to popular belief and misconceptions—

sharks are relatively shy and hesitant animals. Even with the millions of interactions that happen with sharks around the globe daily, there are only around five to seven human fatalities a year.

However, due to misunder-

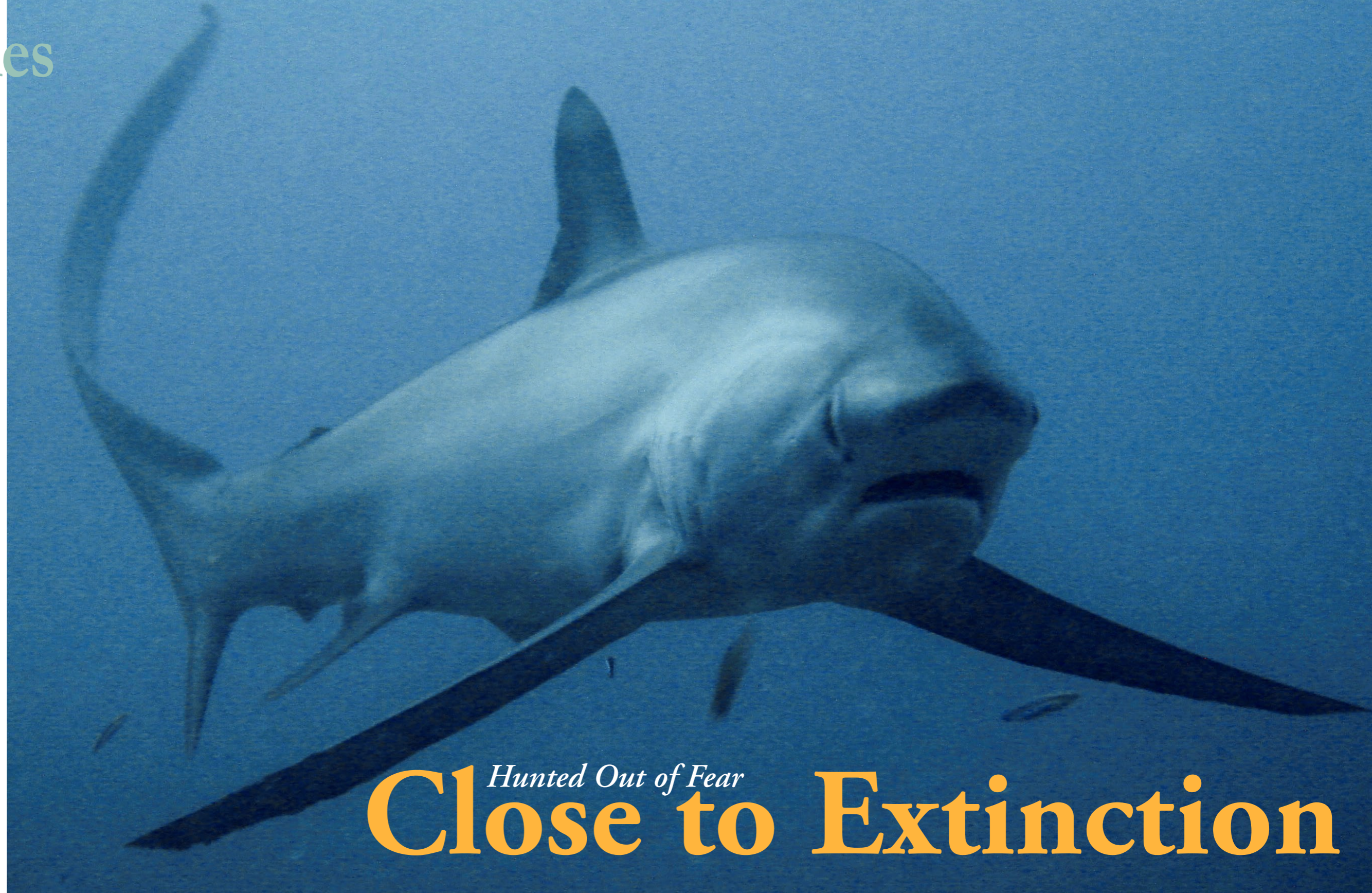
standing and human nature as well as the current rate of targeted fishing and by catch, we may see species of shark, such as the now globally endangered hammerhead, become extinct in the very near future.

I have had the privilege to be underwater for thousands of hours with these beautiful and enigmatic creatures, and I believe that this must not happen. It is time we started to see these creatures as the beautiful and ecologically

vital creatures that they are. It is time that our attitudes towards them change, and that the protection and education begins.

The reefs of Sabah, Malaysia, exhibit some of the most biodiverse marine ecosystems in the

world, from corals to large rays and the top predators—sharks. Over the last 11 years living and diving in Southeast Asia, I have yet to come across a place as unique as this. But there are problems here, like any other place in the



## *Hunted Out of Fear* **Close to Extinction**



*With estimates of anywhere from 70 million to 200 million sharks being killed annually, the state of their future is in serious jeopardy.*

the island and preserved this island 'jewel' for future generations. Such protection being extended to a wider area of the Sabah region would bring untold benefits, especially for shark conservation.

There are around 63 species of shark and 68 species of ray currently confirmed in Malaysian waters—including rare species such as hammerheads, eagle rays, devil rays and manta rays. Populations and sightings of whitetip reef sharks, grey reef sharks, whale sharks, blacktip reef sharks and silvertip sharks are common.

We still have these species here, unlike many other places I have dived in Southeast Asia, where most of the large fish species have

simply been wiped out. If we protect them, we will not only protect the species and health of this marine environment, but we will also save a significant long-term economical resource, which will disappear if the area is allowed to be indiscriminately fished. Ironically, if that happens, it will take the increasing, sustainable tourism industry with it, so it will become a 'lose-lose' situation.

We are lucky to see some very rare species in the Semporna re-

gion. Recently, schooling devil rays have been seen at Si Amil, numbering well over 100. Both great and scalloped hammerheads are sighted at Sipadan. Populations of hammerheads have crashed by up to 89 percent in some areas—making those sightings crucially important for species recovery. A personal incentive for getting shark conservation really moving in this area was guiding at Sipadan and seeing hammerheads there.

There is nothing quite like spotting what you know is an endangered animal, showing it to your divers and seeing their reaction. I have seen both scalloped and great hammerheads at Sipadan, but the joy of seeing them turns

world. We still have many shark species here, including the very rare hammerhead shark, and currently, these species are not protected.

Sharks, which have been part of the ocean's ecosystems since long before the dinosaurs roamed the Earth, are at risk of extinction because of increased industrial fishing and demand for shark fin soup in the past 30 years. It is estimated that one in five of every shark species is classified as 'Threatened with Extinction' by the IUCN—a conservative estimate, as there is insufficient data on almost half of all shark species to determine their population status. With estimates of anywhere from 70 million to 200 million sharks being killed annually, the state of their future is in serious jeopardy.

These statistics are worrying enough when talking about los-

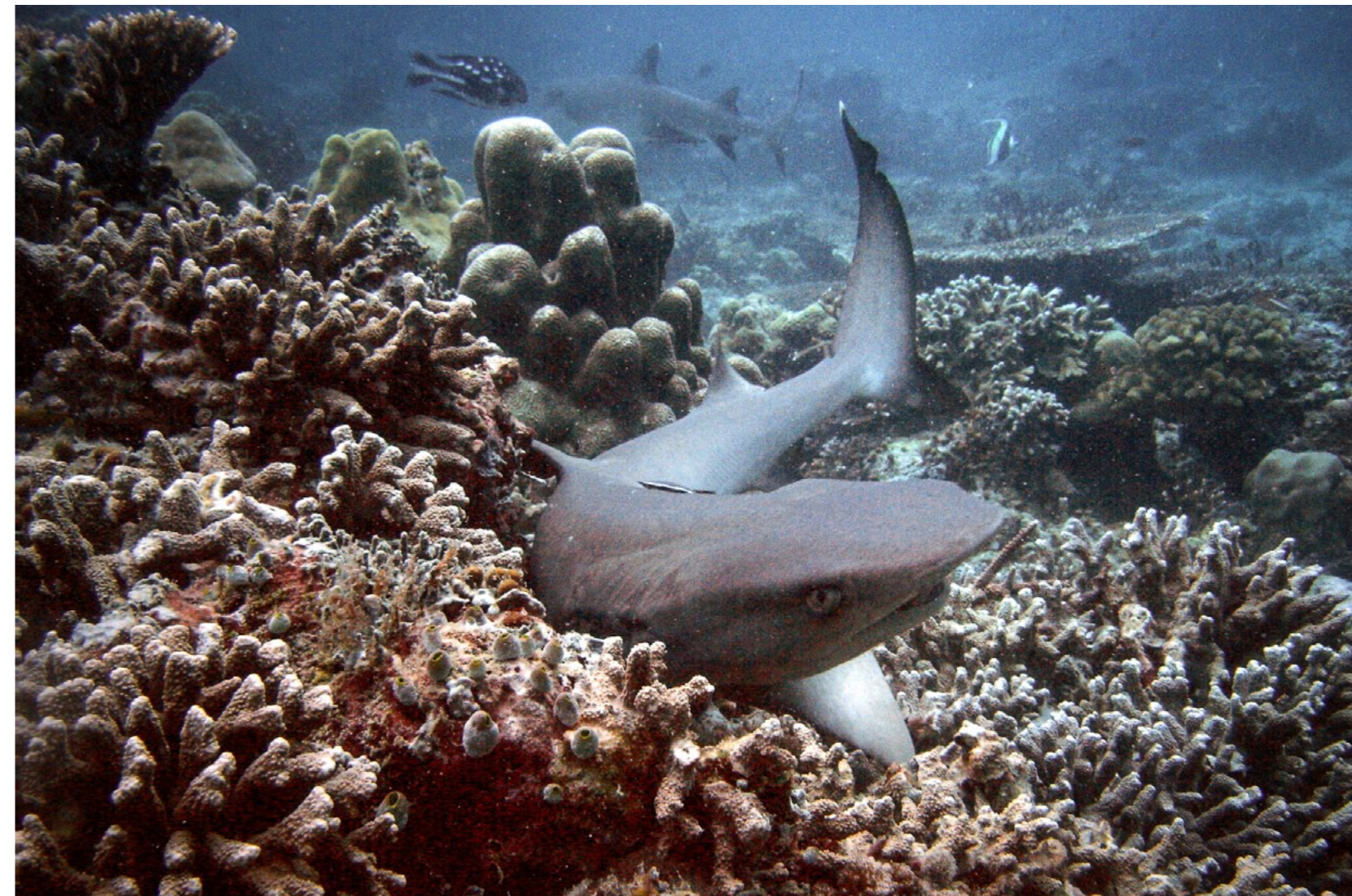
ing entire species, especially those which are a joy to see when diving. But sharks, as apex predators, are key to regulating the ocean ecosystem. They maintain a balance in populations of prey species by removing diseased or old animals. Remove the shark, and the health of the ecosystem suffers. Disrupt ecosystems, and the health of the ocean as a whole suffers.

The scale of the problem can be daunting. It is a global problem, and it is at a critical stage. Action is needed now, not just at the international and governmental level, but also at a local and grassroots level. Areas of ocean known for their shark populations and marine biodiversity become even more important in circumstances such as these. This is what has inspired us to take action to protect the sharks and rays of Sabah, Malaysia.

## The importance of Sabah

The waters of Sabah lie within the coral triangle—a roughly triangular area of the tropical marine waters of Indonesia, Malaysia and Papua New Guinea—that is recognized as a centre of high marine biodiversity. The iconic Sipadan Island—one of the top diving destinations in the world, which was made famous by Jacques Cousteau—lies within Sabah waters.

The area is vitally important for marine conservation in general, with Sipadan itself being a prime example of what can be achieved with appropriate action by authorities. The intercession of the Malaysian government in 2005 to declare Palau Sipadan a Marine Protected Park brought together marine conservation and recreational diving in an effort that drastically reduced the negative human impacts on





to worry when I know that outside of Sipadan, these migratory species have no protection.

The extensive mangrove system around Semporna presents a prime pupping ground for some sharks. Sharks, which grow slowly, mature late and produce few young over long lifetimes, are exceptionally vulnerable to over-exploitation and slow to recover from numbers depletion, so they need secure areas such as these more than ever.

We first helped write a proposal for shark protection back in 2009. This was done with the local communities and the environment in mind. We cannot simply waltz in and remove livelihoods from local communities. If we are to get protection of such species as sharks and large rays, we must work with the communities and integrate them into the inception and creation of the sanctuary. Without them, we will fail, and without a sanctuary both the sharks and the local communities will suffer in the future. We are looking at long-term, alternative, and sustainable livelihoods, and that is what a well managed diving industry in the area can bring.

Considering the dire straits of shark and ray populations worldwide, the situation begs for an extended protected area for the region—imagine if the success story of Sipadan was replicated for the entire area!

### Problems in paradise

However, both Malaysia (ranking, 10) and Indonesia (ranking, 1) are in the top ten shark fishing nations in the world, most of which is exported for the shark fin soup industry. Of the 14 species prevalent in the finning industry, many are found within

the Sabah region—these include both the scalloped and great hammerhead sharks. In Semporna, fishing has always been the dominant economic activity in the region and the way that most people in the area traditionally earn a living. Shark fishing, in particular, is a lucrative business, as one fin can be worth at least US\$100, in an area where the monthly salary is considerably lower in other vocations. The act of finning and discarding

shark bodies is less prevalent, but sharks are targeted for their fins with the bodies sold for as little as 2-5rm in local markets.

Part of the problem has been that many people in the region see only the individual, upfront value of the shark fin, and do not realize the greater importance of sharks in the ecosystem in general, or see the vast revenues that shark diving tourism can generate year after year in many countries where protection

is in place—in the millions of dollars per year. It necessitates a change in attitude, or a change in perceptions, about sharks. Just as many western countries need to move away from the highly sensationalized 'shark attack!' perception of sharks, and shark conservation efforts in those areas focus on changing those perceptions, so efforts in this area centre around solid, financial incentives for leaving the sharks in the ocean.

Generating a change of mindset is not only geared towards business incentives. The people of Sabah are lucky to have such an amazing area on their doorstep. But rarely does this passion come to the fore, nor do people from the area get the chance to be actively involved with conservation issues. It is not apathy—just lack of opportunities.

Tourism is a relatively new industry in this area, on any scale, but is an alterna-



tive that could financially support and compensate such protection of these species. People are just concerned about putting food on their table; the method is of less importance.

### Think global, act local —on the ground support

The problems facing us here in Sabah are not unique by any means, however, Sabah itself is a unique area. Whatever actions are taken here will have great impact, and as the dive industry brings significant income into the area, what influence our industry has can be used to great effect. The success of Sipadan Island Park is a key example of what can be

achieved.

When S.E.A.S was first started, our key aim was to inform and challenge established perceptions of sharks. Some divers and guests would still hold the highly fraught 'sharks are dangerous' mindset, and would not be aware of the greater problems of shark conservation or their numbers worldwide.

We wanted to challenge this mindset—make people see sharks for the wonderful animals that they really are, in terms of biology, their occurrence in Sabah and their contributions to the ecosystem.

We carried out a series of presentations and talks to this effect, with great success. The more we

Pair of eagle rays

told people about sharks, how important they were, and how unique this area was, the louder was the call to protect it.

In addition, we began a programme of talks and lectures in local schools on shark and turtle awareness. Children and teenagers present an amazing opportunity for changing established mindsets and attitudes.

Our aim was to provide opportunities for people to learn more about their home, its environment and the unique ecosystem they have on their doorstep as well as to provide children and teenagers with opportunities to get involved.

We sent local divemasters and instructors to the schools, with resounding success—we have been invited back not only to speak about conservation issues, but with interest for people wanting to become divemasters and work in the sustainable tourism arena.

We have spearheaded the call for a Semporna shark sanctuary (SSS) with local and international support and over 50,000 signatures on an online petition for the creation of the SSS, which brought a lot of international focus and interest in the area. Most recently SEAS joined with the Marine Conservation Society, Scuba Zoo, Tropical Research and Conservation Centre, WWF and Malaysian Nature Society to form the Sabah Shark Alliance.

The state and federal governments, as well as Fisheries, Sabah Parks and the Wildlife Department, have been some of the most understanding and pro-active partners anywhere I have been. They are in a very difficult situation, trying to protect the livelihoods of



millions, as well as their amazing abundance of wildlife.

Most recently, open forums with fishermen, stakeholders, business owners, and environmentalists have been held, to discuss the need for more research and more protection of these species, possibly in the form of sanctuaries. It is a difficult task for all involved but one which I believe all believe is attainable.

### The business of protecting sharks

A key to getting high level backing for the Semporna Shark Sanctuary—or shark conservation in the Sabah region—has been providing an alternative, reliable, financially sound alternative to shark finning and fishing in this area. Governments realize the importance of sharks in ecosystems and conservation efforts in general, but it is easier for them to establish and support plans when there are sound financial and economical incentives.

Established shark sanctuaries, such as Palau, the Bahamas and the Maldives, all realized this, and the sanctuaries were created af-



Hammerhead shark



Detail close-up of manta ray



ter carrying out detailed reports on the financial benefits of establishing shark sanctuaries in the region. A detailed report was carried out for the Semporna region in 2012 titled, *The economics of shark diving in the Semporna Region, Malaysia* (Vianna, G. and Meekan, M., 2012).

The report found that in total, the diving industry contributes US\$34 million in business revenue to the region, and US\$7.8 million of this is directly attributed to shark diving (26 percent of total dive revenue). Tax revenue to the government from shark diving totalled over US\$1.5 million. The estimated community income from shark diving was over US\$1.4 million. Protection of sharks in the Semporna region would result in the loss of approximately US\$122,000 for the shark fishing industry—a mere two percent of the income generated by shark tourism.

The estimated annual revenues that could be collected through a park fee (used to enforce the proposed sanctuary) would be US\$943,000 to US\$1.5 million. The estimated annual revenues that could be collected through a park fee and used to generate alternate jobs for local fishermen amounts to US\$781,000 to 1.2 million (Vianna, G. and Meekan, M., 2012).

The idea of a sanctuary is to work with the government and the communities to create a future for the area and its people, with more research and scientific studies to help answer such relevant questions as:

- Are Semporna's shark and ray populations stable? If not, why?
- How important are extensive mangrove systems in Semporna region?

- Do we need more protection or research regarding these areas and why? And so on.

We believe that this drifts between the lines of humanitarian, environmental and moral issues. At the heart of it, we must learn to live harmoniously with the natural world, and the people that rely on it for their future as well as maintain and manage tourism responsibly. This kind of inte-

grated community and environmental work can provide the key to the future of this beautiful area and its amazing wildlife. ■

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*ect Manager at Scuba Junkie, he has has lectured on sharks and sea turtles for guests, governments, universities and dive expos. Along with Richard Owen and Tino Herrmann, Perkins has been the driving force behind projects such as the Semporna Shark Sanctuary, the Mabul Turtle Hatchery and countless reef and marine conservation projects as well as local community initiatives and educational*

*programs throughout the area over the last nine years. Between the three, they have over 30 years experience working in Southeast Asia, thousands of dives with sharks and rays, hold degrees in marine biology, geological science and earth processes as well as certifications in reef and coral monitoring, water treatment and other conservation disciplines. For more information, visit: [Scuba-junkie.com](http://Scuba-junkie.com)*

## Sharks are vital to coral reef recovery

**A team of researchers led by Jonathan L.W. Ruppert has found evidence that the fishing of sharks from tropical reefs affects the ability of the coral to recover from disasters.**

The severe and continuing depletion of sharks from tropical reefs is expected to have serious ecological consequences; yet, just what form those consequences will take is not so easy to determine.

Coral systems regularly undergo cyclic changes due to storms, hurricanes and bleaching events—some of which take decades to complete—and this cyclic nature can complicate assessments of the consequences of shark fishing.

To avoid these difficulties, the scientists compared two separated ecosystems along the northwestern shores of Australia. The sharks of Scott Reef are fished by Indonesia, while nearby Rowley Shoals are in a protected area.



Blacktip shark over damaged coral reef

The scientists are unsure why shark loss resulted in the presence of fewer herbivorous fish in the coral reefs and believe that it is due to an ecological cascade effect propagating down the food chain. But whatever the mechanism may prove to be, the presence of sharks is revealed as vital to the regeneration of coral reefs in the wake of destruction.

In addition to natural disasters, increasing numbers of human settlements and their burgeoning population are putting more pressure on these fragile ecosystems through climate change, pollution and habitat destruction. As a result, reefs often suffer multiple stresses. Therefore, maintaining healthy populations of reef sharks should be an important goal in plans to ensure not only the health but also the resilience of coral ecosystems. ■  
SOURCE: PLOSONE.ORG

Since both groups of shoals and atolls were in various stages of recovery from bleaching and storm events, the two regions permitted a direct comparison of similar coral ecosystems, with and without shark removal.

The researchers found that the loss of sharks had a significant effect on the populations of the fish inhabiting the coral. In the absence of sharks, smaller carnivorous fishes were more numerous, and this effect was the same on damaged and undamaged reefs. In contrast, the numbers of fish that feed on plankton and coral varied according to changes in the coral habitat, rather than whether or not sharks were present.

### Startling finding

The startling finding was that the numbers of herbivorous fishes were significantly reduced on the reefs where the sharks had been killed. Herbivorous fishes graze on the algae that grows on dead coral, and as a result, they are more numerous when natural disasters have resulted in coral death. The feeding activities of the various types of herbivorous fishes keep this algae at a minimum and help the

coral to regenerate. The team found that the loss of sharks resulted in fewer herbivores, both in the damaged and the undamaged reefs.



Blacktip shark on reef



Bleached coral