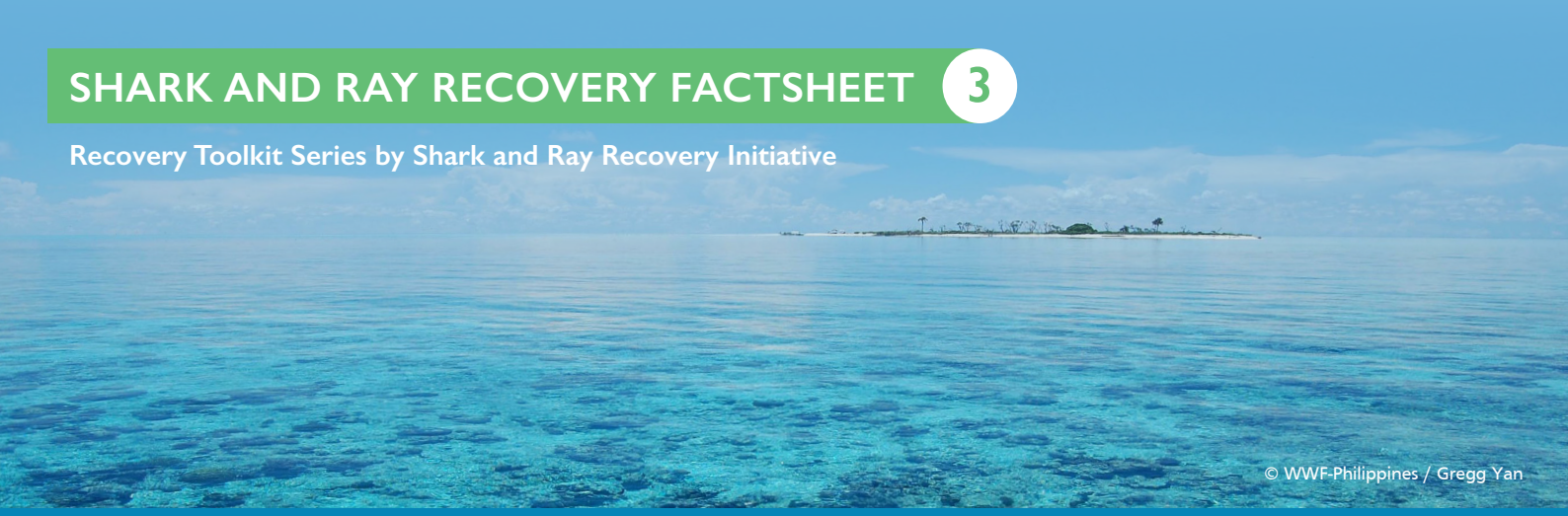
SHARK AND RAY RECOVERY FACTSHEET 3

Recovery Toolkit Series by Shark and Ray Recovery Initiative



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Recovery of reef and tiger sharks in Tubbataha, Philippines

SUMMARY

Three decades of conservation efforts at a remote Philippine coral reef complex – which have included plenty of trial and error as well as successes – have paid off, and today underpin one of the most important areas for sharks in the Coral Triangle.

SPECIES PROFILES

These sharks inhabit different parts of Tubbataha – they're all present at the North Atoll, while tiger sharks can be found at the South Atoll too.[2]

LOCATION

At the heart of the Sulu Sea in the Coral Triangle, the Tubbataha Reefs (North and South Atolls) are the largest coral atoll formations in the Philippines. Isolated and remote, with two monsoon seasons each year bringing rains and rough seas, the area is challenging to reach.

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WHITETIP REEF SHARK

The whitetip reef shark is found around coral reefs in clear tropical waters.

IUCN RED LIST STATUS VU Vulnerable

SCIENTIFIC NAME *Triaenodon obesus*

WEIGHT up to 18kg

LENGTH up to 2m

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BLACKTIP REEF SHARK

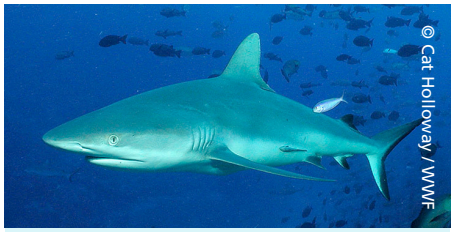
These medium-sized sharks live in shallow waters and often stay close to the same small areas around coral reefs.[1]

IUCN RED LIST STATUS VU Vulnerable

SCIENTIFIC NAME *Carcharhinus melanopterus*

WEIGHT up to 24kg

LENGTH up to 1.8m



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GREY REEF SHARK

This medium-sized shark is a coastal shallow-water species found around tropical coral reefs.

IUCN RED LIST STATUS EN Endangered

SCIENTIFIC NAME *Carcharhinus amblyrhynchos*

WEIGHT up to 35kg

LENGTH up to 2.5m

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TIGER SHARK

This large shark is highly mobile with a global range through the world's warm and temperate oceans. It sometimes associates with coral reefs.

IUCN RED LIST STATUS NT Near Threatened

SCIENTIFIC NAME *Galeocerdo cuvier*

WEIGHT up to 800kg

LENGTH up to 5m

HISTORICAL POPULATION TRENDS

There was a lack of species-specific shark data before 2006, but the Philippines have a long history of shark fishing and trading their products. National catches trended upwards from the 1950s until they peaked in 1991 at nearly 20,000 tonnes, before declining steeply, suggesting a population crash.[3] While shark meat has been traditionally consumed by local communities as a cheap source of protein, the international demand for shark fin led to the shark fin exports increasing from 1990s and spiking around early 2000s. Today, the Philippines is a major supplier of blacktip reef sharks to the Middle East and of shark fins to other countries.[4]

As well as targeted fishing, sharks are frequently caught as bycatch in local fisheries.[5] In the Philippines as a whole, they make up to a quarter of the total tuna longline bycatch.[6]

Until the 1970s, Tubbataha's remote location was a natural barrier against exploitation – but with the decline of other fisheries in the Philippines and the development of more motorized boats making it possible to fish further afield, fishers began to target the area's rich waters. Scuba divers, too, began to visit, attracted by the remarkable biodiversity of the coral reefs.

Tubbataha's shark populations soon began suffering from unsustainable fishing, with unmanaged tourism and pollution degrading key nursery and breeding habitats.[9] Its remote location has also made it susceptible to illegal fishing – some of it by locals but others by boats from China and Taiwan, attracted by the high-value shark products.[10] For example, in 2006-2008 there were 38 arrests involving 314 illegal fishers.[11] Fishers travelling to Tubbataha would often use hugely destructive tools like dynamite and cyanide to maximise their catch after the long trip out to the reefs.

Today, illegal fishing poses the largest threat to the reef-associated shark species in Tubbataha, while legal fishing further afield can impact sharks with broader home ranges, including migratory species like tiger sharks.

RECOVERY TIMELINE

1987 – Local diver and environmentalist Ernesto 'Bebot' Sta. Cruz, known as the Father of Tubbataha, realised that Tubbataha was under threat and wrote to government officials to highlight the need to protect the area from illegal fishing and other threats.[14]

1988 – As Tubbataha began to be increasingly targeted by fishers, other divers and environmentalists amplified Ernesto's calls for protection – and the Tubbataha Reef National Marine Park (TRNMP) was established as a no-take zone under the management of the Department of Environment and Natural Resources. However, due to inadequate management and enforcement the situation continued to deteriorate.

1990 – A group of scuba divers established the Tubbataha Foundation in an effort to protect the area more effectively, taking over the management of the Marine Park.[15]

1995 – A Multistakeholder Presidential Task Force was established as the policy and programme coordinating mechanism for TRNMP. A ranger station was built on the North Atoll with eight year-round marine park rangers to protect the reefs from illegal activities.[16]

1999 – The Task Force was superseded by the Tubbataha Protected Area Management Board, responsible for general administration and management; and two years later, in 2001, the Tubbahtaha Management Office was established as the implementation arm, overseeing all management operations.[17] This two-pronged governance structure proved successful and is still in place today.

2006 – The TRNMP was expanded to include the Jessie Beazley Reef, doubling the park's area and providing larger-scale protection to sharks and their habitats.[18] It was then renamed as the Tubbataha Reefs Natural Park.

2010 – The Tubbataha Reefs Natural Park Act of 2009 was enacted. This strengthened no-take zone compliance through a sustainable participatory management system, highlighted a clear definition of 'protected species' which benefited sharks, established a 10 nautical mile buffer zone around the park, and introduced more stringent penalties for violation of park statutes.[19] The act made Tubbataha the only national MPA in the Philippines to explicitly protect sharks within its boundaries.

KEY SUCCESS FACTORS

The year-round presence of rangers in Tubbataha and effective enforcement – especially in such a remote location – have been critical for the success of Tubbataha's recovery.

Donors have been instrumental in providing funds for recovery and conservation at Tubbataha, where the management plan needs an estimated US$200,000 each year for full implementation. The bulk of these funds – 80% – goes to monitoring and enforcement activities, with the rest split between education, research, policy, advocacy, and the development of sustainable resource management strategies. The Tubbataha Protected Area Management Board is another important funding source, contributing revenues from dive tourism.

Non-governmental organizations (NGOs) have played an important role in both technical and financial terms. WWF-Philippines has contributed significantly over the years, carrying out research, monitoring, enforcement, and awareness-raising activities as well as helping to establish the Task Force in 1995. More significantly, WWF supported the development of foundational management systems and the Tubbataha Management Office in the early 2000s.

In terms of governance, the Tubbataha Protected Area Management Board is a great example of a successful multistakeholder body. The government has also supported it on multiple levels, from enacting protective regulations to providing assistance to safeguard local waters.

International recognition of Tubbataha's unique biodiversity has also helped to raise its profile. It was designated as a UNESCO World Heritage site in 1993, extended in 2009. Three of the natural criteria for which it was recognized explicitly mention the presence of sharks, which adds an important impetus for their continued monitoring and protection.[22]

BENEFITS OF RECOVERY

The conservation outlook in Tubbataha Reefs Natural Park today is positive, and the area is known for being one of the last places in the Philippines where sharks are thriving.[23] Comparative studies have shown shark abundance in Tubbataha Reefs Natural Park to be three to seven times higher than in no-take MPAs in Indonesia and in Fiji.[24]

Due to a lack of species-specific data before 2006 it's hard to assess exact population trends, but various monitoring projects demonstrate that shark numbers have considerably increased as conservation interventions have had time to take effect. In 2008, two years after the expansion of the park's area, a reef monitoring project recorded 14 whitetip reef sharks in nine days, indicating low abundance[25] – but then an assessment conducted from 2015-16 recorded 132 whitetip reef sharks, 160 grey reef sharks and 2 blacktip reef sharks.[26] Today, Tubbataha supports the highest density of whitetip reef sharks in the world.

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More generally, the reef ecosystems have clearly benefited from protection. Fish biomass and densities have improved or stabilized, and living coral cover has gradually increased, reaching 50% coverage of the area by 2004.[27] Commercial fish species, particularly in the deeper waters of the marine park, have shown an increasing trend – fishers from the nearest settlement report increased catches per unit effort.[28] This has had positive socioeconomic effects in local communities, with one survey demonstrating an improvement in living standards from 2000 to 2004.[29]

Finally, while the site remains very popular with divers, tourists have reported high levels of satisfaction because of an increase in sightings of megafauna from boat tours.[30]

CHALLENGES

Tubbataha Reefs Natural Park's remote location makes it logistically challenging and expensive to maintain a strong management and enforcement presence.

The management system took a long time to become effective: the Foundation's efforts initially failed due to mismanagement and a lack of experience, which led to a loss of funding and credibility. A decade's work was needed to fine-tune the system and start getting results.

The limited species-specific research on sharks before 2015 – with poor information on biological parameters and difficulties with identification – made their conservation and management difficult.

The park depends heavily on dive and tourism revenue, which the Covid-19 pandemic caused to drop by 96%[31] – so some current management and conservation plans had to be temporarily postponed or scaled back.

LESSONS LEARNED

- **A management structure which enables local stakeholders to take the lead in decision-making has been critical to success.**
- **Collaboration and partnership with many other actors alongside the management team has also been pivotal. Multiple international, private and government organizations have provided funding and resources as a result.**
- **Significant investment in monitoring and evaluation systems has paid dividends, providing valuable scientific data – and because this has been shown to be effective, it has attracted further investment and funding from a range of organizations for various other initiatives.**
- **The UNESCO World Heritage status of the park has provided important publicity and exposure for the work taking place there, boosting future fundraising and underpinning ongoing stakeholder agreement negotiations.**

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This factsheet was produced by the Shark and Ray Recovery Initiative (SARRI), a partnership between Elasmo Project, James Cook University, Wildlife Conservation Society, and WWF, working together to recover some of the most threatened sharks and rays in their last hotspots around the world.

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